DOCUMENT RESUME

ED 057 254 VT 014 473

TITLE	Microfiche Collection of Clearinghouse Documents Reported in Abstracts of Research and Related Materials in Vocational and Technical Education (ARM), Fall 1971.
INSTITUTION	Ohio State Univ., Columbus. Center for Vocational and Technical Education.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	71
NOTE	6,981p.
EDRS PRICE	MF-$22.00 HC Not Available from EDRS.
DESCRIPTORS	Clearinghouses; Documentation; *Educational Research; *Indexes (Locaters); Information Retrieval; Information Storage; *Microfiche; Resource Materials; *Technical Education; *Vocational Education

ABSTRACT

Documents announced with VT numbers only in the Fall 1971 issue (VT 014 259) of "Abstracts of Research and Related Materials in Vocational and Technical Education" (ARM) are included in this microfiche set. Microfiche availability for these documents is shown on the ARM resume as MF AVAILABLE IN VT-ERIC SET. The microfiche set is arranged in the following sequence: (1) a Vocational Technical (VT) number index to documents in the microfiche collection, (2) the subject and author indexes from ARM, and (3) the full text of documents lited in the VT number index. The texts are filmed continuously in VT number sequence. (CD)

ED0 57254

Microfiche Collection of Clearinghouse Documents

Reported in Abstracts of Research and Related Materials

in Vocational and Technical Education

(ARM)

Compiled and Indexed by The ERIC Clearinghouse
on Vocational and Technical Education

Fall 1971

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ERIC Clearinghouse on Vocational and Technical Education
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VT014473

INTRODUCTION

This collection of microfiche consists of the documents which are announced with VT numbers only in the Fall 1971 issue of Abstracts of Research and Related Materials in Vocational and Technical Education (ARM). Microfiche availability is shown in the resume as MF AVAILABLE IN VT-ERIC SET. The documents are grouped in VT number sequence and filmed continuously as a microfiche set. These documents are not available on microfiche as individual items, but are obtainable only through purchase of this set, or from agencies who have this set and have the capability of reproducing microfiche. The microfiche set includes the following sections:

1. Vocational Technical (VT) Number Index to Microfiche Collection of Clearinghouse Documents Reported in ARM, Fall 1971.

2. Selected indexes from ARM, Fall 1971.

   a. Subject and Identifier Index.
   b. Personal and Institutional Author Index.

   The documents identified in the indexes with an ERIC Document (ED) number are usually available as separate documents from the ERIC Document Reproduction Service (EDRS). Information about EDRS Service can be found in ARM or Research in Education (RIE).[1] Items not available through EDRS will include a source of availability. The page numbers shown in these indexes refer to the location of the abstracts in ARM, Fall 1971.

3. The full text of documents listed in the Vocational Technical (VT) Number Index to Microfiche Collection of Clearinghouse Documents Reported in ARM, Fall 1971.

[1]Research in Education is published 12 times a year. The first issue was no. 11, November 1966. Subscription: Domestic $21.00 a year; foreign $5.25 additional. Single copy: Domestic $1.75; Send a check or money order (no stamps) to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

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VT 005 614
Lamb, Jean; Reber, Ray
Correspondence Unit as Used in Typing Audio Lab.

Abington High School, Pa. Business Education Dept.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 25Jul67 14p.

DESCRIPTORS - *BUSINESS EDUCATION; JOB SKILLS; *TYPEWRITING; WORK ATTITUDES; *ACADEMIC ACHIEVEMENT; *AUDIO ACTIVE LABORATORIES; TAPE RECORDINGS; SECONDARY EDUCATION; *PILOT PROJECTS; TESTS

ABSTRACT - This pilot project was prompted by the belief that students in an electronic audio lab will learn to type as well or better than students in a traditional typing classroom. Using grades as a method of analysis the six students in the experimental group did receive higher grades on individual lessons but lower grades on the tests. However, observations indicated that the students in the experimental group concentrated more closely on their work and were less easily distracted. This project indicates that taped instruction provides excellent training in the fundamental typing skills as well as the development of desirable attitudes and work skills. (Author/JS)

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CORRESPONDENCE UNIT
AS USED IN
TYPING AUDIO LAB
(PILOT PROJECT)

A Report on Achievement of Students
Using Taped Lesson Materials as Compared
With Students Using Regular Class
Instruction.

By

Jean Lamb

and

Ray Reber

Business Education Department
Abington High School, North Campus
Abington, Pennsylvania 19001
July 25, 1967

VT005614

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CORRESPONDENCE UNIT AS USED IN

TYPING AUDIO LAB

(PILOT PROJECT)

I. The Problem

A. Background for Study

Theory: Students will learn to type as well or better in an electronic audio instructional situation as in standard typing classroom instruction.

Definition: The individualization of learning by the use of student stations through which the student can dial a taped lesson; four lessons are available at one time. The student moves ahead as he completes each lesson. The teacher is free to give individual assistance.

B. Previous Research

This approach has been effective in shorthand classes, but is in the experimental stage in typing. Colleges at present experimenting with dial access audio equipment were visited and equipment and methods were discussed.

II. Methodology - Data Collection

A. Sampling Method

Six students were selected from two Typing I classes to use the six dial access audio stations. The group included 1 A, 1 B, 2 C, 1 D, and 1 F student. A similar group was selected to receive regular class instruction.

B. Experimental Procedures

Teachers selected an experimental unit, prepared taped lessons, and accompanying materials. Students were selected and in-

structed in the use of the station equipment. The console is teacher controlled. Students progressed at their own pace. A test was given at the completion of the unit. Comment sheets were completed by the students for use in improving future units.

C. Variables

The equipment

The ability of students to adjust to a new media

The ability of teachers to adjust to a new media

Time for experiment was rushed

D. Methods of Analysis, Statistics

Grades on jobs in unit

Test on unit

III. Presentation and Analysis of Data - Correspondence Unit

	EXPERIMENTAL GROUP		CONTROL GROUP	
A Students	Unit Grade	Test Grade	Unit Grade	Test Grade
1	A	D	B	B
2	B	B	B	B
B Students				
1	C	D	A	B
2	B	F	F	D
C Students				
1	B	C	F	B
2	B	C	F	C
3	C	D	F	c
4	C	D	F	C
D Students				
1	C	D	F	F
2	C	F	F	C
F Students				
1	C	D	F	F
2	D	F	F	D

Note: Grade level of students was determined by averages from previous report periods.

IV. Summary, Conclusions, and Recommendations

The students in the experimental groups had much better results in the individual lessons than did the students in the control group. Observation indicated that the students using taped instruction concentrated more closely on their work and were less easily distracted.

The control group test grades were better than those of the experimental group. The experimental students mentioned that they would have preferred more repetition of rules and directions on the tapes. This repetition was given as needed in class. The points mentioned may have influenced the grades.

The equipment was installed late in the school year resulting in a shortage of time for the pilot project. The conclusions are not clearly defined, but there are indications that taped instruction provides excellent training in the fundamental typing skills as well as the development of desirable attitudes and work skills for vocational purposes.

Taped lessons may be used for personal and remedial instruction at the teachers' discretion.

CORRESPONDENCE UNIT

Use this chart as a guide for your work in this unit. It lists the jobs to be typed, the information to be studied, the amount of time needed to complete each job, and the supplies required. Please take and fill in a comment sheet for each lesson. There are two columns for your use. When you hand in what you consider a satisfactory job, put a check in the completed column. When the job is returned to you with a passing grade, put a check in the graded column.

An objective test will be administered after all the jobs are finished. It is suggested that you review the arrangement for postal cards, envelopes, average, long, and 2-page letters; letter openings and closings, subject and attention lines, and the use of carbon paper.

Assignment	Mods	Supplies	Completed	Graded
Introduction	2	1 - sheet		
Postal Cards - Instruction Sheet	1	1 - card		
14 A, page 108	1	1 - sheet 1 - postal card for job 1 - postal card for timing, unless you type over 30 words per minute. If you do, take 2 cards.		
14 B, page 109	1	1 - sheet, 2 or 3 cards		
14 C, page 109	1	Same as C		
Envelopes - Instruction Sheet	2	4 - small, 4 large envelopes		
14 D, page 110	2	2 - sheets - 1 small envelope		
14 E, page 111	1	1 - sheet - 1 large envelope		
14 F, page 112	1	1 - sheet		
18 C, page 141	1	1 - sheet		
26 A, page 198	2	3 - sheets - 1 of letterhead 1 carbon paper		
26 B, page 199	1	2 - sheets - 1 carbon paper, 1 small envelope		
26 C, page 199	1	Same as B		
26 D, page 200	1	Same as B		
Long letter #1	2	2 - sheets		
Long letter #2	2	2 - sheets		
2 page letter #1	2	2 - sheets		
2 page letter #2	2	2 --sheets		
2 page letter #3	2	2 - sheets		
Objective Test	2	Test and Answer Sheet		

INSTRUCTION SHEET

POSTAL CARDS

The first part of this unit is devoted to postal cards. Business uses them to send messages which do not require letter form. The cards can be typed more quickly than a letter, and the postage is less. Sometimes cards are printed with blanks to be filled in by the typist, other cards are blank and the typist may write a message containing as many as 100 words. Postal cards are much less formal than letters; let us look at the illustrations on page 107.

The address side of the postal card is shown on the left. The return address is usually typed on this side of the card only; this allows more room for the message on the other side. Read carefully the instructions on addressing cards and envelopes. To make it easier to place margins, it is suggested that the paper guide be placed at 0. The margin stop will be one-half inch in from the edge of the card. Remember a pica machine has ten spaces per inch; an elite machine has twelve spaces per inch. Plan your margins and the tab for the mailing address.

The return address, as you can see, is written in single spacing, the mailing address is double spaced because it is a three line address. Double spacing is easier to read. Single spacing is used when the address has four or more lines so it does not extend too low on the envelope.

The sender wants a letter to travel quickly and to arrive at the proper destination. Therefore, it should be addressed accurately and typed in the most readable arrangement. Do not use abbreviations unless the lines in the address would be extremely unbalanced. Then only, you may abbreviate the name of the state, never the city name. Also, do not abbreviate street, avenue, road, etc.

You are now ready to arrange and type a message. Read the instructions on typing messages. The left margin is the same as it is on the address side of

the card; the right margin is one-half inch in from the right edge. The date line is pivoted, this means backspacing from the margin for every letter, space and punctuation mark. Find the center point and set a tab stop there for the closing lines. Try typing the illustration of the message side of a postal card shown at the bottom of page 107 as a sample. Make certain that when you turn the card from the address to the message side, the top edge of the card is the same on both sides. One side must not be upside down in relation to the other side.

When you have completed the sample postal card, show the teacher so any mistakes can be corrected before you start the jobs.

The jobs will be used as 4-minute timings. Then they will be typed as production work; you will be expected to complete the job in six minutes with not more than five errors. The instructions will be on tape. When you come to class, take sufficient supplies--one sheet of typing paper and four cards--unless you are a fast typist, then you may need six cards, since it may be possible to type more than one card in a speed timing. Remember, once the tape starts you will not have time to leave your seat to get additional supplies.

ENVELOPES

INSTRUCTION SHEET

No letter is complete without an envelope. There are two basic sizes, each size is known by three names. One is the small, or business, or number 6-3/4 envelope; the other is the large or legal, number 10 envelope. You will type examples of each of these.

JOB 14-F.

One page letters may be placed in either a large or small envelope. Letters having more than one page should be placed in a large envelope.

Turn to page 107 and read the instructions for addressing cards and envelopes. Note that the only difference between a card and an envelope is the size. The arrangement is the same. The paper guide should be at 0, the left margin is again one-half inch from the edge. Find the center, then set a tab one-half inch to the left of center for the mailing address.

Now try typing the illustration of an envelope on page 107. Type it once on a small envelope, once on a large one. Ask the teacher for paper cut in these sizes.

Next type the addresses on the postal card illustration on a large and a small envelope. After you finish typing the samples have them checked by the teacher.

Additional information about envelopes is on page 202. This will help you to know how to handle envelopes of other than standard size, how and where to type special notations, and how to feed a series of envelopes quickly and efficiently. Read page 202, then type Practice 2. The first three addresses on the mailing list are to be typed on small envelopes. Addresses 4, 5, and 6 should be typed on large envelopes. These are to be handed in, no errors permitted. Addresses must be accurate.

ANSWERS ARE TO BE WRITTEN
ON SEPARATE SHEET

TYPING I

CORRESPONDENCE TEST

TYPING I TEST - MATCHING I

ANSWER THE FOLLOWING QUESTIONS BY WRITING ON THE ANSWER SHEET THE LETTER THAT IDENTIFIES THE APPROPRIATE LETTER PART IN THE LIST BELOW:

C - complimentary closing
D - date line
E - enclosure notation
I - inside address
L - letterhead
R - return address
s - salutation
w - writer's identification
x - reference initials

1. What part contains the name of the writer's company?
2. What part is usually preceded by 3 blank lines?
3. What part identifies the person who types the letter?
4. What part is never typed on business stationary?
5. What part is the "greeting" of the letter?
6. What part might include the typed title of the writer?
7. What part in a personal letter is like a letterhead?
8. What part is the concluding "farewell" of the letter?
9. What part contains the address of the person to whom the letter is being sent?
10. What part reminds you to mail something with the letter?

II. - COMPLETION

The return address on a postal card or envelope--

11. Should it be blocked or indented in form?
12. Should it be double or single spaced?
13. On what line (counting from the top) does it begin?
14. How far from the left edge should it begin?
15. What is the only personal title that may be used?

The regular mailing address on a postal card or envelope--

16. Should it be blocked or indented in form?
17. If there are three lines in the address, should it be single or double spaced?
18. If there are four lines in the address, should it be single or double spaced?
19. What is the fewest number of lines in which an address may be correctly arranged?
20. Should the address be started slightly above or slightly below the vertical centering point?
21. How far to the left of the horizontal centering point should the address be started?
22. What is the word, printed on the front of a postal card, under which the address should be started?
23. How far under that word should the address begin?

Special notations on a card or envelope--

24. Should "Special Delivery" be typed at the top right, near the stamp, or at the bottom left?

Special notations on a card or envelope--

25. Should "Confidential" be typed at the top right, near the stamp, or at the bottom left?
26. Should "Registered" be at the top right or bottom left?
27. Should "Please Forward to Summer Address" be at top right near the stamp, or at the bottom left?

The message side of a postal card--

28. On what line (counting from the top) is the date typed?
29. How many lines of space usually follow the date line?
30. Is that number always, invariably necessary?
31. Should the message be single or double spaced?
32. Approximately how wide should the side margins be?
33. The closing lines should begin about where?
34. Would you need reference initials if you type your own postal-card message?
35. The date line should end about where?

When typing an average-length business letter--

36. What line length (in inches) should be used?
37. On what line (counting from the top) is the date typed?
38. How many lines do you space up from the date to the inside address?
39. If paragraphs are enumerated, how many spaces do you indent the run-over lines of each paragraph?
40. If one item is enclosed with the letter in the envelope, what reminder should the typist type?
41. Must the signer's name and title always appear together, typed on one line?
42. What other arrangement could be used for the signer's name and title?
43. Must the name always precede the title?
44. Could "Enclosure" be more than 2 spaces below the writer's identification?
45. If two items are enclosed with the letter in the envelope, what reminder should the typist type?
46. Does elite type get more or fewer spaces horizontally than pica type gets?
47. If Roberta Patrick types her own letter, does she need to type reference initials?

When typing a "formal" letter in blocked style--

48. Is the position of the date line different from what it is in any other blocked letter?
49. What is the only letter part whose position is altered in any way?
50. If you wished to "type a letterhead" for any kind of letter, on what three lines would you display it?
51. On what line does the page-2 heading of a letter begin?
52. Must the page-2 stationery be the same size as the page-1 stationery?
53. How many blank linespaces should separate the page-2 heading and the body?

54-56 List three items which are included in the page-2 heading.

57-58 What two styles may be used in the page-2 heading?

59. How deep should the bottom margin of a 2-page letter be?

60-63 Name the four business-letter styles:

64. Which style is most frequently used today?

65-76.

Length of Letters	Number of Words	Length of line in inches	Pica Margins	Elite Margins
Short	65.	66.	67.	68.
Average	69.	70.	71.	72.
Long	73.	74.	75.	76.

III. MULTIPLE CHOICE

On the answer sheet, write the letter that indicates the correct completion of each of the following statements:

77. The postscript of a business letter is typed (a) above the reference initials; (b) below the reference initials; (c) either above or below the reference initials.
78. The company signature appears in the closing: (a) in all-caps; (b) in capital and small letters; (c) in either manner
79. If a letter signer's name and title are both used, (a) the name is typed first; (b) the title is typed first; (c) either is first.
80. If a business letter contains an enumeration, the tab stop is set(a) 4 spaces; (b) 5 spaces; (c) 10 spaces from the left margin.
81. If an inside address begins Jones & Co., the best salutation to use is (a) Gentlemen; (b) Dear Mr. Jones; (c) Dear Sir
82. If an inside address begins Miss Ruth Smith, the best salutation to use is: (a) Ladies; (b) Dear Madam; (c) Dear Miss Smith
83. If an inside address begins Dr. John Hale, the best salutation to use is: (a) Dear Doctor Hale; (b) Dear Mr. Hale; (c) Dear Sir
84. If a letter includes an attention line, the best salutation to use is (a) Dear Sirs; (b) Gentlemen; (c) Dear Mr. Name
85. If a salutation is Dear Mr. Dodds, the best closing to use is: (a) Yours respectfully; (b) Yours sincerely; (c) Yours truly
86. If a salutation is Gentlemen, the best closing to use is: (a) Yours respectfully; (b) Yours sincerely; (c) Yours truly
87. If a salutation is Dear Reverend Tate, the best closing to use is: (a) Yours respectfully; (b) Yours sincerely; (c) Yours truly
88. A cc notation is typed at: (a) the bottom of a letter; (c) the top of a letter; (c) either the bottom or top, whichever you wish.
89. A bcc notation is typed at (a) the bottom of a letter; (b) the top of a letter; (c) either the bottom or top, whichever you wish.
90. A copy of a letter which is to be sent to someone without the knowledge of the addressee of the letter is identified by: (a) a bcc notation; (b) a cc notation; (c) either a bcc or a cc notation.
91. If a letter includes both a carbon copy notation and an enclosure notation, type first (a) the carbon copy reference; (b) the enclosure notation; (c) whichever notation you wish.
92. If the closing lines of a letter include both a cc notation and a postscript, type last (a) the cc notation; (b) the postscript; (c) whichever you wish.
93. An attention line, if used, should be typed: (a) above the salutation; (b) below the salutation; (c) in whichever position you wish.
94. A subject line, if used, should be typed (a) over the salutation; (b) under the salutation; (c) in whichever position you wish.
95. In legal offices, the term re or in re is sometimes used instead of (a) attention; (b) either attention or subject; (c) subject

III. Multiple choice cont'd.

96. Subject and attention lines, if used, are increasingly likely to be: (a) blocked at the left margin; (b) centered horizontally; (c) indented 5 or 10 spaces.

IV. TRUE or FALSE - On the answer sheet write if the statement is true or false.

97. A subject line is never typed in all-capital letters.

98. An attention line is never underscored.

99. It is wrong to center a subject line or an attention line anytime.

100. An airmail letter must be mailed in a special airmail envelope.

ANSWER SHEET TYPING I - CORRESPONDENCE TEST

NAME _____ MOD ____ DATE _____

I. MATCHING

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

II. COMPLETION

11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____

II. COMPLETION

27. _____
28. _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____
36. _____
37. _____
38. _____
39. _____
40. _____
41. _____
42. _____
43. _____
44. _____
45. _____
46. _____
47. _____
48. _____
49. _____
50. _____
51. _____
52. _____
53. _____
54. _____

COMPLETION

55. _____
56. _____
57. _____
58. _____
59. _____
60. _____
61. _____
62. _____
63. _____
64. _____
65. _____
66. _____
67. _____
68. _____
69. _____
70. _____
71. _____
72. _____
73. _____
74. _____
75. _____
76. _____

III. MULTIPLE CHOICE

77. _____
78. _____
79. _____
80. _____

III. Multiple Choice

81. _____
82. _____
83. _____
84. _____
85. _____
86. _____
87. _____
88. _____
89. _____
90. _____
91. _____
92. _____
93. _____
94. _____
95. _____
96. _____

IV. TRUE-FALSE

97. _____
98. _____
99. _____
100. _____

VT 007 470
The Development of a Total Program of Education for the World of Work. Part I: Rationale and Proposal for Involvement of Schools.

Delaware Occupational Research and Coordinating Unit, Dover.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 68 25p.

DESCRIPTORS - *EDUCATIONAL PHILOSOPHY; *EDUCATIONAL OBJECTIVES; *VOCATIONAL EDUCATION; *CAREER PLANNING; PROGRAM DEVELOPMENT; OCCUPATIONAL INFORMATION; ELEMENTARY SCHOOL CURRICULUM; HIGH SCHOOL CURRICULUM; EDUCATIONAL PLANNING; GUIDANCE FUNCTIONS; INDUSTRIAL ARTS; POST SECONDARY EDUCATION
IDENTIFIERS - *WORLD OF WORK

ABSTRACT - The primary objective of this program is the preparation of individuals to cope with their physical, social, and political environment. Starting with kindergarten, the plan progresses on a graded or ungraded basis in developing the basic skills and social attitudes through instruction related to the world of work. At the high school level, the student can continue education aimed at later gainful employment, or he can immediately begin preparation for the world of work. All of this should leave open the possibility of entrance into colleges or universities. Also the student, after completion of the secondary education phase, could enter training as a foreman--supervisory, or possibly take trade--extension courses. Recommendations for developing a total program of education for the world of work are outlined. Future companion publications on curriculum development and teacher training, and a facilities and equipment guide are proposed. (GEB)

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PART ONE

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DEVELOPMENT OF A TOTAL PROGRAM

105 EDUCATION FOR THE WORLD OF WORK

Delaware Occupational Research Coordinating Unit

State Board For Vocational - Technical Education

ED0 57254

THE DEVELOPMENT OF A TOTAL PROGRAM OF EDUCATION FOR THE WORLD OF WORK.

PART I

Rationale and Proposal

for

Involvement of Schools

106

Prepared by Dr. Fred C. Finsterbach, Consultant

Delaware Occupational Research Coordinating Unit
State Board for Vocational-Technical Education

1968

PREFACE

This DEVELOPMENT OF A TOTAL PROGRAM OF EDUCATION FOR THE WORLD OF WORK began to take shape in the author's mind about 1960 when he returned from a 12 year planned experience in industry to re-enter the school field. Prior to that time, he had been active for many years as an instructor, state supervisor, and a teacher-trainer in the industrial education field.

But as a boy, he himself almost became a high school dropout because of a lack of interest in a purely academic curriculum. It was not until he transferred to a technical high school that his interest and achievement became purposeful and effective. The lack of proper guidance and placement cost a year of his life.

While in industry, he had become concerned with apprentice and foremanship training and with other educational assistance programs. There he often encountered grown men who could hardly read or write; young people who could read and write, yet had virtually no other marketable skills. He also observed highly trained mechanics, engineers, chemists, and executives, some of whom seemed unable to communicate with their fellow men or to solve problems with a creative approach.

To him this was sufficient new evidence to conclude that one sided education, be it wholly academic or wholly technical, or in the case of the illiterates non-existent, was less than satisfactory for today's needs. He, too, was reminded that a motto attributed to

Dr. Calvin Woodward (St. Louis, 1880) which summed up the essence or balance required then was now even more applicable and necessary:

> "Hail to the skillful cunning hand
> Hail to the cultured mind
> Contending for the World's command
> Here let them be combined"

The writings of Doctors Venn, Conant and others, plus the impetus of the Public Law 88-210, buttressed the author's early impressions and made timely the DEVELOPMENT OF A TOTAL PROGRAM OF EDUCATION FOR THE WORLD OF WORK.

This Total Program as envisioned is divided into three parts:

Part I -- Rationale and Proposal for Involvement of Schools.

Part II -- Curriculum Development and Teacher Training.

PART III -- Facilities and Equipment Guide.

Since a Total Program is ever in a state of flux, it was felt that a format in parts would be more amenable to change or additions.

As with other writings in the field of vocational or occupational education, the problem of semantics plagues the organization of subject matter particularly with respect to occupational categories. The logic used in final determination might not be fully acceptable to everyone, however, it is the best that could be made at this point in time.

Fred C. Finsterbach, Ed.D.
Consultant and Coordinator
Delaware Occupational Research
Coordinating Unit

ACKNOWLEDGEMENTS

The writer is indebted to the following persons who kindly took the time and interest to preview critically one of the original forty copies sent out. Some changes and additions were made according to their recommendations.

Dr. Kenneth C. Madden
State Superintendent
Department of Public Instruction

Dr. Ruth M. Laws, Director
Adult & Continuing Education
Department of Public Instruction

John Wilson, Supervisor
Occupational Information
Department of Public Instruction

Mrs. Helen H. Bennett, Supervisor
Library Services and
Coordinator ESEA II
Department of Public Instruction

G. William Murphy
Supervisor of Guidance
Department of Public Instruction

Dr. Joseph Jenkins
Assistant Professor of Education
University of Delaware

E. Hall Downes, Chairman
Board of Trustees
Delaware Technical and
Community Colleges

George E. Schultz, Director
Evening Program
Delaware Technical and
Community College
Northern Branch

Mrs. Evelyn Christy, Teacher
Shipley Elementary School
Alfred I. Du Pont District No. 7

Justice Cheney
Professor of Vocational Education
State University of New York
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William Kopp
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CONCEPT OF A TOTAL PROGRAM

OF

EDUCATION FOR THE WORLD OF WORK

The concept of "Education for the World of Work" has for its objective the preparation of each individual to meet successfully the problems of life in his physical, social, and political environment.

This concept is concerned with a total program of education not only for persons in school, but for those out of school and unemployed, for those already in the labor market but who need training or retraining, and for those persons who are emotionally, economically, or physically handicapped.

In its concern for people to be served rather than subjects to be taught, the total program of education envisions the development of each individual to his highest potential. At the same time, it assumes the responsibility to provide training and retraining for that individual so that he might function and thrive in a complex industrial environment. To thrive in this environment, each person must be given the opportunity to attain an occupational competence consistent with his ability and his interests, based on the economic structure of the community, of the state, and of the nation.

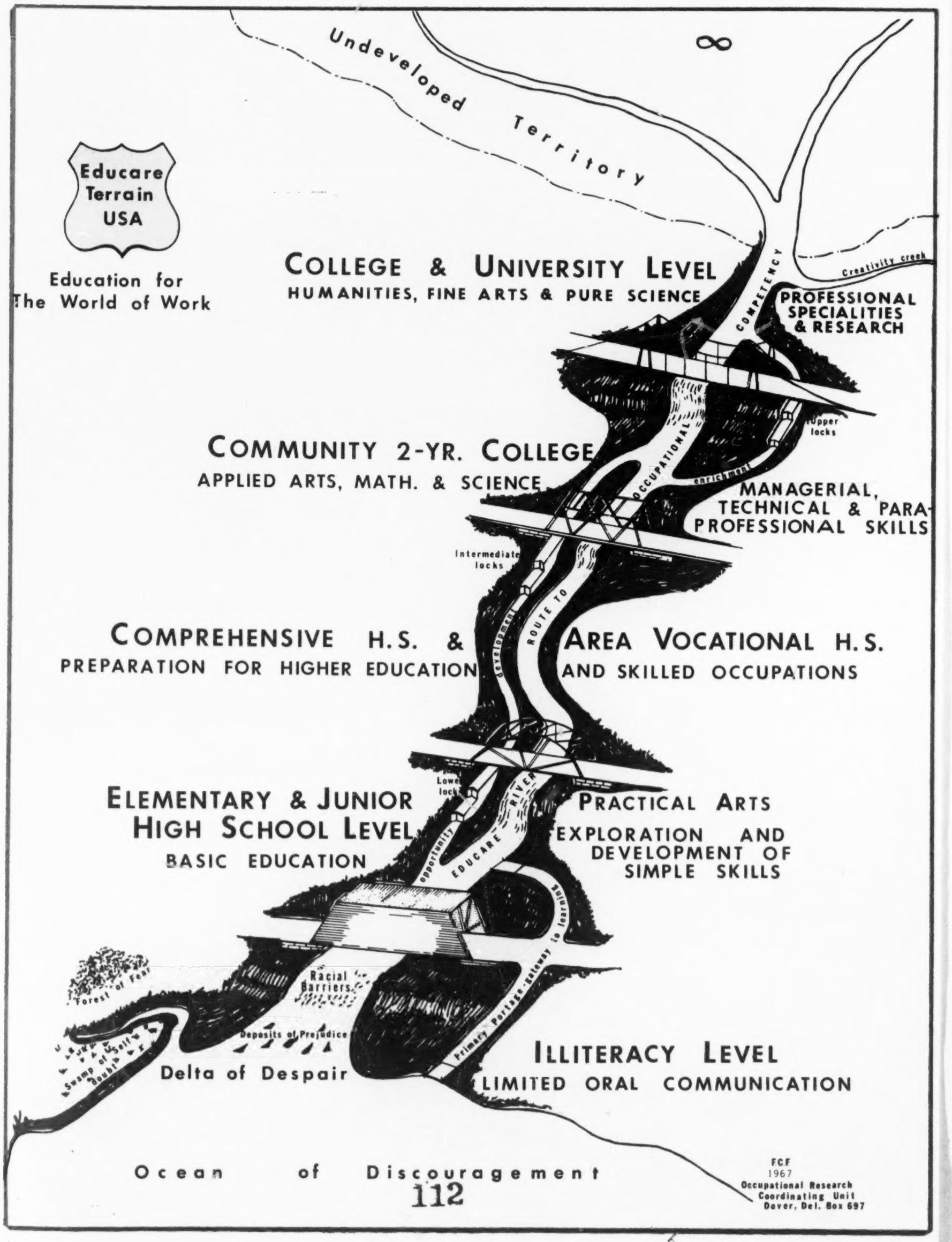
The individual can start to gain this competence after the completion of his elementary education and/or junior high school experience. And with suitable guidance, he can progress through the *high school* as far as his occupational interests, ambition and

capabilities can carry him. At the same time, he should be able to acquire the general education necessary for social adjustment or for higher educational attainment.

At the *post high school level* (community college), the para-professional, technical and managerial assistant fields are open to him, either for direct, gainful employment or as preparation for a professional specialty attainable through further study at the *college and university level.*

If we can envision the route to occupational competency in the form of a map, which for convenience we call *Educare Terrain,* this lets us talk about education in its broadest sense. It lets us think of the colleges and universities as *the* "vocational" schools for scientists, doctors, lawyers, engineers, military personnel, managers, etc. To the degree that these institutions prepare their students professionally to live and function successfully in our fast moving, fluid, change-oriented society - this will be the measure of *their* success as instruments for change and growth in the *highest* level of educational endeavor.

This lets us think next of the ancillary, supportive groups: the para-professionals, the technicians, the detailers, the assistants who, in about a four-to-one ratio, are necessary to back up the university educated professionals. And, again, to the degree to which the next level, the technical institutes and community colleges, prepares their para-professional students to function successfully in their role - this will be the measure of *their* success as "vocational" schools of an *intermediate* level.


Undeveloped Territory
∞
Educare Terrain USA
Education for The World of Work
COLLEGE & UNIVERSITY LEVEL
HUMANITIES, FINE ARTS & PURE SCIENCE
COMPETENCY
Creativity creek
PROFESSIONAL SPECIALITIES & RESEARCH
Upper locks
COMMUNITY 2-YR. COLLEGE
APPLIED ARTS, MATH. & SCIENCE
OCCUPATIONAL
enrichment
MANAGERIAL, TECHNICAL & PARA-PROFESSIONAL SKILLS
Intermediate locks
COMPREHENSIVE H.S. &
PREPARATION FOR HIGHER EDUCATION
development
ROUTE TO
AREA VOCATIONAL H.S.
AND SKILLED OCCUPATIONS
Lower locks
ELEMENTARY & JUNIOR HIGH SCHOOL LEVEL
BASIC EDUCATION
opportunity
EDUCARE
RIVER
PRACTICAL ARTS
EXPLORATION AND DEVELOPMENT OF SIMPLE SKILLS
learning
Forest of Fear
Racial Barriers
Deposits of Prejudice
Swamp of Self-Doubt
Delta of Despair
Primary Portage-Gateway to
ILLITERACY LEVEL
LIMITED ORAL COMMUNICATION
Ocean of Discouragement
FCF
1967
Occupational Research Coordinating Unit
Dover, Del. Box 697

3

This brings us then to consideration of the high school level. At this level it has been found that hundreds of thousands of youths of high school age in this great land of ours are, as yet, not being trained or equipped to secure for themselves gainful, satisfying, dignified employment in any occupational field whatsoever! They have had no vocational training, no work experience, not even job-related general education to offset their resulting frustration and disillusionment, if they drop out, as many do. Even if they graduate, unless somehow they pick up an occupational competence, they are doomed by a lifetime of idleness to roam the streets, to drift into deliquency, or to relieve their "quiet despair" through drugs, alcohol and the dole.

This one fact alone demands a radical shift in educational emphasis to meet the needs of these youth. *The secondary school can no longer evade its responsibility to provide training for work and to accept this duty as an integral part of its total function.*

Girls as well as boys must be served. The disadvantaged, the slow learner and the potential dropout must be given an opportunity to attain occupational competence consistent with his abilities and interests and the economic needs of the community and the state.

Thanks to the massive fiscal aid given to education by the Federal government through various acts since 1961, and particularly by the Vocational Education Act of 1963,[1] the high schools can, if they will, meet their responsibility to provide a comprehensive, total program of education for the youth entrusted to their care.

There is also inherent in the new acts a clear mandate to provide means to update skills already learned, to train persons of all ages realistically in terms of actual and anticipated requirements for gainful employment.

This clearly indicates that the schools of today, particularly from the elementary level upward, with but a small change in emphasis and method, could provide up to *half time* in laboratories, shops, studios, field study and cooperative endeavors, without detracting from the intellectual progress of those who now spend the whole day in academic study and recitation.

An educational system which provides occupational competence for a scanty few, while an unsatisfied sixty percent or more roam the streets aimlessly, is out of tune with the times. Further, it is in great danger of becoming mute and ineffectual in the social orchestra should the *single academic string*, on which it too often depends, finally break!

Life, as we well know, involves not only living but the ability to earn that living. A total program of education must be concerned with both. *Yet, many communities have neglected to provide for any type of occupational education.* Thus, most of the graduates (or dropouts) have none of the skills so necessary today for earning a living. In an editorial in School Shop magazine[2], Lawrence Prakken gave an astonishing set of figures, which show what happens to a typical group of 9th graders in an educational system geared only for college entrance.

Only 76 out of 100 ever complete high school, and, of these, 40 will enter college, but only 20 will finish a two- or a four-year program. This means that approximately two-thirds of the original 100 ninth graders are left out of the picture, untrained for productive work of any kind. Is this the best that can be done for our young people? We hope not. Conditions *are* changing; the nation is awakening to the need. Congress is providing aid through the Vocational Act of 1963 to produce the necessary changes, but the states and communities must also assume their part of the burden. After all, it is *their* children who are being deprived.

The significance of the difference between the earlier acts to aid vocational education and the Vocational Act of 1963 will be felt in the widened provisions for maintaining, extending and improving vocational education services for these distinct groups or purposes:

- High school youth,
- Post high school youth and adults,
- Persons in the labor market who need retraining,
- Academic, social and/or economically handicapped,
- Construction and equipping facilities,
- Provision of supportive services and activities.

The new act is creative in concept. It is realistic in approach. It even provides the means for needy students to earn while they learn, to sustain themselves while developing saleable skills. The Act also encourages research, experimentation and innovation. It provides everything but the will to do and the

spirit of dedication. These, as always, have to flow from the minds and hearts of the teachers, the teacher-educators, the administrators, the advisory committees, the ancillary service personnel, and the members of the state and local governments.

The new Act permits, perhaps for the first time, the concept of a total program of education from the elementary grades to the university level and beyond, for those who can profit from it. It also makes possible a new emphasis on education for the *world of work* and for successful living in this world for those who want to work.

We do not, we cannot, we must not support the thesis of elite, nonworking, nonproducing groups in our society. If any exist, they are throw-backs to a by-gone era. They, likewise, are a monument to the imperfections of our economic and educational systems. The continued support of anyone in idleness who is capable of self-support is repugnant to the democratic ideal, an affront to the dignity of man, and a constant threat to our way of life.

Heretofore, in a less complex agrarian economy, the low man on the educational totem pole could eek out a bare existence, unsupported by a dole. While not affluent, he had at least the means to obtain food, shelter, and clothing. He could dwell, if he so chose, in the delta of the river of life, moderately content and socially stable.

But this is no longer possible. The significant change in our generation is that those who once could dwell and find sus-

tenance, such as it was at the delta, must now move upstream or perish, or else be supported in idleness by others, forever.

It follows, then, that those upstream must migrate a little farther to make room for those below. The all compelling pressure of the "delta dwellers" has become impossible to contain. Their vital need for sustenance, their human need for dignity, their social urge to be a productive member of a productive group are strong forces which can no longer be diverted. But these forces can be contained if sensible, uncomplicated, understandable programs of education can be made available to all.

We need, urgently, to settle for a central simple theme to describe our educational philosophy. We need a diagram, a picture, that the ordinary man can comprehend. We need a direction in which our whole national effort can be pointed. We educators ought, soon, to divert the energy we expend trying to place many heads on the same body to purposes more worthy. We need a comprehensive map of educational terrain, so that any weary traveller can spot a place to rest and from which the more intrepid can gain strength to move on.

We are living in a process world. What we so carefully define today may be gone tomorrow. Our society is admittedly complex. Preparation for living productively in it is arduous. The top level goals are, for some, almost unattainable. The means of support for the necessary education and training are negligible, compared with what we, as a people, spend for less important things.

If we could agree on a single goal for education, then the search for occupational competency could be an exciting trip up "Educare River", where suitable portages, locks and bridges enable the exploring student to surmount the natural obstacles encountered. At each of the levels, he would be free to remain, or to rest momentarily, or to continue on his journey to whatever competency his interests, capacities or spirit could carry him. This opportunity to rest, to stay or to continue is of vital concern, for the reality of education is neither fixed in time nor space. It is a continuum -- always in the process of becoming something more. There is no end -- only a beginning and a direction.

This is part of the reason why restless man has ever travelled toward the setting sun and why, having completed the full circle, he is now seeking reality in space -- and beyond the first planet, that he will inevitably reach, there is another, and another, and another --

This relentless urge, this drive, this eternal search for new knowledge is equalled only by what Alexis de Tocqueville[3] shrewdly observed in 1835 to be the dominant theme of American behavior, our preoccupation, yes, even our obsession, with change. But very new, since de Tocqueville's time, is the geometric acceleration of this change which we scarcely have come to realize. Yet, it is here; it is the controlling force of our time. It is driving our industrial and commercial enterprises to new heights and has forced the value of our gross national production to an unprecedented and astronomical figure.

Whether we like it or not, "the impact of automation on the labor market has been profound", Grant Venn says.[4] He further states, "Automatic elevators have recently displaced 40,000 elevator operators in New York City alone. New equipment in the Census Bureau enabled 50 statisticians to do the work in 1960 that required 4,000 such people in 1956. The check writing staff in the U. S. Treasury Department has been reduced from 400 people to four. The airline flight engineer and the railroad fireman may soon disappear completely. Thirty thousand packing house workers have been automated out of their jobs in the past few years. Enormous machines have reduced employment in the coal fields from 415,000 in 1950 to 136,000 in 1962. While construction work has leaped 32 percent since 1956, constructions jobs, themselves, have shown a 24 percent decline."

Ralph Bellman,[5] a computer expert for the Rand Corporation, says, "Industrial automation has reached the point of no return. The scientific knowledge to automate American industry almost completely is already available and is certain to be used. Banks could cut their staffs in half easily by further automation; the steel and automotive industries could increase their use of automation a hundredfold. Lower and middle management, as well as production workers, will be displaced, for there will be no need for decision making at that level. Unemployment, resulting from automation, would be greater right now except that many industries are holding back - at a sacrifice to their profits - to avoid increasing the severity of the problem. Self-restraint on the part of

industries cannot continue indefinitely. Automation, itself, will produce few jobs.[6] Two percent of the population will, in the discernible future, be able to produce all the goods needed to feed, clothe, and run our society."

Drastic change is upon us, but our social agencies, education among them, seemingly have been unwilling or unable to "get with it", as our younger generation would say. Isn't it time we did!

Whether one picture, one plea will ever have any positive influence on deep seated contrary convictions is a moot question. Often efforts at change result only in anchoring more firmly that which might slowly emerge if left undisturbed. This is the calculated risk of the surgeon incising a malignant tumor. Should not we, who are engaged in education, be equally daring?

In an increasingly affluent society, these youngsters are demanding their share of success. They "know the score". They know that the rewards in our culture are attuned to success. They have learned to expect its promise.

A society "conceived in liberty and dedicated to the proposition that all men are created equal" cannot become a "great society" so long as *any* of its citizens are denied a due measure of success and the opportunity or means of achieving it.

Life without some indication of success is empty. It is this emptiness which gives rise to frustrations, the results of which

we witness daily in violence and crime of all sorts, in campaigns of hate, in the tragic withdrawal of some of our young people, and in the queer, quiet bewilderment of the elderly.

If, in its very nature, a society changes progressively or abruptly from an agrarian to an industrial economy, then its social institutions *must* change. In fact, the institutions should become literally the agents for change, not members of a mopping-up squad, as is too often the case.

To be agents for change demands creative ability, vision and courage -- vision to set out for goals seen from afar, healthy skepticism toward things as they are, and the courage to create new pathways to things as they should be.

It remains then for the institutions at all levels to provide the means for fulfillment and to keep these means flexible. This means design for change, not design for fixity. It means a willingness, even an eagerness, to entertain new ideas. It means the establishment of a dignified "retirement system" for old, threadbare ideas no longer operative or productive.

It means, further, an acceptance of education as *the* agent for change rather than a repository for ossified doctrine, obsolete practices, or a "recapitorium" for race experiences which should have, long ago, been given decent burial.

This calls for an exquisite sensitivity to the ever-changing needs of society. It calls for more than colorless platitudes and

foggy abstractions. It calls for action research of a high order. It demands a single, functional, demonstrable aim for education: The development of the individual to his highest potential for purposeful living and gainful employment in the social environment of his time. It demands an end to the fragmented structure that passes for education in these United States.

This means the development of occupational oriented education in terms of elements common to many activities, of clusters of skills instead of single specialties. Narrow specialties, which rob the individual of an opportunity to do creative work, or to take joy in doing it, or to externalize his ideas and to appease his elemental desire to vary from routine, is not good education, neither is it good occupational education. The art, not the trade, is fundamental. Art is eternal, but the trade classification of today may be a memory tomorrow. A look at the want ad section of almost any newspaper bears this out. There are job titles and tasks unheard of ten years ago. There are job descriptions literally crying for versatility. The phrase "challenging diversified duties" repeatedly appears to echo the cry. Even machinists are promised "a wide variety of work". One advertisement includes "operation of machine *and* woodworking equipment!" Another calls for a "feel for mechanisms". And those at a higher level require a "broad working knowledge of steam, air, hydraulics and machine design, including an understanding of vibration and stress analysis".

In the subways and trains there is currently displayed a poster furnished by an advertising council. "You can't fill today's jobs

with yesterday's skills." This vividly points out the direction all education must take to insure the development of the individual toward successful living in our technological society. To enjoy life, one must live; to live, one must work productively; to work productively, one must have a saleable competence; and to have a competence today, one must be educated to function in society as it *is*, not as it once was, nor as some would perpetuate it.

Students need help. The generation born a little over 20 years ago started out as 3,000,000 strong. It now numbers about 2,750,000. Secretary of Labor, W. Willard Wirtz, in a 1967 address,[7] described what has happened to that generation.

Wirtz said about 500,000 are graduating from college. Another 250,000 are girls who are married. It is the other 2,000,000 that concerns Wirtz. Almost 1,000,000 dropped out of elementary or high school. Most of the remaining 1,000,000 finished high school, then stopped their formal education.

Of this group of 2,000,000, he said, about 1,500,000 are working, 250,000 are in military service, and the remainder -- 250,000 -- are "doing nothing - unemployed".

Wirtz said there is less difference among these last three groups than may appear, "For a large percentage of those who *are* working are in unskilled, deadend jobs, which machines will in all likelihood take over."

The problem is not wholly one of dropouts. The unemployment

rate for 18- and 19-year-old high school graduates, according to Wirtz, is higher today than it was for *all* teenagers 10 years ago.

Wirtz said that the United States which has the most extensive educational system in the world and the strongest economy, puts its youth through a "period of bitter and embittering unemployment," chiefly because it has done little or nothing about "building bridges between education and work. Public schooling prepares the student for college, not for work."

Some nations, Sweden is one, offer work experience to students in their last two years of high school. Wirtz recommends that public schools in the United States adopt this plan. Only one in six high school students goes on to college; the remainder must go immediately to work. Without prior experience in the work force or adequate counseling and vocational guidance, the students who do *not* go on to college are, in truth, greatly disadvantaged and sadly neglected.

Since words alone cannot present adequately the flow and process nature of education, an additional chart (figure 2) is needed to show graphically the parallel nature of the various pathways opened up by the unidirectional concept of a total program of education.

Starting with the kindergarten and progressing under a graded, or even ungraded primary education, the development of basic skills and social attitudes takes place. These basic skills and attitudes can more realistically be learned if they are oriented to the "work of the world," than if tied to leisure or to some other undefined or distant goal.

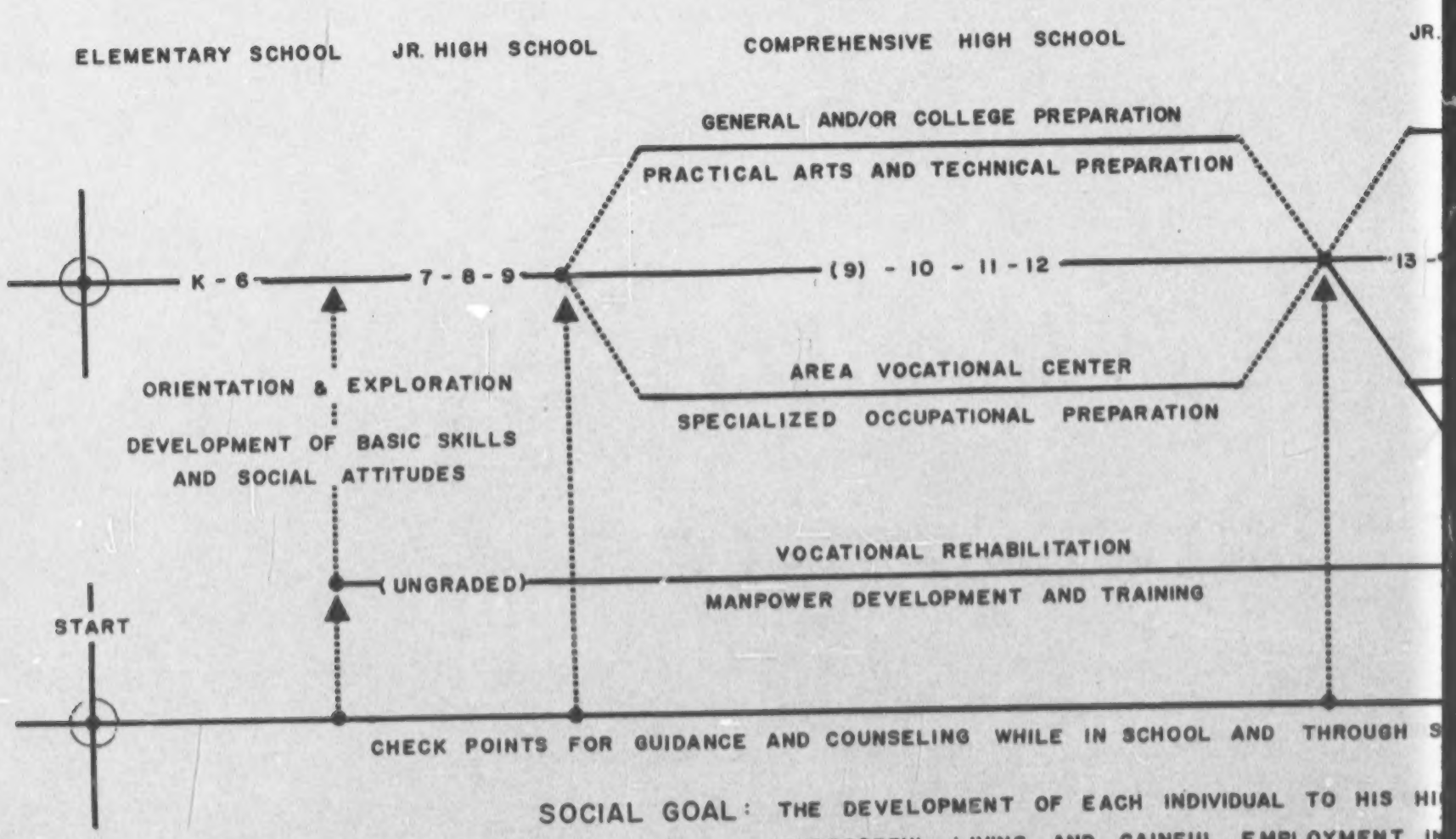
The pragmatic and social attitude of being sometime able to earn a living must start at this level, if we ever hope to make education meaningful to youngsters. The possibilities for orientation and exploration are practically unlimited at this period in the life of a child. It is at this time that his imagination and zest for new knowledge and experiences are at an all time high. This is his time for ceaseless questioning; this is also his time for fulfillment or betrayal.

As he proceeds through the grades, he reaches the next plateau of secondary education, where he should have the alternative, in a *truly comprehensive* high school, to prepare to enter into the world of work *or* to partake of education aimed at later gainful employment. In some school systems, he has a more direct path -- an area centered facility for education leading to technical or specialized occupational preparation.

In either case, the way should be left open for entrance either into work or for continued education at the junior college, college and university level. And backstopping these formal institutional resources, the ungraded manpower development and training centers and the vocational rehabilitation facilities provide the remaining pathways for the attainment of individual competency.

Paralleling all of this is the counseling line which should provide continual and checkpoint guidance in school and afterward, as long as the need is felt. The guidance personnel functioning on this line had better be prepared to offer *vocational* as well as educational guidance, if they hope to retain their objectivity and professional integrity.

A TOTAL PROGRAM OF EDUCATION - PATHWAYS FOR



SOCIAL GOAL: THE DEVELOPMENT OF EACH INDIVIDUAL TO HIS HI
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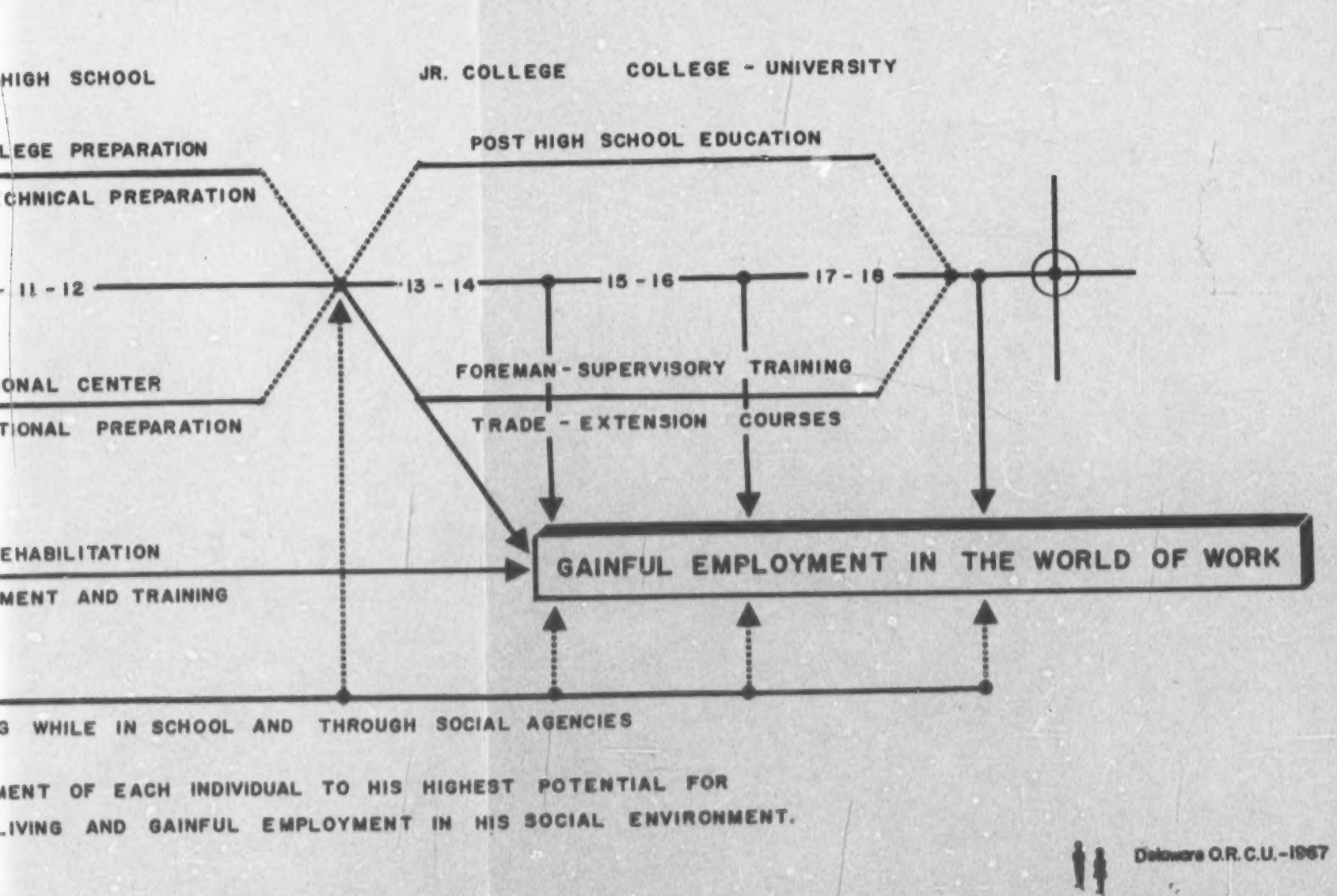
ION - PATHWAYS FOR INDIVIDUAL COMPETENCY



MENT OF EACH INDIVIDUAL TO HIS HIGHEST POTENTIAL FOR
LIVING AND GAINFUL EMPLOYMENT IN HIS SOCIAL ENVIRONMENT.

Delaware O.R.C.U.-1967

RECOMMENDATIONS CONCERNING THE

DEVELOPMENT OF A TOTAL PROGRAM OF EDUCATION

FOR THE WORLD OF WORK

Action Proposal:

Phase I - First Year

- o Develop leadership. Select fifteen teachers, relieve them of duties for one-half year, and put them through a program to develop curriculum materials.
- o Reinforce the Vocational Education Department by filling vacancies. Augment the advisory committee and hold more frequent meetings at least every two months.
- o Develop a master plan for facilities and financial support for the maintenance of a total program.
- o Start an intensive teacher training and recruitment program and reform certification regulations in terms of reality.

Phase II - Second Year

- o Provide for dissemination and dialogue by the fifteen leaders with others concerned.
- o Develop pilot programs in selected and representative schools.
- o Evaluate and correct pilot programs for adoption by all schools.

Phase III - Third and Ensuing Years

- Make widespread application of the total program concepts to cover all schools in the state.

- Make a change in the administrative structure to bring Industrial Arts into the Vocational Education Department in a relationship similar to home economics. There are pre-vocational, vocational, and avocational aspects of Industrial Arts that could be enhanced through this change.

NOTES

1. P. L. 88-210 Vocational Education Act of 1963 - Sec. 4(c) Vocational and Technical Education Research, Development and Training, 88th Congress, H. R. 4955 December 18, 1963.

2. School Shop Magazine, Vol. XXVI, No. 1, September 1966.

3. de Tocqueville, Alexis. Democracy in Action. New York: Alfred A. Knopf.

4. Venn, Grant. Man, Education and Work. Washington: American Council on Education, 1964.

5. Rand Development Corporation, Cleveland, Ohio.

6. This presents the negative and dismal side of automation. While automation does have the effect of eliminating production type jobs, on the positive side it changes the nature of man's work from that of producing to servicing.

7. Secretary of Labor W. Willard Wirtz. A commencement speech presented at the Roosevelt University as reported in the Illinois Vocational Newsletter, Vol. XX, No. 3, March 1967, Springfield.

VT 008 016
Berman, Abraham J., And Others
Manpower Directions in New York State, 1965-1975. Volume I.

New York State Dept. of Labor, Albany.

Research and Statistics Office.
MF AVAILABLE IN VT-ERIC SET.
Special Bull. 241
Publications Unit, Research and Statistics Office, New York State Department of Labor, State Office Building, Albany, New York 12201 ($1.00).
PUB DATE - Mar68 97p.

DESCRIPTORS - *MANPOWER NEEDS; *MANPOWER UTILIZATION; *EMPLOYMENT TRENDS; OCCUPATIONAL CLUSTERS; MANPOWER DEVELOPMENT; EMPLOYMENT PATTERNS; EMPLOYMENT QUALIFICATIONS; WORKING WOMEN
IDENTIFIERS - *NEW YORK

ABSTRACT - Major changes are expected during the 1965-1975 decade in the labor force of New York State and in the manpower needs of New York State employers. There will be over a million new jobs by 1975; over 2 million existing jobs will become vacant through deaths and retirements. Most of these 3 million jobs will require some special vocational training and many of them will require training and education beyond high school. The additions to the labor force during the decade will consist primarily of young people under 25 and women 45 or over. During the decade, about 3,030,000 new persons are expected to enter the labor force in New York State. Of these, 1,985,000 will take the place of persons who have died or retired. The difference between the two figures is the expected net rise in the civilian labor force--1,045,000. Approximately 52 percent of the 3,030,000 new entrants will be men. In 1975 about 1,800,000 (59 percent) of the new entrants will be under 25. Extensive tables present the data. Volume II of this study, containing tables of estimates for each of the major areas of the state, is available as VT 008 017, also in this issue. (CH)

VT 008 016

ED0 57254

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MANPOWER DIRECTIONS New York State 1965-1975

Volume I

New York State
Department of Labor

Division of Research and Statistics

VT008016

132
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MANPOWER DIRECTIONS IN NEW YORK STATE

1965-1975

VOLUME I

STATE OF NEW YORK
Nelson A. Rockefeller, Governor

DEPARTMENT OF LABOR
M. P. Catherwood, Industrial Commissioner

133

NEW YORK STATE DEPARTMENT OF LABOR

Division of Research and Statistics

Charles A. Pearce, Director

Special Bulletin 241

March 1968

Price $1.00

This report consists of volume I (the present volume)
and volume II (tables of estimates for each of the major areas of the State)

Prepared by

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Library of Congress Catalog Card Number 68-65609

Preface

This report updates earlier projections of the civilian labor force and of occupational manpower requirements in New York State.[1] It includes projections for the major areas of the State as well as for the State as a whole.

The New York State Department of Labor undertook the task of making these projections to meet a wide demand for information about probable trends in manpower requirements and supply. Persons responsible for the formulation, funding, and administration of higher education and manpower training programs have been especially concerned that estimates of this kind be developed.

The projections cover the ten-year period 1965-75. While they are, essentially, extensions of past trends and relationships, these estimates take into account special circumstances which in the opinion of qualified observers will modify the directions of the past.

While it is convenient to express the projections in specific numbers, the potential errors of the process preclude any claim of precision. Rather, the data should be viewed as indicators of relative magnitudes and central tendencies. In a sense the estimates are work materials—a systematic framework of numbers which the user can modify and supplement in the light of his own knowledge and beliefs about the probable course of events, for example in the area of the State in which he works. They should not be viewed as official projections of the State of New York.

The rapid step-up in defense expenditure during the past two years has jeopardized one of the basic assumptions made in developing the projections—that defense expenditures would remain at 1964 levels. Should the pace of defense production continue without substantial curtailment, significant modifications of the projections for the year 1970 will be in order.

As with all projections based on past events, the passage of time and the availability of new data will provide the basis for improving the projections set forth in the report. Results of the 1970 Census will be particularly pertinent to manpower projections.

The projections are the work of Abraham J. Berman, Chief Consulting Statistician in the Department's Division of Research and Statistics. In carrying out the analysis and estimating process he was assisted by Sheldon Dorfman, Senior Statistician, and other members of the Division's staff. The report was prepared under the direction of Charles A. Pearce, Director of the Department's Division of Research and Statistics.

The Department especially acknowledges the help given by the United States Bureau of Labor Statistics. The Bureau's national projections of labor force and manpower requirements form an integral part of the New York estimating model. Harold Goldstein, Sol Swerdloff, and other members of the Bureau's staff gave valuable assistance and advice during the course of the project. Thanks are due a number of other persons who read the manuscript and made suggestions. Especially do the authors appreciate the assistance given by Professor A. J. Jaffe of Columbia University.

The report is contained in two volumes. Volume I presents the State-wide estimates and goes into reasons for the trends shown and some of the implications. Volume II contains tables of estimates for each of the major areas of the State. A Technical Supplement, detailing the estimating procedure, also is available.

M. P. Catherwood
Industrial Commissioner

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[1] See two New York State Department of Labor publications—*Jobs 1960-1970: The Changing Pattern* (1960) and *Technical Manpower in New York State* (1965).

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Summary

Major changes are expected during the 1965-1975 decade in the labor force of New York State and in the manpower needs of New York State employers.

There will be over a million new jobs by 1975, which must be filled during the decade. Over two million existing jobs will become vacant through deaths and retirements. Most of these three million jobs that need to be filled will require some special vocational training and many of them will require training and education beyond high school.

The additions to the labor force during the decade will consist primarily of young people under 25 and women 45 and over.

Changes in the Labor Force

Sex and Age Composition

The State's civilian labor force (persons 14 and over, outside of the Armed Forces and outside of institutions, who are working or looking for work) is expected to be 1,045,000 greater in 1975 than in 1965. (See chart A.)

- This growth will consist of 540,000 males and 505,000 females.
- The additional number of young people below 25 who will be in the labor force in 1975 will contribute half (51 percent) of the increase; persons 45 and over, one-third (33 percent).
- Youth under 25 and women 45 and over will account for nearly three-fourths of the additional number in the labor force.
- Men in the prime working ages (25-44) will account for 10 percent of the total addition; women of these ages will account for 6 percent.

The female proportion of the labor force, over-all, will continue to rise, though at a slower rate.

	1955	*1965*	*1975*
Total labor force	100.0%	100.0%	100.0%
Male	66.8	62.9	61.6
Female	33.2	37.1	38.4

The changes expected to take place in the labor force from 1965 to 1975 will result mainly from:

- The coming to working age of the large number of young people born following World War II.
- The relatively low birth rate of the 1930's, reflected in the relatively small number of men in the 35-44 age group in 1975.
- Also with respect to this intermediate-age group, the migration of young families to the Connecticut and New Jersey suburbs.
- A continued rise in the rate of participation of older women (45 and over) in the labor force.
- A continued decline in the labor force participation rate of older men (62 and over).

Young people under 25 will continue to enlarge their part of the labor force at the expense of persons of intermediate age, mainly because of the contrast between the high birthrate after World War II and the previous low birthrate. (See chart B.)

	1955	*1965*	*1975*
Total labor force	100.0%	100.0%	100.0%
14-24 years old	15.4	17.7	21.8
25-44 years old	44.3	40.4	37.4
45 and over	40.3	41.9	40.8

New Entrants

During 1965-75 about 3,030,000 new persons are expected to enter the labor force in New York State. About 1,985,000 of them will take the place of persons who have died or retired. The difference between the two figures is the expected net rise in the civilian labor force—1,045,000.

Approximately 52 percent of the 3,030,000 new entrants will be men.

In 1975 about 1,800,000 of the new entrants during the decade (59 percent) will still be under 25.

Ethnic Composition

Between 1965 and 1975 the State's 14-and-over population of nonwhites and persons of Puerto Rican origin is expected to increase nearly 575,000, or 32.4 percent. As a result, nonwhites and Puerto Ricans, who made up 15 percent of the State's labor force in 1965, will account for 17.5 percent in 1975. The following percent distributions show their proportion in New York State and New York City:

	Population 14 and over		*Civilian labor force*	
Ethnic group	*1965*	*1975*	*1965*	*1975*
New York State	100.0%	100.0%	100.0%	100.0%
White, non-Puerto Rican	86.3	83.8	85.0	82.5
Nonwhite, non-Puerto Rican	9.6	11.0	10.7	12.1
Puerto Rican	4.1	5.2	4.3	5.4
New York City	100.0%	100.0%	100.0%	100.0%
White, non-Puerto Rican	76.2	69.3	75.7	68.9
Nonwhite, non-Puerto Rican	15.4	19.2	16.2	20.0
Puerto Rican	8.4	11.5	8.1	11.1

A far smaller proportion of nonwhites and Puerto Ricans than non-Puerto Rican whites are in professional, technical, sales, and craft occupations. The opposite is true of jobs as operatives, service workers, and laborers. (See chart C.)

Educational Attainment

New York State's labor force will be considerably better educated in 1975 than it was in 1965; persons

CHART A.
SEX AND AGE COMPOSITION OF LABOR FORCE 1955, 1965, AND 1975

NUMBER CONTRIBUTED TO YEAR'S LABOR FORCE BY EACH AGE AND SEX GROUP, STATED AS A PERCENT OF THE TOTAL (MEN AND WOMEN, ALL AGES)

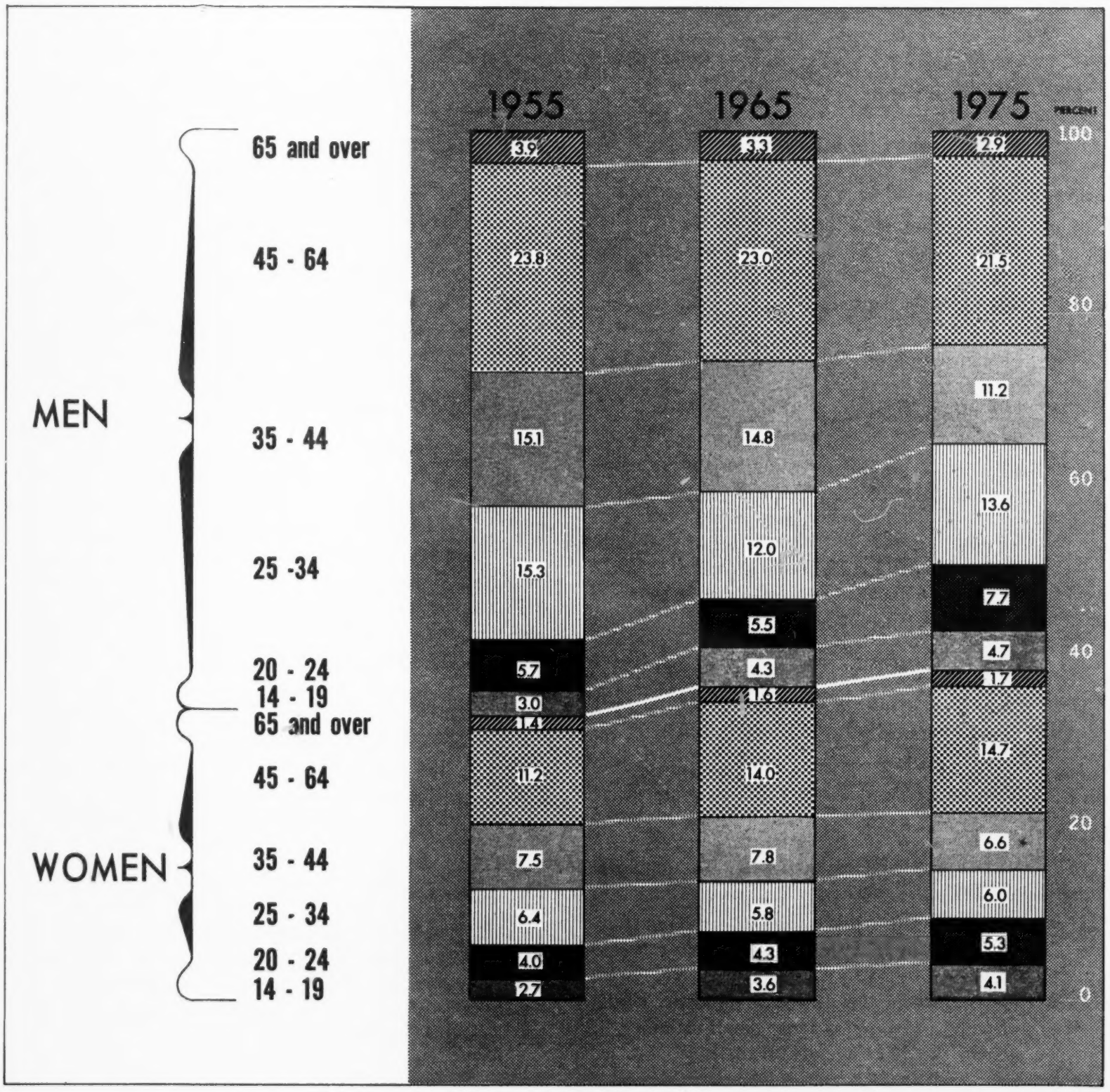
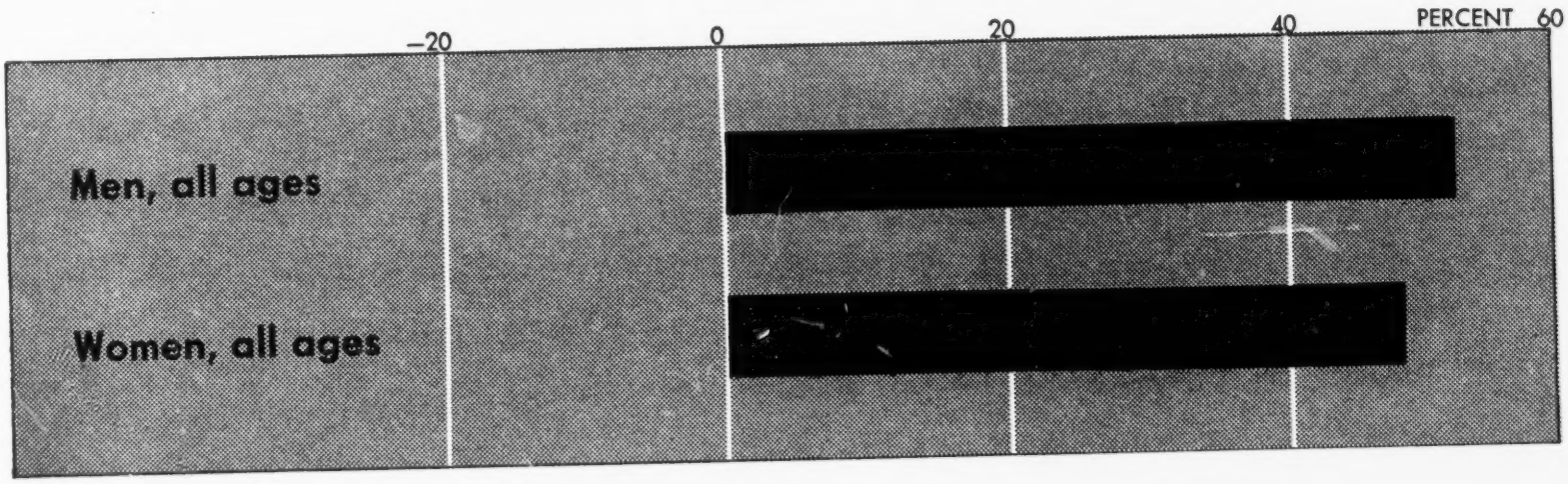


CHART B.
CHANGES IN THE LABOR FORCE BETWEEN 1965 AND 1975 BY SEX AND AGE GROUP

PERCENT OF INCREASE ADDED BY AGE GROUP, OR SUBTRACTED, IF SIZE OF GROUP DECLINES



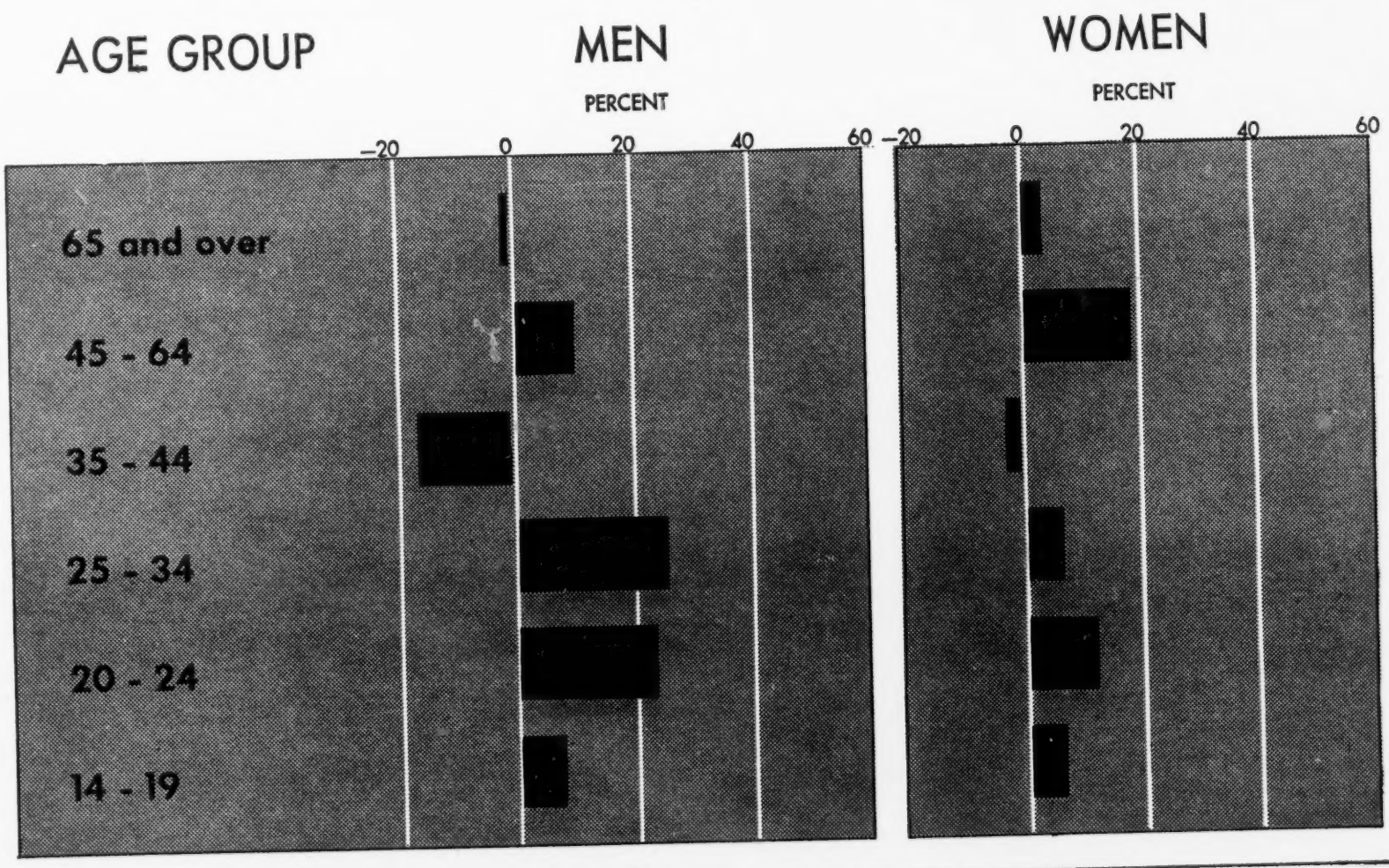


CHART C.

OCCUPATION GROUP OF EMPLOYED PERSONS, BY ETHNIC GROUP, 1960

completing high school and those with a college education will constitute a substantially larger proportion of the labor force:

Total labor force	*100.0%*	*100.0%*
Elementary school only	23.8	14.8
High school, 1-3 years	24.2	22.5
High school, 4 years	28.9	33.6
College, 1-3 years	10.9	13.7
College, 4 or more years	12.2	15.4

Manpower Requirements

The number and kinds of jobs that will become available in New York State in future years depend on what changes there will be in the structure of its industry (using the term broadly to include government as well as private manufacturing and nonmanufacturing activity). They will also depend on what changes there will be within individual industries in their need for different occupations and skills, as the result of developments in technology, new production methods, use of new materials, changes in the form of industrial organization, and so on. Finally, they will depend on the number and location of vacancies in old jobs that result from deaths and retirements.

Industrial Change and Occupational Requirements

Changes in the structure of New York's industries during the ten years 1955-65 were characterized by different rates of growth. In some industries employment declined. With some modification, these trends are expected to continue during the 1965-75 decade. (See chart D.)

- The most notable decline has been in agriculture, where the number of jobs fell by 37 percent between 1955 and 1965. The downward trend will continue in the future, though at a somewhat lower rate.
- Jobs in manufacturing industres suffered a decline of 9 percent in 1955-65. While their number is expected to rise somewhat in 1965-75, it is estimated that the number of manufacturing jobs as a proportion of all jobs, which declined from 30 percent in 1955 to 25 percent in 1965, will decline further to 22 percent in 1975.
- Within the manufacturing field, industries making durable goods will continue to do better than those making nondurables. The largest growth in the durables branch is expected in electrical machinery and equipment, instruments, and nonelectrical machinery. A decline in employment is expected in some industries in the nondurables group, particularly textiles, apparel, and leather and leather goods.
- Contract construction is the only goods-producing industry that had more jobs in 1965 than in 1955. In the ten years 1965-75 its jobs are expected to increase not only in absolute terms but also as a percent of total jobs.
- The goods-producing industries, combined, dropped from 47 percent of all jobs in 1955 to 40 percent in 1965, and this trend will continue to 1975, when it is expected that they will constitute 36 percent of all jobs.
- In contrast to the goods-producing industries, substantial increases in employment are taking place in New York's service-related industries.

  Among these, public administration is expected to have the largest growth during te 1965-75 period—36 percent. Almost all of this growth will be in State and local government.

  Professional and business services have had and will continue to have greater than average growth.

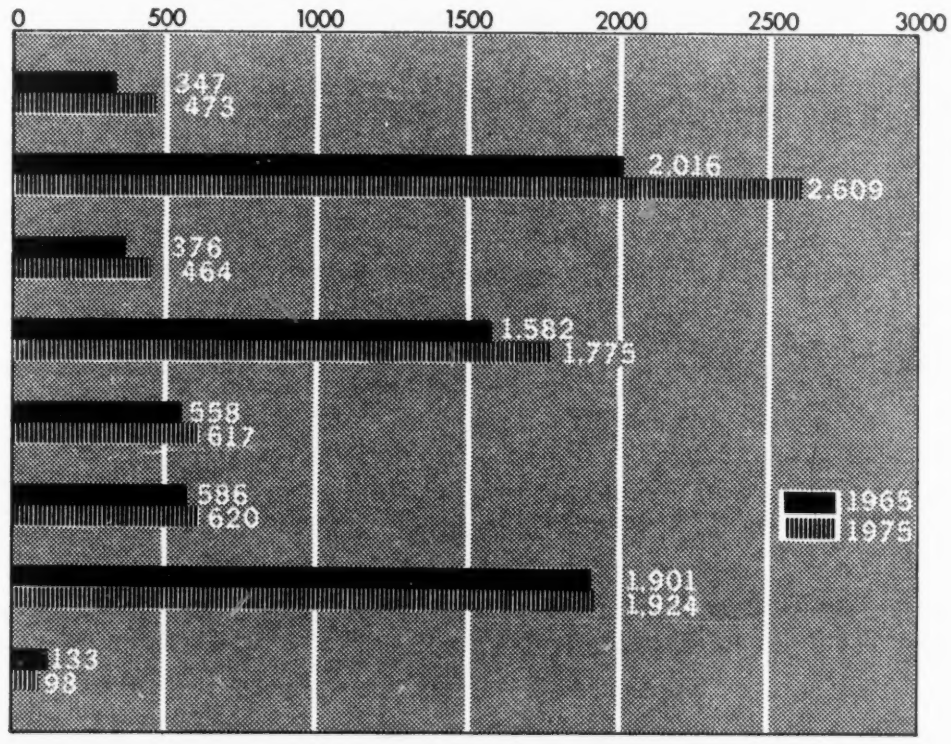
  Retail and wholesale trade and the finance, insurance, and real estate group, which experienced somewhat-above-average increases in the 1955-65 period, are expected to have slightly-below-average growth in the coming decade.

Changes in industrial structure and in the skill requirements of individual industries will combine to bring about significant changes in occupational manpower requirements. (See chart E.)

- For example, because State and local government is a large employer of professional workers (civil engineers, social workers, doctors, college teachers, employment interviewers, statisticians, etc.), the rapid growth in State and local government activities is one of the principal reasons for the large expansion expected in needs for professional personnel. The large growth in construction activity will help sustain the demand for craftsmen (construction craftsmen were about 23 percent of all craftsmen in 1965). On the other hand, the continued decline in railroad activity will limit the growth of railroad repairmen and other railroad craftsmen.
- The substitution of machine for hand labor in moving materials, the introduction of faster machines, automatic control and operation of machine tools and processing equipment, electronic data processing, improved plant layout, standardization of parts, larger scale of production, prefabrication of building structure components, use of plastics rather than metals in various manufactured products, assignment of the simpler tasks of professional jobs to technical assistants, improvements in training

CHART D. INDUSTRY JOB TRENDS 1965–1975

NUMBER OF JOBS (IN THOUSANDS)



CHANGE STATED AS PERCENT OF 1965 FIGURE

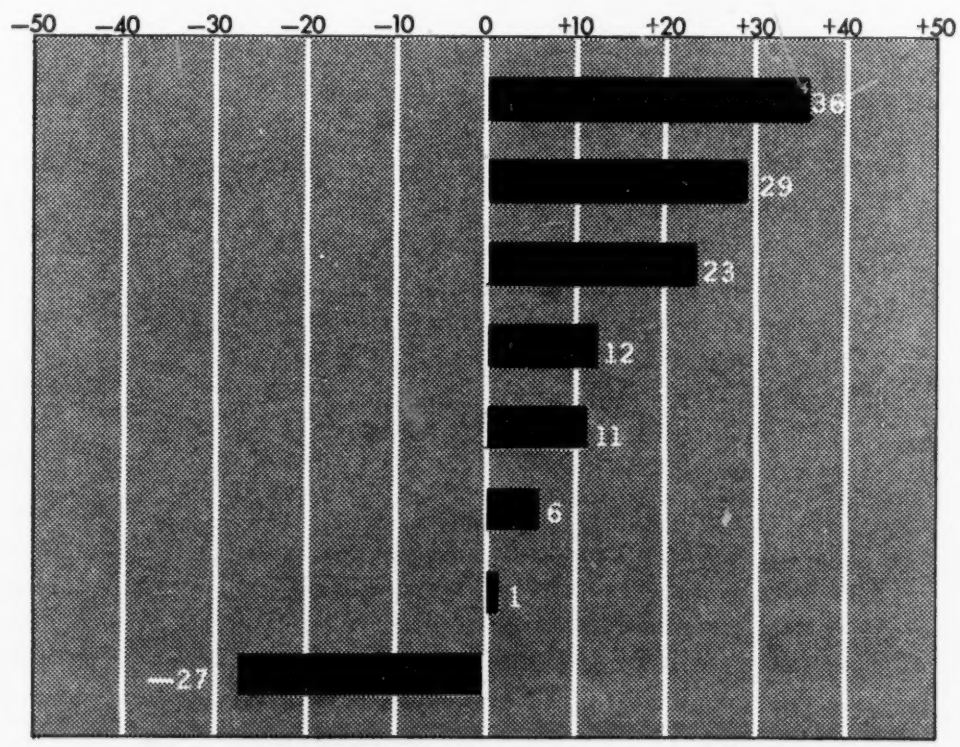


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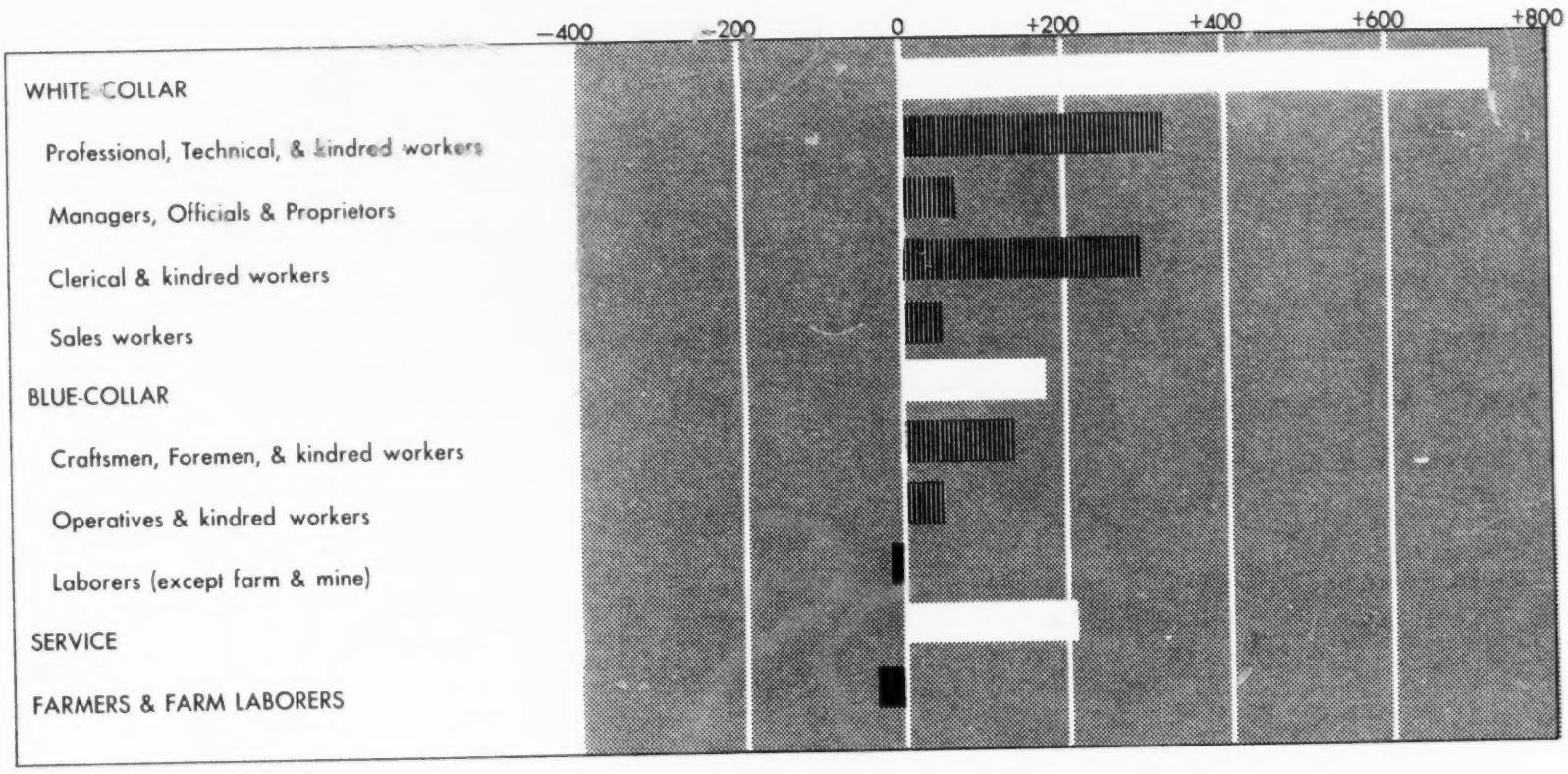
CHART E. OCCUPATION GROUP JOB TRENDS 1965 - 1975

CHANGE IN NUMBER OF JOBS IN DECADE (IN THOUSANDS)



CHANGE STATED AS PERCENT OF 1965 FIGURE

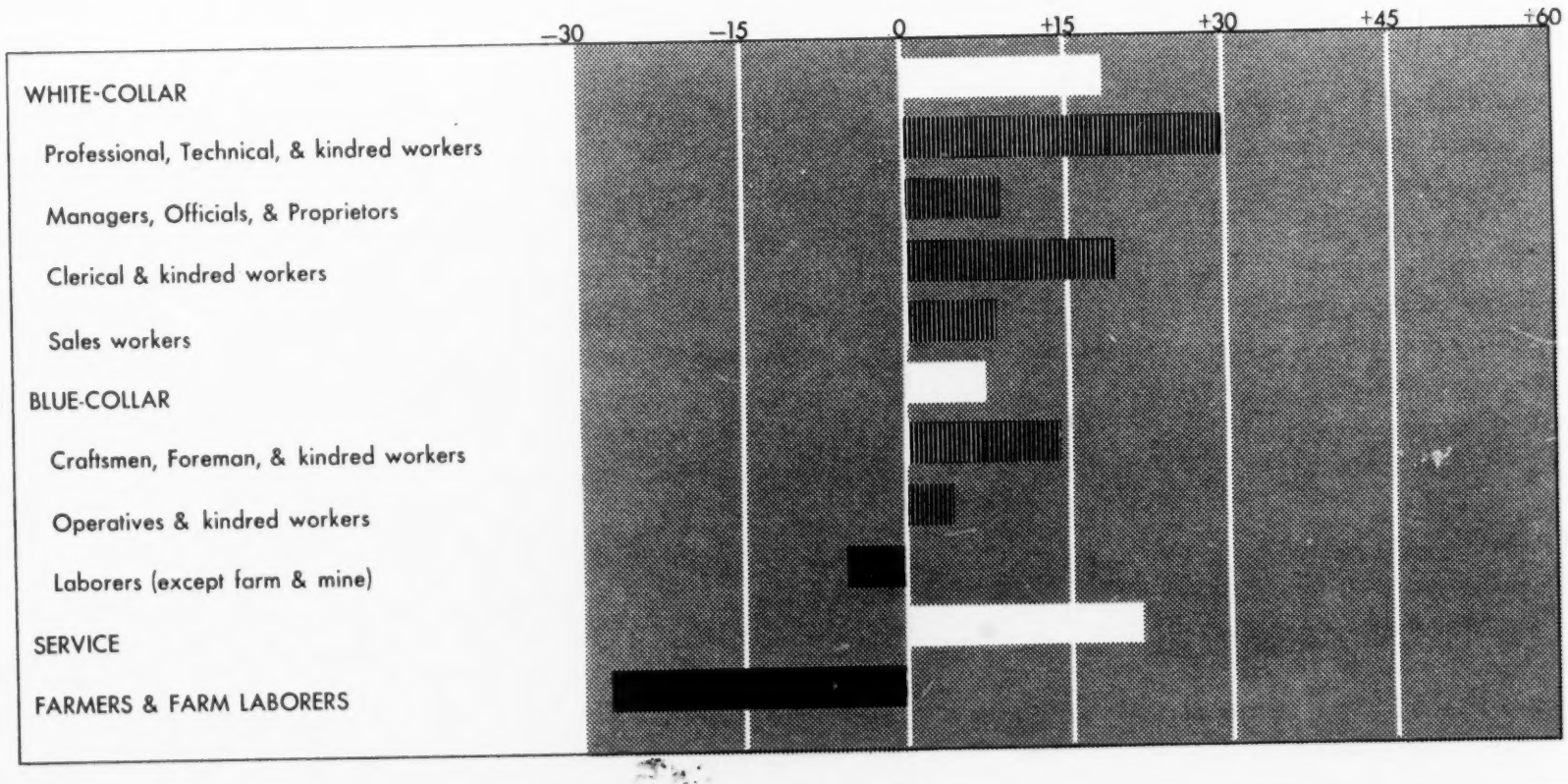
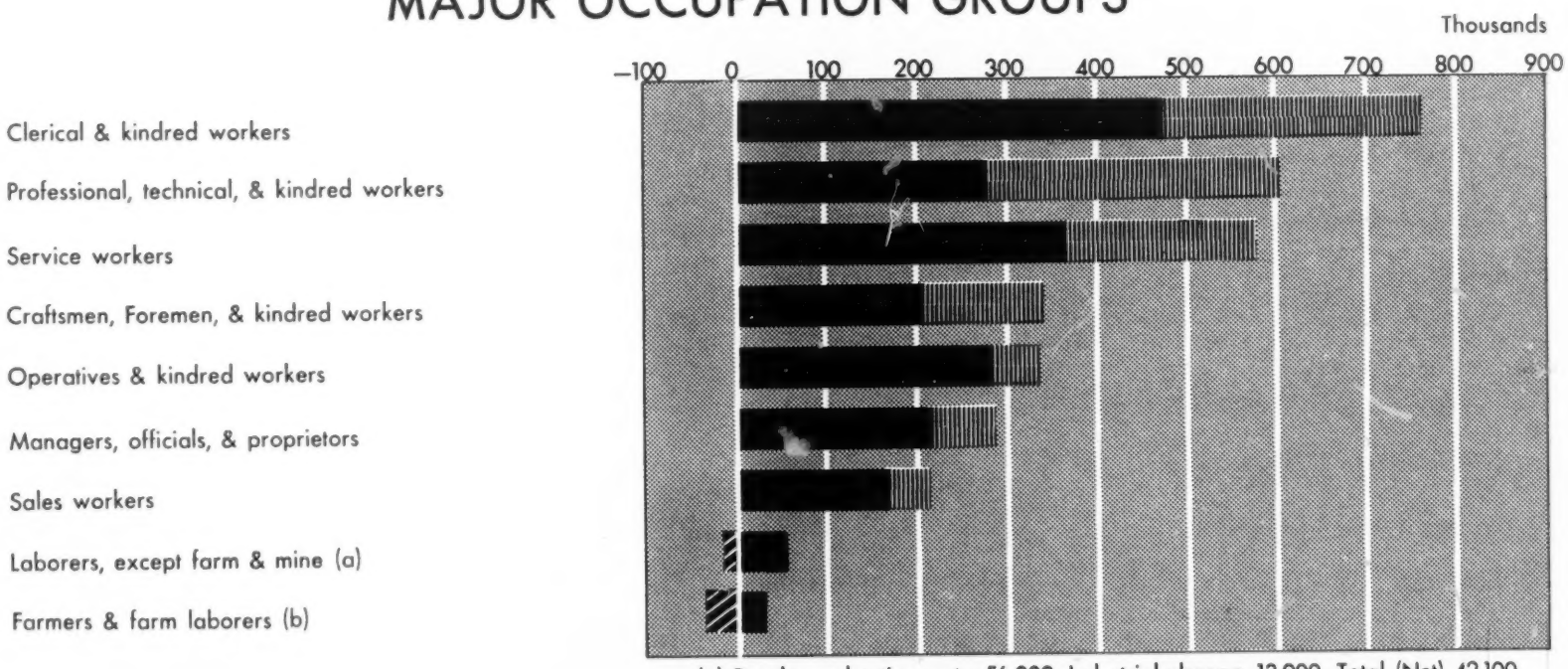


CHART F. JOBS THAT NEED TO BE FILLED BETWEEN 1965 AND 1975

Because of: (1) Deaths and Retirements, and (2) Industrial Change.

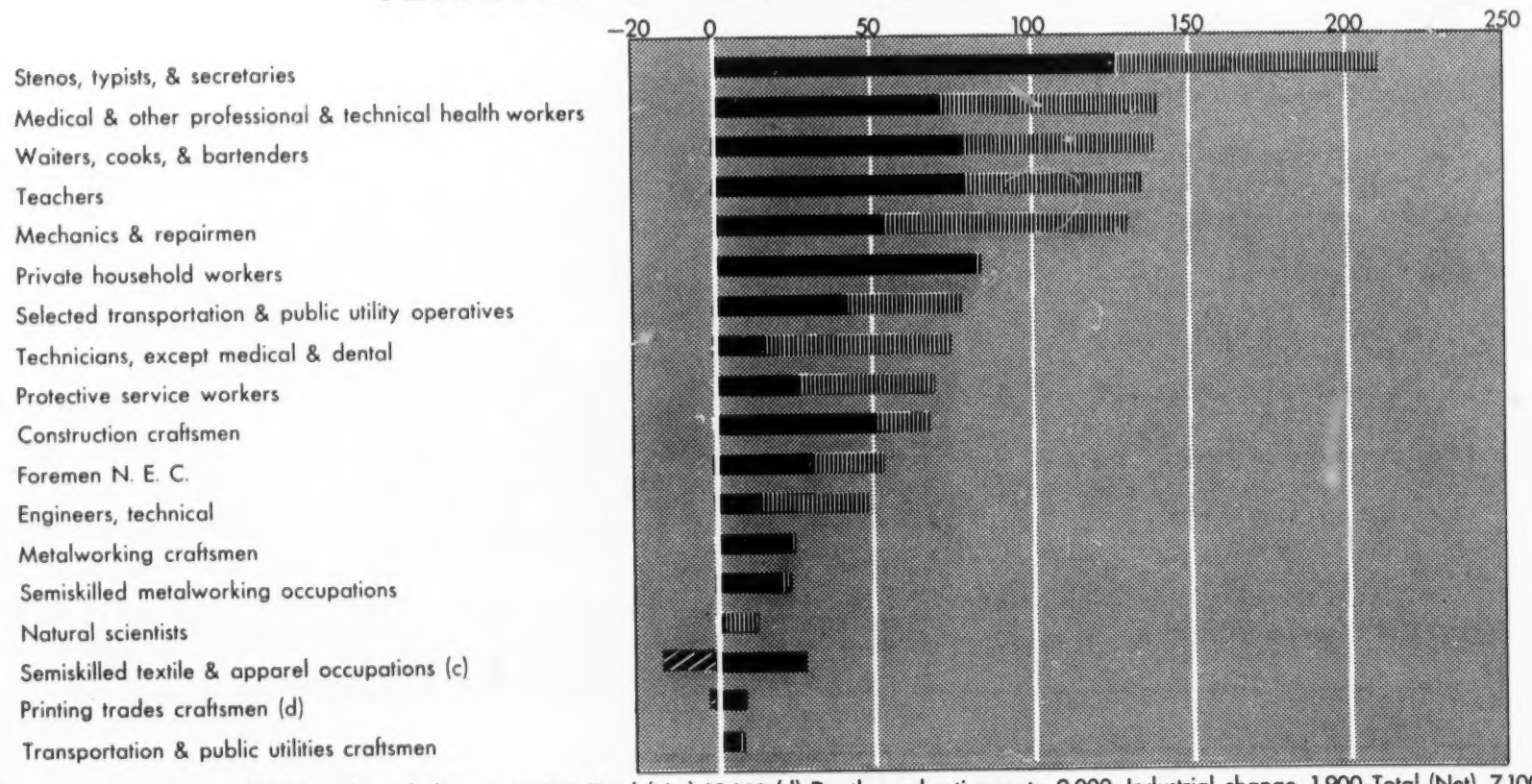
Deaths and Retirements — Industrial Change-Increase — Industrial Change-Decrease

MAJOR OCCUPATION GROUPS



(a) Deaths and retirements, 56,000; Industrial change, 13,900; Total (Net) 42,100.
(b) Deaths and retirements, 34,000; Industrial change, 32,700; Total (Net), 1,300.

SELECTED OCCUPATIONS



(c) Deaths and retirements, 29,100; Industrial change, 16,300; Total (Net), 12,800 (d) Deaths and retirements, 9,000; Industrial change, 1,900; Total (Net), 7,100.

techniques: these are examples of developments taking place which directly affect the skill requirements of industry.

Major changes expected in the State between 1965 and 1975 include:

- Rapid growth in the number of jobs in white-collar occupations (professional, technical, managerial, clerical, and sales).
- An equally rapid growth among service workers (protective service, food service, attendants of various kinds, practical nurses, etc.).
- A relatively small growth over-all in blue-collar occupations (craftsmen, operatives, and industrial laborers).
- A sharp decline in needs for one type of blue-collar worker—industrial laborers—and also for farmers and farm laborers.
- Compared with an increase of 14 percent in total requirements, the projections indicate an increase of 19 percent in white-collar and 7 percent in blue-collar job requirements. Service workers will be up by 21 percent, and farmers and farm laborers down by 28 percent.

Manpower Needs Because of Death and Retirement

The complete picture of manpower requirements includes the need to replace workers expected to die and to retire from the labor force.

- During the ten-year period from 1965 to 1975, requirements because of death and retirement are expected to be about twice as great as those due to industrial change:

  1,079,900 – result of industrial change (equal to 14.4% of 1965 jobs)
  2,094,600 – result of death and retirement (equal to 27.9% of 1965 jobs)
  3,174,500 – total (equal to 42.3% of 1965 jobs)

  These proportions vary considerably from one occupation to another, depending primarily on the age and sex composition of the group in 1965. Only in the case of professional, technical, and kindred workers are job requirements caused by industrial change expected to be great enough to exceed those resulting from death and retirement.
- In the case of the managerial group, sales workers, and operatives, the expected number of replacements needed because of death and retirement is noticeably higher than the number to be added because of industrial change. As for laborers and farmers, while industrial change spells a net reduction in their number, deaths and retirements during the decade will make some recruiting necessary.
- When the effects both of death and retirement and of industrial change are included, nearly one-fourth of all openings to be filled between 1965 and 1975 are in clerical occupations. The professional-technical and the service group are next most important (19 percent). The craftsmen and operatives groups, each amount to about 11 percent of the total. (See chart F.)

	Jobs to be filled between 1965 and 1975	
All occupations	3,174,500	100.0%
Clerical workers	764,800	24.1
Professional; technical	605,200	19.1
Service workers	578,300	18.2
Craftsmen	345,200	10.9
Operatives	332,900	10.5
Managers, officials, and proprietors	285,300	9.0
Sales workers	219,400	6.9
Laborers, except farm	42,100	1.3
Farmers and farm laborers	1,300	negligible

Educational and Vocational Preparation

A little less than 50 percent of all jobs could be classified as higher-skilled in 1965. The proportion will move up to 51 percent in 1975, since over 53 percent of all jobs to be filled during the 1965-1975 decade fall into higher-skilled categories.

	Jobs in 1965	*Jobs in 1975*	*Jobs to be filled, 1965-1975*
All levels	100.0%	100.0%	100.0%
Higher skill	49.6	51.0	53.4
Lower skill	50.4	49.0	46.6

The division into higher-skill and lower-skill is based on a classification of jobs by level of "General Educational Development" (GED) and level of "Specific Vocational Preparation" (SVP), as set forth in the most recent edition of the U.S. Department of Labor's *Dictionary of Occupational Titles.* Jobs in the higher-skill category are ones in which, for example, workers—

> *solve practical problems against the background of a rational system; interpret and follow diagrammatic instructions and blueprints; make standardized use of algebra in practical applications; screen visitors; interview job applicants for type of work they can do; and so on.*

The lower-skill group of jobs are ones in which workers, for example, just—

> *apply common sense in carrying out instructions; calculate percentages; fill in report forms; obtain simple data in standardized interviews; file papers; and so on.*

No change is projected in the largest single group of occupations—a "lower-skill" category that includes sales clerks, typists, office clerks, and service workers of various kinds, and accounts for 23 percent of all jobs in both 1965 and 1975.

CHART G. JOBS EXPECTED TO BE FILLED BETWEEN 1965 AND 1975

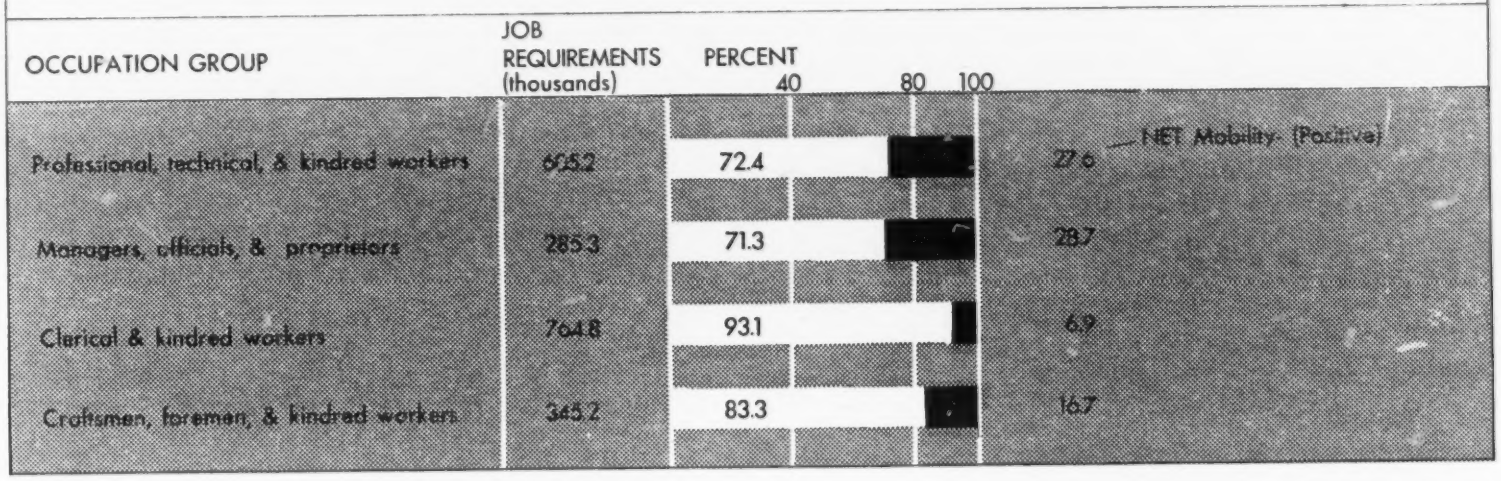
BY OCCUPATIONAL SHIFTS AND NEW ENTRANTS

New Entrants

Net Mobility

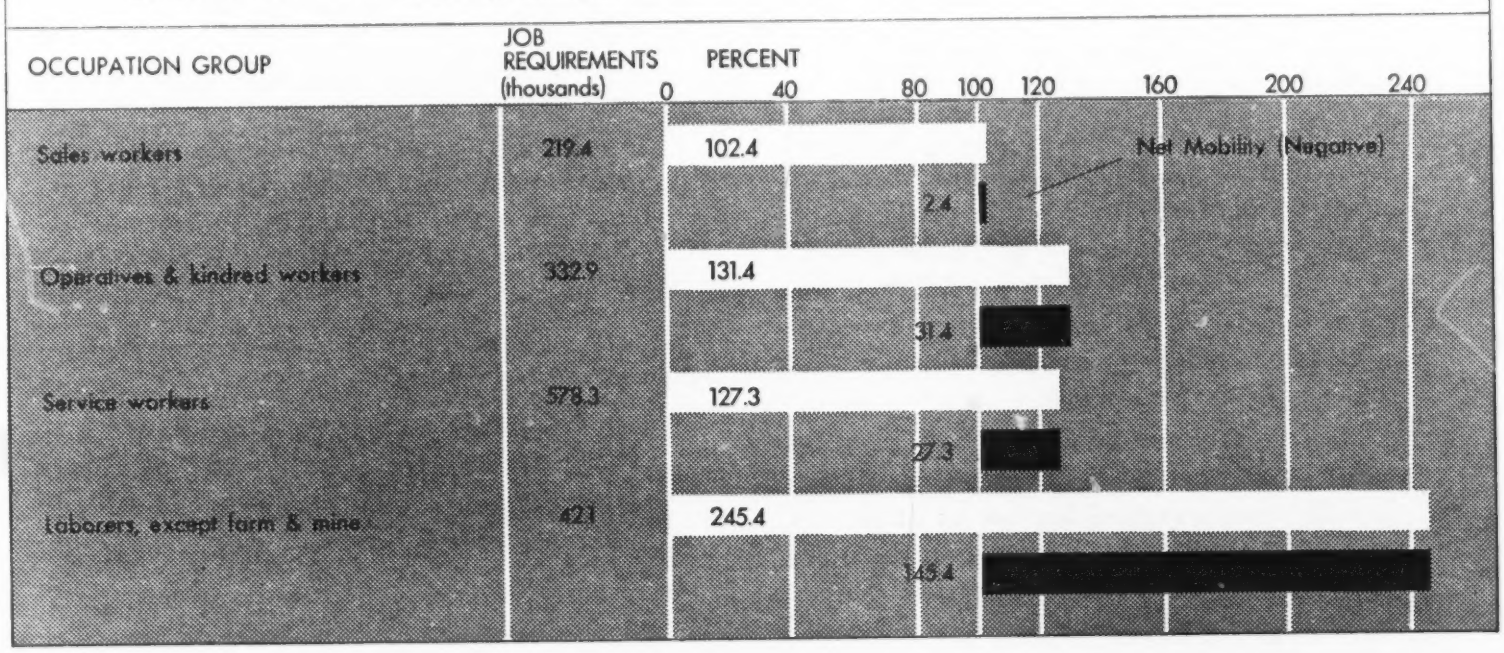
OCCUPATION GROUPS WITH PLUS MOBILITY

Groups into which more workers will shift from other occupations than will shift out. New entrants will fill openings that mobility does not fill. The two together supply 100 percent of the manpower requirements of the group.



OCCUPATION GROUPS WITH MINUS MOBILITY

Groups with more shifting out than shifting in. New entrants have to be more than 100 percent of manpower requirements of group, because mobility makes a minus contribution. (Farmers and farm laborers are 'minus, but base is too small to compute percentages.)



Job Vacancies

A complete picture of job openings to be filled during the 1965-75 period will include, in addition to those resulting from industrial change and deaths and retirements, the number of vacant jobs—jobs that have not been filled because of the unavailability of qualified workers.

- A National Industrial Conference Board survey of vacancies in Rochester reports around 8,400 vacancies out of a total 275,000 positions in 1965. This is a rate of about 3 percent, and probably is indicative of vacancy levels in tight labor market situations—such as that in the Rochester area at the time.
- The Rochester rate of 3 percent is 50 percent higher than the rate (about 2 percent) found in a survey made of the New York Metropolitan Area in April 1966 by the New York State Division of Employment.
- Both surveys show relatively high vacancy rates in the professional-technical group and in the laborer group. Individual occupations with exceptionally high rates include technical engineers, natural scientists, social scientists, metal-working craftsmen, protective service workers, practical nurses and hospital attendants, and laborers.
- As of August 1965, over one-fourth of the Rochester vacancies had been open 3 months and over one-eighth 6 months or more.

Meeting Manpower Requirements

Occupational Shifting

The economy of a state meets its manpower requirements by the recruitment of new resident workers without previous job experience, by the shifting of workers from one occupation to another, and by in-migration of persons from outside the State.

A substantial part of requirements in the higher-skill-level occupations will be met during 1965-75 by occupational shifting (net mobility): in the managerial group 29 percent and in the professional-technical group 28 percent; in the craft group 17 percent and in the clerical group 7 percent. In some occupations substantial deficits will result from out-movements: the deficit will equal 27 percent of the manpower requirements for service workers, and 31 percent of the requirements for operatives. These figures include part-time jobs held by high-school and college students in 1965. Among specific individual occupations, as with the broad groups, higher-level occupations tend to gain workers from occupational shifting, while lower-level occupations lose workers. (See Chart G.)

Net in-migration is expected to fill about 220,000 jobs during 1965-75, about 7 percent of total job needs.

New Entrants Needed

Clerical and service worker occupations will together account for more than 40 percent of all jobs for which new entrants into the labor force (both from within the State and from outside it) will be required during the 1965-75 period:

Service workers	22 percent	Managers and officials	7 percent
Clerical workers	21 percent	Sales workers	6 percent
Professional and technical workers	15 percent	Laborers	3 percent
Operatives	15 percent	Farmers and farm laborers	1 percent
Craftsmen	10 percent		
		All new entries	100 percent

A rough comparison of the years of schooling of new entrants into the labor force in 1965-75 with the schooling that employers are likely to require for new entrants suggests that:

- There will be a good over-all balance at the level of four or more years of college. The projection of college-trained people assumes among other things that the master plan of the State University of New York is carried out.
  This does not mean that substantial shortages or surpluses will not develop in specific fields. No attempt has been made in the present survey to evaluate the adequacy of the supply of persons in particular occupational fields.
- At the other end of the scale, there will be more jobs that require only an elementary school education than there will be persons who have gone no further than this in school. Such persons are mainly in-migrants from Puerto Rico and from the Southern states. Presumably this excess of demand over supply means that some people with some high school education will be hired for these jobs.
  So far as the one-to-three-years-of-high-school level is concerned, there will be more persons than jobs.
  The estimates do not support the notion that there are or will be in the years immediately ahead an inadequate number of jobs for poorly educated persons. For if the elementary-school group and the one-to-three-years-of-high-school group are combined there is a near balance between demand and supply—even though the jobs are poor and unattractive ones, and even though some of the applicants have more schooling than the jobs require.
- At the intermediate level of educational attainment, there will be more jobs requiring high school graduation than there will be

persons who have gone through high school but not beyond it. The contrary is true at the level of one to three years of college: the number of entrants to the labor force with this degree of educational attainment will exceed the number of entry jobs requiring it. These comparisons indicate that some of those persons who have done college work but have not finished their course of study may have to take jobs that require no education beyond high school. However, employers who require an applicant for one of these jobs to have had work experience may accept extra schooling in lieu of experience. Such a pattern of alternative requirements is common in the case of technician and technical specialist occupations. This means that the applicant with some college credits will not necessarily be working below his level of competence if he takes a job whose educational prerequisite is simply high school graduation.

- If the two lowest levels are combined and the two intermediate levels (below the level of college graduation) are combined, a fairly good balance appears between supply (number of persons entering the State's labor force in 1965-75 with such educational attainments) and demand (number of entry jobs with such educational requirements). In the following figures a plus sign indicates an excess of supply over demand:

Less than high school graduation	+17,000
High school graduation; less than college graduation	+18,000
Four or more years of college	−35,000

None of these differences seem significant, particularly if one bears in mind that the estimates are based on fragmentary data and therefore may contain substantial margins of error.

Though for the State as a whole the 1975 demand for and supply of workers are expected to be approximately in balance at each of the three levels of educational attainment, they may be less balanced in some areas. For example, in New York City and other large cities the inner core is the home of many people with elementary schooling or less than four years of high school, but it is probable that many of the jobs requiring only this level of education are located in the outlying areas of the cities or in their suburbs. In such a situation worker mobility, transportation, and housing become key considerations. Unfortunately, existing data are not adequate for the task of developing local area analyses of this type.

Part-time Employment

The growth of part-time work over the last 20 years has made available large numbers of jobs to youth, middle-aged women, and older men and women. This trend will continue in the 1965-75 decade because of the large concentration of part-time employment in industries which are expected to show continued growth to 1975—especially retail trade, services, and the finance group.

It is estimated that about 20 percent of all persons in New York State who were in the labor force at any time in 1965 were on part-time schedules—less than 35 hours per week. This proportion is not expected to change materially during the 1965-75 decade, and no large discrepancy between the demand for and supply of part-time workers is anticipated.

Jobs for Women

Women's rate of participation in the labor force has been growing, and will continue to grow, mainly because mature women seek jobs after raising a family. As a result, women are expected to account for 38.4 percent of total employment in 1975, compared to 37.1 percent in 1965. Many will find jobs in occupations in which women already predominate, for many of these occupations are due for relatively large expansion. This is true of secretaries, stenographers, typists, and office machine operators; school teachers; biological, medical, and dental technicians; and professional nurses, practical nurses, and nurse's aides. The following figures show that female employment will make the greatest percentage gains in the professional-technical, clerical, and service categories:

Occupation group	*1965*	*1975*	*Change 1965-1975*	
			Number	*Percent*
All occupations	2,783,000	3,295,000	+512,000	+18
White collar workers	1,803,000	2,204,000	+401,000	+22
Professional; technical	396,000	520,000	+124,000	+31
Managers	104,000	108,000	+ 4,000	+ 4
Clerical	1,104,000	1,354,000	+250,000	+23
Sales	199,000	222,000	+ 23,000	+12
Blue collar workers	446,000	463,000	+ 17,000	+ 4
Craftsmen	33,000	42,000	+ 9,000	+27
Operatives	402,000	409,000	+ 7,000	+ 2
Laborers	11,000	12,000	+ 1,000	+ 9
Service workers	523,000	621,000	+ 98,000	+19
Farmers and farm laborers	11,000	7,000	− 4,000	−36

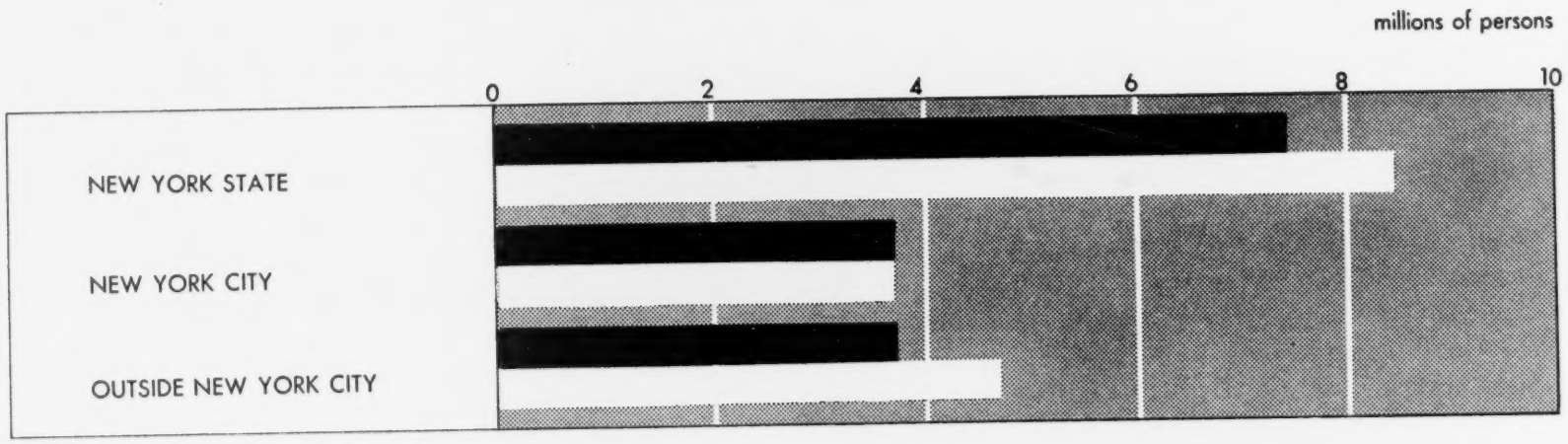
Local Area Manpower Differences

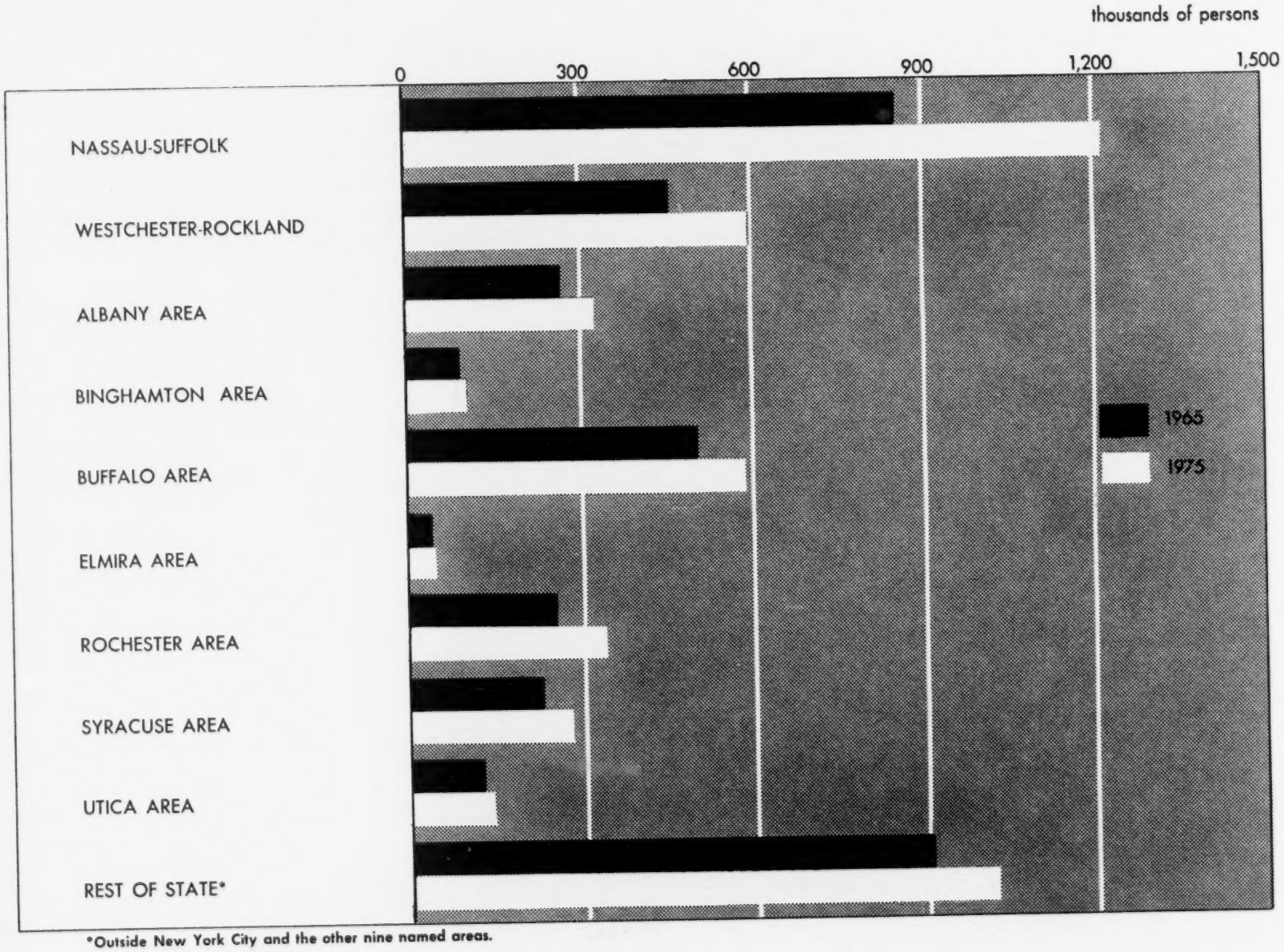
A primary objective of the present study has been to develop estimates of labor force and of manpower requirements, by occupation, for each of the major labor market areas of the State. Volume II contains the detailed results of the area projections.

Labor Force

New York City had one-half of New York State's civilian labor force in 1965. The New York Metropolitan area (including Nassau, Suffolk, Westchester, and Rockland counties, as well as New York City) accounted for two-thirds of the State total.

CHART H. SIZE OF CIVILIAN LABOR FORCE OF AREAS OF NEW YORK STATE 1965 AND 1975





*Outside New York City and the other nine named areas.

Buffalo, the area with the next largest labor force, had about 7 percent of the total, while Rochester had about 3.5 percent.

By 1975, New York City's share of the State's total civilian labor force is expected to drop from 50 to about 45 percent. However, because of the relatively large increase in Nassau, Suffolk, Westchester, and Rockland counties, the New York Metropolitan area will maintain its present position—at around two-thirds of the total.

Rochester and Syracuse are the Upstate areas expected to have the largest percentage increases, considerably greater than those estimated for the Albany, Binghamton, Elmira, and Utica areas.

The important labor force component of young people under 25 years of age is expected to increase during 1965-75 by approximately 75 percent in the suburban counties of Nassau, Suffolk, Westchester, and Rockland, gains explained in part by the unusually large inflow of young families into these areas after World War II. Rochester can also expect large increases in this younger segment of the labor force. By contrast, the rise in New York City is expected to be between 15 and 20 percent.

Occupational Patterns

In any area, the importance of a particular occupation depends in large measure on the sort of industry found there. Tables in volume II show how the areas differ in industry mix and how these differences are related to occupation patterns; they give estimates of the number of job openings that will come about in 1965-75 in individual areas because of deaths and retirements, as well as because of industrial change.

The surburban areas around New York City in 1965 had relatively heavy employment of professional and technical personnel and of managers and proprietors. New York City had a higher proportion of clerical and sales workers than any other area. Craftsmen and operatives figured more prominently in the occupational picture of Upstate areas than Downstate. Service worker employment, on the other hand, was more important in New York City and its suburban areas. (See chart H.)

Projections of occupation patterns for 1965-75 indicate that:

- New York City will suffer a decline in employment in four of the occupation groups—laborers, operatives, sales workers and the managerial group. The City's largest gain is expected in the professional and technical occupations, with smaller gains in the clerical and service groups.
- Similarly, greater gains in the professional-technical, clerical, and sales groups than in other groups are expected in the two New York City suburban areas of Nassau-Suffolk and Westchester-Rockland.
- Relatively large increases are expected in most groups in the Rochester and Syracuse areas.
- The patterns of change in the Albany, Binghamton, Elmira, Utica, and Buffalo areas, while showing considerable variety, tend to resemble that of the State as a whole.

Chapter I
Changes in the Labor Force

New York State's resident labor force will, in general, grow as the population grows during the next decade. Projections of the labor force start with estimates of the number of persons who will be 14 years of age and over. The size of this population can be predicted with greater accuracy than can many other elements in the estimating process since all persons 14 and over who will be residing in New York State in 1975 were alive in 1965.

One difficulty in making population projections is estimating the net effect of migration into and out of New York State during the decade 1965-75. During the decade 1950-60 the net migration into the State was considerably smaller than in previous decades, and how it will change between 1965 and 1975 is hard to tell at this time.

The number of persons who will be in New York's civilian noninstitutional population in the decade ahead will also depend upon mortality rates, the size of the armed forces, and the number of persons in institutions (prisons, hospitals, etc.). For all these factors, the estimates used in this study utilize assumptions based on past experience.[1] The population estimates were made for the State's Office of Planning Coordination by the Cornell Aeronautical Laboratories.[2]

From 1955 to 1965 the population of the State 14 years of age and over grew by 1,000,000 or 8.5 percent. The rate of growth, however, was not the same for all age groups. The net increase of 1,000,000 is made up of an increase of 700,000 young people ages 14-24 and of 600,000 older persons 45 and over—and a decrease of almost 300,000 in the in-between group aged 25-44. In percentage terms, the younger group increased by 33 percent and the older people by 12 percent. The middle group declined by 6 percent.

Such past population changes are a result of shifts that have taken place in birth rates and death rates and in the migration patterns of the State and of the country. The average birth rate per 1,000 population in New York State was about 20 during the 1920's; it was down to 14 during the depression 1930's, and 16.5 during the World War II years from 1940 to 1945. It was back up to 20.9 in 1946-49, right after the war, and 21.3 in the 1950's. During the 1960-66 period the average was a little lower—20.1.

In terms of individual high and low years, the rate went from 28.7 in 1907 to 13.8 in 1936; back to 22.5 in 1947. Recently it has been going down—it was 18.0 in 1966.

The population of labor-force age has of course been affected by these fluctuations in the birth rate. The number of persons 25-44 dropped between 1955 and 1965 because of the low birth rate during the 1930's; the increase in the number 14-24 during the same ten years reflects the increased birth rates during the late 1940's and the early 1950's. The increase in the number of persons 45 and over was a result not only of the high birth rates previous to 1920, but also of the aging of the mass of immigrants who settled in the State before World War I. Lower death rates during all this time have also been influential in increasing the number of older people in our population.

The following table summarizes the population data and projections for New York State by broad age groups:

	Number (in thousands)			*Percent change*	
Age	*1955*	*1965*	*1975*	*1955-1965*	*1965-1975*
Total, 14 and over	11,812	12,812	14,500	+ 8.5	+13.2
14 to 24 years	2,063	2,740	3,649	+32.8	+33.2
25 to 44 years	4,646	4,359	4,549	− 6.2	+ 4.4
45 and over	5,103	5,713	6,302	+12.0	+10.3

These figures show that the State's population 14 and over is expected to grow by about 1,700,000 in 1965-75—a figure much larger than the ten-year growth of 1,000,000 in the previous decade. Predominant in the 1,700,000 increase are the young people 14-24, who will be completing their education and entering the labor market; there will be 900,000 more of them in 1975 than in 1965. There will be 200,000 more of those 25-44; a decline of almost 300,000 in the older half of this age-group, those 35-44, will be more than made up for by a rise in the younger half, those 25-34. The 45-and-over stratum will increase by 600,000.

Since females have a better survival experience than males, they were almost 53 percent of the total noninstitutional population 14 and over in 1965, and this is expected to be the situation in 1975 also.

The State's civilian noninstitutional labor force increased by 379,000 between 1955 and 1965, and is expected to increase by 1,045,000 between 1965 and 1975. The following brief tabulation of percent distributions (for details, see table I-1) shows that women will add more to the labor force in 1965-75 than might be expected from their 1965 share in the labor force. (In the previous decade the women who were

[1] Estimates of the number of persons in the armed forces do not reflect the build-up that has taken place since 1965.

[2] New York State Executive Department, Office of Planning Coordination, *Demographic Projections for New York State Counties* (1966).

added to the labor force accounted for the entire increase.)

	Civilian labor force		*Addition to labor force*
	1965	*1975*	*1965-1975*
Both sexes	100.0	100.0	100.0
Male	62.9	61.6	51.7
Female	37.1	38.4	48.3
All ages 14 and over	100.0	100.0	100.0
14-24	17.7	21.8	51.1
25-44	40.4	37.4	16.1
45 and over	41.9	40.8	32.8

As to the 1955-65 decade, the rate of men's participation in the labor force dropped so much (from 84 to 78) and women's rose so much (from 38 to 41) that women contributed 109.5 percent of the total rise in the labor force in the ten years, while the number of men in the labor force actually dropped. (1) Among women, the greatest rise in the participation rates was in the 45-64 age bracket; the number of persons that this group added to the labor force was equal to 66 percent of the total 1955-65 rise in the labor force. (2) Among the men, it is the young and the old who account for the drop in the over-all male participation rate. Since many males in the 14-24 group stayed in school longer and so delayed entering the labor force, the participation rate of this age group declined from 61.7 percent in 1955 to 54.5 percent in 1965. The growing availability of retirement benefits under social security and also under private pension plans has led more men to retire at 65 or soon after; as a result, the participation rate of men 65 and over dropped from 43.7 in 1955 to 31.6 in 1965 (table I-3), enough to bring about an absolute decline in the number in the labor force.

The next pages will give detailed information about changes between 1965 and 1975 in the various age groups.

Table I-1. Age and Sex Composition of the Labor Force New York State, 1955, 1965, and 1975

Age and sex	*1955*	*1965*	*1975*
Total number, 14 and over (thousands)	7,102	7,481	8,526
Percent distribution			
All ages	100.0	100.0	100.0
14-24, total	15.4	17.7	21.8
Male	8.7	9.8	12.4
Female	6.7	7.9	9.4
14-19	5.7	7.9	8.8
Male	3.0	4.3	4.7
Female	2.7	3.6	4.1
20.24	9.7	9.8	13.0
Male	5.7	5.5	7.7
Female	4.0	4.3	5.3
25-44, total	44.3	40.4	37.4
Male	30.4	26.8	24.8
Female	13.9	13.6	12.6
25-34	21.7	17.8	19.6
Male	15.3	12.0	13.6
Female	6.4	5.8	6.0
35-44	22.6	22.6	17.8
Male	15.1	14.8	11.2
Female	7.5	7.8	6.6
45 and over, total	40.3	41.9	40.8
Male	27.7	26.3	24.4
Female	12.6	15.6	16.4
45-64	35.0	37.0	36.2
Male	23.8	23.0	21.5
Female	11.2	14.0	14.7
65 and over	5.3	4.9	4.6
Male	3.9	3.3	2.9
Female	1.4	1.6	1.7

Note: The "total" figures of the three main age-groups add up to 100.0. The percents of the subsidiary groups are all in terms of the same 100.0.

Young Workers

Young people under 25 will contribute half of the increase in the labor force between 1965 and 1975. Within this age bracket, the number who are 14-19 will rise by 163,000, or 28 percent, while the number in the 20-24 age group will increase by 371,000, or 50 percent. These young people of 20 to 24 will constitute about one-eighth of the labor force in 1975, compared with about one-tenth in 1965 and somewhat less than one tenth in 1955. (Table 1-2.)

The rate of school enrollment more than any other factor influences the work-activity rate of teenagers and young people 20 to 24 years of age. On the average young people now go to school for more years; as a result, proportionately fewer of them will enter the labor force on a full-time basis before age 25. On the other hand, the rising cost of a college education may lead to more part-time work among college students. Another factor is the demand of the armed forces for young men, who are excluded from the civilian labor force. On balance, a slight increase is expected in the labor force participation of young men 20-24.

As for women 20-24, their labor force participation is limited by the fact that many marry around this time, and may then quit their jobs. However, they are now more likely than formerly to continue working after marriage; also some young women in recent years have had to continue working because their husbands were in the Armed Forces. But the principal factor limiting the labor force participation of women 20-24 is the fact that women with small children typically do not hold jobs. The average age at which women marry and the age at which the first child is born have not changed enough to have seriously affected the group's rate of labor force participation. It increased only slightly from 1955 to 1965, and very little increase is expected in the next decade.

Women of 20-24 constituted 12 percent of the female labor force in 1955 and 1965. They are expected to be nearly 14 percent of the female labor force in

Table I-2. Young Workers in the Labor Force, By Age Group and Sex, New York State, 1955, 1965, and 1975

Age and sex	Civilian labor force: Number, in thousands			Civilian labor force: Percent change		Labor force participation rate[a]		
	1955	1965	1975	1955 to 1965	1965 to 1975	1955	1965	1975
Total, 14 and over	7,102	7,481	8,526	+ 5.3	+14.0	60.1	58.4	58.8
14 to 19 years	407	588	751	+44.5	+27.7	37.0	34.6	35.5
20 to 24 years	689	737	1,108	+ 7.0	+50.3	71.5	70.9	72.2
25 and over	6,006	6,156	6,667	+ 2.5	+ 8.3	61.6	61.1	61.4
Males, 14 and over	4,745	4,709	5,249	− 0.8	+11.5	84.1	78.0	76.8
14 to 19 years	211	319	403	+51.2	+26.3	39.5	37.1	37.7
20 to 24 years	408	415	655	+ 1.7	+57.8	87.0	85.0	85.4
25 and over	4,126	3,975	4,191	− 3.7	+ 5.4	88.9	84.8	83.8
Females, 14 and over	2,357	2,772	3,277	+17.6	+18.2	38.2	40.9	42.8
14 to 19 years	196	269	348	+37.2	+29.4	34.8	32.0	33.3
20 to 24 years	281	322	453	+14.6	+40.7	56.8	58.4	59.0
25 and over	1,880	2,181	2,476	+16.0	+13.5	36.8	40.5	42.3

[a] Civilian labor force as a percent of the civilian noninstitutional population.
Note: See tables I-3 through I-5 for detailed information as to age levels above 24.

Table I-3. Older Workers in the Labor Force, By Age Group and Sex, New York State, 1955, 1965, and 1975

Age and sex	Civilian labor force: Number, in thousands			Civilian labor force: Percent change		Labor force participation rate		
	1955	1965	1975	1955 to 1965	1965 to 1975	1955	1965	1975
Total, 14 and over	7,102	7,481	8,526	+ 5.3	+14.0	60.1	58.4	58.8
Under 45 years	4,239	4,349	5,051	+ 2.6	+16.1	63.2	61.3	61.6
45 to 54 years	1,473	1,611	1,804	+ 9.4	+12.0	71.4	74.7	78.3
55 to 64 years	1,017	1,159	1,280	+14.0	+10.4	62.0	65.3	66.8
65 and over	373	362	391	− 2.9	+ 8.0	26.6	20.3	18.8
Males, 14 and over	4,745	4,709	5,249	− 0.8	+11.5	84.1	78.0	76.8
Under 45 years	2,778	2,744	3,175	− 1.2	+15.7	86.5	80.6	79.5
45 to 54 years	979	988	1,076	+ 0.9	+ 8.9	97.4	97.1	97.9
55 to 64 years	712	732	755	+ 2.8	+ 3.1	89.6	87.2	86.8
65 and over	276	245	243	−11.2	− 0.8	43.7	31.6	27.9
Females, 14 and over	2,357	2,772	3,277	+17.6	+18.2	38.2	40.9	42.8
Under 45 years	1,461	1,605	1,876	+ 9.9	+16.9	41.8	43.4	44.6
45 to 54 years	494	623	728	+26.1	+16.9	46.7	54.6	60.4
55 to 64 years	305	427	525	+40.0	+23.0	36.1	45.6	50.2
65 and over	97	117	148	+20.6	+26.5	12.6	11.7	12.2

1975 (5.3 percent of the total labor force). These figures would be higher if older women were not continually contributing a larger and larger share of the labor force.

Young people of 18 usually have finished high school and are ready to go to work, to enter college, to serve in the armed forces, or, in the case of some young women, to assume the responsibility of homemaking. In 1940 there were 236,000 18-year-olds in the State; by 1960 the number had dropped to 203,000. In 1965 there were 304,000; this reflects the high birth rate of 1947—it was the State's highest in thirty years, and has not been exceeded since.

To sum up the 1965-75 picture of young persons in the job market: during the ten-year period about 1,900,000 young people, 14 to 24 years of age, will enter the labor market looking for a job; about 1,100,000 will be boys and 800,000 will be girls.

Table I-4. Women Workers in the Labor Force, By Age Group, New York State, 1955, 1965, and 1975

Age and sex	*Civilian labor force*					*Labor force participation rate*		
	Number, in thousands			*Percent change*				
	1955	*1965*	*1975*	*1955 to 1965*	*1965 to 1975*	*1955*	*1965*	*1975*
Total, 14 and over	7,102	7,481	8,526	+ 5.3	+14.0	60.1	58.4	58.8
Males, 14 and over	4,745	4,709	5,249	− 0.8	+11.5	84.1	78.0	76.8
Females, 14 and over	2,357	2,772	3,277	+17.6	+18.2	38.2	40.9	42.8
Under 25 years	477	591	801	+23.9	+35.5	45.0	42.4	44.2
25 to 34 years	457	433	513	− 5.3	+18.5	37.5	40.4	40.0
35 to 44 years	527	581	562	+10.2	− 3.3	43.2	47.2	50.7
45 and over	896	1,167	1,401	+30.2	+20.1	33.5	37.9	40.5

Older Workers

Table I-3, presenting data on older workers, shows that during the last decade (1955-65) the number of men in the labor force between the ages of 45 and 54 has remained stationary, but the number of women at that age level has increased substantially. Taking a broader group of older people, those 45-64, it is expected that the number of men of these ages in the labor force will increase by about 6 percent during the next decade. The number 65 and over will continue to decline. For women, a continuation of the recent trends toward greater participation in the labor force can be expected, with an increase in each group above the 44-year level.

Most men aged 45-54 are in the labor force, so changes in the number in the labor force in this age group simply reflect changes in the size of the male population 45-54. For men 55-64, however, particularly those in the 62-64 age group, there has been a tendency in recent years for labor force participation to go down. Two factors help explain this development: (1) beginning in 1961, the social security system permitted men, if they wished, to retire at age 62 with a reduced benefit, instead of at age 65 with full benefit; and (2) an early-retirement provision has been inserted into more private pension plans. In spite of these reductions in past and anticipated participation rates, it is expected that the number of working men in the 55-64 age group will rise by 3 percent in the 1965-75 decade, which matches the increase during the previous ten years.

The number of men 65 and over in the labor force fell more than 10 percent between 1955 and 1965; this reflects a decline in participation rates of men in this age group from 44 percent in 1955 to 32 percent in 1965, as more men took advantage of their retirement rights under social security and other pension plans. It also reflects the fact that many older men who lose their jobs withdraw from the labor market because they have great difficulty finding a new job. A study by the U.S. Department of Health, Education, and Welfare suggests that about 20 percent of the men 62 and over who retired between 1957 and 1962 withdrew from the labor force because they lost their jobs.[1]

The shortage of labor in World War II brought many older women, as well as younger, into the labor market—and their experience presumably accelerated the rising trend in the proportion of older women holding jobs. The trend, originating in the desire to raise the family's level of living, has been encouraged by increased opportunities for work, especially in recent prosperous years. To a greater extent than their mothers, women today find that their working is socially accepted; and it becomes more acceptable as more of them take jobs.

It is anticipated that these trends will continue in the future and that women 45 and over will add nearly 250,000 persons to the State's labor force between 1965 and 1975. Of women 65 and over, about 1 out of 9 is in the labor force, and this ratio is expected to persist —in contrast to the expected drop in the ratio for men 65 and over (now about 1 out of 3).

Women 25 to 44 Years of Age

There will be 80,000 more women 25-34 in the labor force in 1975 than in 1965 (table I-4), despite the fact that their average labor-force-participation rate will not rise. Their rate stays fairly steady, because at these ages many women still have young children to care for. The rise of 80,000 is simply due to the fact that there will be more women at these age levels in the population in 1975, because birthrates were strikingly higher after World War II than a decade earlier.

As to women 35-44, it is expected that there will be about 20,000 fewer in the labor force in 1975 than in 1965, despite the fact that their average labor-force-participation rate will continue to rise during the decade. The drop in the number in the labor force will come about because in 1975 there will be less women 35-44 in the population than in 1965, since

[1] Erdman Palmore, "Retirement Patterns Among Aged Men: Finding of the 1963 Survey of the Aged," *Social Security Bulletin*, August 1964, pp. 3-10.

birthrates were considerably lower in the 1930's than a decade earlier.

Men of Prime Working Age

Men aged 25 to 44 form the core of the working population. Almost all are in the labor force; the small proportion not in the labor force are generally persons who cannot work because they are seriously handicapped or disabled. There are also a small number who are finishing their education and are not working; they account for the fact that the labor force participation rate of the 25-34 group is slightly lower than that of the 35-44 group (see table I-5).

Table I-5. Men of Prime Working Age in the Labor Force, By Age Group, New York State, 1955, 1965, and 1975

Age and sex	Civilian labor force: Number, in thousands			Civilian labor force: Percent change		Labor force participation rate		
	1955	1965	1975	1955 to 1965	1965 to 1975	1955	1965	1975
Total, 14 and over	7,102	7,481	8,526	+ 5.3	+14.0	60.1	58.4	58.8
Males, 14 and over	4,745	4,709	5,249	− 0.8	+11.5	84.1	78.0	76.8
14 to 24 years	619	734	1,058	+18.6	+44.1	61.7	54.5	57.6
25 to 34 years	1,084	898	1,163	−17.2	+29.5	97.5	97.5	97.6
35 to 44 years	1,075	1,112	954	+ 3.4	−14.2	98.0	97.9	98.6
45 and over	1,967	1,965	2,074	− 0.1	+ 5.5	80.9	74.7	73.0
Females, 14 and over	2,357	2,772	3,277	+17.6	+18.2	38.2	40.9	42.8

The low birth rates of the 1930's largely account for the fact that in 1965 there were few men, relatively speaking, in the 25-34 group. But there were other factors, including the migration of young families to the New Jersey and Connecticut suburbs, and the growth of the armed forces. There were about 200,000, or 17 percent, fewer men in the 25-34 age group in 1965 than there had been ten years earlier.

In 1975 these same people will be 35-44, and the scarcity will be found at that age level, which contributes many experienced men in the higher professional and managerial ranks. The fact that there will be so few men 35-44 in 1975 (about 14 percent fewer than in 1965) will, along with governmental manpower and job development programs, tend to open opportunities for better jobs to people who are at a disadvantage in the job market: women, Negroes, Puerto Ricans, and older men. Also, some young people will be promoted faster.

Relatively many younger people will be available for promotion. There will be about 265,000 (30 percent) more men in the 25-34 age group than there had been in 1965, because there were more births in the 1940's than in the 1930's. This means that one can expect that, during the 1965-75 decade, there will be more professional men who will be at the start of their careers, available to take over some of the jobs that employers will want to fill, as well as more young men with some experience able to take over some of the higher-level jobs in nonprofessional occupations in business and industry.

Nonwhites and Persons of Puerto Rican Origin

For almost a century the Negro population has been migrating from the South. This movement accelerated during and after World War I and became even more rapid during and after World War II. In the 1950's, 1,500,000 Negroes left the South, approximately 70 percent of them going to the industrialized Middle Atlantic and East North Central states; most of the rest (24 percent of the total) went to California. As a result of this migration, only 60 percent of the Negroes of the United States now live in the South, where they account for one-fifth of the population. While the migrations encompassed Negroes of all ages, the rate of net out-migration from the southern states was highest among the young.

The movement of Negroes, both to other regions and within the South, has been a movement from the farms to the cities, a trend hastened by the marked reduction in farm jobs over the past two decades. By 1960, 72.4 percent of the country's Negro population was living in urban areas, as compared with 69.5 percent of the white population.

In 1940, 4.4 percent of New York State's total population was nonwhite; by 1960 the proportion had risen to 8.8 percent. By 1975 the proportion is expected to be 12.3 percent. Table I-6 presents the distribution of the State and City population and labor force for 1965 and 1975 by ethnic group.

New York City's proportion of the State's nonwhites (non-Puerto Rican) was 76 percent in 1960, down from 80 percent in 1940. By 1975 it is anticipated that nonwhites in New York City will be 74 percent of the State's nonwhite population.

Nonwhites accounted for 13.0 percent of the working-age population in New York City in 1960 and an

estimated 15.4 percent in 1965. By 1975, this proportion is expected to increase to 19.2 percent. As a result of the relatively rapid increase in the nonwhite population of working age, the number of nonwhites as a percent of New York City's total labor force is expected to rise from 16 percent in 1965 to 20 percent in 1975.

New York City is also the place where many Puerto Ricans have settled. During the 1940's about 90 percent of the migrants from the island to the mainland settled in New York City. Since then the proportion has declined and in the mid-60's seemed to be leveling off at around 60 percent.

The exodus from the island has been especially marked since World War II. In 1940 there were 61,000 persons in New York City who had been born in Puerto Rico; by 1950 the number had grown to 187,000, and by 1960 to 430,000.

The year 1953 was the high year of in-migration from Puerto Rico; arrivals in New York City are estimated to have been 52,000. This is a net figure—arrivals minus departures. In 1954 scarcity of jobs on the mainland sent many back; net arrivals in New York City amounted to only 16,000. For the 1950's decade as a whole the figure was 309,000; but some moved on to other parts of the United States.

During the 1960's the number of in-migrants from Puerto Rico has declined; in fact in 1961 and 1963 the movement was reversed and there was a net migration back to the island from New York City. The reversal reflects relatively poor economic conditions in New York City in those years, but also improved economic conditions in Puerto Rico. It is expected that during 1965-75 net migration to the mainland will level off at about 10,000 a year, with about 6,000 going to New York City.

A further exodus of the white population from New York City to the suburbs is anticipated during the next decade. Accordingly, the City's labor force in 1975 will be 69 percent white (non-Puerto Rican), 20 percent nonwhite (non-Puerto Rican), and 11 percent Puerto Rican. The corresponding figures for 1965 were 76 percent white, 16 percent nonwhite, and 8 percent Puerto Rican. During the next decade, 286,000 nonwhites and Puerto Ricans will be added to the City's labor force, while at the same time, 175,000 whites will be subtracted. Many of these whites will have moved to the suburbs and will commute to their jobs in the city. Major efforts obviously must be made by the schools and by employers to train Negroes and Puerto Ricans to fill an increasing proportion of the white-collar jobs.

Similar demographic trends prevail in New York State as a whole. The higher-than-average birthrates and the continued migration of Negroes and Puerto

Table I-6. Ethnic Groups in the Total Population, In the Population 14 and Over, and in the Labor Force, New York State and New York City, 1965 and 1975

(Percent distribution)

Ethnic Group	*Total population*		*Population 14 and over*		*Labor force*	
	1965	*1975*	*1965*	*1975*	*1965*	*1975*
Percent distribution, New York State						
All ethnic groups	100.0	100.0	100.0	100.0	100.0	100.0
White, non-Puerto Rican	85.1	82.1	86.3	83.8	85.0	82.5
Nonwhite, non-Puerto Rican	10.5	12.3	9.6	11.0	10.7	12.1
Puerto Rican	4.4	5.6	4.1	5.2	4.3	5.4
Percent distribution, New York City						
All ethnic groups	100.0	100.0	100.0	100.0	100.0	100.0
White, non-Puerto Rican	72.7	64.8	76.2	69.3	75.7	68.9
Nonwhite, non-Puerto Rican	17.8	22.3	15.4	19.2	16.2	20.0
Puerto Rican	9.5	12.9	8.4	11.5	8.1	11.1
New York City as percent of New York State						
All ethnic groups	44.3	40.7	46.9	42.3	49.7	44.9
White, non-Puerto Rican	37.9	32.1	41.5	35.0	44.2	37.5
Nonwhite, non-Puerto Rican	75.0	74.0	75.0	74.0	75.4	74.4
Puerto Rican	95.3	94.3	94.9	94.0	93.8	92.4

Ricans into New York State mean that their number in the State will continue to increase in the next decade more rapidly than that of the population as a whole. Between 1965 and 1975 the population 14 and over of nonwhites and persons of Puerto Rican origin in the State is expected to increase by 32.4 percent (573,000), while 10 percent (1,115,000) is the expected rise for non-Puerto Rican whites.

As a result, nonwhites and Puerto Ricans, who made up 15.0 percent of the State labor force in 1965, will account for 17.5 percent in 1975. In the 25-to-54-year-old stratum of the labor force they will constitute a somewhat larger proportion—18.2 percent (16.3 percent in the case of men and 21.4 percent in the case of women). In this age group, nonwhite males have a lower labor-force-participation rate than white males, but nonwhite females have much higher participation rate than white females. Compared to whites, relatively fewer Negroes and Puerto Ricans in the State's labor force will be in the 55-and-over age bracket in 1975, and relatively many more will be of younger ages. (Tables I-7 and I-8.)

A far smaller proportion of nonwhites and Puerto Ricans than of non-Puerto Rican whites are in professional, technical, clerical, sales, and craft occupations. The opposite is true of jobs as operatives, service workers, and laborers. (Table I-9.)

In part the occupational status of nonwhites and Puerto Ricans results from their lower average educational attainment. In 1960 the white non-Puerto Rican

Table I-7. Ethnic Groups in the Population and in the Labor Force, By Age Group and Sex, New York State, 1965 and 1975

Age and sex	*Total*		*White, non-Puerto Rican*		*Nonwhite, non-Puerto Rican*		*Puerto Rican*	
	1965	*1975*	*1965*	*1975*	*1965*	*1975*	*1965*	*1975*
Civilian noninstitutional population (in thousands)								
Total, 14 and over	12,812	14,500	11,046	12,161	1,235	1,591	531	748
Male	6,035	6,837	5,230	5,765	554	715	251	357
14-24	1,347	1,837	1,119	1,478	142	232	86	127
25-54	3,074	3,258	2,621	2,715	312	356	141	187
55 and over	1,614	1,742	1,490	1,572	100	127	24	43
Female	6,777	7,663	5,816	6,396	681	876	280	391
14-24	1,393	1,812	1,138	1,437	164	247	91	128
25-54	3,443	3,595	2,890	2,929	397	460	156	206
55 and over	1,941	2,256	1,788	2,030	120	169	33	57
Labor force participation rate (percent)								
Total, 14 and over	58.4	58.8	57.6	57.9	64.8	64.6	60.3	61.4
Male	78.0	76.8	77.9	76.5	78.3	77.9	80.0	79.6
14-24	54.5	57.6	53.4	56.5	58.5	60.7	62.3	64.5
25-54	97.5	98.0	98.1	98.4	92.5	95.3	97.5	98.1
55 and over	60.5	57.3	60.7	57.4	61.7	60.7	41.7	45.2
Female	40.9	42.8	39.3	41.1	53.7	53.8	42.5	44.7
14-24	42.4	44.2	42.0	43.3	46.5	50.4	41.2	43.0
25-54	47.5	50.2	45.6	48.4	61.1	61.3	48.0	50.7
55 and over	28.0	29.8	27.4	29.2	38.9	38.3	22.0	27.8
Civilian labor force (in thousands)								
Total, 14 and over	7,481	8,526	6,361	7,039	800	1,028	320	459
Male	4,709	5,249	4,074	4,408	434	557	201	284
14-24	734	1,058	597	835	83	141	54	82
25-54	2,998	3,193	2,572	2,671	289	339	137	183
55 and over	977	998	905	902	62	77	10	19
Female	2,772	3,277	2,287	2,631	366	471	119	175
14-24	591	801	478	622	76	124	37	55
25-54	1,637	1,803	1,319	1,417	243	282	75	104
55 and over	544	673	490	592	47	65	7	16

males in the State who were 14 or over had completed 10.9 years of school on the average, noticeably more than the 9.5 average of the nonwhite males and the 8.4 of the Puerto Rican males. In the case of nonwhites the gap was somewhat narrower among the younger people. (Table I-10.)

Similarly, 41 percent of white males had completed four years of high school compared with 28 percent of nonwhites and 14 percent of Puerto Ricans. Among males 20-24, about 35 percent of the whites had been to college one or more years, compared with 10 percent of the nonwhites and between 3 and 4 percent of the Puerto Ricans.

Educational Attainment

Young people are in general staying in school longer, so that the population's average number of years of school completed has been rising. The average is expected to increase considerably during the decade 1965-75.

By the time they are 25, all but a few people have completed their formal education. In 1965, of people 25 and over, 10 percent had completed 4 or more years of college; but, as may be seen in the second part of table I-11, in 1975 the figure is expected to be around 13 percent. The expansion of the colleges and universities in New York State during the recent past, particularly the expansion of the State University, helps make this possible.

Table I-8. Ethnic Groups in the Population and in the Labor Force, By Age Group and Sex, New York City, 1965 and 1975

Age and sex	*Total*		*White, non-Puerto Rican*		*Nonwhite, non-Puerto Rican*		*Puerto Rican*	
	1965	*1975*	*1965*	*1975*	*1965*	*1975*	*1965*	*1975*
Civilian noninstitutional population (in thousands)								
Total, 14 and over	6,011	6,137	4,581	4,257	926	1,177	504	703
Male	2,795	2,836	2,144	1,977	413	526	238	333
14-24	547	633	381	386	95	146	71	101
25-54	1,427	1,400	1,064	962	229	262	134	176
55 and over	821	803	699	629	89	118	33	56
Female	3,216	3,301	2,437	2,280	513	651	266	370
14-24	573	632	386	366	112	163	75	103
25-54	1,640	1,566	1,196	1,033	295	335	149	198
55 and over	1,003	1,103	855	881	106	153	42	69
Labor force participation rate (percent)								
Total, 14 and over	61.8	62.3	61.4	61.9	65.1	65.0	59.5	60.3
Male	80.5	78.9	81.0	79.1	78.9	78.7	78.6	78.4
14-24	59.2	61.3	59.3	61.7	57.9	59.6	60.6	62.4
25-54	98.0	98.6	98.8	99.0	94.2	97.3	97.6	98.2
55 and over	64.2	58.7	65.7	59.5	62.0	60.6	40.0	44.1
Female	45.6	48.1	44.2	47.1	54.0	53.9	42.5	44.1
14-24	51.5	53.2	54.4	56.8	47.7	50.9	42.7	43.7
25-54	52.5	57.2	50.8	56.7	62.3	62.9	47.0	49.4
55 and over	30.9	32.3	30.3	31.7	37.5	37.0	25.0	28.3
Civilian labor force (in thousands)								
Total, 14 and over	3,715	3,826	2,812	2,637	603	765	300	424
Male	2,249	2,239	1,736	1,564	326	414	187	261
14-24	324	388	226	238	55	87	43	63
25-54	1,398	1,380	1,051	952	216	255	131	173
55 and over	527	471	459	374	55	72	13	25
Female	1,466	1,587	1,076	1,073	277	351	113	163
14-24	295	336	210	208	53	83	32	45
25-54	861	895	607	586	184	211	70	98
55 and over	310	356	259	279	40	57	11	20

Correspondingly, the proportion of the population 25 and over that has not finished high school is expected to decline from 55 percent in 1965 to 46 percent in 1975. One element important in this change is the gradual dying off of the people who arrived as immigrants with little or no schooling before immigration was curtailed around the time of World War I. They are being replaced by younger people who, in part because of compulsory education laws, have higher levels of educational attainment. However, there continues to be some migration into the State—from other states, from Puerto Rico, and from abroad—of people whose educational attainment is lower than that of people who have grown up in New York State.

The first part of table I-11 presents education figures for the entire population 14 and over. About 35 percent of this over-all group had not gone beyond elementary school in 1960. The figure was down to 30-31 percent in 1965, and is expected to be only 22 percent in 1975. (All three of these figures overstate the proportion that have not gone beyond elementary school, since they include some pupils in the eighth and ninth grades who will go on to high school.)

Since the population of the State will be better educated in 1975, the labor force will be better educated. As may be seen from the following tabulation, 15 to 16 percent of the civilian labor force 14 or more years old will have four years or more of college education in 1975; in 1965 the corresponding figure was 12 percent. An even more striking increase, however, will take place in the proportion who have four years of high school or one or two or three years of college: these levels in 1965 account for 40 percent of the labor force; by 1975 for 47 percent:

	1965	*1975*
All levels	100.0%	100.0%
8 years or less of school	23.8	14.8
1 to 3 years of high school	24.2	22.5
4 years of high school	28.9	33.6
1 to 3 years of college	10.9	13.7
4 years or more of college	12.2	15.4

The next lower level of educational attainment is attendance at high school for less than four years; except for a relatively few boys and girls who are working while still going to high school, this group consists of drop-outs from high school. It will account for 22.5 percent of the labor force in 1975, as against 24 percent in 1965.

Table I-9. Occupation Group of Employed Persons, By Ethnic Group, New York State, 1960

(Percent distribution)

Occupation group	*Total*	*White, non-Puerto Rican*	*Nonwhite, non-Puerto Rican*	*Puerto Rican*
	Male			
All occupations	100.0	100.0	100.0	100.0
Professional, technical, and kindred	13.0	14.0	5.4	2.2
Managers, officials, and proprietors	12.5	13.4	4.5	3.6
Clerical and kindred workers	10.4	10.3	12.4	9.0
Sales workers	8.1	8.7	2.5	3.1
Craftsmen, foremen, & kindred workers	19.3	20.1	12.0	11.2
Operatives and kindred workers	19.7	18.2	28.3	44.1
Service workers	9.1	7.8	21.2	20.4
Farmers and farm laborers	2.3	2.5	0.7	0.5
Laborers, except farm and mine	5.6	5.0	13.0	5.9
	Female			
All occupations	100.0	100.0	100.0	100.0
Professional, technical, and kindred	14.0	15.1	8.3	3.0
Managers, officials, and proprietors	3.8	4.3	1.2	1.1
Clerical and kindred workers	36.4	39.8	16.7	13.4
Sales workers	7.2	7.9	2.6	2.5
Craftsmen, foremen, & kindred workers	1.4	1.4	1.1	1.9
Operatives and kindred workers	18.6	16.1	23.1	69.6
Service workers	17.7	14.6	46.1	7.7
Farmers and farm laborers	0.5	0.5	0.1	*
Laborers, except farm and mine	0.4	0.3	0.8	0.8

* Less than 0.05 of a percent.

Table I-10. Years of School Completed By Persons 14 and Over, By Ethnic Group and Sex, New York State, 1960

(Percent distribution)

Years of school Completed	*Male*			*Female*		
	White, non-Puerto Rican	*Nonwhite, non-Puerto Rican*	*Puerto Rican*	*White, non-Puerto Rican*	*Nonwhite, non-Puerto Rican*	*Puerto Rican*
Population 14 and over						
All levels	100.0	100.0	100.0	100.0	100.0	100.0
8 years or less	34.2	45.1	61.3	33.0	40.0	63.0
1 to 3 years of high school	24.6	26.9	25.0	23.7	27.6	22.8
4 years of high school	20.7	18.5	10.4	28.6	24.1	11.5
1 to 3 years of college	9.5	5.6	2.4	8.4	5.2	2.0
4 or more years of college	11.0	3.9	0.9	6.3	3.1	0.7
Median years	10.9	9.5	8.4	11.2	10.1	8.2
Population 20-24						
All levels	100.0	100.0	100.0	100.0	100.0	100.0
8 years or less	11.0	20.7	46.2	7.2	14.9	44.7
1 to 3 years of high school	21.0	36.5	34.2	19.0	33.2	30.4
4 years of high school	33.4	32.3	16.1	46.0	40.8	21.0
1 to 3 years of college	24.2	8.4	2.9	19.4	8.7	3.2
4 or more years of college	10.4	2.1	0.6	8.4	2.4	0.7
Median years	12.5	11.4	9.3	12.5	12.0	9.5

There will be a striking decline in the number who classify at the lowest level (elementary school only). While the labor force is rising by a million, a drop of half a million is expected to take place in the number of members of the labor force at this level. The result will be that they will constitute only 15 percent of the labor force of the State in 1975.

Table I-12 deals with the educational attainment of the labor force by age and sex. Among older workers, age 45 and over, it appears that the proportion who have attended only elementary school is expected to decline sharply from 38 percent in 1965 to 24 percent in 1975; for example, as was said earlier, every year some immigrants of before World War I are being replaced by the movement into the 45-and-over level of people who have had more of a chance at schooling. This decline at the lowest educational level means, of coure, an increase in the proportion of persons 45 and over who will be at the higher educational levels: a small increase in the proportion who have completed only one to three years of high school and larger increases at the higher rungs of the educational ladder.

Among the persons 14-24 who are not in school (male plus female), the proportion who had only

Table I-11. Years of School Completed By Persons 14 and Over and 25 and Over, New York State, 1960, 1965, and 1975

Years of school completed	*1960*	*1965*	*1975*
Population 14 and over			
Number at all levels (thousands)	12,161	12,812	14,500
Percent distribution			
All levels	100.0	100.0	100.0
8 years or less of school	35.1	30.5	22.0
1 to 3 years of high school	24.4	25.3	24.7
4 years of high school	24.2	26.0	30.6
1 to 3 years of college	8.4	9.4	11.8
4 or more years of college	7.9	8.8	10.9
Population 25 and over			
Number at all levels (thousands)	9,918	10,072	10,851
Percent distribution			
All levels	100.0	100.0	100.0
8 years or less of school	38.2	33.7	24.1
1 to 3 years of high school	20.8	21.4	22.1
4 years of high school	24.1	26.2	30.8
1 to 3 years of college	8.0	8.6	10.1
4 or more years of college	8.9	10.1	12.9

Table I-12. Years of School Completed By Persons in the Labor Force, By Sex and Age, New York State, 1965 and 1975

Years of school completed	All ages 14 and over	Ages 14-24			Ages 25-44	Age 45 and over
		Total	In school	Not in school		
1965—Males 14 and over in civilian labor force						
Number at all levels (thousands)	4,709	734	289	445	2,010	1,965
Percent distribution						
All levels	100.0	100.0	100.0	100.0	100.0	100.0
8 years or less of school	25.6	13.4	12.1	14.2	16.2	39.7
1 to 3 years of high school	24.9	33.9	47.8	24.9	24.2	22.3
4 years of high school	25.0	31.5	13.5	43.1	28.9	18.7
1 to 3 years of college	11.0	15.3	21.5	11.2	11.9	8.3
4 years or more of college	13.5	5.9	5.1	6.6	18.8	11.0
1975—Males 14 and over in civilian labor force						
Number at all levels (thousands)	5,249	1,058	466	592	2,117	2,074
Percent distribution						
All levels	100.0	100.0	100.0	100.0	100.0	100.0
8 years or less of school	16.0	8.2	7.7	8.6	10.2	26.2
1 to 3 years of high school	22.9	24.7	34.8	16.7	22.6	22.2
4 years of high school	29.3	35.9	22.1	46.9	29.1	26.0
1 to 3 years of college	14.3	23.1	29.2	18.2	13.5	10.6
4 years or more of college	17.5	8.1	6.2	9.6	24.6	15.0
1965—Females 14 and over in civilian labor force						
Number at all levels (thousands)	2,772	591	170	421	1,014	1,167
Percent distribution						
All levels	100.0	100.0	100.0	100.0	100.0	100.0
8 years or less of school	20.9	6.4	8.2	5.7	13.7	34.4
1 to 3 years of high school	23.1	27.1	51.7	17.1	21.3	22.5
4 years of high school	35.1	43.3	15.9	54.4	41.2	25.9
1 to 3 years of college	10.9	15.9	21.8	13.5	11.1	8.2
4 years or more of college	10.0	7.3	2.4	9.3	12.7	9.0
1975—Females 14 and over in civilian labor force						
Number at all levels (thousands)	3,277	801	256	545	1,075	1,401
Percent distribution						
All levels	100.0	100.0	100.0	100.0	100.0	100.0
8 years or less of school	12.8	4.5	5.9	3.9	8.5	20.7
1 to 3 years of high school	21.8	21.6	41.0	12.5	18.9	24.3
4 years of high school	40.5	45.5	25.8	54.8	42.6	35.8
1 to 3 years of college	12.8	20.5	25.0	18.3	13.3	8.1
4 years or more of college	12.1	7.9	2.3	10.5	16.7	11.1

elementary school is expected to decline from 10 percent in 1965 to 6 percent in 1975; similarly, the proportion who are drop-outs from high school will decline from 21 percent to 15 percent of the 14-to-24-year-olds in the labor force.

Among *men* who are 45 or over, those with more education are more likely to be in the labor force: in 1960 about 90 percent of the college graduates 45 or over were in the labor force, but only about 75 percent of those who had less than a high school education. One reason is that (within the 45-plus group) the men with less education are likely to be older and therefore more likely to be retired. Another reason is that their lack of job skills frequently makes it difficult for them to continue working after they lose their job, and they are forced into premature retirement. Many college graduates, on the other hand, work in higher-level professional and managerial jobs, in which advancing years represents less of a handicap and which offer a great deal of job satisfaction; as a result more of them continue working, and they are more likely to reach an older age on the job than are workers in lower-level jobs.

Between age 25 and age 44 almost all males are in the labor force, regardless of educational level.

Below age 25, the labor-force-participation rate of males depends on whether they are enrolled in school full-time, have finished school, or are school dropouts. Almost all of those who finished high school and did not go to college are in the civilian labor force, if they are not in the Armed Forces; the participation rate of this group was over 95 percent in 1965. Many of the full-time students who want to work are in the market only for a part-time job. Of the students who have jobs, about half of those between the ages of 18 and 24 were doing white-collar work in 1965, while those 14 to 17 were more likely to be working as laborers (farm or nonfarm), newsboys, or service workers doing odd jobs. The labor force participation rate of older students is above that of younger ones.

Women with more education are more likely to be in the labor force. In 1965, among women 45 and over, 64 percent of the college graduates were in the labor force, but only 27 percent of those with simply an elementary school education. In the next-lower age bracket, 25-44, which is a time of bearing and rearing children, the difference is less marked: 57 percent of the college graduates were in the labor force as against 43 percent of those who just went to elementary school. Taking all females 14 and over together, 63 percent of the college graduates were in the labor force in 1965, but 28 percent of those with only an elementary school education.

Chapter II
Manpower Requirements

This chapter turns from the subject of the supply of labor to the demand for labor—how many workers and what kinds will be required in the future by New York State employers in industry and government.

The projections for 1970 and 1975 are made on the basis of a number of assumptions, one of which is that in the projection years there will be relatively full employment (96 percent of the labor force employed, 4 percent unemployed). They do not pinpoint the future; they should be looked on as a projection for a relatively prosperous year at the end of the 1960's and one for a relatively prosperous year in the middle of the 1970's. If either 1970 or 1975 is depressed or unusually prosperous, the actual number of jobs available in that year may deviate noticeably from the number projected.

Other major assumptions are: (1) That during the intervening years there will be no war or other cataclysmic event of a degree to substantially alter the rate and nature of economic growth; and that national security expenditures (excluding space) in 1970 will not be significantly different from what they were in 1964 (in constant dollar terms).[1] (2) That economic and social patterns and relationships in our society, including patterns of consumption, will continue to change at about the same rate as in the recent past; that the scientific and technological advances of recent years will continue and that research and development expenditures will continue to grow, though at a slower rate.

[1] The assumption of no war and the 1964 level of national security expenditures obviously does not hold in 1967, when this is written. In mid-1965 defense expenditures began to increase to meet needs in Vietnam. National defense expenditures rose from $47.4 billion in fiscal 1965 to about $68.4 billion in fiscal 1967. These expenditures have had a substantial impact on employment in several of New York's manufacturing industries, particularly electrical and non-electrical machinery, aircraft, and instruments. Employment in these industries in 1967 reached or approached the projections for 1970 in the present study; in the aircraft and instruments industries it was higher than the "1970" level. Machine operatives, assemblers and craftsmen in metal-working lines, electricians, technicians, and engineers are occupations that have been particularly affected by the rising volume of defense production. Cessation or substantial curtailment of hostilities would be likely to reduce the present level of employment in industries and occupations heavily involved in defense production. The indirect effects of increased government defense spending on nondefense industries include greater employment in trade and service industries as well as in other nonmanufacturing industries.

In part at least because of multiplying programs concerned with poverty, housing, civil rights, narcotics, and other problems mainly of an urban nature, government employment, particularly state and local government, has been increasing more rapidly than was anticipated in these projections.

In 1970 and 1975 there will of course be more jobs in existence in the State than there were in 1965, but the degree of change will vary from industry to industry, and will vary even more from occupation to occupation. In some industries and occupations there will be a decline. The first task of the projections is to estimate the size of these rises and declines. The forces that bring them about may be summed up by the term "industrial change."

During the decade, employers will from time to time take on additional workers of various sorts, or lay some off, in response to these industrial changes, but also in response to the fact that employees have died or retired. In fact, the second task of the projections is to estimate the number of deaths and retirements during the decade in various occupations, so as to present the complete picture of employers' needs between 1965 and 1975.

Accordingly, the projected *number of jobs* refers to the number there will be in various industries and occupations in 1970 and 1975, in contrast to the number in 1965, as a result of industrial change.

The term *job requirements* refers to the number of jobs that will open up to be filled during the decade as a result of both factors—industrial change and deaths and retirements.

The projections of the number of jobs as of 1970 and 1975 are not projections of what employment will actually be; for adequate quantities of adequately trained manpower will not necessarily be available to meet the needs in all the occupations.[2]

Estimates of future manpower requirements suffer from inability to anticipate adequately the adjustment processes of the economy. Manpower needs in particular occupations can be accommodated in a variety of ways. Formal education and formal training are one means, and it is primarily to help point up needs for programs of this sort that the present projections have been undertaken. But much can also be accomplished by utilizing the existing work force more efficiently, by inducing workers to shift from occupations and areas where needs are less urgent, or by inducing nonworking persons to take jobs. By these means projected shortages may be forestalled.

[2] Unless otherwise indicated, the job projection data include all jobs, regardless of the fact that two or more may be held by one person. For a statement concerning multiple job holders, see section below in this chapter on "Relation of 'Employed Residents' to 'Jobs.'"

Table II-1. Number of Jobs By Industry Division, New York State, 1955, 1965, and 1975 (in thousands)

Industry division	*1955*	*1965*	*1975*	*Percent change*	
				1955-1965	*1965-1975*
All industries	6,942.3	7,500.0	8,579.9	+ 8.0	+14.4
Goods-related industries	3,279.8	3,007.2	3,116.5	− 8.3	+ 3.6
Agriculture	211.8	133.3	98.0	−37.1	−26.5
Manufacturing[a]	2,099.4	1,911.3	1,934.6	− 9.0	+ 1.2
Durable goods[a]	915.8	868.2	938.6	− 5.2	+ 8.1
Nondurable goods	1,183.6	1,043.1	996.0	−11.9	− 4.5
Contract construction	359.5	376.4	463.7	+ 4.7	+23.2
Transportation and public utilities	609.1	586.2	620.2	− 3.8	+ 5.8
Service-related industries	3,662.5	4,492.8	5,463.4	+22.7	+21.6
Wholesale and retail trade	1,437.3	1,581.5	1,774.6	+10.0	+12.2
Finance, insurance, real estate	479.1	558.0	617.2	+16.5	+10.6
Services and miscellaneous	1,429.9	2,005.9	2,598.8	+40.3	+29.6
Public administration[b]	316.2	347.4	472.8	+ 9.9	+36.1

[a] Includes mining.

[b] "Public administration," as used in this report (following the Population Census system) includes only those activities which are uniquely governmental functions, such as legislative and judicial activities and most of the activities in the executive agencies. Government agencies engaged in educational and medical services and in activities commonly carried on also by private enterprises, such as transportation and manufacturing, are classified in the appropriate industrial category. For example, persons employed by a hospital are classified in the "services" group, regardless of whether they are paid from private or public funds.

Note: For further detail, see appendix tables B and C.

Table II-2. Number of Jobs By Occupation Group, New York State, 1960, 1965, and 1975 (in thousands)

Occupation group	*1960*	*1965*	*1975*	*Percent change*	
				1960-1965	*1965-1975*
All occupations	7,265.0	7,500.0	8,579.9	+ 3.2	+14.4
White-collar occupations	3,654.8	3,902.7	4,634.1	+ 6.8	+18.7
Professional, technical, and kindred workers	930.5	1,072.2	1,395.7	+15.2	+30.2
Managers, officials, and proprietors	712.6	718.3	781.8	+ 0.8	+ 8.8
Clerical and kindred workers	1,443.1	1,535.3	1,829.9	+ 6.4	+19.2
Sales workers	568.6	576.9	626.7	+ 1.5	+ 8.6
Blue-collar occupations	2,508.8	2,490.3	2,660.5	− 0.7	+ 6.8
Craftsmen, foremen, and kindred workers	929.0	947.6	1,082.5	+ 2.0	+14.2
Operatives and kindred workers	1,285.8	1,269.8	1,319.0	− 1.2	+ 3.9
Laborers, excluding farm and mine	294.0	272.9	259.0	− 7.2	− 5.1
Service workers	941.9	987.4	1,198.4	+ 4.8	+21.4
Farmers and farm laborers	159.5	119.6	86.9	−25.0	−27.3

The usual device for meeting this problem of estimating—and the one employed in the present report—is to assume that past trends of manpower utilization and mobility will continue, but make such modifications as are needed to take account of probable new developments in the future as anticipated by informed people. Such estimates, however, are at best approximations, which may substantially underestimate or overestimate the efficiency of the accommodation process.

The projections presented in this report are a modification of projections made by the U.S. Bureau of Labor Statistics for the nation as a whole and they make the same assumptions.[1] The modification consists in large part of adjusting projected national rates of change to reflect past employment trends in the State and their relation to those in the nation.[2]

[1] "Industry Employment Trends and Outlook and Changing Occupational Patterns" in U.S. Bureau of Labor Statistics, *Tomorrow's Needs: National Manpower Projections and a Guide to Their Use as a Tool in Developing State and Area Manpower Projections* (4 volumes; scheduled for publication in the summer of 1968).

[2] New York State Department of Labor, *Manpower Projections for the State and Its Areas: A Preliminary Report on Methodology*, Special Labor News Memorandum 111. See also the Technical Supplement to this report.

INDUSTRIAL CHANGE

The kinds of jobs that will be available in future years will depend on how the structure of New York industry changes (using the term broadly to include government as well as private manufacturing and nonmanufacturing activity). It will also depend on how the skill requirements of individual industries change as the result of changes in technology (improved equipment, new production methods, new materials), changes in the form of industrial organization, and so on.

Some industries have been growing and some declining and, with some modifications, these changes are expected to continue during the next decade, altering the industrial structure or industry mix of the State. As the figures in table II-1 show, the goods-related industries, taken together, dropped from 47 percent of all jobs in 1955 to 40 percent in 1965, and it is expected that the trend will continue to 1975, when they will have 36 percent.

Among the goods-related industries, the industry division with the most notable decline is agriculture. The number of farm jobs fell by 37 percent between 1955 and 1965. The downward trend will continue, though somewhat less rapidly.

As a proportion of all jobs in the State, manufacturing jobs will probably decline from 25 percent in 1965 to 22 percent in 1975. With gains in plants making durable goods overbalancing declines in those making nondurables, the absolute number of jobs in manufacturing may rise slightly between 1965 and 1975, even though it fell by 9 percent during the previous decade. The largest growth in durables is expected in the making of electrical machinery and equipment, instruments, and nonelectrical machinery. In nondurables, absolute declines in the number of jobs are expected during the 1965-75 period in the food, textile, apparel, and leather industries.

As with jobs in manufacturing, the percent that jobs in the transportation and public utilities section of the goods-related industries are of all jobs in the State

Table II-3. Percent Distribution of Jobs According to Industry Division, By Occupation Group, New York State, 1965 and 1975

Industry division	*All occupations*	*Professional (a)*	*Managers (b)*	*Clerical (c)*	*Sales (d)*	*Craftsmen (e)*	*Operatives (f)*	*Service (g)*	*Farm (h)*	*Laborers (i)*
					1965					
Number—all industries	7,500.0	1,072.2	718.3	1,535.3	576.9	947.6	1,269.8	987.4	119.6	272.9
Percent distribution:										
All industries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture, forestry, and fishing	1.8	0.4	0.1	0.1	0.1	0.2	0.2	0.1	100.0	0.2
Contract construction	5.0	2.0	4.9	1.5	0.4	20.8	2.6	0.3	—	22.4
Manufacturing and mining	25.4	17.3	17.1	18.7	14.1	40.2	61.5	2.2	—	18.9
Transportation and public utilities				10.2	0.9	11.8	12.4	2.0	—	20.0
Wholesale and retail trade	21.1	4.4	39.6	19.6	67.2	11.2	13.9	23.1	—	18.6
Finance, insurance, and real estate	7.4	2.5	12.6	18.5	13.2	1.2	0.3	5.7	—	3.3
Services and miscellaneous	26.9	65.6	16.3	21.4	4.0	12.7	8.5	57.8	—	12.5
Public administration	4.6	4.2	3.4	10.0	0.1	1.9	0.6	8.8	—	4.1
					1975					
Number—all industries	8,579.9	1,395.7	781.8	1,829.9	626.7	1,082.5	1,319.0	1,198.4	86.9	259.0
Percent distribution:										
All industries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture, forestry, and fishing	1.1	0.3	0.1	0.1	0.1	0.1	0.2	(j)	100.0	0.1
Contract construction	5.4	2.2	6.0	1.7	0.4	21.8	3.7	0.3	—	24.0
Manufacturing and mining	22.5	16.5	15.4	16.2	13.0	36.3	57.1	1.7	—	15.4
Transportation and public utilities	7.2	3.2	5.5	8.9	1.0	11.5	13.2	1.7	—	17.0
Wholesale and retail trade	20.7	4.0	36.4	19.4	66.9	12.4	15.5	22.3	—	20.2
Finance, insurance, and real estate	7.2	2.4	14.2	17.2	14.0	1.2	0.3	3.7	—	3.8
Services and miscellaneous	30.4	66.5	17.8	26.1	4.5	14.3	9.2	59.5	—	15.2
Public administration	5.5	4.9	4.6	10.4	0.1	2.4	0.8	10.8	—	4.3

a. Professional, technical, and kindred workers. b. Managers, officials, and proprietors, except farms. c. Clerical and kindred workers. d. Sales workers. e. Craftsmen, foremen, and kindred workers. f. Operatives and kindred workers. g. Service workers, including private household workers. h. Farmers, farm managers, and farm laborers. i. Laborers, except farm and mine. j. Less than 0.05 of a percent.

Note: For further detail, see appendix table F.

is expected to decline between 1965 and 1975, though the absolute number of these jobs will rise slightly.

Contract construction is the only goods-related industry division that had more jobs in 1965 than in 1955. Moreover, in the ten years ahead its jobs are expected to increase not only in absolute terms but also as a percent of total jobs.

In contrast to the goods-producing industries, substantial job increases are taking place in New York's other industries, which table II-1 groups as service-related. Among these, public administration is expected to have the largest growth during the 1965-75 period—36 percent. Almost all of this will be in State and local government.

Jobs in finance, insurance, and real estate, which grew more rapidly than total jobs in the 1955-65 period, have in recent years experienced a slower rate of growth because of the increased use of electronic data processing. This trend will continue into the 1965-75 period, resulting in below-average growth for this industry division. Retail and wholesale trade is expected to grow somewhat less rapidly than total jobs during the coming decade. Business, educational, welfare, and engineering services will have greater than average growth.

Changes in the structure of industry will help determine what changes in manpower requirements will face the State during the years ahead in various occupations. For example, since State and local government is a large employer of professional workers (civil engineers, social workers, psychiatrists, college teachers, employment interviewers, etc.), the rapid growth in State and local government activities is one of the principal reasons for the large expansion expected in requirements for professional personnel. The large growth in construction activity will help sustain the demand for craftsmen (construction craftsmen were about 23 percent of all craftsmen in 1965). On the other hand, the continued decline of railroad activity will limit the growth in the number of railroad repairmen and other railroad craftsmen.

In manufacturing, the growth of industries producing aeronautics-space equipment will contribute to the enlarged demand for professional and technical workers, who make up a relatively large proportion of employment in these industries. The decline in the activity of the textile, apparel, and leather industries, on the other hand, will depress the demand for operatives, mainly sewing machine operators, who constitute a substantial segment of total employment there.

Table II-4. Percent Distribution of Jobs According to Occupation Group, By Industry Division, New York State, 1965 and 1975

Industry division	*All occupations*	*Professional (a)*	*Managers (b)*	*Clerical (c)*	*Sales (d)*	*Craftsmen (e)*	*Operatives (f)*	*Service (g)*	*Farm (h)*	*Laborers (i)*
				1965						
All industries	100.0	14.3	9.6	20.5	7.7	12.6	16.9	13.2	1.6	3.6
Agriculture, forestry, and fishing	100.0	3.4	0.7	1.4	0.6	1.3	2.0	0.5	89.6	0.5
Contract construction	100.0	5.8	9.3	5.9	0.6	52.4	8.9	0.8	—	16.3
Manufacturing and mining	100.0	9.7	6.4	15.1	4.2	19.9	40.9	1.1	—	2.7
Transportation, communication, and public utilities	100.0	6.5	7.3	26.7	0.9	19.1	26.9	3.3	—	9.3
Wholesale and retail trade	100.0	3.0	18.0	19.0	24.5	6.7	11.2	14.4	—	3.2
Finance, insurance, and real estate	100.0	4.7	16.2	51.0	13.7	2.0	0.7	10.1	—	1.6
Services and miscellaneous	100.0	35.0	5.8	16.4	1.2	6.0	5.4	28.5	—	1.7
Public administration	100.0	12.9	7.0	44.4	0.1	5.1	2.3	24.9	—	3.3
				1975						
All industries	100.0	16.3	9.1	21.3	7.3	12.6	15.4	14.0	1.0	3.0
Agriculture, forestry, and fishing	100.0	4.2	0.8	1.3	0.7	1.4	2.2	0.3	88.8	0.3
Contract construction	100.0	6.7	10.1	6.7	0.6	51.1	10.6	0.8	—	13.4
Manufacturing and mining	100.0	11.9	6.2	15.3	4.2	20.3	39.0	1.0	—	2.1
Transportation, communication, and public utilities	100.0	7.2	6.9	26.3	1.0	20.1	28.1	3.3	—	7.1
Wholesale and retail trade	100.0	3.2	16.0	20.1	23.6	7.6	11.5	15.1	—	2.9
Finance, insurance, and real estate	100.0	5.3	18.0	50.9	14.3	2.1	0.6	7.2	—	1.6
Services and miscellaneous	100.0	35.8	5.3	18.3	1.1	5.9	4.7	27.4	—	1.5
Public administration	100.0	14.5	7.6	40.4	0.1	5.5	2.1	27.4	—	2.4

a. Professional, technical, and kindred workers. b. Managers, officials, and proprietors, except farms. c. Clerical and kindred workers. d. Sales workers. e. Craftsmen, foremen, and kindred workers. f. Operatives and kindred workers. g. Service workers, including private household workers. h. Farmers, farm managers, and farm laborers. i. Laborers, except farm and mine.

In addition to changes in the level of activity of the various kinds of industry, manpower requirements in particular occupations are affected by changes in the way goods and services are produced, the kinds of material that are used, and the way manpower is utilized.

The substitution of machine for hand labor in moving materials, faster machines, automatic control and operation of machine tools and processing equipment, electronic data processing, improved plant layout, standardization of models and parts, larger scale of production, prefabrication of building structure components, use of plastics rather than metals in various manufactured products, assignment of the simpler tasks of professional jobs to technical assistants, improvement in training techniques; these are examples of development that are taking place which directly affect the skill requirements of industry.

OCCUPATIONAL REQUIREMENTS RESULTING FROM INDUSTRIAL CHANGE

Changes in industrial structure and in the skill requirements of individual industries will combine to bring about significant changes in occupational manpower requirements. Table II-2 shows that the major changes expected in New York State between 1965 and 1975 are: (1) rapid growth in the number of jobs in the white-collar group of occupations (professional, technical, managerial, clerical, and sales); (2) an equally rapid growth among service workers (for example, food service workers, protective service workers, attendants of various kinds, practical nurses, airline stewardesses); (3) a relatively small growth in blue-collar occupations (this group takes in craftsmen, operatives, and industrial laborers)—in part because of a decline in the number of laborers; and (4) a sharp decline in needs for farmers and farm laborers.

The projected increase of 14 percent in total requirements between 1965 and 1975 is made up mainly of a rise of over 21 percent in the service worker category and of 19 percent in the white-collar category; blue-collar job requirements will rise only 7 percent in the decade.

Table II-3 shows that two-thirds of the professional, technical, and kindred workers will be in service industries in 1975, as they were in 1965. This industry division includes public education as well as private, and public hospitals as well as private and voluntary hospitals.

Though finance, insurance, and real estate will have only 7 percent of all workers, it will have 17 percent of all clerical employees (roughly the same as in 1965).

Retail and wholesale trade will account for two-thirds of the sales people, as before; also for 36 percent of the managers, officials, and proprietors—down from 40 percent in 1965, mainly because there are fewer small stores with individual proprietors.

Though manufacturing will have 22 percent of all workers in 1975 it will have 57 percent of the operatives group. Manufacturing will have a disproportionate share, also, of craftsmen, foremen, and kindred workers (36 percent). For both craftsmen and operatives, the proportion working in factories was higher ten years earlier, in 1965; but that is because the manufacturing industries' share of all workers was greater then.

The construction industry, with only 5 percent of all jobs, will account for 22 percent of the craftsmen group, roughly the same proportion as in 1965.

In 1965 about 80 percent of the laborers (other than farm) were accounted for by four industry divisions: construction, the transportation-utilities group, manufacturing, and wholesale and retail trade. In 1975, laborer jobs will decline to 3.0 percent of all jobs, from 3.6 percent in 1965, primarily because of technological changes. The share of manufacturing and the transportation-utilities group in the new, smaller number of laborers will be down; but the share of construction and trade will be up, so that the four groups together will still account for 77 percent of the laborers. The drop from 80 percent in 1965 is explained in part by the fact that these groups—except construction—will have a smaller share of total employment in 1975. (See also table II-4.)

Professional Workers

Next to technicians and technical specialists, taken up below, the most rapidly expanding group of occupations is the professional. Table II-5 shows that jobs in this group will expand by 27 percent, almost twice as fast as all occupations combined. Among the professional groups in which the largest growth will take place are natural scientists and engineers; social scientists and social workers; physicians, therapists, and other health personnel; and teachers. Some traditional occupations such as lawyers, clergymen, editors, and reporters will have only small increases. It is expected that manpower needs will increase in practically every professional field.

Table II-6 lists circumstances expected to have particular influence on manpower requirements in the professional field.

Technicians and Technical Specialists

Technical occupations at the sub-professional level are the fastest growing of the major occupation groups. The number of technicians and technical specialists will increase by 47 percent during the 1965-75 decade, almost three times as fast as all occupations combined and more than 50 percent faster than the professional occupations.

Table II-7 shows that by far the largest growth rate is projected for the group made up of biological, medi-

Table II-5. Number of Jobs in Professional and Kindred Occupations, New York State, 1965 and 1975

(in thousands)

Occupation	*Number of jobs*		*Change, 1965-75*	
	1965	*1975*	*Number*	*Percent*
All professional and kindred occupations	896.3	1,137.3	+241.0	+26.9
Engineers, technical	95.4	128.4	+ 33.0	+34.6
Engineers, aeronautical	2.0	3.0	+ 1.0	+50.0
Engineers, chemical	7.9	9.6	+ 1.7	+21.5
Engineers, civil	17.6	23.6	+ 6.0	+34.1
Engineers, electrical	29.8	40.8	+ 11.0	+36.9
Engineers, industrial	7.1	10.5	+ 3.4	+47.9
Engineers, mechanical	24.7	31.3	+ 6.6	+26.7
Engineers, metallurgical	1.7	2.4	+ 0.7	+41.2
Other engineers, technical	4.6	7.2	+ 2.6	+56.5
Natural scientists	21.4	30.7	+ 9.3	+43.5
Chemists	12.0	16.3	+ 4.3	+35.8
Agricultural scientists	0.8	1.0	+ 0.2	+25.0
Biological scientists	1.9	2.8	+ 0.9	+47.4
Geologists and geophysicists	0.4	0.6	+ 0.2	+50.0
Mathematicians	2.4	3.9	+ 1.5	+62.5
Physicists	3.4	5.5	+ 2.1	+61.8
Other natural scientists	0.5	0.6	+ 0.1	+20.0
Medical and other health workers	179.9	226.8	+ 46.9	+26.1
Dentists	15.6	17.4	+ 1.8	+11.5
Dietitians and nutritionists	4.1	4.8	+ 0.7	+17.1
Nurses, professional and student	89.0	116.7	+ 27.7	+31.1
Optometrists	1.6	1.6	—	—
Osteopaths	0.8	0.8	—	—
Pharmacists	13.7	14.9	+ 1.2	+ 8.8
Physicians and surgeons	42.3	52.1	+ 9.8	+23.2
Veterinarians	1.2	1.5	+ 0.3	+25.0
Chiropractors and therapists	8.3	11.7	+ 3.4	+41.0
Psychologists	3.3	5.3	+ 2.0	+60.6
Teachers	236.2	291.8	+ 55.6	+23.5
Teachers, elementary	110.5	119.3	+ 8.8	+ 8.0
Teachers, secondary	71.0	92.5	+ 21.5	+30.3
Teachers, college	27.0	42.5	+ 15.5	+57.4
Teachers, other	27.7	37.5	+ 9.8	+35.4
Social scientists	8.7	11.0	+ 2.3	+26.4
Economists	3.7	4.3	+ 0.6	+16.2
Statisticians and actuaries	4.5	5.8	+ 1.3	+28.9
Other social scientists	0.5	0.9	+ 0.4	+80.0
Other professional and kindred workers	354.7	448.6	+ 93.9	+26.5
Accountants and auditors	71.4	79.6	+ 8.2	+11.5
Airplane pilots and navigators	3.5	5.1	+ 1.6	+45.7
Architects	5.5	6.6	+ 1.1	+20.0
Artists, musicians, authors, athletes and entertainers	63.5	79.0	+ 15.5	+24.4
Clergymen	16.1	16.7	+ 0.6	+ 3.7
Designers, except design draftsmen	7.0	8.6	+ 1.6	+22.9
Reporters and editors	17.5	18.5	+ 1.0	+ 5.7
Lawyers and judges	44.8	52.5	+ 7.7	+17.2
Librarians	11.4	14.0	+ 2.6	+22.8
Personnel and labor relations workers	13.2	17.0	+ 3.8	+28.8
Photographers	7.9	7.9	—	—
Social, welfare, and recreation workers	23.2	34.0	+ 10.8	+46.6
Professional and kindred workers n.e.c.	69.7	109.1	+ 39.4	+56.5

cal, and dental technicians—it will grow by 71 percent in 1965-75. Physical science technicians, data processing programmers, civil engineering and construction technicians, structural design technicians, and draftsmen also rank high in terms of growth rate. Relatively small changes, on the other hand, are projected for broadcasting and motion picture specialists groups; and below-average increases also are indicated in the case of product-testing and inspection specialists.

All the circumstances enumerated in table II-6 as affecting professional-manpower requirements in engineering, science, health, mathematics, and architectural and structural design will also influence requirements for the technicians and technical specialists who assist these professional persons or perform related duties. Requirements for technicians and technical specialists are expected to grow faster than employment in these professions because of the developing tendency to split off the less demanding functions of engineers, scientists, and professional health personnel and assign them to technical assistants.

To be kept in mind, however, in considering manpower requirements for these technical occupations, is the fact that , although expanding rapidly, they do not represent a large demand for manpower or a field of many employment opportunities. Technical occupations include only 2.3 percent of the employed labor force in New York State now, and are unlikely to expand to a point exceeding 3 percent in 1975.

Table II-6. Circumstances Expected to Influence Manpower Requirements in the Professional Field, 1965-1975

Circumstance	*Occupations affected*
Rising standard of living, bringing demand for more and better services	Teachers, doctors, research scientists
Growth of research and development in aero-space and other science and engineering fields	Mathematicians; physical scientists; engineers
Growth of medical and biological research	Life scientists and physicians
Greater complexity of industrial equipment and manufacturing processes	Electronic, industrial, and mechanical engineers; chemists and other scientists
Growth of industries producing aero-space, electronic, and other highly instrumented products	Electronic and mechanical engineers
Growth of chemical industries producing plastics, man-made fibres, pharmaceuticals, etc.	Chemists and biologists; chemical engineers
Expanding population, especially expanding youth population	Teachers; librarians; vocational counselors; social-workers; doctors and nurses; child-care specialists
Medicare and Medicaid and extension of hospital insurance; demand for higher standards of medical services; new medical techniques and drugs; stress on rehabilitation	Doctors, nurses, dentists; therapists; life scientists; psychologists and psychiatrists; social workers
Expansion of state and local government programs, especially:	
in higher education	College teachers, research scientists
in air and water pollution control, local transportation, air terminal and highway development	Civil, sanitary, and other engineers; planners; geologists; chemists and other scientists; statisticians
in care of narcotics addicts and physically and mentally ill	Doctors; nurses; medical and biological scientists; psychologists and psychiatrists; social workers; therapists
Human resource development	Manpower training specialists; occupational counselors; social workers; therapists; child-care specialists; economists and statisticians
Growth in construction industry (in part resulting from the Transportation bond issue)	Civil and construction engineers; architects
Greater use of accounting information in business and government, and expanded use of automatic data processing in program planning, operation, and evaluation	Accountants; systems analysts; programmers

Table II-7. Number of Jobs in Technical Occupations, New York State, 1965 and 1975

(in thousands)

Occupation	*Number of jobs*		*Change, 1965-75*	
	1965	*1975*	*Number*	*Percent*
All technical workers and specialists	175.9	258.4	+82.5	+46.9
Draftsmen	24.7	35.8	+11.1	+44.9
Structural design technicians and related specialists	3.1	4.7	+ 1.6	+51.6
Electro and mechanical engineering technicians	47.2	65.4	+18.2	+38.6
Mathematics technicians	0.9	1.1	+ 0.2	+22.2
Physical science technicians	10.5	15.1	+ 4.6	+43.8
Biological, medical, dental and related technicians	31.2	53.5	+22.3	+71.5
Industrial engineering technicians	8.0	10.8	+ 2.8	+35.0
Civil engineering and construction technicians	15.6	25.2	+ 9.6	+61.5
Sales and service technicians	2.2	2.7	+ 0.5	+22.7
Technical writing and illustration specialists	3.9	5.0	+ 1.1	+28.2
Safety and sanitation inspectors and related specialists	4.5	6.1	+ 1.6	+35.6
Product testing and inspection specialists	8.7	10.6	+ 1.9	+21.8
Data processing, systems analysis and programming specialists	7.6	11.7	+ 4.1	+53.9
Airway tower specialists and flight dispatchers	1.5	2.7	+ 1.2	+80.0
Broadcasting, motion picture and recording studio specialists	3.0	3.3	+ 0.3	+10.0
Radio operators	3.3	4.7	+ 1.4	+42.4

Table II-8. Number of Jobs in Managerial Occupations, New York State, 1965 and 1975

(in thousands)

Occupation	*Number of jobs*		*Change, 1965-75*	
	1965	*1975*	*Number*	*Percent*
All managers, officials, and proprietors	718.3	781.8	63.5	8.8
Conductors, railroad	3.4	3.3	− 0.1	− 2.9
Credit men	7.1	9.9	2.8	39.4
Ship officers, pilots, engineers	4.4	3.6	− 0.8	−18.2
Postmasters	1.6	1.4	− 0.2	−12.5
Purchasing agents	14.4	19.0	4.6	31.9
Other	687.4	744.6	57.2	8.3
Proprietors	216.0	200.5	−15.5	− 7.2
Managers and officials	471.4	544.1	72.7	15.4

Note: For further detail, see appendix table E.

Table II-9. Number of Jobs in Clerical Occupations, New York State, 1965 and 1975

(in thousands)

Occupation	*Number of jobs*		*Change, 1965-75*	
	1965	*1975*	*Number*	*Percent*
All clerical and kindred workers	1,535.3	1,829.9	+294.6	+19.2
Stenographers, typists, and secretaries	385.4	468.3	+ 82.9	+21.5
Office machine operators	66.5	107.7	+ 41.2	+62.0
Other clerical and kindred workers	1,083.4	1,253.9	+170.5	+15.7
Accounting clerks	48.0	52.9	+ 4.9	+10.2
Bookkeepers, hand	78.6	80.1	+ 1.5	+ 1.9
Bank tellers	24.5	34.2	+ 9.7	+39.6
Cashiers	68.7	98.7	+ 30.0	+43.7
Mail carriers	26.6	33.9	+ 7.3	+27.4
Postal clerks	35.2	36.5	+ 1.3	+ 3.7
Shipping and receiving clerks	42.9	38.9	− 4.0	− 9.3
Telephone operators	56.1	57.6	+ 1.5	+ 2.7
Clerical and kindred workers n.e.c.	702.8	821.1	+118.3	+16.8

Note: For further detail, see appendix table E.

For further information, see the comprehensive survey of employment and requirements in technician and technical specialist occupations published by the New York State Department of Labor in 1965: *Technical Manpower in New York State*. Volume I-B gives projections to 1975.

Managers, Officials and Proprietors.

Supermarkets and chains are expected to continue to displace proprietor-run small retail stores and service establishments. Because of this, the over-all rise in the managers-officials-proprietors group will be at a substantially lower rate than in most other groups, even though the number of salaried managers will rise. (Table II-8.)

Among the factors behind the relatively rapid increase in the number of managers and other salaried officials that is expected in business and government are: a larger growth than before in government activities; the continued growth in size of business firms and of their individual establishments; and the increasing complexity of government and business operations, which makes them increasingly dependent on trained managerial specialists. The continued growth in the use of credit by the general population requires the employment of more and more credit men.

Clerical and Kindred Workers.

A relatively large increase in clerical jobs will take place. Their number is expected to rise from 1,535,000 in 1965 to 1,830,000 in 1975, or 19 percent. Table II-9 shows striking rises in the number of cashiers and office-machine operators.

The continued rise in the record-keeping requirements of modern business and government is expected to more than offset reductions in clerical manpower needs resulting from expanding use of data processing and other labor-saving office equipment.

Table II-10 lists circumstances having especially significant expansion and contraction effects on clerical manpower requirements.

Sales Workers.

It is expected that requirements for sales workers will rise by 50,000, or 9 percent, from 1965 to 1975.

The rise will be seriously limited by the continued trend to self-service and use of vending machines in retail trade, even though this may take place at a slower rate than it has in recent years.

Nevertheless retail selling will continue to be a large field of employment opportunity; the number of jobs will be boosted not only by rising population and rising levels of personal income, but also by the continuation of the trend toward stores remaining open in the evening. Table II-11 shows that manpower requirements for sales workers in retailing are expected to reach 309,000 in 1975, an addition of 29,000 to the 1965 figure.

Wholesale and manufacturing firms are expected to get along with not much more than the number of sales jobs they had in 1965, but the nature of many of these jobs will be changed by the rising use of complex equipment and new materials. Many sales people will have to have a technical background in order to be able to explain and demonstrate products to buyers.

Increases in residential and commercial construction activity are expected to enlarge the demand for real estate agents, and increases in the volume of property,

Table II-10. Circumstances Expected to Influence Manpower Requirements in the Clerical Field, 1965-1975

	Occupations affected
Expansion effect	
• Relatively rapid growth of large users of clerical personnel, especially finance, central offices, government, and business and professional services	Most clerical occupations
• Increase in the complexity of private business and of government, and in their paperwork requirements	Most clerical occupations
• Spread of computer centers and application of computers to wider ranges of functions	Office machine operators, especially computer operators and key-punch operators
• Continued shift to self-service techniques in retail stores, resulting in expanding need for check-out service	Checkers and cashiers
Contraction effect	
• Greater use of "quick copy" equipment, dictating equipment, etc., which will expand productivity and thus reduce need for office workers performing relatively routine tasks	Typists, general office help
• Spread of electronic data processing automatic record-keeping processes; automatic reading devices, inter-office electronic communication, microfilm record-keeping, which will reduce relatively the amount of manual office operations	Bookkeeping and other machine operators; key-punch operators; statistical clerks; file clerks and other general office help, including those engaged in processing insurance records, payroll processing, billing control of bank checks, and similar functions

Table II-11. Number of Jobs in Sales Occupations, New York State, 1965 and 1975

(in thousands)

Occupation	*Number of jobs*		*Change, 1965-75*	
	1965	*1975*	*Number*	*Percent*
All sales workers	576.9	626.7	+49.8	+ 8.6
Insurance agents and brokers	41.9	43.0	+ 1.1	+ 2.6
Real estate agents and brokers	20.8	24.6	+ 3.8	+18.3
Other sales workers	514.2	559.1	+44.9	+ 8.7
Manufacturing	81.3	81.4	+ 0.1	+ 0.1
Wholesale trade	107.1	109.1	+ 2.0	+ 1.9
Retail trade	280.4	309.4	+29.0	+10.3
Other industries	45.4	59.2	+13.8	+30.4

liability, and other forms of insurance will call for more insurance salesmen. However, the need for additional insurance salesmen will be limited by the use of new methods of selling; by the expanded use of group insurance, which to some extent reduces the market for individual insurance policies; and by the introduction of public programs such as Medicare and Medicaid, which to some extent reduce the market for private group and individual health insurance.

Craftsmen, Foremen and Kindred Workers

Among blue-collar workers, by far the largest growth rate is expected in the "craftsmen" group of occupations. It is estimated that industrial expansion will enlarge the requirements for these skilled workers by 135,000 between 1965 and 1975. Their growth rate during the decade will, however, be substantially less than that of most white-collar occupation groups.

As table II-12 shows, between a fourth and a fifth of all craftsmen are employed in construction crafts; a smaller than average increase in requirements for these workers is expected during the 1965-75 decade. A quarter of all craftsmen are mechanics and repairman; requirements for this sub-group are expected to rise rapidly. For a third large sub-group, metalworking craftsmen, there will be little net change in demand. There is great diversity in the outlook for other craftsmen occupations, including some substantial increases and some striking decreases.

Circumstances likely to affect the demand for various sorts of craftsmen include the following:

Construction crafts. Manpower requirements in all the construction crafts will be bolstered by a rapid rise in building and highway construction, resulting from rising population, increasing family formation, and rising income levels. In addition, some of the individual crafts will benefit from greater use of particular kinds of materials, appliances, and techniques—for example, pre-stressed concrete in commercial and industrial building (cement finishers); electric appliances (electricians); bathroom, kitchen, and laundry appliances involving pipe work, and refrigeration and air-conditioning (plumbers); and road machines (operating engineers).

On the other hand, growth in manpower needs will be limited by the use of new construction techniques and materials, including new labor-saving equipment.

For example, prefabrication of building components will tend to depress the demand for carpenters (walls and partitions): electricians (ceiling units); plumbers (plumbing trees); and bricklayers (panels of masonry materials).

Construction materials that will tend to reduce requirements for skilled manpower include steel framing in housing and use of panels of glass, metals, plastics, etc. (carpenters and bricklayers); pre-stressed concrete and concrete wall panels (cement finishers); paints requiring little or no mixing (painters); plastic pipes (plumbers and pipe fitters); high strength mortar (bricklayers).

Examples of labor-saving tools and equipment include power-driven screwdrivers, drills and other hand tools (carpenters); powered concrete conveyors (cement finishers); rollers and spray guns (painters); steel framework and reinforced concrete rather than brick walls (bricklayers); larger and faster earth-moving equipment (operating engineers).

Mechanics and repairmen. Except for railroad and car shop mechanics, all the large groups of mechanics and repairmen will benefit from a substantial expansion in the use of industrial and consumer equipment and appliances. Offsetting to a degree the expansion effects of greater usage in most cases will be some reduction in requirements because of greater repair-shop specialization, more replacement rather than repair of parts, more and better power hand tools, and improved instruments for troubleshooting malfunctions.

Metalworking craftsmen. The rising demand for aircraft and their components, and for machinery and other equipment in manufacturing and construction industries, and rising consumer expenditures for automobiles, heating and air conditioning units, and home appliances will result in rising requirements for skilled metalworking machine operators, machinists, pattern

Table II-12. Number of Jobs in Craftsman Occupations, New York State, 1965 and 1975 (in thousands)

Occupation	Number of jobs		Change, 1965-75	
	1965	1975	Number	Percent
All craftsmen, foremen, and kindred workers	947.6	1,082.5	+134.9	+14.2
Construction craftsmen	216.4	231.3	+ 14.9	+ 6.9
Carpenters	61.4	60.9	− 0.5	− 0.8
Brickmasons, stone and tile setters	18.4	18.9	+ 0.5	+ 2.7
Cement and concrete finishers	1.9	2.5	+ 0.6	+31.6
Electricians	34.6	39.6	+ 5.0	+14.5
Excavating and grading machine operators	11.6	15.3	+ 3.7	+31.9
Painters and paperhangers	39.7	39.4	− 0.3	− 0.8
Plasterers	4.7	5.0	+ 0.3	+ 6.4
Plumbers and pipefitters	33.8	37.6	+ 3.8	+11.2
Roofers and slaters	4.7	5.4	+ 0.7	+14.9
Structural metalworkers	5.6	6.7	+ 1.1	+19.6
Foremen n.e.c.	127.1	149.9	+ 22.8	+17.9
Metalworking craftsmen	128.6	129.7	+ 1.1	+ 0.9
Skilled machine workers incl. machinists	70.6	69.6	− 1.0	− 1.4
Blacksmiths, forgemen, hammermen	1.7	1.3	− 0.4	−23.5
Boilermakers	1.6	1.8	+ 0.2	+12.5
Heat treaters, annealers, temperers	1.4	1.3	− 0.1	− 7.1
Millwrights	4.8	5.1	+ 0.3	+ 6.3
Molders, metal (except coremakers)	3.2	3.1	− 0.1	− 3.1
Patternmakers, metal and wood	3.9	4.7	+ 0.8	+20.5
Rollers and roll hands	2.1	2.1	—	—
Sheet metal workers	11.1	11.6	+ 0.5	+ 4.5
Toolmakers, diemakers, and die setters	14.6	14.3	− 0.3	− 2.1
Electroplaters	1.0	1.0	—	—
Assemblers, metalworking, Class A	12.6	13.8	+ 1.2	+ 9.5
Selected printing trades craftsmen	46.1	44.2	− 1.9	− 4.1
Compositors and typesetters	24.8	19.2	− 5.6	−22.6
Electrotypers and stereotypers	0.9	0.6	− 0.3	−33.3
Engravers, except photoengravers	2.0	2.2	+ 0.2	+10.0
Photoengravers and lithographers	5.9	8.7	+ 2.8	+47.5
Pressmen and plate printers	12.5	13.5	+ 1.0	+ 8.0
Transportation and public utility craftsmen	31.1	32.8	+ 1.7	+ 5.5
Linemen, servicemen: telephone, telegraph, power	26.2	29.0	+ 2.8	+10.7
Locomotive engineers	3.5	3.5	—	—
Locomotive firemen	1.4	0.3	− 1.1	−78.6
Mechanics and repairmen	253.0	331.7	+ 78.7	+31.1
Airplane mechanics and repairmen	12.2	15.3	+ 3.1	+25.4
Motor vehicle mechanics	62.9	75.3	+ 12.4	+19.7
Office machine mechanics	5.0	7.0	+ 2.0	+40.0
Radio and TV mechanics	11.8	13.5	+ 1.7	+14.4
Railroad and car shop mechanics	3.2	3.1	− 0.1	− 3.1
Other mechanics and repairmen	157.9	217.5	+ 59.6	+37.7
Other craftsmen and kindred workers	145.3	162.9	+ 17.6	+12.1
Bakers	16.7	14.7	− 2.0	−12.0
Cabinetmakers	6.7	6.6	− 0.1	− 1.5
Cranemen, derrickmen, hoistmen	8.9	11.1	+ 2.2	+24.7
Glaziers	2.2	3.0	+ 0.8	+36.4
Jewelers and watchmakers	7.2	8.4	+ 1.2	+16.7
Millers	0.4	0.3	− 0.1	−25.0
Opticians and lens grinders	4.2	4.4	+ 0.2	+ 4.8
Stationary engineers	28.2	28.3	+ 0.1	+ 0.4
Inspectors, other than metalworking	10.4	13.4	+ 3.0	+28.8
Upholsterers	6.7	7.8	+ 1.1	+16.4
Craftsmen and kindred workers n.e.c.	53.7	64.9	+ 11.2	+20.9

makers, toolmakers, sheet metal workers, and other skilled metalworking craftsmen. But offsetting this buoyant influence to a considerable extent in most of the occupations will be technological innovations such as numerically controlled machine tools and electrical discharge machining. Numerically controlled operations reduce needs not only for machinists and skilled machine operators but also for tool and die makers.

Typesetters and other printing craftsmen. The closing of several daily newspapers in New York City between 1965 and 1967 reduced the number of jobs in printing and publishing. On the other hand, it is expected that there will be some further expansion in the production of printed materials in the State by the commercial branch of the industry between 1965 and 1975.

Demand for printing crafts is shifting markedly. Letter-press printing is still the backbone of the commercial printing, but its use has been falling steadily, while the use of offset and lithographic processes has been rising. As a result, requirements for typesetters and compositors are expected to decline, while there will be a substantial rise in the requirements for photoengravers and lithographers, and an above-average rise in the case of pressmen and plate printers. Demand for typesetters is also being reduced by the application of electronic computers to the typesetting process.

Other craftsmen. Requirements for the numerous other, smaller crafts shown in table II-12 will, for the most part, rise during the 1965-1975 period. The increases tend to be moderate in degree. In a few cases there will be declines in requirements.

Among the larger crafts in that miscellaneous group, bakers face a decline. This is a result of automation of dough mixing and the introduction of other mechanical production devices. Also, the growing use of freezing processes makes it possible to store dough; this reduces the need for second and third work shifts. Several large bakeries moved out of the State before 1965, and it is possible that others will do so in the future.

Another sizeable craft, the stationary engineers, will enjoy only a very small increase in requirements, despite the expansion of industrial and governmental buildings and facilities that require boilers, air conditioning equipment, pumps, compressors, and other equipment operated and maintained by these workers. The application of automatic control systems, centralized control panels, and other new technology is expected to limit requirements for stationary engineers.

Operatives and Kindred Workers

Requirements in the "operative" group of occupations are expected to rise by about 4 percent. Generally considered to be semiskilled, the jobs in this group usually involve either the operation of some kind of machine or vehicle, or assembly work, or a packaging operation.

Employment needs are much affected by mechanization and automation, especially in manufacturing, where the majority of operatives are employed. Prospective requirements vary considerably among the individual occupations, ranging from substantial increases among truck and bus drivers to substantial decreases among operatives in textile and apparel establishments. (See table II-13. Note that textile and apparel operatives and metalworking operatives occur in two places in the table.)

Examples of circumstances bearing on prospects of jobs for operatives include the following:

Over-the-road truck drivers. An increasing need for truck drivers will result from continued growth in the amount of inter-city freight carried by trucks. Not only the expansion of manufacturing and commerce but also the further decentralization of industry will be causes of this growth. Also, new trucking methods are attracting business by reducing handling and shipping time and cutting freight costs for small loads. On the other hand, the movement of trailers "piggy-back" on railroad flatcars will limit the demand for truck drivers.

Machine tool operators. Although industrial and household demand for metal machinery, equipment, and appliances will rise substantially, requirements for operators of machine tools to make that equipment will expand only in small degree, primarily because of improvements in the capaciy and speed of traditional machine tools and the wider use of multi-purpose machines, numerically controlled machine tools, and automatic transfer equipment.

Metal working assemblers. Floor and bench manual assembly of such mass-produced items as automobiles, television sets, cameras, refrigerators, electrical motors, watches, and cameras is not expected to expand significantly despite a rather substantial growth in production. Technological changes are expected to limit the growth of manual assembly work; the use of printed electrical circuits, for example, reduces wiring work in assembling radio and television sets. Continued increases in automatic assembly processes can be anticipated.

Sewers and stitchers. Mainly because a continued decline is expected in the level of activity of New York State's apparel manufacturing industry, a drop of about 17 percent is anticipated between 1965 and 1975 in the requirements for sewers and stitchers. Such a worker sews an entire garment on a sewing machine, or does the finishing work on an entire garment by hand. Persons experienced in this "tailor system" of making women's clothing are in short supply, which is one reason it is being replaced by the "section system."

That method utilizes workers who are less skilled, each of whom works on one small section of the garment, often using a single-purpose sewing machine, made for that particular part of the work. Since the section system is more and more being applied to higher-priced garments as well as lower-priced ones, sewers and stitchers tend to be used only for the most expensive "hand made" items.

Service Workers

Requirements for service workers are expected to increase by 21 percent from 1965 to 1975, substantially faster than requirements in industry as a whole. All told, job requirements in this group will rise by over 200,000. (Table II-14.)

The service-worker group is composed of a large number of diverse occupations, the main categories being private household workers; protective service workers (firemen, policemen, guards, etc.); food service workers (cooks, waiters, bartenders, etc.); hospital workers (attendants, practical nurses, etc.); janitors, charwomen and cleaners; airline stewardesses; and beauty operators and barbers.

The continued rise in service worker requirements can be attributed mainly to population growth, urbanization, and higher living standards, which result in a demand for both more services and better services. More firemen and policemen will be needed as urbanization continues; hospital care will expand as population and ability to pay for health care expand; greater demand for food service and personal services of various kinds will follow from rising income levels and the tendency for increasing numbers of housewives to take jobs outside the home.

The application of labor-saving devices to service occupations is limited by the person-to-person nature of the work and has not been a significant limitation on manpower requirements. But there are exceptions to this generalization, such as automatic elevators, which have already reduced sharply the need for elevator operators; laundromats with coin-operated washing machines and driers; automatic dry cleaning machines, which in time may have a significant effect on employment in dry cleaning establishments; automatic vending machines, which limit somewhat the

Table 11-13. Number of Jobs in Operative Occupations, New York State, 1965 and 1975

(in thousands)

Occupation	*Number of jobs*		*Change, 1965-75*	
	1965	*1975*	*Number*	*Percent*
All operatives and kindred workers	1,269.8	1,319.0	+49.2	+ 3.9
Selected transportation and public utility operatives	280.1	313.8	+33.7	+12.0
Drivers: bus, truck, tractor	167.2	192.3	+25.1	+15.0
Deliverymen, routemen, cab drivers	94.9	106.3	+11.4	+12.0
Brakemen and switchmen, railroad	9.0	8.6	− 0.4	− 4.4
Power station operators	2.4	2.5	+ 0.1	+ 4.2
Sailors and deck hands	6.6	4.1	− 2.5	−37.9
Asbestos and insulation workers	1.3	1.4	+ 0.1	+ 7.7
Semiskilled metal-working occupations	110.1	113.3	+ 3.2	+ 2.9
Furnacemen, smelters, pourers and heaters	3.6	3.5	− 0.1	− 2.8
Welders and flame cutters	22.5	25.6	+ 3.1	+13.8
Electroplater helpers	1.6	1.7	+ 0.1	+ 6.3
Machine tool operators, metal-working, class B	20.9	18.4	− 2.5	−12.0
Assemblers, metal-working, class B	44.9	47.0	+ 2.1	+ 4.7
Inspectors, metal-working, class B	16.6	17.1	+ 0.5	+ 3.0
Semiskilled occupations in textiles and apparel	98.0	81.7	−16.3	−16.6
Knitters, loopers and toppers	3.6	3.1	− 0.5	−13.9
Weavers and spinners, textile	2.0	1.2	− 0.8	−40.0
Sewers and stitchers, manufacturing	92.4	77.4	−15.0	−16.2
Other operatives and kindred workers	780.3	808.8	+28.5	+ 3.7
Attendants, auto service and parking	22.7	31.6	+ 8.9	+39.2
Laundry and dry cleaning workers	43.9	45.3	+ 1.4	+ 3.2
Meat cutters, excl. meat packing	33.3	37.9	+ 4.6	+13.8
Mine operatives and laborers n.e.c.	2.5	2.3	− 0.2	− 8.0
Other operatives and kindred workers n.e.c.	677.9	691.7	+13.8	+ 2.0
Textiles and apparel	153.2	125.3	−27.9	−18.2
Metalworking	161.9	179.7	+17.8	+11.0
Miscellaneous operatives	362.8	386.7	+23.9	+ 6.6

Table II-14. Number of Jobs in Service Occupations, New York State, 1965 and 1975 (in thousands)

Occupation	*Number of jobs*		*Change, 1965-75*	
	1965	*1975*	*Number*	*Percent*
All service workers	987.4	1,198.4	+211.0	+21.4
Private household workers	162.3	163.9	+ 1.6	+ 1.0
Protective service workers	109.1	151.6	+ 42.5	+39.0
Firemen, fire protection	19.0	26.9	+ 7.9	+41.6
Guards and watchmen	39.0	44.9	+ 5.9	+15.1
Policemen, marshals and sheriffs	51.1	79.8	+ 28.7	+56.2
Waiters, cooks and bartenders	251.6	311.6	+ 60.0	+23.8
Bartenders	30.5	34.7	+ 4.2	+13.8
Cooks, except private household	71.2	86.5	+ 15.3	+21.5
Counter and fountain workers	44.8	63.1	+ 18.3	+40.8
Waiters and waitresses	105.1	127.3	+ 22.2	+21.1
Other service workers	464.4	571.3	+106.9	+23.0
Airline stewards and stewardesses	3.5	5.9	+ 2.4	+68.6
Attendants: hospital and other institutions	86.9	146.2	+ 59.3	+68.2
Charwomen and cleaners	35.5	38.7	+ 3.2	+ 9.0
Janitors and sextons	53.4	50.4	− 3.0	− 5.6
Nurses, practical	23.2	37.2	+ 14.0	+60.3
Service workers n.e.c.	261.9	292.9	+ 31.0	+11.8

Note: For further detail, see appendix table E.

growth in the number of waiters and waitresses needed; and automatically controlled traffic signals, which will reduce the need for traffic officers.

Laborers, Except Farm

Continued mechanization of material handling and moving work will reduce requirements for industrial laborers by approximately 5 percent—from 273,000 in 1965 to 259,000 in 1975. These requirements have been falling off primarily because of the greater use of conveyors, fork-lift trucks, cranes, and hoists in the material-handling work of factories, warehouses, and freight terminals and the rise of excavating, ditch-digging, and earth-moving equipment in construction activity.

Farmers and Farm Laborers

Despite the needs of a rising population for food, a steady decline in the number of farmers and farm workers for over fifty years has resulted from the application of science and mechanization to agricultural production, and a related increase in the size of farms. This decline is expected to continue during the next ten years. It is estimated that requirements will drop from 120,000 in 1965 to 87,000 in 1975, a reduction of over 27 percent.

One striking change is the reduced demand for temporary harvest workers because of technological changes. The mechanical bean picker has already had a marked effect on migrant labor requirements. It is expected that mechanical methods of harvesting tomatoes and cherries, apples, and other fruit will in time displace substantial numbers of seasonal workers.

OCCUPATIONAL REQUIREMENTS RESULTING FROM DEATH AND RETIREMENT

Because there is a need to replace workers who die and retire, substantial requirements for new workers would appear even if the economy were static. The picture of manpower requirements presented so far in this chapter therefore is incomplete; in terms of quantity (number of people needed) it has shown only those needs that result from industrial change—industrial growth, developing technology that brings about changes in methods of production and in materials used, and so on. To that picture should now be added requirements for replacing workers who will die or will retire from the labor force, including persons who leave because of illness or to take up family responsibilities.

During the ten-year period from 1965 to 1975, requirements because of death and retirement are expected to be about twice as great as those due to industrial change:

1,079,900—result of industrial change (= 14.4 percent of 1965 jobs)
2,094,600—result of death and retirement (= 27.9 percent of 1965 jobs)
3,174,500—total (= 42.3 percent of 1965 jobs)

As table II-15 shows, deaths and retirements are creating relatively many vacancies in some occupations and relatively few in others, depending primarily on the age and sex composition of the group. Only in one major occupation category—professional, technical, and kindred workers—is the expected expansion due to

Table II-15. Job Requirements Resulting from Deaths and Retirements, Compared With Those Resulting from Industrial Change, By Occupation, New York State, 1965-1975

(in thousands)

Occupation	*Deaths and retirements*		*Industrial change*[a]	
	Number in decade	*As percent of 1965 jobs*	*Change in number of jobs*	*As percent of 1965 jobs*
All occupations	2,094.6	27.9	+1,079.9	+14.4
Professional, technical, and kindred workers	281.7	26.3	+ 323.5	+30.2
Engineers, technical	15.4	16.1	+ 33.0	+34.6
Natural scientists	3.3	15.4	+ 9.3	+43.5
Technicians, except medical and dental	16.3	11.3	+ 60.2	+41.6
Medical and other health workers	73.4	34.8	+ 69.2	+32.8
Teachers	80.1	33.9	+ 55.6	+23.5
Social scientists	2.4	27.6	+ 2.3	+26.4
Other professional, technical, and kindred workers	90.8	25.6	+ 93.9	+26.5
Managers, officials, and proprietors	221.8	30.9	+ 63.5	+ 8.8
Clerical and kindred workers	470.2	30.6	+ 294.6	+19.2
Stenographers, typists, and secretaries	128.0	33.2	+ 82.9	+21.5
Office machine operators	17.6	26.5	+ 41.2	+62.0
Other clerical and kindred workers	324.6	30.0	+ 170.5	+15.7
Sales workers	169.6	29.4	+ 49.8	+ 8.6
Craftsmen, foremen, and kindred workers	210.3	22.2	+ 134.9	+14.2
Construction craftsmen	51.7	23.9	+ 14.9	+ 6.9
Foremen n.e.c.	31.7	24.9	+ 22.8	+17.9
Metalworking craftsmen	25.5	19.8	+ 1.1	+ 0.9
Printing trades craftsmen	9.0	19.5	− 1.9	− 4.1
Transportation and public utility craftsmen	4.8	15.4	+ 1.7	+ 5.5
Mechanics and repairmen	54.1	21.4	+ 78.7	+31.1
Other craftsmen and kindred workers	33.5	23.1	+ 17.6	+12.1
Operatives and kindred workers	283.7	22.3	+ 49.2	+ 3.9
Selected transportation and public utility operatives	43.7	15.6	+ 33.7	+12.0
Semiskilled metal-working occupation	21.3	19.3	+ 3.2	+ 2.9
Semiskilled textile and apparel occupations	29.1	29.7	− 16.3	−16.6
Other operatives and kindred workers	189.6	24.3	+ 28.6	+ 3.7
Service workers	367.3	37.2	+ 211.0	+21.4
Private household workers	83.9	51.7	+ 1.6	+ 1.0
Protective service workers	26.8	24.6	+ 42.5	+39.0
Waiters, cooks, and bartenders	79.5	31.6	+ 60.0	+23.8
Other service workers	177.1	38.1	+ 106.9	+23.0
Laborers, except farm and mine	56.0	20.5	− 13.9	− 5.1
Farmers and farm laborers	34.0	28.4	− 32.7	−27.3

[a] Net effect of industrial expansion and contraction on number of jobs (1975 projection minus 1965 estimate), stated first as an absolute number and then as a percent of the 1965 number of jobs.

Note: For further detail, see appendix table G.

industrial change estimated to exceed the number of vacancies created by deaths and retirements. At the other end of the scale, the expected number of replacements needed because of death and retirement is noticably higher than the number to be added because of industrial change in the case of the managerial group, of sales workers, and of operatives. As for laborers and farmers, while the number of their jobs is shrinking, there will be enough deaths and retirements during the decade to require some recruiting for these occupations.

Individual occupations in which a high concentration of older persons indicates an unusually high replacement need include railroad conductors and engineers, postmasters, real estate agents, private household workers, janitors and sextons, and guards and watchmen. Since women have higher labor force separation rates than men, the occupations of librarian, professional nurse, practical nurse, and teacher have replacement needs substantially above average. (See table G in the appendix.)

Note that the data here presented are estimates of the number of persons who will become permanently separated from the labor force, whether by death or by retirement. Many persons withdraw only temporarily, and will return to the labor force and take a job later. A prime example is a younger woman who gives up her job to raise a family and then renews her paid work in her late thirties or in her forties, after her children are well along in age. Other examples include policemen, firemen, airplane pilots, and airline stewardesses whose retirement from these occupations may come at a relatively early age because of retirement policies. To the extent that these persons take other jobs following retirement, they are excluded from the present estimates of retirement for the occupation.

The question of replacing those who transfer to another occupation is taken up in the next chapter, "Meeting Manpower Requirements."

Table II-16 shows that, when the effects both of death and retirement and of industrial change are considered, nearly one-fourth of the new openings are in clerical occupations. The professional and technical group accounts for the next highest proportion (19 percent) and service workers for the third highest—(18 percent). The craftsman and operative groups each amount to about 11 percent of the total.

EDUCATIONAL DEVELOPMENT AND VOCATIONAL PREPARATION REQUIREMENTS OF JOBS

Aside from aptitudes, interests, and other personal characteristics and qualities that are important to job performance, different occupations and occupation-levels require various kinds and levels of knowledge and skill. Given the capacity to learn and the disposition to learn, knowledge and skill are the result of what is learned, both in and out of school.

Table II-17 reproduces from the third edition of the U.S. Department of Labor's *Dictionary of Occupational Titles* a list of things people learn that contribute to "General Educational Development" (GED) useful in handling work at a given level; table II-18 gives the Dictionary's list of types of "Specific Vocational Preparation" (SVP), under which is included everything from a short demonstration to a new employee (group 1) to a long apprenticeship (group 7) or an even longer course of graduate study (group 8 or 9). A job that requires a long course of Specific Vocational Preparation (SVP) may in some cases also

Table II-16. Distribution of Jobs to be Filled, By Occupation Group, in New York State, 1965-1975 (in thousands)

Occupation	*Total*		*Because of industrial change*		*Because of deaths and retirements*	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
All occupations	3,174.5	100.0	1,079.9	100.0	2,094.6	100.0
Professional, technical and kindred workers	605.2	19.1	323.5	29.9	281.7	13.4
Managers, officials, and proprietors	285.3	9.0	63.5	5.9	221.8	10.6
Clerical and kindred workers	764.8	24.1	294.6	27.3	470.2	22.5
Sales workers	219.4	6.9	49.8	4.6	169.6	8.1
Craftsmen, foremen, and kindred workers	345.2	10.9	134.9	12.5	210.3	10.0
Operatives and kindred workers	332.9	10.5	49.2	4.6	283.7	13.5
Service workers	578.3	18.2	211.0	19.5	367.3	17.6
Farmers and farm laborers	1.3	[illegible]	− 32.7	− 3.0	34.0	1.6
Laborers, except farm and mine	42.1	1.3	− 13.9	− 1.3	56.0	2.7

[a] Less than 0.05 of a percent.

Table II-17. General Educational Development (GED)

Level	Reasoning Development	Mathematical development	Language development
6	Apply principles of logical or scientific thinking to a wide range of intellectual and practical problems. Deal with nonverbal symbolism (formulas, scientific equations, graphs, musical notes, etc.) in its most difficult phases. Deal with a variety of abstract and concrete variables. Apprehend the most abstruse classes of concepts.	Apply knowledge of advanced mathematical and statistical techniques such as differential and integral calculus, factor analysis, and probability determination, or work with a wide variety of theoretical mathematical concepts and make original applications of mathematical procedures, as in empirical and differential equations.	Comprehension and expression of a level to —Report, write, or edit articles for such publications as newspapers, magazines, and technical or scientific journals. Prepare and draw up deeds, leases, wills, mortgages, and contracts. —Prepare and deliver lectures on politics, economies, education, or science. —Interview, counsel, or advise such people as students, clients, or patients, in such matters as welfare eligibility, vocational rehabilitation, mental hygeine, or marital relations. —Evaluate engineering technical data to design buildings and bridges.
5	Apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. Interpret an extensive variety of technical instructions, in books, manuals, and mathematical or diagrammatic form. Deal with several abstract and concrete variables.		
4	Apply principles of rational systems[1] to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. Interpret a variety of instructions furnished in written, oral, diagrammatic, or schedule form.	Perform ordinary arithmetic, algebraic, and geometric procedures in standard, practical applications.	Comprehension and expression of a level to —Transcribe dictation, make appointments for executive and handle his personal mail, interview and screen people wishing to speak to him, and write routine correspondence on own initiative. —Interview job applicants to determine work best suited for their abilities and experience, and contact employers to interest them in services of agency. —Interpret technical manuals as well as drawings and specifications, such as layouts, blueprints, and schematics.
3	Apply common sense understanding to carry out instructions furnished in written, oral, or diagrammatic form. Deal with problems involving several concrete variables in or from standardized situations.	Make arithmetic calculations involving fractions, decimals and percentages.	Comprehension and expression of a level to —File, post, and mail such material as forms, checks, receipts, and bills. —Copy data from one record to another, fill in report forms, and type all work from rough draft or corrected copy. —Interview members of household to obtain such information as age, occupation, and number of children, to be used as data for surveys, or economic studies. —Guide people on tours through histrical or public buildings, describing such features as size, value, and points of interest.
2	Apply common sense understanding to carry out detailed but uninvolved written or oral instruction. Deal with problems involving a few concrete variables in or from standardized situations.	Use arithmetic to add, subtract, multiply, and divide whole numbers.	
1	Apply common sense understanding to carry out simple one- or two-step instructions. Deal with standardized situations with occasional or no variables in or from these situations encountered on the job.	Perform simple addition and subtraction, reading and copying of figures, or counting and recording.	Comprehension and expression of a level to —Learn job duties from oral instructions or demonstration. —Write identifying information, such as name and address of customer, weight, number, or type of product, on tags, or slips. —Request orally, or in writing, such supplies as linen, soap, or work materials.

[1] Examples of "principles of rational systems" are: Bookkeeping, internal combustion engines, electric wiring systems, house building, nursing, farm management, ship sailing.

require the highest degree of General Educational Development, level 6. (See table II-19.)

Expert occupational analysts have used these six GED levels and nine SVP levels to classify jobs that are described in the Dictionary according to preparation needed, and most of these classifications will be found in the Dictionary.

Applying these classifications to the projections referred to earlier in this chapter yields a rough index of the knowledge and skill characteristics of existing and projected jobs. The classifications of about 200 occupations are set forth in table II-20.[1]

If jobs are divided into lower-skill and higher-skill by classifying as higher-skill (1) those with a GED level of 4 or more and (2) those at GED level 3 with an SVP rating of 6 or more, then the higher-skill jobs account, in 1965, for half of the jobs (49.6 percent). In 1975, according to the projections, the higher-skill jobs will account for a slightly higher proportion of the total (51 percent). Of the total number of jobs to be filled during the 1965-75 decade, over 53 percent fall into the higher-skill category.

	All jobs	*Higher-skill*	*Lower-skill*
Jobs in 1965	100.0	49.6	50.4
Jobs in 1975	100.0	51.0	49.0
Jobs to be filled 1965-75	100.0	53.4	46.6

It would be possible, of course, to draw the line between lower-skill and higher-skill jobs at some other point. It is apparent from table II-19, however, that difference between 1965 and 1975 changes little if the line is shifted up or down a few steps.

No change at all is projected in the importance of the largest single group of occupations shown in the table—those with GED level 3 and SVP level 3. This group—which includes sales clerks, typists, office clerks, and service workers of various kinds—comes out at around 23 percent of all jobs in both 1965 and 1975; similarly, it accounts for 22 percent of the total number of jobs to be filled during the decade.

The largest relative change is the downward shift in the proportion of the total represented by the lowest level of jobs (GED level 2) from 15.5 percent of the total in 1965 to 13.5 percent in 1975. The highest-level jobs (GED 5 and 6) shifted from 17.7 percent to 19.0 percent.

RELATION OF "EMPLOYED RESIDENTS" TO "JOBS"

To find the number of jobs in New York State, one can start with the number of employed persons living in the State, but one then has to *add* a good many jobs held by persons who live outside the State but commute in (minus the reverse commuters). (Table II-21.) Then there are the people who hold two or three jobs (often part-time). Such a person has been counted once in the employed-residents figure. Now his second job (and third job, if he has one) must be *added in*, to make up the complete job-count.

Finally, persons who are temporarily off the payroll —because of an unpaid vacation, an illness during which their pay does not continue, or a strike—are counted as part of the number of employed persons living in the State. It is customary, however, to *exclude* their jobs from the job-count.

[1] Some of the occupations included in the projections embrace more than one occupation for which the *Dictionary of Occupational Titles* gives a GED and SVP designation. Generally speaking, in these instances table II-20 uses the designation given by the Dictionary to the one with the largest number of workers. Under the Dictionary's procedure, the final GED level assigned was the highest of the three scale ratings (reasoning, mathematics, and language skills).

Table II-18.
Specific Vocational Preparation (SVP)

The amount of time required to learn the techniques, acquire information, and develop the facility needed for average performance in a specific job-worker situation.

This training may be acquired in a school, work, military, institutional, or a vocational environment. It does not include orientation training required of even every fully qualified worker to become accustomed to the special conditions of any new job. Specific vocational training includes training given in any of the following circumstances:

a. Vocational education (such as high school commercial or shop training, technical school, art school, and that part of college training which is organized around a specific vocational objective);
b. Apprentice training (for apprenticeable jobs only);
c. In-plant training (given by an employer in the form of organized classroom study);
d. On-the-job training (serving as learner or trainee on the job under the instruction of a qualified worker);
e. Essential experience in other jobs (serving in less responsible jobs which lead to the higher grade job or serving in other jobs which qualify).

The following is an explanation of the various levels of specific vocational preparation.

Level	*Time*
1	Short demonstration only.
2	Anything beyond short demonstration up to and including 30 days.
3	Over 30 days up to and including 3 months.
4	Over 3 months up to and including 6 months.
5	Over 6 months up to and including 1 year.
6	Over 1 year up to and including 2 years.
7	Over 2 years up to and including 4 years.
8	Over 4 years up to and including 10 years.
9	Over 10 years.

Table 11-19. Distribution of Jobs to be Filled, By Level of General Educational Development (GED) and Specific Vocational Preparation (SVP), New York State, 1965-1975

(in thousands)

Level of GED and SVP required	*Number of jobs*				*Total jobs to be filled, 1965-1975*	
	1965		*1975*			
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
All educational (GED) levels combined	7,500.0	100.0	8,579.9	100.0	3,174.5	100.0
SVP group 8: 4 years to 10 years	502.2	6.7	602.8	7.0	219.7	6.9
SVP group 7: 2 years to 4 years	1,766.6	23.6	2,124.8	24.8	821.9	25.9
SVP group 6: 1 year to 2 years	1,305.1	17.4	1,487.4	17.3	598.5	18.9
SVP group 5: 6 months to 1 year	428.5	5.7	481.3	5.6	163.1	5.1
SVP group 4: 3 months to 6 months	527.4	7.0	644.2	7.5	263.0	8.3
SVP group 3: 30 days to 3 months	2,169.6	29.0	2,420.4	28.3	829.6	26.1
SVP group 2: short demonstration to 30 days	527.5	7.0	560.0	6.5	236.8	7.5
SVP group 1: short demonstration only	273.1	3.6	259.0	3.0	41.9	1.3
Educational (GED) level 6, total	252.1	3.4	322.3	3.8	132.0	4.2
SVP group 8	248.0	3.3	317.3	3.7	129.8	4.1
SVP group 7	4.1	0.1	5.0	0.1	2.2	0.1
Educational (GED) level 5, total	1,070.2	14.3	1,299.0	15.2	528.8	16.6
SVP group 8	136.5	1.8	168.8	2.0	63.6	2.0
SVP group 7	786.7	10.5	969.5	11.3	403.9	12.7
SVP group 6	147.0	2.0	160.7	1.9	61.3	1.9
Educational (GED) level 4, total	2,063.6	27.4	2,378.9	27.7	903.9	28.4
SVP group 8	97.9	1.3	95.4	1.1	20.5	0.6
SVP group 7	796.3	10.6	949.4	11.1	340.1	10.7
SVP group 6	1,025.9	13.6	1,169.8	13.6	485.3	15.3
SVP group 5	60.3	0.8	74.9	0.9	29.7	0.9
SVP group 4	83.2	1.1	89.4	1.0	28.3	0.9
Educational (GED) level 3, total	2,953.3	39.4	3,422.8	39.8	1,265.1	39.9
SVP group 8	19.8	0.3	21.3	0.2	5.8	0.2
SVP group 7	179.5	2.4	200.9	2.3	75.7	2.4
SVP group 6	132.2	1.8	156.9	1.8	51.9	1.6
SVP group 5	368.2	4.9	406.4	4.7	133.4	4.2
SVP group 4	398.7	5.3	508.5	5.9	223.1	7.0
SVP group 3	1,759.4	23.4	1,998.1	23.4	708.0	22.4
SVP group 2	95.5	1.3	130.7	1.5	67.2	2.1
Educational (GED) level 2, total	1,160.8	15.5	1,156.9	13.5	344.7	10.9
SVP group 4	45.5	0.6	46.3	0.5	11.6	0.4
SVP group 3	410.2	5.5	422.3	4.9	121.6	3.8
SVP group 2	432.0	5.8	429.3	5.1	169.6	5.4
SVP group 1	273.1	3.6	259.0	3.0	41.9	1.3

Table II-20. Jobs Classified By Level of General Educational Development (GED) and Specific Vocational Preparation (SVP)

GED	SVP	Occupation
6	8	Architects
		Clergymen
		Dentists
		Engineers, aeronautical
		Engineers, chemical
		Engineers, electrical
		Engineers, mechanical
		Engineers, metallurgical
		Other engineers, technical
		Lawyers and judges
		Natural scientists
		Osteopaths
		Physicians and surgeons
		Psychologists
		Teachers, college
6	7	Economists
		Other social scientists
5	8	Accountants and auditors
		Credit men
		Engineers, civil
		Engineers, mining
		Insurance adjusters
		Musicians
		Veterinarians
5	7	Artists, musicians, authors, and actors
		Chiropractors and therapists
		Data processing and programming specialists
		Designers, except design draftsmen
		Draftsmen
		Engineers, industrial
		Librarians
		Optometrists
		Personnel and labor relations workers
		Pharmacists
		Social and welfare workers
		Statisticians and actuaries
		Structural design technicians and related specialists
		Teachers, secondary
		Teachers, n.e.c.
		Technical writing technicians
		Civil engineering and construction technicians
		Electronic engineering technicians
		Industrial engineering technicians
		Mathematics technicians
		Physicial science technicians
		Professional, technical, and kindred workers n.e.c.
		Other managers, officials, and proprietors n.e.c. (except retail trade)
5	6	Airplane pilots and navigators
		Reporters
		Safety and sanitation inspectors and related specialists
		Teachers, elementary
		Mechanical engineering technicians
4	8	Carpenters
		Compositors and typesetters
		Engravers, except photoengravers
		Lithographers
		Patternmakers, metal and wood
		Stereotypers
		Watchmakers
4	7	Airway tower specialists and flight dispatchers
		Blacksmiths, forgemen, hammermen
		Boilermakers
		Broadcasting, motion picture and recording studio specialists
		Conductors, railroad
		Dancers
		Dietitians and nutritionists
		Electricians
		Electroplaters
		Foremen n.e.c.
		Heat treaters, and annealers
		Jewelers
		Linemen and servicemen (public utilities)
		Locomotive engineers and firemen
		Loom fixers
		Mechanics and repairmen
		Millwrights
		Molders, metal (except coremakers)
		Nurses, professional and student
		Ship officers, pilots, engineers
		Photographers
		Plumbers and pipefitters
		Postmasters and assistant postmasters
		Power plant operators
		Pressmen and plate printers
		Purchasing agents
		Radio operators
		Sales and service technicians
		Skilled machine workers
		Stationary engineers
		Electrical engineering technicians
		Technical illustrators
		Tinsmiths
		Toolmakers and diemakers
		Upholsterers
4	6	Attendants, physicians' and dentists' office
		Bookkeepers, hand
		Cabinetmakers
		Computer operators
		Cranemen
		Entertainers n.e.c.
		Farmers
		Hairdressers and cosmetologists
		Housekeepers and stewards
		Insurance agents and brokers

Table II-20. *(continued)*

GED	SVP	Occupations
		Millers
		Real estate agents and brokers
		Secretaries
		Electromechanical technicians
		Technicians, medical and dental
		Other managers, officials and proprietors n.e.c. (retail)
		Other sales workers n.e.c.
4	5	Bank tellers
		Bookkeeping machine operators
		Payroll and timekeeping clerks
		Product testing and inspection specialists
4	4	Accounting clerks
		Postal clerks
3	8	Brickmasons and stone and tile setters
		Electrotypers
		Photoengravers
3	7	Bakers
		Blasters and powdermen
		Butchers
		Cooks, except private household
		Glaziers
		Painters and paperhangers
		Plasterers
		Rollers and roll hands
		Roofers and slaters
		Structural metalworkers
3	6	Asbestos and insulation workers
		Assemblers, metalworking, class A
		Athletes
		Cement and concrete finishers
		Firemen, fire protection
		Inspectors, metalworking, class B
		Opticians and lens grinders
		Welders and flame cutters
		Craftsmen and kindred workers, n.e.c.
3	5	Barbers
		Shipping and receiving clerks
		Stock clerks
		Dispatchers and starters
		Drivers, bus
		Excavating, grading machine operatives
		Furnacemen, smelters, and pourers
		Heaters, metal
		Inspectors, log and lumber
		Inspectors, other
		Receptionists
		Stenographers
		Tabulator operators
		Weavers, textile
		Operatives n.e.c. (manufacture of food, paper, and transporation equipment)
3	4	Attendants, hospital and other institutions
		Billing machine operators
		Brakemen and switchmen (railroad)
		Duplicating machine operators
		Keypunchers
		Machine tool operators, metalwork, class B
		Mine operatives and laborers n.e.c.
		Patrolmen
		Practical nurses
		Sailors and deck hands
		Sewers and stitchers
		Operatives n.e.c. (manufacture of chemicals, plastics, rubber, wood products, and nonelectrical machinery)
3	3	Airline stewards and stewardesses
		Attendants, auto service
		Bartenders
		Calculating and other office machine operators
		File clerks
		Retail sales clerks
		Other clerical and kindred workers
		Deliverymen, routemen, cab drivers
		Drivers, truck and tractor
		Janitors and sextons
		Mail carriers
		Telephone operators
		Typists
		Waiters and waitresses
		Other service workers
		Operatives n.e.c. (nonmanufacturing)
3	2	Cashiers
		Ticket agents
		Watchmen, doorkeepers and bridge tenders
2	4	Spinners, textile
		Operatives n.e.c. (primary metal industries)
2	3	Counter and fountain workers
		Guards
		Kitchen workers
		Knitters, loopers and toppers
		Operatives n.e.c. (manufacture of textile, apparel, stone-clay-glass products, electrical machinery and supplies, and miscellaneous manufacturing)
2	2	Assemblers, metalworking, class B
		Attendants, parking
		Chambermaids
		Charwomen and cleaners
		Electroplater helpers
		Elevator operators
		Farm laborers
		Laundry & dry cleaning operatives
		Messengers
		Porters
		Private household workers
2	1	Laborers, except farm

Table II-21. Reconciliation of Labor Force and Number of Jobs, New York State, 1960, 1965, 1970, and 1975

(in thousands)

	1960	*1965*	*1970*	*1975*
I. Noninstitutional civilian population, 14 and over	12,161	12,812	13,610	14,500
II. Civilian labor force, 14 and over	7,273	7,481	8,010	8,526
A. Resident employed	6,910	7,137	7,692	8,185
B. Unemployed	363	344	318	341
Rate of unemployment (percent II-B is of II)	5.0	4.6	4.0	4.0
III. Total number of jobs	7,265	7,500	8,077	8,580
A. Nonagricultural jobs	7,102	7,380	7,987	8,500
1. Wage and salary workers	6,182	6,506	7,084	7,586
2. Self-employed persons, unpaid family workers, and domestics	920	874	903	914
B. Agricultural jobs	163	120	90	80
IV. Difference between II-A and III	355	363	385	395
A. Net number of commuters into State	144	144	146	146
B. Multiple job holders, minus persons with a job but not being paid[a]	211	219	239	249

[a] Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A), but not among the wage and salary workers (III-A-1).

Table II-22. Job Vacancies and Vacancy Rates in the Rochester and New York City Areas

Occupation group	*Rochester area*[a]		*New York City area*[b]	
	Number	*Rate*[c]	*Number*	*Rate*[c]
All occupations	8,430	3.1	80,710	1.9
Professional, technical, and kindred workers	2,050	4.7	21,910	4.5
Managers, officials, and proprietors	160	1.2	810	0.2
Clerical and kindred workers	1,020	1.9	15,420	1.3
Sales workers	550	2.7	1,890	0.6
Craftsmen, foremen, and kindred workers	1,800	3.7	7,560[d]	1.4[d]
Operatives and kindred workers	1,300	2.2	14,880	1.8
Service workers	710	3.0	13,440	2.6
Laborers, except farm and mine	840	7.7	4,800	2.8

[a] Monroe County. Number of vacancies, average of February, May, and August 1965, from National Industrial Conference Board, *Measuring Job Vacancies* (1967), a report by John G. Myers and Daniel Creamer. Based on field interviews.

[b] New York City Metropolitan area. Number of vacancies in April 1966, from unpublished study by New York State Department of Labor, Division of Employment. Based on mail questionnaire. Survey excluded farmers, farm laborers, self-employed persons, private household workers, and unpaid family workers; also voluntary nonprofit hospitals and private nonprofit educational and charitable institutions.

[c] Percent of all jobs in the occupation group. Calculated by New York State Department of Labor, Division of Research and Statistics.

[d] The New York survey's coverage of vacancies in the craftsmen group was somewhat incomplete, especially in the construction trades.

After all these adjustments, the number of jobs (item III in table II-21) will then be found to be about 5 percent greater than the number of employed residents (item II-A).

The estimate of jobs takes in all jobs in the State (full-time and part-time), whether held by persons receiving a wage or salary or by a self-employed person or by an unpaid family worker. It includes farm jobs in any of these categories, and the jobs of domestic workers. As section III of the table suggests, basic job statistics customarily are compiled separately for the jobs of:

- Nonagricultural wage and salary workers
- Nonagricultural self-employed and unpaid family workers, and domestics
- Agricultural jobs (hired workers; self-employed; unpaid family workers)

The jobs reflected by the first of these three categories—nonagricultural wage and salary workers—constituted 85.1 percent of all jobs in 1960. Between 1960 and 1965 the other two categories declined in number; but total jobs rose, because of the increase in nonagricultural wage and salary workers—their share of the total was 86.7 percent in 1965. Their number will continue to increase; they should account for 88.4 percent of all jobs in 1975.

In 1965 it was estimated that there were 363,000 more jobs in the State than there were employed residents. About 60 percent of this difference represents multiple job holding (minus people temporarily away from their work but not being paid). The rest of the difference reflects the fact that there are more persons with jobs in the State who live outside it than there are State residents who work elsewhere; it was assumed in the projections that net in-commutation would remain almost constant in the 1965-75 period.

JOB VACANCIES

A complete picture of job openings to be filled during the 1965-75 period will include, in addition to openings resulting from industrial change and deaths and retirements, the number of vacant jobs—jobs that have not been filled because of the unavailability of qualified workers.

The vacancy rate varies substantially among occupations. It also varies among employers, for the same kind of job; it will tend to be lower in an establishment that has relatively attractive wages and other terms of employment and is located in a section of town near a supply of qualified workers.

Acute manpower shortages exist in some instances. For example, in the mid-1960's the State of New York as an employer had thousands of vacancies in professional, administrative, and technical occupations, including mathematicians, actuaries, and statisticians, dentists, doctors, nurses, and medical technicians; therapists; psychiatrists and psychologists; social workers; civil engineers and civil engineering technicians; economists; librarians; journalists; educational and training specialists of various kinds. Vacancy rates in some of these occupations were 20 percent or more.

We do not know the magnitude of the job-vacancy problem in the economy of New York State as a whole in the mid-1960's. However, the results of two surveys —one in the Rochester area (Monroe County) and one in the New York Metropolitan area (New York City and Nassau, Suffolk, Westchester, and Rockland Counties) —are to some extent indicative.

The New York area survey was made in April 1966, when the unemployment rate in the area was 4.7 percent and in the State as a whole 4.1 percent. This survey, which was conducted by the New York State Department of Labor's Division of Employment, found about 80,000 vacancies among some 4,300,000 positions. This amounted to a vacancy rate of about 2 percent. (See table II-22.)

The Rochester (Monroe County) survey, made by the National Industrial Conference Board, reported about 8,400 vacancies among 275,000 positions in 1965 (average of February, May, and August). This is a rate of about 3 percent, or 50 percent higher than the New York area rate in April 1966. (See table II-22.) This evidence of a tight labor market in Rochester is corroborated by the low unemployment rate in Monroe County: it averaged 2.0 percent in 1965. It may be presumed that the vacancy rates of other principal industrial areas of the State were generally below those of Rochester, since their unemployment rates were higher; the closest to Rochester was the Albany-Schenectady-Troy area, with an unemployment rate of 3.5 in 1965.

Table II-22 sets forth the results of the two surveys by major occupational grouping. Since there were some differences in the coverage of the two surveys and in the way they were conducted, precise comparisons are not appropriate. (Both surveys defined vacancies to exclude those jobs that the employer intended to fill by shifting workers within his organization.)

Individual occupation groups with exceptionally high rates include the following:

	Rochester area	*New York area*
Technical engineers	7.3	4.8
Natural scientists	7.9	6.3
Social scientists	13.3	5.4
Metal-working craftsmen	3.6	5.2
Protective service workers	*	6.1
Practical nurses and hospital attendants	6.2	*
Laborers, except farm	7.9	2.8

* Not available separately.

Actual manpower shortages in the areas studied were somewhat less than the vacancy rates found, for

it often takes a laid-off worker a while to find a new job. A position not filled after 30 days suggests that there is a real shortage of manpower in that line. An analysis of vacancies reported to the offices of the New York State Employment Service shows, for April 1966, that 46 percent of them had been available for 30 days or more.

The Rochester 1965 survey found that one-fourth of the vacancies had been open at least three months and that half of these had been open at least six months:

	Open 3 months	*Open 6 months*
All occupations	26.9%	12.3%
Professional, semiprofessional, and managerial	42.5	23.2
Clerical and sales	15.6	2.1
Service workers	18.5	4.0
Skilled workers	37.3	15.5
Semiskilled workers	23.3	17.1
Unskilled workers	10.4	5.7

More than 40 percent had been open three months in the case of professional, semiprofessional, and managerial jobs, and more than one-third in the case of skilled workers—evidence of serious shortages in these fields.

Chapter III
Meeting Manpower Requirements

This chapter turns from the question of the quantity of manpower required in various occupations to the question of what these requirements add up to in terms of needs for education and training and how these needs compare with the kind of labor force expected to be available in the years ahead.

The economy meets manpower requirements in two ways—by the recruitment of new workers without previous job experience and by the promotion or other shifting of workers from one job to another (a shift either within an employer's establishment or from one employer to another). Both recruitment and job shifting are significant means of filling jobs in nearly all occupations, although their relative importance varies considerably from one kind of occupation to another.

When a worker shifts to a different occupation, the vacancy he leaves adds one item to industry's manpower requirements. In many jobs at the unskilled level, for example in service occupations, more people leave for jobs of another kind than shift in from other jobs. In such an occupation there is a deficit—namely, jobs to be filled by hiring persons new in the labor market. This may be said to be a situation of net out-mobility. In some other occupations, more persons shift in than shift out, creating a net in-mobility. Here, even if the occupation is expanding, relatively few persons may have to be recruited from among new entrants to the labor force.

Accordingly, the pattern of meeting manpower requirements in an occupation over a period of time, may be described as follows:

> *Manpower requirements (arising from industrial change and death and retirement)* minus *net mobility (number moving in less number moving out of the occupation)* equals *new entrants who have to be recruited if manpower requirements are to be satisfied.*

When manpower requirements are considered from the standpoint of an individual region or state it is apparent that the in-migration of persons from other regions or states (geographic mobility) also is a means of satisfying needs for workers.

The pattern of meeting manpower requirements in an occupation then may be rephrased as follows:

> *Manpower requirements* minus *net occupational mobility within the State and* minus *net geographic migration into the State* equals *new entrants to be recruited within the State.*

Geographic Mobility

New York State, and in particular New York City, has long been a mecca for job-seekers. Earlier, the large immigrations from abroad met constantly expanding manpower needs of employers in New York City and other large cities in the State. With the cessation of mass immigration, manpower needs of the State have been served by migrants from other states.

Since World War II, the interstate migration pattern has consisted of two contrasting flows. On the one hand, there has been an exodus of Negroes from the rural South into New York City and other major cities in the State. There has also been a large migration from Puerto Rico and other West Indian islands to New York City. On the other hand, there has been substantial migration of white families out of the State into suburban areas in New Jersey and Connecticut and also of older New Yorkers to the South, the Southwest, and West.

It is estimated that, from 1950 to 1960, net migration into New York State amounted to 210,000. This consisted of a net in-migration of 282,000 non-whites and a net out-migration of 72,000 whites. It is anticipated that between 1965 and 1975, there will be a net in-migration of about 439,000. Of this number, about 356,000 will be 14 years of age and over and about 218,000 will be in the labor force. Nearly all the in-migrants entering the New York State labor force will be in the younger age groups, under 45. A net out-migration can be expected in the over-45 group.

If the proportion of whites and nonwhites follows the 1950-1960 pattern, it is anticipated that net in-migration will fill 7 percent of total job needs during the 1965-75 decade: it will fill about 5 percent of clerical and craft jobs, 12 percent of service worker jobs, 28 percent of operative jobs, and 72 percent of the laborer jobs. Estimates of geographic net migration by occupation group, appear in table III-1.

Occupational Shifts

Table III-1 also gives estimates of net occupational mobility by broad occupation group for the 1965-75 period. These estimates are rough approximations based on a cohort analysis of census data for the 1950-60 decade. They are rough because there are so few survey data on occupational mobility over a period of years. What was done, in brief, was to assume that the amount of movement (net mobility) that will take place in an occupation between 1965 and 1975, as

Table III-1. Jobs to be Filled By Net Mobility and New Entrants, By Major Occupation Group, New York State, 1965-1975

(in thousands)

Occupation group	*Jobs to be filled by*				*Percent of jobs to be filled by*			
	Total	*Net geographic mobility*[a]	*Net occupational mobility*	*New resident entrants*[b]	*Total*	*Net geographic mobility*	*Net occupational mobility*	*New resident entrants*
All occupations	3,174.5	228.0	—	2,946.5	100.0	7.2	—	92.8
Professional, technical, and kindred workers	605.2	− 5.9	+166.9	444.2	100.0	− 1.0	+ 27.6	73.4
Managers, officials, and proprietors	285.3	− 7.8	+ 81.8	211.3	100.0	− 2.7	+ 28.7	74.0
Clerical and kindred workers	764.8	+ 41.6	+ 52.4	670.8	100.0	+ 5.4	+ 6.9	87.7
Sales workers	219.4	− 5.7	− 5.3	230.4	100.0	− 2.6	− 2.4	105.0
Craftsmen, foremen, and kindred workers	345.2	+ 17.4	+ 57.6	270.2	100.0	+ 5.0	+ 16.7	78.3
Operatives and kindred workers	332.9	+ 93.5	−104.5	343.9	100.0	+28.1	− 31.4	103.3
Service workers	578.3	+ 70.8	−157.8	665.3	100.0	+12.2	− 27.3	115.1
Farmers and farm laborers	1.3	− 6.1	− 29.9	37.3	100.0	[c]	[c]	[c]
Laborers, except farm and mine	42.1	+ 30.2	− 61.2	73.1	100.0	+71.7	−145.4	173.7

[a] Assumes that estimated 1950-1960 patterns hold during 1965-1975.

[b] Job requirements that will not be met by either geographic or occupational mobility and which, therefore, must be met by new resident entrants into the labor force.

[c] Base too small to calculate percentage.

a percent of employment in 1965, will be roughly the same as the corresponding 1950-60 percentage in relation to the 1950 base.

Obviously many assumptions have gone into these estimates, but the great importance of information on movement among occupations requires that assumptions be made in order to obtain figures that enable one to view in perspective the occupational characteristics of future manpower needs.[1]

The estimates of occupational mobility in table III-1 are for the State as a whole. They show what net gain or net loss in the total number of jobs in the State in a given occupation group is likely to occur because of movements from one occupation to another over the ten-year period. That is, the estimates indicate how many, of the people in the labor force in 1965, will be in a different occupation in 1975, without regard to the various changes that take place during the intervening years. They do not include the upgrading through experience and training of persons who entered the labor force between 1965 and 1975, and so do not reflect the sum total of shifting of people during the decade. To be included in the figures, a shift must have been from one kind of occupation to another (either up or down the skill ladder).[2] It is included whether it is a shift within an establishment or between establishments.

It can be seen that substantial proportions of requirements will be met by the method of occupational shifting in the case of the higher-skill-level occupations, which include, in addition to the managerial group, the professional-technical, craftsmen, and clerical groups. On the other hand, in occupations which are predominantly of a lower level of skill—operatives, service workers, laborers, and farmers and farm laborers—substantial deficits will result from heavy outmovements.

Particular occupations within each of these broad groups can differ widely. For example, occupational shifting can be expected to fill a substantially larger proportion of foreman jobs than of other craft jobs, and in the service-worker group the protective-service-worker occupations (firemen, policemen) gain new members from occupational mobility, while waiters and waitresses suffer a net loss. But the same thing is true when one compares specific occupations as is true when one compares broad occupational groups—that higher-level occupations are more likely to gain workers from mobility and low-level occupations to lose workers.

Over-all, of course, there is no net occupation gain or loss from occupational shifting. The plusses and minuses cancel out.

Occupational shifting is not all upward on the skill ladder. Some of it is a shifting of subject field at about the same level—for example, the high school teacher who becomes a school librarian. Some of it is a downward shifting, not infrequent among workers

[1] For a description of the methods used in making the estimates, see the Technical Supplement of this report. See also A. J. Jaffe and R. I. Carleton, *Occupational Mobility in the United States, 1930-1960* and U.S. Bureau of Labor Statistics, Special Labor Force Report 84, "Occupational Mobility of Employed Workers."

[2] There may be some understatement of the amount of occupational shifting that takes place, especially in the case of upward shifts from unskilled or semiskilled jobs into craft and other high-level technical jobs. Under the method followed, for example, a youth who first enters the labor force in 1968 and subsequently shifts from an unskilled job to a craft job, which he holds in 1975, is counted not as one who shifts into a craft job, but as a *new* entrant into a craft job. Thus the method overstates new entrants into higher-level jobs while understating job shifting into such jobs.

suffering from age or a disability that prevents them from carrying out their former duties.

Unfortunately there are no comprehensive data indicating the magnitude of the various sorts of occupational shifting that take place. Some of the common types, however, can be readily illustrated.

(1) Upward shifting within a "promotional" line of occupations related in subject matter and technical skill requirements.

Probably the most common type of upward movement, especially in large corporate and government agencies, is from a lower grade to a higher grade of the same occupation, for example, from junior accountant, engineering technician, or economist to senior grade level. Sometimes a shift of this sort involves a change of title; for example:

- Machine operator (sometimes apprentice) to journeyman machinist
- Assembler to instrument maker
- Journeyman electrician to electronic troubleshooting technician
- Draftsman to design technician; design technician to engineer
- Chemical laboratory assistant to industrial chemist
- Service-station attendant to automobile mechanic
- Industrial or farm laborer to machine operator
- Typist to stenographer; stenographer to secretary
- Operative and craftsman to foreman
- Craftsman to proprietor (e.g., journeyman plumber to plumbing contractor)
- Salesman to sales manager or store proprietor
- Professional to manager or proprietor (e.g., accountant, engineer, or chemist to a managerial position requiring similar knowledge)

(2) Shifting not within promotional lines usually involving a change in the field or type of work. Changes in level of skill and pay may or may not be involved. For example:

Shifts that result from displacement of workers by technological, product, and other industrial change. Persons who lose their jobs in this fashion may move to quite different jobs which pay no more and would not be ranked any higher, skill-wise. Thus the payroll clerk displaced by a computer gets a job as a computer machine operator; a bookkeeper becomes a programmer. Factory mechanization results in shifting a machine operator to production line inspector, a laborer to fork-lift-truck operator.

Shifts that result from lack of interest in a field of work, dissatisfactions with an employer, a desire to improve one's status, changes in the kinds of jobs available in the labor market, changes of residence, and so on. Almost any sort of occupational change could take place for such reasons. A businessman becomes a teacher; a physicist, an engineer; a store proprietor, a government account clerk; a clerk, a foreman; a waiter, a policeman; a domestic worker, a hairdresser; a farm laborer, a truck driver; a salesman, a cashier; a laborer, a hospital attendant; an office manager, a doctor's assistant; a minister, a salesman; and so on.

Table III-2. Number of Resident New Entrants Into the Labor Force Between 1965 and 1975, By Major Occupation Group, New York State

(in thousands)

Occupation group	*Total new entrants*[a]	*Net geographic mobility*	*Net occupational mobility*[b]	*Resident new entrants*[c]	*Resident new entrants as percent of total*
All occupations	3,030.0	+218.0	—	2,812.0	92.8
Professional, technical, and kindred workers	577.7	− 5.6	+130.1	453.2	78.4
Managers, officials, and proprietors	272.3	− 7.5	+ 57.2	222.6	81.7
Clerical and kindred workers	730.0	+ 39.8	+ 76.3	613.9	84.1
Sales workers	209.4	− 5.4	+ 36.7	178.1	85.1
Craftsmen, foremen, and kindred workers	329.5	+ 16.6	+ 22.7	290.2	88.1
Operatives and kindred workers	317.7	+ 89.3	−127.5	355.9	112.0
Service workers	552.0	+ 67.7	−130.3	614.6	111.3
Farmers and farm laborers	1.2	− 5.8	− 18.1	25.1	[d]
Laborers, except farm and mine	40.2	+ 28.9	− 47.1	58.4	145.3

[a] Table III-1 gives 3,174,500 as the total number of jobs to be filled during 1965-75. That figure is larger than the 3,030,000 new entrants total in this table. One reason is that some persons held two or more jobs. Another reason is that some jobs in New York State are held by persons who reside outside the State.

[b] Includes adjustment for occupation changes, between 1965 and 1975, of persons 14-24 in 1965 who were in school in 1965 and also worked part-time.

[c] Total requirements minus net geographic mobility and net occupational mobility.

[d] Base too small to calculate percentage.

Shifting by aged or disabled workers to less demanding jobs. Usually these are downward shifts resulting in lower salaries or wages. They may involve a shift from full-time to part-time work. For example, a laborer may become a watchman; a mechanic, a janitor; a store proprietor, a cashier; a business administrator, a small store proprietor; a company president, a farmer; a college professor, a part-time business consultant.

Shifts from part-time jobs held by high-school and college students in the 14-24 age group, to regular jobs after they have completed their schooling. (See table III-2 for adjustments excluding this group.)

The educational and training effort that is needed before one can make an occupational shift will, of course, vary with the levels of skill and knowledge requirements and the magnitude of the change involved.

Upward shifts within established promotional lines of business and government agencies or between occupations closely related in subject-matter content and skill requirements have in the past been related to length of satisfactory job experience more than to any other factor. Seniority is the critical consideration under some union agreements. Especially in shifts involving craftsmen, technicians, higher-level clerical, sales, and managerial jobs, formal instruction by the employer on the premises or course work arranged and paid for by the employer at a school or college may be given. Often, in promotional-line situations, it is up to the individual to take the related school course work that is required for a promotion. The adult vocational and educational facilities of both high schools and colleges are drawn upon where additional course work is required for promotion or will make it more likely.

In the more scattered and less organized type of occupational shifting described in the second group, above, informal on-job training is apt to be the principal means by which a worker learns to perform his new job. This may be supplemented by formal instruction at the employer's premises. Class-room course work is apt to be needed to supplement on-job training and experience when a shift takes place from a low-skill job to clerical, craft, technician, and professional jobs. When the shift is into a technician or professional job, this may amount to several years of schooling at the post-high-school level financed by the worker or the employer.

The relatively great importance of on-job and other informal and casual methods of training is indicated by a federal survey in 1963 covering a sample of workers between the ages of 22 and 64 who completed less than three years of college.[1] The survey report classifies training under three headings:

Formal training. Includes training obtained in schools of all kinds, apprenticeship, and the Armed Forces (including company training schools where training was full-time and lasted at least six weeks).

On-job training. Includes on-job training by supervisors, company training courses (part-time or full-time for less than six weeks), and "worked way up by promotion."

Casual methods. Includes learning from a relative or friend, " just picked it up," and other such methods.

The persons interviewed reported for the most part they had learned their current job outside of formal training channels. This was true in the case of skilled craftsmen as well as of the other groups, as is seen in the following table, which shows the percent reporting each type of training (totals are larger than 100 percent because many workers reported more than one form of training):

Occupation	*Formal training*	*On-job training*	*Casual methods*
Craftsmen and kindred workers	40.6	64.8	47.5
Clerical and kindred workers	53.6	71.4	29.5
Operatives and kindred workers	12.9	61.8	42.6
Sales workers	23.4	60.2	47.4
Service workers (except private household)	24.6	45.5	42.7

Note that the data apply to training for the first jobs of new entrants into the labor force as well as to training obtained in the case of job shifting. It is not known how much the proportions would differ if the survey had been confined to training only for entry-level jobs, but presumably formal schooling would have figured much more prominently and on-job learning less so.

The training or retraining of unemployed and underemployed workers for new jobs in clerical, operative, and service occupations has been substantially advanced by course-work in the schools and in the job instruction organized and financed under the Manpower Development and Training Act of 1962 (MDTA). It is likely that such programs will continue during the 1965-1975 period and serve to facilitate the occupational shifting process.

Resident New Entrants

The number of jobs that will have to be filled in any occupation by new entrants into the labor force from within the State is the number left after subtracting from total requirements the net gain or loss from occupational shifting and from geographic mobility. The new entrants for the most part are young people who have recently completed their schooling or have dropped out of school. During any period, such as the ten-year period 1965-75, with which this report is concerned, there will also be some older women entering the labor force who were not in it at the beginning of the period.

Before pursuing further a comparison of the num-

[1] U.S. Department of Labor, Office of Manpower, Automation, and Training, *Formal Occupational Training of Adult Workers* (December 1964).

Table III-3. Number of New Entrants Into the Labor Force Between 1965 and 1975, By Level of Educational Attainment, New York State

(in thousands)

Age in 1975, and sex	*Years of school completed*					
	Total	*Elementary school only*	*High school, no college*		*College*	
		0-8 years	*1-3 years*	*4 years*	*1-3 years*	*4 or more years*
Total, 14 and over	3,030	405	796	1,049	467	313
Male, 14 and over	1,590	222	447	484	261	176
14-24	1,019	132	309	323	191	64
In school	463	55	191	80	113	24
Not in school	556	77	118	243	78	40
25-44	571	90	138	161	70	112
Female, 14 and over	1,440	183	349	565	206	137
14-24	768	46	200	326	141	55
In school	254	19	119	51	59	6
Not in school	514	27	81	275	82	49
25-44	359	43	75	148	42	51
45 and over	313	94	74	91	23	31

Table III-4. Number of New Entrants Into the Labor Force Between 1965 and 1975, In Major Occupation Groups, By Required Level of Educational Attainment, New York State

(in thousands)

Occupation group	*Years of school required*					
	Total[a]	*Elementary school only*	*High School, no college*		*College*	
		0-8 years	*1-3 years*	*4 years*	*1-3 years*	*4 or more years*
All occupations	3,030.0	516.0	631.7	1,161.4	337.7	383.2
Professional, technical, and kindred workers	447.6	7.6	13.8	89.1	69.0	268.1
Managers, officials, and proprietors	215.1	27.1	25.8	82.0	36.8	43.4
Clerical and sales workers	826.4	57.0	126.5	450.4	140.5	52.0
Craftsmen, foremen, and kindred workers	306.8	76.4	70.3	127.9	25.1	7.1
Operatives and kindred workers	445.2	135.8	126.4	161.2	17.8	4.0
Service workers	682.3	168.5	238.2	224.5	43.6	7.5
Farmers and farm laborers	19.3	10.1	3.7	4.4	0.8	0.3
Laborers, except farm and mine	87.3	33.5	27.0	21.9	4.1	0.8

[a] Sum of figures in two columns of table III-2, namely Net geographic mobility and Resident new entrants.

ber of new entrants into the labor force and the number who will be required, a refinement of the previously presented data on occupational mobility is appropriate.

Those data counted as a job shift an expected move by anybody in the employed labor force in 1965 who would have a different occupation ten years later, in 1975. They therefore classified as job changers persons, who, at the beginning of the decade, worked part-time while going to school full-time—working as baby sitter, store clerk, newsboy, counterman, construction laborer, farm laborer, and so on. Ten years later, almost all these people will have completed their schooling and be in the labor market on a full-time basis, many at jobs of a much higher level. In the data previously presented, these young people were recorded as shifting from service, clerical, sales, and laborer jobs, into professional, managerial, craft, or whatever type of job they would hold after completing their schooling. It was assumed that this process would fill some of the high-level positions and so reduce the number of new entrants needed.

For example, young men who would become doctors after having worked in low-level jobs during their school years, in order to help finance their education, were recorded not as new entries into the medical pro-

Table III-5. Difference Between (1) New Entrants Into Labor Force Between 1965 and 1975, By Expected Level of Educational Attainment (Supply) and (2) new Entry Jobs By Level of Education Required (Demand), New York State

(in thousands)

Years of school Completed	*Unadjusted*[a]			*Adjusted*[b]		
	Supply	*Demand*	*Supply minus demand*	*Supply*	*Demand*	*Supply minus demand*
All levels	3,030	3,030	—	2,482	2,482	—
Less than high school graduation	1,201	1,148	+ 53	918	901	+17
0-8 years of elementary school	405	516	−111	360	431	−71
1-3 years of high school	796	632	+164	558	470	+88
High school graduation; less than college graduation	1,516	1,499	+ 17	1,268	1,250	+18
4 years of high school	1,049	1,161	−112	932	969	−37
1-3 years of college	467	338	+129	336	281	+55
4 or more years of college	313	383	− 70	296	331	−35

[a] Comparison of supply totals of table III-3 with demand totals of table III-4.

[b] These figures refine the unadjusted figures by eliminating, from both the supply and the demand side, the 548,000 persons who are expected to have part-time jobs in 1975 while going to school full-time.

fession but as persons who shifted in from another occupation. The result was to understate the number of individuals who have to be trained as doctors to fill the estimated 1975 needs.

There were an estimated 330,000 persons 14 to 24 in the labor force in 1965 who were in school full-time and worked part-time. Crude estimates were made concerning the occupations of these persons ten years later, based on a comparison of the occupation distribution of persons 14 to 24 enrolled in school and the occupation distribution of persons 25 to 34, in 1960. By the use of these estimates, adjustments were made in the previously derived net-mobility figures, and revised estimates of the number of new entries obtained.[1] The result was to increase the number of new entrants required in the professional, managerial, craft, and operative groups and to reduce the number in the other occupations. Table III-2 gives the result of the adjustments.

Estimates also were made of the number of residents of New York State who will enter the labor force during the 1965-75 decade. This was done by taking the 1965 labor force (classified by age and sex), deducting the estimated number who will die and retire during the period, and subtracting the result from the projected 1975 labor force. The data then were adjusted for assumed rates of unemployment.

The following table presents estimates of the age-sex distribution of the new labor supply during the 1965-75 decade:

Age as of 1975	*Total new entrants*	*Residents* (in thousands)	*Net number of in-migrants*
All ages, 14 and over	3,030	2,812	218
Males	1,590	1,453	137
14-24	1,019	973	46
In school	463	446	17
Not in school	556	527	29
25-44	571	480	91
Females	1,440	1,359	81
14-24	768	743	25
In school	254	249	5
Not in school	514	494	20
25-44	359	303	56
45 and over	313	313	—

Taking resident new entrants and migrants from other states together (column 1 in the table), 1,787,000, or 59 percent, of the new labor supply in the employed labor force during the 1965-75 decade are expected to

[1] The Technical Supplement to the report details the adjustments made.

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Table III-6. Percent Distribution of Part-Time Workers By Age and Sex and Percent Part-Time Workers Are of All Who Work At Any Time During Year, New York State, 1960, 1965, and 1975

Age and sex	*Percent distribution of part-time workers*			*Percent part-time workers are of all who work during year*		
	1960	*1965*	*1975*	*1960*	*1965*	*1975*
All persons who worked during year	100.0	100.0	100.0	19.6	19.7	19.8
Male	38.1	38.1	38.8	12.2	14.0	12.8
14-19	15.6	20.3	22.4	63.5	62.8	62.7
20-24	3.2	3.6	5.1	12.6	12.9	13.2
25-34	2.4	1.7	1.6	3.8	3.0	2.5
35-44	2.3	1.4	0.8	3.3	2.1	1.5
45-54	3.0	1.6	1.1	4.8	2.7	2.0
55-64	4.1	5.2	2.5	8.6	6.9	5.9
65 and over	7.5	6.3	5.3	38.4	37.2	36.5
Female	61.9	61.9	61.2	32.1	31.1	30.5
14-19	11.5	14.3	15.6	58.7	61.5	61.4
20-24	3.2	3.9	5.1	16.1	17.2	18.0
25-34	9.6	8.9	9.3	28.2	27.0	26.0
35-44	13.1	12.1	9.5	30.8	29.2	28.1
45-54	11.6	10.7	9.5	27.9	26.2	24.7
55-64	8.3	7.3	7.2	31.4	26.1	24.0
65 and over	4.6	4.7	5.0	51.6	53.2	54.5

Table III-7. Number of Full-Time and Part-Time Workers and Number of Weeks in Year Worked By Full-Time Workers, By Age and Sex, New York State, 1975

(in thousands)

Age and sex	*Total*	*Full time*				*Part-time*
		Total	*50-52 weeks*	*27-49 weeks*	*0-26 weeks*	
Total	9,215	7,388	5,278	1,142	968	1,827
Male	5,543	4,835	3,799	610	426	708
14-24	1,360	857	421	150	286	503
25-44	2,114	2,071	1,770	247	54	43
45 and over	2,069	1,907	1,608	213	86	162
Female	3,672	2,553	1,479	532	542	1,119
14-24	986	607	237	116	254	379
25-44	1,274	930	561	191	178	344
45 and over	1,412	1,016	681	225	110	396

be young people 14 to 24 (in 1975) seeking jobs for the first time. About 40 percent of this group will be in school in 1975; the rest will have finished their schooling, either by graduating from high school or college or by dropping out of school before graduation.

The 571,000 males 25 to 44 years of age (in 1975) who will enter the State's labor market during the decade are persons who have completed their schooling, are seeking full-time work, and were not in the State's labor force in 1965. Among females, there are a large number of new entrants who are over 45 years of age. Most of them are women whose families have grown up and widows who are forced to work because of the death of the breadwinner.

Table III-8. Percent Distribution of Part-Time Workers By Industry Division and Percent Part-Time Workers Are of All Who Work At Any Time During Year, New York State, 1960, 1965, and 1975

Industry division	*Percent distribution of part-time workers*			*Percent part-time workers are of all who work during year*		
	1960	*1965*	*1975*	*1960*	*1965*	*1975*
All industries	100.0	100.0	100.0	19.6	19.7	19.6
Agriculture	6.0	4.0	2.5	42.2	40.5	37.8
Construction	2.6	2.0	1.8	12.5	9.8	8.0
Durable goods manufacturing	2.1	1.9	1.4	3.8	3.2	2.5
Nondurable goods manufacturing	6.7	5.1	3.9	9.4	8.5	7.8
Transportation and utilities	2.2	2.2	2.0	6.2	6.6	6.5
Trade	25.1	29.2	30.9	25.2	30.4	31.8
Services and finance, insurance, and real estate	25.5	30.6	35.0	18.9	20.6	21.0
Private household	10.8	11.2	10.5	65.0	72.7	74.5
Public administration, mining, and forestry	1.8	1.8	2.2	7.9	8.7	8.9
Self-employed and unpaid family workers	17.2	12.0	9.8	32.2	27.6	23.9

Demand for and Supply of New Entrants

How well does the expected supply of resident new entrants and in-migrants match up, in terms of quality, with the number of jobs available to them?

Only one measure of quality is available to help answer the question. This is years of schooling completed, often referred to as "educational attainment." This is not an entirely adequate measure of the knowledge and skills possessed by workers or required to perform jobs. One limitation is that it does not reflect specific vocational preparation of the sort acquired by on-job training and job experience; also, it may not fully reflect special evening vocational course work.[1] Another weakness lies in the fact that the quality of schooling varies from place to place. Also, the level of educational development may vary among students completing the same number of years in the same school. Nevertheless, years of schooling probably is indicative of broad variations in educational development both in terms of worker capabilities and in terms of what employers require of applicants.

On the supply-of-labor side, table III-3 presents, by age-sex group, estimates of the expected levels of educational attainment of persons entering the labor force between 1965 and 1975. These include both resident new entrants and the net number of in-migrants from other states.[2]

On the demand side, table III-4 presents, by occupation group, estimates of the educational attainment required for jobs to be filled by new entrants.[3]

Table III-5 ties these together. It shows that the supply of persons with only 1-3 years of high school and the supply of those with 1-3 years of college is expected to exceed the number of jobs expected to be available to people at those levels. Demand exceeds supply in the case of the other educational levels. However, the differences between supply and demand are less great when students holding part-time jobs in 1975 are omitted from the calculations (as is shown in the adjusted data in table III-5).

The five educational levels can be grouped into three, as is done in table III-5, and considered on that basis:

(1) At the top level there are workers available who have had at least four years of college, and jobs that require at least four years of college. It is doubtful that the difference here between supply and demand is large enough to be significant.

[1] This limitation may not be serious, for a 1963 national study of civilian workers aged 22-64 whose schooling was no greater than three years of college indicates that the extent of job training tends to vary directly with educational attainment. U.S. Department of Labor, Office of Manpower, Automation, and Training, *Formal Occupational Training of Adult Workers*, pp. 5-6.

[2] Resident new entrants: These were allocated to educational attainment levels by pro-rating the data for the entire New York State labor force for each age-sex group, averaged for 1965-75, as given in chapter 1.

Net number of in-migrants: These were allocated on the basis of the national education-attainment patterns, by color and sex, for 1952 and 1965, as given in *Manpower Report of the President, April 1967*, table B-9. These patterns were linearly extrapolated to 1975 and the 1965-75 averages by color and sex were set against the New York State estimates of net migrants by color and sex.

[3] Based on the national educational attainment patterns by occupation group (1952 and 1965) as given in U.S. Bureau of Labor Statistics, Special Labor Force Report 65. These patterns were linearly extrapolated to 1975 and the average 1965-75 patterns by occupational group were set against the New York State estimates of new entrants.

Table III-9. Part-Time Workers In Selected Nonmanufacturing Industries, New York State, 1960-61 and 1966

(in thousands)

Industry	*All employees*[a]		*Part-time employees*[b]		*Percent part-time*[b]	
	1960-61	*1966*	*1960-61*	*1966*	*1960-61*	*1966*
Total	1,224.5	1,369.8	346.8	446.6	28.3	32.6
Local transportation	64.1	91.6	12.4	19.8	19.3	21.6
Trade, retail	748.1	801.3	234.9	298.1	31.4	37.2
General merchandise stores	130.9	161.7	49.4	67.3	37.7	41.6
Department stores	79.4	112.9	29.8	48.3	37.5	42.8
Variety stores	26.3	29.4	11.5	12.3	43.7	41.7
Other general merchandise stores	25.2	19.4	8.1	6.7	32.1	34.4
Food stores	129.2	148.9	45.6	64.2	35.3	43.1
Auto dealers and filling stations	68.5	70.8	10.4	14.5	15.2	20.5
Apparel	93.6	84.2	31.4	33.7	33.5	40.0
Furniture and home furnishings	32.5	32.4	5.8	7.3	17.8	22.4
Restaurants	196.1	201.3	67.1	78.5	34.2	39.0
Drug stores	13.7	18.4	6.8	10.3	49.6	56.2
All other retail	83.6	83.6	18.4	22.3	22.0	26.7
Services	412.3	476.9	99.5	128.7	24.1	27.0
Hotels	88.0	88.1	16.2	20.3	18.4	23.0
All year	56.7	59.7	12.2	15.1	21.5	25.3
Resort	31.3	28.4	4.0	5.2	12.8	18.3
Personal services	92.1	92.0	20.7	25.0	22.5	27.2
Laundries and cleaning and dyeing shops	56.9	54.6	11.2	13.2	19.7	24.2
Beauty shops	19.4	23.0	5.8	8.1	29.9	35.2
Barber shops	7.8	7.3	1.4	1.3	17.9	17.8
Shoe repair	2.0	1.6	0.4	0.3	20.0	21.4
Funeral services	3.7	3.4	0.9	1.1	24.3	32.6
Misc. personal services	2.3	2.1	1.0	1.0	43.5	47.6
Auto repair and misc. repair services	34.6	44.1	6.1	7.8	17.6	17.7
Amusement and recreation services	45.7	60.2	18.2	24.7	39.8	41.0
Medical and other health services	128.4	164.2	34.2	46.1	26.6	28.1
Doctors and dentists offices	23.4	33.0	11.0	15.8	47.0	47.9
Hospitals	87.7	107.2	18.6	23.2	21.2	21.6
Nonprofit	79.3	97.8	16.4	20.6	20.7	21.1
Proprietary	8.4	9.4	2.2	2.6	26.2	27.3
Nursing homes	11.6	17.8	3.5	5.5	30.2	31.1
Other medical	5.7	6.2	1.1	1.6	19.3	25.8
Legal services	23.5	28.3	4.1	4.8	17.4	16.9

[a] Excluding executive, professional, and administrative personnel not covered by wage and hour legislation.
[b] Persons who worked less than 33 hours during week. In 1966 the period surveyed was the middle week of March 1966. Most of the 1960-61 data are for a week in October 1960.

The projection of the number of college-trained people assumes among other things that the master plan of the State University of New York will be carried out. If it is carried out, projected higher education facilities appear to be adequate, on an over-all basis, to provide the number of college graduates who are needed. This does not mean, however, that substantial shortages or surpluses will not develop in particular fields. Supply in a particular occupation, such as medicine or engineering, depends on how much of the educational facilities and teaching staff can be made available for this purpose. It also depends on how attractive the field is to prospective students. No attempt has been made in this report to evaluate the adequacy of the supply of persons in particular occupational fields.

(2) At the other end of the educational scale there are more jobs calling for just an elementary-school education than there are persons whose schooling has not gone beyond that point. This group consists mainly of in-migrants from Puerto Rico and from southern states. Presumably the extra jobs in this low-level category are filled by the extra persons in the "1-3 years of high school" group—even though they are poor and unattractive jobs, for which most employers require less schooling than is offered by applicants who have done some high school work. When the elementary-school group and the some-high-school group are combined, as in table III-5, supply and demand are approximately in balance.

Table III-10. Supply of and Demand for Full-Time and Part-Time Workers, New York State, 1965 and 1975

(in thousands)

Length of job	*Demand (jobs)*			*Supply (workers)*		
	1965	*1975*	*Difference*	*1965*	*1975*	*Difference*
Total	8,185	9,215	1,030	8,185	9,215	1,030
Full-time (full-week) jobs	6,593	7,407	814	6,593	7,388	795
50-52 weeks	4,663	5,300	637	4,663	5,278	615
27-49 weeks	1,077	1,134	57	1,079	1,142	65
1-26 weeks	853	973	120	853	968	115
Part-time (part-week) jobs	1,592	1,808	216	1,592	1,827	235

Note: Projections of demand were derived by applying (1) trends in the proportion that part-time workers were of all persons who worked at any time during the year, by industry division (table III-8) to (2) projections of the number of persons who worked at any time during the year, by industry division. Projections of supply were derived by the same method, using the breakdown by age and sex (table III-7) instead of by industry. Trends in part-time employment were based on U.S. Bureau of Labor Statistics, *Special Labor Force Reports*, 76 and 19.

(3) At the intermediate level of educational attainment, we find more jobs requiring high school graduation (but no college) than there are persons with a high school diploma (but with no college credits). The opposite is true at the next higher level; there are more people with 1-3 years of college than there are entry jobs requiring such education.

As before, this situation suggests that some of those persons who have done college work, but not four years of it, may have to take jobs that do not require any education beyond high school. But this does not necessarily mean that they will be working below their level of competence; for their margin of post-high-school education may serve as a substitute for experience on jobs as to which the employer requires both high-school graduation and work experience but will accept additional academic credits in specified fields instead of experience. Such a pattern of alternative requirements is common in technician and technical-specialist occupations.[1]

When the two groups are combined (persons with high school diplomas only and those with 1-3 years of college), supply and demand are approximately in balance, as table III-5 shows.

There is not an exact balance in any of the three cases just discussed, but the margin of difference is around 10 percent in the case of college graduates and less in the other cases. Such differences do not seem significant, particularly in light of the fact that the estimates are based on fragmentary data and therefore may contain substantial margins of error. Moreover, minor differences of this sort may be accommodated by adjustments in employer job requirements and manpower utilization practices.

The conclusion that there is approximate balance in the demand and supply of workers at various levels of educational attainment may not fit the situation in each of the State's local areas. It is especially pertinent to question whether such a balance exists between job opportunities and workers at lower educational levels. Relatively large numbers of persons with only elementary schooling or less than four years of high school live in the inner core of New York City and other large cities of the State. On the other hand, it is probable that in some places many of the jobs that require only this level of education are located in the outlying areas of the city or in its suburbs. In such a situation, problems of mobility, transportation, and housing become key considerations. Unfortunately, existing data are not adequate for the task of developing local area analyses of this type.

Part-time Employment

The increasing availability of part-time work has helped make possible the growth that has taken place in the employment of young people and mature women, in the years since World War II. Many young people and women seek jobs that will bring them some income but will not interfere seriously with their school or home responsibilities. A school boy or school girl will look for work after school or on Saturdays, and a married woman with school-age children will seek work that comes during the day when her children are at school, or at night when her husband is home from his job.

Part-time help offers a number of advantages to the employer. Besides enabling him to tap a supply of younger persons and older married women who do not want full-time employment, it makes it possible to take care of peak hours and peak days without paying overtime premium. It also can help him stay open some evenings, which is now a common practice in much of retail trade. For a small store it may be a convenient device for getting miscellaneous chores done.

[1] See New York State Department of Labor, *Technical Manpower in New York State*, volume 1, chapter V.

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In some instances employers are able to exclude part-timers from fringe benefits.

It is estimated that about 20 percent of all persons in New York State who were in the labor force at any time during 1965 were on part-time schedules—less than 35 hours a week. (Table III-6.) It is expected that in 1975 there will be 9,215,000 persons who will work at some time during that year, and that 1,827,000 (again about 20 percent) will be part-timers.[1] Of the others, the 7,388,000 who are expected to work full-time for all or part of 1975, about 70 percent will have all-year jobs. (Table III-7.)

Table III-6 shows the relative importance of part-time (that is, part-week) work for various age and sex groups. More than 60 percent of the workers of 14-19 will be part-time workers in 1975, as was true also in 1965. About 37 percent of the men workers and about 55 percent of the women workers 65 or more years old will be in the part-time category—about the same percents as in 1965. At the in-between ages, few men work part-time, but about a quarter of the women do so.

The table also shows what proportion of the total body of part-time workers is contributed by various ages. About 35 percent of them were teen-agers in 1965; by 1975 this proportion is expected to grow to 38 percent, mainly because there will be so many teen-agers available for such jobs. Some growth also is anticipated in the 20-to-24 age group; 7.5 percent of all part-time workers were in this group in 1965, and in 1975 it is expected to account for 10 percent, a change associated with an expected expansion in college enrollments.

A small decline is anticipated in the proportion of part-time workers who are married women age 35 to 54. In 1965 women 35-54 constituted 23 percent of all part-time workers, but in 1975 they will be only 19 percent. The reason is that more of them will seek and find full-time employment and therefore will not be available for part-time jobs.

Most part-time workers are in retail trade, in service industries (including here finance, insurance, and real estate), and in private household work; and in these industries the proportion of part-time workers is increasing. (Table III-8.) In 1960 these industries accounted for about 60 percent of all part-time wage and salary workers. By 1965 the proportion had increased to 70 percent, and by 1975 an additional small increase, to 76 percent, is expected. In addition, a large majority of the self-employed persons and the unpaid family workers who work part-time are in trade and service industries.

A detailed industry-by-industry picture of part-time work in nonmanufacturing in 1960-61 and in 1966 is available from two comprehensive wage and hour studies made by the New York State Department of Labor's Division of Research and Statistics. Table III-9 indicates that between these two dates there was a growth in the proportion of employees who worked part-time (less than 33 hours a week) in nearly every segment of the trade and service industries. Major growth took place in department stores, food stores, filling stations, apparel stores, drug stores, and restaurants. The increase in part-time work in the service industries was not as great as in retail trade.

Table III-11. Number of Jobs in Occupations Grouped According to Percent of Female Workers, New York State, 1965 and 1975

(in thousands)

Percent of jobs in occupation held by women in 1960	*1965*	*1975*	*Percent change, 1965-75*
All levels	7,500.0	8,579.9	+14.4
Less than 33 percent	3,464.2	3,911.5	+12.9
0-10	2,266.7	2,528.0	+11.5
10-20	1,049.4	1,166.2	+11.1
20-33	148.1	217.3	+46.7
33 percent or more	4,035.8	4,668.4	+15.7
33-50	1,710.5	1,863.0	+ 8.9
50-75	1,308.8	1,660.2	+26.8
75-100	1,016.5	1,145.2	+12.7

On the supply side, the indications are that, of the 1,030,000 persons added to the employed labor force during 1965-75, about 795,000 will be available for full-time jobs, while the remaining 235,000 will be available for part-time jobs only. On the demand side, assuming the continuance of existing trends, there will be 814,000 additional full-time jobs available for the 795,000 seeking such jobs, while there will be only 216,000 additional part-time jobs available for the 235,000 persons seeking part-time work. It is possible, therefore, that there will not be a sufficient number of jobs available for the growing number of teen-agers and married women who will be seeking such jobs by 1975. However, because the difference between projected supply and demand is small, it is possible that it will be adjusted by the labor market mechanism without great difficulty.

[1] The projection of 9,215,000 persons is an estimate of the number of persons who will be in the labor force at some time during 1975. The figure is considerably larger than the labor force projection of 8,526,000 shown elsewhere in this report, which is the average for the year.

Table III-12. Number of Jobs Held By Females, By Occupation Group, New York State, 1960, 1965, and 1975

(in thousands)

Occupation group	*1960*	*1965*	*1975*	*Percent change*	
				1960-65	*1965-75*
All occupations	2,565	2,783	3,295	+ 8	+18
White-collar workers	1,616	1,803	2,204	+12	+22
Professional, technical, and kindred workers	334	396	520	+19	+31
Managers, officials, and proprietors	102	104	108	+ 2	+ 4
Clerical and kindred workers	992	1,104	1,354	+11	+23
Sales workers	188	199	222	+ 6	+12
Blue-collar workers	440	446	463	+ 1	+ 4
Craftsmen, foremen, and kindred workers	31	33	42	+ 6	+27
Operatives and kindred workers	399	402	409	+ 1	+ 2
Laborers, except farm and mine	10	11	12	+10	+ 9
Service workers	493	523	621	+ 6	+19
Farmers and farm laborers	16	11	7	−31	−36

Table III-13. Jobs Held By Females As Percent of Total Jobs, By Occupation, New York State, 1960, 1965, and 1975

Occupation group	*1960*	*1965*	*1975*
All occupations	35.3	37.1	38.4
White collar workers	44.2	46.2	47.6
Professional, technical, and kindred workers	35.9	36.9	37.3
Managers, officials, and proprietors	14.3	14.5	13.8
Clerical and kindred workers	68.7	71.9	74.0
Sales workers	33.0	34.5	35.5
Blue collar workers	17.5	17.9	17.4
Craftsmen, foremen, and kindred workers	3.3	3.5	3.9
Operatives, and kindred workers	31.0	31.7	31.0
Laborers, except farm and mine	3.4	4.0	4.6
Service workers	52.3	53.0	51.8
Farmers and farm laborers	10.0	9.2	8.0

Available jobs that by their nature last less than half the year—including summer jobs filled by students—will expand by 120,000, while the number of persons primarily interested in such jobs will expand by 115,000. (Table III-10; see also table III-7.)

Jobs for Women

Chapter I indicated that women in 1960 were 53 percent of the population 14 and over in New York State, and are expected to be about the same proportion in 1975; and that their contribution to the labor force has been rising, mainly because more married women are looking for paid employment after their children are old enough to need less care. If current trends continue, women will account for almost half (48.3 percent) of the persons added to the civilian labor force between 1965 and 1975; so that women will be 38.4 percent of the 1975 labor force of New York State, as against 37.1 percent in 1965.

The continued movement of women into paid employment is made easier by the fact that much of the 1965-75 growth in the number of jobs available for both sexes will take place in occupations in which women predominate.

For example, as table III-11 shows, a 26.8 percent rise is expected between 1965 and 1975 in those occupations in which women held 50-75 percent of the jobs in 1960 (in contrast to an over-all job increase of 14.4 percent in the decade). This group will account for one-fifth of all jobs in the State in 1975; some of its larger occupations are: medical, dental, and biological technicians; social, welfare, and recreation workers; office machine operators; hospital attendants; and table and counter waitresses.

Jobs in which women constituted 75 percent or more of all workers in 1960 include nurses (professional, student, and practical), dietitians, elementary school

Table III-14. Percent Distribution, By Occupation Group, of Jobs Held By Females and By Males, New York State, 1965 and 1975

Occupation group	*Female*		*Male*	
	1965	*1975*	*1965*	*1975*
All occupations	100.0	100.0	100.0	100.0
White collar workers	64.8	66.9	44.6	46.0
Professional, technical, and kindred workers	14.2	15.8	14.4	16.6
Managers, officials, and proprietors	3.7	3.3	13.1	12.8
Clerical and kindred workers	39.7	41.1	9.1	9.0
Sales workers	7.2	6.7	8.0	7.6
Blue collar workers	16.0	14.1	43.2	41.6
Craftsmen, foremen, and kindred workers	1.2	1.3	19.3	19.7
Operatives and kindred workers	14.4	12.4	18.3	17.2
Laborers, except farm and mine	0.4	0.4	5.6	4.7
Service workers	18.8	18.8	9.9	10.9
Farmers and farm laborers	0.4	0.2	2.3	1.5

teachers and librarians, secretaries, stenographers, typists, bookkeepers, telephone operators, stewardesses, sewers and stitchers, and private household workers. If the declining sewers-and-stitchers occupation and the slow-growing private household occupation are deducted, the growth of this group (counting both men and women) is 18.6 percent (not the 12.7 percent shown in table III-11 for the whole group).

It may be noted that the increase in jobs in nursing, in elementary school teaching, and in many clerical occupations will provide job openings for men as well as women.

Among clerical workers, the fastest-growing occupations include office machine operators, especially keypunch operators; secretaries, stenographers, and typists; and cashiers. As was indicated above, these occupations employ many women, and their expansion will help raise to 74.0 percent in 1975 the proportion of all clerical workers who are women, from 71.9 percent in 1965. (Tables III-12 and III-13.)

In the case of sales workers, the proportion of women will rise from 34.5 percent to 35.5 percent, in part because of the growth of retail trade.

Among professional and technical workers, women will be 37.3 percent in 1975, as against 36.9 percent in 1965. The main reason is the expected large growth of occupations related to medical and health care, in which women are prominent.

These changes mean that women will be 47.6 percent in white-collar occupations generally in 1975, as against 46.2 percent in 1965—even though, in the managerial field, the number of jobs held by women will drop to 13.8 percent of the total in 1975, from 14.5 percent in 1965. Women's share of blue-collar and service jobs will decline. (Table III-13.)

These ups and downs do not point to any revolutionary changes during the decade 1965-75 in the kinds of jobs women hold. However, as table III-14 shows, a larger proportion of working women will find themselves in clerical, professional, and technical jobs; a smaller proportion in blue-collar jobs; and about the same proportion in service jobs.

Chapter IV

Manpower Differences of Local Areas

Because for some purposes manpower projections are needed on a local-area basis, a primary objective of the present study has been to develop estimates of labor force and of manpower requirements by occupation for each of the major labor market areas in New York State. Accordingly, data are presented not only for the State but also for the following areas:

Area	*Counties*
New York Metropolitan area	
New York City	Bronx, New York, Kings, Queens, and Richmond
Nassau-Suffolk	Nassau, Suffolk
Westchester-Rockland	Westchester, Rockland
Remainder of State	
Albany	Albany, Rensselaer, Saratoga, and Schenectady
Binghamton	Broome
Buffalo	Erie and Niagara
Rochester	Monroe
Syracuse	Madison, Onondaga, and Oswego
Utica	Herkimer and Oneida
Elmira	Chemung
All other	All counties not named above

The "all other" group (39 counties) accounted for about 12 percent of the State's total civilian labor force in 1965.

Generally speaking, the procedure followed in developing these area estimates was to apply, to the projections made for the State as a whole, the extrapolation of past relationships between the State and the area. Thus, in projecting labor force the past relationships of an area's participation rates to the rates for the State as a whole were determined (on a sex-age-group basis); applying these relationships to the rates projected for the State yielded future participation rates for the area, which were then applied to the projected population for the area, which had been independently estimated by the State's Office of Planning Coordination.

In projecting manpower requirements by occupation, calculations were made of past relations between employment trends by industry for the State and corresponding industry trends for the given area; and these were applied to the industry projections for the State. An industry-occupation matrix was applied to the resulting area industry projections to derive the occupational projections. The matrix used for an area was an adaptation of the State-wide matrix.[1]

The process of local area projection is open to greater chance of error than the State-wide estimates. Movements of labor force and industry from one area of the State to another is one variable that was not encountered in the State-wide estimates. Moreover, data that were available for the State as a whole were not always available broken down by area. These factors made necessary wider reliance on assumptions in the case of local area estimates.

It is also true that in any one area the size of the labor force and the manpower requirements may be comparatively small. This means that a specific development, such as the entry or departure of a large manufacturing concern, can have a relatively greater impact on the economy of the individual area than on that of the State as a whole, and failure to anticipate it may throw off the area projections noticeably.

Despite the fact that an effort was made to check out and adjust the estimates in the light of what knowledgeable persons said about probable developments in the various areas, the area projections should be recognized as having less reliability than the State-wide estimates and should therefore be used with greater caution.

Volume II of the present study contains the detailed results of the area projections.

Also shown in volume II are tables for each area which show the reconciliation between the labor force data by age and sex on a residence basis with the industry and occupation data on a place-of-work job basis. The section in chapter II on "Relation of Employed Residents to Jobs" explains the concepts used and gives the State data used in this reconciliation.

Labor Force

New York City had one-half of New York State's civilian labor force in 1965. The New York Metropolitan area (including Nassau, Suffolk, Westchester, and Rockland counties as well as New York City) accounted for two-thirds of the State total.

Buffalo, the area with the next largest labor force, had about 7 percent of the total, while Rochester had about 3.5 percent.

[1] For a detailed description of the method used, see the Technical Supplement to this report. See also Abraham J. Berman, "Problems of Manpower Projections in New York State," *Temple University Bulletin*, June 1966.

Table IV-1. Labor Force 14 and Over, By Area, 1965 and 1975

Area	1965		1975		Percent change 1965-75
	Number (thousands)	Percent distribution	Number (thousands)	Percent distribution	
New York State	7,481	100.0	8,526	100.0	+14.0
New York City	3,715	49.6	3,826	44.9	+ 3.0
Nassau-Suffolk	865	11.6	1,224	14.4	+41.5
Westchester-Rockland	463	6.2	604	7.1	+30.5
Albany-Schenectady-Troy	276	3.7	326	3.8	+18.1
Binghamton area	90	1.2	104	1.2	+15.6
Buffalo area	508	6.8	593	7.0	+16.7
Elmira area	39	0.5	44	0.5	+12.8
Rochester	267	3.6	345	4.0	+29.2
Syracuse area	228	3.0	285	3.3	+25.0
Utica area	124	1.7	142	1.7	+14.5
Remainder of State	906	12.1	1,033	12.1	+14.0

Table IV-2. Labor Force 14-24 As Percent of the Total Labor Force, By Area, 1965 and 1975

Area	1965		1975		Percent change, 1965-1975
	Number (thousands)	Percent of total force	Number (thousands)	Percent of total force	
New York State	1,325	17.7	1,859	21.8	+40.3
New York City	619	16.7	724	18.9	+17.0
Nassau-Suffolk	175	20.2	322	26.3	+84.0
Westchester-Rockland	85	18.4	141	23.3	+65.9
Albany-Schenectady-Troy	47	17.0	73	22.4	+55.3
Binghamton area	16	17.8	24	23.1	+50.0
Buffalo area	91	17.9	140	23.6	+53.8
Elmira area	7	17.9	9	20.5	+28.6
Rochester area	50	18.7	87	25.2	+74.0
Syracuse area	42	18.4	67	23.5	+59.5
Utica area	22	17.7	31	21.8	+40.9
Remainder of State	171	18.9	241	23.3	+40.9

Table IV-3. Female Labor Force As Percent of the Total Labor Force, By Area, 1965 and 1975

Area	1965		1975		Percent change, 1965-1975
	Number (thousands)	Percent of total force	Number (thousands)	Percent of total force	
New York State	2,772	37.1	3,277.0	38.4	+18.2
New York City	1,466	39.5	1,587.0	41.5	+ 8.3
Nassau-Suffolk	295	34.1	440.0	35.9	+49.2
Westchester-Rockland	173	37.4	233.0	38.6	+34.7
Albany-Schenectady-Troy	102	37.0	127.0	39.0	+24.5
Binghamton area	32	35.6	37.0	35.6	+15.6
Buffalo area	159	31.3	194.0	32.7	+22.0
Elmira area	14	35.9	15.5	35.2	+10.7
Rochester area	102	38.2	140.0	40.6	+37.3
Syracuse area	79	34.6	101.0	35.4	+27.8
Utica area	41	33.1	50.0	35.2	+22.0
Remainder of State	309	34.1	352.5	34.1	+14.1

Table IV-4. Percent Distribution of Jobs By Occupation Group and By Area in 1965 and Percent Change in Number of Jobs Between 1965 and 1975

Occupation group	*New York State*	*New York City*	*Nassau-Suffolk*	*Westchester Rockland*	*Albany*	*Binghamton*	*Buffalo*	*Elmira*	*Rochester*	*Syracuse*	*Utica*	*All other*
Number—all occupations (1965, in thousands)	7,500.0	3,983.1	717.8	389.9	278.5	92.1	506.6	39.6	290.4	229.2	122.7	850.1
Percent distribution by occupation group, 1965												
All occupations	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	14.3	12.9	18.1	17.9	16.6	17.4	13.9	11.9	15.7	15.9	14.8	14.1
Managers, officials, and proprietors	9.6	10.2	10.5	10.9	8.3	7.4	7.2	8.1	7.2	8.1	7.7	8.8
Clerical and kindred workers	20.5	24.1	16.7	17.0	20.5	16.5	16.7	15.4	18.1	19.2	16.6	13.2
Sales workers	7.7	8.1	7.9	7.2	7.5	7.4	7.9	8.3	7.8	6.6	6.7	6.0
Craftsmen, foremen, and kindred workers	12.6	10.6	15.6	12.7	14.0	13.1	16.7	16.2	17.3	15.1	14.0	13.9
Operatives and kindred workers	16.9	16.8	14.2	15.1	15.2	21.9	18.9	21.7	19.8	16.9	19.7	18.0
Service workers	13.2	13.7	13.[illegible]	15.6	12.0	11.4	12.1	12.6	9.5	11.1	12.1	12.6
Farmers and farm laborers	1.6	[a]	1.[illegible]	0.7	1.8	2.1	1.4	2.3	1.2	3.1	5.1	8.9
Laborers, except farm and mine	3.6	3.6	2.4	2.9	4.1	2.8	5.2	3.5	3.4	4.0	3.3	4.5
Percent distribution by area, 1965												
All occupations	100.0	53.1	9.6	5.2	3.7	1.2	6.8	0.5	3.9	3.1	1.6	11.3
Professional, technical, and kindred workers	100.0	48.0	12.1	6.5	4.3	1.5	6.6	0.4	4.3	3.4	1.7	11.2
Managers, officials, and proprietors	100.0	56.7	10.5	5.9	3.2	0.9	5.1	0.4	2.9	2.6	1.3	10.5
Clerical and kindred workers	100.0	62.4	7.8	4.3	3.7	1.0	5.5	0.4	3.4	2.9	1.3	7.3
Sales workers	100.0	56.3	9.8	4.8	3.6	1.2	7.0	0.6	3.9	2.6	1.4	8.8
Craftsmen, foremen, and kindred workers	100.0	44.5	11.9	5.3	4.1	1.3	8.9	0.7	5.3	3.7	1.8	12.5
Operatives and kindred workers	100.0	52.7	8.0	4.6	3.3	1.6	7.5	0.7	4.5	3.0	1.9	12.2
Service workers	100.0	55.1	9.8	6.2	3.4	1.1	6.2	0.5	2.8	2.6	1.5	10.8
Farmers and farm laborers	100.0	0.8	6.7	2.4	4.1	1.6	6.1	0.8	3.0	6.0	5.2	63.3
Laborers, except farm and mine	100.0	52.0	6.2	4.1	4.2	1.0	9.6	0.5	3.6	3.4	1.5	13.9
Percent change in number of jobs between 1965 and 1975												
All occupations	+14	+ 4	+51	+36	+18	+16	+17	+14	+29	+24	+15	+14
Professional, technical, and kindred workers	+30	+18	+48	+41	+37	+37	+36	+28	+43	+41	+35	+38
Managers, officials, and proprietors	+ 9	− 2	+47	+30	+ 9	+ 9	+ 9	+16	+23	+20	+12	+12
Clerical and kindred workers	+19	+10	+65	+42	+22	+26	+21	+18	+34	+33	+17	+22
Sales workers	+ 9	− 2	+45	+34	+10	+ 4	+ 9	+15	+19	+24	+11	+14
Craftsmen, foremen, and kindred workers	+14	—	+44	+32	+22	+20	+12	+11	+29	+26	+14	+20
Operatives and kindred workers	+ 4	− 8	+43	+30	+ 3	− 1	+ 7	+13	+22	+16	+10	+ 7
Service workers	+21	+ 9	+64	+39	+26	+24	+33	+ 2	+34	+26	+37	+25
Farmers and farm laborers	−27	[b]	−10	—	−24	−47	−14	—	−39	−42	−53	−28
Laborers, except farm and mine	− 5	−14	+46	+25	− 6	− 8	− 6	+ 7	+13	+ 2	−10	− 9

[a] Less than 0.05 of a percent.

[b] Base too small for percent change to be computed.

As table IV-1 shows, by 1975 New York City's share of the State's total civilian labor force is expected to drop from 50 to about 45 percent. However, because of the relatively large increases in Nassau, Suffolk, Westchester, and Rockland counties, the New York Metropolitan area will maintain its present position—at around two-thirds of the total. Rochester and Syracuse, judging by past trends, are the Upstate areas expected to have the largest percentage increases—considerably greater than those estimated for the Albany, Binghamton, Elmira and Utica areas.[1]

An adequate accounting of differences in labor force developments among local areas will include age and sex composition. Special significance attaches to young persons—those 14 to 24 years of age—who are a large growing part of the labor force. Table IV-2 shows that the 14-24 component will increase 40 percent between 1965 and 1975—rising from 17.7 percent of the State's labor force to 21.8 percent.

But in the suburbs, in Nassau and Suffolk counties, this younger group will increase by 84 percent, and in Westchester-Rockland by 66 percent, gains explained in part by the unusually large inflow of young families into these areas after World War II. The Rochester and Syracuse areas, too, may expect large 1965-75 increases in the share that younger people have in the labor force. But a different picture is presented by New York City, where the rise is expected to be only 17 percent.

These suburban counties, and Rochester, also have above-average (but less marked) increases in the number of women in the labor force. The smallest percentage increase is found in New York City. (See table IV-3.)

Occupational Patterns

In any area, the importance of a particular occupation depends in large measure on the sort of industry found there. Volume II tables show how the areas differ in industry mix and how these differences are related to their occupation patterns.

The occupation patterns of the various areas as they stood in 1965 are summarized in table IV-4. It shows, for example, that firms in the suburban areas of Nassau-Suffolk and Westchester-Rockland had concentrations of (1) professional and technical personnel and (2) managers and proprietors that were relatively heavy compared with other areas.

New York City had a higher proportion of clerical and sales workers than any other area.

Craftsmen and operatives figured more prominently in the occupational pattern of areas Upstate, particularly Rochester, Elmira, and Buffalo, than they did Downstate.

Service workers' employment, on the other hand, was more important in the Downstate areas of New York City, Nassau-Suffolk, and Westchester-Rockland than it was Upstate.

A summary of the 1965-75 projection of area occupation patterns (see table IV-4) indicates that:

> *In New York City, the largest gains are expected in the professional and technical group, of occupations, with smaller gains in the clerical group and the service group. Declines are expected in four groups: laborers, operatives, sales workers, and managers, officials, and proprietors.*
>
> *The rapidly-growing New York City suburban areas of Nassau-Suffolk and Westchester-Rockland, and also the Rochester area, are expected to have the largest relative gain in nearly every one of the main occupation groups, with especially large increases in the professional-technical, clerical, and service groups.*
>
> *Similarly, above-average rises are expected in most occupation groups in the Syracuse area.*
>
> *The pattern of change in the Albany, Binghamton, Elmira, Utica, and Buffalo areas, while showing considerable variety, tends to resemble that of the State as a whole.*

The G series of tables in volume II gives estimates of the number of job openings in the various areas that are expected to develop during 1965-75 from deaths and retirements as well as from industrial change.

[1] In projecting the civilian labor force of local areas, a range of unemployment rates was assumed for 1975 that was based primarily on differences in existence in 1965; New York City, 4.1; Nassau-Suffolk, 4.0; Westchester-Rockland, 3.5; Binghamton, 3.5; Buffalo, 4.0; Rochester, 2.0; Syracuse, 3.5; Utica, 5.0; Elmira, 4.0; all other areas, 4.9. As previously indicated the 1975 rate assumed for the State as a whole was 4.0 percent.

Appendix Tables

A. Civilian noninstitutional population and civilian labor force, estimated 1960 and 1965 and projected 1970 and 1975, New York State
B. Nonagricultural employment, by industry, actual 1960 and 1965 and projected 1970 and 1975, New York State
C. Total number of jobs, by industry, estimated 1960 and 1965 and projected 1970 and 1975, New York State
D. Reconciliation of civilian labor force and number of jobs, estimated 1960 and 1965 and projected 1970 and 1975, New York State
E. Occupation distribution of jobs, estimated 1960 and 1965 and projected 1970 and 1975, New York State
F. Occupation distribution of jobs, by industry division, estimated 1960 and 1965 and projected 1975, New York State
G. Number of jobs to be filled, by occupation, New York State, 1965-1975

Table A. Civilian Noninstitutional Population and Civilian Labor Force, Estimated 1960 and 1965 and Projected 1970 and 1975, New York State

(in thousands)

Age and sex	*Civilian noninstitutional population, 14 and over*				*Civilian labor force participation rates*				*Civilian labor force*			
	1960	*1965*	*1970*	*1975*	*1960*	*1965*	*1970*	*1975*	*1960*	*1965*	*1970*	*1975*
Total, 14 and over	12,161	12,812	13,610	14,500	59.8	58.4	58.9	58.8	7,273	7,481	8,010	8,526
Male	5,737	6,035	6,407	6,837	82.0	78.0	77.4	76.8	4,704	4,709	4,961	5,249
14-19	648	859	959	1,070	39.2	37.1	37.6	37.7	254	319	361	403
20-24	415	488	686	767	88.0	85.0	85.3	85.4	365	415	585	655
25-34	1,021	921	921	1,191	97.9	97.5	97.6	97.6	1,000	898	899	1,163
35-44	1,105	1,136	1,104	968	98.2	97.9	98.6	98.6	1,085	1,112	1,088	954
45-54	1,017	1,017	1,053	1,099	97.4	97.1	97.9	97.9	991	988	1,031	1,076
55-64	825	839	857	870	89.7	87.2	87.6	86.8	740	732	751	755
65+	706	775	827	872	38.1	31.6	29.7	27.9	269	245	246	243
Female	6,424	6,777	7,203	7,663	40.0	40.9	42.3	42.8	2,569	2,772	3,049	3,277
14-19	680	841	933	1,044	33.8	32.0	33.1	33.3	230	269	309	348
20-24	500	552	697	768	54.9	58.4	58.2	59.0	275	322	406	453
25-34	1,123	1,071	1,105	1,282	37.8	40.4	40.3	40.0	425	433	445	513
35-44	1,225	1,231	1,179	1,108	45.0	47.2	48.7	50.7	551	581	574	562
45-54	1,113	1,141	1,180	1,205	53.8	54.6	58.9	60.4	599	623	695	728
55-64	901	937	1,001	1,046	41.6	45.6	48.6	50.2	375	427	486	525
65+	882	1,004	1,108	1,210	12.9	11.7	12.1	12.2	114	117	134	148

Table B. Nonagricultural Employment, By Industry, Actual 1960 and 1965 and Projected 1970 and 1975, New York State (in thousands)

Industry	*1960*	*1965*[a]	*1970*	*1975*
Total nonagricultural employment	6,181.9	6,505.9	7,083.7	7,[illegible]5.9
Manufacturing	1,878.7	1,837.0	1,866.2	1,870.2
Durable goods	817.7	829.4	876.9	907.3
Lumber and wood products	16.4	15.8	15.3	15.1
Logging	0.8	0.9	1.0	1.0
Saw mills, millwork and misc. wood products	15.6	14.9	14.3	14.1
Furniture and fixtures	35.5	35.0	35.2	34.8
Stone, clay, and glass products	48.6	48.6	49.9	50.7
Glass and glass products	13.5	13.1	13.0	12.8
Cement, concrete, and plaster products	13.9	13.7	14.1	13.8
Structural clay products	1.5	1.1	1.0	1.2
Pottery and related products	3.9	3.9	4.2	4.6
Misc. nonmetallic products	15.8	16.8	17.6	18.3
Primary metal industries	77.1	79.3	78.0	75.7
Blast furnaces and steel works	34.3	33.7	33.6	32.4
Other primary iron and steel products	13.2	14.5	14.5	14.7
Primary nonferrous metals	29.6	31.1	29.9	28.6
Fabricated metal products[b]	100.0	95.3	94.9	93.6
Cutlery hand tools and hardware	11.9	11.7	11.8	11.9
Fabricated structural metal products	32.9	29.0	28.1	27.0
Misc. fabricated metal products	55.2	54.6	55.0	54.7
Machinery, except electrical	159.1	167.5	185.0	202.0
Office and computing machines	51.0	51.3	58.3	63.9
Other nonelectrical machinery	108.1	116.2	126.7	138.1
Electrical equipment and supplies	165.7	172.6	188.8	197.5
Transportation equipment	98.6	103.5	109.2	112.8
Motor vehicles and equipment	42.4	48.4	50.2	52.9
Aircraft and parts	45.3	46.1	50.6	52.1
Ship and boatbuilding and repairs	6.0	4.1	4.1	4.0
Railroad and other transportation equipment	4.9	4.9	4.3	3.8
Instruments and related products[c]	116.8	111.8	120.6	125.1
Instruments and fire control equipment	110.7	104.4	111.7	115.3
Watches and clocks	6.1	7.4	8.9	9.8
Nondurable goods	1,061.0	1,007.6	989.3	962.9
Food and kindred products	156.7	140.5	134.7	127.3
Meat products	13.1	11.8	11.6	10.8
Dairy products	28.6	24.9	22.8	21.1
Canning, cured and frozen foods	17.6	17.0	17.7	17.4
Grain mill products	8.9	7.8	7.8	7.6
Bakery products	35.2	30.8	27.9	25.2
Beverages	22.6	21.6	20.8	20.1
All other food products	30.7	26.6	26.1	25.1
Tobacco manufactures	2.8	2.7	2.7	2.7
Textile mill products	63.3	58.8	53.9	49.5
Apparel and other finished fabric products	318.9	292.4	272.9	251.2
Paper and allied products	69.4	66.8	67.3	68.0
Paper, pulp and paperboard mills	21.0	21.0	21.0	21.2
Paperboard containers and boxes	26.1	22.3	21.5	21.1
All other paper products	22.3	23.5	24.8	25.7
Printing and publishing	172.9	177.2	180.2	182.2
Newspapers	41.0	42.4	40.7	38.9
Other printing and publishing	131.9	134.8	139.5	143.3
Chemicals and allied products	89.2	88.7	93.3	96.7
Synthetic fibers	0.7	0.9	1.0	1.2
Drugs and medicines	23.3	22.9	25.3	26.5
Paints, and allied products	4.6	3.9	4.0	4.0
Miscellaneous chemical products	60.6	61.0	63.0	65.0
Petroleum and coal products	12.8	10.0	10.1	9.8
Petroleum refining	11.0	8.4	8.6	8.4

Table B. *(continued)*

Industry	*1960*	*1965*[a]	*1970*	*1975*
Petroleum and coal products—continued				
Other petroleum and coal products	1.8	1.6	1.5	1.4
Rubber and plastics products, n.e.c.	20.2	24.5	26.9	28.2
Rubber products	8.1	7.6	7.2	6.7
Miscellaneous plastic products	12.1	16.9	19.7	21.5
Leather and leather products	61.4	53.8	50.4	48.0
Leather tanning	4.6	2.8	2.0	1.7
Footwear except rubber	31.0	24.4	21.3	18.9
Other leather products	25.8	26.6	27.1	27.4
Miscellaneous manufacturing	93.4	92.2	96.9	99.3
Agriculture, forestry and fisheries	9.5	11.1	13.0	14.8
Mining	9.1	9.2	9.9	10.0
Contract construction	261.8	254.9	294.8	329.0
Transportation, communication, and public utilities	482.3	478.1	482.3	489.8
Railroads	65.3	52.7	41.9	39.5
Air transportation	37.0	44.2	53.7	65.1
Local and interurban passenger transportation	44.1	41.3	43.6	45.4
Local and suburban transit	21.5	18.6	20.3	21.5
Taxicabs	22.6	22.7	23.3	23.9
Trucking and warehousing	75.0	81.3	88.8	93.9
Trucking	69.2	76.3	84.0	89.1
Warehousing	5.8	5.0	4.8	4.8
Water transportation	68.4	61.8	56.0	46.2
Pipelines	0.2	0.2	0.2	0.2
Transportation services	20.6	23.6	26.9	30.7
Communication	115.7	118.1	117.9	117.3
Telephone and telegraph	101.0	100.6	97.8	95.3
Radio and television broadcasting	14.7	17.5	20.1	22.0
Electric, gas and sanitary services	55.9	54.9	53.3	51.5
Electric, gas and steam companies and systems	54.8	53.8	52.2	50.4
Water supply	0.8	0.8	0.8	0.8
Sanitary services	0.3	0.3	0.3	0.3
Wholesale and retail trade	1,251.1	1,336.8	1,443.5	1,556.0
Wholesale trade	419.3	435.2	451.3	470.6
Motor vehicles and equipment	16.0	17.5	18.4	19.3
Drugs, chemicals, and allied products	26.6	26.4	27.3	28.8
Dry goods and apparel	62.0	67.5	75.8	81.3
Groceries and related products	50.2	49.1	49.3	50.3
Electrical goods, hardware, plumbing and heating equip.	47.2	50.0	51.8	55.2
Machinery, equipment and supplies	54.6	64.0	71.4	78.0
Other wholesale trade	162.7	160.7	157.3	157.7
Retail trade	831.8	901.6	992.2	1,085.4
Building materials, farm equipment	31.9	31.3	31.9	32.5
Retail general merchandise	149.4	178.8	202.5	230.0
Variety stores	32.8	31.1	32.0	33.4
Other general merchandise stores	116.6	147.7	170.5	196.6
Food stores	145.4	157.6	175.1	192.2
Automotive dealers and service stations	78.5	84.2	94.8	105.0
Gasoline service stations	27.3	29.5	34.4	38.6
Other motor vehicle and accessory dealers	51.2	54.7	60.4	66.4
Apparel and accessories	99.0	94.9	98.6	101.7
Furniture, homefurnishings	37.7	36.8	37.6	38.9
Eating and drinking places	202.1	224.2	249.8	274.1
Miscellaneous retail stores	87.8	93.8	101.9	111.0
Drug and proprietary stores	23.6	24.7	25.8	27.5
Other miscellaneous retail stores	64.2	69.1	76.1	83.5
Finance, insurance, and real estate	483.2	504.2	532.4	551.4
Banking and credit agencies	136.8	153.1	176.6	191.5
Brokers and investment companies	58.7	66.0	75.3	79.2
Insurance	162.4	162.4	160.2	159.7

Table B. *(continued)*

Industry	*1960*	*1965*[a]	*1970*	*1975*
Finance, insurance and real estate—continued				
Real estate	125.3	122.7	120.3	121.0
Services[d]	968.5	1,117.6	1,300.1	1,465.5
Hotels and lodging places	72.4	75.7	75.1	78.6
Personal services	100.7	105.3	109.5	115.7
Laundries	59.9	60.2	62.5	64.4
Other personal services	40.8	45.1	47.0	51.3
Miscellaneous business services	167.0	208.4	257.0	292.2
Advertising	34.6	36.1	39.0	40.9
Other business services	132.4	172.3	218.0	251.3
Automoblie repair services, and garages	26.2	31.9	37.7	42.6
Miscellaneous repair services	15.8	17.5	20.0	22.2
Motion pictures and other amusement and recreation serv.	72.3	78.7	87.9	96.6
Theaters and motion pictures	41.4	41.2	44.0	46.5
Other entertainment and recreation	30.9	37.5	43.9	50.1
Medical and other health services	193.4	234.7	286.4	334.9
Hospitals	143.4	170.9	208.5	243.9
Other medical and health services	50.0	63.8	77.9	91.0
Legal services	30.2	35.3	41.1	46.5
Educational services and museums	108.9	134.6	162.2	186.2
Nonprofit membership organizations	115.2	123.7	136.3	147.4
Miscellaneous services	54.6	66.8	86.9	102.6
Engineering and architectural services	23.6	27.7	35.1	40.9
Accounting, auditing and bookkeeping services	18.5	19.4	22.5	24.9
Miscellaneous professional services	12.5	19.7	29.3	36.8
Nonclassifiable	12.1	5.0	—	—
Government	837.7	957.1	1,141.5	1,299.2
Federal	184.1	180.2	179.2	182.3
Postal service	79.8	83.1	88.1	92.3
Other federal	104.1	97.1	91.1	90.0
State and local	653.6	776.9	962.3	1,116.9
State	118.1	143.6	186.0	226.9
Local	535.5	633.3	776.3	890.0

[a] Data on 1965 Benchmark.
[b] Includes ordnance and accessories, except fire control equipment.
[c] Includes fire control equipment.
[d] Excludes agriculture and fisheries (industries 07 and 09).
NOTE: Detail may not add to totals due to rounding.

Table C. Total Number of Jobs,[a] By Industry, Estimated 1960 and 1965 and Projected 1970 and 1975, New York State

(in thousands)

Industry	*1960*	*1965*	*1970*	*1975*
Total employment	7,265.0	7,500.0	8,076.9	8,579.9
Manufacturing	1,951.2	1,901.0	1,921.6	1,924.2
Durable goods	851.7	857.9	897.8	928.2
Logging	1.8	1.9	2.1	2.1
Sawmills, millwork and misc. wood products	17.0	15.7	14.8	14.3
Furniture and fixtures	37.4	36.9	37.2	37.0
Glass and glass products	13.9	13.4	13.3	13.1
Cement, concrete, and plaster products	14.3	14.1	14.5	14.2
Structural clay products	1.5	1.1	1.0	1.2
Pottery and related products	4.0	4.0	4.3	4.7
Miscellaneous nonmetallic products	16.3	17.3	18.1	18.8
Blast furnaces and steel works	34.4	33.8	33.7	32.5
Other primary iron and steel products	13.2	14.5	14.5	14.7
Primary nonferrous metals	29.9	31.4	30.2	28.9
Fabricated metal products[b]	105.4	101.9	101.6	100.5
Farm machinery and equipment	1.8	1.6	1.5	1.5
Other nonelectrical machinery	108.3	116.6	127.2	138.6
Office and computing machines	51.9	52.2	59.3	64.9
Electrical equipment and supplies	166.9	173.8	190.0	198.7
Motor vehicles and equipment	42.5	48.5	50.3	53.0
Aircraft and parts	45.4	46.1	50.6	52.1
Ship and boatbuilding and repairs	19.2	11.8	4.2	4.1
Railroad and other transportation equipment	5.0	5.0	4.4	3.9
Instruments and related products[c]	115.2	108.6	115.8	119.3
Watches and clocks	6.4	7.7	9.2	10.1
Nondurable goods	1,099.5	1,043.1	1,023.8	996.0
Meat products	13.5	12.1	11.8	11.0
Dairy products	29.4	25.5	23.2	21.4
Canning, cured and frozen foods	18.0	17.4	18.0	17.6
Grain mill products	9.1	8.0	8.0	7.8
Bakery products	38.1	33.3	30.4	27.4
Beverages	23.2	22.1	21.2	20.4
All other food products	31.7	27.3	26.6	25.4
Tobacco manufactures	2.9	2.8	2.8	2.8
Textile mill products	65.4	60.7	55.7	51.2
Apparel and other finished fabric products	333.4	305.6	285.5	263.1
Paper, pulp, and paperboard mills	21.2	21.2	21.2	21.4
Paperboard containers and boxes	26.4	22.6	21.8	21.4
All other paper products	22.6	23.8	25.1	26.0
Printing and publishing	180.2	184.7	188.2	190.5
Synthetic fibers	0.7	0.9	1.0	1.2
Drugs and medicines	23.6	23.2	25.6	26.8
Paints and allied products	4.7	3.9	4.0	4.0
Miscellaneous chemical products	61.3	61.7	63.7	65.7
Petroleum refining	11.1	8.5	8.7	8.5
Other petroleum and coal products	1.8	1.6	1.5	1.4
Rubber products	8.3	7.8	7.4	6.9
Miscellaneous plastic products	12.5	17.4	20.3	22.2
Leather tanning	4.8	2.9	2.1	1.8
Footwear, except rubber	31.4	24.7	21.5	19.1
Other leather products	27.1	27.6	27.8	27.9
Miscellaneous manufacturing	97.1	95.8	100.7	103.1
Nonmanufacturing including agriculture	174.7	133.3	105.7	98.0
Agriculture, forestry, and fisheries	9.5	9.6	10.3	10.4
Mining	379.0	376.4	423.8	463.7
Contract construction	584.3	586.2	604.7	620.2
Transportation, communication, and public utilities	65.5	52.7	48.9	47.2
Railroads	39.6	47.7	58.1	70.4
Air transportation				

Table C. *(continued)*

Industry	*1960*	*1965*	*1970*	*1975*
Transportation, communication and utilities—continued				
Local and suburban transit	57.6	56.7	60.1	62.9
Taxicabs	29.6	30.2	31.8	32.9
Trucking	79.8	87.1	95.4	101.0
Warehousing	7.0	6.0	5.6	5.4
Water transportation	73.7	66.7	60.1	50.1
Pipelines	0.2	0.2	0.2	0.2
Transportation services	23.8	27.2	31.0	35.5
Telephone and telegraph	101.0	100.6	97.8	95.3
Radio and television broadcasting	15.0	17.5	20.1	22.0
Electric, gas, and steam companies and systems	55.5	54.3	52.7	50.9
Water supply	9.9	10.4	11.0	11.5
Sanitary services	26.1	28.9	31.9	34.9
Wholesale and retail trade	1,540.6	1,581.5	1,678.3	1,774.6
Wholesale trade	484.2	493.1	508.4	526.0
Motor vehicles and equipment	18.5	19.8	20.7	21.6
Drugs, chemicals and allied products	30.7	29.9	30.7	32.0
Dry goods and apparel	71.6	76.5	85.0	90.5
Groceries and related products	58.0	55.6	55.4	55.9
Electrical goods, hardware, plumbing and heating equip.	54.5	56.6	58.3	61.5
Machinery, equipment and supplies	63.1	72.5	80.3	87.2
Other wholesale trade	187.8	182.2	178.0	177.3
Retail trade	1,056.4	1,088.4	1,169.9	1,248.6
Building materials, farm equipment	41.7	38.6	38.2	37.7
Variety stores	34.9	32.7	33.4	34.5
Other general merchandise stores	131.6	158.9	179.6	203.2
Food stores	200.4	203.5	219.6	233.5
Gasoline service stations	43.7	43.1	47.2	50.4
Other motor vehicle and accessory dealers	58.0	60.4	65.8	71.4
Apparel and accessories	116.2	110.0	113.0	115.8
Furniture, homefurnishings	50.3	46.5	46.2	[illegible].3
Eating and drinking places	252.8	267.6	292.4	314.4
Drug and proprietary stores	30.8	31.4	32.5	34.1
Other miscellaneous retail stores	96.0	95.7	102.0	107.3
Finance, insurance and real estate	531.5	558.0	591.7	617.2
Banking and credit agencies	137.9	155.5	178.8	193.5
Brokers and investment companies	63.5	69.9	79.4	83.4
Insurance	169.3	169.3	167.4	167.1
Real estate	160.8	163.3	166.1	173.2
Services	1,763.6	2,006.6	2,332.8	2,598.8
Hotels and lodging places	81.7	84.2	83.1	85.9
Laundries	77.7	76.1	77.2	77.7
Other personal services	83.2	83.2	83.1	85.3
Advertising	40.2	41.3	44.1	45.8
Other business services	157.4	198.6	246.6	282.9
Automobile repair services, and garages	36.0	42.2	49.1	54.9
Miscellaneous repair services	28.3	30.1	33.4	36.2
Theaters and motion pictures	45.4	44.7	47.2	49.3
Other entertainment and recreation	39.4	46.9	54.3	61.4
Hospitals	253.1	288.5	359.4	433.7
Other medical and health services	122.4	144.2	173.4	196.7
Legal services	50.2	59.5	69.1	77.1
Educational services and museums	347.2	454.5	556.2	617.9
Welfare and religious groups and other nonprofit membership organizations	123.1	133.2	147.5	160.2
Engineering and architectural services	38.9	45.4	56.3	65.3
Accounting, auditing and bookkeeping services	31.2	32.8	38.0	42.3
Miscellaneous professional services	20.3	26.9	36.7	45.9
Private household workers	187.9	174.3	178.1	180.3

Table C. *(continued)*

Industry	*1960*	*1965*	*1970*	*1975*
Public administration	330.6	347.4	408.0	472.8
Postal service	79.8	83.1	88.1	92.4
Other federal	62.9	56.0	55.8	53.0
State	41.4	47.5	55.4	61.4
Local	146.5	160.8	208.7	266.0

[a] "Total number of jobs" consists of (1) nonagricultural wage and salary jobs, (2) self-employed and unpaid family workers, (3) domestic workers, and (4) agricultural workers (employed and self-employed). In this table, government employees in education, hospitals, construction, etc., are assigned to their respective industries; the rest are under public administration, e.g., police and fire protection. In contrast, the "B" table, which shows nonagricultural wage and salary employment, classifies all government employees together, dividing them into federal, state, and local.

[b] Includes ordnance and accessories, except fire control equipment. [c] Includes fire control equipment.

NOTE: Detail may not add to total due to rounding.

Table D. Reconciliation of Civilian Labor Force and Number of Jobs, Estimated 1960 and 1965 and Projected 1970 and 1975, New York State

(in thousands)

	1960	*1965*	*1970*	*1975*
I. Noninstitutional civilian population, 14 and over (table A)	12,161	12,812	13,610	14,500
II. Civilian labor force, 14 and over (table A)	7,273	7,481	8,010	8,526
A. Resident employed	6,910	7,137	7,692	8,185
B. Unemployed	363	344	318	341
Rate of unemployment (percent)	5.0	4.6	4.0	4.0
III. Total number of jobs (table C)	7,265	7,500	8,077	8,580
A. Nonagricultural jobs	7,102	7,380	7,987	8,500
1. Wage and salary workers (table B)	6,182	6,505	7,084	7,586
2. Self employed and unpaid family workers, and domestics	920	874	903	914
B. Agricultural jobs	163	120	90	80
IV. Difference between II-A and III	355	363	385	395
A. Net number of commuters into State	144	144	146	146
B. Multiple jobholders, minus persons with a job but not being paid[a]	211	219	239	249

[a] Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A), but not among the wage and salary workers (III-A.1).

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Table E. Occupation Distribution of Jobs, Estimated 1960 and 1965 and Projected 1970 and 1975, New York State

(in thousands)

Occupation	*1960*	*1965*	*1970*	*1975*
All occupations	7,265.0	7,500.0	8,076.9	8,579.9
Professional, technical, and kindred workers	930.5	1,072.2	1,248.0	1,395.7
Engineers, technical	84.8	95.4	112.7	128.4
Engineers, aeronautical	1.7	2.0	2.4	3.0
Engineers, chemical	7.3	7.9	8.9	9.6
Engineers, civil	16.0	17.6	20.7	23.6
Engineers, electrical	26.1	29.8	35.8	40.8
Engineers, industrial	5.8	7.1	8.7	10.5
Engineers, mechanical	22.8	24.7	28.3	31.3
Engineers, metallurgical	1.5	1.7	2.1	2.4
Engineers, sales	1.7	2.2	2.6	3.0
Other engineers, technical	1.9	2.4	3.2	4.2
Natural scientists	17.9	21.4	26.5	30.7
Chemists	10.2	12.0	14.3	16.3
Agricultural scientists	0.7	0.8	0.8	1.0
Biological scientists	1.7	1.9	2.5	2.8
Geologists and geophysicists	0.4	0.4	0.5	0.6
Mathematicians	1.8	2.4	3.2	3.9
Physicists	2.7	3.4	4.6	5.5
Other natural scientists	0.4	0.5	0.6	0.6
Technical workers and specialists (exc. medical and dental)	124.8	144.7	174.6	204.9
Draftsmen	21.0	24.7	30.6	35.8
Structural design technicians and related specialists	2.6	3.1	4.0	4.7
Electro and mechanical engineering technicians	41.0	47.2	56.0	65.4
Mathematics technicians	0.8	0.9	1.0	1.1
Physical science technicians	8.7	10.5	12.7	15.1
Industrial engineering technicians	6.9	8.0	9.3	10.8
Civil engineering and construction technicians	13.1	15.6	20.1	25.2
Sales and service technicians	2.0	2.2	2.4	2.7
Technical writing and illustration technicians	3.6	3.9	4.4	5.0
Safety and sanitation inspectors and related specialists	3.9	4.5	5.2	6.1
Product testing and inspection specialists	8.2	8.7	9.7	10.6
Data processing, systems analysis and programming specialists	5.9	7.6	10.0	11.7
Airway tower specialists and flight dispatchers	1.4	1.5	2.0	2.7
Broadcasting, motion picture, and recording studio specialists	2.9	3.0	3.1	3.3
Radio operators	2.8	3.3	4.1	4.7
Medical and other health workers	188.9	211.1	247.9	280.3
Dentists	14.7	15.6	16.7	17.4
Dietitians and nutritionists	3.9	4.1	4.6	4.8
Nurses, professional and student	80.8	89.0	103.7	116.7
Optometrists	1.5	1.6	1.6	1.6
Osteopaths	0.8	0.8	0.8	0.8
Pharmacists	13.8	13.7	14.1	14.9
Physicians and surgeons	38.0	42.3	48.1	52.1
Psychologists	2.5	3.3	4.4	5.3
Technicians, medical and dental	24.6	31.2	42.3	53.5
Veterinarians	1.2	1.2	1.4	1.5
Chiropractors and therapists	7.1	8.3	10.2	11.7
Teachers	191.0	236.2	269.4	291.8
Teachers, elementary	94.7	110.5	116.6	119.3
Teachers, secondary	55.6	71.0	85.0	92.5
Teachers, college	18.8	27.0	34.2	42.5
Teachers, other	21.9	27.7	33.6	37.5
Social scientists	7.9	8.7	9.8	11.0
Economists	3.5	3.7	4.1	4.3
Statisticians and actuaries	4.0	4.5	5.0	5.8
Other social scientists	0.4	0.5	0.7	0.9

Table E. (continued)

Occupation	1960	1965	1970	1975
Professional, technical workers—continued				
Other professional, technicial, and kindred workers	315.2	354.7	407.1	448.6
Accountants and auditors	69.8	71.4	76.1	79.6
Airplane pilots and navigators	3.0	3.5	4.4	5.1
Architects	5.1	5.5	6.2	6.6
Artists, musicians, authors, athletes, and entertainers	54.7	63.5	73.2	79.0
Clergymen	15.8	16.1	16.4	16.7
Designers, except design draftsmen	6.6	7.0	7.8	8.6
Reporters and editors	16.9	17.5	18.1	18.5
Lawyers and judges	40.7	44.8	49.0	52.5
Librarians	9.5	11.4	13.1	14.0
Personnel and labor relations workers	11.8	13.2	15.1	17.0
Photographers	8.1	7.9	7.9	7.9
Social, welfare, and recreation workers	19.9	23.2	28.4	34.0
Professional and technical workers, n.e.c.	53.3	69.7	91.4	109.1
Managers, officials, and proprietors	712.6	718.3	754.3	781.8
Conductors, railroad	4.1	3.4	3.3	3.3
Credit men	6.0	7.1	8.4	9.9
Postmasters	1.7	1.6	1.5	1.4
Purchasing agents	13.1	14.4	16.8	19.0
Ship officers, pilots, and engineers	4.8	4.4	3.9	3.6
Other managers, officials, and proprietors, n.e.c.	682.9	687.4	720.4	744.6
Other mgrs. and officials, n.e.c., salaried	444.3	471.4	509.4	544.1
Construction	14.4	15.4	20.0	25.0
Manufacturing	89.0	87.9	87.5	87.1
Transportation and utilities	28.4	29.3	30.0	30.7
Trade	145.2	149.0	161.8	172.3
Finance, insurance, and real estate	65.0	72.3	80.4	88.4
Services	81.2	90.5	100.2	109.4
All other industries	21.1	27.0	29.5	31.2
Proprietors, n.e.c.	238.6	216.0	211.0	200.5
Construction	19.3	19.1	19.0	18.9
Manufacturing	28.5	19.5	18.8	18.1
Transportation and utilities	6.3	6.0	5.5	5.0
Trade	142.8	128.5	122.9	111.8
Finance, insurance, and real estate	16.0	17.6	19.3	20.9
Services	25.2	24.8	25.1	25.4
All other industries	0.5	0.5	0.4	0.4
Clerical and kindred workers	1,443.1	1,535.3	1,694.5	1,829.9
Stenographers, typists, and secretaries	358.4	385.4	430.4	468.3
Secretaries	231.4	254.2	290.0	323.3
Stenographers	38.7	39.0	39.5	40.0
Typists	88.3	92.2	100.9	105.0
Office machine operators	50.4	66.5	87.1	107.7
Billing and bookkeeping machine operators	17.2	17.4	17.7	18.0
Keypunch operators	12.9	16.7	21.9	27.0
Tabulating-machine and computer operators	11.2	16.5	23.3	30.0
Duplicating-machine operators	1.1	1.9	2.9	4.1
Calculator and other office machine operators	8.0	14.0	21.3	28.6
Other clerical and kindred workers	1,034.3	1,083.4	1,177.0	1,253.9
Accounting clerks	46.9	48.0	50.4	52.9
Bookkeepers, hand	79.3	78.6	79.9	80.1
Bank tellers	20.6	24.5	29.9	34.2
Cashiers	58.4	68.7	83.7	98.7
Mail carriers	23.7	26.6	30.3	33.9
Postal clerks	35.0	35.2	36.1	36.5
Shipping and receiving clerks	45.8	42.9	41.1	38.9
Telephone operators	56.0	56.1	56.9	57.6
Clerical and kindred workers, n.e.c.	668.6	702.8	768.7	821.1
Attendants, physicians and dentists offices	8.6	9.5	11.1	12.6

Table E. ***(continued)***

Occupation	*1960*	*1965*	*1970*	*1975*
Other clerical and kindred workers, n.e.c.—continued				
Dispatchers and starters	8.1	9.3	11.3	13.5
File clerks	30.0	34.9	43.1	51.2
Insurance adjusters	10.0	12.4	16.4	20.4
Messengers	19.6	20.5	22.1	23.6
Payroll and timekeeping clerks	12.8	13.6	15.0	16.2
Receptionists	20.8	25.1	32.3	39.2
Stock clerks	46.2	47.3	50.6	50.8
Ticket agents	10.3	11.1	12.4	13.8
Miscellaneous clerical workers, n.e.c.	502.2	519.1	554.4	579.8
Sales workers	568.6	576.9	604.2	626.7
Insurance agents and brokers	41.3	41.9	42.4	43.0
Real estate agents and brokers	19.5	20.8	23.1	24.6
Other sales workers, n.e.c.	507.8	514.2	538.7	559.1
Stock and bond salesmen	5.7	8.8	12.0	15.0
Advertising agents and salesmen	5.3	5.5	5.8	6.0
Manufacturing	82.3	81.3	81.3	81.4
Wholesale trade	106.3	107.1	108.0	109.1
Retail trade	278.4	280.4	297.7	309.4
All other industries	29.8	31.1	33.9	38.2
Craftsmen, foremen, and kindred workers	929.0	947.6	1,018.0	1,082.5
Construction craftsmen	224.9	216.4	223.8	231.3
Carpenters	66.3	61.4	61.6	60.9
Brickmasons, stone, and tile setters	19.4	18.4	18.8	18.9
Cement and concrete finishers	1.8	1.9	2.2	2.5
Electricians	34.6	34.6	36.9	39.6
Excavating, grading machine operators	11.0	11.6	13.4	15.3
Painters and paperhangers	42.6	39.7	39.7	39.4
Plasterers	4.8	4.7	4.8	5.0
Plumbers and pipefitters	33.9	33.8	35.6	37.6
Roofers and slaters	4.7	4.7	5.0	5.4
Structural metalworkers	5.8	5.6	5.8	6.7
Foremen, n.e.c.	123.0	127.1	139.6	149.9
Metalworking craftsmen	133.3	128.6	129.1	129.7
Skilled machining workers (inc. machinists)	74.3	70.6	69.9	69.6
Machinists, production and toolroom	21.0	19.0	18.5	18.0
Machinists, maintenance	16.2	16.4	16.8	17.2
Machine tool operators, Class A	29.6	27.4	26.7	26.4
Inspectors, metalworking, Class A	7.5	7.8	7.9	8.0
Blacksmiths, forgemen, hammermen	1.9	1.7	1.4	1.3
Boilermakers	1.6	1.6	1.7	1.8
Heat treaters, annealers, temperers	1.4	1.4	1.3	1.3
Millwrights	4.8	4.8	5.0	5.1
Molders, metal (exc. coremakers)	3.4	3.2	3.2	3.1
Patternmakers, metal and wood	3.6	3.9	4.3	4.7
Rollers and roll hands	2.2	2.1	2.1	2.1
Sheet metal workers	11.3	11.1	11.2	11.6
Toolmakers, diemakers, diesetters	15.4	14.6	14.4	14.3
Electroplaters	1.0	1.0	1.0	1.0
Assemblers, metalworking, Class A	12.4	12.6	13.6	13.8
Printing trades craftsmen	51.5	50.4	49.3	48.2
Bookbinders	4.4	4.3	4.1	4.0
Compositors and typesetters	27.4	24.8	22.0	19.2
Electrotypers and stereotypers	1.1	0.9	0.7	0.6
Engravers, except photoengravers	2.0	2.0	2.2	2.2
Photoengravers and lithographers	4.5	5.9	7.3	8.7
Pressmen and plate printers	12.1	12.5	13.0	13.5
Transportation and public utility craftsmen	30.9	31.1	32.0	32.8
Linemen and servicemen	24.5	26.2	27.7	29.0
Locomotive engineers	4.0	3.5	3.5	3.5
Locomotive firemen	2.4	1.4	0.8	0.3

Table E. (continued)

Occupation	1960	1965	1970	1975
Craftsmen, foremen—continued				
Mechanics and repairmen	226.4	253.0	293.6	331.7
Air conditioning, heating, and refrigeration mechanics	8.5	9.8	11.6	13.4
Airplane mechanics and repairmen	11.1	12.2	13.9	15.3
Motor vehicle mechanics	58.3	62.9	69.4	75.3
Office machine mechanics	4.3	5.0	6.0	7.0
Radio and TV mechanics	11.3	11.8	12.9	13.5
Railroad and car shop mechanics	3.5	3.2	3.1	3.1
Other mechanics and repairmen	129.4	148.1	176.7	204.1
Other craftsmen and kindred workers	139.0	141.0	150.6	158.9
Bakers	18.8	16.7	15.7	14.7
Cabinetmakers	6.9	6.7	6.7	6.6
Cranemen, derrickmen, and hoistmen	8.4	8.9	10.0	11.1
Glaziers	1.8	2.2	2.6	3.0
Jewelers and watchmakers	6.9	7.2	7.8	8.4
Millers	0.5	0.4	0.4	0.3
Opticians and lens grinders	4.2	4.2	4.4	4.4
Stationary engineers	28.3	28.2	28.2	28.3
Inspectors, other than metalworking	10.1	10.4	11.9	13.4
Upholsterers	6.4	6.7	7.4	7.8
Craftsmen and kindred workers, n.e.c.	46.7	49.4	55.5	60.9
Operatives and kindred workers	1,285.8	1,269.8	1,298.5	1,319.0
Selected transportation and utility operatives	272.4	280.1	297.7	313.8
Drivers: bus, truck, tractor	161.6	167.2	180.4	192.3
Deliverymen, routemen, cab drivers	90.9	94.9	100.7	106.3
Brakemen and switchmen, railroad	9.6	9.0	8.8	8.6
Power station operators	2.4	2.4	2.4	2.5
Sailors and deck hands	7.9	6.6	5.4	4.1
Asbestos and insulation workers	1.3	1.3	1.4	1.4
Semiskilled metalworking occupations	264.7	272.0	282.2	293.0
Furnacemen, smelters, pourers, and heaters	3.7	3.6	3.6	3.5
Welders and flame cutters	22.2	22.5	24.0	25.6
Electroplater helpers	1.7	1.6	1.6	1.7
Machine tool operators, metalworking, Class B	22.5	20.9	19.8	18.4
Assemblers, metalworking, Class B	45.1	44.9	46.5	47.0
Inspectors, metalworking, Class B	16.8	16.6	17.0	17.1
Other metalworking operatives	152.7	161.9	169.7	179.7
Semiskilled occupations in textiles and apparel	276.0	251.2	233.0	207.0
Knitters, loopers, and toppers	3.8	3.6	3.3	3.1
Weavers and spinners, textile	2.4	2.0	1.5	1.2
Sewers and stitchers, manufacturing	102.8	92.4	85.3	77.4
Other textile and apparel operatives, n.e.c.	167.0	153.2	142.9	125.3
Other operatives and kindred workers	471.4	465.2	484.2	503.8
Attendants, auto service and parking	20.6	22.7	27.2	31.6
Laundry and dry cleaning workers	44.6	43.9	44.7	45.3
Meat cutters, except meatpacking	32.5	33.3	35.6	37.9
Mine operatives and laborers, n.e.c.	2.7	2.5	2.5	2.3
Other operatives, n.e.c.	371.0	362.8	374.2	386.7
Service workers	941.9	987.4	1,098.0	1,198.4
Private household workers	175.7	162.3	163.1	163.9
Protective service workers	102.9	109.1	129.0	151.6
Firemen, fire protection	18.2	19.0	22.5	26.9
Guards and watchmen	38.0	39.0	42.0	44.9
Policemen, marshals, sheriffs	46.7	51.1	64.5	79.8
Waiters, cooks and bartenders	229.0	251.6	283.5	311.6
Bartenders	29.2	30.5	32.8	34.7
Cooks, except private household	64.9	71.2	79.8	86.5
Counter and fountain workers	37.6	44.8	54.3	63.1

Table E. *(continued)*

Occupation	*1960*	*1965*	*1970*	*1975*
Service workers—continued				
Waiters and waitresses	97.3	105.1	116.6	127.3
Other service workers	434.3	464.4	522.4	571.3
Airline stewards and stewardesses	2.7	3.5	4.6	5.9
Attendants, hospital and other institutions	69.9	86.9	117.7	146.2
Charwomen and cleaners	33.8	35.5	37.5	38.7
Janitors and sextons	54.2	53.4	51.5	50.4
Nurses, practical	19.2	23.2	30.0	37.2
Other service workers, n.e.c.	254.5	261.9	281.1	292.9
Barbers	20.7	19.9	19.1	18.2
Chambermaids	15.3	16.1	17.0	17.6
Elevator operators	26.5	24.7	22.9	21.2
Hairdressers and cosmetologists	36.6	40.6	47.2	51.6
Housekeepers and stewards	23.8	25.0	28.1	29.5
Kitchen workers	41.3	45.0	52.0	56.9
Miscellaneous service workers	90.3	90.6	94.8	97.9
Farmers and farm laborers	159.5	119.6	93.0	86.9
Laborers, except farm and mine	294.0	272.9	268.4	259.0

Table F. Occupation Distribution of Jobs, By Industry Division, Estimated 1960 and 1965 and Projected 1975, New York State

1. Estimated 1960

(in thousands)

Occupation	*All industries*	*Agriculture*[a]	*Construction*	*Manufacturing*[b]	*Transportation*[c]	*Trade*	*Finance*[d]	*Services*	*Public administration*
All occupations	7,265.0	174.7	379.0	1,960.7	584.3	1,540.6	531.5	1,763.6	330.6
Professional, technical, and kindred workers	930.5	4.5	20.9	170.2	34.5	43.6	23.7	592.2	40.9
Engineers, technical	84.8	0.1	8.7	45.5	6.4	5.1	1.0	14.1	3.9
Natural scientists	17.9	0.5	0.1	10.8	0.3	1.3	0.1	3.9	0.9
Technicians, exc. medical and dental	124.8	0.1	8.0	58.8	15.9	6.2	2.3	22.7	10.8
Medical and other health workers	188.9	1.6	—	2.7	0.1	12.9	0.4	170.3	0.9
Teachers	191.0	—	—	0.5	0.2	1.0	0.1	188.2	1.0
Social scientists	7.9	—	0.1	2.1	0.7	1.0	1.6	1.2	1.2
Other professional, technical, and kindred workers	315.2	2.2	4.0	49.8	10.9	16.1	18.2	191.8	22.2
Managers, officials and proprietors	712.6	1.1	34.4	127.8	43.6	293.4	81.7	107.9	22.7
Clerical and kindred workers	1,443.1	2.3	21.0	293.3	156.6	282.0	269.2	269.3	149.4
Stenographers, typists and secretaries	358.4	0.9	6.4	79.5	18.3	47.1	68.1	111.8	26.3
Office machine operators	50.4	—	0.2	14.3	4.1	8.1	13.7	6.0	4.0
Other clerical and kindred workers	1,034.3	1.4	14.4	199.5	134.2	226.8	187.4	151.5	119.1
Sales workers	568.6	0.7	2.1	82.7	4.6	385.4	71.5	21.2	0.4
Craftsmen, foremen and kindred workers	929.0	1.7	199.6	386.4	110.5	98.0	10.9	105.0	16.9
Construction craftsmen	224.9	0.3	157.6	31.5	9.9	6.8	2.5	13.0	3.3
Foremen, n.e.c.	123.0	0.5	10.5	76.4	13.1	13.4	0.9	5.5	2.7
Metalworking craftsmen, except mechanics	133.3	—	4.2	122.6	2.5	1.0	—	2.3	0.7
Printing trades craftsmen	47.1	—	0.1	44.0	0.2	0.6	0.4	1.5	0.3
Transportation and public utility craftsmen	30.9	—	1.1	0.8	28.7	—	—	0.1	0.2
Mechanics and repairmen	226.4	0.8	15.0	57.2	38.5	46.2	6.0	54.7	8.0
Other craftsmen and kindred workers	143.4	0.1	11.1	53.9	17.6	30.0	1.1	27.9	1.7
Operatives and kindred workers	1,285.8	3.3	30.4	814.5	153.7	170.2	3.9	101.7	8.1
Selected transportation and public utility operatives	272.4	1.2	14.0	50.4	124.6	64.9	1.1	12.4	3.8
Semiskilled metalworking occupations	112.0	—	2.1	106.9	0.6	0.5	—	1.3	0.6
Semiskilled textile and apparel occupations	109.0	—	—	109.0	—	—	—	—	—
Other operatives and kindred workers	792.4	2.1	14.3	548.2	28.5	104.8	2.8	88.0	3.7
Service workers	941.9	0.8	3.0	25.1	20.2	215.5	61.9	535.1	80.3
Private household workers	175.7	—	—	—	—	—	—	175.7	—
Protective service workers	102.9	0.2	1.2	8.2	4.5	1.9	6.2	8.9	71.8
Waiters, cooks, and bartenders	229.0	0.4	0.6	2.0	2.8	156.4	1.7	63.8	1.3
Other service workers	434.3	0.2	1.2	14.9	12.9	57.2	54.0	286.7	7.2
Laborers, except farm and mine	294.0	0.8	67.6	60.7	60.6	52.5	8.7	31.2	11.9
Farmers and farm laborers	159.5	159.5	—	—	—	—	—	—	—

[a] Agriculture, forestry, and fisheries. [b] Manufacturing and mining. [c] Transportation and public utilities. [d] Finance, insurance, and real estate.
NOTE: See table G for the occupations within each of these occupation groups.

Table F. Occupation Distribution of Jobs, By Industry Division, Estimated 1960 and 1965 and projected 1975, New York State

2. Estimated 1965

(in thousands)

Occupation	*All industries*	*Agriculture*[a]	*Construction*	*Manufacturing*[b]	*Transportation*[c]	*Trade*	*Finance*[d]	*Services*	*Public administration*
All occupations	7,500.0	133.3	376.4	1,910.6	586.2	1,581.5	558.0	2,006.6	347.4
Professional, technical, and kindred workers	1,072.2	4.5	21.8	185.0	38.3	47.5	26.5	703.8	44.8
Engineers, technical	95.4	0.1	8.8	49.4	7.0	6.0	1.1	18.7	4.3
Natural scientists	21.4	0.6	0.1	12.0	0.4	1.8	0.1	5.4	1.0
Technicians, exc. medical and dental	144.7	0.1	8.7	66.2	18.3	7.5	2.8	28.7	12.4
Medical and other health workers	211.1	1.6	—	2.8	0.1	12.4	0.4	192.9	0.9
Teachers	236.2	—	—	0.5	0.2	1.2	0.1	233.2	1.0
Social scientists	8.7	—	0.1	2.4	0.7	1.1	1.8	1.4	1.2
Other professional, technical, and kindred workers	354.7	2.1	4.1	51.7	11.6	17.5	20.2	223.5	24.0
Managers, officials and proprietors	718.3	0.9	35.1	123.1	43.0	284.4	90.4	117.1	24.3
Clerical and kindred workers	1,535.3	1.9	22.3	287.8	156.3	300.2	284.3	328.3	154.2
Stenographers, typists and secretaries	385.4	0.7	6.9	78.3	18.9	46.8	71.0	135.3	27.5
Office machine operators	66.5	—	0.3	18.2	5.1	10.2	18.7	9.3	4.7
Other clerical and kindred workers	1,083.4	1.2	15.1	191.3	132.3	243.2	194.6	183.7	122.0
Sales workers	576.9	0.8	2.2	81.1	5.2	387.6	76.4	23.2	0.4
Craftsmen, foremen and kindred workers	947.6	1.7	197.1	380.5	112.0	106.6	11.4	120.5	17.8
Construction craftsmen	216.4	0.3	149.4	29.4	9.5	7.2	2.7	14.8	3.1
Foremen, n.e.c.	127.1	0.5	11.4	77.2	12.5	14.9	1.0	6.7	2.9
Metalworking craftsmen, except mechanics	128.6	—	4.1	118.0	2.2	1.0	—	2.7	0.6
Printing trades craftsmen	46.1	—	0.1	42.7	0.2	0.7	0.4	1.7	0.3
Transportation and public utility craftsmen	31.1	—	1.3	0.9	28.5	—	—	0.2	0.2
Mechanics and repairmen	253.0	0.8	18.2	61.5	41.0	51.5	6.3	64.6	9.1
Other craftsmen and kindred workers	145.3	0.1	12.6	50.8	18.1	31.3	1.0	29.8	1.6
Operatives and kindred workers	1,269.8	2.7	33.6	779.6	157.5	176.7	3.8	107.9	8.0
Selected transportation and public utility operatives	280.1	0.9	15.3	49.3	129.3	66.8	1.3	13.2	4.0
Semiskilled metalworking occupations	110.1	—	2.3	104.7	0.6	0.5	—	1.4	0.6
Semiskilled textile and apparel occupations	98.0	—	—	98.0	—	—	—	—	—
Other operatives and kindred workers	781.6	1.8	16.0	527.6	27.6	109.4	2.5	93.3	3.4
Service workers	987.4	0.6	3.0	21.9	19.4	227.8	56.3	571.8	86.6
Private household workers	162.3	—	—	—	—	—	—	162.3	—
Protective service workers	109.1	0.1	1.2	7.2	4.1	1.8	6.0	10.6	78.1
Waiters, cooks, and bartenders	251.6	0.3	0.6	1.9	2.4	167.0	1.7	76.3	1.4
Other service workers	464.4	0.2	1.2	12.8	12.9	59.0	48.6	322.6	7.1
Laborers, except farm and mine	272.9	0.6	61.3	51.6	54.5	50.7	8.9	34.0	11.3
Farmers and farm laborers	119.6	119.6	—	—	—	—	—	—	—

For footnotes, see first page of this table.

Table F. Occupation Distribution of Jobs, By Industry Division, Estimated 1960 and 1965 and Projected 1975, New York State

3. Projected 1975

(in thousands)

Occupation	*All industries*	*Agriculture*[a]	*Construction*	*Manufacturing*[b]	*Transportation*[c]	*Trade*	*Finance*[d]	*Services*	*Public administration*
All occupations	8,579.9	98.0	463.7	1,934.6	620.2	1,774.6	617.2	2,598.8	472.8
Professional, technical, and kindred workers	1,395.7	4.1	31.2	230.3	44.7	56.2	32.9	927.7	68.6
Engineers, technical	128.4	0.1	11.2	62.8	8.3	7.8	1.4	30.5	6.3
Natural scientists	30.7	0.7	0.1	16.5	0.7	2.7	0.1	8.5	1.4
Technicians, exc. medical and dental	204.9	0.1	13.9	85.9	21.7	9.3	3.4	46.9	23.7
Medical and other health workers	280.3	1.5	—	3.2	0.1	11.9	0.4	261.9	1.3
Teachers	291.8	—	—	0.6	0.2	1.6	0.2	288.1	1.1
Social scientists	11.0	—	0.1	2.7	0.8	1.4	2.3	2.4	1.3
Other professional, technical, and kindred workers	448.6	1.7	5.9	58.6	12.9	21.5	25.1	289.4	33.5
Managers, officials and proprietors	781.8	0.8	46.9	120.4	43.0	284.8	111.2	138.9	35.8
Clerical and kindred workers	1,829.9	1.3	31.3	296.5	162.9	355.9	314.2	476.6	191.2
Stenographers, typists and secretaries	468.3	0.6	9.7	82.2	20.7	47.6	76.4	192.8	38.3
Office machine operators	107.7	—	0.5	27.4	7.4	15.0	31.6	17.8	8.0
Other clerical and kindred workers	1,253.9	0.7	21.1	186.9	134.8	293.3	206.2	266.0	144.9
Sales workers	626.7	0.7	2.8	81.5	6.5	418.5	88.0	28.3	0.4
Craftsmen, foremen and kindred workers	1,082.5	1.4	236.5	392.0	124.8	134.6	12.9	154.3	26.0
Construction craftsmen	231.3	0.2	162.0	26.4	9.9	8.8	3.1	17.1	3.8
Foremen, n.e.c.	149.9	0.5	17.1	85.1	13.5	18.9	1.4	9.4	4.0
Metalworking craftsmen, except mechanics	129.7	—	5.0	117.9	2.2	0.9	—	3.1	0.6
Printing trades craftsmen	44.2	—	—	39.9	0.2	1.0	0.5	2.1	0.5
Transportation and public utility craftsmen	32.8	—	2.2	1.1	28.8	—	—	0.4	0.3
Mechanics and repairmen	331.7	0.7	30.2	73.2	49.4	68.1	7.1	88.1	14.9
Other craftsmen and kindred workers	162.9	—	20.0	48.4	20.8	36.9	0.8	34.1	1.9
Operatives and kindred workers	1,319.0	2.2	49.1	754.2	174.1	204.9	3.7	120.9	9.9
Selected transportation and public utility operatives	313.8	0.8	22.1	49.6	144.8	74.2	1.8	15.0	5.5
Semiskilled metalworking occupations	113.3	—	3.3	106.3	0.6	0.5	—	1.8	0.8
Semiskilled textile and apparel occupations	81.7	—	—	81.7	—	—	—	—	—
Other operatives and kindred workers	810.2	1.4	23.7	516.6	28.7	130.2	1.9	104.1	3.6
Service workers	1,198.4	0.3	3.8	19.9	20.2	267.4	44.5	712.6	129.7
Private household workers	163.9	—	—	—	—	—	—	163.9	—
Protective service workers	151.6	0.1	1.5	5.7	3.4	1.5	5.4	13.4	120.6
Waiters, cooks, and bartenders	311.6	0.2	0.7	2.1	1.8	199.9	2.0	103.1	1.8
Other service workers	571.3	—	1.6	12.1	15.0	66.0	37.1	432.2	7.3
Laborers, except farm and mine	259.0	0.3	62.1	39.8	44.0	52.3	9.8	39.5	11.2
Farmers and farm laborers	86.9	86.9	—	—	—	—	—	—	—

For footnotes, see first page of this table.

Table G. Number of Jobs to be Filled, By Occupation, New York State, 1965-1975
(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	7,500.0	3,174.5	42.3	1,079.9	14.4	2,094.6	27.9
Professional, technical, and kindred workers	1,072.2	605.2	56.4	323.5	30.2	281.7	26.3
Engineers, technical	95.4	48.4	50.7	33.0	34.6	15.4	16.1
Engineers, aeronautical	2.0	1.1	55.0	1.0	50.0	0.1	5.0
Engineers, chemical	7.9	2.6	32.9	1.7	21.5	0.9	11.4
Engineers, civil	17.6	10.4	59.1	6.0	34.1	4.4	25.0
Engineers, electrical	29.8	14.4	48.3	11.0	36.9	3.4	11.4
Engineers, industrial	7.1	4.4	62.0	3.4	47.9	1.0	14.1
Engineers, mechanical	24.7	11.0	44.5	6.6	26.7	4.4	17.8
Engineers, metallurgical	1.7	0.9	52.9	0.7	41.2	0.2	11.8
Engineers, mining	0.1	—	—	—	—	—	—
Other engineers, technical	4.5	3.6	80.0	2.6	57.8	1.0	22.2
Natural scientists	21.4	12.6	58.9	9.3	43.5	3.3	15.4
Chemists	12.0	6.4	53.3	4.3	35.8	2.1	17.5
Agricultural scientists	0.8	0.3	37.5	0.2	25.0	0.1	12.5
Biological scientists	1.9	1.2	63.2	0.9	47.4	0.3	15.8
Geologists and geophysicists	0.4	0.3	75.0	0.2	50.0	0.1	25.0
Mathematicians	2.4	1.8	75.0	1.5	62.5	0.3	12.5
Physicists	3.4	2.4	70.6	2.1	61.8	0.3	8.8
Other natural scientists, n.e.c.	0.5	0.2	40.0	0.1	20.0	0.1	20.0
Technical workers (exc. medical and dental)	144.7	76.5	52.9	60.2	41.6	16.3	11.3
Draftsmen	24.7	13.7	55.5	11.1	44.9	2.6	10.5
Structural design technicians and related specialists	3.1	1.9	61.3	1.6	51.6	0.3	9.7
Electro and mechanical engineering technicians	47.2	21.5	45.6	18.2	38.6	3.3	7.0
Mathematics technicians	0.9	0.3	33.3	0.2	22.2	0.1	11.1
Physical science technicians	10.5	6.0	57.1	4.6	43.8	1.4	13.3
Industrial engineering technicians	8.0	3.8	47.5	2.8	35.0	1.0	12.5
Civil engineering and construction technicians	15.6	11.7	75.0	9.6	61.5	2.1	13.5
Sales and service technicians	2.2	0.8	36.4	0.5	22.7	0.3	13.6
Technical writing and illustration technicians	3.9	1.8	46.2	1.1	28.2	0.7	17.9
Safety and sanitation inspectors and related specialists	4.5	2.2	48.9	1.6	35.6	0.6	13.3
Product testing and inspection specialists	8.7	3.0	34.5	1.9	21.8	1.1	12.6
Data processing, systems analysis and programming specialists	7.6	5.4	71.1	4.1	53.9	1.3	17.1
Airway tower specialists and flight dispatchers	1.5	1.5	100.0	1.2	80.0	0.3	20.0
Broadcasting, motion picture, and recording studio specialists	3.0	0.8	26.7	0.3	10.0	0.5	16.7
Radio operators	3.3	2.1	63.6	1.4	42.4	0.7	21.2
Medical and other health workers	211.1	142.6	67.6	69.2	32.8	73.4	34.8
Dentists	15.6	7.1	45.5	1.8	11.5	5.3	34.0

Table G. *(continued)*

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Medical and other health workers—continued							
Dietitians and nutritionists	4.1	2.2	53.7	0.7	17.1	1.5	36.6
Nurses, professional and student	89.0	63.0	70.8	27.7	31.1	35.3	39.7
Optometrists	1.6	0.4	25.0	—	—	0.4	25.0
Osteopaths	0.8	0.3	37.5	—	—	0.3	37.5
Pharmacists	13.7	5.1	37.2	1.2	8.8	3.9	28.5
Physicians and surgeons	42.3	23.3	55.1	9.8	23.2	13.5	31.9
Psychologists	3.3	2.6	78.8	2.0	60.6	0.6	18.2
Technicians, medical and dental	31.2	31.6	101.3	22.3	71.5	9.3	29.8
Veterinarians	1.2	0.6	50.0	0.3	25.0	0.3	25.0
Chiropractors and therapists	8.3	6.4	77.1	3.4	41.0	3.0	36.1
Teachers	236.2	135.7	57.5	55.6	23.5	80.1	33.9
Teachers, elementary	110.5	49.3	44.6	8.8	8.0	40.5	36.7
Teachers, secondary	71.0	41.6	58.6	21.5	30.3	20.1	28.3
Teachers, college	27.0	23.5	87.0	15.5	57.4	8.0	29.6
Teachers, other	27.7	21.3	76.9	9.8	35.4	11.5	41.5
Social scientists	8.7	4.7	54.0	2.3	26.4	2.4	27.6
Economists	3.7	1.6	43.2	0.6	16.2	1.0	27.0
Statisticians and actuaries	4.5	2.4	53.3	1.3	28.9	1.1	24.4
Other social scientists	0.5	0.7	140.0	0.4	80.0	0.3	60.0
Other professional, technical, and kindred workers	354.7	184.7	52.1	93.9	26.5	90.8	25.6
Accountants and auditors	71.4	23.2	32.5	8.2	11.5	15.0	21.0
Airplane pilots and navigators	3.5	1.9	54.3	1.6	45.7	0.3	8.6
Architects	5.5	2.9	52.7	1.1	20.0	1.8	32.7
Artists, musicians, authors, athletes, and entertainers	63.5	30.9	48.7	15.5	24.4	15.4	24.3
Clergymen	16.1	5.4	33.5	0.6	3.7	4.8	29.8
Designers, except design draftsmen	7.0	3.5	50.0	1.6	22.9	1.9	27.1
Reporters and editors	17.5	5.5	31.4	1.0	5.7	4.5	25.7
Lawyers and judges	44.8	20.6	46.0	7.7	17.2	12.9	28.8
Librarians	11.4	7.2	63.2	2.6	22.8	4.6	40.4
Personnel and labor relations workers	13.2	7.1	53.8	3.8	28.8	3.3	25.0
Photographers	7.9	1.3	16.5	—	—	1.3	16.5
Social, welfare, and recreation workers	23.2	18.3	78.9	10.8	46.6	7.5	32.3
Professional and technical workers, n.e.c.	69.7	56.9	81.6	39.4	56.5	17.5	25.1
Managers, officials, and proprietors	718.3	285.3	39.7	63.5	8.8	221.8	30.9
Conductors, railroad	3.4	1.2	35.3	−0.1	− 2.9	1.3	38.2
Credit men	7.1	4.3	60.6	2.8	39.4	1.5	21.1
Ship officers	4.4	−0.2	−4.5	−1.0	−22.7	0.8	18.2

Table G. *(continued)*

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Managers, officials and proprietors—continued							
Postmasters and assistants	1.6	0.5	31.3	−0.2	−12.5	0.7	43.8
Purchasing agents	14.4	7.9	54.9	4.6	31.9	3.3	22.9
Managers, officials, proprietors, n.e.c.	687.4	271.6	39.5	57.4	8.4	214.2	31.2
Clerical and kindred workers	1,535.3	764.8	49.8	294.6	19.2	470.2	30.6
Stenographers, typists, and secretaries	385.4	210.9	54.7	82.9	21.5	128.0	33.2
Office machine operators	66.5	58.8	88.4	41.2	62.0	17.6	26.5
Other clerical and kindred workers	1,083.4	495.1	45.7	170.5	15.7	324.6	30.0
Accounting clerks	48.0	20.9	43.5	4.9	10.2	16.0	33.3
Bookkeepers, hand	78.6	26.5	33.7	1.5	1.9	25.0	31.8
Bank tellers	24.5	15.4	62.9	9.7	39.6	5.7	23.3
Cashiers	68.7	51.9	75.5	30.0	43.7	21.9	31.9
Mail carriers	26.6	11.1	41.7	7.3	27.4	3.8	14.3
Postal clerks	35.2	7.4	21.0	1.3	3.7	6.1	17.3
Shipping and receiving clerks	42.9	2.6	6.1	−4.0	− 9.3	6.6	15.4
Telephone operators	56.1	20.6	36.7	1.5	2.7	19.1	34.0
Clerical and kindred workers, n.e.c.	702.8	338.7	48.2	118.3	16.8	220.4	31.4
Sales workers	576.9	219.4	38.0	49.8	8.6	169.6	29.4
Insurance agents and brokers	41.9	11.6	27.7	1.1	2.6	10.5	25.1
Real estate agents and brokers	20.8	13.7	65.9	3.8	18.3	9.9	47.6
Other sales workers, n.e.c.	514.2	194.1	37.7	44.9	8.7	149.2	29.0
Craftsmen, foremen, and kindred workers	947.6	345.2	36.4	134.9	14.2	210.3	22.2
Construction craftsmen	216.4	66.6	30.8	14.9	6.9	51.7	23.9
Carpenters	61.4	14.1	23.0	−0.5	− 0.8	14.6	23.8
Brickmasons, stone and tile setters	18.4	4.6	25.0	0.5	2.7	4.1	22.3
Cement and concrete finishers	1.9	1.0	52.6	0.6	31.6	0.4	21.1
Electricians	34.6	12.2	35.3	5.0	14.5	7.2	20.8
Excavating, grading machine operators	11.6	5.3	45.7	3.7	31.9	1.6	13.8
Painters and paperhangers	39.7	12.3	31.0	−0.3	− 0.8	12.6	31.7
Plasterers	4.7	1.3	27.7	0.3	6.4	1.0	21.3
Plumbers and pipefitters	33.8	11.8	34.9	3.8	11.2	8.0	23.7
Roofers and slaters	4.7	1.6	34.0	0.7	14.9	0.9	19.1
Structural metalworkers	5.6	2.4	42.9	1.1	19.6	1.3	23.2
Foremen, n.e.c.	127.1	54.5	42.9	22.8	17.9	31.7	24.9
Metalworking craftsmen	128.6	26.6	20.7	1.1	0.9	25.5	19.8
Skilled machining workers (inc. machinists)	70.6	12.2	17.3	−1.0	− 1.4	13.2	18.7
Blacksmiths, forgemen, hammermen	1.7	0.1	5.9	−0.4	−23.5	0.5	29.4

Table G. (continued)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Metalworking craftsmen—continued							
Boilermakers	1.6	0.6	37.5	0.2	12.5	0.4	25.0
Heat treaters, annealers, temperers	1.4	0.1	7.1	−0.1	− 7.1	0.2	14.3
Millwrights	4.8	1.4	29.2	0.3	6.3	1.1	22.9
Molders, metal (exc. coremakers)	3.2	0.5	15.6	−0.1	− 3.1	0.6	18.8
Patternmakers, metal and wood	3.9	2.2	56.4	0.8	20.5	1.4	35.9
Rollers and roll hands	2.1	0.3	14.3	—	—	0.3	14.3
Sheet metal workers	11.1	3.0	27.0	0.5	4.5	2.5	22.5
Toolmakers, diemakers, diesetters	14.6	1.9	13.0	−0.3	− 2.1	2.2	15.1
Electroplaters	1.0	0.2	20.0	—	—	0.2	20.0
Assemblers, metalworking, Class A	12.6	4.1	32.5	1.2	9.5	2.9	23.0
Printing trades craftsmen	46.1	7.1	15.4	−1.9	− 4.1	9.0	19.5
Compositors and typesetters	24.8	−0.7	− 2.8	−5.6	−22.6	4.9	19.8
Electrotypers and stereotypers	0.9	−0.2	−22.2	−0.3	−33.3	0.1	11.1
Engravers, except photoengravers	2.0	0.8	40.0	0.2	10.0	0.6	30.0
Photoengravers and lithographers	5.9	3.9	66.1	2.8	47.5	1.1	18.6
Pressmen and plate printers	12.5	3.3	26.4	1.0	8.0	2.3	18.4
Transportation and public utility craftsmen	31.1	6.5	20.9	1.7	5.5	4.8	15.4
Linemen and servicemen	26.2	5.9	22.5	2.8	10.7	3.1	11.8
Locomotive engineers	3.5	1.6	45.7	—	—	1.6	45.7
Locomotive firemen	1.4	−1.0	−71.4	−1.1	−78.6	0.1	7.1
Mechanics and repairmen	253.0	132.8	52.5	78.7	31.1	54.1	21.4
Airplane mechanics and repairmen	12.2	4.3	35.2	3.1	25.4	1.2	9.8
Motor vehicle mechanics	62.9	22.0	35.0	12.4	19.7	9.6	15.3
Office machine mechanics	5.0	2.6	52.0	2.0	40.0	0.6	12.0
Radio and TV mechanics	11.8	3.0	25.4	1.7	14.4	1.3	11.0
Railroad and car shop mechanics	3.2	0.8	25.0	−0.1	− 3.1	0.9	28.1
Other mechanics and repairmen	157.9	100.1	63.4	59.6	37.7	40.5	25.6
Other craftsmen and kindred workers	145.3	51.1	35.2	17.6	12.1	33.5	23.1
Bakers	16.7	2.0	12.0	−2.0	−12.0	4.0	24.0
Cabinetmakers	6.7	1.3	19.4	−0.1	− 1.5	1.4	20.9
Cranemen, derrickmen, and hoistmen	8.9	4.2	47.2	2.2	24.7	2.0	22.5
Glaziers	2.2	1.0	45.5	0.8	36.4	0.2	9.1
Jewelers and watchmakers	7.2	3.2	44.4	1.2	16.7	2.0	27.8
Millers	0.4	−0.1	−25.0	−0.1	−25.0	—	—
Opticians and lens grinders	4.2	0.9	21.4	0.2	4.8	0.7	16.7
Stationary engineers	28.2	6.5	23.0	0.1	0.4	6.4	22.7
Inspectors, other than metalworking	10.4	5.0	48.1	3.0	28.8	2.0	19.2

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Table G. *(continued)*

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	of 1965 Percent	Number	Percent of 1965	Number	Percent of 1965
Other craftsmen—continued							
Upholsterers	6.7	2.7	40.3	1.1	16.4	1.6	23.9
Craftsmen and kindred workers, n.e.c.	53.7	24.4	45.4	11.2	20.9	13.2	24.6
Operatives and kindred workers	1,269.8	332.9	26.2	49.2	3.9	283.7	22.3
Selected transportation and utility operatives	280.1	77.4	27.6	33.7	12.0	43.7	15.6
Drivers: bus, truck, tractor	167.2	50.4	30.1	25.1	15.0	25.3	15.1
Deliverymen, routemen, cab drivers	94.9	26.4	27.8	11.4	12.0	15.0	15.8
Brakemen and switchmen, railroad	9.0	1.4	15.6	−0.4	− 4.4	1.8	20.0
Power station operators	2.4	0.7	29.2	0.1	4.2	0.6	25.0
Sailors and deck hands	6.6	−1.5	−22.7	−2.5	−37.9	1.0	15.2
Asbestos and insulation workers	1.3	0.3	23.1	0.1	7.7	0.2	15.4
Semiskilled metalworking occupations	110.1	24.5	22.3	3.2	2.9	21.3	19.3
Furnacemen, smelters, pourers, and heaters	3.6	0.5	13.9	−0.1	− 2.8	0.6	16.7
Welders and flame cutters	22.5	6.3	28.0	3.1	13.8	3.2	14.2
Electroplater helpers	1.6	0.2	12.5	0.1	6.3	0.1	6.3
Machine tool operators, metalworking, Class B	20.9	1.5	7.2	−2.5	−12.0	4.0	19.1
Assemblers, metalworking, Class B	44.9	11.7	26.1	2.1	4.7	9.6	21.4
Inspectors, metalworking, Class B	16.6	4.3	25.9	0.5	3.0	3.8	22.9
Semiskilled occupations in textiles and apparel	98.0	12.8	13.1	−16.3	−16.6	29.1	29.7
Knitters, loopers, and toppers	3.6	0.1	2.8	−0.5	−13.9	0.6	16.7
Weavers and spinners, textile	2.0	−0.4	−20.0	−0.8	−40.0	0.4	20.0
Sewers and stitchers, manufacturing	92.4	13.1	14.2	−15.0	−16.2	28.1	30.4
Other operatives and kindred workers	780.3	217.9	27.9	28.5	3.7	189.4	24.3
Attendants, auto service and parking	22.7	12.6	55.5	8.9	39.2	3.7	16.3
Laundry and dry cleaning workers	43.9	15.4	35.1	1.4	3.2	14.0	31.9
Meat cutters, except meatpacking	33.3	12.5	37.5	4.6	13.8	7.9	23.7
Mine operatives and laborers, n.e.c.	2.5	0.2	8.0	−0.2	− 8.0	0.4	16.0
Other operatives, n.e.c.	677.9	177.2	26.1	13.8	2.0	163.4	24.1
Service workers	987.4	578.3	58.6	211.0	21.4	367.3	37.2
Private household workers	162.3	85.5	52.7	1.6	1.0	83.9	51.7
Protective service workers	109.1	69.3	63.5	42.5	39.0	26.8	24.6
Firemen, fire protection	19.0	10.6	55.8	7.9	41.6	2.7	14.2
Guards and watchmen	39.0	22.5	57.7	5.9	15.1	16.6	42.6
Policemen, marshals, sheriffs	51.1	36.2	70.8	28.7	56.2	7.5	14.7
Waiters, cooks, and bartenders	251.6	139.5	55.4	60.0	23.8	79.5	31.6
Bartenders	30.5	14.9	48.9	4.2	13.8	10.7	35.1
Cooks, except private household	71.2	41.4	58.1	15.3	21.5	26.1	36.7
Counter and fountain workers	44.8	33.0	73.7	18.3	40.8	14.7	32.8
Waiters and waitresses	105.1	50.2	47.8	22.2	21.1	28.0	26.6

Table G. ***(continued)***

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Service workers—continued							
Other service workers	464.4	284.0	61.2	106.9	23.0	177.1	38.1
Attendants, hospital and other institutions	86.9	90.2	103.8	59.3	68.2	30.9	35.6
Charwomen and cleaners	35.5	19.2	54.1	3.2	9.0	16.0	45.1
Janitors and sextons	53.4	17.3	32.4	−3.0	− 5.6	20.3	38.0
Nurses, practical	23.2	26.1	112.5	14.0	60.3	12.1	52.2
Other service workers, n.e.c.	265.4	131.2	49.4	33.4	12.6	97.8	36.9
Farmers and farm laborers	119.6	1.3	1.1	−32.7	−27.3	34.0	28.4
Laborers, except farm and mine	272.9	42.1	15.4	−13.9	− 5.1	56.0	20.5

VT 008 017

Berman, Abraham J., And Others
Manpower Directions in New York State, 1965-1975. Job Requirements and Labor Force. Volume II: Areas of the State.

New York State Dept. of Labor, Albany. Research and Statistics Office.
MF AVAILABLE IN VT-ERIC SET.
Special Bull. 241
PUB DATE - Mar68 286p.

DESCRIPTORS - *MANPOWER NEEDS; *MANPOWER UTILIZATION; *EMPLOYMENT PROJECTIONS; EMPLOYMENT PATTERNS; *LABOR FORCE; EMPLOYMENT TRENDS; OCCUPATIONS; INDUSTRY; *EMPLOYMENT STATISTICS; STATE SURVEYS; INDIVIDUAL CHARACTERISTICS
IDENTIFIERS - NEW YORK

ABSTRACT - In projecting manpower requirements by occupations for localities in New York State, calculations were made of past relations between employment trends by industry for the state and corresponding industry trends for the given area. These were then applied to the industry projections for the state. An industry-occupation matrix was applied to the resulting area-industry projections to derive the occupational projections. The matrix used for an area was an adaptation of the statewide matrix. In all cases the area figures added up to the state totals. Local area estimates should be used with caution because (1) Labor force and industry movements within the state affect estimates, (2) Some state-wide data was not available broken down by area, (3) In an area with a small labor force, the entry of one industry may upset the area projections. A related document is VT 008 016, also in this issue. (CH)

VT 008 017

ED0 57254

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MANPOWER DIRECTIONS New York State 1965-1975

Volume II

New York State
Department of Labor

Division of Research and Statistics

VT008017

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MANPOWER DIRECTIONS IN NEW YORK STATE

1965-1975

Job Requirements and Labor Force

VOLUME II

Areas of the State

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STATE OF NEW YORK
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DEPARTMENT OF LABOR
M. P. Catherwood, *Industrial Commissioner*

NEW YORK STATE DEPARTMENT OF LABOR
Division of Research and Statistics
Charles A. Pearce, Director

March 1968

This report consists of volume I, volume II (the present volume), and a Technical Supplement

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PREFACE

To meet the insistent demand for locality-based projections of labor force and manpower requirements, this volume presents the Department's estimates for the following labor market areas of the State:

Area	Counties
New York Metropolitan area:	
New York City	New York, Bronx, Kings, Queens, and Richmond
Nassau-Suffolk	Nassau and Suffolk
Westchester-Rockland	Westchester and Rockland
Upstate areas:	
Albany-Schenectady-Troy	Albany, Rensselaer, Saratoga, and Schenectady
Binghamton	Broome
Buffalo	Erie and Niagara
Rochester	Monroe
Syracuse	Onondaga, Madison, and Oswego
Utica-Rome	Herkimer and Oneida
Elmira	Chemung
Remainder of State	All counties not named above

As described in volume I of this report (and explained in detail in the Technical Supplement), the procedure followed in developing these area estimates was (generally speaking) to apply, to the projections made for the State as a whole, extrapolations of past relationships between the State and the area. More specifically, in projecting the size of the labor force, the past relationships of an area's participation rates to the rates for the State as a whole were determined, on a sex-age-group basis, and the degree to which the relationships have been changing was noted. Applying these State-area relationships to the 1975 rates projected for the State yielded future participation rates for the area; these were then applied to the projected population for the area, which had been independently estimated by the State's Office of Planning Coordination.

In projecting manpower requirements by occupation, calculations were made of past relations between employment trends by industry for the State and corresponding industry trends for the given area; and these were applied to the industry projections for the State. An industry-occupation matrix was applied to the resulting

area-industry projections to derive the occupational projections. The matrix used for an area was an adaptation of the State-wide matrix.

In all cases the area figures, added up, equal the State totals.

The process of local-area projection is open to greater chance of error than is the making of State-wide estimates. Movements of labor force and industry from one area of the State to another is one variable that is more important in the estimating process at the local-area level than it is at the State level. Moreover, data that were available for the State as a whole were not always available broken down by area. These factors made necessary wider reliance on assumptions in the case of local-area estimates.

It is also true that in any one area the size of the labor force and the manpower requirements may be comparatively small. This means that a specific development, such as the entry or departure of a large manufacturing concern, can have a relatively greater impact on the economy of the individual area than on that of the State as a whole, and failure to anticipate it may throw off the area projections noticeably.

In short, the data should be used as indicators of probable directions and relationships rather than as forecasts. Although an effort was made to check out and adjust the estimates in the light of what knowledgeable persons said about probable developments in the various areas, the area projections should be recognized as having less reliability than the State-wide estimates, and should be used with greater caution -- particularly where small numbers are involved. 1/

A number of analyses pertaining to the State as a whole that are set forth in volume I were not developed for individual areas and so are not included in volume I. Among those omitted are estimates of geographic and occupational mobility, and supply and demand comparisons involving levels of educational attainment.

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1. In the tables, a dash (-) means "fewer than 50."

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Area 2:	New York City	30	31	35	38	39	45	48
Area 3:	Nassau-Suffolk area	56	57	60	63	64	70	73
Area 4:	Westchester-Rockland area	82	83	86	89	90	96	99
Area 5:	Albany-Schenectady-Troy area	106	107	110	113	114	120	123
Area 6:	Binghamton area	128	129	132	135	136	142	145
Area 7:	Buffalo area	150	151	154	157	158	164	167
Area 8:	Elmira area	176	177	179	181	182	188	191
Area 9:	Rochester area	194	195	198	201	202	208	211
Area 10:	Syracuse area	216	217	220	223	224	230	233
Area 11:	Utica-Rome area	238	239	242	245	246	252	255
Area 12:	Remainder of State	260	261	264	267	268	274	277

NEW YORK STATE

Table 1-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NEW YORK STATE
(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	12,161	12,812	13,610	14,500	59.8	58.4	58.9	58.8	7,273	7,481	8,010	8,526
Male, total	5,737	6,035	6,407	6,837	82.0	78.0	77.4	76.8	4,704	4,709	4,961	5,249
14 - 19	648	859	959	1,070	39.2	37.1	37.6	37.7	254	319	361	403
20 - 24	415	488	686	767	88.0	85.0	85.3	85.4	365	415	585	655
25 - 34	1,021	921	921	1,191	97.9	97.5	97.6	97.6	1,000	898	899	1,163
35 - 44	1,105	1,136	1,104	968	98.2	97.9	98.6	98.6	1,085	1,112	1,088	954
45 - 54	1,017	1,017	1,053	1,099	97.4	97.1	97.9	97.9	991	988	1,031	1,076
55 - 64	825	839	857	870	89.7	87.2	87.6	86.8	740	732	751	755
65 and over	706	775	827	872	38.1	31.6	29.7	27.9	269	245	246	243
Female, total	6,424	6,777	7,203	7,663	40.0	40.9	42.3	42.8	2,569	2,772	3,049	3,277
14 - 19	680	841	933	1,044	33.8	32.0	33.1	33.3	230	269	309	348
20 - 24	500	552	697	768	54.9	58.4	58.2	59.0	275	322	406	453
25 - 34	1,123	1,071	1,105	1,282	37.8	40.4	40.3	40.0	425	433	445	513
35 - 44	1,225	1,231	1,179	1,108	45.0	47.2	48.7	50.7	551	581	574	562
45 - 54	1,113	1,141	1,180	1,205	53.8	54.6	58.9	60.4	599	623	695	728
55 - 64	901	937	1,001	1,046	41.6	45.6	48.6	50.2	375	427	486	525
65 and over	882	1,004	1,108	1,210	12.9	11.7	12.1	12.2	114	117	134	148

a. Civilian labor force as percent of civilian noninstitutional population.

Table 1-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, NEW YORK STATE
(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	6,181.9	6,505.9	7,083.7	7,585.9
Manufacturing	1,878.7	1,837.0	1,866.2	1,870.2
Durable goods	817.7	829.4	876.9	907.3
Lumber and wood products	16.4	15.8	15.3	15.1
Logging	0.8	0.9	1.0	1.0
Saw-mills, millwork and misc. wood	15.6	14.9	14.3	14.1
Furniture and fixtures	35.5	35.0	35.2	34.8
Stone, clay and glass products	48.6	48.6	49.9	50.7
Glass and glass products	13.5	13.1	13.0	12.8
Cement, concrete, and plaster	13.9	13.7	14.1	13.8
Structural clay products	1.5	1.1	1.0	1.2
Pottery and related products	3.9	3.9	4.2	4.6
Misc. nonmetallic products	15.8	16.8	17.6	18.3
Primary metal industries	77.1	79.3	78.0	75.7
Blast furnaces and steel works	34.3	33.7	33.6	32.4
Other primary iron and steel	13.2	14.5	14.5	14.7
Primary nonferrous metals	29.6	31.1	29.9	28.6
Fabricated metal products (b)	100.0	95.3	94.9	93.6
Cutlery, hand tools and hardware	11.9	11.7	11.8	11.9
Fabricated structural metal products	32.9	29.0	28.1	27.0
Misc. fabricated metal products	55.2	54.6	55.0	54.7
Machinery, except electrical	159.1	167.5	185.0	202.0
Office and computing machines	51.0	51.3	58.3	63.9
Other nonelectrical machinery	108.1	116.2	126.7	138.1
Electrical equipment and supplies	165.7	172.6	188.8	197.5
Transportation equipment	98.6	103.5	109.2	112.8
Motor vehicles and equipment	42.4	48.4	50.2	52.9
Aircraft and parts	45.3	46.1	50.6	52.1
Ship and boatbuilding and repairs	6.0	4.1	4.1	4.0
Railroad and other transportation equipment	4.9	4.9	4.3	3.8
Instruments and related products (c)	116.8	111.8	120.6	125.1
Instruments and fire control equipment	110.7	104.4	111.7	115.3
Watches and clocks	6.1	7.4	8.9	9.8
Nondurable goods	1,061.0	1,007.6	989.3	962.9
Food and kindred products	156.7	140.5	134.7	127.3
Meat products	13.1	11.8	11.6	10.8
Dairy products	28.6	24.9	22.8	21.1
Canning, cured and frozen foods	17.6	17.0	17.7	17.4
Grain mill products	8.9	7.8	7.8	7.6
Bakery products	35.2	30.8	27.9	25.2
Beverages	22.6	21.6	20.8	20.1

Continued

Table 1-B continued

Industry	1960	1965(a)	1970	1975
Nondurable goods (cont'd)				
All other food	30.7	26.6	26.1	25.1
Tobacco manufactures	2.8	2.7	2.7	2.7
Textile mill products	63.3	58.8	53.9	49.5
Apparel and other fabric products	318.9	292.4	272.9	251.2
Paper and allied products	69.4	66.8	67.3	68.0
Paper, pulp and paperboard mills	21.0	21.0	21.0	21.2
Paperboard containers and boxes	26.1	22.3	21.5	21.1
All other paper products	22.3	23.5	24.8	25.7
Printing and publishing	172.9	177.2	180.2	182.2
Newspapers	41.0	42.4	40.7	38.9
Other printing and publishing	131.9	134.8	139.5	143.3
Chemicals and allied products	89.2	88.7	93.3	96.7
Synthetic fibers	0.7	0.9	1.0	1.2
Drugs and medicines	23.3	22.9	25.3	26.5
Paints and allied products	4.6	3.9	4.0	4.0
Miscellaneous chemical products	60.6	61.0	63.0	65.0
Petroleum and coal products	12.8	10.0	10.1	9.8
Petroleum refining	11.0	8.4	8.6	8.4
Other petroleum and coal products	1.8	1.6	1.5	1.4
Rubber and plastics products, n.e.c.	20.2	24.5	26.9	28.2
Rubber products	8.1	7.6	7.2	6.7
Miscellaneous plastic products	12.1	16.9	19.7	21.5
Leather and leather products	61.4	53.8	50.4	48.0
Leather tanning	4.6	2.8	2.0	1.7
Footwear except rubber	31.0	24.4	21.3	18.9
Other leather products	25.8	26.6	27.1	27.4
Miscellaneous manufacturing	93.4	92.2	96.9	99.3
Agriculture (d), forestry and fisheries	9.5	11.1	13.0	14.8
Mining	9.1	9.2	9.9	10.0
Contract Construction	261.8	254.9	294.8	329.0
Transportation, communication and public utilities	482.3	478.1	482.3	489.8
Railroads	65.3	52.7	41.9	39.5
Air transportation	37.0	44.2	53.7	65.1
Local and interurban passenger transportation	44.1	41.3	43.6	45.4
Local and suburban transit	21.5	18.6	20.3	21.5
Taxicabs	22.6	22.7	23.3	23.9
Trucking and warehousing	75.0	81.3	88.8	93.9
Trucking	69.2	76.3	84.0	89.1
Warehousing	5.8	5.0	4.8	4.8
Water transportion	68.4	61.8	56.0	46.2
Pipelines	0.2	0.2	0.2	0.2

Continued

Table 1-B continued

Industry	1960	1965(a)	1970	1975
Transportation, communication and public utilities (cont'd)				
Transportation services	20.6	23.6	26.9	30.7
Communication	115.7	118.1	117.9	117.3
Telephone and telegraph	101.0	100.6	97.8	95.3
Radio and television broadcasting	14.7	17.5	20.1	22.0
Electric, gas and sanitary services	55.9	54.9	53.3	51.5
Electric, gas and steam companies and systems	54.8	53.8	52.2	50.4
Water supply	0.8	0.8	0.8	0.8
Sanitary services	0.3	0.3	0.3	0.3
Wholesale and retail trade	1,251.1	1,336.8	1,443.5	1,556.0
Wholesale trade	419.3	435.2	451.3	470.6
Motor vehicles and equipment	16.0	17.5	18.4	19.3
Drugs, chemicals and allied products	26.6	26.4	27.3	28.8
Dry goods and apparel	62.0	67.5	75.8	81.3
Groceries and related products	50.2	49.1	49.3	50.3
Electrical goods, hardware, plumbing and heating	47.2	50.0	51.8	55.2
Machinery, equipment and supplies	54.6	64.0	71.4	78.0
Other wholesale	162.7	160.7	157.3	157.7
Retail trade	831.8	901.6	992.2	1,085.4
Building materials, farm equipment	31.9	31.3	31.9	32.5
Retail general merchandise	149.4	178.8	202.5	230.0
Variety stores	32.8	31.1	32.0	33.4
Other general merchandise stores	116.6	147.7	170.5	196.6
Food stores	145.4	157.6	175.1	192.2
Automotive dealers and service stations	78.5	84.2	94.8	105.0
Gasoline service stations	27.3	29.5	34.4	38.6
Other motor vehicle and accessory dealers	51.2	54.7	60.4	66.4
Apparel and accessories	99.0	94.9	98.6	101.7
Furniture, homefurnishings	37.7	36.8	37.6	38.9
Eating and drinking places	202.1	224.2	249.8	274.1
Miscellaneous retail stores	87.8	93.8	101.9	111.0
Drug and proprietary stores	23.6	24.7	25.8	27.5
Other miscellaneous retail stores	64.2	69.1	76.1	83.5
Finance, insurance and real estate	483.2	504.2	532.4	551.4
Banking and credit agencies	136.8	153.1	176.6	191.5
Brokers and investment companies	58.7	66.0	75.3	79.2
Insurance	162.4	162.4	160.2	159.7
Real estate	125.3	122.7	120.3	121.0
Services	968.5	1,117.6	1,300.1	1,465.5
Hotels and lodging places	72.4	75.7	75.1	78.6
Personal services	100.7	105.3	109.5	115.7
Laundries	59.9	60.2	62.5	64.4

Continued

Table 1-B continued

Industry	1960	1965(a)	1970	1975
Services (cont'd)				
Other personal services	40.8	45.1	47.0	51.3
Miscellaneous business services	167.0	208.4	257.0	292.2
Advertising	34.6	36.1	39.0	40.9
Other business services	132.4	172.3	218.0	251.3
Automobile repair services and garages	26.2	31.9	37.7	42.6
Miscellaneous repair services	15.8	17.5	20.0	22.2
Motion pictures and other amusement and recreation services	72.3	78.7	87.9	96.6
Theaters and motion pictures	41.4	41.2	44.0	46.5
Other entertainment and recreation	30.9	37.5	43.9	50.1
Medical and other health services	193.4	234.7	286.4	334.9
Hospitals	143.4	170.9	208.5	243.9
Other medical and health services	50.0	63.8	77.9	91.0
Legal services	30.2	35.3	41.1	46.5
Educational services and museums	108.9	134.6	162.2	186.2
Nonprofit membership organizations	115.2	123.7	136.3	147.4
Miscellaneous services	54.6	66.8	86.9	102.6
Engineering and architectural services	23.6	27.7	35.1	40.9
Accounting, auditing and bookkeeping	18.5	19.4	22.5	24.9
Miscellaneous professional services	12.5	19.7	29.3	36.8
Nonclassifiable	12.1	5.0	-	-
Government	837.7	957.1	1,141.5	1,299.2
Federal	184.1	180.2	179.2	182.3
Postal service	79.8	83.1	88.1	92.3
Other federal	104.1	97.1	91.1	90.0
State and local	653.6	776.9	962.3	1,116.9
State	118.1	143.6	186.0	226.9
Local	535.5	633.3	776.3	890.0

a. Data on 1965 Benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.
Note: Detail may not add to totals due to rounding.

Table 1-C. TOTAL NUMBER OF JOBS(a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NEW YORK STATE
(in thousands)

Industry	1960	1965	1970	1975
Total employment	7,265.0	7,500.0	8,076.9	8,579.9
Manufacturing	1,951.2	1,901.0	1,921.6	1,924.2
Durable goods	851.7	857.9	897.8	928.2
Logging	1.8	1.9	2.1	2.1
Saw-mills, millwork and misc. wood	17.0	15.7	14.8	14.3
Furniture and fixtures	37.4	36.9	37.2	37.0
Glass and glass products	13.9	13.4	13.3	13.1
Cement, concrete, and plaster	14.3	14.1	14.5	14.2
Structural clay products	1.5	1.1	1.0	1.2
Pottery and related products	4.0	4.0	4.3	4.7
Miscellaneous nonmetallic products	16.3	17.3	18.1	18.8
Blast furnaces and steel works	34.4	33.8	33.7	32.5
Other primary iron and steel	13.2	14.5	14.5	14.7
Primary nonferrous metals	29.9	31.4	30.2	28.9
Fabricated metal products (b)	105.4	101.9	101.6	100.5
Farm machinery and equipment	1.8	1.6	1.5	1.5
Other nonelectrical machinery	108.3	116.6	127.2	138.6
Office and computing machines	51.9	52.2	59.3	64.9
Electrical equipment and supplies	166.9	173.8	190.0	198.7
Motor vehicles and equipment	42.5	48.5	50.3	53.0
Aircraft and parts	45.4	46.1	50.6	52.1
Ship and boatbuilding and repairs	19.2	11.8	4.2	4.1
Railroad and other transportation equipment	5.0	5.0	4.4	3.9
Instruments and related products (c)	115.2	108.6	115.8	119.3
Watches and clocks	6.4	7.7	9.2	10.1
Nondurable goods	1,099.5	1,043.1	1,023.8	996.0
Meat products	13.5	12.1	11.8	11.0
Dairy products	29.4	25.5	23.2	21.4
Canning, cured and frozen foods	18.0	17.4	18.0	17.6
Grain mill products	9.1	8.0	8.0	7.8
Bakery products	38.1	33.3	30.4	27.4
Beverages	23.2	22.1	21.2	20.4
All other food	31.7	27.3	26.6	25.4
Tobacco manufactures	2.9	2.8	2.8	2.8
Textile mill products	65.4	60.7	55.7	51.2
Apparel and other fabric products	333.4	305.6	285.5	263.1
Paper, pulp and paperboard mills	21.2	21.2	21.2	21.4
Paperboard containers and boxes	26.4	22.6	21.8	21.4
All other paper products	22.6	23.8	25.1	26.0
Printing and publishing	180.2	184.7	188.2	190.5
Synthetic fibers	0.7	0.9	1.0	1.2

Continued

Table 1-C (cont'd)

Industry	1960	1965	1970	1975
Nondurable goods (cont'd)				
Drugs and medicines	23.6	23.2	25.6	26.8
Paints and allied products	4.7	3.9	4.0	4.0
Miscellaneous chemical products	61.3	61.7	63.7	65.7
Petroleum refining	11.1	8.5	8.7	8.5
Other petroleum and coal products	1.8	1.6	1.5	1.4
Rubber products	8.3	7.8	7.4	6.9
Miscellaneous plastic products	12.5	17.4	20.3	22.2
Leather tanning	4.8	2.9	2.1	1.8
Footwear except rubber	31.4	24.7	21.5	19.1
Other leather products	27.1	27.6	27.8	27.9
Miscellaneous manufacturing	97.1	95.8	100.7	103.1
Nonmanufacturing	5,313.8	5,599.0	6,155.3	6,655.7
Agriculture, forestry and fisheries	174.7	133.3	105.7	98.0
Mining	9.5	9.6	10.3	10.4
Contract construction	379.0	376.4	423.8	463.7
Transportation, communication and public utilities	584.3	586.2	604.7	620.2
Railroads	65.5	52.7	48.9	47.2
Air transportation	39.6	47.7	58.1	70.4
Local and suburban transit	57.6	56.7	60.1	62.9
Taxicabs	29.6	30.2	31.8	32.9
Trucking	79.8	87.1	95.4	101.0
Warehousing	7.0	6.0	5.6	5.4
Water transportation	73.7	66.7	60.1	50.1
Pipelines	0.2	0.2	0.2	0.2
Transportation services	23.8	27.2	31.0	35.5
Telephone and telegraph	101.0	100.6	97.8	95.3
Radio and television broadcasting	15.0	17.5	20.1	22.0
Electric, gas and steam companies and systems	55.5	54.3	52.7	50.9
Water supply	9.9	10.4	11.0	11.5
Sanitary services	26.1	28.9	31.9	34.9
Wholesale and retail trade	1,540.6	1,581.5	1,678.3	1,774.6
Wholesale trade	484.2	493.1	508.4	526.0
Motor vehicles and equipment	18.5	19.8	20.7	21.6
Drugs, chemicals and allied products	30.7	29.9	30.7	32.0
Dry goods and apparel	71.6	76.5	85.0	90.5
Groceries and related products	58.0	55.6	55.4	55.9
Electrical goods, hardware, plumbing and heating	54.5	56.6	58.3	61.5
Machinery, equipment and supplies	63.1	72.5	80.3	87.2
Other wholesale	187.8	182.2	178.0	177.3

Continued

Table 1-C (cont'd)

Industry	1960	1965	1970	1975
Wholesale and retail trade (cont'd)				
Retail trade	1,056.4	1,088.4	1,169.9	1,248.6
Building materials, farm equipment	41.7	38.6	38.2	37.7
Variety stores	34.9	32.7	33.4	34.5
Other general merchandise stores	131.6	158.9	179.6	203.2
Food stores	200.4	203.5	219.6	233.5
Gasoline service stations	43.7	43.1	47.2	50.4
Other motor vehicle and accessory dealers	58.0	60.4	65.8	71.4
Apparel and accessories	116.2	110.0	113.0	115.8
Furniture, homefurnishings	50.3	46.5	46.2	46.3
Eating and drinking places	252.8	267.6	292.4	314.4
Drug and proprietary stores	30.8	31.4	32.5	34.1
Other miscellaneous retail stores	96.0	95.7	102.0	107.3
Finance, insurance and real estate	531.5	558.0	591.7	617.2
Banking and credit agencies	137.9	155.5	178.8	193.5
Brokers and investment companies	63.5	69.9	79.4	83.4
Insurance	169.3	169.3	167.4	167.1
Real estate	160.8	163.3	166.1	173.2
Services	1,763.6	2,006.6	2,332.8	2,598.8
Hotels and lodging places	81.7	84.2	83.1	85.9
Laundries	77.7	76.1	77.2	77.7
Other personal services	83.2	83.2	83.1	85.3
Advertising	40.2	41.3	44.1	45.8
Other business services	157.4	198.6	246.6	282.9
Automobile repair services and garages	36.0	42.2	49.1	54.9
Miscellaneous repair services	28.3	30.1	33.4	36.2
Theaters and motion pictures	45.4	44.7	47.2	49.3
Other entertainment and recreation	39.4	46.9	54.3	61.4
Hospitals	253.1	288.5	359.4	433.7
Other medical and health services	122.4	144.2	173.4	196.7
Legal services	50.2	59.5	69.1	77.1
Educational services and museums	347.2	454.5	556.2	617.9
Nonprofit membership organizations (incl. welfare and religious groups)	123.1	133.2	147.5	160.2
Engineering and architectural services	38.9	45.4	56.3	65.3
Accounting, auditing and bookkeeping	31.2	32.8	38.0	42.3
Miscellaneous professional services	20.3	26.9	36.7	45.9
Private household workers	187.9	174.3	178.1	180.3

Continued

Table 1-C (cont'd)

Industry	1960	1965	1970	1975
Public administration	330.6	347.4	408.0	472.8
Postal service	79.8	83.1	88.1	92.4
Other federal	62.9	56.0	55.8	53.0
State	41.4	47.5	55.4	6[illegible].4
Local	146.5	160.8	208.7	266.0

a. "Total number of jobs" consists of (1) nonagricultural wage and salary jobs, (2) self-employed and unpaid family workers, (3) domestic workers, and (4) agricultural workers (employed and self-employed). In this table, government employees in education, hospitals, construction, etc. are assigned to their respective industries; the rest are under public administration, e.g. police and fire protection. In contrast, the "B" tables, which show nonagricultural wage and salary employment, classify all government employees together, dividing them into federal, state, and local.

b. Includes ordnance and accessories, except fire control equipment.

c. Includes fire control equipment.

Table 1-D. RECONCILIATION OF CIVILIAN LABOR FORCE AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NEW YORK STATE
(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 1-A)	12,161	12,812	13,610	14,500
II. Civilian labor force, 14 and over (table 1-A)	7,273	7,481	8,010	8,526
A. Resident employed	6,910	7,137	7,692	8,185
B. Unemployed	363	344	318	341
1. Rate of unemployment (percent)	5.0	4.6	4.0	4.0
III. Total number of jobs (table 1-C)	7,265	7,500	8,077	8,580
A. Nonagricultural jobs	7,102	7,380	7,987	8,500
1. Wage and salary workers (table 1-B)	6,182	6,506	7,084	7,586
2. Self employed and unpaid family workers, and domestics	920	874	903	914
B. Agricultural jobs	163	120	90	80
IV. Difference between II-A and III	355	363	385	395
A. Net number of commuters into area	144	144	146	146
B. Multiple jobholders, minus persons with a job but not being paid (a)	211	219	239	249

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A), but not among the wage and salary workers (III-A.1).

Table 1-E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NEW YORK STATE
(in thousands)

Occupation	1960	1965	1970	1975
All occupations	7,265.0	7,500.0	8,076.9	8,579.9
Professional, technical and kindred workers	930.5	1,072.2	1,248.0	1,395.7
Engineers, technical	84.8	95.4	112.7	128.4
Engineers, aeronautical	1.7	2.0	2.4	3.0
Engineers, chemical	7.3	7.9	8.9	9.6
Engineers, civil	16.0	17.6	20.7	23.6
Engineers, electrical	26.1	29.8	35.8	40.8
Engineers, industrial	5.8	7.1	8.7	10.5
Engineers, mechanical	22.8	24.7	28.3	31.3
Engineers, metallurgical	1.5	1.7	2.1	2.4
Engineers, mining	0.1	0.1	0.1	0.1
Other engineers, technical	3.5	4.5	5.7	7.1
Natural scientists	17.9	21.4	26.5	30.7
Chemists	10.2	12.0	14.3	16.3
Agricultural scientists	0.7	0.8	0.8	1.0
Biological scientists	1.7	1.9	2.5	2.8
Geologists and geophysicists	0.4	0.4	0.5	0.6
Mathematicians	1.8	2.4	3.2	3.9
Physicists	2.7	3.4	4.6	5.5
Other natural scientists, n.e.c.	0.4	0.5	0.6	0.6
Technical workers and specialists (exc. medical and dental)	124.8	144.7	174.6	204.9
Draftsmen	21.0	24.7	30.6	35.8
Structural design technicians and related specialists	2.6	3.1	4.0	4.7
Electro and mechanical engineering technicians	41.0	47.2	56.0	65.4
Mathematics technicians	0.8	0.9	1.0	1.1
Physical science technicians	8.7	10.5	12.7	15.1
Industrial engineering technicians	6.9	8.0	9.3	10.8
Civil engineering and construction technicians	13.1	15.6	20.1	25.2
Sales and service technicians	2.0	2.2	2.4	2.7
Technical writing and illustration technicians	3.6	3.9	4.4	5.0
Safety and sanitation inspectors and related specialists	3.9	4.5	5.2	6.1
Product testing and inspection specialists	8.2	8.7	9.7	10.6

Continued

Table 1E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Data processing, systems analysis and programming specialists	5.9	7.6	10.0	11.7
Airway tower specialists and flight dispatchers	1.4	1.5	2.0	2.7
Broadcasting, motion picture and recording studio specialists	2.9	3.0	3.1	3.3
Radio operators	2.8	3.3	4.1	4.7
Medical and other health workers	188.9	211.1	247.9	280.3
Dentists	14.7	15.6	16.7	17.4
Dietitians and nutritionists	3.9	4.1	4.6	4.8
Nurses, professional and student	80.8	89.0	103.7	116.7
Optometrists	1.5	1.6	1.6	1.6
Osteopaths	0.8	0.8	0.8	0.8
Pharmacists	13.8	13.7	14.1	14.9
Physicians and surgeons	38.0	42.3	48.1	52.1
Psychologists	2.5	3.3	4.4	5.3
Technicians, medical and dental	24.6	31.2	42.3	53.5
Veterinarians	1.2	1.2	1.4	1.5
Chiropractors and therapists	7.1	8.3	10.2	11.7
Teachers	191.0	236.2	269.4	291.8
Teachers, elementary	94.7	110.5	116.6	119.3
Teachers, secondary	55.6	71.0	85.0	92.5
Teachers, college	18.8	27.0	34.2	42.5
Teachers, other	21.9	27.7	33.6	37.5
Social scientists	7.9	8.7	9.8	11.0
Economists	3.5	3.7	4.1	4.3
Statisticians and actuaries	4.0	4.5	5.0	5.8
Other social scientists	0.4	0.5	0.7	0.9
Other professional, technical and kindred workers	315.2	354.7	407.1	448.6
Accountants and auditors	69.8	71.4	76.1	79.6
Airplane pilots and navigators	3.0	3.5	4.4	5.1
Architects	5.1	5.5	6.2	6.6
Artists, musicians, authors, athletes, and entertainers	54.7	63.5	73.2	79.0
Clergymen	15.8	16.1	16.4	16.7
Designers, except design draftsmen	6.6	7.0	7.8	8.6
Reporters and editors	16.9	17.5	18.1	18.5
Lawyers and judges	40.7	44.8	49.0	52.5
Librarians	9.5	11.4	13.1	14.0
Personnel and labor relations wkrs.	11.8	13.2	15.1	17.0

Continued

Table 1E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Photographers	8.1	7.9	7.9	7.9
Social, welfare and recreation wkrs.	19.9	23.2	28.4	34.0
Prof. and tech. workers, n.e.c.	53.3	69.7	91.4	109.1
Managers, officials and proprietors	712.6	718.3	754.3	781.8
Conductors, railroad	4.1	3.4	3.3	3.3
Credit men	6.0	7.1	8.4	9.9
Ship officers	4.8	4.4	3.9	3.4
Postmasters and assistants	1.7	1.6	1.5	1.4
Purchasing agents	13.1	14.4	16.8	19.0
Managers, officials, proprietors, n.e.c.	682.9	687.4	720.4	744.8
Clerical and kindred workers	1,443.1	1,535.3	1,694.5	1,829.9
Stenos, typists and secretaries	358.4	385.4	430.4	468.3
Office machine operators	50.4	66.5	87.1	107.7
Other clerical and kindred workers	1,034.3	1,083.4	1,177.0	1,253.9
Accounting clerks	46.9	48.0	50.4	52.9
Bookkeepers, hand	79.3	78.6	79.9	80.1
Bank tellers	20.6	24.5	29.9	34.2
Cashiers	58.4	68.7	83.7	98.7
Mail carriers	23.7	26.6	30.3	33.9
Postal clerks	35.0	35.2	36.1	36.5
Shipping and receiving clerks	45.8	42.9	41.1	38.9
Telephone operators	56.0	56.1	56.9	57.6
Clerical and kindred workers, n.e.c.	668.6	702.8	768.7	821.1
Sales workers	568.6	576.9	604.2	626.7
Insurance agents and brokers	41.3	41.9	42.4	43.0
Real estate agents and brokers	19.5	20.8	23.1	24.6
Other sales workers, n.e.c.	507.8	514.2	538.7	559.1
Craftsmen, foremen and kindred workers	929.0	947.6	1,018.0	1,082.5
Construction craftsmen	224.9	216.4	223.8	231.3
Carpenters	66.3	61.4	61.6	60.9
Brickmasons, stone and tile setters	19.4	18.4	18.8	18.9
Cement and concrete finishers	1.8	1.9	2.2	2.5
Electricians	34.6	34.6	36.9	39.6
Excavating, grading machine oprs.	11.0	11.6	13.4	15.3
Painters and paperhangers	42.6	39.7	39.7	39.4
Plasterers	4.8	4.7	4.8	5.0
Plumbers and pipefitters	33.9	33.8	35.6	37.6
Roofers and slaters	4.7	4.7	5.0	5.4
Structural metalworkers	5.8	5.6	5.8	6.7

Continued

Table 1E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	123.0	127.1	139.6	149.9
Metalworking craftsmen	133.3	128.6	129.1	129.7
Skilled machining workers (inc. machinists)	74.3	70.6	69.9	69.6
Blacksmiths, forgemen, hammermen	1.9	1.7	1.4	1.3
Boilermakers	1.6	1.6	1.7	1.8
Heat treaters, annealers, tempers	1.4	1.4	1.3	1.3
Millwrights	4.8	4.8	5.0	5.1
Molders, metal (exc. coremakers)	3.4	3.2	3.2	3.1
Patternmakers, metal and wood	3.6	3.9	4.3	4.7
Rollers and roll hands	2.2	2.1	2.1	2.1
Sheet metal workers	11.3	11.1	11.2	11.6
Toolmakers, diemakers, setters	15.4	14.6	14.4	14.3
Electroplaters	1.0	1.0	1.0	1.0
Assemblers, metalwork, Class A	12.4	12.6	13.6	13.8
Printing trades craftsmen	47.1	46.1	45.2	44.2
Compositors and typesetters	27.4	24.8	22.0	19.2
Electrotypers and stereotypers	1.1	0.9	0.7	0.6
Engravers, except photoengravers	2.0	2.0	2.2	2.2
Photoengravers and lithographers	4.5	5.9	7.3	8.7
Pressmen and plate printers	12.1	12.5	13.0	13.5
Transportation and public utility craftsmen	30.9	31.1	32.0	32.8
Linemen and servicemen	24.5	26.2	27.7	29.0
Locomotive engineers	4.0	3.5	3.5	3.5
Locomotive firemen	2.4	1.4	0.8	0.3
Mechanics and repairmen	226.4	253.0	293.6	331.7
Airplane mechanics and repairmen	11.1	12.2	13.9	15.3
Motor vehicle mechanics	58.3	62.9	69.4	75.3
Office machine mechanics	4.3	5.0	6.0	7.0
Radio and TV mechanics	11.3	11.8	12.9	13.5
Railroad and car shop mechanics	3.5	3.2	3.1	3.1
Other mechanics and repairmen	137.9	157.9	188.3	217.5
Other craftsmen and kindred workers	143.4	145.3	154.7	162.9
Bakers	18.8	16.7	15.7	14.7
Cabinetmakers	6.9	6.7	6.7	6.6
Cranemen, derrickmen, and hoistmen	8.4	8.9	10.0	11.1
Glaziers	1.8	2.2	2.6	3.0
Jewelers and watchmakers	6.9	7.2	7.8	8.4
Millers	0.5	0.4	0.4	0.3
Opticians and lens grinders	4.2	4.2	4.4	4.4
Stationary engineers	28.3	28.2	28.2	28.3

Continued

Table 1-E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	10.1	10.4	11.9	13.7
Upholsterers	6.4	6.7	7.4	7.8
Craftsmen and kindred wkrs., n.e.c.	51.1	53.7	59.6	64.9
Operatives and kindred workers	1,285.8	1,269.8	1,298.5	1,319.0
Selected transp. and utility oprs.	272.4	280.1	297.7	313.8
Drivers: bus, truck, tractor	161.6	167.2	180.4	192.3
Deliverymen, routemen, cab drivers	90.9	94.9	100.7	106.3
Brakemen and switchmen, railroad	9.6	9.0	8.8	8.6
Power station operators	2.4	2.4	2.4	2.5
Sailors and deck hands	7.9	6.6	5.4	4.1
Asbestos and insulation workers	1.3	1.3	1.4	1.4
Semiskilled metalworking occupations	112.0	110.1	112.5	113.3
Furnacemen, smelters, pourers, and heaters	3.7	3.6	3.6	3.5
Welders and flame cutters	22.2	22.5	24.0	25.6
Electroplater helpers	1.7	1.6	1.6	1.7
Mach. tool opr., metalworking, Class B	22.5	20.9	19.8	18.4
Assemblers, metalworking, Class B	45.1	44.9	46.5	47.0
Inspectors, metalworking, Class B	16.8	16.6	17.0	17.1
Semiskilled occupations in textiles and apparel	109.0	98.0	90.1	81.7
Knitters, loopers and toppers	3.8	3.6	3.3	3.1
Weavers and spinners, textile	2.4	2.0	1.5	1.2
Sewers and stitchers, manufacturing	102.8	92.4	85.3	77.4
Other operatives and kindred workers	791.1	780.3	796.8	808.8
Attendants, auto service and parking	20.6	22.7	27.2	31.6
Laundry and dry cleaning workers	44.6	43.9	44.7	45.3
Meat cutters, except meat-packing	32.5	33.3	35.6	37.9
Mine operatives and laborers, n.e.c.	2.7	2.5	2.5	2.3
Other operatives, n.e.c.	690.7	677.9	686.8	691.7
Service workers	941.9	987.4	1,098.0	1,198.4
Private household workers	175.7	162.3	163.1	163.9
Protective service workers	102.9	109.1	129.0	151.6
Firemen, fire protection	18.2	19.0	22.5	26.9
Guards and watchmen	38.0	39.0	42.0	44.9
Policemen, marshalls, sheriffs	46.7	51.1	64.5	79.8

Continued

Table 1E (cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	229.0	251.6	283.5	311.6
Bartenders	29.2	30.5	32.8	34.7
Cooks, except private household	64.9	71.2	79.8	86.5
Counter and fountain workers	37.6	44.8	54.3	63.1
Waiters and waitresses	97.3	105.1	116.6	127.3
Other service workers	434.3	464.4	522.4	571.3
Airline stewards and stewardesses	2.7	3.5	4.6	5.9
Attendants, hospital and other inst.	69.9	86.9	117.7	146.2
Charwomen and cleaners	33.8	35.5	37.5	38.7
Janitors and sextons	54.2	53.4	51.5	50.4
Nurses, practical	19.2	23.2	30.0	37.2
Other service workers, n.e.c.	254.5	261.9	281.1	292.9
Farmers and farm laborers	159.5	119.6	93.0	86.9
Laborers, except farm and mine	294.0	272.9	268.4	259.0

Table 1-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, NEW YORK STATE

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	7,265.0	174.7	379.0	1,960.7	584.3	1,540.6	531.5	1,763.6	330.6
Professional, technical, and kindred wkrs.	930.5	4.5	20.9	170.2	34.5	43.6	23.7	592.2	40.9
Engineers, technical	84.8	0.1	8.7	45.5	6.4	5.1	1.0	14.1	3.9
Natural scientists	17.9	0.5	0.1	10.8	0.3	1.3	0.1	3.9	0.9
Technicians, exc. medical and dental	124.8	0.1	8.0	58.8	15.9	6.2	2.3	22.7	10.8
Medical and other health workers	188.9	1.6	-	2.7	0.1	12.9	0.4	170.3	0.9
Teachers	191.0	-	-	0.5	0.2	1.0	0.1	188.2	1.0
Social scientists	7.9	-	0.1	2.1	0.7	1.0	1.6	1.2	1.2
Other prof., tech., and kindred wkrs.	315.2	2.2	4.0	49.8	10.9	16.1	18.2	191.8	22.2
Managers, officials and proprietors	712.6	1.1	34.4	127.8	43.6	293.4	81.7	107.9	22.7
Clerical and kindred workers	1,443.1	2.3	21.0	293.3	156.6	282.0	269.2	269.3	149.4
Stenos, typists and secretaries	358.4	0.9	6.4	79.5	18.3	47.1	68.1	111.8	26.3
Office machine operators	50.4	-	0.2	14.3	4.1	8.1	13.7	6.0	4.0
Other clerical and kindred workers	1,034.3	1.4	14.4	199.5	134.2	226.8	187.4	151.5	119.1
Sales workers	568.6	0.7	2.1	82.7	4.6	385.4	71.5	21.2	0.4
Craftsmen, foremen and kindred workers	929.0	1.7	199.6	386.4	110.5	98.0	10.9	105.0	16.9
Construction craftsmen	224.9	0.3	157.6	31.5	9.9	6.8	2.5	13.0	3.3
Foremen, n.e.c.	123.0	0.5	10.5	76.4	13.1	13.4	0.9	5.5	2.7
Metalworking craftsmen, exc. mechanics	133.3	-	4.2	122.6	2.5	1.0	-	2.3	0.7
Printing trades craftsmen	47.1	-	0.1	44.0	0.2	0.6	0.4	1.5	0.3
Transp. and public utility craftsmen	30.9	-	1.1	0.8	28.7	-	-	0.1	0.2
Mechanics and repairmen	226.4	0.8	15.0	57.2	38.5	46.2	6.0	54.7	8.0
Other craftsmen and kindred workers	143.4	0.1	11.1	53.9	17.6	30.0	1.1	27.9	1.7
Operatives and kindred workers	1,285.8	3.3	30.4	814.5	153.7	170.2	3.9	101.7	8.1
Selected transp. and pub. util. oprs.	272.4	1.2	14.0	50.4	124.6	64.9	1.1	12.4	3.8
Semiskilled metal-working occup.	112.0	-	2.1	106.9	0.6	0.5	-	1.3	0.6
Semiskilled textiles occupations (e)	109.0	-	-	109.0	-	-	-	-	-
Other operatives and kindred workers	792.4	2.1	14.3	548.2	28.5	104.8	2.8	88.0	3.7
Service workers	941.9	0.8	3.0	25.1	20.2	215.5	61.9	535.1	80.3
Private household workers	175.7	-	-	-	-	-	-	175.7	-
Protective service workers	102.9	0.2	1.2	8.2	4.5	1.9	6.2	8.9	71.8
Waiters, cooks, and bartenders	229.0	0.4	0.6	2.0	2.8	156.4	1.7	63.8	1.3
Other service workers	434.3	0.2	1.2	14.9	12.9	57.2	54.0	286.7	7.2
Laborers, except farm and mine	294.0	0.8	67.6	60.7	60.6	52.5	8.7	31.2	11.9
Farmers and farm laborers	159.5	159.5	-	-	-	-	-	-	-

a. Agriculture, forestry, and fisheries. b. Manufacturing and mining. c. Transportation and public utilities.
d. Finance, insurance, and real estate. e. Textiles and apparel.

Table 1-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, NEW YORK STATE

2. ESTIMATED 1965

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	7,500.0	133.3	376.4	1,910.6	586.2	1,581.5	558.0	2,006.6	347.4
Professional, technical, and kindred workers	1,072.2	4.5	21.8	185.0	38.3	47.5	26.5	703.8	44.8
Engineers, technical	95.4	0.1	8.8	49.4	7.0	6.0	1.1	18.7	4.3
Natural scientists	21.4	0.6	0.1	12.0	0.4	1.8	0.1	5.4	1.0
Technicians, exc. medical and dental	144.7	0.1	8.7	66.2	18.3	7.5	2.8	28.7	12.4
Medical and other health workers	211.1	1.6	-	2.8	0.1	12.4	0.4	192.9	0.9
Teachers	236.2	-	-	0.5	0.2	1.2	0.1	233.2	1.0
Social scientists	8.7	-	0.1	2.4	0.7	1.1	1.8	1.4	1.2
Other prof., tech., and kindred workers	354.7	2.1	4.1	51.7	11.6	17.5	20.2	223.5	24.0
Managers, officials, and proprietors	718.3	0.9	35.1	123.1	43.0	284.4	90.4	117.1	24.3
Clerical and kindred workers	1,535.3	1.9	22.3	287.8	156.3	300.2	284.3	328.3	154.2
Stenos, typists, and secretaries	385.4	0.7	6.9	78.3	18.9	46.8	71.0	135.3	27.5
Office machine operators	66.5	-	0.3	18.2	5.1	10.2	18.7	9.3	4.7
Other clerical and kindred workers	1,083.4	1.2	15.1	191.3	132.3	243.2	194.6	183.7	122.0
Sales workers	576.9	0.8	2.2	81.1	5.2	387.6	76.4	23.2	0.4
Craftsmen, foremen, and kindred workers	947.6	1.7	197.1	380.5	112.0	106.6	11.4	120.5	17.8
Construction craftsmen	216.4	0.3	149.4	29.4	9.5	7.2	2.7	14.8	3.1
Foremen, n.e.c.	127.1	0.5	11.4	77.2	12.5	14.9	1.0	6.7	2.9
Metalworking craftsmen, exc. mechanics	128.6	-	4.1	118.0	2.2	1.0	-	2.7	0.6
Printing trades craftsmen	46.1	-	0.1	42.7	0.2	0.7	0.4	1.7	0.3
Transp. and public utility craftsmen	31.1	-	1.3	0.9	28.5	-	-	0.2	0.2
Mechanics and repairmen	253.0	0.8	18.2	61.5	41.0	51.5	6.3	64.6	9.1
Other craftsmen and kindred workers	145.3	0.1	12.6	50.8	18.1	31.3	1.0	29.8	1.6
Operatives and kindred workers	1,269.8	2.7	33.6	779.6	157.5	176.7	3.8	107.9	8.0
Selected transp. and pub. util. oprs.	280.1	0.9	15.3	49.3	129.3	66.8	1.3	13.2	4.0
Semiskilled metalworking occupations	110.1	-	2.3	104.7	0.6	0.5	-	1.4	0.6
Semiskilled textiles occupations	98.0	-	-	98.0	-	-	-	-	-
Other operatives and kindred workers	781.6	1.8	16.0	527.6	27.6	109.4	2.5	93.3	3.4
Service workers	987.4	0.6	3.0	21.9	19.4	227.8	56.3	571.8	86.6
Private household workers	162.3	-	-	-	-	-	-	162.3	-
Protective service workers	109.1	0.1	1.2	7.2	4.1	1.8	6.0	10.6	78.1
Waiters, cooks, and bartenders	251.6	0.3	0.6	1.9	2.4	167.0	1.7	76.3	1.4
Other service workers	464.4	0.2	1.2	12.8	12.9	59.0	48.6	322.6	7.1
Laborers, except farm and mine	272.9	0.6	61.3	51.6	54.5	50.7	8.9	34.0	11.3
Farmers and farm laborers	119.6	119.6	-	-	-	-	-	-	-

For footnote see page 18.

Table 1-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, NEW YORK STATE

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	8,579.9	98.0	463.7	1,934.6	620.2	1,774.6	617.2	2,598.8	472.8
Professional, technical, and kindred workers	1,395.7	4.1	31.2	230.3	44.7	56.2	32.9	927.7	68.6
Engineers, technical	128.4	0.1	11.2	62.8	8.3	7.8	1.4	30.5	6.3
Natural scientists	30.7	0.7	0.1	16.5	0.7	2.7	0.1	8.5	1.4
Technicians, exc. medical and dental	204.9	0.1	13.9	85.9	21.7	9.3	3.4	46.9	23.7
Medical and other health workers	280.3	1.5	-	3.2	0.1	11.9	0.4	261.9	1.3
Teachers	291.8	-	-	0.6	0.2	1.6	0.2	288.1	1.1
Social scientists	11.0	-	0.1	2.7	0.8	1.4	2.3	2.4	1.3
Other prof., tech., and kindred workers	448.6	1.7	5.9	58.6	12.9	21.5	25.1	289.4	33.5
Managers, officials, and proprietors	781.8	0.8	46.9	120.4	43.0	284.8	111.2	138.9	35.8
Clerical and kindred workers	1,829.9	1.3	31.3	296.5	162.9	355.9	314.2	476.6	191.2
Stenos, typists, and secretaries	468.3	0.6	9.7	82.2	20.7	47.6	76.4	192.8	38.3
Office machine operators	107.7	-	0.5	27.4	7.4	15.0	31.6	17.8	8.0
Other clerical and kindred workers	1,253.9	0.7	21.1	186.9	134.8	293.3	206.2	266.0	144.9
Sales workers	626.7	0.7	2.8	81.5	6.5	418.5	88.0	28.3	0.4
Craftsmen, foremen, and kindred workers	1,082.5	1.4	236.5	392.0	124.8	134.6	12.9	154.3	26.0
Construction craftsmen	231.3	0.2	162.0	26.4	9.9	8.8	3.1	17.1	3.8
Foremen, n.e.c.	149.9	0.5	17.1	85.1	13.5	18.9	1.4	9.4	4.0
Metalworking craftsmen, exc. mechanics	129.7	-	5.0	117.9	2.2	0.9	-	3.1	0.6
Printing trades craftsmen	44.2	-	-	39.9	0.2	1.0	0.5	2.1	0.5
Transp. and public utility craftsmen	32.8	-	2.2	1.1	28.8	-	-	0.4	0.3
Mechanics and repairmen	331.7	0.7	30.2	73.2	49.4	68.1	7.1	88.1	14.9
Other craftsmen and kindred workers	162.9	-	20.0	48.4	20.8	36.9	0.8	34.1	1.9
Operatives and kindred workers	1,319.0	2.2	49.1	754.2	174.1	204.9	3.7	120.9	9.9
Selected transp. and pub. util. oprs.	313.8	0.8	22.1	49.6	144.8	74.2	1.8	15.0	5.5
Semiskilled metalworking occupations	113.3	-	3.3	106.3	0.6	0.5	-	1.8	0.8
Semiskilled textiles occupations	81.7	-	-	81.7	-	-	-	-	-
Other operatives and kindred workers	810.2	1.4	23.7	516.6	28.7	130.2	1.9	104.1	3.6
Service workers	1,198.4	0.3	3.8	19.9	20.2	267.4	44.5	712.6	129.7
Private household workers	163.9	-	-	-	-	-	-	163.9	-
Protective service workers	151.6	0.1	1.5	5.7	3.4	1.5	5.4	13.4	120.6
Waiters, cooks, and bartenders	311.6	0.2	0.7	2.1	1.8	199.9	2.0	103.1	1.8
Other service workers	571.3	-	1.6	12.1	15.0	66.0	37.1	432.2	7.3
Laborers, except farm and mine	259.0	0.3	62.1	39.8	44.0	52.3	9.8	39.5	11.2
Farmers and farm laborers	86.9	86.9	-	-	-	-	-	-	-

For footnote see page 18.

Table 1-G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN NEW YORK STATE, 1965-1975

(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	7,500.0	3,174.5	42.3	1,079.9	14.4	2,094.6	27.9
Professional, technical, and kindred workers	1,072.2	605.2	56.4	323.5	30.2	281.7	26.3
Engineers, technical	95.4	48.4	50.7	33.0	34.6	15.4	16.1
Engineers, aeronautical	2.0	1.1	55.0	1.0	50.0	0.1	5.0
Engineers, chemical	7.9	2.6	32.9	1.7	21.5	0.9	11.4
Engineers, civil	17.6	10.4	59.1	6.0	34.1	4.4	25.0
Engineers, electrical	29.8	14.4	48.3	11.0	36.9	3.4	11.4
Engineers, industrial	7.1	4.4	62.0	3.4	47.9	1.0	14.1
Engineers, mechanical	24.7	11.0	44.5	6.6	26.7	4.4	17.8
Engineers, metallurgical	1.7	0.9	52.9	0.7	41.2	0.2	11.8
Engineers, mining	0.1	-	-	-	-	-	-
Other engineers, technical	4.5	3.6	80.0	2.6	57.8	1.0	22.2
Natural scientists	21.4	12.6	58.9	9.3	43.5	3.3	15.4
Chemists	12.0	6.4	53.3	4.3	35.8	2.1	17.5
Agricultural scientists	0.8	0.3	37.5	0.2	25.0	0.1	12.5
Biological scientists	1.9	1.2	63.2	0.9	47.4	0.3	15.8
Geologists and geophysicists	0.4	0.3	75.0	0.2	50.0	0.1	25.0
Mathematicians	2.4	1.8	75.0	1.5	62.5	0.3	12.5
Physicists	3.4	2.4	70.6	2.1	61.8	0.3	8.8
Other natural scientists, n.e.c.	0.5	0.2	40.0	0.1	20.0	0.1	20.0
Technical workers (exc. medical and dental)	144.7	76.5	52.9	60.2	41.6	16.3	11.3
Draftsmen	24.7	13.7	55.5	11.1	44.9	2.6	10.5
Structural design technicians and related specialists	3.1	1.9	61.3	1.6	51.6	0.3	9.7
Electro and mechanical engineering techs.	47.2	21.5	45.6	18.2	38.6	3.3	7.0
Mathematics technicians	0.9	0.3	33.3	0.2	22.2	0.1	11.1
Physical science technicians	10.5	6.0	57.1	4.6	43.8	1.4	13.3
Industrial engineering technicians	8.0	3.8	47.5	2.8	35.0	1.0	12.5
Civil engineering and construction techs.	15.6	11.7	75.0	9.6	61.5	2.1	13.5

Continued

Table 1-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Professional, technical, and kindred workers (cont'd)							
Sales and service technicians	2.2	0.8	36.4	0.5	22.7	0.3	13.6
Technical writing and illustration techs.	3.9	1.8	46.2	1.1	28.2	0.7	17.9
Safety and sanitation inspectors and related specialists	4.5	2.2	48.9	1.6	35.6	0.6	13.3
Product testing and inspection spec.	8.7	3.0	34.5	1.9	21.8	1.1	12.6
Data processing, systems analysis and programming specialists	7.6	5.4	71.1	4.1	53.9	1.3	17.1
Airway tower spec. and flight dispatchers	1.5	1.5	100.0	1.2	80.0	0.3	20.0
Broadcasting, motion picture and recording studio specialists	3.0	0.8	26.7	0.3	10.0	0.5	16.7
Radio operators	3.3	2.1	63.6	1.4	42.4	0.7	21.2
Medical and other health workers	211.1	142.6	67.6	69.2	32.8	73.4	34.8
Dentists	15.6	7.1	45.5	1.8	11.5	5.3	34.0
Dietitians and nutritionists	4.1	2.2	53.7	0.7	17.1	1.5	36.6
Nurses, professional and student	89.0	63.0	70.8	27.7	31.1	35.3	39.7
Optometrists	1.6	0.4	25.0	-	-	0.4	25.0
Osteopaths	0.8	0.3	37.5	-	-	0.3	37.5
Pharmacists	13.7	5.1	37.2	1.2	8.8	3.9	28.5
Physicians and surgeons	42.3	23.3	55.1	9.8	23.2	13.5	31.9
Psychologists	3.3	2.6	78.8	2.0	60.6	0.6	18.2
Technicians, medical and dental	31.2	31.6	101.3	22.3	71.5	9.3	29.8
Veterinarians	1.2	0.6	50.0	0.3	25.0	0.3	25.0
Chiropractors and therapists	8.3	6.4	77.1	3.4	41.0	3.0	36.1
Teachers	236.2	135.7	57.5	55.6	23.5	80.1	33.9
Teachers, elementary	110.5	49.3	44.6	8.8	8.0	40.5	36.7
Teachers, secondary	71.0	41.6	58.6	21.5	30.3	20.1	28.3
Teachers, college	27.0	23.5	87.0	15.5	57.4	8.0	29.6
Teachers, other	27.7	21.3	76.9	9.8	35.4	11.5	41.5
Social scientists	8.7	4.7	54.0	2.3	26.4	2.4	27.6
Economists	3.7	1.6	43.2	0.6	16.2	1.0	27.0
Statisticians and actuaries	4.5	2.4	53.3	1.3	28.9	1.1	24.4
Other social scientists	0.5	0.7	140.0	0.4	80.0	0.3	60.0

Continued

Table 1-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Professional, technical, and kindred workers (cont'd)							
Other prof., tech., and kindred workers	354.7	184.7	52.1	93.9	26.5	90.8	25.6
Accountants and auditors	71.4	23.2	32.5	8.2	11.5	15.0	21.0
Airplane pilots and navigators	3.5	1.9	54.3	1.6	45.7	0.3	8.6
Architects	5.5	2.9	52.7	1.1	20.0	1.8	32.7
Artists, musicians, authors, athletes, and entertainers	63.5	30.9	48.7	15.5	24.4	15.4	24.3
Clergymen	16.1	5.4	33.5	0.6	3.7	4.8	29.8
Designers, except design draftsmen	7.0	3.5	50.0	1.6	22.9	1.9	27.1
Reporters and editors	17.5	5.5	31.4	1.0	5.7	4.5	25.7
Lawyers and judges	44.8	20.6	46.0	7.7	17.2	12.9	28.8
Librarians	11.4	7.2	63.2	2.6	22.8	4.6	40.4
Personnel and labor relations workers	13.2	7.1	53.8	3.8	28.8	3.3	25.0
Photographers	7.9	1.3	16.5	-	-	1.3	16.5
Social, welfare, and recreation workers	23.2	18.3	78.9	10.8	46.6	7.5	32.3
Prof. and tech. workers, n.e.c.	69.7	56.9	81.6	39.4	56.5	17.5	25.1
Managers, officials, and proprietors	718.3	285.3	39.7	63.5	8.8	221.8	30.9
Conductors, railroad	3.4	1.2	35.3	- 0.1	- 2.9	1.3	38.2
Credit men	7.1	4.3	60.6	2.8	39.4	1.5	21.1
Ship officers	4.4	- 0.2	- 4.5	- 1.0	-22.7	0.8	18.2
Postmasters and assistants	1.6	0.5	31.3	- 0.2	-12.5	0.7	43.8
Purchasing agents	14.4	7.9	54.9	4.6	31.9	3.3	22.9
Managers, officials, proprietors, n.e.c.	687.4	271.6	39.5	57.4	8.4	214.2	31.2
Clerical and kindred workers	1,535.3	764.8	49.8	294.6	19.2	470.2	30.6
Stenos, typists, and secretaries	385.4	210.9	54.7	82.9	21.5	128.0	33.2
Office machine operators	66.5	58.8	88.4	41.2	62.0	17.6	26.5
Other clerical and kindred workers	1,083.4	495.1	45.7	170.5	15.7	324.6	30.0
Accounting clerks	48.0	20.9	43.5	4.9	10.2	16.0	33.3
Bookkeepers, hand	78.6	26.5	33.7	1.5	1.9	25.0	31.8
Bank tellers	24.5	15.4	62.9	9.7	39.6	5.7	23.3

Continued

Table 1-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Clerical and kindred workers (cont'd)							
Cashiers	68.7	51.9	75.5	30.0	43.7	21.9	31.9
Mail carriers	26.6	11.1	41.7	7.3	27.4	3.8	14.3
Postal clerks	35.2	7.4	21.0	1.3	3.7	6.1	17.3
Shipping and receiving clerks	42.9	2.6	6.1	- 4.0	- 9.3	6.6	15.4
Telephone operators	56.1	20.6	36.7	1.5	2.7	19.1	34.0
Clerical and kindred workers, n.e.c.	702.8	338.7	48.2	118.3	16.8	220.4	31.4
Sales workers	576.9	219.4	38.0	49.8	8.6	169.6	29.4
Insurance agents and brokers	41.9	11.6	27.7	1.1	2.6	10.5	25.1
Real estate agents and brokers	20.8	13.7	65.9	3.8	18.3	9.9	47.6
Other sales workers, n.e.c.	514.2	194.1	37.7	44.9	8.7	149.2	29.0
Craftsmen, foremen, and kindred workers	947.6	345.2	36.4	134.9	14.2	210.3	22.2
Construction craftsmen	216.4	66.6	30.8	14.9	6.9	51.7	23.9
Carpenters	61.4	14.1	23.0	- 0.5	- 0.8	14.6	23.8
Brickmasons, stone and tile setters	18.4	4.6	25.0	0.5	2.7	4.1	22.3
Cement and concrete finishers	1.9	1.0	52.6	0.6	31.6	0.4	21.1
Electricians	34.6	12.2	35.3	5.0	14.5	7.2	20.8
Excavating, grading machine oprs.	11.6	5.3	45.7	3.7	31.9	1.6	13.8
Painters and paperhangers	39.7	12.3	31.0	- 0.3	- 0.8	12.6	31.7
Plasterers	4.7	1.3	27.7	0.3	6.4	1.0	21.3
Plumbers and pipefitters	33.8	11.8	34.9	3.8	11.2	8.0	23.7
Roofers and slaters	4.7	1.6	34.0	0.7	14.9	0.9	19.1
Structural metalworkers	5.6	2.4	42.9	1.1	19.6	1.3	23.2
Foremen, n.e.c.	127.1	54.5	42.9	22.8	17.9	31.7	24.9
Metalworking craftsmen	128.6	26.6	20.7	1.1	0.9	25.5	19.8
Skilled machining workers (inc. machinists)	70.6	12.2	17.3	- 1.0	- 1.4	13.2	18.7
Blacksmiths, forgemen, hammermen	1.7	0.1	5.9	- 0.4	-23.5	0.5	29.4
Boilermakers	1.6	0.6	37.5	0.2	12.5	0.4	25.0
Heat treaters, annealers, tempers	1.4	0.1	7.1	- 0.1	- 7.1	0.2	14.3

Continued

Table 1-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Craftsmen, foremen, and kindred workers (cont'd)							
Millwrights	4.8	1.4	29.2	0.3	6.3	1.1	22.9
Molders, metal (exc. coremakers)	3.2	0.5	15.6	- 0.1	- 3.1	0.6	18.8
Patternmakers, metal and wood	3.9	2.2	56.4	0.8	20.5	1.4	35.9
Rollers and roll hands	2.1	0.3	14.3	-	-	0.3	14.3
Sheet metal workers	11.1	3.0	27.0	0.5	4.5	2.5	22.5
Toolmakers, diemakers, setters	14.6	1.9	13.0	- 0.3	- 2.1	2.2	15.1
Electroplaters	1.0	0.2	20.0	-	-	0.2	20.0
Assemblers, metalwork, Class A	12.6	4.1	32.5	1.2	9.5	2.9	23.0
Printing trades craftsmen	46.1	7.1	15.4	- 1.9	- 4.1	9.0	19.5
Compositors and typesetters	24.8	- 0.7	- 2.8	- 5.6	-22.6	4.9	19.8
Electrotypers and stereotypers	0.9	- 0.2	-22.2	- 0.3	-33.3	0.1	11.1
Engravers, except photoengravers	2.0	0.8	40.0	0.2	10.0	0.6	30.0
Photoengravers and lithographers	5.9	3.9	66.1	2.8	47.5	1.1	18.6
Pressmen and plate printers	12.5	3.3	26.4	1.0	8.0	2.3	18.4
Transportation and public utility craftsmen	31.1	6.5	20.9	1.7	5.5	4.8	15.4
Linemen and servicemen	26.2	5.9	22.5	2.8	10.7	3.1	11.8
Locomotive engineers	3.5	1.6	45.7	-	-	1.6	45.7
Locomotive firemen	1.4	- 1.0	-71.4	- 1.1	-78.6	0.1	7.1
Mechanics and repairmen	253.0	132.8	52.5	78.7	31.1	54.1	21.4
Airplane mechanics and repairmen	12.2	4.3	35.2	3.1	25.4	1.2	9.8
Motor vehicle mechanics	62.9	22.0	35.0	12.4	19.7	9.6	15.3
Office machine mechanics	5.0	2.6	52.0	2.0	40.0	0.6	12.0
Radio and TV mechanics	11.8	3.0	25.4	1.7	14.4	1.3	11.0
Railroad and car shop mechanics	3.2	0.8	25.0	- 0.1	- 3.1	0.9	28.1
Other mechanics and repairmen	157.9	100.1	63.4	59.6	37.7	40.5	25.6
Other craftsmen and kindred workers	145.3	51.1	35.2	17.6	12.1	33.5	23.1
Bakers	16.7	2.0	12.0	- 2.0	-12.0	4.0	24.0
Cabinetmakers	6.7	1.3	19.4	- 0.1	- 1.5	1.4	20.9
Cranemen, derrickmen and hoistmen	8.9	4.2	47.2	2.2	24.7	2.0	22.5
Glaziers	2.2	1.0	45.5	0.8	36.4	0.2	9.1
Jewelers and watchmakers	7.2	3.2	44.4	1.2	16.7	2.0	27.8
Millers	0.4	- 0.1	-25.0	- 0.1	-25.0	-	-
Opticians and lens grinders	4.2	0.9	21.4	0.2	4.8	0.7	16.7
Stationary engineers	28.2	6.5	23.0	0.1	0.4	6.4	22.7

Continued

Table 1-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Craftsmen, foremen, and kindred workers(cont'd)							
Inspectors, other than metalworking	10.4	5.0	48.1	3.0	28.8	2.0	19.2
Upholsterers	6.7	2.7	40.3	1.1	16.4	1.6	23.9
Craftsmen and kindred workers, n.e.c.	53.7	24.4	45.4	11.2	20.9	13.2	24.6
Operatives and kindred workers	1,269.8	332.9	26.2	49.2	3.9	283.7	22.3
Selected trans. and utility oprs.	280.1	77.4	27.6	33.7	12.0	43.7	15.6
Drivers: bus, truck, tractor	167.2	50.4	30.1	25.1	15.0	25.3	15.1
Deliverymen, routemen, cab drivers	94.9	26.4	27.8	11.4	12.0	15.0	15.8
Brakemen and switchmen, railroad	9.0	1.4	15.6	- 0.4	- 4.4	1.8	20.0
Power station operators	2.4	0.7	29.2	0.1	4.2	0.6	25.0
Sailors and deck hands	6.6	- 1.5	-22.7	- 2.5	-37.9	1.0	15.2
Asbestos and insulation workers	1.3	0.3	23.1	0.1	7.7	0.2	15.4
Semiskilled metalworking occupations	110.1	24.5	22.3	3.2	2.9	21.3	19.3
Furnacemen, smelters, pourers and heaters	3.6	0.5	13.9	- 0.1	- 2.8	0.6	16.7
Welders and flame cutters	22.5	6.3	28.0	3.1	13.8	3.2	14.2
Electroplater helpers	1.6	0.2	12.5	0.1	6.3	0.1	6.3
Mach. tool opr. metalworking, Class B	20.9	1.5	7.2	- 2.5	-12.0	4.0	19.1
Assemblers, metalworking, Class B	44.9	11.7	26.1	2.1	4.7	9.6	21.4
Inspectors, metalworking, Class B	16.6	4.3	25.9	0.5	3.0	3.8	22.9
Semiskilled occupations in textiles and apparel	98.0	12.8	13.1	-16.3	-16.6	29.1	29.7
Knitters, loopers and toppers	3.6	0.1	2.8	- 0.5	-13.9	0.6	16.7
Weavers and spinners, textile	2.0	- 0.4	-20.0	- 0.8	-40.0	0.4	20.0
Sewers and stitchers, mfg.	92.4	13.1	14.2	-15.0	-16.2	28.1	30.4
Other operatives and kindred workers	780.3	217.9	27.9	28.5	3.7	189.4	24.3
Attendants, auto service and parking	22.7	12.6	55.5	8.9	39.2	3.7	16.3
Laundry and dry cleaning workers	43.9	15.4	35.1	1.4	3.2	14.0	31.9
Meat cutters, except meat-packing	33.3	12.5	37.5	4.6	13.8	7.9	23.7
Mine operatives and laborers, n.e.c.	2.5	0.2	8.0	- 0.2	- 8.0	0.4	16.0
Other operatives, n.e.c.	677.9	177.2	26.1	13.8	2.0	163.4	24.1

Table 1-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Service workers	987.4	578.3	58.6	211.0	21.4	367.3	37.2
Private household workers	162.3	85.5	52.7	1.6	1.0	83.9	51.7
Protective service workers	109.1	69.3	63.5	42.5	39.0	26.8	24.6
Firemen, fire protection	19.0	10.6	55.8	7.9	41.6	2.7	14.2
Guards and watchmen	39.0	22.5	57.7	5.9	15.1	16.6	42.6
Policemen, marshalls, sheriffs	51.1	36.2	70.8	28.7	56.2	7.5	14.7
Waiters, cooks and bartenders	251.6	139.5	55.4	60.0	23.8	79.5	31.6
Bartenders	30.5	14.9	48.9	4.2	13.8	10.7	35.1
Cooks, except private household	71.2	41.4	58.1	15.3	21.5	26.1	36.7
Counter and fountain workers	44.8	33.0	73.7	18.3	40.8	14.7	32.8
Waiters and waitresses	105.1	50.2	47.8	22.2	21.1	28.0	26.6
Other service workers	464.4	284.0	61.2	106.9	23.0	177.1	38.1
Attendants, hospital and other inst.	86.9	90.2	103.8	59.3	68.2	30.9	35.6
Charwomen and cleaners	35.5	19.2	54.1	3.2	9.0	16.0	45.1
Janitors and sextons	53.4	17.3	32.4	- 3.0	- 5.6	20.3	38.0
Nurses, practical	23.2	26.1	112.5	14.0	60.3	12.1	52.2
Other service workers, n.e.c.	265.4	131.2	49.4	33.4	12.6	97.8	36.9
Farmers and farm laborers	119.6	1.3	1.1	-32.7	-27.3	34.0	28.4
Laborers, except farm and mine	272.9	42.1	15.4	-13.9	- 5.1	56.0	20.5

NEW YORK CITY

Table 2-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NEW YORK CITY
(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	5,967	6,011	6,048	6,137	62.4	61.8	62.4	62.3	3,726	3,715	3,775	3,826
Male, total	2,790	2,795	2,798	2,836	83.3	80.5	79.9	78.9	2,324	2,249	2,237	2,239
14 - 19	284	329	333	371	41.5	40.1	41.0	41.2	118	132	137	153
20 - 24	218	218	261	262	89.9	88.1	88.9	89.6	196	192	232	235
25 - 34	504	482	455	495	97.8	97.9	98.0	98.1	493	472	446	486
35 - 44	493	495	497	470	98.2	98.2	98.9	98.9	484	486	492	465
45 - 54	497	450	426	435	97.8	97.8	98.6	98.6	486	440	420	429
55 - 64	440	429	404	368	90.7	89.3	90.0	89.3	399	383	364	329
65 and over	354	392	422	435	41.8	36.7	34.6	32.6	148	144	146	142
Female, total	3,177	3,216	3,250	3,301	44.1	45.6	47.3	48.1	1,402	1,466	1,538	1,587
14 - 19	304	326	329	366	41.1	39.5	40.9	41.0	125	129	135	150
20 - 24	259	247	266	266	60.6	67.1	67.8	69.8	157	166	180	186
25 - 34	543	555	549	542	44.6	47.0	47.4	48.6	242	261	260	263
35 - 44	572	540	524	538	48.8	52.4	54.5	56.5	279	283	286	304
45 - 54	579	545	507	486	56.5	58.2	65.2	67.5	327	317	331	328
55 - 64	489	497	503	480	43.6	49.3	53.7	56.6	213	245	270	272
65 and over	431	506	572	623	13.7	12.8	13.3	13.5	59	65	76	84

a. Civilian labor force as percent of civilian noninstitutional population.

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Table 2-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, NEW YORK CITY
(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	3,538.4	3,581.0	3,699.0	3,753.0
Manufacturing	946.8	866.2	814.5	761.6
Durable goods	228.5	202.0	184.9	169.7
Lumber and wood products	6.0	5.7	5.5	5.4
Logging	-	-	-	-
Saw-mills, millwork and misc. wood	6.0	5.7	5.5	5.4
Furniture and fixtures	17.7	17.8	17.6	17.4
Stone, clay and glass products	11.3	9.7	9.0	8.3
Glass and glass products	2.9	2.4	2.2	2.0
Cement, concrete, and plaster	3.6	3.2	3.1	3.0
Structural clay products	0.1	-	-	-
Pottery and related products	0.3	0.2	0.1	-
Misc. nonmetallic products	4.4	3.9	3.6	3.3
Primary metal industries	13.5	14.1	13.1	12.3
Blast furnaces and steel works	1.4	1.0	0.8	0.6
Other primary iron and steel	3.4	4.2	3.9	3.7
Primary nonferrous metals	8.7	8.9	8.4	8.0
Fabricated metal products (b)	44.4	39.7	35.4	32.2
Cutlery hand tools and hardware	3.1	2.8	2.5	2.2
Fabricated structural metal products	15.2	12.0	10.8	10.0
Misc. fabricated metal products	26.1	24.9	22.1	20.0
Machinery, except electrical	35.2	30.4	26.6	23.7
Office and computing machines	6.7	4.6	4.0	3.5
Other nonelectrical machinery	28.5	25.8	22.6	20.2
Electrical equipment and supplies	60.3	49.5	44.7	39.2
Transportation equipment	11.7	10.4	9.4	8.5
Motor vehicles and equipment	5.4	5.3	4.7	4.3
Aircraft and parts	1.2	1.6	1.8	1.9
Ship and boatbuilding and repairs	4.0	2.7	2.4	2.0
Railroad and other transportation equipment	1.1	0.8	0.5	0.3
Instruments and related products (c)	28.4	24.7	23.6	22.7
Instruments and fire control equipment	22.6	17.7	15.4	13.6
Watches and clocks	5.8	7.0	8.2	9.1
Nondurable goods	718.3	664.2	629.6	591.9
Food and kindred products	81.6	67.4	57.7	49.4
Meat products	7.0	5.8	4.9	4.0
Dairy products	11.8	10.0	8.8	7.6
Canning, cured and frozen foods	3.8	2.8	2.2	1.5
Grain mill products	2.0	1.8	1.7	1.5
Bakery products	21.7	17.9	15.7	13.3
Beverages	15.4	14.3	13.6	13.0

Continued

Table 2-B continued

Industry	1960	1965(a)	1970	1975
Nondurable goods(cont'd)				
All other food	19.9	14.8	10.8	8.5
Tobacco manufactures	2.7	2.7	2.7	2.7
Textile mill products	36.1	35.3	32.9	30.3
Apparel and other fabric products	267.4	242.9	222.5	200.7
Paper and allied products	30.2	27.5	26.3	25.1
Paper, pulp and paperboard mills	2.8	3.2	3.6	4.0
Paperboard containers and boxes	13.8	10.8	9.3	7.8
All other paper products	13.6	13.5	13.4	13.3
Printing and publishing	127.2	126.3	124.9	123.4
Newspapers	26.5	26.7	24.9	22.9
Other printing and publishing	100.7	99.6	100.0	100.5
Chemicals and allied products	45.9	43.4	43.6	43.3
Synthetic fibers	0.1	-	-	-
Drugs and medicines	12.3	10.6	10.8	10.5
Paints and allied products	3.2	2.6	2.3	2.0
Miscellaneous chemical products	30.3	30.2	30.5	30.8
Petroleum and coal products	9.9	7.3	7.7	7.4
Petroleum refining	9.1	6.8	7.3	7.2
Other petroleum and coal products	0.8	0.5	0.4	0.2
Rubber and plastics products, n.e.c.	10.6	11.7	12.3	11.9
Rubber products	3.9	3.8	3.2	2.6
Miscellaneous plastic products	6.7	7.9	9.1	9.3
Leather and leather products	31.6	29.2	28.0	26.8
Leather tanning	0.4	0.4	0.4	0.4
Footwear except rubber	11.1	9.3	8.7	8.1
Other leather products	20.1	19.5	18.9	18.3
Miscellaneous manufacturing	75.1	70.5	71.0	70.9
Agriculture (d), forestry and fisheries	1.6	1.9	2.1	2.2
Mining	1.9	2.4	2.8	3.0
Contract Construction	125.3	109.2	117.3	125.1
Transportation, communication and public utilities	318.2	319.1	319.7	319.9
Railroads	27.3	25.2	19.0	18.0
Air transportation	34.7	41.2	48.9	58.8
Local and interurban passenger transportation	30.4	26.1	26.1	26.0
Local and suburban transit	12.1	7.6	7.4	7.0
Taxicabs	18.3	18.5	18.7	19.0
Trucking and warehousing	41.8	43.1	45.3	46.5
Trucking	38.3	40.4	42.9	44.5
Warehousing	3.5	2.7	2.4	2.0
Water transportation	65.8	59.7	54.0	44.0
Pipelines	0.1	0.1	0.1	0.1

Continued

Table 2-B continued

Industry	1960	1965(a)	1970	1975
Transportation, communication and public utilities (cont'd)				
Transportation services	19.1	21.9	24.5	27.5
Communication	71.8	75.1	76.0	74.9
Telephone and telegraph	60.1	61.4	60.0	57.6
Radio and television broadcasting	11.7	13.7	16.0	17.3
Electric, gas and sanitary services	27.2	26.7	25.8	24.1
Wholesale and retail trade	744.8	747.8	757.4	764.0
Wholesale trade	314.7	310.7	306.9	305.3
Motor vehicles and equipment	10.1	10.0	9.5	9.2
Drugs, chemicals and allied products	20.8	18.6	17.3	16.5
Dry goods and apparel	59.6	65.4	73.1	77.9
Groceries and related products	34.9	32.3	30.2	29.1
Electrical goods, hardware, plumbing and heating	31.2	30.0	28.4	27.5
Machinery, equipment and supplies	37.7	41.3	43.9	45.4
Other wholesale	120.4	113.1	104.5	99.7
Retail trade	430.1	437.1	450.5	458.7
Building materials, farm equipment	8.8	8.4	8.0	7.7
Retail general merchandise	75.6	82.8	87.5	90.1
Variety stores	14.6	13.1	11.2	10.1
Other general merchandise stores	61.0	69.7	76.3	80.0
Food stores	69.1	71.6	74.8	77.0
Automotive dealers and service stations	20.9	20.8	22.0	22.0
Gasoline service stations	8.7	12.0	13.9	15.0
Other motor vehicle and accessory dealers	12.2	8.8	8.1	7.0
Apparel and accessories	67.1	61.9	61.0	60.0
Furniture, homefurnishings	19.5	17.7	16.3	15.5
Eating and drinking places	124.7	129.2	136.2	140.9
Miscellaneous retail stores	44.4	44.7	44.7	45.5
Drug and proprietary stores	10.8	9.8	8.4	7.7
Other miscellaneous retail stores	33.6	34.9	36.3	37.8
Finance, insurance, and real estate	386.0	393.7	401.1	405.4
Banking and credit agencies	99.8	108.4	119.8	125.7
Brokers and investment companies	56.1	63.2	72.0	75.6
Insurance	123.6	120.7	114.4	111.8
Real estate	106.5	101.4	94.9	92.3
Services	605.6	679.3	747.6	792.8
Hotels and lodging places	42.0	41.0	36.0	33.0
Personal services	62.7	63.3	60.2	60.4
Laundries	33.4	35.2	36.1	36.8
Other personal services	29.3	28.1	24.1	23.6
Miscellaneous business services	135.0	158.6	184.2	199.1
Advertising	31.4	33.5	36.1	37.7
Other business services	103.6	125.1	148.1	161.4

Continued

Table 2-B continued

Industry	1960	1965(a)	1970	1975
Services (cont'd)				
Automobile repair services and garages	15.2	18.0	20.1	21.4
Miscellaneous repair services	10.1	10.7	11.2	11.5
Motion pictures and other amusement and recreation services	43.5	45.2	46.9	48.5
Theaters and motion pictures	34.0	33.4	34.0	34.4
Other entertainment and recreation	9.5	11.8	12.9	14.1
Medical and other health services	101.2	117.8	134.2	144.3
Hospitals	76.8	87.7	99.9	106.9
Other medical and health services	24.4	30.1	34.3	37.4
Legal services	22.2	25.4	28.3	30.3
Educational services and museums	54.5	71.4	85.2	93.4
Nonprofit membership organizations	73.9	79.2	84.7	88.5
Miscellaneous services	41.9	47.2	56.6	62.4
Engineering and architectural services	16.9	18.6	22.5	24.8
Accounting, auditing and bookkeeping	15.4	15.9	17.6	18.6
Miscellaneous professional services	9.6	12.7	16.5	19.0
Nonclassifiable	3.4	1.5	-	-
Government	408.2	461.2	536.5	579.0
Federal	116.4	111.9	107.3	107.7
Postal service	51.1	53.1	56.1	57.9
Other federal	65.3	58.8	51.2	49.8
State and local	291.8	349.3	429.2	471.3
State	23.1	24.3	31.2	34.3
Local	268.7	325.0	398.0	437.0

a. Data on 1965 Benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.
Note: Detail may not add to totals due to rounding.

Table 2-C. TOTAL NUMBER OF JOBS (a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NEW YORK CITY
(in thousands)

Industry	1960	1965	1970	1975
Total employment	3,985.6	3,983.1	4,078.6	4,127.5
Manufacturing	995.6	904.9	842.6	784.7
Durable goods	249.4	216.5	190.8	174.2
Logging	-	-	-	-
Saw-mills, millwork and misc. wood	6.5	6.1	5.7	5.5
Furniture and fixtures	19.0	19.0	18.7	18.3
Glass and glass products	3.1	2.6	2.4	2.1
Cement, concrete, and plaster	3.8	3.4	3.2	3.1
Structural clay products	0.1	-	-	-
Pottery and related products	0.3	0.2	0.1	-
Miscellaneous nonmetallic products	4.6	4.1	3.8	3.5
Blast furnaces and steel works	1.4	1.0	0.8	0.6
Other primary iron and steel	3.4	4.2	3.9	3.7
Primary nonferrous metals	8.8	9.0	8.5	8.1
Fabricated metal products (b)	45.8	40.8	36.4	32.9
Farm machinery and equipment	0.1	-	-	-
Other nonelectrical machinery	29.4	26.6	23.2	20.6
Office and computing machines	6.9	5.1	4.5	3.8
Electrical equipment and supplies	60.9	50.1	45.3	39.8
Motor vehicles and equipment	5.5	5.4	4.8	4.4
Aircraft and parts	1.2	1.6	1.8	1.9
Ship and boatbuilding and repairs	17.0	10.3	2.4	2.0
Railroad and other transportation equipment	1.2	0.8	0.5	0.3
Instruments and fire control equipment	24.3	18.9	16.3	14.2
Watches and clocks	6.1	7.3	8.5	9.4
Nondurable goods	746.2	688.4	651.8	610.5
Meat products	7.3	5.9	5.0	4.1
Dairy products	12.2	10.2	8.9	7.7
Canning, cured and frozen foods	3.9	2.9	2.3	1.6
Grain mill products	2.1	1.9	1.8	1.6
Bakery products	23.5	19.3	16.9	13.9
Beverages	15.9	14.6	13.8	13.1
All other food	20.3	15.1	11.0	8.6
Tobacco manufactures	2.8	2.8	2.8	2.8
Textile mill products	37.8	36.8	34.2	31.3
Apparel and other fabric products	279.5	253.3	231.7	207.9
Paper, pulp and paperboard mills	2.9	3.3	3.7	4.1
Paperboard containers and boxes	14.1	11.0	9.5	7.9
All other paper products	13.8	13.6	13.5	13.4
Printing and publishing	132.2	131.1	129.7	127.9
Synthetic fibers	0.1	-	-	-

Continued

Table 2-C (cont'd)

Industry	1960	1965	1970	1975
Nondurable goods (cont'd)				
Drugs and medicines	12.5	10.8	11.0	10.7
Paints, and allied products	3.3	2.6	2.3	2.0
Miscellaneous chemical products	30.7	30.6	30.9	31.2
Petroleum refining	9.2	6.8	7.3	7.2
Other petroleum and coal products	0.8	0.5	0.4	0.2
Rubber products	4.0	3.9	3.3	2.7
Miscellaneous plastic products	7.0	8.1	9.3	9.6
Leather tanning	0.5	0.4	0.4	0.4
Footwear except rubber	11.5	9.6	8.9	8.3
Other leather products	20.9	20.1	19.3	18.5
Miscellaneous manufacturing	77.4	73.2	73.9	73.8
Nonmanufacturing	2,990.0	3,078.2	3,236.0	3,342.8
Agriculture, forestry and fisheries	2.2	2.4	2.8	2.9
Mining	1.9	2.5	2.9	3.1
Contract construction	158.1	138.3	143.9	147.3
Transportation, communication and public utilities	390.6	393.8	399.9	398.7
Railroads	27.4	25.2	24.0	23.0
Air transportation	36.7	43.7	51.5	61.4
Local and suburban transit	45.7	42.6	42.4	41.0
Taxicabs	23.2	23.6	24.1	24.5
Trucking	42.5	44.2	46.5	47.9
Warehousing	4.0	3.3	2.9	2.3
Water transportation	70.3	64.0	57.9	47.7
Pipelines	0.1	0.1	0.1	0.1
Transportation services	22.0	24.8	27.3	30.5
Telephone and telegraph	60.1	61.4	60.0	57.6
Radio and television broadcasting	11.7	13.7	16.0	17.3
Electric, gas and sanitary services	46.9	47.2	47.2	45.4
Wholesale and retail trade	890.1	862.5	859.3	857.3
Wholesale trade	359.1	349.3	343.9	340.9
Motor vehicles and equipment	11.8	11.3	10.6	10.3
Drugs, chemicals and allied products	24.0	21.1	19.5	18.5
Dry goods and apparel	68.3	73.4	81.0	85.7
Groceries and related products	39.9	36.2	33.9	32.4
Electrical goods, hardware, plumbing and heating	35.7	34.1	32.3	31.4
Machinery, equipment and supplies	43.1	46.4	49.1	50.7
Other wholesale	136.3	126.8	117.5	111.9
Retail trade	531.0	513.2	515.4	516.4
Building materials, farm equipment	12.2	10.6	9.6	9.0
Variety stores	15.3	13.5	11.5	10.4

Continued

Table 2-C (cont'd)

Industry	1960	1965	1970	1975
Wholesale and retail trade (cont'd)				
Other general merchandise stores	69.3	75.5	80.5	83.5
Food stores	97.7	91.2	90.6	91.0
Gasoline service stations	13.9	14.7	16.0	16.7
Other motor vehicle and accessory dealers	14.3	10.1	9.3	8.1
Apparel and accessories	75.9	70.7	68.9	67.5
Furniture, homefurnishings	25.6	21.7	19.5	18.0
Eating and drinking places	145.5	147.8	154.0	158.1
Drug and proprietary stores	13.9	12.8	11.3	10.6
Other miscellaneous retail stores	47.4	44.6	44.2	43.5
Finance, insurance and real estate	412.8	421.0	429.4	434.5
Banking and credit agencies	100.3	109.6	120.7	126.5
Brokers and investment companies	58.4	64.3	73.2	76.9
Insurance	127.5	124.0	117.5	114.9
Real estate	126.6	123.1	118.0	116.2
Services	944.9	1,052.8	1,159.7	1,230.0
Hotels and lodging places	42.9	41.8	36.7	33.7
Laundries	44.8	44.7	44.0	44.2
Other personal services	50.4	45.4	39.1	38.1
Advertising	34.3	37.1	39.8	41.5
Other business services	117.5	140.7	163.6	179.0
Automobile repair services and garages	18.4	21.6	23.9	25.9
Miscellaneous repair services	15.9	16.7	16.5	16.5
Theaters and motion pictures	36.5	35.8	36.0	36.1
Other entertainment and recreation	14.8	16.5	17.9	19.7
Hospitals	127.0	142.8	166.6	182.4
Other medical and health services	57.3	63.6	68.4	76.2
Legal services	30.1	36.9	40.9	44.7
Educational services and museums	128.5	177.6	222.0	235.5
Nonprofit membership organizations (incl. welfare and religious groups)	76.6	83.2	89.2	93.8
Engineering and architectural services	26.5	29.6	35.1	37.8
Accounting, auditing and bookkeeping	23.5	25.4	28.3	30.1
Miscellaneous professional services	10.9	15.9	19.7	23.0
Private household workers	89.0	77.5	72.0	71.8
Public administration	189.4	204.9	238.1	269.0
Postal service	51.1	53.1	56.1	57.9
Other federal	39.3	36.7	36.5	34.7
State and local	99.0	115.1	145.5	176.4

For footnote see page 10.

Table 2-D. RECONCILIATION OF CIVILIAN LABOR FORCE AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NEW YORK CITY
(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 2-A)	5,967	6,011	6,048	6,137
II. Civilian labor force, 14 and over (table 2-A)	3,726	3,715	3,775	3,826
A. Resident employed	3,536	3,540	3,621	3,671
B. Unemployed	190	175	154	155
1. Rate of unemployment (percent)	5.1	4.7	4.1	4.1
III. Total numbers of jobs (table 2-C)	3,986	3,983	4,079	4,127
A. Nonagricultural jobs	3,985	3,982	4,078	4,127
1. Wage and salary workers (table 2-B)	3,538	3,581	3,699	3,753
2. Self employed and unpaid family workers, and domestics	447	401	379	374
B. Agricultural jobs	1	1	1	-
IV. Difference between II-A and III	450	443	458	456
A. Net number of commuters into area	336	333	339	340
B. Multiple jobholders, minus persons with a job but not being paid (a)	114	110	119	116

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A), but not among the wage and salary workers (III-A.1).

Table 2E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NEW YORK CITY (in thousands)

Occupation	1960	1965	1970	1975
All occupations	3,985.6	3,983.1	4,078.6	4,127.5
Professional, technical and kindred workers	453.7	515.4	571.5	610.2
Engineers, technical	34.3	37.5	41.7	45.1
Engineers, aeronautical	0.2	0.3	0.4	0.6
Engineers, chemical	2.8	3.0	3.4	3.5
Engineers, civil	9.1	9.4	10.5	11.3
Engineers, electrical	8.2	9.2	10.2	10.9
Engineers, industrial	2.2	2.8	3.2	3.8
Engineers, mechanical	8.7	8.8	9.2	9.5
Engineers, metallurgical	0.5	0.7	0.9	0.9
Engineers, mining	0.1	0.1	0.1	0.1
Other engineers, technical	2.5	3.2	3.8	4.5
Natural scientists	5.0	5.8	6.6	7.3
Chemists	3.3	3.8	4.1	4.4
Agricultural scientists	-	-	-	-
Biological scientists	0.4	0.5	0.6	0.6
Geologists and geophysicists	0.3	0.3	0.4	0.4
Mathematicians	0.4	0.5	0.6	0.8
Physicists	0.4	0.5	0.6	0.8
Other natural scientists, n.e.c.	0.2	0.2	0.3	0.3
Technical workers and specialists (exc. medical and dental)	49.4	54.2	60.8	67.7
Draftsmen	10.3	11.8	13.7	15.4
Structural design technicians and related specialists	1.8	2.1	2.5	2.8
Electro and mechanical engineering technicians	13.5	13.8	14.6	15.6
Mathematics technicians	0.2	0.2	0.2	0.2
Physical science technicians	1.9	2.0	2.2	2.5
Industrial engineering technicians	1.6	1.8	1.9	2.1
Civil engineering and construction technicians	5.3	5.7	6.7	7.9
Sales and service technicians	1.2	1.3	1.3	1.3
Technical writing and illustration technicians	1.8	2.0	2.1	2.3
Safety and sanitation inspectors and related specialists	2.2	2.5	2.7	3.2
Product testing and inspection specialists	1.7	1.7	1.8	1.9

Continued

Table 2E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Data processing, systems analysis and programming specialists	3.5	4.5	5.7	6.5
Airway tower specialists and flight dispatchers	0.6	0.6	0.7	0.9
Broadcasting, motion picture and recording studio specialists	2.2	2.3	2.4	2.6
Radio operators	1.6	1.9	2.3	2.5
Medical and other health workers	96.3	104.0	115.3	122.5
Dentists	7.0	7.0	7.1	7.2
Dietitians and nutritionists	2.0	2.2	2.3	2.3
Nurses, professional and student	37.7	40.4	43.6	44.8
Optometrists	0.7	0.7	0.7	0.6
Osteopaths	0.2	0.2	0.2	0.2
Pharmacists	8.0	7.4	7.1	7.0
Physicians and surgeons	21.7	23.1	24.5	25.4
Psychologists	1.4	1.8	2.3	2.6
Technicians, medical and dental	13.8	17.0	22.8	27.2
Veterinarians	0.3	0.3	0.3	0.4
Chiropractors and therapists	3.5	3.9	4.4	4.8
Teachers	76.0	100.2	113.5	119.8
Teachers, elementary	36.7	45.4	46.9	47.7
Teachers, secondary	21.1	29.0	34.8	36.5
Teachers, college	8.0	12.4	15.4	18.2
Teachers, other	10.2	13.4	16.4	17.4
Social scientists	4.8	5.2	5.5	5.8
Economists	2.0	2.0	2.0	2.0
Statisticians and actuaries	2.5	2.8	2.9	3.1
Other social scientists	0.3	0.4	0.6	0.7
Other professional, technical and kindred workers	187.9	208.5	228.1	242.0
Accountants and auditors	46.2	46.3	47.6	48.3
Airplane pilots and navigators	2.0	2.1	2.2	2.3
Architects	3.3	3.3	3.4	3.4
Artists, musicians, authors, athletes, and entertainers	34.4	39.7	44.0	46.0
Clergymen	6.5	6.6	6.7	6.9
Designers, except design draftsmen	4.1	4.2	4.2	4.2
Reporters and editors	11.6	11.7	11.6	11.6
Lawyers and judges	24.7	27.9	29.1	30.5
Librarians	4.1	5.1	5.6	5.7
Personnel and labor relations wkrs.	6.6	7.2	7.8	8.4

Table 2E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Photographers	4.7	4.3	4.1	3.7
Social, welfare and recreation wkrs.	12.8	15.1	17.8	20.9
Prof. and tech. workers, n.e.c.	26.9	35.0	44.0	50.1
Managers, officials and proprietors	419.7	407.2	404.4	397.1
Conductors, railroad	1.2	0.9	0.7	0.6
Credit men	3.9	4.4	4.9	5.2
Ship officers	3.4	3.1	2.7	2.2
Postmasters and assistants	0.1	0.1	0.1	0.1
Purchasing agents	6.3	6.4	7.0	7.2
Managers, officials, proprietors, n.e.c.	404.8	392.3	389.0	381.8
Clerical and kindred workers	928.6	957.2	1,013.5	1,051.6
Stenos, typists and secretaries	229.8	238.2	253.6	264.6
Office machine operators	33.3	43.0	54.5	65.1
Other clerical and kindred workers	665.5	676.0	705.4	721.9
Accounting clerks	29.0	29.0	29.1	29.2
Bookkeepers, hand	43.4	41.1	39.2	37.0
Bank tellers	13.3	15.2	17.9	19.7
Cashiers	26.9	29.6	33.0	36.8
Mail carriers	12.1	13.6	15.7	16.7
Postal clerks	23.4	23.3	23.6	23.7
Shipping and receiving clerks	30.8	28.0	25.9	23.3
Telephone operators	34.6	34.8	34.2	33.7
Clerical and kindred workers, n.e.c.	452.0	461.4	486.8	501.8
Sales workers	334.9	324.5	321.5	317.0
Insurance agents and brokers	25.3	25.0	24.3	23.6
Real estate agents and brokers	12.2	12.1	12.0	11.8
Other sales workers, n.e.c.	297.4	287.4	285.2	281.6
Craftsmen, foremen and kindred workers	439.2	423.0	421.9	422.1
Construction craftsmen	97.3	84.9	80.5	77.4
Carpenters	24.5	20.7	18.9	17.4
Brickmasons, stone and tile setters	8.5	7.0	6.5	6.2
Cement and concrete finishers	0.7	0.7	0.7	0.8
Electricians	16.2	14.9	14.8	14.8
Excavating, grading machine oprs.	2.2	2.2	2.3	2.4
Painters and paperhangers	22.7	19.2	18.0	16.6
Plasterers	2.7	2.6	2.4	2.4
Plumbers and pipefitters	15.0	13.5	13.1	13.1
Roofers and slaters	1.8	1.6	1.5	1.5
Structural metalworkers	3.0	2.5	2.3	2.2

Continued

Table 2E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	59.3	58.2	58.5	58.7
Metalworking craftsmen	47.6	41.4	35.9	32.7
Skilled machining workers (incl. machinists)	28.2	23.6	19.6	17.3
Blacksmiths, forgemen, hammermen	0.5	0.5	0.4	0.4
Boilermakers	0.8	0.8	0.8	0.8
Heat treaters, annealers, tempers	0.2	0.2	0.1	0.1
Millwrights	1.3	1.2	1.2	1.2
Molders, metal (exc. coremakers)	0.7	0.7	0.6	0.5
Patternmakers, metal and wood	0.9	1.0	1.1	1.1
Rollers and roll hands	0.2	0.2	0.2	0.2
Sheet metal workers	5.5	5.1	4.7	4.6
Toolmakers, diemakers, setters	5.3	4.5	3.9	3.4
Electroplaters	0.3	0.3	0.3	0.3
Assemblers, metalwork, Class A	3.7	3.3	3.0	2.8
Printing trades craftsmen	30.1	28.2	26.3	24.3
Compositors and typesetters	18.1	15.9	13.6	11.2
Electrotypers and sterotypers	0.5	0.3	0.2	0.2
Engravers, except photoengravers	1.1	1.1	1.2	1.2
Photoengravers and lithographers	2.6	3.1	3.6	4.1
Pressmen and plate printers	7.8	7.8	7.7	7.6
Transportation and public utility craftsmen	12.1	12.6	13.1	13.4
Linemen and servicemen	10.5	11.4	12.0	12.5
Locomotive engineers	1.1	0.9	0.9	0.8
Locomotive firemen	0.5	0.3	0.2	0.1
Mechanics and repairmen	113.8	121.3	131.0	139.1
Airplane mechanics and repairmen	7.4	8.4	9.5	10.4
Motor vehicle mechanics	26.1	26.4	26.9	27.2
Office machine mechanics	1.7	1.9	2.1	2.3
Radio and TV mechanics	6.0	5.8	5.6	5.5
Railroad and car shop mechanics	1.6	1.5	1.4	1.4
Other mechanics and repairmen	71.0	77.3	85.5	92.3
Other craftsmen and kindred workers	79.0	76.4	76.6	76.5
Bakers	13.0	11.0	9.6	8.4
Cabinetmakers	3.6	3.4	3.2	2.9
Cranemen, derrickmen, and hoistmen	2.0	2.1	2.2	2.4
Glaziers	1.0	1.3	1.4	1.5
Jewelers and watchmakers	5.3	5.3	5.4	5.7
Millers	0.1	0.1	0.1	0.1
Opticians and lens grinders	1.7	1.7	1.7	1.6
Stationary engineers	13.8	12.9	12.2	11.6

Continued

Table 2E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	5.0	5.0	5.5	5.8
Upholsterers	3.8	3.7	3.7	3.7
Craftsmen and kindred workers, n.e.c.	29.7	29.9	31.6	32.8
Operatives and kindred workers	709.7	668.4	643.2	614.4
Selected transp. and utility oprs.	153.9	152.9	153.7	153.7
Drivers: bus, truck, tractor	82.7	82.4	83.0	83.7
Deliverymen, routemen, cab drivers	61.2	61.8	63.0	63.5
Brakemen and switchmen, railroad	2.2	2.2	2.3	2.4
Power station operators	0.8	0.7	0.7	0.7
Sailors and deck hands	7.0	5.8	4.7	3.4
Asbestos and insulation workers	0.4	0.4	0.3	0.3
Semiskilled metalworking occupations	32.2	27.3	24.5	21.4
Furnacemen, smelters, pourers, and heaters	0.7	0.7	0.6	0.5
Welders and flame cutters	8.4	7.6	7.0	6.5
Electroplater helpers	0.6	0.5	0.5	0.5
Mach. tool opr., metalworking, Class B	5.6	4.5	3.7	2.9
Assemblers, metalworking, Class B	12.3	10.2	9.3	7.8
Inspectors, metalworking, Class B	4.6	3.8	3.4	3.2
Semiskilled occupations in textiles and apparel	77.3	69.0	62.7	55.1
Knitters, loopers and toppers	2.4	2.3	2.1	2.0
Weavers and spinners, textile	0.4	0.4	0.3	0.3
Sewers and stitchers, manufacturing	74.5	66.3	60.3	52.8
Other operatives and kindred workers	445.9	418.8	402.0	383.9
Attendants, auto service and parking	7.8	8.5	10.4	12.3
Laundry and dry cleaning workers	27.5	27.1	26.7	26.3
Meat cutters, except meat-packing	20.9	20.3	20.3	20.5
Mine operatives and laborers, n.e.c.	0.2	0.2	0.2	0.2
Other operatives, n.e.c.	389.5	362.6	344.4	324.6
Service workers	539.7	544.5	568.6	591.8
Private household workers	86.6	75.6	72.2	69.4
Protective service workers	62.5	65.4	76.4	88.5
Firemen, fire protection	10.4	10.7	12.9	15.1
Guards and watchmen	21.3	21.0	21.2	21.4
Policemen, marshalls, sheriffs	30.8	33.7	42.3	52.0

Continued

Table 2E (cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	136.4	144.2	153.9	162.8
Bartenders	18.7	18.8	19.4	19.9
Cooks, except private household	36.2	38.3	40.7	42.1
Counter and fountain workers	26.4	30.1	34.2	38.5
Waiters and waitresses	55.1	57.0	59.6	62.3
Other service workers	254.2	259.3	266.1	271.1
Airline stewards and stewardesses	2.5	3.3	4.2	5.3
Attendants, hospital and other inst.	29.2	35.7	44.9	51.8
Charwomen and cleaners	20.0	19.9	19.4	18.8
Janitors and sextons	27.0	24.9	21.1	18.6
Nurses, practical	9.1	11.0	12.8	15.2
Other service workers, n.e.c.	166.4	164.5	163.7	161.4
Farmers and farm laborers	0.9	1.0	1.1	1.1
Laborers, except farm and mine	159.2	141.9	132.9	122.2

Table 2-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, NEW YORK CITY

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation (c)	Trade	Finance (d)	Services	Public administration
All occupations	3,985.6	2.2	158.1	997.5	390.6	890.1	412.8	944.9	189.4
Professional, technical, and kindred workers	453.7	0.3	8.6	54.8	21.3	26.3	19.1	300.6	22.7
Engineers, technical	34.3	-	3.8	10.8	3.4	3.3	0.8	9.9	2.3
Natural scientists	5.0	-	-	2.1	0.2	0.6	0.1	1.4	0.6
Technicians, exc. medical and dental	49.4	-	3.5	11.4	10.8	3.1	2.1	12.7	5.8
Medical and other health workers	96.3	0.3	-	1.2	0.1	7.9	0.4	85.9	0.5
Teachers	76.0	-	-	0.2	0.2	0.5	0.1	74.5	0.5
Social scientists	4.8	-	0.1	1.1	0.7	0.8	1.4	0.4	0.3
Other prof., tech., and kindred workers	187.9	-	1.2	28.0	5.9	10.1	14.2	115.8	12.7
Managers, officials, and proprietors	419.7	0.4	12.4	78.0	28.6	168.8	58.1	62.7	10.7
Clerical and kindred workers	928.6	0.2	9.5	168.3	108.3	173.5	214.6	164.6	89.6
Stenos, typists, and secretaries	229.8	0.1	3.3	51.4	13.1	28.0	49.8	68.1	16.0
Office machine operators	33.3	-	0.2	8.2	2.9	4.1	11.0	4.6	2.3
Other clerical and kindred workers	665.5	0.1	6.0	108.7	92.3	141.4	153.8	91.9	71.3
Sales workers	334.9	-	0.7	48.8	3.0	222.0	46.7	13.5	0.2
Craftsmen, foremen, and kindred workers	439.2	0.1	81.0	177.2	63.0	46.7	8.3	54.9	8.0
Construction craftsmen	97.3	-	63.9	14.3	6.0	3.1	1.8	6.5	1.7
Foremen, n.e.c.	59.3	0.1	3.9	38.3	7.4	5.6	0.6	2.5	0.9
Metalworking craftsmen, exc. mechanics	47.6	-	1.3	41.5	1.7	0.8	-	1.8	0.5
Printing trades craftsmen	30.1	-	0.1	28.2	0.2	0.4	0.4	0.7	0.1
Transp. and public utility craftsmen	12.1	-	0.3	0.3	11.3	-	-	0.1	0.1
Mechanics and repairmen	113.8	-	5.5	29.2	25.6	19.1	4.8	25.7	3.9
Other craftsmen and kindred workers	79.0	-	6.0	25.4	10.8	17.7	0.7	17.6	0.8
Operatives and kindred workers	709.7	0.1	9.3	441.0	101.2	91.1	3.2	59.6	4.2
Selected transp. and pub. util. oprs.	153.9	-	2.4	27.8	80.2	33.0	1.0	7.5	2.0
Semiskilled metalworking occupations	32.2	-	0.8	30.1	0.3	0.2	-	0.4	0.4
Semiskilled textiles occupations (e)	77.3	-	-	77.3	-	-	-	-	-
Other operatives and kindred workers	446.3	0.1	6.1	305.8	20.7	57.9	2.2	51.7	1.8
Service workers	539.7	-	1.8	10.2	17.7	134.6	56.5	273.2	45.7
Private household workers	86.6	-	-	-	-	-	-	86.6	-
Protective service workers	62.5	-	0.7	3.5	3.6	1.5	4.9	5.1	43.2
Waiters, cooks, and bartenders	136.4	-	0.5	1.0	2.4	101.5	1.3	28.8	0.9
Other service workers	254.2	-	0.6	5.7	11.7	31.6	50.3	152.7	1.6
Laborers, except farm and mine	159.2	0.2	34.8	19.2	47.5	27.1	6.3	15.8	8.3
Farmers and farm laborers	0.9	0.9	-	-	-	-	-	-	-

For footnote see page 18.

Table 2-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, NEW YORK CITY

2. ESTIMATED 1965
(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	3,983.1	2.4	138.3	907.4	393.8	862.5	421.0	1,052.8	204.9
Professional, technical, and kindred workers	515.4	0.4	8.2	53.3	23.1	26.8	21.0	357.7	24.9
Engineers, technical	37.5	-	3.5	10.5	3.9	3.9	0.9	12.2	2.6
Natural scientists	5.8	-	-	1.9	0.3	0.8	0.1	2.0	0.7
Technicians, exc. medical and dental	54.2	-	3.5	11.0	11.7	3.6	2.5	15.1	6.8
Medical and other health workers	104.0	0.4	-	1.2	0.1	7.1	0.4	94.3	0.5
Teachers	100.2	-	-	0.1	0.2	0.5	0.1	98.8	0.5
Social scientists	5.2	-	0.1	1.2	0.7	0.8	1.5	0.6	0.3
Other prof., tech., and kindred workers	208.5	-	1.1	27.4	6.2	10.1	15.5	134.7	13.5
Managers, officials, and proprietors	407.2	0.4	10.7	70.7	28.6	156.5	61.5	66.7	12.1
Clerical and kindred workers	957.2	0.2	8.6	155.2	111.3	171.1	221.8	193.6	95.4
Stenos, typists, and secretaries	238.2	0.1	3.2	47.6	13.6	26.0	50.9	80.0	16.8
Office machine operators	43.0	-	0.3	9.9	3.6	4.5	14.9	7.1	2.7
Other clerical and kindred workers	676.0	0.1	5.1	97.7	94.1	140.6	156.0	106.5	75.9
Sales workers	324.5	-	0.7	46.1	3.5	210.9	48.8	14.3	0.2
Craftsmen, foremen, and kindred workers	423.0	0.1	71.0	161.5	65.3	46.4	8.4	60.9	9.4
Construction craftsmen	84.9	-	53.5	11.6	5.8	3.2	1.8	7.3	1.7
Foremen, n.e.c.	58.2	0.1	3.8	36.5	7.3	5.7	0.7	3.0	1.1
Metalworking craftsmen, exc. mechanics	41.4	-	1.1	35.6	1.5	0.8	-	1.9	0.5
Printing trades craftsmen	28.2	-	0.1	26.3	0.2	0.4	0.4	0.7	0.1
Transp. and public utility craftsmen	12.6	-	0.3	0.3	11.7	-	-	0.2	0.1
Mechanics and repairmen	121.3	-	5.8	29.8	27.2	18.8	4.9	29.8	5.0
Other craftsmen and kindred workers	76.4	-	6.4	21.4	11.6	17.5	0.6	18.0	0.9
Operatives and kindred workers	668.4	0.1	9.3	397.9	102.7	89.7	3.0	61.3	4.4
Selected transp. and pub. util. oprs.	152.9	-	2.3	25.6	82.0	31.6	1.1	8.0	2.3
Semiskilled metalworking occupations	27.3	-	0.8	25.2	0.3	0.2	-	0.4	0.4
Semiskilled textiles occupations	69.0	-	-	69.0	-	-	-	-	-
Other operatives and kindred workers	419.2	0.1	6.2	278.1	20.4	57.9	1.9	52.9	1.7
Service workers	544.5	-	1.8	7.7	16.9	136.9	50.4	280.5	50.3
Private household workers	75.6	-	-	-	-	-	-	75.6	-
Protective service workers	65.4	-	0.7	2.4	3.2	1.4	4.6	5.6	47.5
Waiters, cooks, and bartenders	144.2	-	0.5	0.9	2.1	104.3	1.3	34.0	1.1
Other service workers	259.3	-	0.6	4.4	11.6	31.2	44.5	165.3	1.7
Laborers, except farm and mine	141.9	0.2	28.0	15.0	42.4	24.2	6.1	17.8	8.2
Farmers and farm laborers	1.0	1.0	-	-	-	-	-	-	-

For footnote see page 18.

Table 2-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, NEW YORK CITY

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation (c)	Trade	Finance (d)	Services	Public administration
All occupations	4,127.5	2.9	147.3	787.8	398.7	857.3	434.5	1,230.0	269.0
Professional, technical, and kindred workers	610.2	0.6	9.6	53.1	23.5	27.3	25.2	433.8	37.1
Engineers, technical	45.1	-	3.8	9.5	4.2	4.7	1.0	18.1	3.8
Natural scientists	7.3	0.1	-	2.2	0.4	1.0	0.1	2.4	1.1
Technicians, exc. medical and dental	67.7	-	4.5	11.8	12.3	3.9	3.1	20.4	12.0
Medical and other health workers	122.5	0.4	-	1.2	0.1	5.8	0.4	113.9	0.7
Teachers	119.8	-	-	0.2	0.2	0.5	0.2	118.2	0.5
Social scientists	5.8	-	0.1	1.0	0.8	0.9	1.8	0.8	0.4
Other prof., tech., and kindred workers	242.0	0.1	1.2	27.2	5.5	10.8	18.6	160.0	18.6
Managers, officials, and proprietors	397.1	0.5	12.6	60.0	27.5	139.6	69.6	69.8	17.5
Clerical and kindred workers	1,051.6	0.2	11.5	142.3	116.5	179.1	232.3	255.5	114.2
Stenos, typists, and secretaries	264.6	0.1	4.0	43.7	14.7	23.1	52.1	103.5	23.4
Office machine operators	65.1	-	0.5	12.5	5.1	6.1	23.9	12.8	4.2
Other clerical and kindred workers	721.9	0.1	7.0	86.1	96.7	149.9	156.3	139.2	86.6
Sales workers	317.0	-	0.6	42.9	4.0	200.9	53.3	15.1	0.2
Craftsmen, foremen, and kindred workers	422.1	0.2	73.7	137.8	71.2	49.8	8.6	68.8	12.0
Construction craftsmen	77.4	-	50.1	7.7	5.8	3.0	1.6	7.3	1.9
Foremen, n.e.c.	58.7	0.2	4.8	34.2	7.2	6.2	0.9	4.0	1.2
Metalworking craftsmen, exc. mechanics	32.7	-	1.2	26.6	1.7	0.7	-	2.1	0.4
Printing trades craftsmen	24.3	-	-	21.9	0.2	0.5	0.5	1.0	0.2
Transp. and public utility craftsmen	13.4	-	0.4	0.2	12.2	-	-	0.4	0.2
Mechanics and repairmen	139.1	-	8.3	30.4	31.2	21.4	5.2	35.4	7.2
Other craftsmen and kindred workers	76.5	-	8.9	16.8	12.9	18.0	0.4	18.6	0.9
Operatives and kindred workers	614.4	0.2	11.5	336.1	105.9	91.4	2.9	61.2	5.2
Selected transp. and pub. util. oprs.	153.7	-	2.6	23.2	84.8	30.5	1.5	8.1	3.0
Semiskilled metalworking occupations	21.4	-	0.9	19.2	0.2	0.2	-	0.4	0.5
Semiskilled textiles occupations	55.1	-	-	55.1	-	-	-	-	-
Other operatives and kindred workers	384.2	0.2	8.0	238.6	20.9	60.7	1.4	52.7	1.7
Service workers	591.8	-	2.0	6.0	17.7	148.0	36.8	306.7	74.6
Private household workers	69.4	-	-	-	-	-	-	69.4	-
Protective service workers	88.5	-	0.8	1.7	2.6	1.1	3.9	6.8	71.6
Waiters, cooks, and bartenders	162.8	-	0.5	0.7	1.7	115.5	1.5	41.7	1.2
Other service workers	271.1	-	0.7	3.6	13.4	31.4	31.4	188.8	1.8
Laborers, except farm and mine	122.2	0.1	25.8	9.6	32.4	21.2	5.8	19.1	8.2
Farmers and farm laborers	1.1	1.1	-	-	-	-	-	-	-

For footnote see page 18.

Table 2-G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN NEW YORK CITY, 1965-1975

(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	3,983.1	1,250.5	31	144.4	4	1,106.1	28
Professional, technical, and kindred workers	515.4	233.7	45	94.8	18	138.9	27
Engineers, technical	37.5	14.1	38	7.6	20	6.5	17
Engineers, aeronautical	0.3	0.3	100	0.3	100	-	-
Engineers, chemical	3.0	0.8	27	0.5	17	0.3	10
Engineers, civil	9.4	4.2	45	1.9	20	2.3	25
Engineers, electrical	9.2	2.6	28	1.7	18	0.9	10
Engineers, industrial	2.8	1.4	50	1.0	36	0.4	14
Engineers, mechanical	8.8	2.4	27	0.7	8	1.7	19
Engineers, metallurgical	0.7	0.3	43	0.2	29	0.1	13
Engineers, mining	0.1	-	-	-	-	-	-
Other engineers, technical	3.2	2.1	66	1.3	41	0.8	25
Natural scientists	5.8	2.7	47	1.5	26	1.2	21
Chemists	3.8	1.3	34	0.6	16	0.7	18
Biological scientists	0.5	0.2	40	0.1	20	0.1	20
Geologists and geophysicists	0.3	0.2	67	0.1	33	0.1	33
Mathematicians	0.5	0.4	80	0.3	60	0.1	20
Physicists	0.5	0.4	80	0.3	60	0.1	20
Other natural scientists, n.e.c.	0.2	0.2	100	0.1	50	0.1	50
Technical workers (exc. medical and dental)	54.2	20.0	37	13.5	25	6.5	12
Draftsmen	11.8	4.8	41	3.6	31	1.2	10
Structural design technicians and related specialists	2.1	0.9	43	0.7	33	0.2	10
Electro and mechanical engineering techs.	13.8	2.7	20	1.8	13	0.9	7
Mathematics technicians	0.2	-	-	-	-	-	-
Physical science technicians	2.0	0.8	40	0.5	25	0.3	15
Industrial engineering technicians	1.8	0.5	28	0.3	17	0.2	11
Civil engineering and construction techs.	5.7	2.9	51	2.2	39	0.7	12

Continued

Table 2-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Professional, technical, and kindred workers (cont'd)							
Sales and service technicians	1.3	0.2	15	-	-	0.2	15
Technical writing and illustration techs.	2.0	0.7	35	0.3	15	0.4	20
Safety and sanitation inspectors and related specialists	2.5	1.1	44	0.7	28	0.4	16
Product testing and inspection spec.	1.7	0.4	24	0.2	12	0.2	12
Data processing, systems analysis and programming specialists	4.5	2.7	60	2.0	44	0.7	16
Airway tower spec. and flight dispatchers	0.6	0.5	83	0.3	50	0.2	33
Broadcasting, motion picture and recording studio specialists	2.3	0.8	35	0.3	13	0.5	22
Radio operators	1.9	1.0	53	0.6	32	0.4	21
Medical and other health workers	104.0	54.8	53	18.5	18	36.3	35
Dentists	7.0	2.8	40	0.2	3	2.6	37
Dietitians and nutritionists	2.2	0.9	41	0.1	5	0.8	36
Nurses, professional and student	40.4	20.4	50	4.4	11	16.0	40
Optometrists	0.7	0.1	14	- 0.1	- 14	0.2	29
Osteopaths	0.2	0.1	50	-	-	0.1	50
Pharmacists	7.4	1.7	23	- 0.4	- 5	2.1	28
Physicians and surgeons	23.1	9.9	43	2.3	10	7.6	33
Psychologists	1.8	1.2	67	0.8	44	0.4	22
Technicians, medical and dental	17.0	15.2	89	10.2	60	5.0	29
Veterinarians	0.3	0.2	67	0.1	33	0.1	33
Chiropractors and therapists	3.9	2.3	59	0.9	23	1.4	36
Teachers	100.2	55.2	55	19.6	20	35.6	35
Teachers, elementary	45.4	18.6	41	2.3	5	16.3	36
Teachers, secondary	29.0	15.9	55	7.5	26	8.4	29
Teachers, college	12.4	10.1	81	5.8	47	4.3	35
Teachers, other	13.4	10.6	79	4.0	30	6.6	49
Social scientists	5.2	2.3	44	0.6	12	1.7	33
Economists	2.0	0.6	30	-	-	0.6	30
Statisticians and actuaries	2.8	1.1	39	0.3	11	0.8	29
Other social scientists	0.4	0.6	150	0.3	75	0.3	75

Continued

Table 2-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Professional, technical, and kindred workers (cont'd)							
Other prof., tech., and kindred workers	208.5	84.6	41	33.5	16	51.1	25
Accountants and auditors	46.3	11.1	24	2.0	4	9.1	20
Airplane pilots and navigators	2.1	0.4	19	0.2	10	0.2	10
Architects	3.3	1.0	30	0.1	3	0.9	27
Artists, musicians, authors, athletes, and entertainers	39.7	15.1	38	6.3	16	8.8	22
Clergymen	6.6	2.3	35	0.3	5	2.0	30
Designers, except design draftsmen	4.2	1.0	24	-	-	1.0	24
Reporters and editors	11.7	3.1	26	- 0.1	- 1	3.2	27
Lawyers and judges	27.9	10.7	38	2.6	9	8.1	29
Librarians	5.1	2.5	49	0.6	12	1.9	37
Personnel and labor relations workers	7.2	3.0	42	1.2	17	1.8	25
Photographers	4.3	-	-	- 0.6	-14	0.6	14
Social, welfare and recreation workers	15.1	10.3	68	5.8	38	4.5	30
Prof. and tech. workers, n.e.c.	35.0	24.1	69	15.1	43	9.0	26
Managers, officials, and proprietors	407.2	119.2	29	-10.1	- 2	129.3	32
Conductors, railroad	0.9	-	-	- 0.3	-33	0.3	33
Credit men	4.4	1.7	39	0.8	18	0.9	20
Ship officers	3.1	- 0.3	-10	- 0.9	-29	0.6	19
Postmasters and assistants	0.1	0.1	100	-	-	0.1	100
Purchasing agents	6.4	2.3	36	0.8	13	1.5	23
Managers, officials, proprietors, n.e.c.	392.3	115.4	29	-10.5	- 3	125.9	32
Clerical and kindred workers	957.2	378.3	40	94.4	10	283.9	30
Stenos, typists, and secretaries	238.2	101.9	43	26.4	11	75.5	32
Office machine operators	43.0	33.0	77	22.1	51	10.9	25
Other clerical and kindred workers	676.0	243.4	36	45.9	7	197.5	29
Accounting clerks	29.0	9.7	33	0.2	1	9.5	33
Bookkeepers, hand	41.1	8.4	20	- 4.1	-10	12.5	30
Bank tellers	15.2	8.0	53	4.5	30	3.5	23

Continued

Table 2-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Clerical and kindred workers (cont'd)							
Cashiers	29.6	15.4	52	7.2	24	8.2	28
Mail carriers	13.6	5.1	38	3.1	23	2.0	15
Postal clerks	23.3	4.6	20	0.4	2	4.2	18
Shipping and receiving clerks	28.0	- 0.3	- 1	- 4.7	-17	4.4	16
Telephone operators	34.8	10.8	31	- 1.1	- 3	11.9	34
Clerical and kindred workers, n.e.c.	461.4	181.7	39	40.4	9	141.3	31
Sales workers	324.5	90.3	28	- 7.5	- 2	97.8	30
Insurance agents and brokers	25.0	4.8	19	- 1.4	- 6	6.2	25
Real estate agents and brokers	12.1	5.2	43	- 0.3	- 2	5.5	45
Other sales workers, n.e.c.	287.4	80.3	28	- 5.8	- 2	86.1	30
Craftsmen, foremen, and kindred workers	423.0	92.0	22	- 0.9	-	92.9	22
Construction craftsmen	84.9	13.9	16	- 7.5	- 9	21.4	25
Carpenters	20.7	1.9	9	- 3.3	-16	5.2	25
Brickmasons, stone and tile setters	7.0	1.0	14	- 0.8	-11	1.8	26
Cement and concrete finishers	0.7	0.2	29	0.1	14	0.1	14
Electricians	14.9	3.4	23	- 0.1	- 1	3.5	23
Excavating, grading machine oprs.	2.2	0.5	23	0.2	9	0.3	14
Painters and paperhangers	19.2	3.3	17	- 2.6	-14	5.9	31
Plasterers	2.6	0.3	12	- 0.2	- 8	0.5	19
Plumbers and pipefitters	13.5	2.8	21	- 0.4	- 3	3.2	24
Roofers and slaters	1.6	0.1	6	- 0.1	- 6	0.2	13
Structural metalworkers	2.5	0.4	16	- 0.3	-12	0.7	28
Foremen, n.e.c.	58.2	15.3	26	0.5	1	14.8	25
Metalworking craftsmen	41.4	- 2.6	- 6	- 8.7	-21	6.1	15
Skilled machining workers (inc. machinists)	23.6	- 3.5	-15	- 6.3	-27	2.8	12
Blacksmiths, forgemen, hammermen	0.5	0.1	20	- 0.1	-20	0.2	40
Boilermakers	0.8	0.2	25	-	-	0.2	25
Heat treaters, annealers, tempers	0.2	- 0.1	-50	- 0.1	-50	-	-

Continued

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Table 2-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Craftsmen, foremen, and kindred workers (cont'd)							
Millwrights	1.2	0.3	25	-	-	0.3	25
Molders, metal (exc. coremakers)	0.7	- 0.1	-14	- 0.2	-29	0.1	14
Patternmakers, metal and wood	1.0	0.4	40	0.1	10	0.3	30
Rollers and roll hands	0.2	-	-	-	-	-	-
Sheet metal workers	5.1	0.6	12	- 0.5	-10	1.1	22
Toolmakers, diemakers, setters	4.5	- 0.7	-16	- 1.1	-24	0.4	9
Electroplaters	0.3	0.1	33	-	-	0.1	33
Assemblers, metalwork, Class A	3.3	0.1	3	- 0.5	-15	0.6	18
Printing trades craftsmen	28.2	1.9	7	- 3.9	-14	5.8	21
Compositors and typesetters	15.9	- 1.6	-10	- 4.7	-30	3.1	20
Electrotypers and stereotypers	0.3	-	-	- 0.1	-33	0.1	33
Engravers, except photoengravers	1.1	0.6	55	0.1	9	0.5	45
Photoengravers and lithographers	3.1	1.6	52	1.0	32	0.6	19
Pressmen and plate printers	7.8	1.3	17	- 0.2	- 3	1.5	19
Transportation and public utility craftsmen	12.6	3.0	24	0.8	6	2.2	17
Linemen and servicemen	11.4	2.8	25	1.1	10	1.7	15
Locomotive engineers	0.9	0.3	33	- 0.1	-11	0.4	44
Locomotive firemen	0.3	- 0.1	-33	- 0.2	-67	0.1	33
Mechanics and repairmen	121.3	41.8	34	17.8	15	24.0	20
Airplane mechanics and repairmen	8.4	3.0	36	2.0	24	1.0	12
Motor vehicle mechanics	26.4	4.8	18	0.8	3	4.0	15
Office machine mechanics	1.9	0.7	37	0.4	21	0.3	16
Radio and TV mechanics	5.8	0.4	7	- 0.3	- 5	0.7	12
Railroad and car shop mechanics	1.5	0.3	20	- 0.1	- 7	0.4	27
Other mechanics and repairmen	77.3	32.6	42	15.0	19	17.6	23
Other craftsmen and kindred workers	76.4	18.7	24	0.1	-	18.6	24
Bakers	11.0	0.1	1	- 2.6	-24	2.7	25
Cabinetmakers	3.4	0.2	6	- 0.5	-15	0.7	21
Cranemen, derrickmen and hoistmen	2.1	1.0	48	0.3	14	0.7	33
Glaziers	1.3	0.4	31	0.2	15	0.2	15
Jewelers and watchmakers	5.3	1.9	36	0.4	8	1.5	28
Millers	0.1	-	-	-	-	-	-
Opticians and lens grinders	1.7	0.2	12	- 0.1	- 6	0.3	18
Stationary engineers	12.9	1.9	15	- 1.3	-10	3.2	25

Continued

Table 2-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Craftsmen, foremen, and kindred workers(cont'd)							
Inspectors, other than metalworking	5.0	1.7	34	0.8	16	0.9	18
Upholsterers	3.7	0.8	22	-	-	0.8	22
Craftsmen and kindred workers, n.e.c.	29.9	10.5	35	2.9	10	7.6	25
Operatives and kindred workers	668.4	96.1	14	-54.0	- 8	150.1	22
Selected transportation and utility oprs.	152.9	23.3	15	0.8	1	22.5	15
Drivers: bus, truck, tractor	82.4	12.7	15	1.3	2	11.4	14
Deliverymen, routemen, cab drivers	61.8	11.2	18	1.7	3	9.5	15
Brakemen and switchmen, railroad	2.2	0.6	27	0.2	9	0.4	18
Power station operators	0.7	0.3	43	-	-	0.3	43
Sailors and deck hands	5.8	- 1.5	-26	- 2.4	-41	0.9	16
Asbestos and insulation workers	0.4	-	-	- 0.1	-25	0.1	25
Semiskilled metalworking occupations	27.3	- 1.4	- 5	- 5.9	-22	4.5	17
Furnacemen, smelters, pourers, and heaters	0.7	- 0.1	-14	- 0.2	-29	0.1	14
Welders and flame cutters	7.6	- 0.1	- 1	- 1.1	-14	1.0	13
Electroplater helpers	0.5	0.1	20	-	-	0.1	20
Mach. tool opr., metalworking, Class B	4.5	- 0.7	-16	- 1.6	-36	0.9	20
Assemblers, metalworking, Class B	10.2	- 0.7	- 7	- 2.4	-24	1.7	17
Inspectors, metalworking, Class B	3.8	0.1	3	- 0.6	-16	0.7	18
Semiskilled occupations in textiles and apparel	69.0	6.2	9	-13.9	-20	20.1	29
Knitters, loopers and toppers	2.3	0.1	4	- 0.3	-13	0.4	17
Weavers and spinners, textile	0.4	-	-	- 0.1	-25	0.1	25
Sewers and stitchers, mfg.	66.3	6.1	9	-13.5	-20	19.6	30
Other operatives and kindred workers	418.8	68.0	16	-34.9	- 8	102.9	25
Attendants, auto service and parking	8.5	5.3	62	3.8	45	1.5	18
Laundry and dry cleaning workers	27.1	7.3	27	- 0.8	- 3	8.1	30
Meat cutters, except meat-packing	20.3	5.0	25	0.2	1	4.8	24
Mine operatives and laborers, n.e.c.	0.2	-	-	-	-	-	-
Other operatives, n.e.c.	362.7	50.4	14	-38.1	-10	88.5	24

Continued

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Table 2-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Service workers	544.5	233.1	43	47.3	9	185.8	34
Private household workers	75.6	31.2	41	- 6.2	- 8	37.4	49
Protective service workers	65.4	37.1	57	23.1	35	14.0	21
Firemen, fire protection	10.7	5.8	54	4.4	41	1.4	13
Guards and watchmen	21.0	8.7	41	0.4	2	8.3	40
Policemen, marshalls, sheriffs	33.7	22.6	67	18.3	54	4.3	13
Waiters, cooks, and bartenders	144.2	63.2	44	18.6	13	44.6	31
Bartenders	18.8	7.7	41	1.1	6	6.6	35
Cooks, except private household	38.3	16.6	43	3.8	10	12.8	33
Counter and fountain workers	30.1	18.1	60	8.4	28	9.7	32
Waiters and waitresses	57.0	20.8	36	5.3	9	15.5	27
Other service workers	259.3	101.6	39	11.8	5	89.8	35
Attendants, hospital and other inst.	35.7	28.7	80	16.1	45	12.6	35
Charwomen and cleaners	19.9	7.0	35	- 1.1	- 6	8.1	41
Janitors and sextons	24.9	2.6	10	- 6.3	-25	8.9	36
Nurses, practical	11.0	7.8	71	4.2	38	3.6	33
Other service workers, n.e.c.	167.8	55.5	33	- 1.1	- 1	56.6	34
Farmers and farm laborers	1.0	0.5	50	0.1	10	0.4	40
Laborers, except farm and mine	141.9	7.3	5	-19.7	-14	27.0	19

NASSAU-SUFFOLK AREA

Table 3-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NASSAU-SUFFOLK AREA
(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	1,294	1,505	1,785	2,051	57.4	57.5	59.0	59.7	743	865	1,053	1,224
Male, total	615	721	859	990	83.6	79.1	78.8	79.2	514	570	677	784
14 - 19	76	130	163	175	36.8	37.7	38.0	38.0	28	49	62	67
20 - 24	31	58	108	136	90.3	87.0	87.0	87.2	28	50	94	119
25 - 34	112	84	99	180	98.2	97.8	98.0	98.0	110	82	97	176
35 - 44	158	167	149	110	98.1	98.3	98.9	98.9	155	164	147	109
45 - 54	114	138	167	180	97.4	97.1	98.2	98.2	111	134	164	177
55 - 64	70	81	100	124	90.0	88.2	89.0	88.6	63	71	89	110
65 and over	54	63	73	85	35.2	32.0	32.9	30.7	19	20	24	26
Female, total	679	784	926	1,061	33.7	37.6	40.6	41.5	229	295	376	440
14 - 19	78	124	157	171	30.8	33.1	34.4	35.1	24	41	54	60
20 - 24	43	62	106	133	53.5	56.5	57.5	57.5	23	35	61	76
25 - 34	140	108	112	176	25.7	29.5	30.4	30.6	36	32	34	54
35 - 44	166	187	177	135	35.5	39.6	40.7	42.5	59	74	72	57
45 - 54	107	136	175	203	48.6	51.5	56.6	58.6	52	70	99	119
55 - 64	73	83	103	132	37.0	41.0	44.7	46.7	27	34	46	62
65 and over	72	84	96	111	11.1	10.4	10.4	10.4	8	9	10	12

a. Civilian labor force as percent of civilian noninstitutional population.

Table 3-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, NASSAU-SUFFOLK AREA
(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	448.5	565.5	725.4	874.4
Manufacturing	124.2	134.4	162.9	177.9
Durable goods	95.6	95.1	111.8	119.1
Lumber and wood products	0.7	0.9	1.1	1.2
Furniture and fixtures	2.1	2.8	4.1	4.7
Stone, clay and glass products	2.1	1.7	1.9	2.0
Primary metal industries	1.6	1.9	2.3	2.5
Fabricated metal products (b)	7.2	7.9	9.7	10.7
Machinery, except electrical	6.4	9.0	13.0	15.1
Electrical equipment and supplies	18.7	18.3	23.5	26.2
Transportation equipment	33.0	34.9	39.6	40.7
Instruments and related products (c)	23.8	17.7	16.6	16.0
Nondurable goods	28.6	39.3	51.1	58.8
Food and kindred products	4.4	4.0	4.4	4.8
Tobacco manufactures	-	-	-	-
Textile mill products	1.3	1.6	1.8	2.0
Apparel and other fabric products	6.8	9.1	11.8	13.4
Paper and allied products	2.0	3.7	5.7	7.0
Printing and publishing	6.9	9.6	11.6	12.8
Chemicals and allied products	2.2	3.2	4.4	5.4
Petroleum and coal products	0.1	0.2	0.2	0.2
Rubber and plastics products, n.e.c.	1.5	2.4	3.0	3.4
Leather and leather products	0.4	0.3	0.3	0.3
Miscellaneous manufacturing	3.0	5.2	7.9	9.5
Agriculture (d), forestry and fisheries	3.1	3.6	4.0	4.4
Mining	0.2	0.2	0.2	0.2
Contract construction	34.9	37.5	48.0	55.2
Transportation, communication and public utilities	21.6	25.7	30.7	35.9
Railroads	1.1	1.8	0.6	0.8
Air transportation	0.1	0.1	0.6	1.1
Local and interurban passenger transportation	2.8	4.1	5.6	6.7
Local and suburban transit	2.1	3.4	4.8	5.7
Taxicabs	0.7	0.7	0.8	1.0
Trucking and warehousing	3.6	4.7	7.1	8.4
Trucking	3.6	4.6	6.9	8.1
Warehousing	-	0.1	0.2	0.3
Water transportation	0.5	0.6	0.7	0.8
Pipelines	-	-	-	-

Continued

Table 3-B continued

Industry	1960	1965(a)	1970	1975
Transportation, communication and public utilities (cont'd)				
Services incidental to transportation	0.2	0.5	0.9	1.4
Communication and electric, gas and sanitary services	13.3	13.9	15.2	16.7
Wholesale and retail trade	99.6	143.3	180.1	226.9
Wholesale trade	13.9	25.0	33.5	43.0
Motor vehicles and equipment	1.0	1.6	2.0	2.5
Drugs, chemicals and allied products	0.6	1.6	2.5	3.5
Dry goods and apparel	0.2	0.5	0.8	1.2
Groceries and related products	1.8	2.9	3.6	4.3
Electrical goods, hardware, plumbing and heating	2.1	4.6	6.5	8.6
Machinery, equipment and supplies	1.9	4.3	6.1	8.2
Other wholesale	6.3	9.5	12.0	14.7
Retail trade	85.7	118.3	146.6	183.9
Building materials, farm equipment	4.4	4.9	5.4	5.9
Retail general merchandise	15.9	26.4	32.7	43.4
Variety stores	4.1	4.2	4.8	5.4
Other general merchandise stores	11.8	22.2	27.9	38.0
Food stores	17.8	24.7	32.0	40.0
Automotive dealers and service stations	10.9	13.3	15.2	18.0
Gasoline service stations	4.3	5.3	6.1	7.0
Other motor vehicle and accessory dealers	6.6	8.0	9.1	11.0
Apparel and accessories	7.1	8.7	10.7	13.9
Furniture, homefurnishings	4.2	5.2	6.1	7.2
Eating and drinking places	16.2	23.1	29.7	37.9
Miscellaneous retail stores	9.2	12.0	14.8	17.6
Drug and proprietary stores	2.6	3.0	3.4	3.8
Other miscellaneous retail stores	6.6	9.0	11.4	13.8
Finance, insurance and real estate	17.4	24.1	32.2	39.0
Banking and credit agencies	7.0	10.2	14.4	18.0
Brokers and investment companies	0.5	0.4	0.5	0.5
Insurance	5.6	7.9	10.1	11.9
Real estate	4.3	5.6	7.2	8.6
Services	68.7	94.3	128.3	161.7
Hotels and lodging places	5.3	3.3	3.4	3.5
Personal services	9.0	11.0	14.1	16.8
Laundries	4.2	5.7	7.4	8.9
Other personal services	4.8	5.3	6.7	7.9

Continued

Table 3-B continued

Industry	1960	1965(a)	1970	1975
Services (cont'd)				
Miscellaneous business services	8.0	16.5	25.5	33.5
Advertising	0.3	0.4	0.6	0.8
Other business services	7.7	16.1	24.9	32.7
Automobile repair services and garages	2.3	3.8	4.8	5.8
Miscellaneous repair services	1.8	2.3	2.9	3.5
Motion pictures and other amusement and recreation services	7.7	10.4	13.8	16.8
Theaters and motion pictures	1.7	2.4	3.5	4.5
Other entertainment and recreation	6.0	8.0	10.3	12.3
Medical and other health services	16.1	20.8	28.1	36.6
Hospitals	11.0	12.8	16.9	21.8
Other medical and health services	5.1	8.0	11.2	14.8
Legal services	1.5	2.0	2.8	3.5
Educational services and museums	8.3	10.7	13.6	16.3
Nonprofit membership organizations	6.1	6.3	7.2	8.0
Miscellaneous services	2.6	7.2	12.1	17.4
Engineering and architectural services	1.8	2.5	3.8	5.0
Accounting, auditing and bookkeeping	0.5	0.6	1.0	1.3
Miscellaneous professional services	0.3	4.1	7.3	11.1
Nonclassifiable	-	-	-	-
Government	78.8	102.4	139.0	173.2
Federal	8.8	10.6	12.6	14.4
Postal service	6.0	6.2	6.9	7.6
Other federal	2.8	4.4	5.7	6.8
State and local	70.0	91.8	126.4	158.8
State	12.0	15.0	21.7	25.7
Local	58.0	76.8	104.7	133.1

a. Data on 1965 Benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.

Note: Detail may not add to totals due to rounding.

Table 3-C. TOTAL NUMBER OF JOBS (a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NASSAU-SUFFOLK AREA
(in thousands)

Industry	1960	1965	1970	1975
Total employment	587.5	717.8	908.2	1,081.0
Manufacturing	130.8	141.6	171.1	187.6
Durable goods	99.1	98.7	115.6	123.3
Lumber and wood products	0.8	1.0	1.2	1.3
Furniture and fixtures	2.4	3.3	4.8	5.7
Stone, clay and glass products	2.3	1.9	2.1	2.2
Primary metal industries	1.6	1.9	2.3	2.5
Fabricated metal products (b)	7.8	8.4	10.2	11.2
Machinery, except electrical	6.8	9.6	13.6	15.7
Electrical equipment and supplies	19.1	18.7	23.9	26.7
Transportation equipment	33.1	35.1	39.8	40.9
Instruments and related products (c)	25.2	18.8	17.7	17.1
Nondurable goods	31.7	42.9	55.5	64.3
Food and kindred products	4.7	4.2	4.6	5.1
Tobacco manufactures	-	-	-	-
Textile mill products	1.4	1.7	1.9	2.2
Apparel and other fabric products	7.9	10.5	13.6	15.8
Paper and allied products	2.1	3.9	5.9	7.3
Printing and publishing	7.6	10.4	12.7	14.1
Chemicals and allied products	2.3	3.3	4.5	5.5
Petroleum and coal products	0.1	0.3	0.3	0.3
Rubber and plastics products, n.e.c.	1.6	2.6	3.3	3.7
Leather and leather products	0.6	0.5	0.4	0.4
Miscellaneous manufacturing	3.4	5.5	8.3	9.9
Nonmanufacturing	456.7	576.2	737.1	893.4
Agriculture, forestry and fisheries	11.6	9.7	9.2	8.9
Mining	0.2	0.2	0.2	0.2
Contract construction	51.7	56.7	71.1	84.3
Transportation, communication and public utilities	27.1	33.1	43.0	51.7
Railroads	1.1	1.8	2.6	3.5
Air transportation	0.4	0.4	1.0	1.7
Local and suburban transit	2.3	3.9	5.8	7.1
Taxicabs	1.4	1.4	1.6	1.9
Trucking	5.4	7.0	10.2	11.9
Warehousing	-	0.2	0.3	0.4
Water transportation	0.7	0.7	0.8	0.9
Pipelines	-	-	-	-
Transportation services	0.3	0.7	1.5	2.2

Continued

Table 3-C (cont'd)

Industry	1960	1965	1970	1975
Transportation, communication and public utilities (cont'd)				
Communication, electric, gas, and sanitary services	15.5	17.0	19.2	22.1
Wholesale and retail trade	139.4	182.6	222.7	270.5
Wholesale trade	21.5	32.2	41.6	51.7
Motor vehicles and equipment	1.2	1.9	2.4	2.9
Drugs, chemicals and allied products	0.9	1.9	2.9	3.9
Dry goods and apparel	0.7	1.1	1.7	2.2
Groceries and related products	2.2	3.3	4.1	4.9
Electrical goods, hardware, plumbing and heating	2.8	5.4	7.4	9.6
Machinery, equipment and supplies	2.4	5.1	7.2	9.6
Other wholesale	11.3	13.5	15.9	18.6
Retail trade	117.9	150.4	181.1	218.8
Building materials, farm equipment	5.8	6.0	6.4	6.8
Variety stores	4.4	4.4	4.9	5.5
Other general merchandise stores	13.7	23.1	28.9	38.4
Food stores	23.6	29.8	36.8	44.4
Gasoline service stations	6.9	8.5	9.6	11.0
Other motor vehicle and accessory dealers	7.6	9.3	10.5	12.6
Apparel and accessories	10.4	11.3	13.1	16.1
Furniture, homefurnishings	6.4	7.8	9.0	10.2
Eating and drinking places	22.7	29.4	36.8	45.1
Drug and proprietary stores	3.9	4.4	5.0	5.5
Other miscellaneous retail stores	12.5	16.4	20.1	23.2
Finance, insurance and real estate	24.0	31.7	41.4	50.7
Banking and credit agencies	7.1	10.8	15.2	18.7
Brokers and investment companies	0.8	0.7	0.8	0.8
Insurance	6.5	8.7	11.1	13.0
Real estate	9.6	11.5	14.3	18.2
Services	183.4	235.8	309.4	371.2
Hotels and lodging places	6.7	4.2	4.2	4.2
Laundries	6.4	8.4	10.9	12.6
Other personal services	10.2	11.8	13.9	15.4
Advertising	0.5	0.8	1.0	1.2
Other business services	9.4	20.1	30.7	39.2
Automobile repair services and garages	3.5	5.6	7.8	9.3
Miscellaneous repair services	3.8	4.7	6.4	8.0
Theaters and motion pictures	2.2	2.8	4.1	5.1
Other entertainment and recreation	6.4	8.8	11.4	14.0
Hospitals	24.2	27.4	35.8	45.0
Other medical and health services	15.2	20.3	28.7	35.1
Legal services	6.7	7.2	9.6	10.8
Educational services and museums	47.8	62.7	80.0	92.9
Nonprofit membership organizations (incl. welfare and religious groups)	6.5	7.2	8.5	9.8

Continued

Table 3-C (cont'd)

Industry	1960	1965	1970	1975
Services (cont'd)				
Engineering and architectural services	3.7	5.3	7.6	9.5
Accounting, auditing and bookkeeping	1.9	2.3	3.0	3.6
Miscellaneous professional services	0.9	5.6	9.8	14.1
Private household workers	27.4	30.6	36.0	41.4
Public administration	19.3	26.4	40.1	55.9
Postal service	6.0	6.2	6.9	7.9
Other federal	0.9	1.9	2.5	2.5
State	1.7	3.1	3.9	4.5
Local	10.7	15.2	26.8	41.0

For footnote see page 10.

Table 3-D. RECONCILIATION OF CIVILIAN LABOR FORCE AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NASSAU-SUFFOLK AREA
(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 3-A)	1,294	1,505	1,785	2,051
II. Civilian labor force, 14 and over (table 3-A)	743	865	1,053	1,224
A. Resident employed	715	825	1,011	1,175
B. Unemployed	28	40	42	49
1. Rate of unemployment (percent)	3.8	4.6	4.0	4.0
III. Total number of jobs (table 3-C)	587	718	908	1,081
A. Nonagricultural jobs	580	713	904	1,077
1. Wage and salary workers (table 3-B)	449	566	725	874
2. Self employed and unpaid family workers, and domestics	131	147	179	203
B. Agricultural jobs	7	5	4	4
IV. Difference between IIA and III	-128	-107	-103	-94
A. Net number of commuters into area	-149	-133	-133	-128
B. Multiple jobholders, minus persons with a job but not being paid (a)	21	26	30	34

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A) but not among the wage and salary workers (III-A.1).

Table 3E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, NASSAU-SUFFOLK AREA
(in thousands)

Occupation	1960	1965	1970	1975
All occupations	587.5	717.8	908.2	1,081.0
Professional, technical and kindred workers	105.3	129.8	162.3	192.3
Engineers, technical	12.6	14.0	18.1	21.8
Engineers, aeronautical	1.1	1.3	1.5	1.7
Engineers, chemical	0.2	0.2	0.2	0.3
Engineers, civil	1.2	1.5	2.1	2.7
Engineers, electrical	6.2	6.6	8.6	10.2
Engineers, industrial	0.3	0.3	0.4	0.4
Engineers, mechanical	3.4	3.8	4.9	6.0
Engineers, metallurgical	0.2	0.2	0.3	0.3
Engineers, mining	-	-	-	-
Other engineers, technical	-	0.1	0.1	0.2
Natural scientists	1.4	2.1	2.9	3.6
Chemists	0.4	0.7	1.0	1.2
Agricultural scientists	-	-	-	-
Biological scientists	0.1	0.2	0.2	0.3
Geologists and geophysicists	-	-	-	-
Mathematicians	0.2	0.2	0.3	0.4
Physicists	0.6	0.8	1.2	1.5
Other natural scientists, n.e.c.	0.1	0.2	0.2	0.2
Technical workers and specialists (exc. medical and dental)	21.4	25.6	31.8	37.7
Draftsmen	2.5	3.0	3.9	4.8
Structural design technicians and related specialists	0.5	0.6	0.8	1.0
Electro and mechanical engineering technicians	9.8	11.5	14.4	17.0
Mathematics technicians	0.4	0.5	0.6	0.6
Physical science technicians	0.4	0.6	0.7	0.9
Industrial engineering technicians	1.2	1.5	1.8	2.0
Civil engineering and construction technicians	1.4	1.9	2.6	3.2
Sales and service technicians	0.3	0.4	0.4	0.5
Technical writing and illustration technicians	0.8	0.9	1.0	1.2
Safety and sanitation inspectors and related specialists	0.2	0.3	0.4	0.4
Product testing and inspection specialists	2.3	2.3	2.4	2.6

Continued

Table 3E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Data processing, systems analysis and programming specialists	0.3	0.5	0.8	1.0
Airway tower specialists and flight dispatchers	0.6	0.7	0.9	1.2
Broadcasting, motion picture and recording studio specialists	0.1	0.1	0.1	0.1
Radio operators	0.6	0.8	1.0	1.2
Medical and other health workers	17.4	21.0	26.5	31.7
Dentists	2.5	2.8	3.3	3.7
Dietitians and nutritionists	0.3	0.3	0.4	0.4
Nurses, professional and student	6.7	7.8	9.7	11.4
Optometrists	0.2	0.2	0.2	0.3
Osteopaths	0.1	0.1	0.1	0.1
Pharmacists	1.1	1.3	1.5	1.7
Physicians and surgeons	3.5	4.4	5.7	6.8
Psychologists	0.3	0.5	0.7	1.0
Technicians, medical and dental	1.8	2.5	3.4	4.5
Veterinarians	0.1	0.1	0.1	0.1
Chiropractors and therapists	0.8	1.0	1.4	1.7
Teachers	23.8	30.0	34.3	38.2
Teachers, elementary	12.7	15.2	16.2	16.9
Teachers, secondary	7.8	10.0	12.2	13.9
Teachers, college	1.3	2.0	2.6	3.5
Teachers, other	2.0	2.8	3.3	3.9
Social scientists	0.5	0.7	0.9	1.1
Economists	0.2	0.2	0.3	0.3
Statisticians and actuaries	0.3	0.5	0.6	0.8
Other social scientists	-	-	-	-
Other professional, technical and kindred workers	28.2	36.4	47.8	58.2
Accountants and auditors	4.8	5.7	7.2	8.2
Airplane pilots and navigators	0.3	0.4	0.5	0.6
Architects	0.5	0.6	0.6	0.7
Artists, musicians, authors, athletes, and entertainers	5.6	8.1	11.1	13.1
Clergymen	1.3	1.3	1.3	1.3
Designers, except design draftsmen	0.8	1.1	1.4	1.8
Reporters and editors	1.1	1.4	1.6	1.8
Lawyers and judges	4.3	4.6	5.5	6.3
Librarians	1.0	1.2	1.5	1.9
Personnel and labor relations workers	0.8	1.0	1.3	1.8

Table 3t (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Photographers	1.1	1.2	1.3	1.4
Social, welfare and recreation workers	0.9	1.2	2.0	2.9
Professional and technical workers, n.e.c.	5.7	8.6	12.5	16.4
Managers, officials and proprietors	64.1	75.7	95.9	111.6
Conductors, railroad	0.7	1.0	1.3	1.4
Credit men	0.7	1.1	1.4	1.9
Ship officers	0.9	0.9	0.9	0.9
Postmasters and assistants	0.1	0.1	0.1	0.1
Purchasing agents	2.1	2.8	3.6	4.2
Managers, officials, proprietors, n.e.c.	59.6	69.8	88.6	103.1
Clerical and kindred workers	90.1	119.7	161.3	197.1
Stenos, typists and secretaries	24.0	31.4	41.7	51.6
Office machine operators	3.0	4.7	7.7	10.8
Other clerical and kindred workers	63.1	83.6	111.9	134.7
Accounting clerks	3.1	3.7	4.8	6.0
Bookkeepers, hand	8.3	10.0	11.8	13.1
Bank tellers	1.4	2.0	3.0	3.7
Cashiers	7.2	10.7	14.9	19.4
Mail carriers	3.1	3.4	3.9	4.9
Postal clerks	2.8	2.8	3.0	3.1
Shipping and receiving clerks	2.4	2.9	3.3	3.8
Telephone operators	3.6	4.0	4.8	5.3
Clerical and kindred wkrs., n.e.c.	31.2	44.1	62.4	75.4
Sales workers	43.8	56.6	69.2	81.8
Insurance agents and brokers	2.6	3.4	4.1	4.9
Real estate agents and brokers	1.3	1.6	2.1	2.6
Other sales workers, n.e.c.	39.9	51.6	63.0	74.3
Craftsmen, foremen and kindred workers	95.7	112.3	138.0	161.8
Construction craftsmen	30.8	33.3	38.6	43.7
Carpenters	10.0	10.3	11.7	12.4
Brickmasons, stone tile setters	2.7	2.8	3.2	3.5
Cement and concrete finishers	0.2	0.3	0.3	0.4
Electricians	4.3	5.0	6.0	7.1
Excavating, grading machine oprs.	1.7	1.8	2.3	3.0
Painters and paperhangers	5.2	5.5	6.3	6.9
Plasterers	0.6	0.7	0.8	0.9
Plumbers and pipefitters	4.8	5.3	6.3	7.3
Roofers and slaters	0.7	0.9	0.9	1.0
Structural metalworkers	0.6	0.7	0.8	1.2

Continued

Table 3E (Cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	10.2	12.3	16.4	19.5
Metalworking craftsmen	12.0	12.2	12.6	13.4
Skilled machining workers (incl. machinists)	6.7	6.7	7.0	7.3
Blacksmiths, forgemen, hammermen	0.1	0.1	-	-
Boilermakers	0.1	0.1	0.1	0.2
Heat treaters, annealers, tempers	0.1	0.1	0.1	0.1
Millwrights	0.2	0.3	0.3	0.3
Molders, metal (exc. coremakers)	0.1	0.1	0.1	0.1
Patternmakers, metal and wood	0.5	0.5	0.6	0.7
Rollers and roll hands	-	-	-	-
Sheet metal workers	1.0	1.0	1.1	1.3
Toolmakers, diemakers, setters	1.0	1.1	1.1	1.2
Electroplaters	0.1	0.1	0.1	0.1
Assemblers, metalwork, Class A	2.1	2.1	2.1	2.1
Printing trades craftsmen	4.1	5.1	5.9	6.9
Compositors and typesetters	1.8	1.9	2.0	2.1
Electrotypers and stereotypers	0.2	0.2	0.1	0.1
Engravers, except photoengravers	0.3	0.3	0.4	0.4
Photoengravers and lithographers	0.9	1.5	2.0	2.5
Pressmen and plate printers	0.9	1.2	1.4	1.8
Transportation and public utility craftsmen	3.7	4.4	5.3	5.9
Linemen and servicemen	3.2	3.7	4.3	4.8
Locomotive engineers	0.4	0.6	0.9	1.0
Locomotive firemen	0.1	0.1	0.1	0.1
Mechanics and repairmen	23.9	31.6	42.4	53.1
Airplane mechanics and repairmen	1.8	1.7	1.7	1.7
Motor vehicle mechanics	6.1	8.4	10.5	12.7
Office machine mechanics	0.5	0.8	1.2	1.5
Radio and TV mechanics	1.6	2.0	2.7	3.2
Railroad and car shop mechanics	0.1	0.1	0.2	0.2
Other mechanics and repairmen	13.8	18.6	26.1	33.8
Other craftsmen and kindred workers	11.0	13.4	16.8	19.3
Bakers	1.0	1.1	1.3	1.4
Cabinetmakers	0.8	0.9	1.2	1.3
Cranemen, derrickmen, hoistmen	0.7	0.9	1.1	1.3
Glaziers	0.2	0.2	0.4	0.5
Jewelers and watchmakers	0.5	0.7	1.0	1.1
Millers	-	-	-	-
Opticians and lens grinders	0.3	0.3	0.4	0.4
Stationary engineers	2.3	2.6	3.0	3.4

Continued

Table 3E. (Cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	0.6	0.8	1.1	1.4
Upholsterers	0.6	0.9	1.1	1.2
Craftsmen and kindred workers, n.e.c.	4.0	5.0	6.2	7.3
Operatives and kindred workers	83.8	101.8	124.8	145.9
Selected transportation and utility operators	21.2	25.9	33.4	39.9
Drivers: bus, truck, tractor	12.1	14.8	19.8	23.8
Deliverymen, routemen, cab drivers	7.8	9.6	11.9	14.3
Brakemen and switchmen, railroad	0.5	0.6	0.8	0.9
Power station operators	0.3	0.4	0.4	0.4
Sailors and deck hands	0.5	0.5	0.5	0.5
Asbestos and insulation workers	0.2	0.2	0.3	0.3
Semiskilled metal working occupations	11.2	11.7	12.5	12.9
Furnacemen, smelters, pourers, and heaters	0.1	0.1	0.1	0.1
Welders and flame cutters	1.7	2.0	2.5	2.8
Electroplater helpers	0.1	0.1	0.1	0.1
Machine tool operators, Class B	2.4	2.4	2.3	2.2
Assemblers, metalworking, Class B	4.8	5.1	5.3	5.5
Inspectors, metalworking, Class B	2.1	2.0	2.2	2.2
Semiskilled occupations in textiles and apparel	3.7	4.6	5.7	6.4
Kintters, loopers and toppers	0.2	0.2	0.3	0.3
Weavers and spinners, textile	0.1	0.1	0.1	0.1
Sewers and stitchers mfg.	3.4	4.3	5.3	6.0
Other operatives and kindred workers	47.5	59.4	72.9	86.4
Attendants, auto service and parking	1.8	2.1	2.9	4.0
Laundry and dry cleaning workers	3.4	4.3	5.2	5.9
Meat cutters, except meat-packing	3.0	3.9	5.0	5.9
Mine operatives and laborers, n.e.c.	0.1	0.1	0.1	0.1
Other operatives, n.e.c.	39.2	49.0	59.7	70.5
Service workers	81.3	97.0	128.6	158.7
Private household workers	23.8	26.1	31.1	35.8
Protective service workers	7.6	9.8	15.9	23.3
Firemen, fire protection	1.4	1.8	2.9	4.3
Guards and watchmen	2.8	3.7	5.4	7.6
Policemen, marshalls, sheriffs	3.4	4.3	7.6	11.4

Continued

Table 3E (Cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	16.3	20.7	27.5	33.5
Bartenders	1.4	1.7	2.2	2.7
Cooks, except private household	5.3	6.5	8.2	9.8
Counter and fountain workers	2.8	4.0	5.9	7.2
Waiters and waitresses	6.8	8.5	11.2	13.8
Other service workers	33.6	40.4	54.1	66.1
Airline stewards and stewardesses	-	-	-	-
Attendants, hospital and other inst.	10.3	13.4	18.9	24.0
Charwomen and cleaners	1.2	1.7	2.2	2.7
Janitors and sextons	4.4	5.3	6.0	6.7
Nurses, practical	1.4	1.8	2.5	3.3
Other service workers, n.e.c.	16.3	18.2	24.5	29.4
Farmers and farm laborers	9.2	8.0	7.3	7.2
Laborers, except farm and mine	14.2	16.9	20.8	24.6

Table 3-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, NASSAU-SUFFOLK AREA

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	587.5	11.6	51.7	131.0	27.1	139.4	24.0	183.4	19.3
Professional, technical, and kindred wkrs.	105.3	0.5	2.4	27.3	3.1	4.3	1.5	63.6	2.6
Engineers, technical	12.6	-	1.1	9.6	0.3	0.3	-	1.1	0.2
Natural scientists	1.4	-	-	0.4	-	0.3	-	0.7	-
Technicians, exc. medical and dental	21.4	-	0.8	13.9	1.4	0.8	-	3.3	1.2
Medical and other health workers	17.4	0.2	-	0.1	-	1.1	-	16.0	-
Teachers	23.8	-	-	0.1	-	0.1	-	23.5	0.1
Social scientists	0.5	-	-	0.1	-	0.1	0.1	0.1	0.1
Other prof., tech., and kindred wkrs.	28.2	0.3	0.5	3.1	1.4	1.6	1.4	18.9	1.0
Managers, officials and proprietors	64.1	0.2	6.7	8.9	1.8	30.2	5.7	8.8	1.8
Clerical and kindred workers	90.1	0.3	2.6	13.9	6.5	24.1	10.1	25.4	7.2
Stenos, typists and secretaries	24.0	0.1	0.8	3.7	0.9	4.6	2.1	11.0	0.8
Office machine operators	3.0	-	-	0.8	0.3	0.9	0.4	0.5	0.1
Other clerical and kindred workers	63.1	0.2	1.8	9.4	5.3	18.6	7.6	13.9	6.3
Sales workers	43.8	0.2	0.3	5.9	0.2	31.0	4.3	1.9	-
Craftsmen, foremen and kindred workers	95.7	0.2	30.0	33.7	6.7	12.4	0.7	11.0	1.0
Construction craftsmen	30.8	-	24.8	2.7	0.6	0.7	0.2	1.7	0.1
Foremen, n.e.c.	10.2	0.1	1.4	4.4	1.3	2.6	0.1	0.2	0.1
Metalworking craftsmen, exc mechanics	12.0	-	0.6	11.3	-	-	-	0.1	-
Printing trades craftsmen	4.1	-	-	3.8	-	0.1	-	0.2	-
Transp. and public utility craftsmen	3.7	-	0.2	0.1	3.4	-	-	-	-
Mechanics and repairmen	23.9	0.1	2.0	7.5	0.8	6.1	0.3	6.4	0.7
Other craftsmen and kindred workers	11.0	-	1.0	3.9	0.6	2.9	0.1	2.4	0.1
Operatives and kindred workers	83.8	0.6	4.2	39.5	7.2	16.8	0.1	15.1	0.3
Selected transp. and pub. util. oprs.	21.2	0.4	2.2	2.1	6.5	8.8	-	1.0	0.2
Semiskilled metal-working occup.	11.2	-	0.4	10.1	0.1	0.1	-	0.5	-
Semiskilled textiles occupations (e)	3.7	-	-	3.7	-	-	-	-	-
Other operatives and kindred workers	47.7	0.2	1.6	23.6	0.6	7.9	0.1	13.6	0.1
Service workers	81.3	0.2	0.2	0.9	0.2	16.0	0.7	57.0	6.1
Private household workers	23.8	-	-	-	-	-	-	23.8	-
Protective service workers	7.6	-	0.1	0.4	0.1	0.1	0.2	1.2	5.5
Waiters, cooks, and bartenders	16.3	0.2	0.1	0.1	-	10.3	-	5.6	-
Other service workers	33.6	-	-	0.4	0.1	5.6	0.5	26.4	0.6
Laborers, exc. farm and mine	14.2	0.2	5.3	0.9	1.4	4.6	0.9	0.6	0.3
Farmers and farm laborers	9.2	9.2	-	-	-	-	-	-	-

For footnote see page 18.

Table 3-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, NASSAU-SUFFOLK AREA

2. ESTIMATED 1965

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	717.8	9.7	56.7	141.8	33.1	182.6	31.7	235.8	26.4
Professional, technical, and kindred workers	129.8	0.3	2.8	29.5	3.9	5.8	2.1	81.6	3.8
Engineers, technical	14.0	-	1.3	9.8	0.3	0.4	-	1.9	0.3
Natural scientists	2.1	-	-	0.4	-	0.5	-	1.2	-
Technicians, exc. medical and dental	25.6	-	0.9	15.8	2.2	1.0	-	4.1	1.6
Medical and other health workers	21.0	0.1	-	0.1	-	1.2	-	19.6	-
Teachers	30.0	-	-	0.1	-	0.2	-	29.5	0.2
Social scientists	0.7	-	-	0.1	-	0.2	0.2	0.1	0.1
Other prof., tech., and kindred workers	36.4	0.2	0.6	3.2	1.4	2.3	1.9	25.2	1.6
Managers, officials, and proprietors	75.7	0.2	7.0	9.2	2.2	35.2	7.7	11.4	2.8
Clerical and kindred workers	119.7	0.3	3.1	14.3	7.6	35.0	13.4	36.9	9.1
Stenos, typists, and secretaries	31.4	0.1	1.0	4.0	1.2	6.2	2.7	15.1	1.1
Office machine operators	4.7	-	-	1.0	0.4	1.6	0.7	0.8	0.2
Other clerical and kindred workers	83.6	0.2	2.1	9.3	6.0	27.2	10.0	21.0	7.8
Sales workers	56.6	0.2	0.3	6.7	0.3	40.8	5.4	2.9	-
Craftsmen, foremen, and kindred workers	112.3	0.2	32.2	35.9	8.2	17.6	0.9	15.8	1.5
Construction craftsmen	33.3	-	26.2	2.9	0.7	0.8	0.2	2.4	0.1
Foremen, n.e.c.	12.3	0.1	1.5	4.7	1.4	3.9	0.1	0.4	0.2
Metalworking craftsmen, exc. mechanics	12.2	-	0.6	11.4	-	0.1	-	0.1	-
Printing trades craftsmen	5.1	-	-	4.6	-	0.2	-	0.3	-
Transp. and public utility craftsmen	4.4	-	0.2	0.1	4.1	-	-	-	-
Mechanics and repairmen	31.6	0.1	2.5	8.2	1.3	8.5	0.5	9.4	1.1
Other craftsmen and kindred workers	13.4	-	1.2	4.0	0.7	4.1	0.1	3.2	0.1
Operatives and kindred workers	101.8	0.3	5.1	44.5	8.9	22.3	0.2	19.9	0.6
Selected transp. and pub. util. oprs.	25.9	0.2	2.4	2.2	8.1	11.1	0.1	1.5	0.3
Semiskilled metalworking occupations	11.7	-	0.6	10.3	0.1	0.1	-	0.6	-
Semiskilled textiles occupations	4.6	-	-	4.6	-	-	-	-	-
Other operatives and kindred workers	59.6	0.1	2.1	27.4	0.7	11.1	0.1	17.8	0.3
Service workers	97.0	0.1	0.2	0.8	0.2	20.3	1.0	66.2	8.2
Private household workers	26.1	-	-	-	-	-	-	26.1	-
Protective service workers	9.8	-	0.1	0.4	0.1	0.1	0.3	1.7	7.1
Waiters, cooks, and bartenders	20.7	0.1	0.1	0.1	-	13.5	-	6.9	-
Other service workers	40.4	-	-	0.3	0.1	6.7	0.7	31.5	1.1
Laborers, except farm and mine	16.9	0.1	6.0	0.9	1.8	5.6	1.0	1.1	0.4
Farmers and farm laborers	8.0	8.0	-	-	-	-	-	-	-

For footnote see page 18.

Table 3-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, NASSAU-SUFFOLK AREA

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	1,081.0	8.9	84.3	187.8	51.7	270.5	50.7	371.2	55.9
Professional, technical, and kindred workers	192.3	0.3	4.8	40.7	5.8	8.5	3.2	121.9	7.1
Engineers, technical	21.8	-	2.0	13.3	0.7	0.6	-	4.5	0.7
Natural scientists	3.6	-	-	0.6	-	0.8	-	2.2	-
Technicians, exc. medical and dental	37.7	-	1.9	21.4	2.8	1.4	0.1	7.1	3.0
Medical and other health workers	31.7	0.1	-	0.2	-	1.6	-	29.8	-
Teachers	38.2	-	-	0.1	-	0.3	-	37.6	0.2
Social scientists	1.1	-	-	0.2	-	0.3	0.2	0.3	0.1
Other prof., tech., and kindred workers	58.2	0.2	0.9	4.9	2.3	3.5	2.9	40.4	3.1
Managers, officials, and proprietors	111.6	0.1	11.7	12.3	2.9	47.2	13.1	18.0	6.3
Clerical and kindred workers	197.1	0.2	4.9	20.0	10.9	56.6	21.2	67.2	16.1
Stenos, typists, and secretaries	51.6	0.1	1.6	6.2	1.7	8.6	4.2	26.3	2.9
Office machine operators	10.8	-	-	2.3	0.8	2.8	2.0	2.4	0.5
Other clerical and kindred workers	134.7	0.1	3.3	11.5	8.4	45.2	15.0	38.5	12.7
Sales workers	81.8	0.3	0.5	8.8	0.6	58.8	8.1	4.7	-
Craftsmen, foremen, and kindred workers	161.8	0.2	45.5	45.6	12.7	27.4	1.5	24.6	4.3
Construction craftsmen	43.7	-	33.6	3.6	1.3	1.3	0.5	3.0	0.4
Foremen, n.e.c.	19.5	0.1	3.0	7.1	2.2	5.7	0.2	0.7	0.5
Metalworking craftsmen, exc. mechanics	13.4	-	0.9	12.0	-	0.1	-	0.4	-
Printing trades craftsmen	6.9	-	-	6.2	-	0.3	-	0.3	0.1
Transp. and public utility craftsmen	5.9	-	0.4	0.1	5.4	-	-	-	-
Mechanics and repairmen	53.1	0.1	5.3	11.7	2.4	14.1	0.7	15.7	3.1
Other craftsmen and kindred workers	19.3	-	2.3	4.9	1.4	5.9	0.1	4.5	0.2
Operatives and kindred workers	145.9	0.4	9.0	58.0	15.5	32.6	0.1	29.0	1.3
Selected transp. and pub. util. oprs.	39.9	0.2	4.3	2.5	13.8	16.1	0.1	2.2	0.7
Semiskilled metalworking occupations	12.9	-	0.8	10.9	0.2	0.1	-	0.8	0.1
Semiskilled textiles occupations	6.4	-	-	6.4	-	-	-	-	-
Other operatives and kindred workers	86.7	0.2	3.9	38.2	1.5	16.4	-	26.0	0.5
Service workers	158.7	0.1	0.3	1.0	0.4	31.7	1.9	103.0	20.3
Private household workers	35.8	-	-	-	-	-	-	35.8	-
Protective service workers	23.3	-	0.2	0.4	0.2	0.1	0.4	2.5	19.5
Waiters, cooks, and bartenders	33.5	0.1	0.1	0.2	-	21.5	0.1	11.5	-
Other service workers	66.1	-	-	0.4	0.2	10.1	1.4	53.2	0.8
Laborers, except farm and mine	24.6	0.1	7.6	1.4	2.9	7.7	1.6	2.8	0.5
Farmers and farm laborers	7.2	7.2	-	-	-	-	-	-	-

For footnote see page 18.

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Table 3G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN THE NASSAU-SUFFOLK AREA, 1965-1975
(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	717.8	566.4	79	363.2	51	203.2	28
Professional, technical, and kindred workers	129.8	92.9	72	62.5	48	30.4	23
Engineers, technical	14.0	10.0	71	7.8	56	2.2	16
Engineers, aeronautical	1.3	0.5	38	0.4	31	0.1	8
Engineers, chemical	0.2	0.1	50	0.1	50	-	-
Engineers, civil	1.5	1.6	107	1.2	80	0.4	27
Engineers, electrical	6.6	4.6	70	3.6	55	1.0	15
Engineers, industrial	0.3	0.1	33	0.1	33	-	-
Engineers, mechanical	3.8	2.9	76	2.2	58	0.7	18
Engineers, metallurgical	0.2	0.1	50	0.1	50	-	-
Engineers, mining	-	-	-	-	-	-	-
Other engineers, technical	0.1	0.1	100	0.1	100	-	-
Natural scientists	2.1	1.8	86	1.5	71	0.3	14
Chemists	0.7	0.6	86	0.5	71	0.1	14
Agricultural scientists	-	-	-	-	-	-	-
Biological scientists	0.2	0.2	100	0.1	50	0.1	50
Geologists and geophyicists	-	-	-	-	-	-	-
Mathematicians	0.2	0.3	150	0.2	100	0.1	50
Physicists	0.8	0.7	88	0.7	88	-	-
Other natural scientists, n.e.c.	0.2	-	-	-	-	-	-
Technical workers (excl. medical and dental)	25.6	14.8	58	12.1	47	2.7	11
Draftsmen	3.0	2.2	73	1.8	60	0.4	13
Structural design technicians and related specialists	0.6	0.5	83	0.4	67	0.1	17
Electro and mechanical engineering technicians	11.5	6.2	54	5.5	48	0.7	6
Mathematics technicians	0.5	0.2	40	0.1	20	0.1	20
Physical science technicians	0.6	0.4	67	0.3	50	0.1	17
Industrial engineering technicians	1.5	0.7	47	0.5	33	0.2	13

Continued

Table 3-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Professional, technical, and kindred workers (cont'd)							
Civil engineering and construction technicians	1.9	1.5	79	1.3	68	0.2	11
Sales and service technicians	0.4	0.2	50	0.1	25	0.1	25
Technical writing and illustration technicians	0.9	0.4	44	0.3	33	0.1	11
Safety and sanitation inspectors and related specialists	0.3	0.2	67	0.1	33	0.1	33
Product testing and inspection specialists	2.3	0.5	22	0.3	13	0.2	9
Data processing, systems analysis and programming specialists	0.5	0.6	120	0.5	100	0.1	20
Airway tower specialists and flight dispatchers	0.7	0.6	86	0.5	71	0.1	14
Broadcasting, motion picture and recording studio specialists	0.1	-	-	-	-	-	-
Radio operators	0.8	0.6	75	0.4	50	0.2	25
Medical and other health workers	21.0	17.6	84	10.7	51	6.9	33
Dentists	2.8	1.8	64	0.9	32	0.9	32
Dietitians and nutritionists	0.3	0.2	67	0.1	33	0.1	33
Nurses, professional and student	7.8	6.6	85	3.6	46	3.0	38
Optometrists	0.2	0.2	100	0.1	50	0.1	50
Osteopaths	0.1	-	-	-	-	-	-
Pharmacists	1.3	0.7	54	0.4	31	0.3	23
Physicians and surgeons	4.4	3.7	84	2.4	55	1.3	30
Psychologists	0.5	0.6	120	0.5	100	0.1	20
Technicians, medical and dental	2.5	2.7	108	2.0	80	0.7	28
Veterinarians	0.1	-	-	-	-	-	-
Chiropractors and therapists	1.0	1.1	110	0.7	70	0.4	40
Teachers	30.0	16.9	56	8.2	27	8.7	29
Teachers, elementary	15.2	6.5	43	1.7	11	4.8	32
Teachers, secondary	10.0	6.3	63	3.9	39	2.4	24
Teachers, college	2.0	2.1	105	1.5	75	0.6	30
Teachers, other	2.8	2.0	71	1.1	39	0.9	32

Continued

Table 3-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Professional, technical, and kindred workers (cont'd)							
Social scientists	0.7	0.6	86	0.4	57	0.2	29
Economists	0.2	0.2	100	0.1	50	0.1	50
Statisticians and actuaries	0.5	0.4	80	0.3	60	0.1	20
Other social scientists	-	-	-	-	-	-	-
Other prof., tech., and kindred workers	36.4	31.2	86	21.8	60	9.4	26
Accountants and auditors	5.7	3.7	65	2.5	44	1.2	21
Airplane pilots and navigators	0.4	0.2	50	0.2	50	-	-
Architects	0.6	0.3	50	0.1	17	0.2	33
Artists, musicians, authors, athletes, and entertainers	8.1	7.0	86	5.0	62	2.0	25
Clergymen	1.3	0.4	31	-	-	0.4	31
Designers, except design draftsmen	1.1	1.1	100	0.7	64	0.4	36
Reporters and editors	1.4	0.7	50	0.4	29	0.3	21
Lawyers and judges	4.6	2.9	63	1.7	37	1.2	26
Librarians	1.2	1.2	100	0.7	58	0.5	42
Personnel and labor relations workers	1.0	1.1	110	0.8	80	0.3	30
Photographers	1.2	0.4	33	0.2	17	0.2	17
Social, welfare, and recreation workers	1.2	2.2	183	1.7	142	0.5	42
Prof. and tech. workers, n.e.c.	8.6	10.0	116	7.8	91	2.2	26
Managers, officials and proprietors	75.7	56.6	75	35.9	47	20.7	27
Conductors, railroad	1.0	0.7	70	0.4	40	0.3	30
Credit men	1.1	1.0	91	0.8	73	0.2	18
Ship officers	0.9	0.2	22	-	-	0.2	22
Postmasters and assistants	0.1	-	-	-	-	-	-
Purchasing agents	2.8	2.0	71	1.4	50	0.6	21
Managers, officials, proprietors, n.e.c.	69.8	52.7	76	33.3	48	19.4	28
Clerical and kindred workers	119.7	118.8	99	77.4	65	41.4	35
Stenos, typists, and secretaries	31.4	32.4	103	20.2	64	12.2	39

Continued

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Table 3-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Clerical and kindred workers (cont'd)							
Office machine operators	4.7	7.4	157	6.1	130	1.3	28
Other clerical and kindred workers	83.6	79.0	94	51.1	61	27.9	33
Accounting clerks	3.7	3.8	103	2.3	62	1.5	41
Bookkeepers, hand	10.0	6.4	64	3.1	31	3.3	33
Bank tellers	2.0	2.2	110	1.7	85	0.5	25
Cashiers	10.7	13.0	121	8.7	81	4.3	40
Mail carriers	3.4	1.9	56	1.5	44	0.4	12
Postal clerks	2.8	0.8	29	0.3	11	0.5	18
Shipping and receiving clerks	2.9	1.4	48	0.9	31	0.5	17
Telephone operators	4.0	2.7	68	1.3	33	1.4	35
Clerical and kindred workers, n.e.c.	44.1	46.8	106	31.3	71	15.5	35
Sales workers	56.6	41.0	72	25.2	45	15.8	28
Insurance agents and brokers	3.4	2.6	76	1.5	44	1.1	32
Real estate agents and brokers	1.6	1.6	100	1.0	63	0.6	38
Other sales workers, n.e.c.	51.6	36.8	71	22.7	44	14.1	27
Craftsmen, foremen, and kindred workers	112.3	74.1	66	49.5	44	24.6	22
Construction craftsmen	33.3	17.9	54	10.4	31	7.5	23
Carpenters	10.3	4.1	40	2.1	20	2.0	19
Brickmasons, stone and tile setters	2.8	1.4	50	0.7	25	0.7	25
Cement and concrete finishers	0.3	0.2	67	0.1	33	0.1	33
Electricians	5.0	3.1	62	2.1	42	1.0	20
Excavating, grading machine operators	1.8	1.4	78	1.2	67	0.2	11
Painters and paperhangers	5.5	3.0	55	1.4	25	1.6	29
Plasterers	0.7	0.4	57	0.2	29	0.2	29
Plumbers and pipefitters	5.3	3.4	64	2.0	38	1.4	26
Roofers and slaters	0.9	0.2	22	0.1	11	0.1	11
Structural metalworkers	0.7	0.7	100	0.5	71	0.2	29
Foremen, n.e.c.	12.3	10.0	81	7.2	59	2.8	23

Continued

Table 3-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Craftsmen, foremen and kindred workers (cont'd)							
Metalworking craftsmen	12.2	3.6	30	1.2	10	2.4	20
Skilled machining workers (inc. machinists)	6 7	1.9	28	0.6	9	1.3	19
Blacksmiths, forgemen, hammermen	0.1	-0.1	-100	-0.1	-100	-	-
Boilermakers	0.1	0.2	200	0.1	100	0.1	100
Heat treaters, annealers, tempers	0.1	-	-	-	-	-	-
Millwrights	0.3	0.1	33	-	-	0.1	33
Molders, metal (exc. coremakers)	0.1	-	-	-	-	-	-
Pattermakers, metal and wood	0.5	0.4	80	0.2	40	0.2	40
Rollers and roll hands	-	-	-	-	-	-	-
Sheet metal workers	1.0	0.4	40	0.3	30	0.1	10
Toolmakers, diemakers, setters	1.1	0.3	27	0.1	9	0.2	18
Electroplaters	0.1	-	-	-	-	-	-
Assemblers, metalwork, Class A	2.1	0.4	19	-	-	0.4	19
Printing trades craftsmen	5.1	2.8	55	1.8	35	1.0	20
Compositors and typesetters	1.9	0.7	37	0.2	11	0.5	26
Electrotypers and stereotypers	0.2	-0.1	-50	-0.1	-50	-	-
Engravers, except photoengravers	0.3	0.2	67	0.1	33	0.1	33
Photoengravers and lithographers	1.5	1.2	80	1.0	67	0.2	13
Pressmen and plate printers	1.2	0.8	67	0.6	50	0.2	17
Transportation and public utility craftsmen	4.4	2.2	50	1.5	34	0.7	16
Linemen and servicemen	3.7	1.6	43	1.1	30	0.5	14
Locomotive engineers	0.6	0.6	100	0.4	67	0.2	33
Locomotive firemen	0.1	-	-	-	-	-	-
Mechanics and repairmen	31.6	28.8	91	21.5	68	7.3	23
Airplane mechanics and repairmen	1.7	0.1	6	-	-	0.1	6
Motor vehicle mechanics	8.4	5.6	67	4.3	51	1.3	15
Office machine mechanics	0.8	0.8	100	0.7	88	0.1	13
Radio and TV mechanics	2.0	1.4	70	1.2	60	0.2	10
Railroad and car shop mechanics	0.1	0.2	200	0.1	100	0.1	100
Other mechanics and repairmen	18.6	20.7	111	15.2	82	5.5	30

Continued

Table 3-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Craftsmen, foremen and kindred workers (cont'd)							
Other craftsmen and kindred workers	13.4	8.8	66	5.9	44	2.9	22
Bakers	1.1	0.6	55	0.3	27	0.3	27
Cabinetmakers	0.9	0.6	67	0.4	44	0.2	22
Cranemen, derrickmen and hoistmen	0.9	0.6	67	0.4	44	0.2	22
Glaziers	0.2	0.3	150	0.3	150	-	-
Jewelers and watchmakers	0.7	0.6	86	0.4	57	0.2	29
Millers	-	-	-	-	-	-	-
Opticians and lens grinders	0.3	0.1	33	0.1	33	-	-
Stationary engineers	2.6	1.3	50	0.8	31	0.5	19
Inspectors, other than metalworking	0.8	0.8	100	0.6	75	0.2	25
Upholsterers	0.9	0.5	56	0.3	33	0.2	22
Craftsmen and kindred workers, n.e.c.	5.0	3.4	68	2.3	46	1.1	22
Operatives and kindred workers	101.8	67.0	66	44.1	43	22.9	22
Selected transportation and utility operators	25.9	18.5	71	14.0	54	4.5	17
Drivers: bus, truck, tractor	14.8	11.6	78	9.0	61	2.6	18
Deliverymen, routemen, cab drivers	9.6	6.2	65	4.7	49	1.5	16
Brakemen and switchmen, railroad	0.6	0.5	83	0.3	50	0.2	33
Power station operators	0.4	0.1	25	-	-	0.1	25
Sailors and deck hands	0.5	0.1	20	-	-	0.1	20
Asbestos and insulation workers	0.2	0.2	100	0.1	50	0.1	50
Semiskilled metalworking occupations	11.7	3.5	30	1.2	10	2.3	20
Furnacemen, smelters, pourers, and heaters	0.1	-	-	-	-	-	-
Welders and flame cutters	2.0	1.2	60	0.8	40	0.4	20
Electroplater helpers	0.1	-	-	-	-	-	-
Mach. tool opr., metalworking, Class B	2.4	0.2	8	-0.2	- 8	0.4	17
Assemblers, metalworking, Class B	5.1	1.4	27	0.4	8	1.0	20
Inspectors, metalworking, Class B	2.0	0.7	35	0.2	10	0.5	25
Semiskilled occupations in textiles and apparel	4.6	3.4	74	1.8	39	1.6	35
Knitters, loopers and toppers	0.2	0.1	50	0.1	50	-	-
Weavers and spinners, textile	0.1	-	-	-	-	-	-

Continued

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Table 3-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Operatives and kindred workers (cont'd)							
Sewers and stitchers, mfg.	4.3	3.3	77	1.7	40	1.6	37
Other operatives and kindred workers	59.4	41.4	70	27.0	45	14.4	24
Attendants, auto service and parking	2.1	2.4	114	1.9	90	0.5	24
Laundry and dry cleaning workers	4.3	3.1	72	1.6	37	1.5	35
Meat cutters, except meat-packing	3.9	3.0	77	2.0	51	1.0	26
Mine operatives and laborers, n.e.c.	0.1	-	-	-	-	-	-
Other operatives, n.e.c.	49.0	32.9	67	21.5	44	11.4	23
Service workers	97.0	102.1	105	61.7	64	40.4	42
Private household workers	26.1	23.6	90	9.7	37	13.9	53
Protective service workers	9.8	16.9	172	13.5	138	3.4	35
Firemen, fire protection	1.8	2.8	156	2.5	139	0.3	17
Guards and watchmen	3.7	6.3	170	3.9	105	2.4	65
Policemen, marshalls, sheriffs	4.3	7.8	181	7.1	165	0.7	16
Waiters, cooks and bartenders	20.7	19.9	96	12.8	62	7.1	34
Bartenders	1.7	1.7	100	1.0	59	0.7	41
Cooks, except private household	6.5	5.8	89	3.3	51	2.5	38
Counter and fountain workers	4.0	4.6	115	3.2	80	1.4	35
Waiters and waitresses	8.5	7.8	92	5.3	62	2.5	29
Other service workers	40.4	41.7	103	25.7	64	16.0	40
Attendants, hospital and other institutions	13.4	14.5	108	10.6	79	3.9	29
Charwomen and cleaners	1.7	1.9	112	1.0	59	0.9	53
Janitors and sextons	5.3	3.4	64	1.4	26	2.0	38
Nurses, practical	1.8	2.7	150	1.5	83	1.2	67
Other service workers, n.e.c.	18.2	19.2	105	11.2	62	8.0	44
Farmers and farm laborers	8.0	1.7	21	- 0.8	-10	2.5	31
Laborers, except farm and mine	16.9	12.2	72	7.7	46	4.5	27

WESTCHESTER-ROCKLAND AREA

Table 4-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, WESTCHESTER-ROCKLAND AREA
(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	671	775	897	1,011	60.7	59.7	60.0	59.7	407	463	538	604
Male, total	310	363	422	476	84.5	79.9	78.9	77.9	262	290	333	371
14 - 19	34	54	66	74	41.2	39.3	39.4	39.4	14	21	26	29
20 - 24	17	27	47	55	88.2	87.8	87.2	87.6	15	24	41	48
25 - 34	53	42	43	71	98.1	97.7	97.7	97.7	52	41	42	69
35 - 44	64	76	76	56	98.4	98.0	98.5	98.5	63	74	75	55
45 - 54	62	68	81	95	98.4	97.7	97.5	97.5	61	66	79	93
55 - 64	47	55	61	68	89.4	89.6	88.5	88.1	42	49	54	60
65 and over	33	41	48	57	45.5	36.6	33.3	30.5	15	15	16	17
Female, total	361	412	475	535	40.2	42.0	43.2	43.6	145	173	205	233
14 - 19	38	53	64	71	34.2	35.8	37.5	38.2	13	19	24	27
20 - 24	25	33	48	56	60.0	63.6	64.6	65.8	15	21	31	37
25 - 34	63	57	63	87	33.3	35.1	35.1	35.6	21	20	22	31
35 - 44	72	82	81	70	41.7	43.9	44.4	45.6	30	36	36	32
45 - 54	68	76	88	99	55.9	56.8	57.2	58.6	38	43	50	58
55 - 64	50	58	69	78	44.0	48.3	50.1	51.8	22	28	35	40
65 and over	45	53	62	74	13.3	11.3	11.3	11.3	6	6	7	8

a. Civilian labor force as percent of civilian noninstitutional population.

Table 4-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, WESTCHESTER - ROCKLAND AREA
(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	266.9	310.9	372.7	431.0
Manufacturing	77.5	85.6	93.5	108.6
Durable goods	36.7	41.8	51.4	58.4
Lumber and wood products	0.4	0.3	0.3	0.3
Furniture and fixtures	0.9	1.2	1.6	1.9
Stone, clay and glass products	1.2	1.4	1.7	2.0
Primary metal industries	4.0	4.0	3.9	3.8
Fabricated metal products (b)	4.9	5.3	6.3	7.0
Machinery, except electrical	7.8	10.1	14.5	17.8
Electrical equipment and supplies	8.0	9.4	12.0	13.8
Transportation equipment, instruments and related products (c)	9.5	10.1	11.1	11.8
Nondurable goods	40.8	43.8	47.1	50.2
Food and kindred products	8.4	9.3	10.4	11.3
Tobacco manufactures	-	-	-	-
Textile mill products	1.2	1.4	1.6	1.8
Apparel and other fabric products	7.5	8.1	8.5	8.8
Paper and allied products	2.7	2.5	2.5	2.5
Printing and publishing	6.6	7.0	7.4	7.8
Chemicals and allied products	8.8	9.9	10.9	12.0
Petroleum and coal products	0.2	0.1	0.1	0.1
Rubber and plastics products, n.e.c.	0.7	1.1	1.3	1.5
Leather and leather products	0.5	0.6	0.8	1.0
Miscellaneous manufacturing industries	4.2	3.8	3.6	3.4
Agriculture (d), forestry and fisheries	1.6	1.9	2.2	2.5
Mining	0.5	0.4	0.3	0.2
Contract construction	17.5	18.6	21.7	23.2
Transportation, communication and public utilities	18.1	18.7	20.2	22.3
Railroads	2.8	1.7	2.0	2.4
Air transportation	0.1	0.2	0.3	0.4
Local and interurban passenger transportation	1.8	2.2	2.5	3.0
Trucking, warehousing, and water transportation	3.4	4.0	4.8	5.7

Continued

Table 4-B continued

Industry	1960	1965(a)	1970	1975
Transportation, communication and public utilities (cont'd)				
Pipelines	-	-	-	-
Transportation services	0.1	0.2	0.3	0.4
Communication and electric, gas and sanitary services	9.9	10.4	10.3	10.4
Wholesale and retail trade	54.3	66.2	81.9	98.8
Wholesale trade	11.6	15.5	19.7	23.9
Motor vehicles and equipment	0.5	0.6	0.7	0.8
Drugs, chemicals and allied products	0.7	1.3	1.9	2.6
Dry goods and apparel	0.3	0.3	0.4	0.5
Groceries and related products	1.6	2.4	3.3	4.3
Electrical goods, hardware, plumbing and heating	1.9	2.1	2.4	2.7
Machinery, equipment and supplies	1.6	2.4	3.2	4.0
Other wholesale	5.0	6.4	7.8	9.0
Retail trade	42.7	50.7	62.2	74.9
Building materials, farm equipment	2.0	1.9	1.9	2.0
Retail general merchandise	6.7	9.8	13.6	18.0
Variety stores	1.6	1.7	2.6	3.5
Other general merchandise stores	5.1	8.1	11.0	14.5
Food stores	8.4	9.9	12.3	14.9
Automotive dealers and service stations	5.5	6.3	7.3	8.5
Gasoline service stations	1.9	2.3	2.6	3.0
Other motor vehicle and accessory dealers	3.6	4.0	4.7	5.5
Apparel and accessories	5.0	4.4	4.4	4.5
Furniture, homefurnishings	2.0	2.1	2.3	2.5
Eating and drinking places	8.7	10.9	13.7	16.5
Miscellaneous retail stores	4.4	5.4	6.7	8.0
Drug and proprietary stores	1.2	1.4	1.6	1.9
Other miscellaneous retail stores	3.2	4.0	5.1	6.1
Finance, insurance and real estate	12.0	14.0	16.8	18.4
Banking and credit agencies	3.8	4.8	6.5	7.5
Brokers and investment companies	0.2	0.2	0.2	0.2
Insurance	3.8	4.5	5.1	5.5
Real estate	4.2	4.5	5.0	5.2
Services	46.5	59.1	73.0	88.0
Hotels and lodging places	1.3	1.8	2.0	2.2
Personal services	5.7	6.2	6.8	7.5
Laundries	4.1	3.5	3.5	3.5
Other personal services	1.6	2.7	3.3	4.0
Miscellaneous business services	5.0	6.8	8.9	11.2
Advertising	0.7	0.6	0.6	0.6

Continued

Table 4-B continued

Industry	1960	1965(a)	1970	1975
Services (cont'd)				
Other business services	4.3	6.2	8.3	10.6
Automobile repair services and garages	1.3	1.8	2.3	2.8
Miscellaneous repair services	0.7	0.9	1.2	1.5
Motion pictures and other amusement and recreation services	4.5	6.2	8.3	10.6
Theaters and motion pictures	0.7	0.9	1.4	1.9
Other entertainment and recreation	3.8	5.3	6.9	8.7
Medical and other health services	12.0	15.3	18.9	22.8
Hospitals	8.6	10.5	12.9	15.5
Other medical and health services	3.4	4.8	6.0	7.3
Legal services	0.7	1.0	1.3	1.6
Educational services and museums	7.6	9.8	11.9	14.2
Nonprofit membership organizations	6.4	7.5	9.1	10.8
Miscellaneous services	1.3	1.8	2.3	2.8
Engineering and architectural services	0.6	1.0	1.3	1.5
Accounting, auditing and bookkeeping	0.6	0.3	0.4	0.5
Miscellaneous professional services	0.1	0.5	0.6	0.8
Nonclassifiable	-	-	-	-
Government	38.9	46.4	58.1	69.0
Federal	4.7	5.8	6.9	7.9
Postal service	3.1	3.2	3.5	3.7
Other federal	1.6	2.6	3.4	4.2
State and local	34.2	40.6	51.2	61.1
State	6.6	8.0	10.3	12.4
Local	27.6	32.6	40.9	48.7

a. Data on 1965 Benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.
Note: Detail may not add to totals due to rounding.

Table 4-C. TOTAL NUMBER OF JOBS (a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, WESTCHESTER-ROCKLAND AREA
(in thousands)

Industry	1960	1965	1970	1975
Total employment	344.3	389.9	462.8	528.5
Manufacturing	82.2	90.2	103.2	113.9
Durable goods	38.1	43.2	52.9	60.1
Lumber and wood products	0.5	0.4	0.4	0.3
Furniture and fixtures	1.1	1.4	1.8	2.2
Stone, clay and glass products	1.2	1.5	1.9	2.2
Primary metal industries	4.1	4.1	4.0	3.9
Fabricated metal products (b)	5.3	5.7	6.7	7.5
Machinery, except electrical	8.1	10.4	14.8	18.2
Electrical equipment and supplies	8.0	9.4	12.0	13.8
Transportation equipment, instruments and related products (c)	9.8	10.3	11.3	12.0
Nondurable goods	44.1	47.0	50.3	53.8
Food and kindred products	8.9	9.7	10.8	11.7
Tobacco manufactures	-	-	-	-
Textile mill products	1.3	1.5	1.7	2.0
Apparel and other fabric products	8.5	9.2	9.7	10.3
Paper and allied products	2.8	2.6	2.6	2.6
Printing and publishing	7.3	7.6	8.0	8.4
Chemicals and allied products	9.0	10.1	11.1	12.2
Petroleum and coal products	0.2	0.1	0.1	0.1
Rubber and plastics products, n.e.c.	0.8	1.2	1.4	1.6
Leather and leather products	0.7	0.8	1.0	1.2
Miscellaneous manufacturing	4.6	4.2	3.9	3.7
Nonmanufacturing	262.1	299.7	359.6	414.6
Agriculture, forestry and fisheries	3.9	3.3	3.4	3.3
Mining	0.6	0.4	0.3	0.2
Contract construction	24.4	26.0	31.2	34.7
Transportation, communication and public utilities	21.6	23.2	25.9	29.8
Railroads	2.8	1.7	2.0	2.4
Air transportation	0.2	0.4	0.6	0.8
Local and suburban transit	1.3	1.8	2.5	3.8
Taxicabs	1.5	1.4	1.4	1.4
Trucking, warehousing and water transportation	4.0	5.0	6.1	7.3
Pipelines	-	-	-	-
Transportation services	0.1	0.3	0.5	0.8

Continued

Table 4-C (cont'd)

Industry	1960	1965	1970	1975
Transportation, communication and public utilities (cont'd)				
Communication, electric, gas, and sanitary services	11.7	12.6	12.8	13.3
Wholesale and retail trade	73.3	83.3	99.3	115.7
Wholesale trade	14.6	18.3	22.7	26.8
Motor vehicles and equipment	0.6	0.7	0.8	0.9
Drugs, chemicals and allied products	1.0	1.7	2.4	3.1
Dry goods and apparel	0.4	0.4	0.5	0.6
Groceries and related products	2.0	2.8	3.7	4.7
Electrical goods, hardware, plumbing and heating	2.5	2.5	2.8	2.9
Machinery, equipment and supplies	2.0	2.9	3.8	4.6
Other wholesale	6.1	7.3	8.7	10.0
Retail trade	58.7	65.0	76.6	88.9
Building materials, farm equipment	2.7	2.4	2.5	2.5
Variety stores	1.7	1.8	2.7	3.6
Other general merchandise stores	6.1	8.6	11.3	14.6
Food stores	10.9	12.0	14.3	16.4
Gasoline service stations	3.2	3.8	4.2	4.7
Other motor vehicle and accessory dealers	4.1	4.6	5.4	6.3
Apparel and accessories	7.0	5.7	5.4	5.3
Furniture, homefurnishings	2.9	2.9	3.0	3.2
Eating and drinking places	12.4	14.4	17.5	20.5
Drug and proprietary stores	1.9	2.0	2.3	2.6
Other miscellaneous retail stores	5.8	6.8	8.0	9.2
Finance, insurance and real estate	15.9	18.3	21.9	24.7
Banking and credit agencies	3.9	5.0	6.6	7.6
Brokers and investment companies	0.4	0.3	0.3	0.3
Insurance	4.5	5.2	6.0	6.4
Real estate	7.1	7.8	9.0	10.4
Services	109.1	129.5	158.3	186.2
Hotels and lodging places	1.7	2.3	2.7	3.0
Laundries	5.4	4.6	4.6	4.3
Other personal services	3.7	5.3	6.2	7.0
Advertising	1.0	0.9	1.0	1.0
Other business services	5.6	7.4	9.9	12.4
Automobile repair services and garages	1.7	2.6	3.4	4.0
Miscellaneous repair services	1.4	1.6	1.9	2.1
Theaters and motion pictures	0.8	1.0	1.5	2.0
Other entertainment and recreation	4.0	5.7	7.7	9.6
Hospitals	15.5	18.2	22.3	29.6
Other medical and health services	10.8	13.8	16.7	18.3
Legal services	2.9	3.4	4.4	4.8
Educational services and museums	23.7	29.4	36.6	42.9
Nonprofit membership organizations (incl. welfare and religious groups)	6.7	8.1	9.9	11.8

Continued

Table 4-C (cont'd)

Industry	1960	1965	1970	1975
Services (cont'd)				
Engineering and architectural services	1.4	1.9	2.4	3.2
Accounting, auditing and bookkeeping	1.4	0.7	1.2	1.5
Miscellaneous professional services	1.0	1.0	1.4	2.0
Private household workers	20.4	21.6	24.5	26.7
Public administration	13.3	15.7	19.3	20.0
Postal service	3.1	3.2	3.5	4.0
Other federal	0.1	1.3	1.7	1.7
State and local	10.1	11.2	14.1	14.3

For footnote see page 10.

Table 4-D. RECONCILIATION OF CIVILIAN LABOR FORCE AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, WESTCHESTER-ROCKLAND AREA
(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 4-A)	671	775	897	1,011
II. Civilian labor force, 14 and over (table 4-A)	407	463	538	604
A. Resident employed	392	446	519	583
B. Unemployed	15	17	19	21
1. Rate of unemployment (percent)	3.8	3.7	3.5	3.5
III. Total number of jobs (table 4-C)	344	390	463	529
A. Nonagricultural jobs	341	389	462	528
1. Wage and salary workers (table 4-B)	267	310	373	431
2. Self employed and unpaid family workers, and domestics	74	79	89	97
B. Agricultural jobs	3	1	1	1
IV. Difference between II-A and III	-48	-56	-56	-54
A. Net number of commuters into area	-59	-70	-71	-71
B. Multiple jobholders, minus persons with a job but not being paid (a)	11	14	15	17

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A), but not among the wage and salary workers (III-A.1).

Table 4E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, WESTCHESTER-ROCKLAND AREA
(in thousands)

Occupation	1960	1965	1970	1975
All occupations	344.3	389.9	462.8	528.5
Professional, technical and kindred workers	58.6	69.8	85.0	98.6
Engineers, technical	3.1	4.0	5.0	5.8
Engineers, aeronautical	-	-	-	-
Engineers, chemical	0.4	0.5	0.7	0.7
Engineers, civil	0.6	0.8	1.0	1.1
Engineers, electrical	1.1	1.5	2.0	2.4
Engineers, industrial	0.2	0.3	0.3	0.4
Engineers, mechanical	0.8	0.9	1.0	1.2
Engineers, metallurgical	-	-	-	-
Engineers, mining	-	-	-	-
Other engineers, technical	-	-	-	-
Natural scientists	1.7	2.3	3.1	3.7
Chemists	1.3	1.7	2.3	2.8
Agricultural scientists	-	-	-	-
Biological scientists	0.3	0.3	0.4	0.4
Geologists and geophysicists	-	-	-	-
Mathematicians	0.1	0.2	0.3	0.3
Physicists	-	0.1	0.1	0.2
Other natural scientists, n.e.c.	-	-	-	-
Technical workers and specialists (exc. medical and dental)	5.5	7.1	8.8	11.5
Draftsmen	0.9	1.2	1.5	1.8
Structural design technicians and related specialists	0.1	0.1	0.1	0.2
Electro and mechanical engineering technicians	1.3	2.0	2.4	3.1
Mathematics technicians	-	-	-	-
Physical science technicians	0.6	0.8	0.9	1.3
Industrial engineering technicians	0.2	0.3	0.4	0.6
Civil engineering and construction technicians	1.0	1.0	1.3	1.7
Sales and service technicians	0.1	0.1	0.1	0.2
Technical writing and illustration technicians	0.2	0.2	0.3	0.3
Safety and sanitation inspectors and related specialists	0.1	0.2	0.2	0.2
Product testing and inspection specialists	0.6	0.7	0.9	1.1

Continued

Table 4Z (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Data processing, systems analysis and programming specialists	0.3	0.4	0.6	0.7
Airway tower specialists and flight dispatchers	-	-	-	0.1
Broadcasting, motion picture and recording studio specialists	-	-	-	-
Radio operators	0.1	0.1	0.1	0.2
Medical and other health workers	13.4	15.7	18.5	21.1
Dentists	1.6	1.9	2.0	2.0
Dietitians and nutritionists	0.3	0.3	0.4	0.4
Nurses, professional and student	4.8	5.5	6.5	7.7
Optometrists	0.1	0.1	0.1	0.1
Osteopaths	0.1	0.1	0.1	0.1
Pharmacists	1.0	1.1	1.3	1.4
Physicians and surgeons	3.2	3.8	4.4	4.8
Psychologists	0.3	0.4	0.5	0.7
Technicians, medical and dental	1.2	1.5	1.9	2.5
Veterinarians	0.1	0.1	0.2	0.2
Chiropractors and therapists	0.7	0.9	1.1	1.2
Teachers	13.5	16.1	19.1	21.6
Teachers, elementary	6.3	7.1	7.8	8.1
Teachers, secondary	4.4	5.4	6.5	7.5
Teachers, college	1.3	1.7	2.3	3.1
Teachers, other	1.5	1.9	2.5	2.9
Social scientists	1.0	1.1	1.3	1.5
Economists	0.6	0.7	0.8	0.9
Statisticians and actuaries	0.4	0.4	0.5	0.6
Other social scientists	-	-	-	-
Other professional, technical and kindred workers	20.4	23.5	29.2	33.4
Accountants and auditors	3.5	3.4	4.0	4.4
Airplane pilots and navigators	0.3	0.5	0.6	0.6
Architects	0.3	0.4	0.5	0.6
Artists, musicians, authors, athletes, and entertainers	3.4	3.8	4.8	5.7
Clergymen	1.1	1.2	1.3	1.4
Designers, except design draftsmen	0.5	0.5	0.8	0.9
Reporters and editors	1.7	1.8	2.0	2.1
Lawyers and judges	3.7	3.9	4.8	5.1
Librarians	0.7	0.9	1.2	1.3
Personnel and labor relations wkrs.	0.7	0.8	0.9	1.2

Continued

Table 4E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Photographers	0.5	0.6	0.6	0.6
Social, welfare and recreation wkrs.	0.8	1.0	1.3	1.5
Prof. and tech. workers, n.e.c.	3.2	4.7	6.4	8.0
Managers, officials and proprietors	38.8	42.4	49.6	55.2
Conductors, railroad	0.3	0.2	0.2	0.2
Credit men	0.4	0.6	0.8	1.1
Ship officers	0.1	0.1	0.1	0.1
Postmasters and assistants	0.1	0.1	0.1	0.1
Purchasing agents	0.9	1.0	1.3	1.6
Managers, officials, proprietors, n.e.c.	37.0	40.4	47.1	52.1
Clerical and kindred workers	56.5	66.1	80.9	93.9
Stenos, typists and secretaries	15.1	17.9	22.8	26.4
Office machine operators	2.2	3.2	4.5	5.7
Other clerical and kindred workers	39.2	45.0	53.6	61.8
Accounting clerks	1.9	2.0	2.4	2.6
Bookkeepers, hand	4.8	4.9	5.3	5.7
Bank tellers	0.6	0.8	1.1	1.3
Cashiers	3.7	4.7	6.4	8.0
Mail carriers	1.4	1.6	2.0	2.2
Postal clerks	1.4	1.4	1.5	1.6
Shipping and receiving clerks	1.2	1.2	1.3	1.4
Telephone operators	2.8	3.1	3.2	3.5
Clerical and kindred workers, n.e.c.	21.4	25.3	30.4	35.5
Sales workers	25.6	27.9	32.8	37.4
Insurance agents and brokers	1.5	1.8	2.0	2.0
Real estate agents and brokers	1.0	1.2	1.4	1.6
Other sales workers, n.e.c.	23.1	24.9	29.4	33.8
Craftsmen, foremen and kindred workers	44.8	49.8	58.1	65.5
Construction craftsmen	13.9	14.7	16.0	17.0
Carpenters	4.2	4.3	4.5	4.6
Brickmasons, stone and tile setters	1.2	1.3	1.4	1.4
Cement and concrete finishers	0.1	0.1	0.1	0.2
Electricians	1.7	1.8	2.0	2.3
Excavating, grading machine oprs.	0.8	0.9	1.0	1.0
Painters and paperhangers	2.6	2.8	3.0	3.1
Plasterers	0.3	0.3	0.3	0.4
Plumbers and pipefitters	2.4	2.6	3.0	3.2
Roofers and slaters	0.4	0.4	0.5	0.5
Structural metalworkers	0.2	0.2	0.2	0.3

Continued

Table 4E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	5.9	6.8	8.3	9.1
Metalworking craftsmen	4.5	4.6	5.2	5.6
Skilled machining workers (incl. machinists)	2.3	2.3	2.6	2.7
Blacksmiths, forgemen, hammermen	-	-	-	-
Boilermakers	0.1	0.1	0.1	0.1
Heat treaters, annealers, tempers	-	-	-	-
Millwrights	0.1	0.1	0.1	0.1
Molders, metal (exc. coremakers)	0.1	0.1	0.1	0.1
Patternmakers, metal and wood	0.1	0.1	0.1	0.2
Rollers and roll hands	-	-	-	-
Sheet metal workers	0.6	0.6	0.7	0.8
Toolmakers, diemakers, setters	0.5	0.5	0.6	0.7
Electroplaters	0.1	0.1	0.1	0.1
Assemblers, metalwork, Class A	0.6	0.7	0.8	0.8
Printing trades craftsmen	1.8	1.9	2.0	2.0
Compositors and typesetters	1.1	1.0	1.0	0.9
Electrotypers and stereotypers	-	-	-	-
Engravers, except photoengravers	0.1	0.1	0.1	0.1
Photoengravers and lithographers	0.2	0.3	0.3	0.4
Pressmen and plate printers	0.4	0.5	0.6	0.6
Transportation and public utility craftsmen	2.2	2.3	2.4	2.6
Linemen and servicemen	1.8	2.0	2.2	2.3
Locomotive engineers	0.3	0.2	0.2	0.3
Locomotive firemen	0.1	0.1	-	-
Mechanics and repairmen	10.6	13.2	16.9	20.3
Airplane mechanics and repairmen	0.1	0.2	0.3	0.3
Motor vehicle mechanics	3.2	3.9	4.7	5.4
Office machine mechanics	0.2	0.3	0.4	0.4
Radio and TV mechanics	0.7	0.7	0.8	0.9
Railroad and car shop mechanics	0.1	0.1	0.1	0.1
Other mechanics and repairmen	6.3	8.0	10.6	13.2
Other craftsmen and kindred workers	5.9	6.3	7.3	8.9
Bakers	0.8	0.9	1.0	1.1
Cabinetmakers	0.4	0.4	0.4	0.6
Cranemen, derrickmen, and hoistmen	0.2	0.2	0.2	0.3
Glaziers	0.1	0.1	0.1	0.2
Jewelers and watchmakers	0.2	0.2	0.3	0.3
Millers	-	-	-	-
Opticians and lens grinders	0.1	0.1	0.1	0.2
Stationary engineers	1.2	1.3	1.3	1.5

Continued

Table 4E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	0.5	0.5	0.7	0.9
Upholsterers	0.2	0.2	0.3	0.4
Craftsmen and kindred workers, n.e.c.	2.2	2.4	2.9	3.4
Operatives and kindred workers	53.8	59.0	68.4	76.6
Selected transp. and utility oprs.	11.5	13.1	16.2	18.9
Drivers: bus, truck, tractor	6.7	7.8	10.2	11.8
Deliverymen, routemen, cab drivers	4.1	4.7	5.4	6.4
Brakemen and switchmen, railroad	0.4	0.3	0.3	0.3
Power station operators	0.2	0.2	0.2	0.3
Sailors and deck hands	0.1	0.1	0.1	0.1
Asbestos and insulation workers	0.1	0.1	0.1	0.1
Semiskilled metalworking occupations	5.6	6.0	7.0	7.5
Furnacemen, smelters, pourers, and heaters	0.1	0.1	0.1	0.1
Welders and flame cutters	0.7	0.8	0.9	1.1
Electroplater helpers	0.1	0.1	0.1	0.1
Mach. tool opr., metalworking, Class B	1.2	1.2	1.3	1.3
Assemblers, metalworking, Class B	2.6	2.8	3.5	3.8
Inspectors, metalworking, Class B	0.9	1.0	1.1	1.1
Semiskilled occupations in textiles and apparel	2.9	3.1	3.2	3.3
Knitters, loopers and toppers	0.1	0.1	0.1	0.1
Weavers and spinners, textile	0.1	0.1	0.1	0.1
Sewers and stitchers, manufacturing	2.7	2.9	3.0	3.1
Other operatives and kindred workers	33.7	36.7	41.9	46.8
Attendants, auto service and parking	1.1	1.5	1.8	2.2
Laundry and dry cleaning workers	2.1	2.0	1.9	1.9
Meat cutters, except meat-packing	1.2	1.4	1.7	2.0
Mine operatives and laborers, n.e.c.	0.2	0.1	0.1	0.1
Other operatives, n.e.c.	29.1	31.7	36.4	40.6
Service workers	52.3	60.8	72.5	84.4
Private household workers	18.2	19.7	21.7	23.7
Protective service workers	5.2	5.6	6.2	6.8
Firemen, fire protection	1.2	1.3	1.3	1.5
Guards and watchmen	1.9	2.1	2.5	2.6
Policemen, marshalls, sheriffs	2.1	2.2	2.4	2.7

Continued

Table 4E (cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	8.9	11.1	14.0	17.0
Bartenders	1.1	1.4	1.8	2.1
Cooks, except private household	2.7	3.3	4.0	4.8
Counter and fountain workers	1.1	1.5	2.0	2.5
Waiters and waitresses	4.0	4.9	6.2	7.6
Other service workers	20.0	24.4	30.6	36.9
Airline stewards and stewardesses	-	-	-	-
Attendants, hospital and other inst.	4.3	5.7	7.7	9.6
Charwomen and cleaners	0.9	1.0	1.2	1.4
Janitors and sextons	2.2	2.4	2.7	3.1
Nurses, practical	1.4	1.8	2.2	2.8
Other service workers, n.e.c.	11.2	13.5	16.8	20.0
Farmers and farm laborers	3.3	2.9	2.9	2.9
Laborers, except farm and mine	10.6	11.2	12.6	14.0

Table 4-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, WESTCHESTER-ROCKLAND AREA

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	344.3	3.9	24.4	82.8	21.6	73.3	15.9	109.1	13.3
Professional, technical, and kindred wkrs.	58.6	0.3	1.5	8.7	2.3	3.5	0.7	40.3	1.3
Engineers, technical	3.1	-	0.6	1.5	0.7	0.2	-	0.1	-
Natural scientists	1.7	-	-	0.9	0.1	0.2	-	0.5	-
Technicians, exc. medical and dental	5.5	-	0.6	2.7	0.6	0.3	0.1	1.0	0.2
Medical and other health workers	13.4	0.3	-	0.1	-	0.9	-	12.1	-
Teachers	13.5	-	-	-	-	0.2	-	13.3	-
Social scientists	1.0	-	-	0.1	-	0.1	0.1	0.6	0.1
Other prof., tech., and kindred wkrs.	20.4	-	0.3	3.4	0.9	1.6	0.5	12.7	1.0
Managers, officials and proprietors	38.8	-	2.3	9.4	2.7	13.4	4.2	6.1	0.7
Clerical and kindred workers	56.5	0.1	1.2	14.4	5.1	11.9	6.3	12.4	5.1
Stenos, typists and secretaries	15.1	-	0.5	2.8	0.7	2.4	1.3	6.7	0.7
Office machine operators	2.2	-	-	0.7	0.3	0.5	0.3	0.3	0.1
Other clerical and kindred workers	39.2	0.1	0.7	10.9	4.1	9.0	4.7	5.4	4.3
Sales workers	25.6	-	0.1	4.7	0.2	16.2	2.7	1.7	-
Craftsmen, foremen and kindred workers	44.8	0.1	14.1	12.8	5.0	5.4	0.4	6.3	0.7
Construction craftsmen	13.9	-	10.8	1.2	0.3	0.5	0.2	0.8	0.1
Foremen, n.e.c.	5.9	0.1	0.9	2.9	0.5	0.8	-	0.3	0.4
Metalworking craftsmen, exc. mechanics	4.5	-	0.4	4.0	0.1	-	-	-	-
Printing trades craftsmen	1.8	-	-	1.5	-	-	-	0.3	-
Transp. and public utility craftsmen	2.2	-	0.1	-	2.1	-	-	-	-
Mechanics and repairmen	10.6	-	1.4	1.6	1.2	2.6	0.1	3.5	0.2
Other craftsmen and kindred workers	5.9	-	0.5	1.6	0.8	1.5	0.1	1.4	-
Operatives and kindred workers	53.8	0.1	2.2	30.9	4.7	8.8	0.1	6.7	0.3
Selected transp. and pub. util. oprs.	11.5	-	0.7	2.2	4.4	3.4	-	0.7	0.1
Semiskilled metal-working occup.	5.6	-	0.2	5.3	-	-	-	0.1	-
Semiskilled textiles occupations (e)	2.9	-	-	2.9	-	-	-	-	-
Other operatives and kindred workers	33.8	0.1	1.3	20.5	0.3	5.4	0.1	5.9	0.2
Service workers	52.3	-	0.1	1.0	0.3	9.9	1.1	35.0	4.9
Private household workers	18.2	-	-	-	-	-	-	18.2	-
Protective service workers	5.2	-	0.1	0.4	0.1	-	0.2	0.5	3.9
Waiters, cooks, and bartenders	8.9	-	-	-	-	6.3	-	2.6	-
Other service workers	20.0	-	-	0.6	0.2	3.6	0.9	13.7	1.0
Laborers, exc. farm and mine	10.6	-	2.9	0.9	1.3	4.2	0.4	0.6	0.3
Farmers and farm laborers	3.3	3.3	-	-	-	-	-	-	-

For footnote see page 18.

Table 4-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, WESTCHESTER-ROCKLAND AREA

2. ESTIMATED 1965

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	389.9	3.3	26.0	90.6	23.2	83.3	18.3	129.5	15.7
Professional, technical, and kindred workers	69.8	0.2	1.6	10.9	2.8	4.2	0.7	47.5	1.9
Engineers, technical	4.0	-	0.7	1.9	0.8	0.3	-	0.2	0.1
Natural scientists	2.3	-	-	1.3	0.1	0.3	-	0.6	-
Technicians, exc. medical and dental	7.1	-	0.6	3.5	0.8	0.3	0.1	1.6	0.2
Medical and other health workers	15.7	0.2	-	0.1	-	1.0	-	14.4	-
Teachers	16.1	-	-	-	-	0.3	-	15.8	-
Social scientists	1.1	-	-	0.2	-	0.1	0.1	0.6	0.1
Other prof., tech., and kindred workers	23.5	-	0.3	3.9	1.1	1.9	0.5	14.3	1.5
Managers, officials, and proprietors	42.4	-	2.5	10.0	2.7	14.1	5.1	7.2	0.8
Clerical and kindred workers	66.1	-	1.4	15.6	5.4	14.5	7.3	15.7	6.2
Stenos, typists, and secretaries	17.9	-	0.6	3.1	0.8	2.6	1.5	8.4	0.9
Office machine operators	3.2	-	-	1.0	0.4	0.8	0.4	0.4	0.2
Other clerical and kindred workers	45.0	-	0.8	11.5	4.2	11.1	5.4	6.9	5.1
Sales workers	27.9	-	0.1	4.8	0.2	17.9	3.1	1.8	-
Craftsmen, foremen, and kindred workers	49.8	0.1	15.2	13.8	5.4	6.4	0.4	7.6	0.9
Construction craftsmen	14.7	-	11.3	1.3	0.3	0.6	0.2	0.9	0.1
Foremen, n.e.c.	6.8	0.1	1.1	3.2	0.5	0.9	-	0.4	0.6
Metalworking craftsmen, exc. mechanics	4.6	-	0.4	4.1	0.1	-	-	-	-
Printing trades craftsmen	1.9	-	-	1.5	-	-	-	0.4	-
Transp. and public utility craftsmen	2.3	-	0.1	-	2.2	-	-	-	-
Mechanics and repairmen	13.2	-	1.8	2.0	1.5	3.2	0.1	4.4	0.2
Other craftsmen and kindred workers	6.3	-	0.5	1.7	0.8	1.7	0.1	1.5	-
Operatives and kindred workers	59.0	0.1	2.1	33.7	5.2	10.5	0.1	6.9	0.4
Selected transp. and pub. util. oprs.	13.1	-	0.8	2.6	4.9	4.0	-	0.7	0.1
Semiskilled metalworking occupations	6.0	-	0.2	5.7	-	-	-	0.1	-
Semiskilled textiles occupations	3.1	-	-	3.1	-	-	-	-	-
Other operatives and kindred workers	36.8	0.1	1.1	22.3	0.3	6.5	0.1	6.1	0.3
Service workers	60.8	-	0.1	1.0	0.3	11.2	1.2	41.8	5.2
Private household workers	19.7	-	-	-	-	-	-	19.7	-
Protective service workers	5.6	-	0.1	0.4	0.1	-	0.2	0.6	4.2
Waiters, cooks, and bartenders	11.1	-	-	-	-	7.5	-	3.6	-
Other service workers	24.4	-	-	0.6	0.2	3.7	1.0	17.9	1.0
Laborers, except farm and mine	11.2	-	3.0	0.8	1.2	4.5	0.4	1.0	0.3
Farmers and farm laborers	2.9	2.9	-	-	-	-	-	-	-

For footnote see page 18.

Table 4-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, WESTCHESTER-ROCKLAND AREA

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	528.5	3.3	34.7	114.1	29.8	115.7	24.7	186.2	20.0
Professional, technical, and kindred workers	98.6	0.2	2.4	15.6	3.8	6.2	0.9	67.3	2.2
Engineers, technical	5.8	-	0.8	3.2	1.1	0.4	-	0.2	0.1
Natural scientists	3.7	-	-	1.9	0.3	0.6	-	0.9	-
Technicians, exc. medical and dental	11.5	-	1.1	5.5	1.0	0.7	0.1	2.6	0.5
Medical and other health workers	21.1	0.2	-	0.2	-	1.1	-	19.6	-
Teachers	21.6	-	-	-	-	0.4	-	21.2	-
Social scientists	1.5	-	-	0.1	-	0.2	0.2	0.9	0.1
Other prof., tech., and kindred workers	33.4	-	0.5	4.7	1.4	2.8	0.6	21.9	1.5
Managers, officials, and proprietors	55.2	-	3.4	12.3	3.5	17.1	7.5	10.3	1.1
Clerical and kindred workers	93.9	-	2.0	19.7	5.8	21.7	9.7	26.3	8.7
Stenos, typists, and secretaries	26.4	-	0.9	4.4	0.9	3.5	1.9	13.7	1.1
Office machine operators	5.7	-	-	1.8	0.6	1.2	1.1	0.8	0.2
Other clerical and kindred workers	61.8	-	1.1	13.5	4.3	17.0	6.7	11.8	7.4
Sales workers	37.4	-	0.2	5.8	0.4	24.3	3.9	2.8	-
Craftsmen, foremen, and kindred workers	65.5	0.1	19.7	17.3	6.4	9.3	0.5	11.0	1.2
Construction craftsmen	17.0	-	12.8	1.2	0.3	0.9	0.3	1.3	0.2
Foremen, n.e.c.	9.1	0.1	1.7	4.5	0.6	1.1	-	0.5	0.6
Metalworking craftsmen, exc. mechanics	5.6	-	0.5	5.0	0.1	-	-	-	-
Printing trades craftsmen	2.0	-	-	1.5	-	-	-	0.5	-
Transp. and public utility craftsmen	2.6	-	0.2	-	2.4	-	-	-	-
Mechanics and repairmen	20.3	-	3.3	2.9	2.1	4.7	0.1	6.8	0.4
Other craftsmen and kindred workers	8.9	-	1.2	2.2	0.9	2.6	0.1	1.9	-
Operatives and kindred workers	76.6	0.1	3.5	41.0	8.0	15.0	0.1	8.4	0.5
Selected transp. and pub. util. oprs.	18.9	-	1.2	3.4	7.5	5.7	-	0.9	0.2
Semiskilled metalworking occupations	7.5	-	0.4	7.0	-	-	-	0.1	-
Semiskilled textiles occupations	3.3	-	-	3.3	-	-	-	-	-
Other operatives and kindred workers	46.9	0.1	1.9	27.3	0.5	9.3	0.1	7.4	0.3
Service workers	84.4	-	0.2	1.2	0.4	16.3	1.6	58.7	6.0
Private household workers	23.7	-	-	-	-	-	-	23.7	-
Protective service workers	6.8	-	0.2	0.4	0.1	0.1	0.2	0.6	5.2
Waiters, cooks, and bartenders	17.0	-	-	-	-	11.1	-	5.9	-
Other service workers	36.9	-	-	0.8	0.3	5.1	1.4	28.5	0.8
Laborers, except farm and mine	14.0	-	3.3	1.2	1.5	5.8	0.5	1.4	0.3
Farmers and farm laborers	2.9	2.9	-	-	-	-	-	-	-

For footnote see page 18.

Table 4-G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN THE WESTCHESTER-ROCKLAND AREA, 1965-1975
(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	389.9	248.0	64	138.6	36	109.4	28
Professional, technical, and kindred workers	69.8	46.2	66	28.8	41	17.4	25
Engineers, technical	4.0	2.5	63	1.8	45	0.7	18
Engineers, electrical	1.5	1.1	73	0.9	60	0.2	13
Other engineers, technical	2.5	1.4	56	0.9	36	0.5	20
Natural scientists	2.3	1.7	74	1.4	61	0.3	13
Chemists	1.7	1.4	82	1.1	65	0.3	18
Other natural scientists, n.e.c.	0.6	0.3	50	0.3	50	-	-
Technical workers (exc. medical and dental)	7.1	5.3	75	4.4	62	0.9	13
Draftsmen	1.2	0.8	67	0.6	50	0.2	17
Electro and mechanical engineering techs.	2.0	1.3	65	1.1	55	0.2	10
Civil engineering and construction techs.	1.0	0.8	80	0.7	70	0.1	10
Other technical workers, n.e.c.	2.9	2.4	83	2.0	69	0.4	14
Medical and other health workers	15.7	10.2	65	5.4	34	4.8	31
Dentists	1.9	0.6	32	0.1	5	0.5	26
Nurses, professional and student	5.5	4.2	76	2.2	40	2.0	36
Pharmacists	1.1	0.6	55	0.3	27	0.3	27
Physicians and surgeons	3.8	2.0	53	1.0	26	1.0	26
Technicians, medical and dental	1.5	1.4	93	1.0	67	0.4	27
Other medical workers, n.e.c.	1.9	1.4	74	0.8	42	0.6	32
Teachers	16.1	10.2	63	5.5	34	4.7	29
Teachers, elementary	7.1	3.3	46	1.0	14	2.3	32
Teachers secondary	5.4	3.4	63	2.1	39	1.3	24
Teachers, college	1.7	1.9	111	1.4	83	0.5	29
Teachers, other	1.9	1.6	84	1.0	53	0.6	32
Social scientists	1.1	0.6	55	0.4	36	0.2	18
Other prof., tech. and kindred workers	23.5	15.7	67	9.9	42	5.8	25
Accountants and auditors	3.4	1.7	50	1.0	29	0.7	21
Artists, musicians, authors, athletes, and entertainers	3.8	2.8	74	1.9	50	0.9	24

Continued

Table 4-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Professional, technical, and kindred workers (cont'd)							
Clergymen	1.2	0.6	50	0.2	17	0.4	33
Reporters and editors	1.8	0.7	39	0.3	17	0.4	22
Lawyers and judges	3.9	2.2	56	1.2	31	1.0	26
Social, welfare, and recreation workers	1.0	0.8	80	0.5	50	0.3	30
Professional and technical workers, n.e.c.	8.4	6.9	82	4.8	57	2.1	25
Managers, officials, and proprietors	42.4	24.1	57	12.8	30	11.3	27
Purchasing agents	1.0	0.8	80	0.6	60	0.2	20
Managers, officials, and prop., n.e.c.	41.4	23.3	56	12.2	29	11.1	27
Clerical and kindred workers	66.1	48.8	74	27.8	42	21.0	32
Stenos, typists, and secretaries	17.9	15.1	84	8.5	48	6.6	37
Office machine operators	3.2	3.3	103	2.5	78	0.8	25
Other clerical and kindred workers	45.0	30.4	68	16.8	37	13.6	30
Accounting clerks	2.0	1.3	65	0.6	30	0.7	35
Bookkeepers, hand	4.9	2.4	49	0.8	16	1.6	33
Cashiers	4.7	5.1	109	3.3	70	1.8	38
Mail carriers	1.6	0.8	50	0.6	38	0.2	13
Postal clerks	1.4	0.4	29	0.2	14	0.2	14
Shipping and receiving clerks	1.2	0.4	33	0.2	17	0.2	17
Telephone operators	3.1	1.4	45	0.4	13	1.0	32
Clerical and kindred workers, n.e.c.	26.1	18.6	71	10.7	41	7.9	30
Sales workers	27.9	17.0	60	9.5	34	7.5	27
Insurance agents and brokers	1.8	0.7	39	0.2	11	0.5	28
Real estate agents and brokers	1.2	0.8	67	0.4	33	0.4	33
Other sales workers, n.e.c.	24.9	15.5	62	8.9	36	6.6	27

Continued

Table 4-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Craftsmen and kindred workers	49.8	26.3	53	15.7	32	10.6	21
Construction craftsmen	14.7	5.5	37	2.3	16	3.2	22
Carpenters	4.3	1.1	26	0.3	7	0.8	19
Brickmasons, stone and tile setters	1.3	0.4	31	0.1	8	0.3	23
Electricians	1.8	0.8	44	0.5	28	0.3	17
Painters and paperhangers	2.8	1.1	39	0.3	11	0.8	29
Plumbers and pipefitters	2.6	1.2	46	0.6	23	0.6	23
Construction craftsmen, n.e.c.	1.9	0.9	47	0.5	26	0.4	21
Foremen, n.e.c.	6.8	3.8	56	2.3	34	1.5	22
Metalworking craftsmen	4.6	1.9	41	1.0	22	0.9	20
Skilled machining workers (inc. machinists)	2.3	0.9	39	0.4	17	0.5	22
Other metalworking craftsmen, n.e.c.	2.3	1.0	43	0.6	26	0.4	17
Printing trades craftsmen	1.9	0.4	21	0.1	5	0.3	16
Compositors and typesetters	1.0	0.1	10	- 0.1	- 10	0.2	20
Other printing trades craftsmen, n.e.c.	0.9	0.3	33	0.2	22	0.1	11
Transportation and public utility craftsmen	2.3	0.6	26	0.3	13	0.3	13
Linemen and servicemen	2.0	0.5	25	0.3	15	0.2	10
Other trans. craftsmen, n.e.c.	0.3	0.1	33	-	-	0.1	33
Mechanics and repairmen	13.2	10.0	76	7.1	54	2.9	22
Motor vehicle mechanics	3.9	2.1	54	1.5	39	0.6	15
Other mechanics and repairmen, n.e.c.	9.3	7.9	85	5.6	60	2.3	25
Other craftsmen and kindred workers	6.3	4.1	65	2.6	41	1.5	24
Stationary engineers	1.3	0.5	38	0.2	15	0.3	23
Craftsmen and kindred workers, n.e.c.	5.0	3.6	72	2.4	48	1.2	24
Operatives and kindred workers	59.0	30.7	52	17.6	30	13.1	22
Selected trans. and utility operators	13.1	7.9	60	5.8	44	2.1	16
Drivers: bus, truck and tractor	7.8	5.3	68	4.0	51	1.3	17
Deliverymen, routemen, cab drivers	4.7	2.4	51	1.7	36	0.7	15
Trans. and utility operators, n.e.c.	0.6	0.2	33	0.1	17	0.1	17

Continued

Table 4-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Operatives and kindred workers (cont'd)							
Asbestos and insulation workers	0.1	-	-	-	-	-	-
Semiskilled metalworking occupations	6.0	2.7	45	1.5	25	1.2	20
Mach. tool opr., metalworking, Class B	1.2	0.3	25	0.1	8	0.2	17
Assemblers, metalworking, Class B	2.8	1.6	57	1.0	36	0.6	21
Inspectors, metalworking, Class B	1.0	0.3	30	0.1	10	0.2	20
Semiskilled metalworking occups., n.e.c.	1.0	0.5	50	0.3	30	0.2	20
Semiskilled occupations in textiles and apparel	3.1	1.2	39	0.2	7	1.0	32
Sewers and stitchers, mfg.	2.9	1.1	38	0.2	7	0.9	31
Other semiskilled occupations in textiles and apparel, n.e.c.	0.2	0.1	50	-	-	0.1	50
Other operatives and kindred workers	36.7	18.9	51	10.1	28	8.8	24
Attendants, auto service and parking	1.5	1.0	67	0.7	47	0.3	20
Laundry and dry cleaning workers	2.0	0.5	25	- 0.1	- 5	0.6	30
Meat cutters, except meat-packing	1.4	0.9	64	0.6	43	0.3	21
Other operatives, n.e.c.	31.8	16.5	52	8.9	28	7.6	24
Service workers	60.8	48.3	79	23.6	39	24.7	41
Private household workers	19.7	13.8	70	4.0	20	9.8	50
Protective service workers	5.6	2.5	45	1.2	21	1.3	23
Firemen, fire protection	1.3	0.3	23	0.2	15	0.1	8
Guards and watchmen	2.1	1.5	71	0.5	24	1.0	48
Policemen, marshalls, sheriffs	2.2	0.7	32	0.5	23	0.2	9
Waiters, cooks, and bartenders	11.1	9.6	86	5.9	53	3.7	33
Bartenders	1.4	1.3	93	0.7	50	0.6	43
Cooks, except private household	3.3	2.7	82	1.5	46	1.2	36
Counter and fountain workers	1.5	1.5	100	1.0	67	0.5	33
Waiters and waitresses	4.9	4.1	84	2.7	55	1.4	29
Other service workers	24.4	22.4	92	12.5	51	9.9	41
Attendants, hospital and other institutions	5.7	5.6	98	3.9	68	1.7	30
Charwomen and cleaners	1.0	0.9	90	0.4	40	0.5	50

Continued

Table 4-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Service workers (cont'd)							
Janitors and sextons	2.4	1.6	67	0.7	29	0.9	38
Nurses, practical	1.8	2.1	117	1.0	56	1.1	61
Other service workers, n.e.c.	13.5	12.2	90	6.5	48	5.7	42
Farmers and farm laborers	2.9	1.0	34	-	-	1.0	34
Laborers, except farm and mine	11.2	5.6	50	2.8	25	2.8	25

ALBANY-SCHENECTADY-TROY AREA

Table 5-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, ALBANY-SCHENECTADY-TROY AREA
(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	472	498	528	569	55.7	55.4	57.0	57.3	263	276	301	326
Male, total	221	235	250	270	77.4	74.0	74.0	73.7	171	174	185	199
14 - 19	27	38	43	48	30.3	29.9	31.0	31.0	8	11	13	15
20 - 24	15	19	29	34	79.3	78.7	79.2	79.4	12	15	23	27
25 - 34	37	32	33	46	96.3	96.2	96.8	96.8	36	31	32	45
35 - 44	43	43	39	33	97.7	97.6	98.8	98.8	42	42	39	33
45 - 54	39	40	41	41	95.9	95.8	97.3	97.3	37	38	40	40
55 - 64	31	32	33	34	86.6	86.4	88.5	88.5	27	28	29	30
65 and over	29	31	32	34	31.1	29.5	28.8	27.1	9	9	9	9
Female, total	251	263	278	299	36.7	38.8	41.7	42.5	92	102	116	127
14 - 19	28	35	39	44	24.0	23.8	27.5	29.4	7	8	11	13
20 - 24	18	23	29	32	48.3	54.9	56.0	57.8	9	13	16	18
25 - 34	41	37	40	52	33.6	37.6	37.9	39.0	14	14	15	20
35 - 44	47	46	42	37	43.9	48.3	51.1	53.8	21	22	21	20
45 - 54	43	44	46	45	51.3	53.2	59.1	63.3	22	23	27	28
55 - 64	35	36	38	41	39.3	46.1	51.9	54.3	14	17	20	22
65 and over	39	42	44	48	12.2	11.9	13.0	13.0	5	5	6	6

a. Civilian labor force as percent of civilian noninstitutional population.

Table 5-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, ALBANY-SCHENECTADY-TROY AREA (a)
(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	225.3	245.3	268.9	297.5
Manufacturing	62.9	63.3	63.8	63.7
Durable goods	30.0	32.4	33.5	34.2
Lumber and wood products	0.5	0.4	0.3	0.2
Furniture and fixtures	0.2	0.2	0.2	0.2
Stone, clay and glass products	3.9	5.4	5.4	5.5
Primary metal industries	3.2	2.9	2.5	2.3
Fabricated metal products (b)	1.1	1.0	0.9	0.8
Machinery, except electrical	10.2	11.7	13.5	14.6
Electrical equipment and supplies	7.5	7.2	7.3	7.3
Transportation equipment, instruments and related products (c)	3.4	3.6	3.4	3.3
Nondurable goods	32.9	30.9	30.3	29.5
Food and kindred products	5.9	5.5	5.1	4.7
Tobacco manufactures	-	-	-	-
Textile mill products	4.9	4.3	3.9	3.3
Apparel and other fabric products	6.0	5.3	4.9	4.3
Paper and allied products	5.7	5.3	5.2	5.0
Printing and publishing	4.5	4.7	4.9	5.3
Chemicals and allied products	3.9	3.8	4.0	4.2
Petroleum and coal products	-	-	-	-
Rubber and plastics products, n.e.c.	0.4	0.5	0.5	0.6
Leather and leather products	0.4	0.2	0.2	0.2
Miscellaneous manufacturing industries	1.2	1.3	1.6	1.9
Agriculture (d), forestry and fisheries	0.2	0.3	0.4	0.5
Mining	0.3	0.3	0.3	0.3
Contract construction	7.7	10.9	13.5	16.3
Transportation, communication and public utilities	15.2	14.1	13.4	12.7
Railroads	4.1	3.0	2.6	2.1
Air transportation	0.2	0.1	0.2	0.3
Local and interurban passenger transportation	1.3	1.3	1.3	1.3
Local and suburban transit	0.8	0.8	0.8	0.8
Taxicabs	0.5	0.5	0.5	0.5
Trucking and warehousing	2.6	3.0	3.2	3.4
Trucking	2.4	2.8	3.0	3.2
Warehousing	0.2	0.2	0.2	0.2

Table 5-B continued

Industry	1960	1965(a)	1970	1975
Transportation, communication and public utilities (cont'd)				
Water transportation	0.2	0.2	0.1	0.1
Pipelines	-	-	-	-
Transportation services	0.1	0.1	0.1	0.1
Communication	4.9	4.6	4.3	4.0
Telephone and telegraph	4.5	4.2	3.9	3.6
Radio and television broadcasting	0.4	0.4	0.4	0.4
Electric, gas and sanitary services	1.8	1.8	1.6	1.4
Wholesale and retail trade	45.0	49.1	52.2	58.5
Wholesale trade	12.6	14.1	14.9	16.4
Motor vehicles and equipment	0.5	0.7	0.8	0.9
Drugs, chemicals and allied products	0.4	0.4	0.4	0.4
Dry goods and apparel	0.1	0.1	0.1	0.1
Groceries and related products	1.8	1.9	1.9	2.1
Electrical goods, hardware, plumbing and heating	2.7	4.0	4.7	6.0
Machinery, equipment and supplies	2.1	2.2	2.3	2.3
Other wholesale	5.0	4.8	4.7	4.6
Retail trade	32.4	35.0	37.3	42.1
Building materials, farm equipment	1.6	1.4	1.3	1.0
Retail general merchandise	6.6	8.2	9.2	11.4
Variety stores	1.5	1.5	1.5	1.6
Other general merchandise stores	5.1	6.7	7.7	9.8
Food stores	6.4	6.5	6.8	7.3
Automotive dealers and service stations	4.2	4.6	4.9	5.5
Gasoline service stations	1.2	1.4	1.5	1.8
Other motor vehicle and accessory dealers	3.0	3.2	3.4	3.7
Apparel and accessories	2.9	2.9	3.1	3.4
Furniture, homefurnishings	1.7	1.4	1.4	1.4
Eating and drinking places	5.9	6.6	7.0	8.0
Miscellaneous retail stores	3.1	3.4	3.6	4.1
Drug and proprietary stores	0.8	0.9	1.0	1.1
Other miscellaneous retail stores	2.3	2.5	2.6	3.0
Finance, insurance and real estate	8.9	9.5	10.8	11.5
Banking and credit agencies	3.2	3.8	4.9	5.5
Brokers and investment companies	0.1	0.2	0.3	0.4
Insurance	4.0	4.2	4.3	4.4
Real estate	1.6	1.3	1.3	1.2
Services	32.7	38.0	44.8	52.3
Hotels and lodging places	1.8	2.0	2.0	2.1
Personal services	3.5	3.7	3.8	4.1
Laundries	2.2	2.4	2.5	2.7
Other personal services	1.3	1.3	1.3	1.4

Table 5-B continued

Industry	1960	1965(a)	1970	1975
Services (cont'd)				
Miscellaneous business services	4.9	5.6	6.6	7.8
Advertising	0.3	0.2	0.2	0.2
Other business services	4.6	5.4	6.4	7.6
Automobile repair services and garages	0.8	0.9	1.1	1.3
Miscellaneous repair services	0.4	0.5	0.7	0.9
Motion pictures and other amusement and recreation services	1.7	2.0	2.4	2.8
Theaters and motion pictures	0.6	0.6	0.7	0.8
Other entertainment and recreation	1.1	1.4	1.7	2.0
Medical and other health services	8.8	10.6	13.2	15.9
Hospitals	6.7	8.0	9.9	11.9
Other medical and health services	2.1	2.6	3.3	4.0
Legal services	0.7	0.8	0.9	1.1
Educational services and museums	5.4	6.4	7.6	8.7
Nonprofit membership organizations	4.1	4.6	5.5	6.3
Welfare and religious groups	2.9	3.0	3.6	4.0
Other nonprofit membership organizations	1.2	1.6	1.9	2.3
Miscellaneous services	0.6	0.9	1.0	1.3
Engineering and architectural services	0.3	0.7	0.8	0.9
Accounting, auditing and bookkeeping	0.2	0.2	0.2	0.3
Miscellaneous professional services	0.1	-	-	0.1
Nonclassifiable	-	-	-	-
Government	52.4	59.8	69.7	81.7
Federal	10.8	9.6	8.7	7.5
Postal service	2.3	2.3	2.3	2.3
Other federal	8.5	7.3	6.4	5.2
State and local	41.6	50.2	61.0	74.2
State	23.2	27.7	33.0	40.4
Local	18.4	22.5	28.0	33.8

a. Data on 1965 benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.
Note: Detail may not add to totals due to rounding.

Table 5-C. TOTAL NUMBER OF JOBS (a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, ALBANY-SCHENECTADY-TROY AREA
(in thousands)

Industry	1960	1965	1970	1975
Total employment	261.5	278.5	301.8	328.7
Manufacturing	66.1	66.8	67.5	67.5
Durable goods	32.7	35.5	36.8	37.6
Lumber and wood products	0.7	0.4	0.3	0.2
Furniture and fixtures	0.2	0.2	0.2	0.2
Stone, clay and glass products	3.9	5.4	5.4	5.5
Primary metal industries	3.2	2.9	2.5	2.3
Fabricated metal products (b)	3.5	3.9	3.9	3.9
Machinery, except electrical	10.3	11.9	13.8	14.9
Electrical equipment and supplies	7.5	7.2	7.3	7.3
Transportation equipment, instruments and related products (c)	3.4	3.6	3.4	3.3
Nondurable goods	33.4	31.3	30.7	29.9
Food and kindred products	6.1	5.7	5.3	4.8
Tobacco manufactures	-	-	-	-
Textile mill products	4.9	4.3	3.9	3.3
Apparel and other fabric products	6.0	5.3	4.9	4.3
Paper and allied products	5.7	5.3	5.2	5.0
Printing and publishing	4.7	4.9	5.1	5.5
Chemicals and allied products	3.9	3.8	4.0	4.2
Petroleum and coal products	-	-	-	-
Rubber and plastics products, n.e.c.	0.4	0.5	0.5	0.6
Leather and leather products	0.4	0.2	0.2	0.2
Miscellaneous manufacturing	1.3	1.3	1.6	2.0
Nonmanufacturing	195.4	211.7	234.3	261.2
Agriculture, forestry and fisheries	6.9	5.6	4.9	4.4
Mining	0.3	0.3	0.3	0.3
Contract construction	16.8	21.5	25.5	29.7
Transportation, communication and public utilities	17.5	16.4	16.1	15.7
Railroads	4.1	3.0	2.6	2.1
Air transportation	0.2	0.2	0.4	0.6
Local and suburban transit	1.0	1.0	1.2	1.3
Taxicabs	0.6	0.6	0.6	0.6
Trucking	2.8	3.2	3.4	3.5
Warehousing	0.2	0.2	0.2	0.2
Water transportation	0.3	0.3	0.1	0.1
Pipelines	-	-	-	-
Transportation services	0.1	0.1	0.1	0.1

Continued

Table 5-C (cont'd)

Industry	1960	1965	1970	1975
Transportation, communication and public utilities (cont'd)				
Telephone and telegraph	4.5	4.2	3.9	3.6
Radio and television broadcasting	0.4	0.4	0.4	0.4
Electric, gas and sanitary services	3.3	3.2	3.2	3.2
Wholesale and retail trade	55.5	58.1	60.2	65.2
Wholesale trade	14.0	15.4	16.0	17.4
Motor vehicles and equipment	0.6	0.8	0.9	1.0
Drugs, chemicals and allied products	0.4	0.4	0.4	0.4
Dry goods and apparel	0.1	0.1	0.1	0.1
Groceries and related products	2.0	2.1	2.1	2.3
Electrical goods, hardware, plumbing and heating	2.9	4.3	5.0	6.3
Machinery, equipment and supplies	2.4	2.4	2.4	2.4
Other wholesale	5.6	5.3	5.1	4.9
Retail trade	41.5	42.7	44.2	47.8
Building materials, farm equipment	2.0	1.7	1.5	1.2
Variety stores	1.5	1.6	1.6	1.7
Other general merchandise stores	5.5	7.1	8.1	10.0
Food stores	8.6	8.3	8.4	8.5
Gasoline service stations	2.1	2.3	2.3	2.4
Other motor vehicle and accessory dealers	3.5	3.5	3.6	3.8
Apparel and accessories	3.3	3.3	3.6	3.9
Furniture, homefurnishings	2.3	1.7	1.6	1.5
Eating and drinking places	8.2	8.6	8.8	9.7
Drug and proprietary stores	1.0	1.1	1.2	1.3
Other miscellaneous retail stores	3.5	3.5	3.5	3.8
Finance, insurance and real estate	10.4	10.9	12.3	12.8
Banking and credit agencies	3.3	3.9	5.0	5.6
Brokers and investment companies	0.1	0.2	0.3	0.4
Insurance	4.3	4.4	4.5	4.5
Real estate	2.7	2.4	2.5	2.3
Services	61.1	72.2	87.2	100.1
Hotels and lodging places	2.1	2.3	2.3	2.4
Laundries	2.4	2.6	2.7	2.8
Other personal services	2.8	2.8	2.8	2.8
Advertising	0.4	0.2	0.2	0.2
Other business services	5.4	6.3	7.4	8.6
Automobile repair services and garages	1.3	1.4	1.6	1.7
Miscellaneous repair services	1.0	1.1	1.5	1.7
Theaters and motion pictures	0.7	0.7	0.8	0.9
Other entertainment and recreation	1.4	1.7	2.1	2.4
Hospitals	9.1	11.2	15.8	20.1
Other medical and health services	6.4	7.6	9.6	11.3

Continued

Table 5-C (cont'd)

Industry	1960	1965	1970	1975
Services (cont'd)				
Legal services	1.6	1.7	1.8	2.0
Educational services and museums	15.6	20.9	25.8	29.0
Nonprofit membership organizations (incl. welfare and religious groups)	4.5	5.0	5.9	6.8
Engineering and architectural services	0.6	1.2	1.4	1.8
Accounting, auditing and bookkeeping	0.5	0.5	0.5	0.7
Miscellaneous professional services	0.5	0.2	0.1	0.2
Private household workers	4.8	4.8	4.9	4.7
Public administration	26.9	26.7	27.8	33.0
Postal service	2.3	2.3	2.3	2.3
Other federal	4.6	2.8	1.7	1.7
State	15.3	16.0	16.8	20.6
Local	4.7	5.6	7.0	8.4

For footnote see page 10.

Table 5-D. RECONCILIATION OF CIVILIAN LABOR FORCE, AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965, AND PROJECTED 1970 AND 1975, ALBANY-SCHENECTADY-TROY AREA
(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 5-A)	472	498	528	569
II. Civilian labor force, 14 and over (table 5-A)	263	276	301	326
A. Resident employed	250	266	290	315
B. Unemployed	13	10	11	11
1. Rate of unemployment (percent)	4.9	3.5	3.5	3.5
III. Total number of jobs (table 5-C)	262	278	302	329
A. Nonagricultural jobs	255	273	298	326
1. Wage and salary workers (table 5-B)	225	245	269	298
2. Self employed and unpaid family workers, and domestics	30	28	29	28
B. Agricultural jobs	7	5	4	3
IV. Difference between 5-A and III	12	12	12	14
A. Net number of commuters into area	4	4	4	4
B. Multiple jobholders, minus persons with a job but not being paid (a)	8	8	8	10

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A) but not among the wage and salary workers (III-A.1).

Table 5E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, ALBANY-SCHENECTADY-TROY AREA (in thousands)

Occupation	1960	1965	1970	1975
All occupations	261.5	278.5	301.8	328.7
Professional, technical and kindred workers	39.4	46.1	54.7	63.0
Engineers, technical	4.9	5.9	6.9	8.0
Engineers, aeronautical	-	-	-	-
Engineers, chemical	0.4	0.4	0.5	0.6
Engineers, civil	1.2	1.5	1.8	2.1
Engineers, electrical	1.2	1.4	1.5	1.6
Engineers, industrial	0.2	0.2	0.3	0.3
Engineers, mechanical	1.5	1.9	2.2	2.5
Engineers, metallurgical	0.2	0.2	0.2	0.3
Engineers, mining	-	-	-	-
Other engineers, technical	0.2	0.3	0.4	0.6
Natural scientists	1.9	2.2	2.7	3.2
Chemists	0.8	0.9	1.0	1.2
Agricultural scientists	0.1	0.1	0.1	0.1
Biological scientists	0.3	0.3	0.4	0.5
Geologists and geophysicists	0.1	0.1	0.1	0.1
Mathematicians	0.2	0.3	0.4	0.5
Physicists	0.4	0.5	0.7	0.8
Other natural scientists, n.e.c.	-	-	-	-
Technical workers and specialists (exc. medical and dental)	6.2	7.1	8.8	10.2
Draftsmen	0.8	1.0	1.3	1.5
Structural design technicians and related specialists	-	-	0.1	0.1
Electro and mechanical engineering technicians	2.0	2.3	2.7	3.1
Mathematics technicians	0.1	0.1	0.1	0.1
Physical science technicians	0.7	0.8	1.0	1.1
Industrial engineering technicians	0.6	0.7	0.7	0.8
Civil engineering and construction technicians	0.7	0.9	1.3	1.6
Sales and service technicians	-	-	-	-
Technical writing and illustration technicians	0.1	0.1	0.1	0.1
Safety and sanitation inspectors and related specialists	0.2	0.2	0.2	0.3
Product testing and inspection specialists	0.5	0.5	0.6	0.6

Continued

Table 5E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Data processing, systems analysis and programming specialists	0.3	0.3	0.4	0.5
Airway tower specialists and flight dispatchers	-	-	-	0.1
Broadcasting, motion picture and recording studio specialists	0.1	0.1	0.1	0.1
Radio operators	0.1	0.1	0.2	0.2
Medical and other health workers	7.0	8.2	10.3	12.1
Dentists	0.5	0.5	0.6	0.6
Dietitians and nutritionists	0.1	0.1	0.1	0.1
Nurses, professional and student	3.4	3.9	5.0	5.8
Optometrists	0.1	0.1	0.1	0.1
Osteopaths	-	-	-	-
Pharmacists	0.5	0.5	0.6	0.7
Physicians and surgeons	1.1	1.3	1.6	1.8
Psychologists	-	0.1	0.1	0.1
Technicians, medical and dental	1.0	1.4	1.8	2.4
Veterinarians	0.1	0.1	0.1	0.1
Chiropractors and therapists	0.2	0.2	0.3	0.4
Teachers	8.4	10.6	12.1	13.4
Teachers, elementary	4.1	4.8	5.2	5.3
Teachers, secondary	2.4	3.2	3.7	4.1
Teachers, college	0.9	1.3	1.7	2.2
Teachers, other	1.0	1.3	1.5	1.8
Social scientists	0.4	0.4	0.5	0.6
Economists	0.2	0.2	0.3	0.3
Statisticians and actuaries	0.2	0.2	0.2	0.2
Other social scientists	-	-	-	0.1
Other professional, technical and kindred workers	10.6	11.7	13.4	15.5
Accountants and auditors	2.9	2.9	3.1	3.4
Airplane pilots and navigators	-	-	-	-
Architects	0.3	0.5	0.6	0.6
Artists, musicians, authors, athletes, and entertainers	1.0	1.1	1.2	1.3
Clergymen	0.8	0.8	0.8	0.8
Designers, except design draftsmen	0.2	0.2	0.2	0.3
Reporters and editors	0.1	0.1	0.1	0.1
Lawyers and judges	1.3	1.3	1.3	1.4
Librarians	0.5	0.6	0.7	0.8
Personnel and labor relations wkrs.	0.6	0.6	0.7	0.9

Continued

Table 5E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Photographers	0.2	0.2	0.2	0.3
Social, welfare and recreation wkrs.	0.7	0.9	1.1	1.4
Prof. and tech. workers, n.e.c.	2.0	2.5	3.4	4.2
Managers, officials and proprietors	21.9	23.1	23.8	25.2
Conductors, railroad	0.2	0.2	0.1	0.1
Credit men	0.2	0.2	0.3	0.4
Ship officers	0.1	0.1	-	-
Postmasters and assistants	0.1	0.1	0.1	0.1
Purchasing agents	0.6	0.7	0.7	0.8
Managers, officials, proprietors, n.e.c.	20.7	21.8	22.6	23.8
Clerical and kindred workers	53.9	57.1	62.1	69.6
Stenos, typists and secretaries	13.7	14.8	16.6	18.7
Office machine operators	2.6	3.4	4.3	5.4
Other clerical and kindred workers	37.6	38.9	41.2	45.5
Accounting clerks	1.8	1.8	1.9	2.1
Bookkeepers, hand	2.4	2.1	2.1	2.1
Bank tellers	0.7	0.9	1.1	1.3
Cashiers	2.2	2.6	3.0	3.5
Mail carriers	0.8	0.9	0.9	1.0
Postal clerks	1.0	1.0	1.0	1.0
Shipping and receiving clerks	1.2	1.2	1.1	1.1
Telephone operators	2.0	1.8	1.8	1.8
Clerical and kindred workers, n.e.c.	25.5	26.6	28.3	31.6
Sales workers	20.2	21.0	21.6	23.1
Insurance agents and brokers	1.7	1.6	1.6	1.6
Real estate agents and brokers	0.6	0.6	0.6	0.5
Other sales workers, n.e.c.	17.9	18.8	19.4	21.0
Craftsmen, foremen and kindred workers	36.2	39.1	43.4	47.7
Construction craftsmen	8.8	9.9	11.0	12.2
Carpenters	2.8	3.0	3.2	3.4
Brickmasons, stone and tile setters	0.8	0.9	1.0	1.1
Cement and concrete finishers	-	-	-	-
Electricians	1.2	1.3	1.5	1.7
Excavating, grading machine oprs.	0.7	0.9	1.1	1.3
Painters and paperhangers	1.4	1.5	1.6	1.7
Plasterers	-	-	-	-
Plumbers and pipefitters	1.4	1.6	1.8	2.0
Roofers and slaters	0.3	0.4	0.4	0.5
Structural metalworkers	0.2	0.3	0.4	0.5

Continued

Table 5E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	4.7	4.8	5.3	5.9
Metalworking craftsmen	6.4	6.5	6.9	7.0
Skilled machining workers (inc. machinists)	4.1	4.2	4.3	4.3
Blacksmiths, forgemen, hammermen	0.1	0.1	0.1	0.1
Boilermakers	0.1	0.1	0.2	0.2
Heat treaters, annealers, tempers	-	-	-	-
Millwrights	0.3	0.3	0.3	0.3
Molders, metal (exc. coremakers)	0.2	0.2	0.2	0.2
Patternmakers, metal and wood	0.1	0.1	0.1	0.1
Rollers and roll hands	0.1	0.1	0.1	0.1
Sheet metal workers	0.5	0.5	0.6	0.6
Toolmakers, diemakers, setters	0.6	0.6	0.6	0.7
Electroplaters	-	-	-	-
Assemblers, metalwork, Class A	0.3	0.3	0.4	0.4
Printing trades craftsmen	1.5	1.5	1.6	1.7
Compositors and typesetters	0.8	0.8	0.8	0.8
Electrotypers and stereotypers	0.1	0.1	0.1	0.1
Engravers, except photoengravers	0.1	0.1	0.1	0.1
Photoengravers and lithographers	0.1	0.1	0.2	0.2
Pressmen and plate printers	0.4	0.4	0.4	0.5
Transportation and public utility craftsmen	1.8	1.6	1.5	1.3
Linemen and servicemen	1.1	1.1	1.1	1.0
Locomotive engineers	0.4	0.3	0.3	0.3
Locomotive firemen	0.3	0.2	0.1	-
Mechanics and repairmen	7.7	9.0	10.6	12.5
Airplane mechanics and repairmen	0.3	0.4	0.6	0.8
Motor vehicle mechanics	2.4	2.5	2.6	2.7
Office machine mechanics	0.1	0.1	0.1	0.1
Radio and TV mechanics	0.3	0.3	0.4	0.5
Railroad and car shop mechanics	0.2	0.2	0.1	0.1
Other mechanics and repairmen	4.4	5.5	6.8	8.3
Other craftsmen and kindred workers	5.3	5.8	6.5	7.1
Bakers	0.6	0.7	0.8	0.9
Cabinetmakers	0.1	0.1	0.1	0.1
Cranemen, derrickmen, and hoistmen	0.6	0.6	0.7	0.7
Glaziers	0.1	0.1	0.1	0.1
Jewelers and watchmakers	0.1	0.1	0.1	0.2
Millers	-	-	-	-
Opticians and lens grinders	0.1	0.1	0.2	0.2
Stationary engineers	1.0	1.1	1.1	1.1

Continued

Table 5E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	0.5	0.6	0.7	0.8
Upholsterers	0.2	0.2	0.3	0.3
Craftsmen and kindred wkrs., n.e.c.	2.0	2.2	2.4	2.7
Operatives and kindred workers	41.7	42.4	42.9	43.8
Selected transp. and utility oprs.	10.0	10.4	11.1	11.7
Drivers: bus, truck, tractor	6.4	6.8	7.4	8.0
Deliverymen, routemen, cab drivers	2.6	2.7	2.9	3.0
Brakemen and switchmen, railroad	0.9	0.8	0.7	0.6
Power station operators	0.1	0.1	0.1	0.1
Sailors and deck hands	-	-	-	-
Asbestos and insulation workers	0.1	0.1	0.1	0.1
Semiskilled metalworking occupations	4.6	4.9	4.9	4.9
Furnacemen, smelters, pourers, and heaters	0.1	0.1	0.1	0.1
Welders and flame cutters	1.1	1.3	1.4	1.6
Electroplater helpers	0.1	0.1	0.1	0.1
Mach. tool opr., metalworking, Class B	1.1	1.1	1.1	1.0
Assemblers, metalworking, Class B	1.5	1.5	1.4	1.3
Inspectors, metalworking, Class B	0.7	0.8	0.8	0.8
Semiskilled occupations in textiles and apparel	3.3	3.0	2.3	2.1
Knitters, loopers and toppers	0.3	0.3	0.2	0.2
Weavers and spinners, textile	0.3	0.3	0.1	0.1
Sewers and stitchers, manufacturing	2.7	2.4	2.0	1.8
Other operatives and kindred workers	23.7	24.0	24.5	25.0
Attendants, auto service and parking	1.1	1.3	1.5	1.7
Laundry and dry cleaning workers	1.8	1.9	2.0	2.2
Meat cutters, except meat-packing	1.0	1.1	1.1	1.1
Mine operatives and laborers, n.e.c.	-	-	-	-
Other operatives, n.e.c.	19.8	19.7	19.9	20.0
Service workers	30.3	33.3	37.8	41.8
Private household workers	4.7	4.7	4.6	4.5
Protective service workers	3.6	4.0	4.3	5.0
Firemen, fire protection	0.8	0.9	1.0	1.2
Guards and watchmen	1.6	1.7	1.8	1.9
Policemen, marshalls, sheriffs	1.2	1.4	1.5	1.9

Continued

Table 5E (cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	8.2	9.2	10.3	11.4
Bartenders	1.2	1.3	1.3	1.4
Cooks, except private household	2.4	2.7	3.1	3.4
Counter and fountain workers	1.0	1.2	1.6	1.9
Waiters and waitresses	3.6	4.0	4.3	4.7
Other service workers	13.8	15.4	18.6	20.9
Airline stewards and stewardesses	-	-	-	-
Attendants, hospital and other inst.	1.8	2.4	3.5	4.7
Charwomen and cleaners	1.5	1.6	1.8	1.9
Janitors and sextons	2.0	2.0	2.2	2.3
Nurses, practical	0.8	1.0	1.7	1.9
Other service workers, n.e.c.	7.7	8.4	9.4	10.1
Farmers and farm laborers	6.2	4.9	4.2	3.7
Laborers, except farm and mine	11.7	11.5	11.3	10.8

Table 5-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, ALBANY-SCHENECTADY-TROY AREA

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agri-culture (a)	Con-struc-tion	Manu-factur-ing(b)	Trans-porta-tion(c)	Trade	Finance (d)	Services	Public admini-stration
All occupations	261.5	6.9	16.8	66.4	17.5	55.5	10.4	61.1	26.9
Professional, technical, and kindred wkrs.	39.4	0.3	1.0	8.4	1.1	1.7	0.2	22.6	4.1
Engineers, technical	4.9	-	0.5	2.2	0.4	0.2	-	1.3	0.3
Natural scientists	1.9	0.1	-	0.9	-	0.1	-	0.7	0.1
Technicians, exc. medical and dental	6.2	-	0.3	2.6	0.5	0.3	-	1.5	1.0
Medical and other health workers	7.0	0.1	-	0.3	-	0.4	-	6.0	0.2
Teachers	8.4	-	-	-	-	0.1	-	8.2	0.1
Social scientists	0.4	-	-	0.1	-	-	-	-	0.3
Other prof., tech., and kindred wkrs.	10.6	0.1	0.2	2.3	0.2	0.6	0.2	4.9	2.1
Managers, officials and proprietors	21.9	-	1.6	3.0	1.3	10.1	1.9	2.1	1.9
Clerical and kindred workers	53.9	-	1.3	9.1	4.7	9.5	4.7	9.6	15.0
Stenos, typists and secretaries	13.7	-	0.4	2.7	0.6	0.9	1.2	4.6	3.3
Office machine operators	2.6	-	-	0.6	0.2	0.5	0.4	-	0.9
Other clerical and kindred workers	37.6	-	0.9	5.8	3.9	8.1	3.1	5.0	10.8
Sales workers	20.2	-	0.1	2.9	0.1	14.2	2.5	0.3	0.1
Craftsmen, foremen and kindred workers	35.2	0.2	7.9	13.0	4.0	4.4	0.2	5.2	1.3
Construction craftsmen	8.8	-	6.3	1.0	0.2	0.4	-	0.5	0.4
Foremen, n.e.c.	4.7	-	0.4	2.4	0.6	0.8	-	0.3	0.2
Metalworking craftsmen, exc. mechanics	6.4	-	0.3	5.9	0.2	-	-	-	-
Printing trades craftsmen	1.5	-	-	1.1	-	0.1	-	0.1	0.2
Transp. and public utility craftsmen	1.8	-	-	0.1	1.6	-	-	-	0.1
Mechanics and repairmen	7.7	0.2	0.6	0.7	0.9	2.1	0.2	2.8	0.2
Other craftsmen and kindred workers	5.3	-	0.3	1.8	0.5	1.0	-	1.5	0.2
Operatives and kindred workers	41.7	0.2	1.4	25.3	4.4	6.7	0.1	3.0	0.6
Selected transp. and pub. util. oprs.	10.0	0.1	0.4	2.1	3.5	3.1	0.1	0.5	0.2
Semiskilled metal-working occup.	4.6	-	0.1	4.4	-	-	-	0.1	-
Semiskilled textiles occupations (e)	3.3	-	-	3.3	-	-	-	-	-
Other operatives and kindred workers	23.8	0.1	0.9	15.5	0.9	3.6	-	2.4	0.4
Service workers	30.3	-	0.2	1.1	0.3	7.0	0.6	17.8	3.3
Private household workers	4.7	-	-	-	-	-	-	4.7	-
Protective service workers	3.6	-	-	0.2	0.1	0.1	0.2	0.3	2.7
Waiters, cooks, and bartenders	8.2	-	-	0.1	0.1	4.9	0.1	2.8	0.2
Other service workers	13.8	-	0.2	0.8	0.1	2.0	0.3	10.0	0.4
Laborers, except farm and mine	11.7	-	3.3	3.6	1.6	1.9	0.2	0.5	0.6
Farmers and farm laborers	6.2	6.2	-	-	-	-	-	-	-

For footnote see page 18.

Table 5-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, ALBANY-SCHENECTADY-TROY AREA

2. ESTIMATED 1965

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	278.5	5.6	21.5	67.1	16.4	58.1	10.9	72.2	26.7
Professional, technical, and kindred workers	46.1	0.3	1.2	9.0	1.2	1.8	0.2	28.0	4.4
Engineers, technical	5.9	-	0.6	2.5	0.4	0.3	-	1.8	0.3
Natural scientists	2.2	0.1	-	1.0	-	0.1	-	0.9	0.1
Technicians, exc. medical and dental	7.1	-	0.4	2.8	0.6	0.3	-	1.8	1.2
Medical and other health workers	8.2	0.1	-	0.3	-	0.4	-	7.2	0.2
Teachers	10.6	-	-	-	-	0.1	-	10.4	0.1
Social scientists	0.4	-	-	0.1	-	-	-	-	0.3
Other prof., tech., and kindred workers	11.7	0.1	0.2	2.3	0.2	0.6	0.2	5.9	2.2
Managers, officials, and proprietors	23.1	-	2.4	3.1	1.3	10.0	2.1	2.2	2.0
Clerical and kindred workers	57.1	-	1.9	9.5	4.3	10.7	5.0	11.7	14.0
Stenos, typists, and secretaries	14.8	-	0.6	2.8	0.6	0.9	1.2	5.6	3.1
Office machine operators	3.4	-	-	0.8	0.2	0.7	0.6	0.1	1.0
Other clerical and kindred workers	38.9	-	1.3	5.9	3.5	9.1	3.2	6.0	9.9
Sales workers	21.0	-	0.1	2.9	0.1	15.0	2.5	0.3	0.1
Craftsmen, foremen, and kindred workers	39.1	0.2	9.7	13.5	3.6	4.5	0.2	6.2	1.2
Construction craftsmen	9.9	-	7.4	1.0	0.2	0.4	-	0.5	0.4
Foremen, n.e.c.	4.8	-	0.6	2.5	0.4	0.7	-	0.5	0.1
Metalworking craftsmen, exc. mechanics	6.5	-	0.3	6.0	0.2	-	-	-	-
Printing trades craftsmen	1.5	-	-	1.1	-	0.1	-	0.1	0.2
Transp. and public utility craftsmen	1.6	-	-	0.1	1.4	-	-	-	0.1
Mechanics and repairmen	9.0	0.2	1.0	0.9	0.8	2.3	0.2	3.4	0.2
Other craftsmen and kindred workers	5.8	-	0.4	1.9	0.6	1.0	-	1.7	0.2
Operatives and kindred workers	42.4	0.2	2.0	24.9	4.3	7.0	0.1	3.3	0.6
Selected transp. and pub. util. oprs.	10.4	0.1	0.6	2.3	3.5	3.1	0.1	0.5	0.2
Semiskilled metalworking occupations	4.9	-	0.1	4.6	-	-	-	0.1	0.1
Semiskilled textiles occupations	3.0	-	-	3.0	-	-	-	-	-
Other operatives and kindred workers	24.1	0.1	1.3	15.0	0.8	3.9	-	2.7	0.3
Service workers	33.3	-	0.2	1.1	0.3	7.3	0.6	19.9	3.9
Private household workers	4.7	-	-	-	-	-	-	4.7	-
Protective service workers	4.0	-	-	0.2	0.1	0.1	0.2	0.3	3.1
Waiters, cooks, and bartenders	9.2	-	-	0.1	0.1	5.2	0.1	3.5	0.2
Other service workers	15.4	-	0.2	0.8	0.1	2.0	0.3	11.4	0.6
Laborers, except farm and mine	11.5	-	4.0	3.1	1.3	1.8	0.2	0.6	0.5
Farmers and farm laborers	4.9	4.9	-	-	-	-	-	-	-

For footnote see page 18.

Table 5-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, ALBANY-SCHENECTADY-TROY AREA

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	328.7	4.4	29.7	67.8	15.7	65.2	12.8	100.1	33.0
Professional, technical, and kindred workers	63.0	0.3	2.0	11.0	1.3	2.4	0.2	39.0	6.8
Engineers, technical	8.0	-	1.0	3.0	0.4	0.3	-	2.9	0.4
Natural scientists	3.2	0.1	-	1.3	-	0.1	-	1.6	0.1
Technicians, exc. medical and dental	10.2	-	0.6	3.3	0.7	0.4	-	2.8	2.4
Medical and other health workers	12.1	0.1	-	0.3	-	0.5	-	10.8	0.4
Teachers	13.4	-	-	-	-	0.2	-	13.1	0.1
Social scientists	0.6	-	-	0.1	-	-	-	0.1	0.4
Other prof., tech., and kindred workers	15.5	0.1	0.4	3.0	0.2	0.9	0.2	7.7	3.0
Managers, officials, and proprietors	25.2	-	2.9	3.4	1.1	9.7	2.8	2.9	2.4
Clerical and kindred workers	69.6	-	2.9	9.9	3.8	13.0	6.1	17.8	16.1
Stenos, typists, and secretaries	18.7	-	0.9	3.0	0.5	0.9	1.3	8.2	3.9
Office machine operators	5.4	-	-	1.2	0.3	0.9	0.9	0.1	2.0
Other clerical and kindred workers	45.5	-	2.0	5.7	3.0	11.2	3.9	9.5	10.2
Sales workers	23.1	-	0.2	3.1	0.1	16.7	2.5	0.4	0.1
Craftsmen, foremen, and kindred workers	47.7	0.2	13.5	14.2	3.6	5.5	0.2	8.9	1.6
Construction craftsmen	12.2	-	9.4	1.1	0.2	0.4	-	0.7	0.4
Foremen, n.e.c.	5.9	-	0.9	2.8	0.5	0.9	-	0.5	0.3
Metalworking craftsmen, exc. mechanics	7.0	-	0.5	6.3	0.1	-	-	0.1	-
Printing trades craftsmen	1.7	-	-	1.2	-	0.2	-	0.1	0.2
Transp. and public utility craftsmen	1.3	-	-	0.1	1.1	-	-	-	0.1
Mechanics and repairmen	12.5	0.2	1.8	1.0	1.3	2.7	0.2	5.0	0.3
Other craftsmen and kindred workers	7.1	-	0.9	1.7	0.4	1.3	-	2.5	0.3
Operatives and kindred workers	43.8	0.2	3.2	23.2	4.6	7.8	0.2	3.9	0.7
Selected transp. and pub. util. oprs.	11.7	0.1	0.9	2.2	3.9	3.3	0.2	0.8	0.3
Semiskilled metalworking occupations	4.9	-	0.2	4.4	-	-	-	0.2	0.1
Semiskilled textiles occupations	2.1	-	-	2.1	-	-	-	-	-
Other operatives and kindred workers	25.1	0.1	2.1	14.5	0.7	4.5	-	2.9	0.3
Service workers	41.8	-	0.4	0.9	0.1	8.3	0.6	26.6	4.9
Private household workers	4.5	-	-	-	-	-	-	4.5	-
Protective service workers	5.0	-	-	0.1	-	0.1	0.2	0.4	4.2
Waiters, cooks, and bartenders	11.4	-	-	0.1	-	6.0	0.1	4.9	0.3
Other service workers	20.9	-	0.4	0.7	0.1	2.2	0.3	16.8	0.4
Laborers, except farm and mine	10.8	-	4.6	2.1	1.1	1.8	0.2	0.6	0.4
Farmers and farm laborers	3.7	3.7	-	-	-	-	-	-	-

For footnote see page 18.

Table 5-G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN THE ALBANY-SCHENECTADY-TROY AREA, 1965-1975
(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	278.5	132.6	48	50.2	18	82.4	30
Professional, technical, and kindred workers	46.1	29.2	63	16.9	37	12.3	27
Engineers, technical	5.9	3.1	53	2.1	36	1.0	17
Engineers, civil	1.5	1.0	67	0.6	40	0.4	27
Engineers, electrical	1.4	0.3	21	0.2	14	0.1	7
Engineers, mechanical	1.9	0.9	47	0.6	32	0.3	16
Other engineers, technical	1.1	0.9	82	0.7	64	0.2	18
Natural scientists	2.2	1.3	59	1.0	46	0.3	14
Technical workers (exc. medical and dental)	7.1	4.0	56	3.1	44	0.9	13
Draftsmen	1.0	0.6	60	0.5	50	0.1	10
Electro and mechanical engineering techs.	2.3	1.0	43	0.8	35	0.2	9
Other technical workers, n.e.c.	3.8	2.4	63	1.8	47	0.6	16
Medical and other health workers	8.2	6.8	83	3.9	48	2.9	35
Nurses, professional and student	3.9	3.5	87	1.9	46	1.6	41
Physicians and surgeons	1.3	0.8	62	0.5	38	0.3	23
Technicians, medical and dental	1.4	1.5	107	1.0	71	0.5	36
Other medical workers, n.e.c.	1.6	1.0	63	0.5	31	0.5	31
Teachers	10.6	6.5	61	2.8	26	3.7	35
Teachers, elementary	4.8	2.4	50	0.5	10	1.9	40
Teachers, secondary	3.2	1.9	59	0.9	28	1.0	31
Teachers, college	1.3	1.0	77	0.5	39	0.5	38
Teachers, other	1.3	1.2	92	0.9	69	0.3	23
Social scientists	0.4	0.3	75	0.2	50	0.1	25
Other prof., tech., and kindred workers	11.7	7.2	62	3.8	32	3.4	29
Accountants and auditors	2.9	1.1	38	0.5	17	0.6	21
Artists, musicians, authors, athletes and entertainers	1.1	0.6	55	0.2	18	0.4	36
Lawyers and judges	1.3	0.5	38	0.1	8	0.4	31
Professional and technical workers, n.e.c.	6.4	5.0	78	3.0	47	2.0	31

Continued

Table 5-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Managers, officials, and proprietors	23.1	8.4	36	2.1	9	6.3	27
Clerical and kindred workers	57.1	31.5	55	12.5	22	19.0	33
Stenos, typists, and secretaries	14.8	9.1	61	3.9	26	5.2	35
Office machine operators	3.4	2.9	85	2.0	59	0.9	26
Other clerical and kindred workers	38.9	19.5	50	6.6	17	12.9	33
Accounting clerks	1.8	0.9	50	0.3	17	0.6	33
Bookkeepers, hand	2.1	0.6	29	-	-	0.6	29
Cashiers	2.6	1.7	65	0.9	35	0.8	31
Postal clerks	1.0	0.2	20	-	-	0.2	20
Shipping and receiving clerks	1.2	0.1	8	- 0.1	- 8	0.2	17
Telephone operators	1.8	0.6	33	-	-	0.6	33
Clerical and kindred workers, n.e.c.	28.4	15.4	54	5.5	19	9.9	35
Sales workers	21.0	7.6	36	2.1	10	5.5	26
Insurance agents and brokers	1.6	0.4	25	-	-	0.4	25
Other sales workers, n.e.c.	19.4	7.2	37	2.1	11	5.1	26
Craftsmen, foremen, and kindred workers	39.1	18.3	47	8.6	22	9.7	25
Construction craftsmen	9.9	5.0	51	2.3	23	2.7	27
Carpenters	3.0	1.3	43	0.4	13	0.9	30
Electricians	1.3	0.7	54	0.4	31	0.3	23
Painters and paperhangers	1.5	0.8	53	0.2	13	0.6	40
Plumbers and pipefitters	1.6	0.8	50	0.4	25	0.4	25
Construction craftsmen, n.e.c.	2.5	1.4	56	0.9	36	0.5	20
Foremen, n.e.c.	4.8	2.4	50	1.1	23	1.3	27
Metalworking craftsmen	6.5	2.0	31	0.5	8	1.5	23
Skilled machining workers (inc. machinists)	4.2	1.1	26	0.1	2	1.0	24
Other metalworking craftsmen, n.e.c.	2.3	0.9	39	0.4	17	0.5	22
Printing trades craftsmen	1.5	0.5	33	0.2	13	0.3	20

Continued

Table 5-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Craftsmen, foremen, and kindred workers (cont'd)							
Transportation and public utility craftsmen	1.6	-	-	- 0.3	- 19	0.3	19
Linemen and servicemen	1.1	-	-	- 0.1	- 9	0.1	9
Other trans. craftsmen, n.e.c.	0.5	-	-	- 0.2	- 40	0.2	40
Mechanics and repairmen	9.0	5.7	63	3.5	39	2.2	24
Motor vehicle mechanics	2.5	0.5	20	0.2	8	0.3	12
Other mechanics and repairmen	6.5	5.2	80	3.3	51	1.9	29
Other craftsmen and kindred workers	5.8	2.7	47	1.3	22	1.4	24
Stationary engineers	1.1	0.2	18	-	-	0.2	18
Craftsmen and kindred workers, n.e.c.	4.7	2.5	53	1.3	28	1.2	26
Operatives and kindred workers	42.4	12.2	29	1.4	3	10.8	25
Selected trans. and utility operators	10.4	3.1	30	1.3	13	1.8	17
Drivers: bus, truck and tractor	6.8	2.4	35	1.2	18	1.2	18
Deliverymen, routemen, cab drivers	2.7	0.8	30	0.3	11	0.5	19
Trans. and utility operators, n.e.c.	0.9	- 0.1	- 11	- 0.2	- 22	0.1	11
Asbestos and insulation workers	0.1	-	-	-	-	-	-
Semiskilled metalworking occupations	4.9	1.0	20	-	-	1.0	20
Welders and flame cutters	1.3	0.5	38	0.3	23	0.2	15
Mach. tool opr., metalworking, Class B	1.1	0.2	18	- 0.1	- 9	0.3	27
Assemblers, metalworking, Class B	1.5	0.1	7	- 0.2	- 13	0.3	20
Semiskilled metalworking occups., n.e.c.	1.0	0.2	20	-	-	0.2	20
Semiskilled occupations in textiles and apparel	3.0	- 0.1	- 3	- 0.9	- 30	0.8	27
Sewers and stitchers, mfg.	2.4	0.1	4	- 0.6	- 25	0.7	29
Other semiskilled occupations in textiles and apparel, n.e.c.	0.6	- 0.2	- 33	- 0.3	- 50	0.1	17
Other operatives and kindred workers	24.0	8.2	34	1.0	4	7.2	30
Attendants, auto service and parking	1.3	0.5	38	0.4	31	0.1	8
Laundry and dry cleaning workers	1.9	1.0	53	0.3	16	0.7	37
Meat cutters, except meat-packing	1.1	0.2	18	-	-	0.2	18
Other operatives, n.e.c.	19.7	6.5	33	0.3	2	6.2	31

Continued

Table 5-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Service workers	33.3	23.0	69	8.5	26	14.5	44
Private household workers	4.7	2.6	55	- 0.2	- 4	2.8	60
Protective service workers	4.0	2.4	60	1.0	25	1.4	35
Firemen, fire protection	0.9	0.5	56	0.3	33	0.2	22
Guards and watchmen	1.7	1.0	59	0.2	12	0.8	47
Policemen, marshalls, sheriffs	1.4	0.9	64	0.5	36	0.4	29
Waiters, cooks and bartenders	9.2	5.0	54	2.2	24	2.8	30
Bartenders	1.3	0.5	38	0.1	8	0.4	31
Cooks, except private household	2.7	1.8	67	0.7	26	1.1	41
Counter and fountain workers	1.2	1.1	92	0.7	58	0.4	33
Waiters and waitresses	4.0	1.6	40	0.7	18	0.9	23
Other service workers	15.4	13.0	84	5.5	36	7.5	49
Attendants, hospital and other institutions	2.4	3.0	125	2.3	96	0.7	29
Charwomen and cleaners	1.6	1.2	75	0.3	19	0.9	56
Janitors and sextons	2.0	1.2	60	0.3	15	0.9	45
Nurses, practical	1.0	1.7	170	0.9	90	0.8	80
Other service workers, n.e.c.	8.4	5.9	70	1.7	20	4.2	50
Farmers and farm laborers	4.9	0.3	6	- 1.2	- 24	1.5	31
Laborers, except farm and mine	11.5	2.1	18	- 0.7	- 6	2.8	24

BINGHAMTON AREA

Table 6-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, BINGHAMTON AREA (BROOME COUNTY)

(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	147	158	168	185	61.2	57.0	57.1	56.2	90	90	96	104
Male, total	69	75	80	90	84.1	77.3	76.3	74.4	58	58	61	67
14 - 19	8	12	13	16	42.2	36.5	36.6	36.6	3	4	5	6
20 - 24	5	6	9	11	93.7	87.5	86.3	86.3	5	5	8	9
25 - 34	13	12	12	16	98.5	97.7	96.8	96.8	13	12	12	15
35 - 44	14	14	13	12	98.4	97.6	97.8	97.8	14	14	13	12
45 - 54	12	13	13	14	98.4	97.8	98.1	98.1	12	13	13	14
55 - 64	9	9	10	11	91.3	85.3	84.9	83.4	8	8	8	9
65 and over	8	9	10	10	31.8	26.0	22.0	20.0	3	2	2	2
Female, total	78	83	88	95	41.0	38.6	39.8	38.9	32	32	35	37
14 - 19	9	11	12	14	32.3	29.4	29.8	29.9	3	3	4	4
20 - 24	6	8	10	10	51.4	51.4	51.7	52.4	3	4	5	5
25 - 34	14	13	14	17	37.1	37.1	37.2	37.6	5	5	5	6
35 - 44	15	15	14	13	49.1	49.1	49.9	49.9	7	7	7	6
45 - 54	13	13	14	15	58.9	57.6	59.9	61.0	8	7	8	9
55 - 64	10	11	11	12	47.0	47.0	48.6	49.5	5	5	5	6
65 and over	11	12	13	14	11.5	9.1	9.2	9.2	1	1	1	1

a. Civilian labor force as percent of civilian noninstitutional population.

Table 6-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, BINGHAMTON AREA (BROOME COUNTY)

(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	79.3	81.6	89.7	96.5
Manufacturing	39.6	36.6	38.2	39.5
Durable goods	22.5	23.7	26.1	28.4
Lumber and wood products	0.1	-	-	-
Furniture and fixtures	0.8	0.9	1.0	1.1
Stone, clay and glass products	0.3	0.3	0.4	0.4
Primary metal industries	0.5	0.4	0.3	0.2
Fabricated metal products (b)	0.9	1.1	1.0	1.0
Machinery, electrical equipment and supplies	11.8	13.7	15.2	16.6
Transportation equipment, instruments and related products (c)	8.1	7.3	8.2	9.1
Nondurable goods	17.1	12.9	12.1	11.1
Food and kindred products	1.9	1.4	1.2	1.2
Tobacco manufactures	-	-	-	-
Textile mill products	-	0.1	-	-
Apparel and other fabric products	0.4	0.3	0.2	0.2
Paper and allied products	0.2	0.2	0.3	0.3
Printing and publishing	1.3	1.4	1.8	2.1
Chemicals and allied products	0.3	0.3	0.4	0.4
Petroleum and coal products	-	-	-	-
Rubber and plastics products n.e.c.	-	0.1	0.1	0.1
Leather and leather products	13.0	9.1	8.1	6.8
Miscellaneous manufacturing	-	-	-	-
Agriculture (d), forestry and fisheries	0.1	0.1	-	-
Mining	-	0.1	0.3	0.4
Contract construction	3.3	3.4	4.0	4.7
Transportation, communication and public utilities	3.9	4.0	4.2	3.9
Railroads	0.8	0.7	0.7	0.5
Air transportation	0.1	0.1	0.1	0.2
Local and interurban passenger transportation	0.3	0.4	0.4	0.5
Local and suburban transit	0.1	0.2	0.2	0.3
Taxicabs	0.2	0.2	0.2	0.2
Trucking and warehousing	1.0	1.2	1.3	1.4
Trucking	1.0	1.2	1.3	1.3
Warehousing	-	-	-	0.1

Continued

Table 6-B continued

Industry	1960	1965(a)	1970	1975
Transportation, communication and public utilities (cont'd)				
Water transportation	-	-	-	-
Pipelines	-	-	-	-
Transportation services	-	-	0.1	0.1
Communication	0.8	0.7	0.7	0.5
Telephone and telegraph	0.7	0.6	0.6	0.4
Radio and television broadcasting	0.1	0.1	0.1	0.1
Electric, gas and sanitary services	0.9	0.9	0.9	0.7
Wholesale and retail trade	12.6	14.0	15.1	15.7
Wholesale trade	2.7	3.1	3.4	3.5
Motor vehicles and equipment	0.1	0.2	0.3	0.3
Drugs, chemicals and allied products	0.1	0.1	0.1	0.1
Dry goods and apparel	-	-	-	-
Groceries and related products	0.4	0.4	0.4	0.4
Electrical goods, hardware, plumbing and heating	0.5	0.4	0.3	0.3
Machinery, equipment and supplies	0.5	0.9	1.2	1.3
Other wholesale	1.1	1.1	1.1	1.1
Retail trade	9.9	10.9	11.7	12.2
Building materials, farm equipment	0.5	0.5	0.4	0.4
Retail general merchandise	2.3	2.7	3.0	3.3
Variety stores	0.4	0.5	0.6	0.7
Other general merchandise stores	1.9	2.2	2.4	2.6
Food stores	1.6	1.6	1.6	1.6
Automotive dealers and service stations	1.5	1.7	1.8	1.9
Gasoline service stations	0.5	0.5	0.5	0.5
Other motor vehicle and accessory dealers	1.0	1.2	1.3	1.4
Apparel and accessories	0.7	0.7	0.7	0.7
Furniture, homefurnishings	0.6	0.6	0.6	0.6
Eating and drinking places	1.8	2.1	2.4	2.5
Miscellaneous retail stores	0.9	1.0	1.2	1.2
Drug and proprietary stores	0.3	0.4	0.5	0.5
Other miscellaneous retail stores	0.6	0.6	0.7	0.7
Finance, insurance and real estate	2.4	2.7	2.7	2.8
Banking and credit agencies	1.0	1.1	1.1	1.2
Brokers and investment companies	-	-	-	-
Insurance	1.1	1.2	1.2	1.1
Real estate	0.3	0.4	0.4	0.5
Services	7.2	8.4	10.5	11.9
Hotels and lodging places	0.8	0.7	0.6	0.6
Personal services	0.9	0.9	1.0	1.0
Laundries	0.7	0.6	0.6	0.6
Other personal services	0.2	0.3	0.4	0.4

Continued

Table 6-B continued

Industry	1960	1965 (a)	1970	1975
Services (cont'd)				
Miscellaneous business services	0.7	1.3	2.1	2.6
Advertising	-	-	-	-
Other business services	0.7	1.3	2.1	2.6
Automobile repair services and garages	0.2	0.2	0.3	0.3
Miscellaneous repair services	0.1	0.1	0.2	0.2
Motion pictures and other amusement and recreation services	0.4	0.4	0.4	0.5
Theaters and motion pictures	0.2	0.1	0.1	0.1
Other entertainment and recreation	0.2	0.3	0.3	0.4
Medical and other health services	1.8	2.3	2.9	3.4
Hospitals	1.2	1.5	1.9	2.2
Other medical and health services	0.6	0.8	1.0	1.2
Legal services	0.2	0.3	0.4	0.5
Educational services and museums	0.7	0.7	0.9	1.0
Nonprofit membership organizations	1.0	1.2	1.4	1.5
Welfare and religious groups	0.8	0.8	0.8	0.7
Other nonprofit membership organizations	0.2	0.4	0.6	0.8
Miscellaneous services	0.4	0.3	0.3	0.3
Engineering and architectural services	0.3	0.2	0.2	0.2
Accounting, auditing and bookkeeping	0.1	0.1	0.1	0.1
Miscellaneous professional services	-	-	-	-
Nonclassifiable	-	-	-	-
Government	10.2	12.3	14.7	17.6
Federal	0.8	0.8	0.8	0.8
Postal service	0.6	0.6	0.6	0.6
Other federal	0.2	0.2	0.2	0.2
State and local	9.4	11.5	13.9	16.8
State	2.3	2.9	3.6	4.4
Local	7.1	8.6	10.3	12.4

a. Data on 1965 benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.
Note: Detail may not add to totals due to rounding.

Table 6-C. TOTAL NUMBER OF JOBS (a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, BINGHAMTON AREA (BROOME COUNTY)

(in thousands)

Industry	1960	1965	1970	1975
Total employment	91.3	92.1	99.7	106.5
Manufacturing	39.9	36.8	38.4	39.8
Durable goods	22.8	23.9	26.3	28.7
Lumber and wood products	0.1	-	-	-
Furniture and fixtures	0.8	0.9	1.0	1.1
Stone, clay and glass products	0.3	0.3	0.4	0.4
Primary metal industries	0.5	0.4	0.3	0.2
Fabricated metal products (b)	0.9	1.1	1.0	1.0
Machinery, electrical equipment and supplies	11.9	13.8	15.3	16.8
Transportation equipment, instruments and related products (c)	8.3	7.4	8.3	9.2
Nondurable goods	17.1	12.9	12.1	11.1
Food and kindred products	1.9	1.4	1.2	1.2
Tobacco manufactures	-	-	-	-
Textile mill products	-	0.1	-	-
Apparel and other fabric products	0.4	0.3	0.2	0.2
Paper and allied products	0.2	0.2	0.3	0.3
Printing and publishing	1.3	1.4	1.8	2.1
Chemicals and allied products	0.3	0.3	0.4	0.4
Petroleum and coal products	-	-	-	-
Rubber and plastics products, n.e.c.	-	0.1	0.1	0.1
Leather and leather products	13.0	9.1	8.1	6.8
Miscellaneous manufacturing	-	-	-	-
Nonmanufacturing	51.4	55.3	61.3	66.7
Agriculture, forestry and fisheries	2.7	2.0	1.0	1.0
Mining	-	0.1	0.3	0.4
Contract construction	5.5	5.8	6.6	7.8
Transportation, communication and public utilities	4.6	4.9	5.3	5.1
Railroads	0.8	0.7	0.7	0.5
Air transportation	0.1	0.1	0.2	0.3
Local and suburban transit	0.1	0.2	0.3	0.5
Taxicabs	0.3	0.3	0.3	0.3
Trucking	1.3	1.5	1.6	1.6
Warehousing	-	-	-	0.1
Water transportation	-	-	-	-
Pipelines	-	-	-	-
Transportation services	-	-	0.1	0.1

Continued

Table 6-C (Cont'd)

Industry	1960	1965	1970	1975
Transportation, communication and public utilities (cont'd)				
Telephone and telegraph	0.7	0.6	0.6	0.4
Radio and television broadcasting	0.1	0.1	0.1	0.1
Electric, gas and sanitary services	1.2	1.4	1.4	1.2
Wholesale and retail trade	15.4	16.5	17.7	17.9
Wholesale trade	3.1	3.5	3.8	3.9
Motor vehicles and equipment	0.1	0.2	0.3	0.3
Drugs, chemicals and allied products	0.1	0.1	0.1	0.1
Dry goods and apparel	-	-	-	-
Groceries and related products	0.5	0.5	0.5	0.5
Electrical goods, hardware, plumbing and heating	0.6	0.5	0.4	0.4
Machinery, equipment and supplies	0.6	1.0	1.3	1.4
Other wholesale	1.2	1.2	1.2	1.2
Retail trade	12.3	13.0	13.9	14.0
Building materials, farm equipment	0.6	0.6	0.5	0.5
Variety stores	0.4	0.5	0.6	0.7
Other general merchandise stores	2.0	2.3	2.5	2.7
Food stores	2.0	1.9	1.9	1.8
Gasoline service stations	0.8	0.8	0.8	0.7
Other motor vehicle and accessory dealers	1.2	1.3	1.4	1.5
Apparel and accessories	0.9	0.9	1.0	1.0
Furniture, homefurnishings	0.8	0.8	0.8	0.7
Eating and drinking places	2.4	2.6	2.9	2.9
Drug and proprietary stores	0.4	0.5	0.6	0.6
Other miscellaneous retail stores	0.8	0.8	0.9	0.9
Finance, insurance and real estate	2.8	3.1	3.1	3.2
Banking and credit agencies	1.0	1.1	1.1	1.2
Brokers and investment companies	-	-	-	-
Insurance	1.2	1.3	1.3	1.2
Real estate	0.6	0.7	0.7	0.8
Services	18.0	20.2	23.6	26.2
Hotels and lodging places	1.0	0.9	0.8	0.8
Laundries	0.8	0.7	0.7	0.7
Other personal services	0.6	0.8	1.0	1.0
Advertising	-	-	-	-
Other business services	0.9	1.5	2.3	2.8
Automobile repair services and garages	0.3	0.3	0.4	0.4
Miscellaneous repair services	0.3	0.2	0.4	0.4
Theaters and motion pictures	0.3	0.1	0.1	0.1
Other entertainment and recreation	0.2	0.3	0.3	0.4
Hospitals	2.9	3.6	4.4	5.2
Other medical and health services	1.3	1.6	2.0	2.2

Continued

Table 6-C (cont'd)

Industry	1960	1965	1970	1975
Services (cont'd)				
Legal services	0.5	0.6	0.7	0.9
Educational services and museums	5.3	6.2	6.8	7.4
Nonprofit membership organizations (incl. welfare and religious groups)	1.1	1.3	1.6	1.7
Engineering and architectural services	0.5	0.4	0.4	0.5
Accounting, auditing and bookkeeping	0.2	0.2	0.2	0.2
Miscellaneous professional services	0.1	0.1	0.1	0.1
Private household workers	1.7	1.4	1.4	1.4
Public administration	2.4	2.7	3.7	5.1
Postal service	0.6	0.6	0.6	0.6
Other federal	0.2	0.2	0.2	0.2
State	0.2	0.5	0.7	0.8
Local	1.4	1.4	2.2	3.5

For footnote see page 10.

Table 6-D. RECONCILIATION OF CIVILIAN LABOR FORCE AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, BINGHAMTON AREA (BROOME COUNTY)

(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 6-A)	147	158	168	185
II. Civilian labor force, 14 and over (table 6-A)	90	90	96	104
A. Resident employed	86	87	93	100
B. Unemployed	4	3	3	4
1. Rate of unemployment (percent)	4.1	3.8	3.5	3.5
III. Total number of jobs (table 6-C)	91	92	100	107
A. Nonagricultural jobs	88	90	99	106
1. Wage and salary workers (table 6-B)	79	82	90	97
2. Self employed and unpaid family workers, and domestics	9	8	9	9
B. Agricultural jobs	3	2	1	1
IV. Difference between II-A and III	5	5	7	7
A. Net number of commuters into area	3	3	4	4
B. Multiple jobholders, minus persons with a job but not being paid (a)	2	2	3	3

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A), but not among the wage and salary workers (III-A.1).

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Table 6E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, BINGHAMTON AREA (BROOME COUNTY) (in thousands)

Occupation	1960	1965	1970	1975
All occupations	91.3	92.1	99.7	106.5
Professional, technical and kindred workers	13.6	16.0	19.5	22.9
Engineers, technical	1.8	2.1	2.4	3.1
Engineers, aeronautical	-	-	-	-
Engineers, chemical	0.1	0.1	0.1	0.2
Engineers, civil	0.2	0.2	0.3	0.4
Engineers, electrical	1.0	1.2	1.4	1.7
Engineers, industrial	0.1	0.1	0.1	0.2
Engineers, mechanical	0.4	0.5	0.5	0.6
Engineers, metallurgical	-	-	-	-
Engineers, mining	-	-	-	-
Other engineers, technical	-	-	-	-
Natural scientists	0.4	0.5	0.7	0.8
Chemists	0.2	0.2	0.3	0.3
Agricultural scientists	-	-	-	-
Biological scientists	-	-	-	-
Geologists and geophysicists	-	-	-	-
Mathematicians	0.1	0.2	0.2	0.3
Physicists	0.1	0.1	0.2	0.2
Other natural scientists, n.e.c.	-	-	-	-
Technical workers and specialists (exc. medical and dental)	3.5	4.2	5.2	6.7
Draftsmen	0.5	0.7	0.9	1.2
Structural design technicians and related specialists	-	-	-	-
Electro and mechanical engineering technicians	1.6	2.0	2.5	3.2
Mathematics technicians	-	-	-	-
Physical science technicians	0.3	0.4	0.5	0.6
Industrial engineering technicians	0.3	0.3	0.3	0.4
Civil engineering and construction technicians	0.4	0.4	0.5	0.6
Sales and service technicians	-	-	-	-
Technical writing and illustration technicians	0.1	0.1	0.1	0.1
Safety and sanitation inspectors and related specialists	0.1	0.1	0.1	0.2
Product testing and inspection specialists	0.1	0.1	0.1	0.2

Continued

Table 6E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Data processing, systems analysis and programming specialists	0.1	0.1	0.2	0.2
Airway tower specialists and flight dispatchers	-	-	-	-
Broadcasting, motion picture and recording studio specialists	-	-	-	-
Radio operators	-	-	-	-
Medical and other health workers	2.3	2.7	3.2	3.7
Dentists	0.1	0.1	0.1	0.1
Dietitians and nutritionists	0.1	0.1	0.1	0.1
Nurses, professional and student	1.2	1.4	1.7	2.0
Optometrists	-	-	-	-
Osteopaths	-	-	-	-
Pharmacists	0.1	0.1	0.1	0.1
Physicians and surgeons	0.4	0.5	0.5	0.6
Psychologists	-	-	-	-
Technicians, medical and dental	0.3	0.4	0.5	0.6
Veterinarians	-	-	-	-
Chiropractors and therapists	0.1	0.1	0.2	0.2
Teachers	2.4	2.8	3.6	3.9
Teachers, elementary	1.2	1.3	1.4	1.4
Teachers, secondary	0.7	0.8	0.9	0.9
Teachers, college	0.2	0.3	0.9	1.2
Teachers, other	0.3	0.4	0.4	0.4
Social scientists	0.1	0.2	0.3	0.3
Economists	-	0.1	0.1	0.1
Statisticians and actuaries	0.1	0.1	0.2	0.2
Other social scientists	-	-	-	-
Other professional, technical and kindred workers	3.1	3.5	4.1	4.4
Accountants and auditors	0.5	0.6	0.7	0.7
Airplane pilots and navigators	-	-	-	-
Architects	-	-	-	-
Artists, musicians, authors, athletes, and entertainers	0.5	0.5	0.6	0.6
Clergymen	0.2	0.2	0.2	0.2
Designers, except design draftsmen	0.1	0.1	0.1	0.1
Reporters and editors	0.2	0.2	0.2	0.2
Lawyers and judges	0.2	0.2	0.3	0.3
Librarians	0.1	0.1	0.1	0.1
Personnel and labor relations wkrs.	0.2	0.2	0.3	0.3

Continued

Table 6E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Photographers	0.1	0.1	0.1	0.1
Social, welfare and recreation wkrs.	0.2	0.2	0.3	0.4
Prof. and tech. workers, n.e.c.	0.8	1.1	1.2	1.4
Managers, officials and proprietors	6.5	6.8	7.1	7.4
Conductors, railroad	-	-	-	-
Credit men	0.1	0.1	0.1	0.2
Ship officers	-	-	-	-
Postmasters and assistants	-	-	-	-
Purchasing agents	0.2	0.2	0.3	0.3
Managers, officials, proprietors, n.e.c.	6.2	6.5	6.7	6.9
Clerical and kindred workers	14.4	15.2	17.2	18.7
Stenos, typists and secretaries	3.4	3.7	4.5	5.1
Office machine operators	0.5	0.6	0.8	1.0
Other clerical and kindred workers	10.5	10.9	11.9	12.6
Accounting clerks	0.5	0.5	0.5	0.6
Bookkeepers, hand	0.7	0.7	0.6	0.6
Bank tellers	0.2	0.2	0.2	0.3
Cashiers	0.7	0.8	0.9	1.0
Mail carriers	0.2	0.2	0.2	0.2
Postal clerks	0.2	0.2	0.2	0.2
Shipping and receiving clerks	0.4	0.3	0.3	0.3
Telephone operators	0.4	0.4	0.4	0.4
Clerical and kindred workers, n.e.c.	7.2	7.6	8.6	9.0
Sales workers	6.5	6.8	7.0	7.1
Insurance agents and brokers	0.4	0.4	0.4	0.4
Real estate agents and brokers	0.2	0.2	0.3	0.3
Other sales workers, n.e.c.	5.9	6.2	6.3	6.4
Craftsmen, foremen and kindred workers	12.1	12.1	13.5	14.5
Construction craftsmen	2.4	2.5	2.7	2.7
Carpenters	0.8	0.8	0.8	0.7
Brickmasons, stone and tile setters	0.2	0.2	0.2	0.2
Cement and concrete finishers	-	-	-	-
Electricians	0.4	0.4	0.5	0.5
Excavating, grading machine oprs.	0.1	0.1	0.1	0.2
Painters and paperhangers	0.4	0.4	0.4	0.4
Plasterers	0.1	0.1	0.1	0.1
Plumbers and pipefitters	0.3	0.3	0.4	0.4
Roofers and slaters	0.1	0.1	0.1	0.1
Structural metalworkers	-	0.1	0.1	0.1

Continued

Table 6E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	1.8	1.7	2.0	2.1
Metalworking craftsmen	3.3	3.1	3.2	3.2
Skilled machining workers (inc. machinists)	2.2	2.0	1.9	1.9
Blacksmiths, forgemen, hammermen	-	-	-	-
Boilermakers	-	-	-	-
Heat treaters, annealers, tempers	-	-	-	-
Millwrights	-	-	-	-
Molders, metal (exc. coremakers)	-	-	-	-
Patternmakers, metal and wood	0.2	0.2	0.3	0.3
Sheet metal workers	0.1	0.1	0.1	0.1
Toolmakers, diemakers, setters	0.4	0.4	0.4	0.4
Electroplaters	-	-	-	-
Assemblers, metalwork, Class A	0.4	0.4	0.5	0.5
Printing trades craftsmen	0.3	0.3	0.3	0.4
Compositors and typesetters	0.2	0.2	0.2	0.2
Electrotypers and stereotypers	-	-	-	-
Engravers, except photoengravers	-	-	-	-
Photoengravers and lithographers	-	-	-	-
Pressmen and plate printers	0.1	0.1	0.1	0.2
Transportation and public utility craftsmen	0.3	0.3	0.3	0.2
Linemen and servicemen	0.2	0.2	0.2	0.1
Locomotive engineers	0.1	0.1	0.1	0.1
Locomotive firemen	-	-	-	-
Mechanics and repairmen	2.6	2.9	3.5	4.3
Airplane mechanics and repairmen	0.1	0.1	0.2	0.2
Motor vehicle mechanics	0.6	0.6	0.7	0.9
Office machine mechanics	0.3	0.4	0.4	0.5
Radio and TV mechanics	0.1	0.1	0.1	0.1
Railroad and car shop mechanics	-	-	-	-
Other mechanics and repairmen	1.5	1.7	2.1	2.6
Other craftsmen and kindred workers	1.4	1.3	1.5	1.6
Bakers	0.1	-	-	-
Cabinetmakers	0.1	0.1	0.1	0.1
Cranemen, derrickmen, and hoistmen	-	-	-	-
Glaziers	-	-	-	-
Jewelers and watchmakers	-	-	-	-
Millers	-	-	-	-
Opticians and lens grinders	-	-	-	-
Stationary engineers	0.5	0.5	0.5	0.5

Continued

Table 6E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	0.1	0.1	0.1	0.1
Upholsterers	0.2	0.2	0.3	0.3
Craftsmen and kindred wkrs., n.e.c.	0.4	0.4	0.5	0.6
Operatives and kindred workers	23.0	20.2	20.2	20.0
Selected transp. and utility oprs.	3.1	3.3	3.7	4.0
Drivers: bus, truck, tractor	2.1	2.3	2.7	2.9
Deliverymen, routemen, cab drivers	0.8	0.8	0.8	0.9
Brakemen and switchmen, railroad	0.2	0.2	0.2	0.2
Power station operators	-	-	-	-
Sailors and deck hands	-	-	-	-
Asbestos and insulation workers	-	-	-	-
Semiskilled metalworking occupations	3.0	3.1	3.1	3.1
Furnacemen, smelters, pourers, and heaters	-	-	-	-
Welders and flame cutters	0.2	0.2	0.2	0.2
Electroplater helpers	0.1	0.1	0.1	0.1
Mach. tool opr., metalworking, Class B	0.7	0.7	0.6	0.5
Assemblers, metalworking, Class B	1.5	1.6	1.7	1.7
Inspectors, metalworking, Class B	0.5	0.5	0.5	0.6
Semiskilled occupations in textiles and apparel	2.0	1.4	1.0	0.8
Knitters, loopers and toppers	-	-	-	-
Weavers and spinners, textile	-	-	-	-
Sewers and stitchers, manufacturing	2.0	1.4	1.0	0.8
Other operatives and kindred workers	14.9	12.4	12.4	12.1
Attendants, auto service and parking	0.4	0.4	0.5	0.5
Laundry and dry cleaning workers	0.5	0.5	0.5	0.5
Meat cutters, except meat-packing	0.2	0.2	0.2	0.2
Mine operatives and laborers, n.e.c.	-	0.1	0.2	0.2
Other operatives, n.e.c.	13.8	11.2	11.0	10.7
Service workers	9.7	10.5	11.4	12.5
Private household workers	1.2	1.1	0.9	0.9
Protective service workers	0.9	0.9	1.2	1.5
Firemen, fire protection	0.3	0.3	0.4	0.6
Guards and watchmen	0.3	0.3	0.4	0.4
Policemen, marshalls, sheriffs	0.3	0.3	0.4	0.5

Continued

Table 6E (cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	2.8	3.1	3.5	3.5
Bartenders	0.4	0.4	0.5	0.5
Cooks, except private household	0.9	1.0	1.1	1.1
Counter and fountain workers	0.2	0.2	0.3	0.3
Waiters and waitresses	1.3	1.5	1.6	1.6
Other service workers	4.8	5.4	5.8	6.6
Airline stewards and stewardesses	-	-	-	-
Attendants, hospital and other inst.	1.4	1.8	2.3	3.0
Charwomen and cleaners	0.1	0.1	0.1	0.1
Janitors and sextons	0.9	0.9	1.0	1.0
Nurses, practical	0.3	0.4	0.5	0.6
Other service workers, n.e.c.	2.1	2.2	1.9	1.9
Farmers and farm laborers	2.7	1.9	1.3	1.0
Laborers, except farm and mine	2.8	2.6	2.5	2.4

Table 6-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, BINGHAMTON AREA (BROOME COUNTY)

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	91.3	2.7	5.5	39.9	4.6	15.4	2.8	18.0	2.4
Professional, technical and kindred wkrs.	13.6	-	0.3	5.4	0.2	0.4	0.1	6.7	0.5
Engineers, technical	1.8	-	0.1	1.5	0.1	-	-	-	0.1
Natural scientists	0.4	-	-	0.4	-	-	-	-	-
Technicians, exc. medical and dental	3.5	-	0.2	2.5	-	0.1	-	0.5	0.2
Medical and other health workers	2.3	-	-	-	-	0.1	-	2.2	-
Teachers	2.4	-	-	-	-	-	-	2.4	-
Social scientists	0.1	-	-	0.1	-	-	-	-	-
Other prof., tech., and kindred wkrs.	3.1	-	-	0.9	0.1	0.2	0.1	1.6	0.2
Managers, officials and proprietors	6.5	-	0.4	1.6	0.3	2.8	0.4	0.7	0.3
Clerical and kindred workers	14.4	-	0.4	6.1	1.2	1.9	1.5	2.7	0.6
Stenos, typists and secretaries	3.4	-	0.1	1.0	0.1	0.5	0.4	1.1	0.2
Office machine operators	0.5	-	-	0.4	-	0.1	-	-	-
Other clerical and kindred workers	10.5	-	0.3	4.7	1.1	1.3	1.1	1.6	0.4
Sales workers	6.5	-	0.1	0.9	-	4.6	0.6	0.3	-
Craftsmen, foremen and kindred workers	12.1	-	3.1	5.8	0.9	1.4	-	0.8	0.1
Construction craftsmen	2.4	-	2.4	-	-	-	-	-	-
Foremen, n.e.c.	1.8	-	0.2	1.1	0.2	0.2	-	0.1	-
Metalworking craftsmen, exc. mechanics	3.3	-	-	3.1	-	0.1	-	-	0.1
Printing trades craftsmen	0.3	-	-	0.3	-	-	-	-	-
Transp. and public utility craftsmen	0.3	-	-	-	0.3	-	-	-	-
Mechanics and repairmen	2.6	-	0.3	0.8	0.2	0.8	-	0.5	-
Other craftsmen and kindred workers	1.4	-	0.2	0.5	0.2	0.3	-	0.2	-
Operatives and kindred workers	23.0	-	0.3	18.4	1.6	1.7	-	0.9	0.1
Selected transp. and pub. util. oprs.	3.1	-	0.1	0.8	1.3	0.7	-	0.2	-
Semiskilled metal-working occup.	3.0	-	-	3.0	-	-	-	-	-
Semiskilled textiles occupations (e)	2.0	-	-	2.0	-	-	-	-	-
Other operatives and kindred workers	14.9	-	0.2	12.6	0.3	1.0	-	0.7	0.1
Service workers	9.7	-	-	0.7	-	2.3	0.2	5.8	0.7
Private household workers	1.2	-	-	-	-	-	-	1.2	-
Protective service workers	0.9	-	-	0.1	-	0.1	-	0.1	0.6
Waiters, cooks, and bartenders	2.8	-	-	-	-	1.6	-	1.2	-
Other service workers	4.8	-	-	0.6	-	0.6	0.2	3.3	0.1
Laborers, except farm and mine	2.8	-	0.9	1.0	0.4	0.3	-	0.1	0.1
Farmers and farm laborers	2.7	2.7	-	-	-	-	-	-	-

For footnote see page 18.

Table 6-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, BINGHAMTON AREA (BROOME COUNTY)

2. ESTIMATED 1965

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation (c)	Trade	Finance (d)	Services	Public administration
All occupations	92.1	2.0	5.8	36.9	4.9	16.5	3.1	20.2	2.7
Professional, technical, and kindred workers	16.0	-	0.3	6.5	0.2	0.6	0.1	7.8	0.5
Engineers, technical	2.1	-	0.1	1.8	0.1	-	-	-	0.1
Natural scientists	0.5	-	-	0.5	-	-	-	-	-
Technicians, exc. medical and dental	4.2	-	0.2	3.0	-	0.2	-	0.6	0.2
Medical and other health workers	2.7	-	-	-	-	0.1	-	2.6	-
Teachers	2.8	-	-	0.1	-	-	-	2.7	-
Social scientists	0.2	-	-	0.2	-	-	-	-	-
Other prof., tech., and kindred workers	3.5	-	-	0.9	0.1	0.3	0.1	1.9	0.2
Managers, officials and proprietors	6.8	-	0.5	1.5	0.3	2.8	0.6	0.7	0.4
Clerical and kindred workers	15.2	-	0.4	5.9	1.2	2.2	1.6	3.1	0.8
Stenos, typists, and secretaries	3.7	-	0.1	1.1	0.1	0.5	0.4	1.2	0.3
Office machine operators	0.6	-	-	0.4	-	0.2	-	-	-
Other clerical and kindred workers	10.9	-	0.3	4.4	1.1	1.5	1.2	1.9	0.5
Sales workers	6.8	-	0.1	0.7	-	5.1	0.6	0.3	-
Craftsmen, foremen, and kindred workers	12.1	-	3.3	5.5	0.9	1.5	-	0.8	0.1
Construction craftsmen	2.5	-	2.5	-	-	-	-	-	-
Foremen, n.e.c.	1.7	-	0.2	1.0	0.2	0.2	-	0.1	-
Metalworking craftsmen, exc. mechanics	3.1	-	-	3.0	-	-	-	-	0.1
Printing trades craftsmen	0.3	-	-	0.3	-	-	-	-	-
Transp. and public utility craftsmen	0.3	-	-	-	0.3	-	-	-	-
Mechanics and repairmen	2.9	-	0.4	0.8	0.2	1.0	-	0.5	-
Other craftsmen and kindred workers	1.3	-	0.2	0.4	0.2	0.3	-	0.2	-
Operatives and kindred workers	20.2	-	0.3	15.4	1.8	1.7	-	0.9	0.1
Selected transp. and pub. util. oprs.	3.3	-	0.1	0.8	1.5	0.7	-	0.2	-
Semiskilled metalworking occupations	3.1	-	-	3.1	-	-	-	-	-
Semiskilled textiles occupations	1.4	-	-	1.4	-	-	-	-	-
Other operatives and kindred workers	12.4	-	0.2	10.1	0.3	1.0	-	0.7	0.1
Service workers	10.5	-	-	0.7	-	2.4	0.2	6.5	0.7
Private household workers	1.1	-	-	-	-	-	-	1.1	-
Protective service workers	0.9	-	-	0.1	-	0.1	-	0.1	0.6
Waiters, cooks, and bartenders	3.1	-	-	-	-	1.7	-	1.4	-
Other service workers	5.4	-	-	0.6	-	0.6	0.2	3.9	0.1
Laborers, except farm and mine	2.6	0.1	0.9	0.7	0.5	0.2	-	0.1	0.1
Farmers and farm laborers	1.9	1.9	-	-	-	-	-	-	-

For footnote see page 18.

Table 6-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, BINGHAMTON AREA (BROOME COUNTY)

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	106.5	1.0	7.8	40.2	5.1	17.9	3.2	26.2	5.1
Professional, technical, and kindred workers	22.9	-	0.5	9.3	0.2	0.6	0.1	11.1	1.1
Engineers, technical	3.1	-	0.2	2.5	0.1	0.1	-	-	0.2
Natural scientists	0.8	-	-	0.8	-	-	-	-	-
Technicians, exc. medical and dental	6.7	-	0.3	4.6	-	0.2	-	1.3	0.3
Medical and other health workers	3.7	-	-	-	-	0.1	-	3.6	-
Teachers	3.9	-	-	-	-	-	-	3.9	-
Social scientists	0.3	-	-	0.3	-	-	-	-	-
Other prof., tech., and kindred workers	4.4	-	-	1.1	0.1	0.2	0.1	2.3	0.6
Managers, officials, and proprietors	7.4	-	0.7	1.6	0.3	2.6	0.5	0.9	0.8
Clerical and kindred workers	18.7	-	0.7	6.9	1.1	2.5	1.8	4.4	1.3
Stenos, typists, and secretaries	5.1	-	0.2	1.3	0.1	0.6	0.4	2.0	0.5
Office machine operators	1.0	-	-	0.6	-	0.2	0.1	-	0.1
Other clerical and kindred workers	12.6	-	0.5	5.0	1.0	1.7	1.3	2.4	0.7
Sales workers	7.1	-	0.2	0.8	-	5.0	0.7	0.4	-
Craftsmen, foremen, and kindred workers	14.5	-	4.1	6.1	0.9	2.2	-	1.1	0.1
Construction craftsmen	2.7	-	2.7	-	-	-	-	-	-
Foremen, n.e.c.	2.1	-	0.3	1.1	0.2	0.3	-	0.2	-
Metalworking craftsmen, exc. mechanics	3.2	-	-	3.1	-	-	-	-	0.1
Printing trades craftsmen	0.4	-	-	0.4	-	-	-	-	-
Transp. and public utility craftsmen	0.2	-	-	-	0.2	-	-	-	-
Mechanics and repairmen	4.3	-	0.7	1.1	0.3	1.5	-	0.7	-
Other craftsmen and kindred workers	1.6	-	0.4	0.4	0.2	0.4	-	0.2	-
Operatives and kindred workers	20.0	-	0.6	14.2	2.2	2.0	-	0.9	0.1
Selected transp. and pub. util. oprs.	4.0	-	0.2	1.0	1.8	0.8	-	0.2	-
Semiskilled metalworking occupations	3.1	-	-	3.1	-	-	-	-	-
Semiskilled textiles occupations	0.8	-	-	0.8	-	-	-	-	-
Other operatives and kindred workers	12.1	-	0.4	9.3	0.4	1.2	-	0.7	0.1
Service workers	12.5	-	-	0.8	-	2.7	0.1	7.3	1.6
Private household workers	0.9	-	-	-	-	-	-	0.9	-
Protective service workers	1.5	-	-	0.1	-	-	-	0.2	1.2
Waiters, cooks, and bartenders	3.5	-	-	-	-	2.0	-	1.5	-
Other service workers	6.6	-	-	0.7	-	0.7	0.1	4.7	0.4
Laborers, except farm and mine	2.4	-	1.0	0.5	0.4	0.3	-	0.1	0.1
Farmers and farm laborers	1.0	1.0	-	-	-	-	-	-	-

For footnote see page 18.

Table 6-G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN THE BINGHAMTON AREA (BROOME COUNTY), 1965-1975

(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	92.1	39.4	43	14.4	16	25.0	27
Professional, technical, and kindred workers	16.0	10.5	66	6.9	43	3.6	23
Engineers, technical	2.1	1.3	62	1.0	48	0.3	14
Engineers, electrical	1.2	0.6	50	0.5	42	0.1	8
Other engineers, technical	0.9	0.7	78	0.5	56	0.2	22
Natural scientists	0.5	0.4	80	0.3	60	0.1	20
Technical workers (exc. medical and dental)	4.2	2.9	69	2.5	60	0.4	10
Electro and mechanical engineering techs.	2.0	1.3	65	1.2	60	0.1	5
Other technical workers, n.e.c.	2.2	1.6	73	1.3	59	0.3	14
Medical and other health workers	2.7	2.0	74	1.0	37	1.0	37
Nurses, professional and student	1.4	1.2	86	0.6	43	0.6	43
Other medical workers, n.e.c.	1.3	0.8	62	0.4	31	0.4	31
Teachers	2.8	2.0	71	1.1	39	0.9	32
Teachers, elementary	1.3	0.6	46	0.1	8	0.5	38
Teachers, secondary	0.8	0.3	38	0.1	13	0.2	25
Other teachers, n.e.c.	0.7	1.1	157	0.9	129	0.2	29
Social scientists	0.2	0.1	50	0.1	50	-	-
Other prof., tech., and kindred workers	3.5	1.8	51	0.9	26	0.9	26
Managers, officials, and proprietors	6.8	3.1	46	0.6	9	2.5	37
Clerical and kindred workers	15.2	8.5	56	3.5	23	5.0	33
Stenos, typists, and secretaries	3.7	2.7	73	1.4	38	1.3	35
Office machine operators	0.6	0.6	100	0.4	67	0.2	33
Other clerical and kindred workers	10.9	5.2	48	1.7	16	3.5	32
Sales workers	6.8	2.3	34	0.3	4	2.0	29

Continued

Table 6-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Craftsmen, foremen, and kindred workers	12.1	5.4	45	2.4	20	3.0	25
Construction craftsmen	2.5	0.8	32	0.2	8	0.6	24
Foremen, n.e.c.	1.7	0.8	47	0.4	24	0.4	24
Metalworking craftsmen	3.1	0.9	29	0.1	3	0.8	26
Skilled machining workers (inc. machinists)	2.0	0.4	20	- 0.1	- 5	0.5	25
Other metalworking craftsmen, n.e.c.	1.1	0.5	45	0.2	18	0.3	27
Printing trades craftsmen	0.3	0.2	67	0.1	33	0.1	33
Transportation and public utility craftsmen	0.3	-	-	- 0.1	- 33	0.1	33
Mechanics and repairmen	2.9	2.1	72	1.4	48	0.7	24
Other craftsmen and kindred workers	1.3	0.6	46	0.3	23	0.3	23
Operatives and kindred workers	20.2	3.9	19	- 0.2	- 1	4.1	20
Selected trans. and utility operators	3.3	1.3	39	0.7	21	0.6	18
Drivers: bus, truck and tractor	2.3	1.0	43	0.6	26	0.4	17
Trans. and utility operators, n.e.c.	1.0	0.3	30	0.1	10	0.2	20
Semiskilled metalworking occupations	3.1	0.6	19	-	-	0.6	19
Assemblers, metalworking, Class B	1.6	0.5	31	0.1	6	0.4	25
Semiskilled metalworking occups., n.e.c.	1.5	0.1	7	- 0.1	- 7	0.2	13
Semiskilled occupations in textiles and apparel	1.4	- 0.2	- 14	- 0.6	- 43	0.4	29
Other operatives and kindred workers	12.4	2.2	18	- 0.3	- 2	2.5	20
Service workers	10.5	5.7	54	2.0	19	3.7	35
Private household workers	1.1	0.3	27	- 0.2	- 18	0.5	45
Protective service workers	0.9	0.9	100	0.6	67	0.3	33
Waiters, cooks and bartenders	3.1	1.3	42	0.4	13	0.9	29
Cooks, except private household	1.0	0.5	50	0.1	10	0.4	40
Counter and fountain wkrs. and bartenders	0.6	0.4	67	0.2	33	0.2	33
Waiters and waitresses	1.5	0.4	27	0.1	7	0.3	20
Other service workers	5.4	3.2	59	1.2	22	2.0	37
Attendants, hospital and other institutions	1.8	1.9	106	1.2	67	0.7	39
Other service workers, n.e.c.	3.6	1.3	36	-	-	1.3	36

Continued

Table 6-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Farmers and farm laborers	1.9	- 0.3	- 16	- 0.9	- 47	0.6	32
Laborers, except farm and mine	2.6	0.3	12	- 0.2	- 8	0.5	19

BUFFALO AREA

Table 7-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, BUFFALO AREA
(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	911	976	1,059	1,152	56.6	52.0	52.0	51.5	516	508	551	593
Male, total	437	468	505	549	81.0	74.6	73.9	72.7	354	349	373	399
14 - 19	52	71	84	95	36.3	31.6	31.7	31.7	19	22	27	30
20 - 24	31	40	56	68	89.5	83.0	83.0	83.0	28	33	46	56
25 - 34	81	68	68	94	97.6	97.5	97.6	97.6	79	66	66	92
35 - 44	91	94	89	71	97.9	97.8	97.8	97.8	89	92	87	69
45 - 54	76	82	87	90	96.4	95.7	96.1	96.1	73	78	84	86
55 - 64	57	59	64	70	88.2	82.2	82.0	79.2	50	48	52	55
65 and over	49	54	57	61	31.7	19.4	20.0	18.7	16	10	11	11
Female, total	474	508	554	603	34.2	31.3	32.1	32.2	162	159	178	194
14 - 19	55	69	82	93	28.2	25.3	25.7	25.9	16	17	21	24
20 - 24	37	45	57	68	47.1	43.1	43.4	43.9	17	19	25	30
25 - 34	86	79	86	105	31.6	29.2	29.3	29.6	27	23	25	31
35 - 44	96	97	90	81	39.7	37.2	37.9	38.5	38	36	34	31
45 - 54	78	85	93	94	46.0	44.9	46.5	47.2	36	38	43	44
55 - 64	61	63	71	79	34.9	31.1	32.3	33.0	21	20	23	26
65 and over	61	70	75	83	11.9	9.2	9.3	9.3	7	6	7	8

a. Civilian labor force as percent of civilian noninstitutional population.

Table 7-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, BUFFALO AREA
(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	441.7	453.4	494.5	538.1
Manufacturing	176.6	175.2	178.2	182.6
Durable goods	117.5	119.8	122.3	125.7
Lumber and wood products	0.9	0.8	0.7	0.6
Furniture and fixtures	2.1	1.8	1.6	1.5
Stone, clay and glass products	8.9	8.1	7.9	7.5
Primary metal industries	33.6	33.8	33.3	32.1
Fabricated metal products (b)	14.8	14.5	14.4	14.0
Machinery, except electrical	14.2	14.2	15.8	17.9
Electrical equipment and supplies	13.8	14.2	15.5	17.3
Transportation equipment	26.5	29.4	29.9	31.1
Instruments and related products (c)	2.7	3.0	3.2	3.7
Nondurable goods	59.1	55.4	55.9	56.9
Food and kindred products	15.9	14.7	14.1	14.0
Tobacco manufactures	-	-	-	-
Textile mill products	1.4	1.2	1.2	1.2
Apparel and other fabric products	2.8	2.5	2.5	2.5
Paper and allied products	7.4	6.7	6.8	6.8
Printing and publishing	7.7	8.1	8.4	8.8
Chemicals and allied products	16.7	14.6	14.4	14.4
Petroleum and coal products	1.0	0.8	0.6	0.6
Rubber and plastics products, n.e.c.	4.0	4.3	4.8	5.4
Leather and leather products	0.4	0.3	0.3	0.3
Miscellaneous manufacturing	1.8	2.2	2.8	2.9
Agriculture (d), forestry and fisheries	0.3	0.7	0.8	1.0
Mining	0.4	0.3	0.3	0.2
Contract construction	25.7	19.2	22.7	25.3
Transportation, communication and public utilities	33.4	31.6	30.0	29.2
Railroads	10.3	9.0	8.0	7.5
Air transportation	0.7	0.9	1.1	1.2
Local and interurban passenger transportation	3.1	2.8	2.6	2.5
Local and suburban transit	2.3	2.0	1.8	1.7
Taxicabs	0.8	0.8	0.8	0.8
Trucking and warehousing	7.0	7.6	8.0	8.2
Trucking	6.4	7.0	7.5	7.7
Warehousing	0.6	0.6	0.5	0.5
Water transportation	1.2	1.0	0.8	0.7
Pipelines	-	-	-	-

Continued

Table 7-B continued

Industry	1960	1965(a)	1970	1975
Transportation, communication and public utilities (cont'd)				
Transportation services	0.4	0.4	0.4	0.5
Communication	5.6	5.2	4.7	4.4
Telephone and telegraph	4.8	4.5	4.1	3.8
Radio and television broadcasting	0.8	0.7	0.6	0.6
Electric, gas and sanitary services	5.1	4.7	4.4	4.2
Wholesale and retail trade	84.5	88.1	97.4	105.1
Wholesale trade	20.0	20.7	22.2	23.5
Motor vehicles and equipment	1.1	1.3	1.6	1.8
Drugs, chemicals and allied products	0.9	0.9	1.0	1.1
Dry goods and apparel	0.1	0.2	0.3	0.4
Groceries and related products	2.6	2.8	3.2	3.5
Electrical goods, hardware, plumbing and heating	3.3	3.0	2.9	2.8
Machinery, equipment and supplies	3.9	4.6	5.3	5.9
Other wholesale	8.1	7.9	7.9	8.0
Retail trade	64.5	67.4	75.2	81.6
Building materials, farm equipment	2.9	2.8	2.7	2.7
Retail general merchandise	13.1	14.4	16.0	17.7
Variety stores	3.0	2.6	2.8	3.0
Other general merchandise stores	10.1	11.8	13.2	14.7
Food stores	11.6	11.6	12.4	13.2
Automotive dealers and service stations	9.1	8.6	9.2	9.7
Gasoline service stations	3.1	2.7	2.9	3.0
Other motor vehicle and accessory dealers	6.0	5.9	6.3	6.7
Apparel and accessories	4.9	4.7	5.4	5.1
Furniture, homefurnishings	2.6	2.6	2.9	3.1
Eating and drinking places	14.1	16.1	19.0	21.5
Miscellaneous retail stores	6.2	6.6	7.6	8.6
Drug and proprietary stores	3.0	3.0	3.3	3.5
Other miscellaneous retail stores	3.2	3.6	4.3	5.1
Finance, insurance and real estate	15.8	16.7	17.5	18.1
Banking and credit agencies	5.8	6.8	7.8	8.6
Brokers and investment companies	0.7	0.7	0.7	0.7
Insurance	6.2	6.5	6.5	6.5
Real estate	3.1	2.7	2.5	2.3
Services	54.1	58.8	73.3	87.0
Hotels and lodging places	3.4	3.3	3.2	3.1
Personal services	5.6	5.5	6.1	6.5
Laundries	5.0	3.3	2.9	2.5
Other personal services	0.6	2.2	3.2	4.0

Continued

Table 7-B continued

Industry	1960	1965(a)	1970	1975
Services (cont'd)				
Miscellaneous business services	5.2	7.8	11.7	15.0
Advertising	0.6	0.5	0.5	0.5
Other business services	4.6	7.3	11.2	14.5
Automobile repair services and garages	1.8	2.2	2.9	3.6
Miscellaneous repair services	0.8	1.1	1.4	1.7
Motion pictures and other amusement and recreation services	3.9	4.1	4.7	5.2
Theaters and motion pictures	1.3	0.9	1.0	1.1
Other entertainment and recreation	2.6	3.2	3.7	4.1
Medical and other health services	14.9	18.0	23.8	29.0
Hospitals	11.6	13.4	17.6	21.1
Other medical and health services	3.3	4.6	6.2	7.9
Legal services	1.3	1.5	1.8	2.0
Educational services and museums	6.6	5.6	6.7	8.8
Nonprofit membership organizations	8.4	8.0	8.8	9.6
Welfare and religious groups	5.3	4.7	5.2	5.8
Other nonprofit membership organizations	2.7	3.3	3.6	3.8
Miscellaneous services	2.2	1.7	2.2	2.5
Engineering and architectural services	1.4	0.9	1.1	1.2
Accounting, auditing and bookkeeping	0.7	0.7	0.9	1.0
Miscellaneous professional services	0.1	0.1	0.2	0.3
Nonclassifiable	-	-	-	-
Government	50.9	62.9	74.3	89.6
Federal	8.0	9.2	10.0	10.7
Postal service	4.1	4.5	4.8	5.2
Other federal	3.9	4.7	5.2	5.5
State and local	42.9	53.7	64.3	78.9
State	8.4	12.1	15.5	20.0
Local	34.5	41.6	48.8	58.9

a. Data on 1965 Benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.
Note: Detail may not add to totals due to rounding.

Table 7-C. TOTAL NUMBER OF JOBS (a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, BUFFALO AREA
(in thousands)

Industry	1960	1965	1970	1975
Total employment	501.0	506.6	549.3	591.3
Manufacturing	178.3	176.8	180.0	184.7
Durable goods	118.2	120.5	123.0	126.6
Lumber and wood products	0.9	0.8	0.7	0.6
Furniture and fixtures	2.1	1.8	1.6	1.5
Stone, clay and glass products	9.0	8.2	8.0	7.6
Primary metal industries	33.6	33.8	33.3	32.1
Fabricated metal products (b)	15.1	14.8	14.7	14.4
Machinery, except electrical	14.4	14.4	16.0	18.2
Electrical equipment and supplies	13.8	14.2	15.5	17.3
Transportation equipment	26.5	29.4	29.9	31.1
Instruments and related products (c)	2.8	3.1	3.3	3.8
Nondurable goods	60.1	56.3	57.0	58.1
Food and kindred products	16.4	15.1	14.5	14.3
Tobacco manufactures	-	-	-	-
Textile mill products	1.4	1.2	1.2	1.2
Apparel and other fabric products	2.9	2.6	2.6	2.7
Paper and allied products	7.4	6.7	6.8	6.8
Printing and publishing	8.0	8.4	8.8	9.3
Chemicals and allied products	16.7	14.6	14.4	14.4
Petroleum and coal products	1.0	0.8	0.6	0.6
Rubber and plastics products, n.e.c.	4.0	4.3	4.8	5.4
Leather and leather products	0.4	0.3	0.3	0.3
Miscellaneous manufacturing	1.9	2.3	3.0	3.1
Nonmanufacturing	322.7	329.8	369.3	406.6
Agriculture, forestry and fisheries	9.4	8.5	7.7	7.3
Mining	0.4	0.3	0.3	0.2
Contract construction	33.5	26.4	29.3	32.6
Transportation, communication and public utilities	38.0	36.6	35.3	35.9
Railroads	10.3	9.0	8.0	7.5
Air transportation	0.8	1.0	1.3	1.5
Local and suburban transit	2.6	2.3	2.1	2.8
Taxicabs	0.9	0.9	1.0	1.0
Trucking	7.0	7.7	8.3	8.6
Warehousing	0.7	0.7	0.6	0.6
Water transportation	1.3	1.1	0.8	0.7
Pipelines	-	-	-	-
Transportation services	0.5	0.5	0.5	0.6

Continued

Table 7-C (cont'd)

Industry	1960	1965	1970	1975
Transportation, communication and public utilities (cont'd)				
Communication, electric, gas and sanitary service	13.9	13.4	12.7	12.6
Wholesale and retail trade	104.0	104.1	113.5	120.4
Wholesale trade	22.6	23.3	24.9	26.0
Motor vehicles and equipment	1.2	1.5	1.9	2.1
Drugs, chemicals and allied products	1.0	1.0	1.1	1.2
Dry goods and apparel	0.2	0.3	0.4	0.5
Groceries and related products	3.1	3.0	3.4	3.6
Electrical goods, hardware, plumbing and heating	3.7	3.4	3.3	3.2
Machinery, equipment and supplies	4.5	5.2	5.9	6.5
Other wholesale	8.9	8.9	8.9	8.9
Retail trade	81.4	80.8	88.6	94.4
Building materials, farm equipment	3.7	3.5	3.4	3.3
Variety stores	3.1	2.7	2.9	3.1
Other general merchandise stores	10.8	12.3	13.6	14.9
Food stores	15.5	14.4	15.8	17.2
Gasoline service stations	5.1	4.3	4.3	4.0
Other motor vehicle and accessory dealers	6.5	6.3	6.7	7.0
Apparel and accessories	5.7	5.3	6.0	5.7
Furniture, homefurnishings	3.4	3.2	3.5	3.5
Eating and drinking places	18.9	20.1	22.7	25.2
Drug and proprietary stores	3.4	3.4	3.7	3.9
Other miscellaneous retail stores	5.3	5.3	6.0	6.6
Finance, insurance and real estate	17.8	19.0	19.9	20.6
Banking and credit agencies	5.9	6.9	7.9	8.7
Brokers and investment companies	0.7	0.7	0.7	0.7
Insurance	6.5	6.8	6.8	6.8
Real estate	4.7	4.6	4.5	4.4
Services	101.9	114.9	141.9	166.2
Hotels and lodging places	3.9	3.8	3.7	3.6
Laundries	5.8	3.9	3.4	2.7
Other personal services	3.1	5.1	6.3	7.3
Advertising	0.7	0.6	0.6	0.6
Other business services	4.6	8.3	12.6	15.9
Automobile repair services and garages	2.4	3.1	4.0	4.7
Miscellaneous repair services	1.7	1.9	2.2	2.3
Theaters and motion pictures	1.5	1.0	1.0	1.1
Other entertainment and recreation	3.1	3.5	4.4	4.8
Hospitals	19.1	22.0	29.8	38.3
Other medical and health services	7.4	9.0	11.8	13.6

Continued

Table 7-C (cont'd)

Industry	1960	1965	1970	1975
Services (cont'd)				
Legal services	2.3	2.6	3.0	3.2
Educational services and museums	25.1	31.5	38.5	46.5
Nonprofit membership organizations (incl. welfare and religious groups)	8.8	8.6	9.7	10.5
Miscellaneous professional services	4.3	2.9	3.4	3.8
Private household workers	8.1	7.1	7.5	7.3
Public administration	17.7	20.0	21.4	23.4
Postal service	4.1	4.5	4.8	5.2
Other federal	2.5	3.4	3.7	3.7
State	1.9	2.7	3.0	3.0
Local	9.2	9.4	9.9	11.5

For footnote see page 10.

Table 7-D. RECONCILIATION OF CIVILIAN LABOR FORCE, AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, BUFFALO AREA
(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 7-A)	911	976	1,059	1,152
II. Civilian labor force, 14 and over (table 7-A)	516	508	551	593
A. Resident employed	482	486	529	569
B. Unemployed	34	22	22	24
1. Rate of unemployment (percent)	6.5	4.4	4.0	4.0
III. Total number of jobs (table 7-C)	501	507	549	591
A. Nonagricultural jobs	492	499	542	585
1. Wage and salary workers (table 7-B)	442	453	495	538
2. Self employed and unpaid family workers, and domestics	50	46	47	47
B. Agricultural jobs	9	8	7	6
IV. Difference between II-A and III	19	21	20	22
A. Net numbers of commuters into area	5	6	5	6
B. Multiple jobholders, minus persons with a job but not being paid (a)	14	15	15	16

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A) but not among the wage and salary workers (III-A.1).

Table 7E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, BUFFALO AREA
(in thousands)

Occupation	1960	1965	1970	1975
All occupations	501.0	506.6	549.3	591.3
Professional, technical and kindred workers	62.8	70.4	83.6	96.0
Engineers, technical	7.9	8.2	9.1	10.3
Engineers, aeronautical	0.4	0.4	0.5	0.7
Engineers, chemical	1.7	1.7	1.7	1.8
Engineers, civil	0.9	0.9	0.9	1.0
Engineers, electrical	1.8	1.9	2.2	2.4
Engineers, industrial	0.5	0.6	0.6	0.8
Engineers, mechanical	2.3	2.4	2.7	2.9
Engineers, metallurgical	0.2	0.2	0.3	0.4
Engineers, mining	-	-	-	-
Other engineers, technical	0.1	0.1	0.2	0.3
Natural scientists	2.5	2.7	3.2	3.5
Chemists	1.9	1.9	2.1	2.3
Agricultural scientists	0.1	0.2	0.2	0.2
Biological scientists	0.1	0.1	0.2	0.2
Geologists and geophysicists	-	-	-	-
Mathematicians	0.2	0.3	0.4	0.5
Physicists	0.2	0.2	0.3	0.3
Other natural scientists, n.e.c.	-	-	-	-
Technical workers and specialists (exc. medical and dental)	11.3	12.9	15.4	17.8
Draftsmen	2.0	2.2	2.6	2.9
Structural design technicians and related specialists	0.1	0.1	0.2	0.2
Electro and mechanical engineering technicians	3.1	3.5	4.1	5.0
Mathematics technicians	0.1	0.1	0.1	0.1
Physical science technicians	1.7	1.9	2.1	2.3
Industrial engineering technicians	0.7	0.8	0.8	1.0
Civil engineering and construction technicians	1.4	1.9	2.5	3.0
Sales and service technicians	0.1	0.1	0.2	0.2
Technical writing and illustration technicians	0.2	0.2	0.3	0.3
Safety and sanitation inspectors and related specialists	0.3	0.3	0.4	0.5
Product testing and inspection specialists	0.8	0.9	1.0	1.1

Continued

Table 7E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Data processing, systems analysis and programming specialists	0.3	0.4	0.5	0.6
Airway tower specialists and flight dispatchers	0.1	0.1	0.1	0.1
Broadcasting, motion picture and recording studio specialists	0.2	0.2	0.2	0.2
Radio operators	0.2	0.2	0.3	0.3
Medical and other health workers	12.3	14.0	18.1	21.5
Dentists	0.7	0.8	0.9	0.9
Dietitians and nutritionists	0.3	0.3	0.4	0.5
Nurses, professional and student	5.8	6.4	8.1	9.5
Optometrists	0.1	0.1	0.1	0.1
Osteopaths	0.1	0.1	0.1	0.1
Pharmacists	0.9	0.9	0.9	0.9
Physicians and surgeons	2.1	2.4	3.0	3.5
Psychologists	0.1	0.1	0.2	0.2
Technicians, medical and dental	1.8	2.4	3.7	4.9
Veterinarians	-	-	0.1	0.1
Chiropractors and therapists	0.4	0.5	0.6	0.8
Teachers	14.0	16.7	19.0	21.7
Teachers, elementary	7.6	8.7	9.3	9.8
Teachers, secondary	4.1	5.0	6.0	7.1
Teachers, college	1.0	1.4	1.7	2.5
Teachers, other	1.3	1.6	2.0	2.3
Social scientists	0.3	0.3	0.3	0.4
Economists	0.1	0.1	0.1	0.1
Statisticians and actuaries	0.2	0.2	0.2	0.3
Other social scientists	-	-	-	-
Other professional, technical and kindred workers	14.5	15.6	18.5	20.8
Accountants and auditors	3.1	3.1	3.3	3.4
Airplane pilots and navigators	0.1	0.1	0.2	0.3
Architects	0.2	0.2	0.2	0.2
Artists, musicians, authors, athletes, and entertainers	1.7	1.7	2.1	2.4
Clergymen	1.1	1.1	1.1	1.1
Designers, except design draftsmen	0.1	0.1	0.1	0.2
Reporters and editors	0.4	0.4	0.5	0.5
Lawyers and judges	1.8	1.9	2.1	2.1
Librarians	0.5	0.6	0.7	0.8
Personnel and labor relations wkrs.	0.8	0.9	1.1	1.1

Continued

Table 7E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Photographers	0.3	0.3	0.3	0.3
Social, welfare and recreation wkrs.	1.2	1.3	1.6	1.8
Prof. and tech. workers, n.e.c.	3.2	3.9	5.2	6.6
Managers, officials and proprietors	38.5	36.5	38.3	39.9
Conductors, railroad	0.6	0.4	0.4	0.4
Credit men	0.3	0.3	0.4	0.4
Ship officers	0.1	0.1	0.1	0.1
Postmasters and assistants	0.1	0.1	0.1	0.1
Purchasing agents	0.8	0.8	1.0	1.2
Managers, officials, proprietors, n.e.c.	36.6	34.8	36.3	37.7
Clerical and kindred workers	79.5	84.7	92.6	102.4
Stenos, typists and secretaries	17.9	19.6	22.1	24.7
Office machine operators	2.8	3.8	4.6	5.8
Other clerical and kindred workers	58.8	61.3	65.9	71.9
Accounting clerks	3.1	3.2	3.3	3.3
Bookkeepers, hand	3.7	3.8	3.9	3.9
Bank tellers	1.2	1.5	1.7	2.0
Cashiers	5.2	5.7	7.1	8.4
Mail carriers	1.5	1.9	2.0	2.3
Postal clerks	1.8	2.0	2.1	2.1
Shipping and receiving clerks	2.9	2.6	2.5	2.4
Telephone operators	3.1	3.1	3.2	3.2
Clerical and kindred workers, n.e.c.	36.3	37.5	40.1	44.3
Sales workers	40.9	40.2	42.7	44.0
Insurance agents and brokers	2.3	2.4	2.4	2.4
Real estate agents and brokers	1.1	1.1	1.1	1.0
Other sales workers, n.e.c.	37.5	36.7	39.2	40.6
Craftsmen, foremen and kindred workers	86.6	84.6	88.8	94.6
Construction craftsmen	19.5	16.8	16.8	17.7
Carpenters	5.5	4.0	3.8	3.9
Brickmasons, stone and tile setters	1.7	1.5	1.4	1.4
Cement and concrete finishers	0.3	0.2	0.3	0.3
Electricians	3.8	3.7	3.9	4.2
Excavating, grading machine oprs.	1.4	1.2	1.3	1.4
Painters and paperhangers	2.3	2.1	2.0	2.1
Plasterers	0.3	0.2	0.2	0.2
Plumbers and pipefitters	3.0	2.9	2.9	3.0
Roofers and slaters	0.4	0.3	0.3	0.4
Structural metalworkers	0.8	0.7	0.7	0.8

Continued

Table 7E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	12.3	12.1	13.0	14.1
Metalworking craftsmen	17.8	17.2	17.2	17.3
Skilled machining workers (inc. machinists)	8.3	8.1	8.1	8.2
Blacksmiths, forgemen, hammermen	0.5	0.4	0.3	0.2
Boilermakers	0.2	0.3	0.3	0.3
Heat treaters, annealers, tempers	0.3	0.3	0.3	0.3
Millwrights	1.4	1.4	1.4	1.4
Molders, metal (exc. coremakers)	0.7	0.5	0.5	0.5
Patternmakers, metal and wood	0.5	0.5	0.5	0.6
Rollers and roll hands	1.2	1.1	1.0	1.0
Sheet metal workers	1.3	1.2	1.2	1.2
Toolmakers, diemakers, setters	2.3	2.3	2.4	2.4
Electroplaters	0.2	0.2	0.2	0.2
Assemblers, metalwork, Class A	0.9	0.9	1.0	1.0
Printing trades craftsmen	2.5	2.5	2.5	2.5
Compositors and typesetters	1.3	1.2	1.1	1.0
Electrotypers and stereotypers	0.1	0.1	0.1	0.1
Engravers, except photoengravers	0.1	0.1	0.1	0.1
Photoengravers and lithographers	0.2	0.3	0.3	0.4
Pressmen and plate printers	0.8	0.8	0.9	0.9
Transportation and public utility craftsmen	3.2	3.0	2.7	2.6
Linemen and servicemen	1.9	1.9	1.9	2.0
Locomotive engineers	0.7	0.7	0.6	0.5
Locomotive firemen	0.6	0.4	0.2	0.1
Mechanics and repairmen	17.8	19.6	22.5	25.7
Airplane mechanics and repairmen	0.6	0.5	0.6	0.7
Motor vehicle mechanics	4.9	5.4	5.8	6.4
Office machine mechanics	0.2	0.3	0.4	0.4
Radio and TV mechanics	0.6	0.7	0.8	0.8
Railroad and car shop mechanics	0.5	0.5	0.4	0.4
Other mechanics and repairmen	11.0	12.2	14.5	17.0
Other craftsmen and kindred workers	13.5	13.4	14.1	14.7
Bakers	1.2	1.1	1.1	1.1
Cabinetmakers	0.4	0.4	0.4	0.3
Cranemen, derrickmen, and hoistmen	2.7	2.7	2.8	3.0
Glaziers	0.1	0.2	0.2	0.2
Jewelers and watchmakers	0.2	0.2	0.2	0.2
Millers	0.2	0.2	0.2	0.1
Opticians and lens grinders	0.4	0.4	0.5	0.5
Stationary engineers	2.7	2.7	2.6	2.5

Continued

Table 7E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	1.4	1.3	1.4	1.5
Upholsterers	0.3	0.3	0.4	0.5
Craftsmen and kindred wkrs., n.e.c.	3.9	3.9	4.3	4.8
Operatives and kindred workers	96.8	95.7	99.0	102.8
Selected transp. and utility oprs.	20.7	20.7	21.2	22.4
Drivers: bus, truck, tractor	14.1	14.1	14.5	15.4
Deliverymen, routemen, cab drivers	3.7	3.7	3.9	4.2
Brakemen and switchmen, railroad	2.4	2.4	2.4	2.4
Power station operators	0.3	0.3	0.3	0.3
Sailors and deck hands	0.2	0.2	0.1	0.1
Asbestos and insulation workers	0.2	0.2	0.2	0.2
Semiskilled metalworking occupations	18.1	18.2	18.3	18.8
Furnacemen, smelters, pourers, and heaters	1.6	1.5	1.5	1.5
Welders and flame cutters	3.9	4.1	4.3	4.7
Electroplater helpers	0.2	0.2	0.2	0.3
Mach. tool opr., metalworking, Class B	3.6	3.4	3.2	3.1
Assemblers, metalworking, Class B	6.4	6.6	6.7	6.9
Inspectors, metalworking, Class B	2.4	2.4	2.4	2.3
Semiskilled occupations in textiles and apparel	1.5	1.4	1.3	1.3
Knitters, loopers and toppers	-	-	-	-
Weavers and spinners, textile	0.1	0.1	0.1	0.1
Sewers and stitchers, manufacturing	1.4	1.3	1.2	1.2
Other operatives and kindred workers	56.3	55.2	58.0	60.1
Attendants, auto service and parking	2.1	2.1	2.2	2.5
Laundry and dry cleaning workers	2.7	1.9	1.8	1.7
Meat cutters, except meat-packing	1.7	1.7	1.8	2.0
Mine operatives and laborers, n.e.c.	0.3	0.2	0.2	0.1
Other operatives, n.e.c.	49.5	49.3	52.0	53.8
Service workers	57.2	60.9	71.9	80.7
Private household workers	7.0	6.1	6.1	6.1
Protective service workers	6.8	6.9	7.2	7.4
Firemen, fire protection	1.3	1.2	1.2	1.2
Guards and watchmen	2.8	2.9	3.0	3.0
Policemen, marshalls, sheriffs	2.7	2.8	3.0	3.2

Continued

Table 7E (cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	15.2	16.7	19.5	22.0
Bartenders	1.9	2.1	2.4	2.7
Cooks, except private household	4.0	4.4	5.1	5.7
Counter and fountain workers	1.4	1.7	2.2	2.6
Waiters and waitresses	7.9	8.5	9.8	11.0
Other service workers	28.2	31.2	39.1	45.2
Airline stewards and stewardesses	0.1	0.1	0.2	0.2
Attendants, hospital and other inst.	4.4	5.4	7.9	10.6
Charwomen and cleaners	4.8	5.4	6.2	6.6
Janitors and sextons	3.9	3.6	3.7	3.8
Nurses, practical	1.0	1.2	1.7	2.3
Other service workers, n.e.c.	14.0	15.5	19.4	21.7
Farmers and farm laborers	8.5	7.3	6.7	6.3
Laborers, except farm and mine	30.2	26.3	25.7	24.6

Table 7-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, BUFFALO AREA

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	501.0	9.4	33.5	178.7	38.0	104.0	17.8	101.9	17.7
Professional, technical, and kindred wkrs.	62.8	0.3	2.1	17.0	2.2	2.6	0.5	36.0	2.1
Engineers, technical	7.9	-	1.0	4.9	0.7	0.5	0.1	0.6	0.1
Natural scientists	2.5	-	-	2.3	-	-	-	0.2	-
Technicians, exc. medical and dental	11.3	-	1.0	7.1	1.0	0.2	-	1.3	0.7
Medical and other health workers	12.3	-	-	0.2	-	0.9	-	11.1	0.1
Teachers	14.0	-	-	-	-	0.1	-	13.8	0.1
Social scientists	0.3	-	-	0.1	-	-	-	0.1	0.1
Other prof., tech., and kindred wkrs.	14.5	0.3	0.1	2.4	0.5	0.9	0.4	8.9	1.0
Managers, officials and proprietors	38.5	-	2.8	7.5	2.7	17.4	3.0	4.0	1.1
Clerical and kindred workers	79.5	0.2	1.7	22.0	9.3	16.1	8.9	13.8	7.5
Stenos, typists and secretaries	17.9	0.1	0.3	5.0	0.7	2.0	2.1	6.2	1.5
Office machine operators	2.8	-	-	1.2	0.3	0.5	0.4	0.2	0.2
Other clerical and kindred workers	58.8	0.1	1.4	15.8	8.3	13.6	6.4	7.4	5.8
Sales workers	40.9	-	0.2	6.1	0.4	29.3	3.6	1.3	-
Craftsmen, foremen and kindred workers	86.6	0.2	16.7	44.7	9.5	7.8	0.5	6.0	1.2
Construction craftsmen	19.5	-	12.4	4.3	0.9	0.8	0.1	0.7	0.3
Foremen, n.e.c.	12.3	-	1.2	8.2	1.2	1.2	0.1	0.3	0.1
Metalworking craftsmen, exc. mechanics	17.8	-	0.7	16.8	0.1	0.1	-	0.1	-
Printing trades craftsmen	2.5	-	-	2.4	-	-	-	0.1	-
Transp. and public utility craftsmen	3.2	-	0.1	-	3.1	-	-	-	-
Mechanics and repairmen	17.8	0.2	1.4	5.7	2.7	3.9	0.2	3.1	0.6
Other craftsmen and kindred workers	13.5	-	0.9	7.3	1.5	1.8	0.1	1.7	0.2
Operatives and kindred workers	96.8	0.2	3.4	66.7	9.6	11.0	0.1	5.4	0.4
Selected transp. and pub. util. oprs.	20.7	0.1	1.9	6.2	7.6	4.0	-	0.7	0.2
Semiskilled metal-working occup.	18.1	-	0.2	17.5	0.1	0.1	-	0.1	0.1
Semiskilled textiles occupations (e)	1.5	-	-	1.5	-	-	-	-	-
Other operatives and kindred workers	56.5	0.1	1.3	41.5	1.9	6.9	0.1	4.6	0.1
Service workers	57.2	-	0.3	3.3	0.8	15.3	1.1	31.5	4.9
Private household workers	7.0	-	-	-	-	-	-	7.0	-
Protective service workers	6.8	-	0.2	1.2	0.3	0.1	0.2	0.5	4.3
Waiters, cooks, and bartenders	15.2	-	-	0.3	0.2	10.8	0.1	3.8	-
Other service workers	28.2	-	0.1	1.8	0.3	4.4	0.8	20.2	0.6
Laborers, exc. farm and mine	30.2	-	6.3	11.4	3.5	4.5	0.1	3.9	0.5
Farmers and farm laborers	8.5	8.5	-	-	-	-	-	-	-

For footnote see page 18.

Table 7-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, BUFFALO AREA

2. ESTIMATED 1965

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	506.6	8.5	26.4	177.1	36.6	104.1	19.0	114.9	20.0
Professional, technical, and kindred workers	70.4	0.5	1.9	18.1	2.4	3.0	0.6	41.5	2.4
Engineers, technical	8.2	-	0.8	5.2	0.7	0.5	0.1	0.8	0.1
Natural scientists	2.7	0.1	-	2.3	-	-	-	0.3	-
Technicians, exc. medical and dental	12.9	-	1.0	7.7	1.2	0.4	0.1	1.7	0.8
Medical and other health workers	14.0	0.1	-	0.2	-	0.9	-	12.7	0.1
Teachers	16.7	-	-	-	-	0.1	-	16.5	0.1
Social scientists	0.3	-	-	0.1	-	-	-	0.1	0.1
Other prof., tech., and kindred workers	15.6	0.3	0.1	2.6	0.5	1.1	0.4	9.4	1.2
Managers, officials, and proprietors	36.5	-	2.1	7.2	2.4	16.1	3.3	4.3	1.1
Clerical and kindred workers	84.7	0.3	1.2	21.7	8.7	16.9	9.7	17.0	9.2
Stenos, typists, and secretaries	19.6	0.1	0.3	5.0	0.7	2.0	2.2	7.5	1.8
Office machine operators	3.8	-	-	1.6	0.4	0.6	0.6	0.3	0.3
Other clerical and kindred workers	61.3	0.2	0.9	15.1	7.6	14.3	6.9	9.2	7.1
Sales workers	40.2	-	0.2	5.9	0.4	28.5	3.7	1.5	-
Craftsmen, foremen, and kindred workers	84.6	0.2	13.2	45.3	9.0	8.1	0.5	6.9	1.4
Construction craftsmen	16.8	-	9.6	4.4	0.8	0.8	0.1	0.8	0.3
Foremen, n.e.c.	12.1	-	0.8	8.6	1.0	1.1	0.1	0.3	0.2
Metalworking craftsmen, exc. mechanics	17.2	-	0.6	16.2	0.1	0.1	-	0.2	-
Printing trades craftsmen	2.5	-	-	2.4	-	-	-	0.1	-
Transp. and public utility craftsmen	3.0	-	0.1	-	2.9	-	-	-	-
Mechanics and repairmen	19.6	0.2	1.3	6.3	2.8	4.3	0.2	3.8	0.7
Other craftsmen and kindred workers	13.4	-	0.8	7.4	1.4	1.8	0.1	1.7	0.2
Operatives and kindred workers	95.7	0.2	3.1	66.4	9.9	10.9	0.1	4.7	0.4
Selected transp. and pub. util. oprs.	20.7	0.1	1.6	6.1	8.1	3.9	-	0.6	0.3
Semiskilled metalworking occupations	18.2	-	0.2	17.7	0.1	0.1	-	0.1	-
Semiskilled textiles occupations	1.4	-	-	1.4	-	-	-	-	-
Other operatives and kindred workers	55.4	0.1	1.3	41.2	1.7	6.9	0.1	4.0	0.1
Service workers	60.9	-	0.3	2.9	0.8	16.3	1.0	34.6	5.0
Private household workers	6.1	-	-	-	-	-	-	6.1	-
Protective service workers	6.9	-	0.2	1.1	0.3	0.1	0.2	0.6	4.4
Waiters, cooks, and bartenders	16.7	-	-	0.3	0.2	11.7	0.1	4.4	-
Other service workers	31.2	-	0.1	1.5	0.3	4.5	0.7	23.5	0.6
Laborers, except farm and mine	26.3	-	4.4	9.6	3.0	4.3	0.1	4.4	0.5
Farmers and farm laborers	7.3	7.3	-	-	-	-	-	-	-

For footnote see page 18.

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Table 7-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, BUFFALO AREA

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation (c)	Trade	Finance (d)	Services	Public administration
All occupations	591.3	7.3	32.6	184.9	35.9	120.4	20.6	166.2	23.4
Professional, technical, and kindred workers	96.0	0.4	2.8	21.8	2.8	3.5	0.7	60.8	3.2
Engineers, technical	10.3	-	0.9	6.2	0.7	0.7	0.2	1.5	0.1
Natural scientists	3.5	0.1	-	2.9	-	-	-	0.5	-
Technicians, exc. medical and dental	17.8	-	1.8	9.4	1.5	0.4	-	3.4	1.3
Medical and other health workers	21.5	0.1	-	0.2	-	0.9	-	20.2	0.1
Teachers	21.7	-	-	-	-	0.2	-	21.4	0.1
Social scientists	0.4	-	-	0.1	-	-	-	0.2	0.1
Other prof., tech., and kindred workers	20.8	0.2	0.1	3.0	0.6	1.3	0.5	13.6	1.5
Managers, officials, and proprietors	39.9	-	2.8	7.4	2.3	16.5	3.9	5.4	1.6
Clerical and kindred workers	102.4	0.2	2.0	23.0	8.0	21.0	10.6	27.1	10.5
Stenos, typists, and secretaries	24.7	0.1	0.4	5.3	0.7	2.0	2.4	11.7	2.1
Office machine operators	5.8	-	-	2.5	0.5	0.9	0.9	0.6	0.4
Other clerical and kindred workers	71.9	0.1	1.6	15.2	6.8	18.1	7.3	14.8	8.0
Sales workers	44.0	-	0.2	6.0	0.5	31.6	3.6	2.1	-
Craftsmen, foremen, and kindred workers	94.6	0.2	15.8	47.3	9.0	10.4	0.6	9.5	1.8
Construction craftsmen	17.7	-	10.1	4.2	0.8	1.1	0.2	1.0	0.3
Foremen, n.e.c.	14.1	-	1.5	9.4	0.9	1.5	0.1	0.5	0.2
Metalworking craftsmen, exc. mechanics	17.3	-	0.6	16.3	0.1	0.1	-	0.2	-
Printing trades craftsmen	2.5	-	-	2.4	-	-	-	0.1	-
Transp. and public utility craftsmen	2.6	-	0.2	0.1	2.3	-	-	-	-
Mechanics and repairmen	25.7	0.2	2.2	7.7	3.3	5.4	0.2	5.6	1.1
Other craftsmen and kindred workers	14.7	-	1.2	7.2	1.6	2.3	0.1	2.1	0.2
Operatives and kindred workers	102.8	0.2	4.2	69.5	10.4	12.6	0.1	5.5	0.3
Selected transp. and pub. util. oprs.	22.4	0.1	2.2	6.1	8.7	4.3	-	0.8	0.2
Semiskilled metalworking occupations	18.8	-	0.3	18.1	0.1	0.1	-	0.2	-
Semiskilled textiles occupations	1.3	-	-	1.3	-	-	-	-	-
Other operatives and kindred workers	60.3	0.1	1.7	44.0	1.6	8.2	0.1	4.5	0.1
Service workers	80.7	-	0.3	2.5	0.5	20.4	1.0	50.5	5.5
Private household workers	6.1	-	-	-	-	-	-	6.1	-
Protective service workers	7.4	-	0.2	0.9	0.2	0.1	0.2	0.8	5.0
Waiters, cooks, and bartenders	22.0	-	-	0.3	-	15.0	0.1	6.6	-
Other service workers	45.2	-	0.1	1.3	0.3	5.3	0.7	37.0	0.5
Laborers, except farm and mine	24.6	-	4.5	7.4	2.4	4.4	0.1	5.3	0.5
Farmers and farm laborers	6.3	6.3	-	-	-	-	-	-	-

For footnote see page 18.

Table 7-G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN THE BUFFALO AREA, 1965-1975
(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	506.6	214.5	43	84.7	17	129.8	26
Professional, technical, and kindred workers	70.4	43.3	62	25.6	36	17.7	25
Engineers, technical	8.2	3.2	39	2.1	26	1.1	13
Engineers, aeronautical	0.4	0.3	75	0.3	75	-	-
Engineers, chemical	1.7	0.3	18	0.1	6	0.2	12
Engineers, civil	0.9	0.2	22	0.1	11	0.1	11
Engineers, electrical	1.9	0.7	37	0.5	26	0.2	11
Engineers, industrial	0.6	0.3	50	0.2	33	0.1	17
Engineers, mechanical	2.4	0.9	38	0.5	21	0.4	17
Engineers, metallurgical	0.2	0.3	150	0.2	100	0.1	50
Engineers, mining	-	-	-	-	-	-	-
Other engineers, technical	0.1	0.2	200	0.2	200	-	-
Natural scientists	2.7	1.2	44	0.8	30	0.4	15
Chemists	1.9	0.7	37	0.4	21	0.3	16
Agricultural scientists	0.2	-	-	-	-	-	-
Biological scientists	0.1	0.1	100	0.1	100	-	-
Geologists and geophysicists	-	-	-	-	-	-	-
Mathematicians	0.3	0.3	100	0.2	67	0.1	33
Physicists	0.2	0.1	50	0.1	50	-	-
Other natural scientists, n.e.c.	-	-	-	-	-	-	-
Technical workers (exc. medical and dental)	12.9	6.1	47	4.9	38	1.2	9
Draftsmen	2.2	0.9	41	0.7	32	0.2	9
Structural design technicians and related specialists	0.1	0.1	100	0.1	100	-	-
Electro and mechanical engineering techs.	3.5	1.7	49	1.5	43	0.2	6
Mathematics technicians	0.1	-	-	-	-	-	-
Physical science technicians	1.9	0.5	26	0.4	21	0.1	5
Industrial engineering technicians	0.8	0.3	38	0.2	25	0.1	13
Civil engineering and construction techs.	1.9	1.3	68	1.1	58	0.2	11

Continued

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Table 7-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Professional, technical, and kindred workers (cont'd)							
Sales and service technicians	0.1	0.1	100	0.1	100	-	-
Technical writing and illustration techs.	0.2	0.1	50	0.1	50	-	-
Safety and sanitation inspectors and related specialists	0.3	0.2	67	0.2	67	-	-
Product testing and inspection spec.	0.9	0.4	44	0.2	22	0.2	22
Data processing, systems analysis and programming specialists	0.4	0.3	75	0.2	50	0.1	25
Airway tower spec. and flight dispatchers	0.1	-	-	-	-	-	-
Broadcasting, motion picture and recording studio specialists	0.2	-	-	-	-	-	-
Radio operators	0.2	0.2	100	0.1	50	0.1	50
Medical and other health workers	14.0	12.3	88	7.5	54	4.8	34
Dentists	0.8	0.4	50	0.1	13	0.3	38
Dietitians and nutritionists	0.3	0.3	100	0.2	67	0.1	33
Nurses, professional and student	6.4	5.5	86	3.1	48	2.4	38
Optometrists	0.1	-	-	-	-	-	-
Osteopaths	0.1	0.1	100	-	-	0.1	100
Pharmacists	0.9	0.2	22	-	-	0.2	22
Physicians and surgeons	2.4	1.8	75	1.1	46	0.7	29
Psychologists	0.1	0.1	100	0.1	100	-	-
Technicians, medical and dental	2.4	3.3	138	2.5	104	0.8	33
Veterinarians	-	0.1	(a)	0.1	(a)	-	-
Chiropractors and therapists	0.5	0.5	100	0.3	60	0.2	40
Teachers	16.7	10.9	65	5.0	30	5.9	35
Teachers, elementary	8.7	4.5	52	1.1	13	3.4	39
Teachers, secondary	5.0	3.7	74	2.1	42	1.6	32
Teachers, college	1.4	1.4	100	1.1	79	0.3	21
Teachers, other	1.6	1.3	81	0.7	44	0.6	38
Social scientists	0.3	0.2	67	0.1	33	0.1	33
Economists	0.1	-	-	-	-	-	-
Statisticians and actuaries	0.2	0.2	100	0.1	50	0.1	50
Other social scientists	-	-	-	-	-	-	-

Continued

Table 7-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Professional, technical, and kindred workers (cont'd)							
Other prof., tech., and kindred workers	15.6	9.4	60	5.2	33	4.2	27
Accountants and auditors	3.1	1.0	32	0.3	10	0.7	23
Airplane pilots and navigators	0.1	0.2	200	0.2	200	-	-
Architects	0.2	0.1	50	-	-	0.1	50
Artists, musicians, authors, athletes, and entertainers	1.7	1.3	76	0.7	41	0.6	35
Clergymen	1.1	0.3	27	-	-	0.3	27
Designers, except design draftsmen	0.1	0.1	100	0.1	100	-	-
Reporters and editors	0.4	0.2	50	0.1	25	0.1	25
Lawyers and judges	1.9	0.7	37	0.2	11	0.5	26
Librarians	0.6	0.4	67	0.2	33	0.2	33
Personnel and labor relations workers	0.9	0.4	44	0.2	22	0.2	22
Photographers	0.3	0.1	33	-	-	0.1	33
Social, welfare and recreation workers	1.3	0.9	69	0.5	39	0.4	31
Prof. and tech. workers, n.e.c.	3.9	3.7	95	2.7	69	1.0	26
Managers, officials, and proprietors	36.5	14.5	40	3.4	9	11.1	30
Conductors, railroad	0.4	0.2	50	-	-	0.2	50
Credit men	0.3	0.2	67	0.1	33	0.1	33
Ship officers	0.1	-	-	-	-	-	-
Postmasters and assistants	0.1	0.1	100	-	-	0.1	100
Purchasing agents	0.8	0.6	75	0.4	50	0.2	25
Managers, officials, proprietors, n.e.c.	34.8	13.4	39	2.9	8	10.5	30
Clerical and kindred workers	84.7	42.3	50	17.7	21	24.6	29
Stenos, typists, and secretaries	19.6	11.8	60	5.1	26	6.7	34
Office machine operators	3.8	3.4	89	2.0	53	1.4	37
Other clerical and kindred workers	61.3	27.1	44	10.6	17	16.5	27
Accounting clerks	3.2	1.0	31	0.1	3	0.9	28
Bookkeepers, hand	3.8	1.4	37	0.1	3	1.3	34
Bank tellers	1.5	0.8	53	0.5	33	0.3	20

Continued

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Table 7-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Clerical and kindred workers (cont'd)							
Cashiers	5.7	4.5	79	2.7	47	1.8	32
Mail carriers	1.9	0.6	32	0.4	21	0.2	11
Postal clerks	2.0	0.4	20	0.1	5	0.3	15
Shipping and receiving clerks	2.6	0.1	4	- 0.2	- 8	0.3	12
Telephone operators	3.1	1.1	35	0.1	3	1.0	32
Clerical and kindred workers, n.e.c.	37.5	17.2	46	6.8	18	10.4	28
Sales workers	40.2	14.8	37	3.8	9	11.0	27
Insurance agents and brokers	2.4	0.5	21	-	-	0.5	21
Real estate agents and brokers	1.1	0.4	36	- 0.1	- 9	0.5	45
Other sales workers, n.e.c.	36.7	13.9	38	3.9	11	10.0	27
Craftsmen, foremen, and kindred workers	84.6	26.3	31	10.0	12	16.3	19
Construction craftsmen	16.8	3.8	23	0.9	5	2.9	17
Carpenters	4.0	0.7	18	- 0.1	- 3	0.8	20
Brickmasons, stone and tile setters	1.5	0.1	7	- 0.1	- 7	0.2	13
Cement and concrete finishers	0.2	0.1	50	0.1	50	-	-
Electricians	3.7	1.1	30	0.5	14	0.6	16
Excavating, grading machine oprs.	1.2	0.3	25	0.2	17	0.1	8
Painters and paperhangers	2.1	0.6	29	-	-	0.6	29
Plasterers	0.2	-	-	-	-	-	-
Plumbers and pipefitters	2.9	0.6	21	0.1	3	0.5	17
Roofers and slaters	0.3	0.1	33	0.1	33	-	-
Structural metalworkers	0.7	0.2	29	0.1	14	0.1	14
Foremen, n.e.c.	12.1	4.7	39	2.0	17	2.7	22
Metalworking craftsmen	17.2	3.4	20	0.1	1	3.3	19
Skilled machining workers (inc. machinists)	8.1	1.5	19	0.1	1	1.4	17
Blacksmiths, forgemen, hammermen	0.4	- 0.1	- 25	- 0.2	- 50	0.1	25
Boilermakers	0.3	0.1	33	-	-	0.1	33
Heat treaters, annealers, tempers	0.3	0.1	33	-	-	0.1	33

Continued

Table 7-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Craftsmen, foremen, and kindred workers (cont'd)							
Millwrights	1.4	0.2	14	-	-	0.2	14
Molders, metal (exc. coremakers)	0.5	0.2	40	-	-	0.2	40
Patternmakers, metal and wood	0.5	0.3	60	0.1	20	0.2	40
Rollers and roll hands	1.1	0.1	9	- 0.1	- 9	0.2	18
Sheet metal workers	1.2	0.2	17	-	-	0.2	17
Toolmakers, diemakers, setters	2.3	0.4	17	0.1	4	0.3	13
Electroplaters	0.2	0.1	50	-	-	0.1	50
Assemblers, metalwork, Class A	0.9	0.3	33	0.1	11	0.2	22
Printing trades craftsmen	2.5	0.4	16	-	-	0.4	16
Compositors and typesetters	1.2	-	-	- 0.2	- 17	0.2	17
Electrotypers and stereotypers	0.1	-	-	-	-	-	-
Engravers, except photoengravers	0.1	-	-	-	-	-	-
Photoengravers and lithographers	0.3	0.2	67	0.1	33	0.1	33
Pressmen and plate printers	0.8	0.2	25	0.1	13	0.1	13
Transportation and public utility craftsmen	3.0	-	-	- 0.4	- 13	0.4	13
Linemen and servicemen	1.9	0.3	16	0.1	5	0.2	11
Locomotive engineers	0.7	-	-	- 0.2	- 29	0.2	29
Locomotive firemen	0.4	- 0.3	- 75	- 0.3	- 75	-	-
Mechanics and repairmen	19.6	10.1	52	6.1	31	4.0	20
Airplane mechanics and repairmen	0.5	0.2	40	0.2	40	-	-
Motor vehicle mechanics	5.4	1.9	35	1.0	19	0.9	17
Office machine mechanics	0.3	0.1	33	0.1	33	-	-
Radio and TV mechanics	0.7	0.2	29	0.1	14	0.1	14
Railroad and car shop mechanics	0.5	-	-	- 0.1	- 20	0.1	20
Other mechanics and repairmen	12.2	7.7	63	4.8	39	2.9	24
Other craftsmen and kindred workers	13.4	3.9	29	1.3	10	2.6	19
Bakers	1.1	0.2	18	-	-	0.2	18
Cabinetmakers	0.4	-	-	- 0.1	- 25	0.1	25
Cranemen, derrickmen and hoistmen	2.7	0.8	30	0.3	11	0.5	19
Glaziers	0.2	-	-	-	-	-	-
Jewelers and watchmakers	0.2	-	-	-	-	-	-
Millers	0.2	- 0.1	- 50	- 0.1	- 50	-	-
Opticians and lens grinders	0.4	0.2	50	0.1	25	0.1	25
Stationary engineers	2.7	0.4	15	- 0.2	- 7	0.6	22

Continued

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Table 7-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Craftsmen, foremen, and kindred workers (cont'd)							
Inspectors, other than metalworking	1.3	0.4	31	0.2	15	0.2	15
Upholsterers	0.3	0.3	100	0.2	67	0.1	33
Craftsmen and kindred workers, n.e.c.	3.9	1.7	44	0.9	23	0.8	21
Operatives and kindred workers	95.7	23.8	25	7.1	7	16.7	17
Selected trans. and public utility oprs.	20.7	4.7	23	1.7	8	3.0	14
Drivers: bus, truck, tractor	14.1	3.2	23	1.3	9	1.9	13
Deliverymen, routemen, cab drivers	3.7	1.1	30	0.5	14	0.6	16
Brakemen and switchmen, railroad	2.4	0.4	17	-	-	0.4	17
Power station operators	0.3	0.1	33	-	-	0.1	33
Sailors and deck hands	0.2	- 0.1	- 50	- 0.1	- 50	-	-
Asbestos and insulation workers	0.2	-	-	-	-	-	-
Semiskilled metalworking occupations	18.2	3.5	19	0.6	3	2.9	16
Furnacemen, smelters, pourers, and heaters	1.5	0.2	13	-	-	0.2	13
Welders and flame cutters	4.1	1.2	29	0.6	15	0.6	15
Electroplater helpers	0.2	0.1	50	0.1	50	-	-
Mach. tool opr. metalworking, Class B	3.4	0.2	6	- 0.3	- 9	0.5	15
Assemblers, metalworking, Class B	6.6	1.5	23	0.3	5	1.2	18
Inspectors, metalworking, Class B	2.4	0.3	13	- 0.1	- 4	0.4	17
Semiskilled occupations in textiles and apparel	1.4	0.2	14	- 0.1	- 7	0.3	21
Knitters, loopers, and toppers	-	-	-	-	-	-	-
Weavers and spinners, textile	0.1	-	-	-	-	-	-
Sewers and stitchers, mfg.	1.3	0.2	15	- 0.1	- 8	0.3	23
Other operatives and kindred workers	55.2	15.4	28	4.9	9	10.5	19
Attendants, auto service and parking	2.1	0.7	33	0.4	19	0.3	14
Laundry and dry cleaning workers	1.9	0.4	21	- 0.2	- 11	0.6	32
Meat cutters, except meat-packing	1.7	0.7	41	0.3	18	0.4	24
Mine operatives and laborers, n.e.c.	0.2	- 0.1	- 50	- 0.1	- 50	-	-
Other operatives, n.e.c.	49.3	13.7	28	4.5	9	9.2	19

Continued

Table 7-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Service workers	60.9	45.2	74	19.8	33	25.4	42
Private household workers	6.1	3.7	61	-	-	3.7	61
Protective service workers	6.9	2.5	36	0.5	7	2.0	29
Firemen, fire protection	1.2	0.2	17	-	-	0.2	17
Guards and watchmen	2.9	1.3	45	0.1	3	1.2	41
Policemen, marshalls, sheriffs	2.8	1.0	36	0.4	14	0.6	21
Waiters, cooks, and bartenders	16.7	11.0	66	5.3	32	5.7	34
Bartenders	2.1	1.4	67	0.6	29	0.8	38
Cooks, except private household	4.4	3.3	75	1.3	30	2.0	45
Counter and fountain workers	1.7	1.5	88	0.9	53	0.6	35
Waiters and waitresses	8.5	4.8	56	2.5	29	2.3	27
Other service workers	31.2	28.0	90	14.0	45	14.0	45
Attendants, hospital and other inst.	5.4	7.5	139	5.2	96	2.3	43
Charwomen and cleaners	5.4	4.0	74	1.2	22	2.8	52
Janitors and sextons	3.6	1.6	44	0.2	6	1.4	39
Nurses, practical	1.2	1.9	158	1.1	92	0.8	67
Other service workers, n.e.c.	15.6	13.0	83	6.3	40	6.7	43
Farmers and farm laborers	7.3	1.8	25	- 1.0	- 14	2.8	38
Laborers, except farm and mine	26.3	2.5	10	- 1.7	- 6	4.2	16

a. Base zero; percentage not computable.

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ELMIRA AREA

Table 8-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, ELMIRA AREA
(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	68	71	76	79	57.4	54.9	55.3	55.7	39	39	42	44.0
Male, total	31	33	36	38	83.9	75.8	75.0	75.0	26	25	27	28.5
14 - 19	4	5	6	6	45.1	40.5	40.7	40.7	2	2	2	2.0
20 - 24	2	2	3	4	92.3	86.9	87.0	87.1	2	2	3	3.5
25 - 34	6	5	5	7	96.1	95.4	95.5	95.5	6	5	5	7.0
35 - 44	6	6	6	5	98.4	97.7	98.0	98.0	6	6	6	5.0
45 - 54	5	6	6	6	98.5	98.3	98.6	98.6	5	6	6	6.0
55 - 64	4	4	5	5	90.3	85.1	85.5	84.5	4	3	4	4.0
65 and over	4	5	5	5	32.2	27.0	25.3	24.0	1	1	1	1.0
Female, total	37	38	40	41	35.1	36.8	37.5	37.8	13	14	15	15.5
14 - 19	4	5	6	6	26.1	24.0	24.4	25.0	1	1	1	1.5
20 - 24	3	4	4	5	48.3	46.7	46.9	47.2	1	2	2	2.0
25 - 34	6	5	6	7	38.4	37.2	37.3	37.5	2	2	2	3.0
35 - 44	7	7	6	5	46.2	45.0	45.5	46.0	3	3	3	2.0
45 - 54	6	6	7	6	58.3	57.7	59.4	60.2	3	3	4	4.0
55 - 64	5	5	5	5	43.4	41.4	42.6	43.3	2	2	2	2.0
65 and over	6	6	6	7	13.9	11.4	11.5	11.5	1	1	1	1.0

a. Civilian labor force as percent of civilian noninstitutional population.

Table 8-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, ELMIRA AREA

(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	33.6	34.5	38.4	41.1
Manufacturing	15.9	14.4	16.2	16.3
Durable goods	13.7	11.9	11.7	11.7
Stone, clay and glass products	2.2	2.2	2.3	2.3
Primary and fabricated metal industries (b)	2.0	2.4	2.6	2.7
Nonelectrical and electrical machinery and transportation equipment	9.1	7.0	6.6	6.6
Other durable goods (c)	0.4	0.3	0.2	0.1
Nondurable goods	2.2	2.5	4.5	4.6
Food and paper and allied products	0.9	1.3	3.4	3.5
Printing and publishing	1.1	1.0	0.9	0.9
Other nondurable goods	0.2	0.2	0.2	0.2
Mining, agriculture (d), forestry and fisheries	-	-	-	-
Contract construction	1.2	1.9	1.9	2.0
Transportation and public utilities	1.7	1.6	1.4	1.5
Wholesale and retail trade	6.2	6.4	7.0	7.8
Wholesale trade	1.6	1.6	1.6	1.7
Motor vehicles and equipment	0.1	0.1	0.1	0.1
Groceries and related products	0.3	0.3	0.3	0.3
Machinery, electrical goods, hardware, plumbing and heating	0.7	0.8	0.8	0.9
Other wholesale trade	0.5	0.4	0.4	0.4
Retail trade	4.6	4.8	5.4	6.1
Building materials, farm equipment	0.2	0.2	0.2	0.2
Retail general merchandise stores	0.9	1.1	1.3	1.7
Food stores	0.8	0.8	1.0	1.1
Automotive dealers and service stations	0.7	0.7	0.7	0.7
Apparel and accessories	0.6	0.5	0.5	0.5
Furniture, homefurnishings	0.3	0.3	0.3	0.3
Eating and drinking places	0.8	0.9	1.0	1.2
Miscellaneous retail stores	0.3	0.3	0.4	0.4
Finance, insurance and real estate	0.9	0.9	1.1	1.1
Banking and other finance	0.4	0.5	0.7	0.7
Insurance and real estate	0.5	0.4	0.4	0.4
Services	4.2	5.0	5.5	6.1
Hotels	0.3	0.4	0.4	0.5
Personal services	0.6	0.4	0.4	0.3
Miscellaneous business services	0.2	0.2	0.2	0.3

Continued

Table 8-B (cont'd)

Industry	1960	1965(a)	1970	1975
Services (cont'd)				
Automobile repair services and garages	0.1	0.2	0.3	0.3
Miscellaneous repair services	0.1	0.1	0.1	0.1
Motion pictures and other amusement and recreation services	0.3	0.3	0.3	0.3
Medical and other health services	1.5	2.0	2.3	2.7
Legal services	0.1	0.1	0.1	0.1
Educational services	0.5	0.6	0.6	0.6
Nonprofit membership organizations	0.4	0.6	0.7	0.7
Miscellaneous services	0.1	0.1	0.1	0.2
Nonclassifiable	-	-	-	-
Government	3.5	4.3	5.3	6.3
Federal	0.3	0.4	0.5	0.5
State and local	3.2	3.9	4.8	5.8
State	0.6	0.8	1.0	1.2
Local	2.6	3.1	3.8	4.6

a. Data on 1965 Benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.
Note: Detail may not add to totals due to rounding.

Table 8-C. TOTAL NUMBER OF JOBS (a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, ELMIRA AREA
(in thousands)

Industry	1960	1965	1970	1975
Total employment	39.5	39.6	43.3	45.0
Manufacturing	15.9	14.4	16.2	16.3
Durable goods	13.7	11.9	11.7	11.7
Stone, clay and glass products	2.2	2.2	2.3	2.3
Primary and fabricated metal industries (b)	2.0	2.4	2.6	2.7
Nonelectrical and electrical machinery and transportation equipment	9.1	7.0	6.6	6.6
Other durable goods (c)	0.4	0.3	0.2	0.1
Nondurable goods	2.2	2.5	4.5	4.6
Food and paper and allied products	0.9	1.3	3.4	3.5
Printing and publishing	1.1	1.0	0.9	0.9
Other nondurable goods	0.2	0.2	0.2	0.2
Mining, agriculture, forestry and fisheries	1.2	0.9	0.9	0.9
Contract construction	1.9	2.8	2.7	2.8
Transportation and public utilities	2.0	1.8	1.6	2.0
Wholesale and retail trade	7.7	7.5	8.0	8.8
Wholesale trade	1.8	1.8	1.8	1.9
Motor vehicles and equipment	0.1	0.1	0.1	0.1
Groceries and related products	0.4	0.4	0.4	0.4
Machinery, electrical goods, hardware, plumbing and heating	0.7	0.8	0.8	0.9
Other wholesale trade	0.6	0.5	0.5	0.5
Retail trade	5.9	5.7	6.2	6.9
Building materials, farm equipment	0.3	0.3	0.3	0.3
Retail general merchandise stores	1.0	1.2	1.4	1.8
Food stores	1.0	1.0	1.2	1.3
Automotive dealers and service stations	0.9	0.8	0.8	0.8
Apparel and accessories	0.7	0.6	0.6	0.6
Furniture, home furnishings	0.4	0.3	0.3	0.3
Eating and drinking places	1.1	1.1	1.1	1.1
Miscellaneous retail stores	0.5	0.5	0.5	0.5
Finance, insurance and real estate	1.1	1.1	1.2	1.3
Banking and other finance	0.4	0.5	0.7	0.7
Insurance and real estate	0.7	0.6	0.5	0.6
Services (d)	7.8	9.1	10.5	10.7
Hotels and personal services	1.3	1.1	1.2	1.0
Miscellaneous business services	0.2	0.2	0.2	0.3

Continued

Table 8-C (cont'd)

Industry	1960	1965	1970	1975
Services (cont'd)				
Automobile repair services and garages	0.2	0.3	0.4	0.4
Miscellaneous repair services	0.2	0.3	0.4	0.4
Motion picture and other amusement and recreation services	0.3	0.3	0.3	0.3
Medical and other health services	1.9	2.6	3.2	3.4
Legal services	0.2	0.2	0.2	0.2
Educational services	1.9	2.5	3.0	3.2
Nonprofit membership organizations	0.4	0.6	0.7	0.7
Miscellaneous services	0.2	0.2	0.2	0.3
Private household workers	1.0	0.9	0.9	0.7
Public administration	1.9	2.0	2.2	2.2
Federal	0.3	0.4	0.5	0.5
State and local	1.6	1.6	1.7	1.7

For footnote see page 10.

Table 8-D. RECONCILIATION OF CIVILIAN LABOR FORCE AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, ELMIRA AREA
(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 8-A)	68	71	76	79
II. Civilian labor force, 14 and over (table 8-A)	39	39	42	44
A. Resident employed	37	37	40	42
B. Unemployed	2	2	2	2
1. Rate of unemployment (percent)	4.6	4.2	4.0	4.0
III. Total number of jobs (table 8-C)	40	40	43	45
A. Nonagricultural jobs	39	39	42	44
1. Wage and salary workers (table 8-B)	34	35	38	41
2. Self employed and unpaid family workers, and domestics	5	4	4	3
B. Agricultural jobs	1	1	1	1
IV. Difference between II-A and III	3	3	3	3
A. Net number of commuters into area	2	2	2	2
B. Multiple jobholders, minus persons with a job but not being paid (a)	1	1	1	1

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A) but not among the wage and salary workers (III-A.1).

Table 8E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, ELMIRA AREA
(in thousands)

Occupation	1960	1965	1970	1975
All occupations	39.5	39.6	43.3	45.0
Professional, technical and kindred workers	4.5	4.7	5.7	6.0
Engineers, technical	0.3	0.3	0.3	0.3
Engineers, aeronautical	-	-	-	-
Engineers, chemical	-	-	-	-
Engineers, civil	-	-	-	-
Engineers, electrical	0.2	0.2	0.2	0.2
Engineers, industrial	-	-	-	-
Engineers, mechanical	0.1	0.1	0.1	0.1
Engineers, metallurgical	-	-	-	-
Engineers, mining	-	-	-	-
Other engineers, technical	-	-	-	-
Natural scientists	0.1	-	-	-
Chemists	-	-	-	-
Agricultural scientists	0.1	-	-	-
Biological scientists	-	-	-	-
Geologists and geophysicists	-	-	-	-
Mathematicians	-	-	-	-
Physicists	-	-	-	-
Other natural scientsits, n.e.c.	-	-	-	-
Technical workers and specialists (exc. medical and dental)	0.7	0.7	0.9	1.2
Draftsmen	0.1	0.1	0.2	0.2
Structural design technicians and related specialists	-	-	-	-
Electro and mechanical engineering technicians	0.3	0.3	0.4	0.5
Mathematics technicians	-	-	-	-
Physical science technicians	-	-	-	-
Industrial engineering technicians	0.1	0.1	0.1	0.1
Civil engineering and construction technicians	0.1	0.1	0.1	0.2
Sales and service technicians	-	-	-	-
Technical writing and illustration technicians	-	-	-	-
Safety and sanitation inspectors and related specialists	-	-	-	-
Product testing and inspection specialists	0.1	0.1	0.1	0.1

Continued

Table 8E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Data processing, systems analysis and programming specialists	-	-	-	0.1
Airway tower specialists and flight dispatchers	-	-	-	-
Broadcasting, motion picture and recording studio specialists	-	-	-	-
Radio operators	-	-	-	-
Medical and other health workers	1.2	1.4	1.7	1.7
Dentists	0.1	0.1	0.1	0.1
Dietitians and nutritionists	-	-	-	-
Nurses, professional and student	0.6	0.7	0.9	0.9
Optometrists	-	-	-	-
Osteopaths	-	-	-	-
Pharmacists	0.1	0.1	0.1	0.1
Physicians and surgeons	0.2	0.2	0.2	0.2
Psychologists	-	-	-	-
Technicians, medical and dental	0.2	0.3	0.4	0.4
Veterinarians	-	-	-	-
Chiropractors and therapists	-	-	-	-
Teachers	1.2	1.3	1.7	1.7
Teachers, elementary	0.6	0.6	0.7	0.7
Teachers, secondary	0.4	0.5	0.6	0.6
Teachers, college	0.1	0.1	0.2	0.2
Teachers, other	0.1	0.1	0.2	0.2
Social scientists	-	-	-	-
Economists	-	-	-	-
Statisticians and actuaries	-	-	-	-
Other social scientists	-	-	-	-
Other professional, technical and kindred workers	1.0	1.0	1.1	1.1
Accountants and auditors	0.2	0.2	0.2	0.2
Airplane pilots and navigators	-	-	-	-
Architects	-	-	-	-
Artists, musicians, authors, athletes, and entertainers	0.2	0.2	0.3	0.3
Clergymen	-	-	-	-
Designers, except design draftsmen	-	-	-	-
Reporters and editors	0.1	0.1	0.1	0.1
Lawyers and judges	0.1	0.1	0.1	0.1
Librarians	-	-	-	-
Personnel and labor relations wkrs.	0.1	0.1	0.1	0.1

Continued

Table 8E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Photographers	-	-	-	-
Social, welfare and recreation wkrs.	0.1	0.1	0.1	0.1
Prof. and tech. workers, n.e.c.	0.2	0.2	0.2	0.2
Managers, officials and proprietors	3.2	3.2	3.5	3.7
Conductors, railroad	-	-	-	-
Credit men	-	-	-	-
Ship officers	-	-	-	-
Postmasters and assistants	-	-	-	-
Purchasing agents	0.1	0.1	0.1	0.1
Managers, officials, proprietors, n.e.c.	3.1	3.1	3.4	3.6
Clerical and kindred workers	5.9	6.1	6.7	7.2
Stenos, typists and secretaries	1.4	1.4	1.5	1.6
Office machine operators	0.1	0.1	0.2	0.2
Other clerical and kindred workers	4.4	4.6	5.0	5.4
Accounting clerks	0.2	0.2	0.2	0.2
Bookkeepers, hand	0.5	0.5	0.5	0.6
Bank tellers	0.1	0.1	0.2	0.2
Cashiers	0.3	0.4	0.5	0.6
Mail carriers	0.1	0.1	0.2	0.2
Postal clerks	0.1	0.1	0.1	0.1
Shipping and receiving clerks	0.6	0.6	0.6	0.6
Telephone operators	0.1	0.1	0.1	0.1
Clerical and kindred workers, n.e.c.	2.4	2.5	2.6	2.8
Sales workers	3.4	3.3	3.5	3.8
Insurance agents and brokers	0.2	0.2	0.3	0.4
Real estate agents and brokers	0.2	0.1	0.1	0.1
Other sales workers, n.e.c.	3.0	3.0	3.1	3.3
Craftsmen, foremen and kindred workers	6.7	6.4	6.9	7.1
Construction craftsmen	1.4	1.5	1.7	1.7
Carpenters	0.5	0.5	0.6	0.6
Brickmasons, stone and tile setters	0.1	0.1	0.1	0.1
Cement and concrete finishers	-	-	-	-
Electricians	0.1	0.1	0.1	0.1
Excavating, grading machine oprs.	0.1	0.2	0.2	0.2
Painters and paperhangers	0.3	0.3	0.3	0.3
Plasterers	-	-	-	-
Plumbers and pipefitters	0.1	0.1	0.1	0.1
Roofers and slaters	0.2	0.2	0.3	0.3
Structural metalworkers	-	-	-	-

Continued

Table 8E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	1.0	1.0	1.1	1.2
Metalworking craftsmen	1.2	1.0	0.9	0.9
Skilled machining workers (incl. machinists)	0.7	0.6	0.5	0.5
Blacksmiths, forgemen, hammermen	-	-	-	-
Boilermakers	-	-	-	-
Heat treaters, annealers, tempers	-	-	-	-
Millwrights	-	-	-	-
Molders, metal (exc. coremakers)	-	-	-	-
Patternmakers, metal and wood	-	-	-	-
Rollers and roll hands	-	-	-	-
Sheet metal workers	0.1	0.1	0.1	0.1
Toolmakers, diemakers, setters	0.3	0.2	0.2	0.2
Electroplaters	-	-	-	-
Assemblers, metalwork, Class A	0.1	0.1	0.1	0.1
Printing trades craftsmen	0.3	0.3	0.2	0.2
Compositors and typesetters	0.2	0.2	0.1	0.1
Electrotypers and stereotypers	-	-	-	-
Engravers, except photoengravers	-	-	-	-
Photoengravers and lithographers	-	-	-	-
Pressmen and plate printers	0.1	0.1	0.1	0.1
Transportation and public utility craftsmen	0.1	0.1	0.1	0.1
Linemen and servicemen	0.1	0.1	0.1	0.1
Locomotive engineers	-	-	-	-
Locomotive firemen	-	-	-	-
Mechanics and repairmen	1.7	1.6	2.0	2.1
Airplane mechanics and repairmen	-	-	.	-
Motor vehicle mechanics	0.5	0.5	0.6	0.6
Office machine mechanics	0.2	0.1	0.1	0.2
Radio and TV mechanics	0.1	0.1	0.1	0.1
Railroad and car shop mechanics	0.1	0.1	0.2	0.2
Other mechanics and repairmen	0.8	0.8	1.0	1.0
Other craftsmen and kindred workers	1.0	0.9	0.9	0.9
Bakers	0.1	0.1	0.1	0.1
Cabinetmakers	-	-	-	-
Cranemen, derrickmen, and hoistmen	0.1	0.1	0.1	0.1
Glaziers	-	-	-	-
Jewelers and watchmakers	-	-	-	-
Millers	-	-	-	-
Opticians and lens grinders	-	-	-	-
Stationary engineers	0.3	0.2	0.2	0.2

Continued

Table 8E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	-	-	-	-
Upholsterers	0.1	0.1	0.1	0.1
Craftsmen and kindred workers, n.e.c.	0.4	0.4	0.4	0.4
Operatives and kindred workers	8.8	8.6	9.4	9.7
Selected transp. and utility oprs.	1.2	1.2	1.5	1.6
Drivers: bus, truck, tractor	0.7	0.7	1.0	1.1
Deliverymen, routemen, cab drivers	0.5	0.5	0.5	0.5
Brakemen and switchmen, railroad	-	-	-	-
Power station operators	-	-	-	-
Sailors and deck hands	-	-	-	-
Asbestos and insulation workers	-	-	-	-
Semiskilled metalworking occupations	1.9	1.6	1.5	1.5
Furnacemen, smelters, pourers, and heaters	0.1	0.1	0.1	0.1
Welders and flame cutters	0.2	0.2	0.2	0.2
Electroplater helpers	-	-	-	-
Mach. tool opr., metalworking, Class B	0.4	0.3	0.2	0.2
Assemblers, metalworking, Class B	0.9	0.7	0.7	0.7
Inspectors, metalworking, Class B	0.3	0.3	0.3	0.3
Semiskilled occupations in textiles and apparel	0.1	0.1	-	-
Knitters, loopers and toppers	-	-	-	-
Weavers and spinners, textile	-	-	-	-
Sewers and stitchers, manufacturing	0.1	0.1	-	-
Other operatives and kindred workers	5.6	5.7	6.4	6.6
Attendants, auto service and parking	0.3	0.3	0.4	0.4
Laundry and dry cleaning workers	0.2	0.1	0.1	0.1
Meat cutters, except meat-packing	0.1	0.1	0.1	0.1
Mine operatives and laborers, n.e.c.	-	-	-	-
Other operatives, n.e.c.	5.0	5.2	5.8	6.0
Service workers	4.5	5.0	5.3	5.1
Private household workers	0.9	0.9	0.8	0.6
Protective service workers	0.6	0.6	0.7	0.7
Firemen, fire protection	0.1	0.1	0.1	0.1
Guards and watchmen	0.2	0.2	0.2	0.2
Policemen, marshalls, sheriffs	0.3	0.3	0.4	0.4

Continued

Table 8E (cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	1.0	1.2	1.3	1.5
Bartenders	0.1	0.1	0.1	0.1
Cooks, except private household	0.3	0.3	0.3	0.4
Counter and fountain workers	0.1	0.2	0.2	0.2
Waiters and waitresses	0.5	0.6	0.7	0.8
Other service workers	2.0	2.3	2.5	2.3
Airline stewards and stewardesses	-	-	-	-
Attendants, hospital and other inst.	0.7	1.0	1.1	1.1
Charwomen and cleaners	0.2	0.2	0.2	0.1
Janitors and sextons	0.1	0.1	0.1	0.1
Nurses, practical	0.1	0.1	0.2	0.2
Other service workers, n.e.c.	0.9	0.9	0.9	0.8
Farmers and farm laborers	1.1	0.9	0.9	0.9
Laborers, except farm and mine	1.4	1.4	1.4	1.5

Table 8-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, ELMIRA AREA

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	39.5	1.2	1.9	15.9	2.0	7.7	1.1	7.8	1.9
Professional, technical, and kindred wkrs.	4.5	0.1	0.1	1.0	0.1	0.2	-	2.8	0.2
Engineers, technical	0.3	-	-	0.3	-	-	-	-	-
Natural scientists	0.1	0.1	-	-	-	-	-	-	-
Technicians, exc. medical and dental	0.7	-	0.1	0.3	-	0.1	-	0.2	-
Medical and other health workers	1.2	-	-	-	-	0.1	-	1.1	-
Teachers	1.2	-	-	-	-	-	-	1.2	-
Social scientists	-	-	-	-	-	-	-	-	-
Other prof., tech. and kindred wkrs.	1.0	-	-	0.4	0.1	-	-	0.3	0.2
Managers, officials & proprietors	3.2	-	0.3	0.5	0.2	1.4	0.1	0.5	0.2
Clerical and kindred workers	5.9	-	0.1	2.3	0.4	1.3	0.6	0.6	0.6
Stenos, typists and secretaries	1.4	-	-	0.5	-	0.2	0.1	0.3	0.3
Office machine operators	0.1	-	-	-	-	0.1	-	-	-
Other clerical and kindred workers	4.4	-	0.1	1.8	0.4	1.0	0.5	0.3	0.3
Sales workers	3.4	-	-	0.4	-	2.5	0.4	0.1	-
Craftsmen, foremen and kindred workers	6.7	-	1.1	3.8	0.6	0.6	-	0.5	0.1
Construction craftsmen	1.4	-	1.0	0.3	-	-	-	0.1	-
Foremen, n.e.c.	1.0	-	-	0.7	0.1	0.1	-	0.1	-
Metalworking craftsmen, exc. mechanics	1.2	-	-	1.2	-	-	-	-	-
Printing trades craftsmen	0.3	-	-	0.3	-	-	-	-	-
Transp. and public utility craftsmen	0.1	-	-	-	0.1	-	-	-	-
Mechanics and repairmen	1.7	-	0.1	0.7	0.2	0.4	-	0.2	0.1
Other craftsmen and kindred workers	1.0	-	-	0.6	0.2	0.1	-	0.1	-
Operatives and kindred workers	8.8	-	0.1	6.8	0.5	0.8	-	0.6	-
Selected transp. and pub. util. oprs.	1.2	-	-	0.3	0.3	0.4	-	0.2	-
Semiskilled metal-working occup.	1.9	-	-	1.9	-	-	-	-	-
Semiskilled textiles occupations (e)	0.1	-	-	0.1	-	-	-	-	-
Other operatives and kindred workers	5.6	-	0.1	4.5	0.2	0.4	-	0.4	-
Service workers	4.5	-	-	0.3	-	0.8	-	2.7	0.7
Private household workers	0.9	-	-	-	-	-	-	0.9	-
Protective service workers	0.6	-	-	0.1	-	-	-	-	0.5
Waiters, cooks, and bartenders	1.0	-	-	-	-	0.5	-	0.5	-
Other service workers	2.0	-	-	0.2	-	0.3	-	1.3	0.2
Laborers, exc. farm and mine	1.4	-	0.2	0.8	0.2	0.1	-	-	0.1
Farmers and farm laborers	1.1	1.1	-	-	-	-	-	-	-

For footnote see page 18.

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Table 8-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, ELMIRA AREA

2. ESTIMATED 1965

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	39.6	0.9	2.8	14.4	1.8	7.5	1.1	9.1	2.0
Professional, technical, and kindred workers	4.7	-	0.2	0.9	0.1	0.2	-	3.1	0.2
Engineers, technical	0.3	-	-	0.3	-	-	-	-	-
Natural scientists	-	-	-	-	-	-	-	-	-
Technicians, exc. medical and dental	0.7	-	0.2	0.2	-	0.1	-	0.2	-
Medical and other health workers	1.4	-	-	-	-	0.1	-	1.3	-
Teachers	1.3	-	-	-	-	-	-	1.3	-
Social scientists	-	-	-	-	-	-	-	-	-
Other prof., tech., and kindred workers	1.0	-	-	0.4	0.1	-	-	0.3	0.2
Managers, officials, and proprietors	3.2	-	0.5	0.5	0.1	1.2	0.1	0.6	0.2
Clerical and kindred workers	6.1	-	0.3	1.8	0.4	1.3	0.6	1.0	0.7
Stenos, typists, and secretaries	1.4	-	-	0.4	-	0.2	0.1	0.4	0.3
Office machine operators	0.1	-	-	-	-	0.1	-	-	-
Other clerical and kindred workers	4.6	-	0.3	1.4	0.4	1.0	0.5	0.6	0.4
Sales workers	3.3	-	-	0.3	-	2.5	0.4	0.1	-
Craftsmen, foremen, and kindred workers	6.4	-	1.3	3.3	0.5	0.6	-	0.6	0.1
Construction craftsmen	1.5	-	1.1	0.3	-	-	-	0.1	-
Foremen, n.e.c.	1.0	-	-	0.7	0.1	0.1	-	0.1	-
Metalworking craftsmen, exc. mechanics	1.0	-	-	1.0	-	-	-	-	-
Printing trades craftsmen	0.3	-	-	0.3	-	-	-	-	-
Transp. and public utility craftsmen	0.1	-	-	-	0.1	-	-	-	-
Mechanics and repairmen	1.6	-	0.2	0.5	0.2	0.4	-	0.2	0.1
Other craftsmen and kindred workers	0.9	-	-	0.5	0.1	0.1	-	0.2	-
Operatives and kindred workers	8.6	-	0.2	6.6	0.6	0.8	-	0.4	-
Selected transp. and pub. util. oprs.	1.2	-	-	0.3	0.4	0.4	-	0.1	-
Semiskilled metalworking occupations	1.6	-	-	1.6	-	-	-	-	-
Semiskilled textiles occupations	0.1	-	-	0.1	-	-	-	-	-
Other operatives and kindred workers	5.7	-	0.2	4.6	0.2	0.4	-	0.3	-
Service workers	5.0	-	-	0.2	-	0.8	-	3.3	0.7
Private household workers	0.9	-	-	-	-	-	-	0.9	-
Protective service workers	0.6	-	-	0.1	-	-	-	-	0.5
Waiters, cooks, and bartenders	1.2	-	-	-	-	0.5	-	0.7	-
Other service workers	2.3	-	-	0.1	-	0.3	-	1.7	0.2
Laborers, except farm and mine	1.4	-	0.3	0.8	0.1	0.1	-	-	0.1
Farmers and farm laborers	0.9	0.9	-	-	-	-	-	-	-

For footnote see page 18.

Table 8-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, ELMIRA AREA

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	45.0	0.9	2.8	16.3	2.0	8.8	1.3	10.7	2.2
Professional, technical, and kindred workers	6.0	-	0.2	1.0	0.1	0.3	-	4.2	0.2
Engineers, technical	0.3	-	-	0.3	-	-	-	-	-
Natural scientists	-	-	-	-	-	-	-	-	-
Technicians, exc. medical and dental	1.2	-	0.2	0.3	-	0.2	-	0.5	-
Medical and other health workers	1.7	-	-	-	-	0.1	-	1.6	-
Teachers	1.7	-	-	-	-	-	-	1.7	-
Social scientists	-	-	-	-	-	-	-	-	-
Other prof., tech., and kindred workers	1.1	-	-	0.4	0.1	-	-	0.4	0.2
Managers, officials, and proprietors	3.7	-	0.6	0.5	0.2	1.4	0.1	0.7	0.2
Clerical and kindred workers	7.2	-	0.2	2.2	0.2	1.8	0.7	1.3	0.8
Stenos, typists, and secretaries	1.6	-	-	0.5	-	0.2	0.1	0.5	0.3
Office machine operators	0.2	-	-	-	-	0.2	-	-	-
Other clerical and kindred workers	5.4	-	0.2	1.7	0.2	1.4	0.6	0.8	0.5
Sales workers	3.8	-	-	0.4	-	2.8	0.5	0.1	-
Craftsmen, foremen, and kindred workers	7.1	-	1.3	3.7	0.6	0.6	-	0.8	0.1
Construction craftsmen	1.7	-	1.2	0.3	-	-	-	0.2	-
Foremen, n.e.c.	1.2	-	-	0.9	0.1	0.1	-	0.1	-
Metalworking craftsmen, exc. mechanics	0.9	-	-	0.9	-	-	-	-	-
Printing trades craftsmen	0.2	-	-	0.2	-	-	-	-	-
Transp. and public utility craftsmen	0.1	-	-	-	0.1	-	-	-	-
Mechanics and repairmen	2.1	-	0.1	0.9	0.2	0.4	-	0.4	0.1
Other craftsmen and kindred workers	0.9	-	-	0.5	0.2	0.1	-	0.1	-
Operatives and kindred workers	9.7	-	0.2	7.5	0.7	0.9	-	0.4	-
Selected transp. and pub. util. oprs.	1.6	-	-	0.6	0.5	0.4	-	0.1	-
Semiskilled metalworking occupations	1.5	-	-	1.5	-	-	-	-	-
Semiskilled textiles occupations	-	-	-	-	-	-	-	-	-
Other operatives and kindred workers	6.6	-	0.2	5.4	0.2	0.5	-	0.3	-
Service workers	5.1	-	-	0.2	-	0.9	-	3.2	0.8
Private household workers	0.6	-	-	-	-	-	-	0.6	-
Protective service workers	0.7	-	-	0.1	-	-	-	-	0.6
Waiters, cooks, and bartenders	1.5	-	-	-	-	0.6	-	0.9	-
Other service workers	2.3	-	-	0.1	-	0.3	-	1.7	0.2
Laborers, except farm and mine	1.5	-	0.3	0.8	0.2	0.1	-	-	0.1
Farmers and farm laborers	0.9	0.9	-	-	-	-	-	-	-

For footnote see page 18.

Table 8-G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN THE ELMIRA AREA, 1965-1975
(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	39.6	16.5	42	5.4	14	11.1	28
Professional, technical, and kindred workers	4.7	2.6	55	1.3	28	1.3	28
Engineers, technical	0.3	-	-	-	-	-	-
Natural scientists	-	-	-	-	-	-	-
Technical workers (exc. medical and dental)	0.7	0.6	86	0.5	71	0.1	14
Medical and other health workers	1.4	0.7	50	0.3	21	0.4	29
Teachers	1.3	0.9	69	0.4	31	0.5	38
Social scientists	-	-	-	-	-	-	-
Other prof., tech., and kindred workers	1.0	0.4	40	0.1	10	0.3	30
Managers, officials, and proprietors	3.2	1.7	53	0.5	16	1.2	38
Clerical and kindred workers	6.1	3.0	49	1.1	18	1.9	31
Stenos, typists, and secretaries	1.4	0.7	50	0.2	14	0.5	36
Office machine operators	0.1	0.1	100	0.1	100	-	-
Other clerical and kindred workers	4.6	2.2	48	0.8	17	1.4	30
Sales workers	3.3	1.5	45	0.5	15	1.0	30
Craftsmen, foremen, and kindred workers	6.4	2.3	36	0.7	11	1.6	25
Construction craftsmen	1.5	0.7	47	0.2	13	0.5	33
Foremen, n.e.c.	1.0	0.5	50	0.2	20	0.3	30
Metalworking craftsmen	1.0	0.1	10	- 0.1	- 10	0.2	20
Printing trades craftsmen	0.3	- 0.1	- 33	- 0.1	- 33	-	-
Trans. and public utility craftsmen	0.1	-	-	-	-	-	-
Mechanics and repairmen	1.6	0.9	56	0.5	31	0.4	25
Other craftsmen and kindred workers	0.9	0.2	22	-	-	0.2	22

Continued

Table 8-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Operatives and kindred workers	8.6	2.9	34	1.1	13	1.8	21
Selected trans. and utility operators	1.2	0.7	58	0.4	33	0.3	25
Semiskilled metal-working occupations	1.6	0.2	13	- 0.1	- 6	0.3	19
Semiskilled occupations in textiles and apparel	0.1	- 0.1	- 100	- 0.1	-100	-	-
Other operatives and kindred workers	5.7	2.1	37	0.9	16	1.2	21
Service workers	5.0	1.8	36	0.1	2	1.7	34
Private household workers	0.9	0.1	11	- 0.3	- 33	0.4	44
Protective service workers	0.6	0.3	50	0.1	17	0.2	33
Waiters, cooks, and bartenders	1.2	0.6	50	0.3	25	0.3	25
Other service workers	2.3	0.8	35	-	-	0.8	35
Farmers and farm laborers	0.9	0.3	33	-	-	0.3	33
Laborers, except farm and mine	1.4	0.4	29	0.1	7	0.3	21

ROCHESTER AREA

Table 9-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, ROCHESTER AREA (MONROE COUNTY)

(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	416	451	506	549	58.4	59.2	61.3	62.8	243	267	310	345
Male, total	196	212	239	261	79.1	77.8	78.2	78.5	155	165	187	205
14 - 19	23	32	40	46	41.3	40.8	42.3	42.3	9	13	17	19
20 - 24	14	17	28	32	86.7	86.1	86.7	87.0	12	15	24	28
25 - 34	35	32	31	45	97.3	97.2	97.5	97.5	34	31	30	44
35 - 44	39	41	42	37	98.4	98.3	99.0	99.0	38	40	42	37
45 - 54	33	36	39	41	97.7	97.6	98.8	98.8	32	35	39	41
55 - 64	26	27	30	32	89.6	89.0	89.9	89.4	23	24	27	29
65 and over	26	27	29	28	28.8	27.7	27.6	25.0	7	7	8	7
Female, total	220	239	267	288	40.0	42.7	46.1	48.6	88	102	123	140
14 - 19	24	32	38	43	32.4	32.1	34.1	36.0	8	10	13	15
20 - 24	17	20	28	37	55.8	61.5	64.3	67.0	9	12	18	25
25 - 34	38	38	43	49	37.3	42.0	42.4	43.7	14	16	18	21
35 - 44	43	43	41	41	46.6	51.4	54.5	56.3	20	22	22	23
45 - 54	36	40	43	42	55.0	58.1	62.8	67.4	20	23	27	28
55 - 64	29	30	34	37	43.8	51.6	58.8	63.0	13	15	20	23
65 and over	33	36	40	39	12.5	12.2	13.3	13.3	4	4	5	5

a. Civilian labor force as percent of civilian noninstitutional population.

Table 9-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, ROCHESTER AREA (MONROE COUNTY)

(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	224.3	260.6	307.5	342.2
Manufacturing	106.2	119.1	134.4	144.6
Durable goods	78.1	91.9	106.2	116.1
Lumber and wood products	0.4	0.3	0.3	0.3
Furniture and fixtures	1.1	0.8	0.7	0.6
Stone, clay and glass products	0.7	1.2	1.4	1.6
Primary metal industries	0.9	0.8	0.8	0.8
Fabricated metal products (b)	4.7	5.1	5.6	6.0
Machinery, except electrical	11.0	12.9	14.7	17.9
Electrical equipment and supplies	10.6	12.2	14.0	15.1
Transporation equipment	3.8	4.4	4.6	4.8
Instruments and related products (c)	44.9	54.2	64.1	69.0
Nondurable goods	28.1	27.2	28.2	28.5
Food and kindred products	8.6	8.1	8.7	8.8
Tobacco manufactures	-	-	-	-
Textile mill products	0.9	0.9	0.9	0.9
Apparel and other fabric products	7.8	7.5	7.3	7.2
Paper and allied products	1.6	1.2	1.0	0.9
Printing and publishing	5.2	5.6	6.1	6.3
Chemicals and allied products	0.8	0.9	1.1	1.2
Petroleum and coal products	0.2	-	-	-
Rubber and plastics products, n.e.c.	0.4	0.7	0.8	0.9
Leather and leather products	0.3	0.2	0.2	0.2
Miscellaneous manufacturing	2.3	2.1	2.1	2.1
Agriculture (d), forestry and fisheries	0.5	0.7	0.7	0.8
Mining	0.2	0.3	0.4	0.5
Contract construction	10.1	12.3	15.9	17.9
Transportation, communication and public utilities	10.3	10.8	11.2	11.9
Railroads	1.9	1.8	1.8	1.6
Air transportation	0.3	0.2	0.2	0.4
Local and interurban passenger transportation	0.8	0.7	0.7	0.7
Local and suburban transit	0.7	0.7	0.7	0.7
Taxicabs	0.1	-	-	-
Trucking and warehousing	1.7	2.3	2.6	3.0
Trucking	1.5	2.1	2.4	2.8
Warehousing	0.2	0.2	0.2	0.2

Continued

Table 9-B continued

Industry	1960	1965(a)	1970	1975
Transportation, communication and public utilities (cont'd)				
Water transportation	0.1	0.1	0.1	0.2
Pipelines	-	-	-	-
Transportation services	0.1	0.2	0.3	0.3
Communication and electric, gas and sanitary services	5.4	5.5	5.5	5.7
Wholesale and retail trade	38.9	45.8	54.2	60.5
Wholesale trade	8.8	10.1	11.6	12.8
Motor vehicles and equipment	0.3	0.4	0.5	0.5
Drugs, chemicals and allied products	0.3	0.4	0.5	0.6
Dry goods and apparel	0.3	0.2	0.2	0.2
Groceries and related products	1.1	1.1	1.2	1.2
Electrical goods, hardware, plumbing and heating	1.2	1.4	1.7	1.9
Machinery, equipment and supplies	1.9	2.2	2.3	2.4
Other wholesale	3.7	4.4	5.2	6.0
Retail trade	30.1	35.7	42.6	47.7
Building materials, farm equipment	1.2	1.3	1.5	1.6
Retail general merchandise	8.0	9.6	11.8	13.3
Variety stores	1.5	1.6	2.1	2.5
Other general merchandise stores	6.5	8.0	9.7	10.8
Food stores	5.0	5.8	7.0	7.9
Automotive dealers and service stations	4.3	4.9	5.5	6.1
Gasoline service stations	1.3	1.5	1.7	1.9
Other motor vehicle and accessory dealers	3.0	3.4	3.8	4.2
Apparel and accessories	2.6	2.8	3.2	3.5
Furniture, homefurnishings	1.2	1.5	1.9	2.2
Eating and drinking places	4.8	6.4	7.8	8.8
Miscellaneous retail stores	3.0	3.4	3.9	4.3
Drug and proprietary stores	1.2	1.4	1.7	1.9
Other miscellaneous retail stores	1.8	2.0	2.2	2.4
Finance, insurance and real estate	7.7	9.2	10.9	12.1
Banking and credit agencies	3.4	4.0	4.8	5.4
Brokers and investment companies	0.3	0.4	0.5	0.6
Insurance	2.8	3.1	3.3	3.4
Real estate	1.2	1.7	2.3	2.7
Services	27.7	35.9	45.6	53.3
Hotels	1.4	2.0	2.3	2.5
Personal services	3.2	3.7	4.4	4.9
Laundries	2.8	2.4	2.2	2.0
Other personal services	0.4	1.3	2.2	2.9

Continued

Table 9-B continued

Industry	1960	1965(a)	1970	1975
Services (cont'd)				
Miscellaneous business services	2.1	3.9	6.2	8.1
Advertising	0.5	0.5	0.6	0.6
Other business services	1.6	3.4	5.6	7.5
Automobile repair services and garages	0.9	1.2	1.6	1.9
Miscellaneous repair services	0.4	0.4	0.5	0.5
Motion pictures and other amusement and recreation services	1.9	2.1	2.4	2.7
Theaters and motion pictures	0.5	0.4	0.5	0.5
Other entertainment and recreation	1.4	1.7	1.9	2.2
Medical and other health services	7.3	9.7	12.4	14.5
Hospitals	5.1	5.8	6.7	7.3
Other medical and health services	2.2	3.9	5.7	7.2
Legal services	0.7	0.9	1.2	1.5
Educational services and museums	5.4	6.6	8.0	9.1
Nonprofit membership organizations	3.6	4.0	4.7	5.3
Welfare and religious groups	2.5	2.5	2.8	3.0
Other nonprofit membership organizations	1.1	1.5	1.9	2.3
Miscellaneous services	0.8	1.4	1.9	2.3
Engineering and architectural services	0.4	0.6	0.8	1.0
Accounting, auditing and bookkeeping	0.3	0.5	0.7	0.8
Miscellaneous professional services	0.1	0.3	0.4	0.5
Nonclassifiable	-	-	-	-
Government	22.8	26.8	34.2	40.6
Federal	2.8	3.3	4.1	5.0
Postal service	1.9	2.0	2.2	2.5
Other federal	0.9	1.3	1.9	2.5
State and local	20.0	23.5	30.1	35.6
State	3.7	3.8	4.4	4.9
Local	16.3	19.7	25.7	30.7

a. Data on 1965 benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.
Note: Detail may not add to totals due to rounding.

Table 9-C. TOTAL NUMBER OF JOBS (a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, ROCHESTER AREA (MONROE COUNTY)

(in thousands)

Industry	1960	1965	1970	1975
Total employment	254.3	290.4	339.6	373.8
Manufacturing	107.1	120.0	135.9	146.5
Durable goods	78.5	92.2	106.8	116.9
Lumber and wood products	0.5	0.3	0.3	0.3
Furniture and fixtures	1.1	0.8	0.7	0.6
Stone, clay and glass products	0.7	1.2	1.4	1.6
Primary metal industries	0.9	0.8	0.8	0.8
Fabricated metal products (b)	4.7	5.2	5.8	6.3
Machinery, except electrical	11.1	13.0	15.0	18.3
Electrical equipment and supplies	10.6	12.2	14.0	15.1
Transportation equipment	3.8	4.4	4.6	4.8
Instruments and related products (c)	45.1	54.3	64.2	69.1
Nondurable goods	28.6	27.8	29.1	29.6
Food and kindred products	8.9	8.4	9.1	9.2
Tobacco manufactures	-	-	-	-
Textile mill products	0.9	0.9	0.9	0.9
Apparel and other fabric products	7.9	7.6	7.5	7.5
Paper and allied products	1.6	1.2	1.0	0.9
Printing and publishing	5.3	5.8	6.4	6.7
Chemicals and allied products	0.8	0.9	1.1	1.2
Petroleum and coal products	0.2	-	-	-
Rubber and plastics products, n.e.c.	0.4	0.7	0.8	0.9
Leather and leather products	0.3	0.2	0.2	0.2
Miscellaneous manufacturing	2.3	2.1	2.1	2.1
Nonmanufacturing	147.2	170.4	203.7	227.3
Agriculture, forestry and fisheries	4.7	4.0	2.9	2.5
Mining	0.2	0.3	0.4	0.5
Contract construction	15.5	18.9	24.0	26.9
Transportation, communication and public utilities	12.5	13.8	15.1	16.4
Railroads	1.9	1.8	1.8	1.6
Air transportation	0.3	0.3	0.4	0.6
Local and suburban transit	0.9	0.9	1.1	1.2
Taxicabs	0.2	0.1	0.2	0.2
Trucking	1.7	2.3	2.6	3.0
Warehousing	0.2	0.2	0.2	0.2
Water transportation	0.3	0.3	0.2	0.3
Pipelines	-	-	-	-
Transportation services	0.1	0.3	0.5	0.7

Continued

Table 9-C (cont'd)

Industry	1960	1965	1970	1975
Transportation, communication and public utilities (cont'd)				
Communication, electric, gas, and sanitary services	6.9	7.6	8.1	8.6
Wholesale and retail trade	47.8	54.0	62.4	67.8
Wholesale trade	10.5	11.7	13.3	14.4
Motor vehicles and equipment	0.4	0.5	0.6	0.6
Drugs, chemicals and allied products	0.4	0.5	0.6	0.7
Dry goods and apparel	0.4	0.3	0.3	0.3
Groceries and related products	1.3	1.3	1.4	1.4
Electrical goods, hardware, plumbing and heating	1.5	1.6	1.9	2.0
Machinery, equipment and supplies	2.2	2.5	2.6	2.7
Other wholesale	4.3	5.0	5.9	6.7
Retail trade	37.3	42.3	49.1	53.4
Building materials, farm equipment	1.4	1.5	1.7	1.8
Variety stores	1.9	2.0	2.5	2.7
Other general merchandise stores	8.0	9.5	11.0	11.8
Food stores	6.2	6.7	7.8	8.6
Gasoline service stations	2.1	2.3	2.6	2.8
Other motor vehicle and accessory dealers	3.3	3.6	4.0	4.3
Apparel and accessories	2.9	3.1	3.6	4.0
Furniture, homefurnishings	1.4	1.7	2.1	2.3
Eating and drinking places	6.2	7.6	9.0	9.9
Drug and proprietary stores	1.4	1.6	1.9	2.1
Other miscellaneous retail stores	2.5	2.7	2.9	3.1
Finance, insurance and real estate	9.0	10.7	13.1	14.5
Banking and credit agencies	3.5	4.1	4.9	5.5
Brokers and investment companies	0.3	0.4	0.5	0.6
Insurance	3.0	3.3	3.5	3.6
Real estate	2.2	2.9	4.2	4.8
Services	50.4	61.6	77.3	88.5
Hotels and lodging places	1.6	2.2	2.5	2.7
Laundries	3.3	2.8	2.6	2.3
Other personal services	1.5	2.4	3.3	3.8
Advertising	0.6	0.6	0.7	0.7
Other business services	1.9	3.8	6.1	8.0
Automobile repair services and garages	1.4	1.8	2.2	2.5
Miscellaneous repair services	0.9	0.7	0.8	0.7
Theaters and motion pictures	0.6	0.5	0.6	0.6
Other entertainment and recreation	1.8	2.1	2.3	2.6
Hospitals	7.4	8.2	10.2	13.6
Other medical and health services	4.0	6.0	8.1	9.6
Legal services	1.2	1.5	1.9	2.2
Educational services and museums	14.4	17.9	22.9	24.9
Nonprofit membership organizations (incl. welfare and religious groups)	4.0	4.5	5.3	5.9

Continued

Table 9-C (cont'd)

Industry	1960	1965	1970	1975
Services (cont'd)				
Engineering and architectural services	0.7	0.9	1.1	1.4
Accounting, auditing and bookkeeping	0.5	0.7	0.9	1.1
Miscellaneous professional services	0.4	0.5	0.7	0.8
Private household workers	4.2	4.5	5.1	5.1
Public administration	7.1	7.1	8.5	10.2
Postal service	1.9	2.0	2.2	2.5
Other federal	0.9	1.3	1.6	1.6
State	0.4	0.5	0.6	0.7
Local	3.9	3.3	4.1	5.4

For footnote see page 10.

Table 9-D. RECONCILIATION OF CIVILIAN LABOR FORCE AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, ROCHESTER AREA (MONROE COUNTY)

(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 9-A)	416	451	506	549
II. Civilian labor force, 14 and over (table 9-A)	243	267	310	345
A. Resident employed	234	262	304	338
B. Unemployed	9	5	6	7
1. Rate of unemployment (percent)	3.7	2.0	2.0	2.0
III. Total number of jobs (table 9-C)	254	290	340	374
A. Nonagricultural jobs	250	287	338	372
1. Wage and salary workers (table 9-B)	224	261	308	342
2. Self employed and unpaid family workers, and domestics	26	26	30	30
B. Agricultural jobs	4	3	2	2
IV. Difference between II-A and III	20	28	36	36
A. Net number of commuters into area	13	20	27	25
B. Multiple jobholders, minus persons with a job but not being paid (a)	7	8	9	11

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A), but not among the wage and salary workers (III-A.1).

Table 9E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, ROCHESTER AREA (MONROE COUNTY)

Occupation	1960	1965	1970	1975
All occupations	254.3	290.4	339.6	373.8
Professional, technical and kindred	37.5	45.7	57.4	65.3
Engineers, technical	5.6	7.0	8.7	9.6
Engineers, aeronautical	-	-	-	-
Engineers, chemical	0.7	0.9	1.0	1.1
Engineers, civil	0.6	0.7	0.9	1.0
Engineers, electrical	1.2	1.6	2.1	2.4
Engineers, industrial	1.1	1.4	1.7	1.8
Engineers, mechanical	1.8	2.2	2.7	2.9
Engineers, metallurgical	0.1	0.1	0.1	0.1
Engineers, mining	-	-	-	-
Other engineers, technical	0.1	0.1	0.2	0.3
Natural scientists	1.4	1.8	2.3	2.5
Chemists	0.9	1.2	1.4	1.5
Agricultural scientists	-	-	-	-
Biological scientists	0.1	0.1	0.2	0.2
Geologists and geophysicists	-	-	-	-
Mathematicians	0.1	0.1	0.2	0.2
Physicists	0.3	0.4	0.5	0.6
Other natural scientists, n.e.c.	-	-	-	-
Technical workers and specialists (exc. medical and dental)	6.9	8.8	11.4	13.4
Draftsmen	1.0	1.2	1.7	2.1
Structural design technicians and related specialists	-	0.1	0.1	0.1
Electro and mechanical engineering technicians	2.4	3.0	3.7	4.4
Mathematics technicians	-	-	-	-
Physical science technicians	1.3	1.7	2.1	2.5
Industrial engineering technicians	0.5	0.6	0.8	0.9
Civil engineering and construction technicians	0.5	0.7	0.9	1.1
Sales and service technicians	0.1	0.1	0.2	0.2
Technical writing and illustration technicians	0.1	0.1	0.1	0.2
Safety and sanitation inspectors and related specialists	0.1	0.1	0.2	0.2
Product testing and inspection specialists	0.5	0.7	0.9	1.0

Continued

Table 9E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred workers (cont'd)				
Data processing, systems analysis and programming specialists	0.3	0.4	0.5	0.5
Airway tower specialists and flight dispatchers	-	-	0.1	0.1
Broadcasting, motion picture and recording studio specialists	0.1	0.1	0.1	0.1
Radio operators	-	-	-	-
Medical and other health workers	7.1	8.3	10.8	13.1
Dentists	0.4	0.5	0.6	0.7
Dietitians and nutritionists	0.1	0.1	0.1	0.1
Nurses, professional and student	3.5	3.9	4.8	5.6
Optometrists	-	-	-	-
Osteopaths	0.1	0.1	0.1	0.1
Pharmacists	0.4	0.4	0.4	0.5
Physicians and surgeons	1.2	1.6	2.1	2.4
Psychologists	0.1	0.1	0.2	0.2
Technicians, medical and dental	1.1	1.4	2.1	3.0
Veterinarians	-	-	-	-
Chiropractors and therapists	0.2	0.2	0.4	0.5
Teachers	6.8	8.1	9.5	10.2
Teachers, elementary	3.3	3.7	4.0	4.0
Teachers, secondary	1.9	2.3	2.9	3.0
Teachers, college	0.9	1.3	1.6	2.0
Teachers, other	0.7	0.8	1.0	1.2
Social scientists	0.2	0.2	0.3	0.4
Economists	0.1	0.1	0.2	0.2
Statisticians and actuaries	0.1	0.1	0.1	0.2
Other social scientists	-	-	-	-
Other professional, technical and kindred workers	9.5	11.5	14.4	16.1
Accountants and auditors	1.8	2.1	2.4	2.6
Airplane pilots and navigators	-	-	-	-
Architects	0.1	0.1	0.2	0.2
Artists, musicians, authors, athletes, and entertainers	1.5	1.7	2.1	2.3
Clergymen	0.6	0.6	0.6	0.6
Designers, except design draftsmen	0.2	0.2	0.3	0.3
Reporters and editors	0.3	0.3	0.4	0.4
Lawyers and judges	0.8	0.9	1.1	1.2
Librarians	0.4	0.5	0.6	0.6
Personnel and labor relations wkrs.	0.5	0.7	0.9	1.0

Continued

Table 9E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred workers (cont'd)				
Photographers	0.5	0.5	0.6	0.6
Social, welfare and recreation wkrs.	0.6	0.7	0.8	0.9
Prof. and tech. workers, n.e.c.	2.2	3.2	4.4	5.4
Managers, officials and proprietors	18.5	20.9	23.7	25.7
Conductors, railroad	0.1	0.1	0.1	0.1
Credit men	0.2	0.2	0.3	0.4
Ship officers	-	-	-	-
Postmasters and assistants	-	-	-	-
Purchasing agents	0.4	0.5	0.6	0.9
Managers, officials, proprietors, n.e.c.	17.8	20.1	22.7	24.3
Clerical and kindred workers	45.0	52.3	62.0	70.3
Stenos, typists and secretaries	11.1	13.4	16.4	19.1
Office machine operators	1.5	2.2	3.1	4.0
Other clerical and kindred workers	32.4	36.7	42.5	47.2
Accounting clerks	1.4	1.5	1.7	1.8
Bookkeepers, hand	1.7	1.9	2.1	2.1
Bank tellers	0.7	0.9	1.1	1.2
Cashiers	2.1	2.6	3.6	4.0
Mail carriers	0.8	0.9	1.1	1.4
Postal clerks	0.8	0.8	0.9	1.0
Shipping and receiving clerks	1.6	1.6	1.6	1.6
Telephone operators	1.8	1.9	2.1	2.4
Clerical and kindred workers, n.e.c.	21.5	24.6	28.3	31.7
Sales workers	20.6	22.7	25.8	27.1
Insurance agents and brokers	1.3	1.4	1.5	1.7
Real estate agents and brokers	0.7	1.0	1.4	1.6
Other sales workers, n.e.c.	18.6	20.3	22.9	23.8
Craftsmen, foremen and kindred workers	43.8	50.3	59.1	64.7
Construction craftsmen	7.4	8.4	9.8	10.5
Carpenters	2.1	2.2	2.5	2.5
Brickmasons, stone tile setters	0.9	1.1	1.3	1.3
Cement and concrete finishers	-	-	-	-
Electricians	1.2	1.4	1.7	2.0
Excavating, grading machine oprs.	0.3	0.4	0.5	0.6
Painters and paperhangers	1.2	1.4	1.5	1.6
Plasterers	0.1	0.1	0.2	0.2
Plumbers and pipefitters	1.4	1.6	1.8	1.9
Roofers and slaters	0.1	0.1	0.1	0.2
Structural metalworkers	0.1	0.1	0.2	0.2

Continued

Table 9E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	6.1	7.2	8.8	9.8
Metalworking craftsmen	12.4	13.7	15.9	17.0
Skilled machining workers (incl. machinists)	7.3	8.2	9.7	10.7
Blacksmiths, forgemen, hammermen	0.1	0.1	0.1	0.1
Boilermakers	-	-	-	-
Heat treaters, annealers, tempers	0.1	0.1	0.1	0.1
Millwrights	0.3	0.3	0.4	0.4
Molders, metal (exc. coremakers)	0.2	0.2	0.2	0.2
Patternmakers, metal and wood	0.3	0.4	0.5	0.5
Rollers and roll hands	-	-	-	-
Sheet metal workers	0.6	0.6	0.7	0.8
Toolmakers, diemakers, setters	1.5	1.5	1.5	1.4
Electroplaters	0.1	0.1	0.1	0.1
Assemblers, metalwork, Class A	1.9	2.2	2.6	2.7
Printing trades craftsmen	2.0	2.1	2.2	2.2
Compositors and typesetters	1.1	1.1	1.0	0.9
Electrotypers and stereotypers	0.1	0.1	0.1	0.1
Engravers, except photoengravers	0.2	0.2	0.2	0.2
Photoengravers and lithographers	0.2	0.3	0.4	0.5
Pressmen and plate printers	0.4	0.4	0.5	0.5
Transportation and public utility craftsmen	1.0	1.1	1.3	1.4
Linemen and servicemen	0.9	1.0	1.2	1.3
Locomotive engineers	0.1	0.1	0.1	0.1
Locomotive firemen	-	-	-	-
Mechanics and repairmen	8.8	10.8	13.2	15.0
Airplane mechanics and repairmen	0.1	0.1	0.1	0.2
Motor vehicle mechanics	2.1	2.5	2.8	3.1
Office machine mechanics	0.1	0.1	0.1	0.1
Radio and TV mechanics	0.3	0.3	0.3	0.3
Railroad and car shop mechanics	0.1	0.1	0.1	0.1
Other mechanics and repairmen	6.1	7.7	9.8	11.2
Other craftsmen and kindred workers	6.1	7.0	7.9	8.8
Bakers	0.5	0.4	0.4	0.4
Cabinetmakers	0.3	0.3	0.3	0.3
Cranemen, derrickmen, and hoistmen	0.2	0.2	0.3	0.4
Glaziers	-	-	-	-
Jewelers and watchmakers	0.1	0.2	0.2	0.2
Millers	-	-	-	-
Opticians and lens grinders	1.2	1.1	1.0	1.0
Stationary engineers	1.6	1.9	2.0	2.2

Continued

Table 9E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	0.3	0.4	0.5	0.6
Upholsterers	0.1	0.2	0.2	0.2
Craftsmen and kindred workers, n.e.c.	1.8	2.3	3.0	3.5
Operatives and kindred workers	52.3	57.3	64.6	70.1
Selected transp. and utility oprs.	7.0	7.8	9.2	10.2
Drivers; bus, truck, tractor	5.1	5.8	7.0	7.8
Deliverymen, routemen, cab drivers	1.6	1.7	1.9	2.1
Brakemen and switchmen, railroad	0.2	0.2	0.2	0.2
Power station operators	0.1	0.1	0.1	0.1
Sailors and deck hands	-	-	-	-
Asbestos and insulation workers	0.1	0.1	0.1	0.1
Semiskilled metalworking occupations	9.5	10.3	11.4	12.2
Furnacemen, smelters, pourers, and heaters	0.1	0.1	0.1	0.1
Welders and flame cutters	1.0	1.1	1.4	1.6
Electroplater helpers	0.1	0.1	0.1	0.1
Mach. tool opr., metalworking, Class B	2.1	2.1	2.3	2.4
Assemblers, metalworking, Class B	4.5	5.0	5.4	5.8
Inspectors, metalworking, Class B	1.7	1.9	2.1	2.2
Semiskilled occupations in textiles and apparel	3.5	3.4	3.3	3.2
Knitters, loopers and toppers	-	-	-	-
Weavers and spinners, textile	0.1	0.1	0.1	0.1
Sewers and stitchers, manufacturing	3.4	3.3	3.2	3.1
Other operatives and kindred workers	32.2	35.7	40.6	44.4
Attendants, auto service and parking	0.9	1.2	1.6	1.8
Laundry and dry cleaning workers	1.4	1.1	1.1	1.0
Meat cutters, except meat-packing	0.7	0.8	0.9	1.1
Mine operatives and laborers, n.e.c.	0.1	0.2	0.3	0.3
Other operatives, n.e.c.	29.1	32.4	36.7	40.2
Service workers	23.1	27.7	33.4	37.2
Private household workers	2.7	3.0	3.1	3.1
Protective service workers	2.8	3.0	3.6	4.0
Firemen, fire protection	0.6	0.7	0.7	0.7
Guards and watchmen	1.3	1.4	1.8	2.0
Policemen, marshalls, sheriffs	0.9	0.9	1.1	1.3

Continued

Table 9E (cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	6.0	7.5	9.1	10.5
Bartenders	0.6	0.7	0.8	0.9
Cooks, except private household	1.8	2.2	2.7	3.0
Counter and fountain workers	1.0	1.4	1.7	2.2
Waiters and waitresses	2.6	3.2	3.9	4.4
Other service workers	11.6	14.2	17.6	19.6
Airline stewards and stewardesses	-	-	-	-
Attendants, hospital and other inst.	1.8	2.3	3.3	4.2
Charwomen and cleaners	1.0	1.2	1.4	1.6
Janitors and sextons	1.9	2.1	2.3	2.4
Nurses, practical	0.6	0.8	1.2	1.5
Other service workers, n.e.c.	6.3	7.8	9.4	9.9
Farmers and farm laborers	4.4	3.6	2.7	2.2
Laborers, except farm and mine	9.1	9.9	10.9	11.2

Table 9-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, ROCHESTER AREA (MONROE COUNTY)

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation (c)	Trade	Finance (d)	Services	Public administration
All occupations	254.3	4.7	15.5	107.3	12.5	47.8	9.0	50.4	7.1
Professional, technical, and kindred wkrs.	37.5	0.1	0.7	13.3	1.0	1.2	0.3	19.9	1.0
Engineers, technical	5.6	-	0.2	4.8	0.3	-	-	0.2	0.1
Natural scientists	1.4	-	-	1.3	-	-	-	0.1	-
Technicians, exc. medical and dental	6.9	-	0.3	5.3	0.4	0.3	-	0.4	0.2
Medical and other health workers	7.1	-	-	0.1	-	0.3	-	6.7	-
Teachers	6.8	-	-	0.1	-	-	-	6.7	-
Social scientists	0.2	-	-	0.1	-	-	-	-	0.1
Other prof., tech., and kindred wkrs.	9.5	0.1	0.2	1.6	0.3	0.6	0.3	5.8	0.6
Managers, officials and proprietors	18.5	-	1.7	3.8	0.8	7.8	1.5	2.3	0.6
Clerical and kindred workers	45.0	0.1	0.8	16.6	3.5	9.1	4.4	7.3	3.2
Stenos, typists and secretaries	11.1	-	0.1	3.9	0.3	1.0	1.3	3.8	0.7
Office machine operators	1.5	-	-	0.7	-	0.4	0.3	0.1	-
Other clerical and kindred workers	32.4	0.1	0.7	12.0	3.2	7.7	2.8	3.4	2.5
Sales workers	20.6	-	0.1	4.3	0.1	13.0	2.2	0.9	-
Craftsmen, foremen and kindred workers	43.8	-	8.3	25.5	3.4	3.9	0.2	2.2	0.3
Construction craftsmen	7.4	-	5.7	0.8	0.2	0.3	-	0.4	-
Foremen, n.e.c.	6.1	-	0.8	3.8	0.5	0.7	-	0.2	0.1
Metalworking craftsmen, exc. mechanics	12.4	-	0.2	12.1	-	-	-	0.1	-
Printing trades craftsmen	2.0	-	-	1.9	-	-	-	0.1	-
Transp. and public utility craftsmen	1.0	-	0.1	0.1	0.8	-	-	-	-
Mechanics and repairmen	8.8	-	0.7	3.5	1.5	1.6	0.2	1.3	-
Other craftsmen and kindred workers	6.1	-	0.8	3.3	0.4	1.3	-	0.1	0.2
Operatives and kindred workers	52.3	0.1	1.4	40.1	2.8	5.0	-	2.8	0.1
Selected transp. and pub. util. oprs.	7.0	0.1	0.5	1.7	2.2	2.0	-	0.5	-
Semiskilled metal-working occup.	9.5	-	0.1	9.3	-	-	-	0.1	-
Semiskilled textiles occupations (e)	3.5	-	-	3.5	-	-	-	-	-
Other operatives and kindred workers	32.3	-	0.8	25.6	0.6	3.0	-	2.2	0.1
Service workers	23.1	-	-	2.2	0.2	5.8	0.3	13.0	1.6
Private household workers	2.7	-	-	-	-	-	-	2.7	-
Protective service workers	2.8	-	-	0.5	0.1	-	0.1	0.5	1.6
Waiters, cooks, and bartenders	6.0	-	-	0.2	-	3.9	0.1	1.8	-
Other service workers	11.6	-	-	1.5	0.1	1.9	0.1	8.0	-
Laborers, exc. farm and mine	9.1	-	2.5	1.5	0.7	2.0	0.1	2.0	0.3
Farm and farm laborers	4.4	4.4	-	-	-	-	-	-	-

For footnote see page 18.

Table 9-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, ROCHESTER AREA (MONROE COUNTY)

2. ESTIMATED 1965

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	290.4	4.0	18.9	120.3	13.8	54.0	10.7	61.6	7.1
Professional, technical, and kindred workers	45.7	0.2	0.8	17.0	1.1	1.4	0.4	23.7	1.1
Engineers, technical	7.0	-	0.2	6.0	0.3	-	-	0.4	0.1
Natural scientists	1.8	-	-	1.7	-	-	-	0.1	-
Technicians, exc. medical and dental	8.8	-	0.4	6.6	0.5	0.4	-	0.7	0.2
Medical and other health workers	8.3	-	-	0.1	-	0.3	-	7.9	-
Teachers	8.1	-	-	0.1	-	-	-	8.0	-
Social scientists	0.2	-	-	0.1	-	-	-	-	0.1
Other prof., tech., and kindred workers	11.5	0.2	0.2	2.4	0.3	0.7	0.4	6.6	0.7
Managers, officials, and proprietors	20.9	-	2.1	4.3	0.9	8.1	2.0	2.7	0.8
Clerical and kindred workers	52.3	0.1	1.0	19.0	3.5	10.7	5.0	10.2	2.8
Stenos, typists, and secretaries	13.4	-	0.1	4.6	0.3	1.1	1.5	5.1	0.7
Office machine operators	2.2	-	-	1.1	-	0.5	0.4	0.2	-
Other clerical and kindred workers	36.7	0.1	0.9	13.3	3.2	9.1	3.1	4.9	2.1
Sales workers	22.7	-	0.1	4.4	0.2	14.2	2.7	1.1	-
Craftsmen, foremen, and kindred workers	50.3	-	10.2	28.3	3.8	4.6	0.2	2.9	0.3
Construction craftsmen	8.4	-	6.5	0.8	0.2	0.4	-	0.5	-
Foremen, n.e.c.	7.2	-	1.1	4.3	0.6	0.8	-	0.3	0.1
Metalworking craftsmen, exc. mechanics	13.7	-	0.2	13.4	-	-	-	0.1	-
Printing trades craftsmen	2.1	-	-	2.0	-	-	-	0.1	-
Transp. and public utility craftsmen	1.1	-	0.2	0.1	0.8	-	-	-	-
Mechanics and repairmen	10.8	-	1.0	4.3	1.8	1.9	0.2	1.5	0.1
Other craftsmen and kindred workers	7.0	-	1.2	3.4	0.4	1.5	-	0.4	0.1
Operatives and kindred workers	57.3	0.1	1.8	43.6	3.3	5.6	-	2.8	0.1
Selected transp. and pub. util. oprs.	7.8	0.1	0.7	1.8	2.6	2.1	-	0.5	-
Semiskilled metalworking occupations	10.3	-	0.1	10.1	-	-	-	0.1	-
Semiskilled textiles occupations	3.4	-	-	3.4	-	-	-	-	-
Other operatives and kindred workers	35.8	-	1.0	28.3	0.7	3.5	-	2.2	0.1
Service workers	27.7	-	-	2.3	0.2	7.2	0.3	16.0	1.7
Private household workers	3.0	-	-	-	-	-	-	3.0	-
Protective service workers	3.0	-	-	0.6	0.1	-	0.1	0.6	1.6
Waiters, cooks, and bartenders	7.5	-	-	0.2	-	4.9	0.1	2.3	-
Other service workers	14.2	-	-	1.5	0.1	2.3	0.1	10.1	0.1
Laborers, except farm and mine	9.9	-	2.9	1.4	0.8	2.2	0.1	2.2	0.3
Farmers and farm laborers	3.6	3.6	-	-	-	-	-	-	-

For footnote see page 18.

Table 9-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, ROCHESTER AREA (MONROE COUNTY)

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	373.8	2.5	26.9	147.0	16.4	67.8	14.5	88.5	10.2
Professional, technical, and kindred workers	65.3	0.1	1.4	23.1	1.6	1.9	0.5	35.0	1.7
Engineers, technical	9.6	-	0.3	8.2	0.5	-	-	0.4	0.2
Natural scientists	2.5	-	-	2.3	-	-	-	0.2	-
Technicians, exc. medical and dental	13.4	-	0.7	9.2	0.7	0.5	-	1.8	0.5
Medical and other health workers	13.1	-	-	0.2	-	0.3	-	12.6	-
Teachers	10.2	-	-	0.2	-	-	-	10.0	-
Social scientists	0.4	-	-	0.2	-	-	-	0.1	0.1
Other prof., tech., and kindred workers	16.1	0.1	0.4	2.8	0.4	1.1	0.5	9.9	0.9
Managers, officials, and proprietors	25.7	-	2.9	5.4	1.1	9.2	2.7	3.5	0.9
Clerical and kindred workers	70.3	0.1	1.6	23.2	3.6	14.0	6.7	16.5	4.6
Stenos, typists, and secretaries	19.1	-	0.2	6.0	0.4	1.1	2.1	8.3	1.0
Office machine operators	4.0	-	-	2.1	-	0.8	0.7	0.4	-
Other clerical and kindred workers	47.2	0.1	1.4	15.1	3.2	12.1	3.9	7.8	3.6
Sales workers	27.1	-	0.2	4.3	0.2	17.1	3.8	1.5	-
Craftsmen, foremen, and kindred workers	64.7	-	14.5	35.3	4.7	6.0	0.3	3.6	0.3
Construction craftsmen	10.5	-	8.1	0.9	0.2	0.7	-	0.6	-
Foremen, n.e.c.	9.8	-	1.8	5.8	0.6	1.0	-	0.4	0.2
Metalworking craftsmen, exc. mechanics	17.0	-	0.3	16.7	-	-	-	-	-
Printing trades craftsmen	2.2	-	-	2.1	-	-	-	0.1	-
Transp. and public utility craftsmen	1.4	-	0.3	0.2	0.9	-	-	-	-
Mechanics and repairmen	15.0	-	2.0	5.8	2.4	2.5	0.3	2.0	-
Other craftsmen and kindred workers	8.8	-	2.0	3.8	0.6	1.8	-	0.5	0.1
Operatives and kindred workers	70.1	0.1	3.0	52.0	4.2	7.6	-	3.0	0.2
Selected transp. and pub. util. oprs.	10.2	0.1	1.1	2.1	3.4	2.8	-	0.6	0.1
Semiskilled metalworking occupations	12.2	-	0.2	11.9	-	-	-	0.1	-
Semiskilled textiles occupations	3.2	-	-	3.2	-	-	-	-	-
Other operatives and kindred workers	44.5	-	1.7	34.8	0.8	4.8	-	2.3	0.1
Service workers	37.2	-	-	2.4	0.2	9.5	0.3	22.6	2.2
Private household workers	3.1	-	-	-	-	-	-	3.1	-
Protective service workers	4.0	-	-	0.6	0.1	-	0.1	1.0	2.2
Waiters, cooks, and bartenders	10.5	-	-	0.3	-	6.7	0.1	3.4	-
Other service workers	19.6	-	-	1.5	0.1	2.8	0.1	15.1	-
Laborers, except farm and mine	11.2	-	3.3	1.3	0.8	2.5	0.2	2.8	0.3
Farmers and farm laborers	2.2	2.2	-	-	-	-	-	-	-

For footnote see page 18.

Table 9-G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN THE ROCHESTER AREA (MONROE COUNTY), 1965-1975

(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	290.4	166.3	57	83.4	29	82.9	29
Professional, technical, and kindred workers	45.7	30.9	68	19.6	43	11.3	25
Engineers, technical	7.0	3.6	51	2.6	37	1.0	14
Engineers, electrical	1.6	1.0	63	0.8	50	0.2	13
Engineers, industrial	1.4	0.6	43	0.4	29	0.2	14
Engineers, mechanical	2.2	1.0	45	0.7	32	0.3	14
Other engineers, technical	1.8	1.0	56	0.7	39	0.3	17
Natural scientists	1.8	0.9	50	0.7	39	0.2	11
Chemists	1.2	0.5	42	0.3	25	0.2	17
Other natural scientists, n.e.c.	0.6	0.4	67	0.4	67	-	-
Technical workers (exc. medical and dental)	8.8	5.7	65	4.6	52	1.1	13
Draftsmen	1.2	1.0	83	0.9	75	0.1	8
Electro and mechanical engineering techs.	3.0	1.7	57	1.4	47	0.3	10
Physical science technicians	1.7	1.1	65	0.8	47	0.3	18
Other technical workers, n.e.c.	2.9	1.9	66	1.5	52	0.4	14
Medical and other health workers	8.3	7.8	94	4.8	58	3.0	36
Nurses, professional and student	3.9	3.3	85	1.7	44	1.6	41
Physicians and surgeons	1.6	1.2	75	0.8	50	0.4	25
Technicians, medical and dental	1.4	2.1	150	1.6	114	0.5	36
Other medical workers, n.e.c.	1.4	1.2	86	0.7	50	0.5	36
Teachers	8.1	4.8	59	2.1	26	2.7	33
Teachers, elementary	3.7	1.7	46	0.3	8	1.4	38
Teachers, secondary	2.3	1.4	61	0.7	30	0.7	30
Teachers, college	1.3	0.7	88	0.4	50	0.3	38
Teachers, other	0.8	1.0	77	0.7	54	0.3	23
Social scientists	0.2	0.2	100	0.2	100	-	-
Other prof., tech., and kindred workers	11.5	7.9	69	4.6	40	3.3	29
Accountants and auditors	2.1	1.0	48	0.5	24	0.5	24
Artists, musicians, authors, athletes, and entertainers	1.7	1.1	65	0.6	35	0.5	29
Professional and technical workers, n.e.c.	7.7	5.8	75	3.5	45	2.3	30

Continued

Table 9-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Managers, officials, and proprietors	20.9	10.8	52	4.8	23	6.0	29
Clerical and kindred workers	52.3	36.1	69	18.0	34	18.1	35
Stenos, typists, and secretaries	13.4	10.5	78	5.7	43	4.8	36
Office machine operators	2.2	2.4	109	1.8	82	0.6	27
Other clerical and kindred workers	36.7	23.2	63	10.5	29	12.7	35
Accounting clerks	1.5	0.8	53	0.3	20	0.5	33
Bookkeepers, hand	1.9	0.9	47	0.2	11	0.7	37
Cashiers	2.6	2.4	92	1.4	54	1.0	38
Shipping and receiving clerks	1.6	0.2	13	-	-	0.2	13
Telephone operators	1.9	1.3	68	0.5	26	0.8	42
Clerical and kindred workers, n.e.c.	27.2	17.6	65	8.1	30	9.5	35
Sales workers	22.7	11.0	48	4.4	19	6.6	29
Insurance agents and brokers	1.4	0.7	50	0.3	21	0.4	29
Real estate agents and brokers	1.0	1.1	110	0.6	60	0.5	50
Other sales workers, n.e.c.	20.3	9.2	45	3.5	17	5.7	28
Craftsmen, foremen, and kindred workers	50.3	26.2	52	14.4	29	11.8	23
Construction craftsmen	8.4	4.1	49	2.1	25	2.0	24
Carpenters	2.2	0.9	41	0.3	14	0.6	27
Brickmasons, stone and tile setters	1.1	0.4	36	0.2	18	0.2	18
Electricians	1.4	0.9	64	0.6	43	0.3	21
Painters and paperhangers	1.4	0.7	50	0.2	14	0.5	36
Plumbers and pipefitters	1.6	0.6	38	0.3	19	0.3	19
Construction craftsmen, n.e.c.	0.7	0.6	86	0.5	71	0.1	14
Foremen, n.e.c.	7.2	4.6	64	2.6	36	2.0	28
Metalworking craftsmen	13.7	6.3	46	3.3	24	3.0	22
Skilled machining workers (inc. machinists)	8.2	4.1	50	2.5	30	1.6	20
Toolmakers, diemakers, setters	1.5	0.2	13	- 0.1	- 7	0.3	20
Assemblers, metalwork, Class A	2.2	1.1	50	0.5	23	0.6	27
Other metalworking craftsmen, n.e.c.	1.8	0.9	50	0.4	22	0.5	28

Continued

Table 9-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Craftsmen, foremen, and kindred workers (cont'd)							
Printing trades craftsmen	2.1	0.5	24	0.1	5	0.4	19
Compositors and typesetters	1.1	-	-	- 0.2	- 18	0.2	18
Other printing trades craftsmen, n.e.c.	1.0	0.5	50	0.3	30	0.2	20
Transportation and public utility craftsmen	1.1	0.5	45	0.3	27	0.2	18
Linemen and servicemen	1.0	0.4	40	0.3	30	0.1	10
Locomotive engineers	0.1	0.1	100	-	-	0.1	100
Mechanics and repairmen	10.8	6.9	64	4.2	39	2.7	25
Motor vehicle mechanics	2.5	1.0	40	0.6	24	0.4	16
Other mechanics and repairmen	8.3	5.9	71	3.6	43	2.3	28
Other craftsmen and kindred workers	7.0	3.3	47	1.8	26	1.5	21
Opticians and lens grinders	1.1	0.1	9	- 0.1	- 9	0.2	18
Stationary engineers	1.9	0.7	37	0.3	16	0.4	21
Craftsmen and kindred workers, n.e.c.	4.0	2.5	63	1.6	40	0.9	23
Operatives and kindred workers	57.3	26.9	47	12.8	22	14.1	25
Selected trans. and utility operators	7.8	3.9	50	2.4	31	1.5	19
Drivers: bus, truck, tractor	5.8	3.1	53	2.0	35	1.1	19
Deliverymen, routemen, cab drivers	1.7	0.7	41	0.4	24	0.3	18
Trans. and utility operators, n.e.c.	0.3	0.1	33	-	-	0.1	33
Asbestos and insulation workers	0.1	-	-	-	-	-	-
Semiskilled metalworking occupations	10.3	4.5	44	1.9	18	2.6	25
Welders and flame cutters	1.1	0.7	64	0.5	46	0.2	18
Mach. tool opr., metalworking, Class B	2.1	0.8	38	0.3	14	0.5	24
Assemblers, metalworking, Class B	5.0	2.1	42	0.8	16	1.3	26
Inspectors, metalworking, Class B	1.9	0.9	47	0.3	16	0.6	32
Semiskilled metalworking occups., n.e.c.	0.2	-	-	-	-	-	-
Semiskilled occupations in textiles and apparel	3.4	0.9	26	- 0.2	- 6	1.1	32
Sewers and stitchers, mfg.	3.3	0.9	27	- 0.2	- 6	1.1	33
Weavers and spinners, textile	0.1	-	-	-	-	-	-

Continued

Table 9-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Operatives and kindred workers (cont'd)							
Other operatives and kindred workers	35.7	17.6	49	8.7	24	8.9	25
Attendants, auto service and parking	1.2	0.7	58	0.6	50	0.1	8
Laundry and dry cleaning workers	1.1	0.3	27	- 0.1	- 9	0.4	36
Other operatives, n.e.c.	33.4	16.6	50	8.2	25	8.4	25
Service workers	27.7	21.1	76	9.5	34	11.6	42
Private household workers	3.0	1.9	63	0.1	3	1.8	60
Protective service workers	3.0	1.9	63	1.0	33	0.9	30
Firemen, fire protection	0.7	0.1	14	-	-	0.1	14
Guards and watchmen	1.4	1.2	86	0.6	43	0.6	43
Policemen, marshalls, sheriffs	0.9	0.6	67	0.4	44	0.2	22
Waiters, cooks and bartenders	7.5	5.6	75	3.0	40	2.6	35
Cooks, except private household	2.2	1.7	77	0.8	36	0.9	41
Counter and fountain wkrs., and bartenders	2.1	1.8	86	1.0	48	0.8	38
Waiters and waitresses	3.2	2.1	66	1.2	38	0.9	28
Other service workers	14.2	11.7	82	5.4	38	6.3	44
Attendants, hospital and other institutions	2.3	2.9	126	1.9	83	1.0	43
Charwomen and cleaners	1.2	1.0	83	0.4	33	0.6	50
Janitors and sextons	2.1	1.1	52	0.3	14	0.8	38
Other service workers, n.e.c.	8.6	6.7	78	2.8	33	3.9	45
Farmers and farm laborers	3.6	- 0.2	- 6	- 1.4	- 39	1.2	33
Laborers, except farm and mine	9.9	3.5	35	1.3	13	2.2	22

SYRACUSE AREA

Table 10-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, SYRACUSE AREA
(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	392	433	482	539	56.6	52.7	53.7	52.9	222	228	259	285
Male, total	188	203	227	255	78.7	73.4	73.6	72.2	148	149	167	184
14 - 19	24	32	40	47	35.0	31.4	31.6	31.6	8	10	13	15
20 - 24	16	19	27	33	81.1	76.3	76.6	76.6	13	14	21	25
25 - 34	35	34	37	48	96.5	95.5	96.0	96.0	34	32	36	46
35 - 44	37	37	37	36	97.9	97.2	97.5	97.5	36	36	36	35
45 - 54	29	33	35	36	96.8	96.3	96.6	96.6	28	32	34	35
55 - 64	24	24	26	29	89.2	84.1	83.2	81.0	21	20	22	23
65 and over	23	24	25	26	35.1	22.9	21.9	21.0	8	5	5	5
Female, total	204	230	255	284	36.3	34.3	36.1	35.6	74	79	92	101
14 - 19	25	33	39	47	27.6	25.4	25.8	25.9	7	8	10	12
20 - 24	17	23	29	33	47.3	45.4	45.9	46.0	8	10	13	15
25 - 34	37	38	43	54	33.7	32.8	32.9	33.1	12	12	14	18
35 - 44	39	42	40	39	43.3	42.3	41.8	42.2	17	18	17	16
45 - 54	31	35	40	42	53.2	52.7	55.1	55.8	16	18	22	23
55 - 64	25	27	30	33	40.0	38.4	39.2	39.7	10	10	12	13
65 and over	30	32	34	36	12.5	10.4	10.5	10.5	4	3	4	4

a. Civilian labor force as percent of civilian noninstitutional population.

Table 10-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, SYRACUSE AREA
(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	182.5	197.7	229.4	254.7
Manufacturing	67.4	65.1	72.3	75.3
Durable goods	46.0	44.2	50.3	52.7
Lumber and wood products	0.6	0.5	0.3	0.3
Furniture and fixtures	0.4	0.3	0.1	0.1
Stone, clay and glass products	2.5	2.3	2.6	2.5
Primary metal industries	4.5	5.4	6.3	6.5
Fabricated metal products (b)	4.2	2.9	2.8	2.8
Machinery, except electrical	11.3	10.3	12.1	13.7
Electrical equipment and supplies	19.6	17.7	20.4	20.3
Transportation equipment	2.4	4.3	5.2	6.0
Instruments and related products (c)	0.5	0.5	0.5	0.5
Nondurable goods	21.4	20.9	22.0	22.6
Food and kindred products	5.6	5.4	6.2	6.4
Tobacco manufactures	-	-	-	-
Textile mill products	0.8	0.5	0.3	-
Apparel and other fabric products	0.9	0.8	0.7	0.6
Paper and allied products	5.1	4.1	4.2	4.3
Printing and publishing	2.4	2.5	2.5	2.6
Chemicals and allied products	4.1	4.4	4.6	4.9
Petroleum and coal products	0.1	-	-	-
Rubber and plastics products, n.e.c.	0.3	1.1	1.3	1.5
Leather and leather products	0.7	0.6	0.6	0.5
Miscellaneous manufacturing	1.4	1.5	1.6	1.8
Agriculture (d), forestry and fisheries	0.4	0.3	0.4	0.5
Mining	0.4	0.4	0.4	0.4
Contract construction	7.5	9.9	11.9	13.2
Transportation, communication and public utilities	12.6	12.9	12.9	14.2
Railroads	2.8	2.6	1.8	1.7
Air transportation	0.3	0.4	0.6	0.9
Local and interurban passenger transportation	1.0	1.0	1.1	1.3
Local and suburban transit	0.8	0.7	0.7	0.8
Taxicabs	0.2	0.3	0.4	0.5
Trucking and warehousing	2.7	3.0	3.3	3.6
Trucking	2.6	2.9	3.2	3.5
Warehousing	0.1	0.1	0.1	0.1
Water transportation	0.1	0.1	0.1	0.1
Pipelines	-	-	-	-

Continued

Table 10-B continued

Industry	1960	1965(a)	1970	1975
Transportation, communication and public utilities (cont'd)				
Transportation services	0.1	0.1	0.1	0.2
Communication and electric, gas and sanitary services	5.6	5.7	5.9	6.4
Wholesale and retail trade	37.5	42.0	49.2	54.5
Wholesale trade	10.3	11.9	14.1	16.0
Motor vehicles and equipment	0.5	0.8	1.1	1.3
Drugs, chemicals and allied products	0.4	0.4	0.5	0.5
Dry goods and apparel	0.1	-	0.1	0.2
Groceries and related products	1.0	1.2	1.5	1.7
Electrical goods, hardware, plumbing and heating	2.0	2.3	2.7	3.0
Machinery, equipment and supplies	2.6	3.1	3.6	4.3
Other wholesale	3.7	4.1	4.6	5.0
Retail trade	27.2	30.1	35.1	38.5
Building materials, farm equipment	1.4	1.5	1.7	1.8
Retail general merchandise	4.9	5.7	6.7	7.8
Variety stores	1.3	1.2	1.2	1.2
Other general merchandise stores	3.6	4.5	5.5	6.6
Food stores	5.2	5.4	6.2	6.2
Automotive dealers and service stations	4.1	4.4	5.2	5.5
Gasoline service stations	1.1	1.2	1.6	1.8
Other motor vehicle and accessory dealers	3.0	3.2	3.6	3.7
Apparel and accessories	2.1	2.3	2.8	3.2
Furniture, homefurnishings	1.3	1.3	1.5	1.7
Eating and drinking places	5.3	6.5	7.5	8.3
Miscellaneous retail stores	2.9	3.0	3.5	4.0
Drugs and proprietary stores	0.9	1.2	1.5	1.8
Other miscellaneous retail stores	2.0	1.8	2.0	2.2
Finance, insurance and real estate	8.6	9.5	12.5	13.9
Banking and credit agencies	2.9	3.1	3.8	4.3
Brokers and investment companies	0.1	0.1	0.1	0.1
Insurance	4.6	5.1	7.0	7.7
Real estate	1.0	1.2	1.6	1.8
Services	23.8	28.5	33.3	38.4
Hotels and lodging places	1.9	2.3	2.5	2.8
Personal services	2.6	2.7	3.0	3.3
Laundries	1.8	1.7	1.8	1.8
Other personal services	0.8	1.0	1.2	1.5

Continued

Table 10-B continued

Industry	1960	1965(a)	1970	1975
Services (cont'd)				
Miscellaneous business services	1.9	2.9	3.9	4.9
Advertising	0.3	0.2	0.2	0.2
Other business services	1.6	2.7	3.7	4.7
Automobile repair services and garages	0.7	0.8	0.9	1.0
Miscellaneous repair services	0.3	0.4	0.5	0.6
Motion pictures and other amusement and recreation services	1.3	1.5	1.7	1.9
Theaters and motion pictures	0.4	0.6	0.7	0.7
Other entertainment and recreation	0.9	0.9	1.0	1.2
Medical and other health services	5.8	6.7	7.7	8.7
Hospitals	4.2	4.3	4.7	5.2
Other medical and health services	1.6	2.4	3.0	3.5
Legal services	0.6	0.7	0.8	1.0
Educational services and museums	5.0	6.1	7.2	8.3
Nonprofit membership organizations	2.9	3.1	3.4	3.8
Welfare and religious groups	2.0	1.8	1.8	1.5
Other nonprofit membership organizations	0.9	1.3	1.6	2.3
Miscellaneous services	0.8	1.3	1.7	2.1
Engineering and architectural services	0.5	0.8	1.0	1.2
Accounting, auditing and bookkeeping	0.3	0.3	0.4	0.5
Miscellaneous professional services	-	0.2	0.3	0.4
Nonclassifiable	-	-	-	-
Government	24.3	28.9	36.5	44.3
Federal	3.6	3.6	3.4	3.1
State and local	20.7	25.3	33.1	41.2
State	4.6	5.7	7.7	9.8
Local	16.1	19.6	25.4	31.4

a. Data on 1965 Benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.
Note: Detail may not add to totals due to rounding.

Table 10-C. TOTAL NUMBER OF JOBS (a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, SYRACUSE AREA
(in thousands)

Industry	1960	1965	1970	1975
Total employment	217.7	229.2	261.4	284.7
Manufacturing	68.3	65.8	72.9	76.2
Durable goods	46.4	44.4	50.5	53.0
Lumber and wood products	0.9	0.6	0.4	0.3
Furniture and fixtures	0.4	0.3	0.1	0.1
Stone, clay and glass products	2.5	2.3	2.6	2.7
Primary metal industries	4.5	5.4	6.3	6.5
Fabricated metal products (b)	4.3	3.0	2.9	2.9
Machinery, except electrical	11.3	10.3	12.1	13.7
Electrical equipment and supplies	19.6	17.7	20.4	20.3
Transportation equipment	2.4	4.3	5.2	6.0
Instruments and related products (c)	0.5	0.5	0.5	0.5
Nondurable goods	21.9	21.4	22.4	23.2
Food and kindred products	5.8	5.6	6.4	6.7
Tobacco manufactures	-	-	-	-
Textile mill products	0.8	0.5	0.3	-
Apparel and other fabric products	0.9	0.8	0.7	0.6
Paper and allied products	5.1	4.1	4.2	4.3
Printing and publishing	2.6	2.7	2.7	2.9
Chemicals and allied products	4.1	4.4	4.6	4.9
Petroleum and coal products	0.1	-	-	-
Rubber and plastics products, n.e.c.	0.3	1.1	1.3	1.5
Leather and leather products	0.7	0.6	0.6	0.5
Miscellaneous manufacturing	1.5	1.6	1.6	1.8
Nonmanufacturing	149.4	163.4	188.5	208.5
Agriculture, forestry and fisheries	10.2	7.6	5.5	4.6
Mining	0.4	0.4	0.4	0.4
Contract construction	13.0	16.5	19.8	21.7
Transportation, communication and public utilities	14.1	14.7	15.2	16.7
Railroads	2.8	2.6	1.8	1.7
Air transportation	0.3	0.5	0.8	1.1
Local and suburban transit	1.1	1.0	1.2	1.3
Taxicabs	0.3	0.4	0.5	0.7
Trucking	2.9	3.2	3.5	3.8
Warehousing	0.1	0.1	0.1	0.1
Water transportation	0.2	0.2	0.1	0.1
Pipelines	-	-	-	-
Transportation services	0.1	0.1	0.1	0.2

Continued

Table 10-C (cont'd)

Industry	1960	1965	1970	1975
Transportation, communication and public utilities (cont'd)				
Communication, electric, gas and sanitary services	6.3	6.6	7.1	7.7
Wholesale and retail trade	46.0	49.4	56.3	60.8
Wholesale trade	11.8	13.2	15.4	17.1
Motor vehicles and equipment	0.6	0.9	1.2	1.4
Drugs, chemicals and allied products	0.5	0.5	0.6	0.6
Dry goods and apparel	0.1	-	0.1	0.2
Groceries and related products	1.2	1.4	1.7	1.9
Electrical goods, hardware, plumbing and heating	2.3	2.5	2.9	3.1
Machinery, equipment and supplies	2.9	3.4	3.9	4.6
Other wholesale	4.2	4.5	5.0	5.3
Retail trade	34.2	36.2	40.9	43.7
Building materials, farm equipment	1.7	1.7	1.9	1.9
Variety stores	1.4	1.3	1.3	1.3
Other general merchandise stores	4.0	4.7	5.7	6.7
Food stores	6.5	6.4	7.0	6.9
Gasoline service stations	1.8	2.0	2.5	2.7
Other motor vehicle and accessory dealers	3.3	3.5	3.9	4.0
Apparel and accessories	2.4	2.6	3.1	3.6
Furniture, homefurnishings	1.6	1.6	1.8	1.9
Eating and drinking places	7.7	8.6	9.5	10.0
Drug and proprietary stores	1.1	1.4	1.7	2.0
Other miscellaneous retail stores	2.7	2.4	2.5	2.7
Finance, insurance and real estate	9.5	10.7	14.0	15.5
Banking and credit agencies	3.0	3.2	3.9	4.4
Brokers and investment companies	0.1	0.1	0.1	0.1
Insurance	4.8	5.3	7.2	7.9
Real estate	1.6	2.1	2.8	3.1
Services	49.2	56.4	67.9	78.0
Hotels and lodging places	2.1	2.5	2.7	3.0
Laundries	2.2	2.0	2.1	2.0
Other personal services	1.9	2.1	2.3	2.4
Advertising	0.3	0.2	0.2	0.2
Other business services	1.9	3.2	4.4	5.4
Automobile repair services and garages	1.2	1.1	1.2	1.2
Miscellaneous repair services	0.6	0.8	1.0	1.2
Theaters and motion pictures	0.5	0.7	0.8	0.8
Other entertainment and recreation	1.2	1.4	1.3	1.5
Hospitals	5.8	6.2	8.5	12.4
Other medical and health services	3.6	4.9	6.1	6.8
Legal services	1.3	1.4	1.5	1.7
Educational services and museums	16.6	19.9	24.6	27.1
Nonprofit membership organizations (incl. welfare and religious groups)	3.2	3.4	3.8	4.2

Continued

Table 10-C (cont'd)

Industry	1960	1965	1970	1975
Services (cont'd)				
Engineering and architectural services	0.8	1.2	1.5	1.9
Accounting, auditing and bookkeeping	0.5	0.5	0.6	0.8
Miscellaneous professional services	0.4	0.3	0.4	0.5
Private household workers	5.1	4.6	4.9	4.9
Public administration	7.0	7.7	9.4	10.8
Federal	3.0	2.6	3.0	3.0
State and local	4.0	5.1	6.4	7.8

For footnote see page 10.

Table 10-D. RECONCILIATION OF CIVILIAN LABOR FORCE AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, SYRACUSE AREA
(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 10-A)	392	433	482	539
II. Civilian labor force 14 and over (table 10-A)	222	228	259	285
A. Resident employed	211	220	250	275
B. Unemployed	11	8	9	10
1. Rate of unemployment (percent)	5.1	3.7	3.5	3.5
III. Total number of jobs (table 10-C)	218	229	261	285
A. Nonagricultural jobs	208	222	256	281
1. Wage and salary workers (table 10-B)	183	198	229	255
2. Self employed and unpaid family workers, and domestics	25	24	27	26
B. Agricultural jobs	10	7	5	4
IV. Difference between II-A and III	7	9	11	10
A. Net number of commuters into area	1	2	3	2
B. Multiple jobholders, minus persons with a job but not being paid (a)	6	7	8	8

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A), but not among the wage and salary workers (III-A.1).

Table 10E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, SYRACUSE AREA

Occupation	1960	1965	1970	1975
All occupations	217.7	229.2	261.4	284.7
Professional, technical and kindred workers	31.9	36.4	44.5	51.2
Engineers, technical	4.5	5.0	6.3	7.5
Engineers, aeronautical	-	-	-	-
Engineers, chemical	0.2	0.2	0.2	0.3
Engineers, civil	0.6	0.8	1.0	1.3
Engineers, electrical	1.8	2.0	2.2	2.5
Engineers, industrial and mechanical	1.6	1.7	2.5	3.0
Engineers, metallurgical	0.1	0.1	0.1	0.1
Engineers, mining	-	-	-	-
Other engineers, technical	0.2	0.2	0.3	0.3
Natural scientists	1.0	1.1	1.4	1.7
Chemists	0.3	0.3	0.4	0.5
Agricultural scientists	0.1	0.2	0.2	0.3
Biological scientists	0.1	0.1	0.1	0.1
Geologists and geophysicists	-	-	-	-
Mathematicians	0.2	0.2	0.3	0.3
Physicists	0.3	0.3	0.4	0.5
Other natural scientists, n.e.c.	-	-	-	-
Technical workers and specialists (exc. medical and dental)	4.6	5.3	6.5	7.5
Draftsmen	0.8	1.0	1.2	1.4
Structural design technicians and related specialists	0.1	0.1	0.1	0.2
Electro and mechanical engineering technicians	1.8	2.0	2.4	2.8
Mathematics technicians	-	-	-	-
Physical science technicians	0.3	0.3	0.4	0.5
Industrial engineering technicians	0.3	0.3	0.4	0.4
Civil engineering and construction technicians	0.4	0.6	0.7	0.8
Sales and service technicians	-	-	-	-
Technical writing and illustration technicians	0.1	0.1	0.2	0.2
Safety and sanitation inspectors and related specialists	0.1	0.1	0.2	0.2
Product testing and inspection specialists	0.4	0.4	0.4	0.4

Continued

Table 10E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred workers (cont'd)				
Data processing, systems analysis and programming specialists	0.2	0.3	0.4	0.5
Airway tower specialists and flight dispatchers	-	-	-	-
Broadcasting, motion picture and recording studio specialists	0.1	0.1	0.1	0.1
Radio operators	-	-	-	-
Medical and other health workers	5.9	7.1	8.6	10.5
Dentists	0.3	0.4	0.4	0.4
Dietitions and nutritionists	0.1	0.1	0.1	0.1
Nurses, professional and student	2.8	3.1	3.8	4.7
Optometrists	-	0.1	0.1	0.1
Osteopaths	0.1	0.1	0.1	0.1
Pharmacists	0.3	0.3	0.4	0.5
Physicians and surgeons	1.1	1.4	1.6	1.8
Psychologists	0.1	0.1	0.2	0.2
Technicians, medical and dental	0.8	1.1	1.5	2.1
Veterinarians	0.1	0.1	0.1	0.1
Chiropractors and therapists	0.2	0.3	0.3	0.4
Teachers	7.4	8.3	9.8	10.5
Teachers, elementary	3.5	3.6	3.9	3.9
Teachers, secondary	2.0	2.3	2.8	3.0
Teachers, college	1.3	1.7	2.2	2.7
Teachers, other	0.6	0.7	0.9	0.9
Social scientists	0.1	0.1	0.1	0.1
Economists	0.1	0.1	0.1	0.1
Statisticians and actuaries	-	-	-	-
Other social scientists	-	-	-	-
Other professional, technical and kindred workers	8.4	9.5	11.8	13.4
Accountants and auditors	1.7	1.8	2.1	2.4
Airplane pilots and navigators	-	-	-	0.1
Architects	0.1	0.1	0.2	0.2
Artists, musicians, authors, athletes, and entertainers	1.2	1.4	1.6	1.7
Clergymen	0.5	0.5	0.5	0.4
Designers, except design draftsmen	0.1	0.1	0.1	0.1
Reporters and editors	0.2	0.2	0.2	0.2
Lawyers and judges	0.8	0.8	0.9	0.9
Librarians	0.4	0.5	0.5	0.5
Personnel and labor relations wkrs.	0.4	0.5	0.7	0.7

Continued

Table 10E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred workers (cont'd)				
Photographers	0.3	0.3	0.3	0.4
Social, welfare and recreation wkrs.	0.7	0.8	1.1	1.2
Prof. and tech. workers, n.e.c.	2.0	2.5	3.6	4.6
Managers, officials and proprietors	17.7	18.6	20.6	22.3
Conductors, railroad	0.2	0.2	0.1	0.1
Credit men	0.1	0.1	0.1	0.2
Ship officers	-	-	-	-
Postmasters and assistants	0.1	0.1	0.1	0.1
Purchasing agents	0.4	0.4	0.5	0.6
Managers, officials, proprietors, n.e.c.	16.9	17.8	19.8	21.3
Clerical and kindred workers	40.3	44.0	52.5	58.4
Stenos, typists and secretaries	10.7	12.1	14.5	16.5
Office machine operators	1.3	1.7	2.4	3.3
Other clerical and kindred workers	28.3	30.2	35.6	38.6
Accounting clerks	1.2	1.2	1.3	1.5
Bookkeepers, hand	2.3	2.3	2.6	2.8
Bank tellers	0.6	0.7	0.8	1.0
Cashiers	2.2	2.6	3.4	3.7
Mail carriers	0.8	0.9	1.0	1.2
Postal clerks	0.5	0.5	0.5	0.5
Shipping and receiving clerks	1.1	1.0	1.0	1.0
Telephone operators	1.6	1.6	1.8	2.1
Clerical and kindred workers, n.e.c.	18.0	19.4	23.2	24.8
Sales workers	14.5	15.1	17.3	18.7
Insurance agents and brokers	1.0	1.1	1.4	1.7
Real estate agents and brokers	0.6	0.8	1.1	1.2
Other sales workers, n.e.c.	12.9	13.2	14.8	15.8
Craftsmen, foremen and kindred workers	32.5	34.6	40.4	43.6
Construction craftsmen	7.5	8.2	9.4	9.6
Carpenters	2.5	2.6	2.8	2.8
Brickmasons, stone and tile setters	0.7	0.8	0.9	0.9
Cement and concrete finishers	-	-	0.1	0.1
Electricians	1.1	1.2	1.3	1.5
Excavating, grading machine oprs.	0.6	0.7	1.0	1.0
Painters and paperhangers	1.1	1.2	1.3	1.3
Plasterers	0.1	0.1	0.1	0.1
Plumbers and pipefitters	1.0	1.2	1.3	1.3
Roofers and slaters	0.2	0.2	0.3	0.3
Structural metalworkers	0.2	0.2	0.3	0.3

Continued

Table 10E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	4.3	4.6	5.5	6.2
Metalworking craftsmen	6.7	6.5	7.0	7.1
Skilled machining workers (incl. machinists)	2.9	2.7	2.9	3.0
Blacksmiths, forgemen, hammermen	0.1	0.1	0.1	0.1
Boilermakers	0.1	0.1	0.1	0.1
Heat treaters, annealers, tempers	0.2	0.2	0.2	0.2
Millwrights	0.4	0.3	0.3	0.3
Molders, metal (exc. coremakers)	0.3	0.3	0.3	0.3
Patternmakers, metal and wood	0.3	0.3	0.3	0.3
Rollers and roll hands	0.2	0.2	0.3	0.3
Sheet metal workers	0.5	0.6	0.7	0.7
Toolmakers, diemakers, setters	0.9	0.9	0.9	0.9
Electroplaters	0.1	0.1	0.1	0.1
Assemblers, metalwork, Class A	0.7	0.7	0.8	0.8
Printing trades craftsmen	0.8	0.8	0.8	0.8
Compositors and typesetters	0.5	0.5	0.4	0.4
Electrotypers and stereotypers	-	-	-	-
Engravers, except photoengravers	-	-	-	-
Photoengravers and lithographers	0.1	0.1	0.2	0.2
Pressmen and plate printers	0.2	0.2	0.2	0.2
Transportation and public utility craftsmen	1.4	1.4	1.4	1.5
Linemen and servicemen	1.0	1.1	1.2	1.4
Locomotive engineers	0.2	0.2	0.1	0.1
Locomotive firemen	0.2	0.1	0.1	-
Mechanics and repairmen	7.7	8.9	11.3	13.0
Airplane mechanics and repairmen	0.1	0.2	0.2	0.3
Motor vehicle mechanics	2.4	2.5	2.9	3.2
Office machine mechanics	0.1	0.1	0.2	0.2
Radio and TV mechanics	0.4	0.5	0.6	0.6
Railroad and car shop mechanics	0.1	0.1	0.1	0.1
Other mechanics and repairmen	4.6	5.5	7.3	8.6
Other craftsmen and kindred workers	4.1	4.2	5.0	5.4
Bakers	0.4	0.3	0.3	0.2
Cabinetmakers	0.2	0.2	0.1	0.1
Cranemen, derrickmen and hoistmen	0.4	0.5	0.7	0.8
Glaziers	0.1	0.1	0.2	0.2
Jewelers and watchmakers	0.1	0.1	0.1	0.1
Millers	-	-	-	-
Opticians and lens grinders	0.1	0.1	0.1	0.1
Stationary engineers	1.0	1.0	1.1	1.1

Continued

Table 10E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	0.3	0.3	0.4	0.6
Upholsterers	0.1	0.1	0.1	0.1
Craftsmen and kindred workers, n.e.c.	1.4	1.5	1.9	2.1
Operatives and kindred workers	37.9	38.7	42.2	45.0
Selected transp. and utility oprs.	8.0	8.7	9.7	10.6
Drivers: bus, truck, tractor	5.7	6.2	7.0	7.7
Deliverymen, routemen, cab drivers	1.5	1.7	2.0	2.2
Brakemen and switchmen, railroad	0.7	0.7	0.6	0.6
Power station operators	0.1	0.1	0.1	0.1
Sailors and deck hands	-	-	-	-
Asbestos and insulation workers	0.1	0.1	0.2	0.2
Semiskilled metalworking occupations	7.2	7.1	7.5	7.9
Furnacemen, smelters, pourers, and heaters	0.2	0.2	0.3	0.3
Welders and flame cutters	1.2	1.2	1.5	1.7
Electroplater helpers	0.1	0.1	0.1	0.1
Mach. tool opr., metalworking, Class B	1.2	1.1	1.1	1.1
Assemblers, metalworking, Class B	3.5	3.5	3.5	3.6
Inspectors, metalworking, Class B	1.0	1.0	1.0	1.1
Semiskilled occupations in textiles and apparel	0.8	0.7	0.5	0.4
Weavers and spinners, textile	0.1	0.1	-	-
Sewers and stitchers, manufacturing	0.7	0.6	0.5	0.4
Other operatives and kindred workers	21.8	22.1	24.3	25.9
Attendants, auto service and parking	0.8	1.0	1.4	1.6
Laundry and dry cleaning workers	1.3	1.2	1.2	1.2
Meat cutters, except meat-packing	0.8	0.8	0.9	1.0
Mine operatives and laborers, n.e.c.	0.2	0.2	0.2	0.2
Other operatives, n.e.c.	18.7	18.9	20.6	21.9
Service workers	23.9	25.4	29.1	31.9
Private household workers	4.5	4.2	4.1	4.1
Protective service workers	2.4	2.4	2.7	3.1
Firemen, fire protection	0.5	0.5	0.6	0.7
Guards and watchmen	1.1	1.1	1.1	1.2
Policemen, marshalls, sheriffs	0.8	0.8	1.0	1.2

Continued

Table 10E (cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	6.2	6.8	8.3	8.9
Bartenders	0.5	0.5	0.6	0.6
Cooks, except private household	2.0	2.2	2.6	2.8
Counter and fountain workers	0.7	0.8	1.2	1.3
Waiters and waitresses	3.0	3.3	3.9	4.2
Other service workers	10.8	12.0	14.0	15.8
Airline stewards and stewardesses	-	-	-	0.1
Attendants, hospital and other inst.	1.3	1.6	2.2	3.3
Charwomen and cleaners	1.0	1.2	1.4	1.5
Janitors and sextons	2.1	2.2	2.3	2.3
Nurses, practical	0.6	0.7	1.0	1.3
Other service workers, n.e.c.	5.8	6.3	7.1	7.3
Farmers and farm laborers	9.9	7.2	5.5	4.2
Laborers, except farm and mine	9.1	9.2	9.3	9.4

Table 10-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, SYRACUSE AREA

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	217.7	10.2	13.0	68.7	14.1	46.0	9.5	49.2	7.0
Professional, technical, and kindred wkrs.	31.9	0.2	0.6	8.1	0.7	0.8	0.2	20.3	1.0
Engineers, technical	4.5	-	0.2	3.1	0.2	0.2	0.1	0.6	0.1
Natural scientists	1.0	-	-	1.0	-	-	-	-	-
Technicians, exc. medical and dental	4.6	-	0.2	2.8	0.4	0.2	-	0.8	0.2
Medical and other health workers	5.9	0.1	-	-	-	0.2	-	5.6	-
Teachers	7.4	-	-	-	-	-	-	7.4	-
Social scientists	0.1	-	-	0.1	-	-	-	-	-
Other prof., tech., and kindred wkrs.	8.4	0.1	0.2	1.1	0.1	0.2	0.1	5.9	0.7
Managers, officials and proprietors	17.7	-	1.4	3.3	1.1	7.6	1.4	2.0	0.9
Clerical and kindred workers	40.3	-	0.7	10.6	3.5	10.1	5.2	7.4	2.8
Stenos. typists and secretaries	10.7	-	0.1	2.8	0.4	1.0	1.7	3.9	0.8
Office machine operators	1.3	-	-	0.4	-	0.4	0.4	0.1	-
Other clerical and kindred workers	28.3	-	0.6	7.4	3.1	8.7	3.1	3.4	2.0
Sales workers	14.5	-	0.1	1.9	0.1	10.4	1.7	0.3	-
Craftsmen, foremen and kindred workers	32.5	-	6.7	14.3	3.6	3.9	0.2	3.3	0.5
Construction craftsmen	7.5	-	5.1	1.1	0.4	0.4	-	0.5	-
Foremen, n.e.c.	4.3	-	0.3	2.6	0.5	0.5	0.1	0.1	0.2
Metalworking craftsmen, exc. mechanics	6.7	-	0.2	6.5	-	-	-	-	-
Printing trades craftsmen	0.8	-	-	0.8	-	-	-	-	-
Transp. and public utility craftsmen	1.4	-	0.1	0.1	1.2	-	-	-	-
Mechanics and repairmen	7.7	-	0.6	1.5	1.1	2.2	0.1	1.9	0.3
Other craftsmen and kindred workers	4.1	-	0.4	1.7	0.4	0.8	-	0.8	-
Operatives and kindred workers	37.9	0.1	1.2	25.8	4.0	4.5	-	2.1	0.2
Selected transp. and pub. util. oprs.	8.0	0.1	0.5	1.8	3.5	1.6	-	0.4	0.1
Semiskilled metal-working occup.	7.2	-	0.1	7.1	-	-	-	-	-
Semiskilled textiles occupations (e)	0.8	-	-	0.8	-	-	-	-	-
Other operatives and kindred workers	21.9	-	0.6	16.1	0.5	2.9	-	1.7	0.1
Service workers	23.9	-	-	1.6	0.2	6.9	0.6	13.2	1.4
Private household workers	4.5	-	-	-	-	-	-	4.5	-
Protective service workers	2.4	-	-	0.4	0.1	-	0.2	0.3	1.4
Waiters, cooks, and bartenders	6.2	-	-	-	-	4.5	-	1.7	-
Other service workers	10.8	-	-	1.2	0.1	2.4	0.4	6.7	-
Laborers, except farm and mine	9.1	-	2.3	3.1	0.9	1.8	0.2	0.6	0.2
Farmers and farm laborers	9.9	9.9	-	-	-	-	-	-	-

For footnote see page 18.

Table 10-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, SYRACUSE AREA

2. ESTIMATED 1965

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation (c)	Trade	Finance (d)	Services	Public administration
All occupations	229.2	7.6	16.5	66.2	14.7	49.4	10.7	56.4	7.7
Professional, technical, and kindred workers	36.4	0.3	0.8	8.2	0.8	0.8	0.2	24.0	1.3
Engineers, technical	5.0	-	0.3	3.1	0.2	0.2	0.1	1.0	0.1
Natural scientists	1.1	0.1	-	1.0	-	-	-	-	-
Technicians, exc. medical and dental	5.3	-	0.3	3.2	0.4	0.2	-	1.0	0.2
Medical and other health workers	7.1	0.1	-	-	-	0.2	-	6.8	-
Teachers	8.3	-	-	-	-	-	-	8.3	-
Social scientists	0.1	-	-	0.1	-	-	-	-	-
Other prof., tech., and kindred workers	9.5	0.1	0.2	0.8	0.2	0.2	0.1	6.9	1.0
Managers, officials, and proprietors	18.6	-	1.9	3.2	1.2	7.5	1.6	2.2	1.0
Clerical and kindred workers	44.0	-	1.1	10.0	3.4	11.5	5.8	9.2	3.0
Stenos, typists, and secretaries	12.1	-	0.1	2.8	0.4	1.1	1.9	4.8	1.0
Office machine operators	1.7	-	-	0.5	-	0.5	0.5	0.2	-
Other clerical and kindred workers	30.2	-	1.0	6.7	3.0	9.9	3.4	4.2	2.0
Sales workers	15.1	-	0.1	1.8	0.1	10.8	2.0	0.3	-
Craftsmen, foremen, and kindred workers	34.6	-	8.3	13.9	3.7	4.3	0.2	3.7	0.5
Construction craftsmen	8.2	-	5.8	1.1	0.4	0.4	-	0.5	-
Foremen, n.e.c.	4.6	-	0.4	2.7	0.5	0.6	0.1	0.1	0.2
Metalworking craftsmen, exc. mechanics	6.5	-	0.3	6.2	-	-	-	-	-
Printing trades craftsmen	0.8	-	-	0.8	-	-	-	-	-
Transp. and public utility craftsmen	1.4	-	0.2	0.1	1.1	-	-	-	-
Mechanics and repairmen	8.9	-	1.0	1.6	1.3	2.5	0.1	2.1	0.3
Other craftsmen and kindred workers	4.2	-	0.6	1.4	0.4	0.8	-	1.0	-
Operatives and kindred workers	38.7	0.1	1.6	25.3	4.4	5.0	-	2.1	0.2
Selected transp. and pub. util. oprs.	8.7	0.1	0.7	1.8	3.9	1.7	-	0.4	0.1
Semiskilled metalworking occupations	7.1	-	0.1	7.0	-	-	-	-	-
Semiskilled textiles occupations	0.7	-	-	0.7	-	-	-	-	-
Other operatives and kindred workers	22.2	-	0.8	15.8	0.5	3.3	-	1.7	0.1
Service workers	25.4	-	-	1.4	0.2	7.6	0.6	14.1	1.5
Private household workers	4.2	-	-	-	-	-	-	4.2	-
Protective service workers	2.4	-	-	0.3	0.1	-	0.2	0.4	1.4
Waiters, cooks, and bartenders	6.8	-	-	-	-	5.0	-	1.8	-
Other service workers	12.0	-	-	1.1	0.1	2.6	0.4	7.7	0.1
Laborers, except farm and mine	9.2	-	2.7	2.4	0.9	1.9	0.3	0.8	0.2
Farmers and farm laborers	7.2	7.2	-	-	-	-	-	-	-

For footnote see page 18.

Table 10-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, SYRACUSE AREA

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	284.7	4.6	21.7	76.6	16.7	60.8	15.5	78.0	10.8
Professional, technical, and kindred workers	51.2	0.3	1.3	11.0	1.2	1.4	0.4	33.6	2.0
Engineers, technical	7.5	-	0.4	4.0	0.3	0.4	0.2	2.0	0.2
Natural scientists	1.7	0.1	-	1.6	-	-	-	-	-
Technicians, exc. medical and dental	7.5	-	0.5	3.8	0.7	0.3	-	1.8	0.4
Medical and other health workers	10.5	0.1	-	-	-	0.3	-	10.1	-
Teachers	10.5	-	-	-	-	-	-	10.5	-
Social scientists	0.1	-	-	0.1	-	-	-	-	-
Other prof., tech., and kindred workers	13.4	0.1	0.4	1.5	0.2	0.4	0.2	9.2	1.4
Managers, officials, and proprietors	22.3	-	2.5	3.7	1.1	8.4	2.4	2.8	1.4
Clerical and kindred workers	58.4	-	1.4	11.7	3.6	14.8	8.0	14.9	4.0
Stenos, typists, and secretaries	16.5	-	0.2	3.4	0.5	1.2	2.5	7.4	1.3
Office machine operators	3.3		-	1.0	-	0.8	1.2	0.3	-
Other clerical and kindred workers	38.6	-	1.2	7.3	3.1	12.8	4.3	7.2	2.7
Sales workers	18.7	-	0.2	1.9	0.2	12.9	3.1	0.4	-
Craftsmen, foremen, and kindred workers	43.6	-	10.8	16.2	4.4	5.9	0.4	5.0	0.9
Construction craftsmen	9.6	-	6.9	1.1	0.4	0.5	-	0.7	-
Foremen, n.e.c.	6.2	-	0.7	3.4	0.5	0.9	0.2	0.2	0.3
Metalworking craftsmen, exc. mechanics	7.1	-	0.3	6.8	-	-	-	-	-
Printing trades craftsmen	0.8	-	-	0.8	-	-	-	-	-
Transp. and public utility craftsmen	1.5	-	0.3	0.1	1.1	-	-	-	-
Mechanics and repairmen	13.0	-	1.6	2.3	1.8	3.4	0.2	3.1	0.6
Other craftsmen and kindred workers	5.4	-	1.0	1.7	0.6	1.1	-	1.0	-
Operatives and kindred workers	45.0	0.1	2.6	28.3	5.1	6.5	-	2.2	0.2
Selected transp. and pub. util. oprs.	10.6	0.1	1.1	2.2	4.5	2.1	-	0.5	0.1
Semiskilled metalworking occupations	7.9	-	0.2	7.7	-	-	-	-	-
Semiskilled textiles occupations	0.4	-	-	0.4	-	-	-	-	-
Other operatives and kindred workers	26.1	-	1.3	18.0	0.6	4.4	-	1.7	0.1
Service workers	31.9	-	-	1.4	0.3	8.9	0.8	18.4	2.1
Private household workers	4.1	-	-	-	-	-	-	4.1	-
Protective service workers	3.1	-	-	0.3	0.1	-	0.2	0.4	2.1
Waiters, cooks, and bartenders	8.9	-	-	-	-	6.0	-	2.9	-
Other service workers	15.8	-	-	1.1	0.2	2.9	0.6	11.0	-
Laborers, except farm and mine	9.4	-	2.9	2.4	0.8	2.0	0.4	0.7	0.2
Farmers and farm laborers	4.2	4.2	-	-	-	-	-	-	-

For footnote see page 18.

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Table 10-G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN THE SYRACUSE AREA, 1965-1975

(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	229.2	120.1	52	55.5	24	64.6	28
Professional, technical, and kindred workers	36.4	24.4	67	14.8	41	9.6	26
Engineers, technical	5.0	3.2	64	2.5	50	0.7	14
Engineers, electrical	2.0	0.7	35	0.5	25	0.2	10
Engineers, mechanical and industrial	1.7	1.6	94	1.3	76	0.3	18
Other engineers, technical	1.3	0.9	69	0.7	54	0.2	15
Natural scientists	1.1	0.7	64	0.6	55	0.1	9
Technical workers (exc. medical and dental)	5.3	2.8	53	2.2	42	0.6	11
Draftsmen	1.0	0.5	50	0.4	40	0.1	10
Electro and mechanical engineering techs.	2.0	0.9	45	0.8	40	0.1	5
Other technical workers, n.e.c.	2.3	1.4	61	1.0	43	0.4	17
Medical and other health workers	7.1	6.1	86	3.4	48	2.7	38
Nurses, professional and student	3.1	3.0	97	1.6	52	1.4	45
Physicians and surgeons	1.4	0.9	64	0.4	29	0.5	36
Technicians, medical and dental	1.1	1.4	127	1.0	91	0.4	36
Other medical workers, n.e.c.	1.5	0.8	53	0.4	27	0.4	27
Teachers	8.3	5.0	60	2.2	27	2.8	34
Teachers, elementary	3.6	1.7	47	0.3	8	1.4	39
Teachers, secondary	2.3	1.4	61	0.7	30	0.7	30
Teachers, college	1.7	1.4	82	1.0	59	0.4	24
Teachers, other	0.7	0.5	71	0.2	29	0.3	43
Social scientists	0.1	-	-	-	-	-	-
Other prof., tech., and kindred workers	9.5	6.6	69	3.9	41	2.7	28
Accountants and auditors	1.8	1.1	61	0.6	33	0.5	28
Artists, musicians, authors, athletes, and entertainers	1.4	0.6	43	0.3	21	0.3	21
Professional and technical workers, n.e.c.	6.3	4.9	78	3.0	48	1.9	30
Managers, officials, and proprietors	18.6	9.2	49	3.7	20	5.5	30

Continued

Table 10-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Clerical and kindred workers	44.0	29.2	66	14.4	33	14.8	34
Stenos, typists, and secretaries	12.1	8.7	72	4.4	36	4.3	36
Office machine operators	1.7	2.2	129	1.6	94	0.6	35
Other clerical and kindred workers	30.2	18.3	61	8.4	28	9.9	33
Accounting clerks	1.2	0.7	58	0.3	25	0.4	33
Bookkeepers, hand	2.3	1.3	57	0.5	22	0.8	35
Cashiers	2.6	2.0	77	1.1	42	0.9	35
Shipping and receiving clerks	1.0	0.1	10	-	-	0.1	10
Telephone operators	1.6	1.1	69	0.5	31	0.6	38
Clerical and kindred workers, n.e.c.	21.5	13.1	61	6.0	28	7.1	33
Sales workers	15.1	8.1	54	3.6	24	4.5	30
Insurance agents and brokers	1.1	0.9	82	0.6	55	0.3	27
Other sales workers, n.e.c.	14.0	7.2	51	3.0	21	4.2	30
Craftsmen, foremen, and kindred workers	34.6	16.8	49	9.0	26	7.8	23
Construction craftsmen	8.2	3.3	40	1.4	17	1.9	23
Carpenters	2.6	0.8	31	0.2	8	0.6	23
Electricians	1.2	0.6	50	0.3	25	0.3	25
Painters and paperhangers	1.2	0.5	42	0.1	8	0.4	33
Plumbers and pipefitters	1.2	0.4	33	0.1	8	0.3	25
Construction craftsmen, n.e.c.	2.0	1.0	50	0.7	35	0.3	15
Foremen, n.e.c.	4.6	2.7	59	1.6	35	1.1	24
Metalworking craftsmen	6.5	2.1	32	0.6	9	1.5	23
Skilled machining workers (inc. machinists)	2.7	0.9	33	0.3	11	0.6	22
Toolmakers, diemakers, setters	0.9	0.2	22	-	-	0.2	22
Other metalworking craftsmen, n.e.c.	2.9	1.0	34	0.3	10	0.7	24
Printing trades craftsmen	0.8	0.1	13	-	-	0.1	13
Transportation and public utility craftsmen	1.4	0.3	21	0.1	7	0.2	14
Linemen and servicemen	1.1	0.4	36	0.3	27	0.1	9
Locomotive engineers and firemen	0.3	- 0.1	- 33	- 0.2	- 67	0.1	33

Continued

Table 10-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Craftsmen, foremen, and kindred workers (cont'd)							
Mechanics and repairmen	8.9	6.1	69	4.1	46	2.0	22
Motor vehicle mechanics	2.5	1.0	40	0.7	28	0.3	12
Other mechanics and repairmen	6.4	5.1	80	3.4	53	1.7	27
Other craftsmen and kindred workers	4.2	2.2	52	1.2	29	1.0	24
Stationary engineers	1.0	0.3	30	0.1	10	0.2	20
Craftsmen and kindred workers, n.e.c.	3.2	1.9	59	1.1	34	0.8	25
Operatives and kindred workers	38.7	14.1	36	6.3	16	7.8	20
Selected trans. and utility operators	8.7	3.4	39	1.9	22	1.5	17
Drivers: bus, truck, tractor	6.2	2.5	40	1.5	24	1.0	16
Deliverymen, routemen, cab drivers	1.7	0.8	47	0.5	29	0.3	18
Trans. and utility operators, n.e.c.	0.8	0.1	13	- 0.1	- 13	0.2	25
Asbestos and insulation workers	0.1	0.1	100	0.1	100	-	-
Semiskilled metalworking occupations	7.1	2.2	31	0.8	11	1.4	20
Welders and flame cutters	1.2	0.7	58	0.5	42	0.2	17
Mach. tool opr., metalworking, Class B	1.1	0.2	18	-	-	0.2	18
Assemblers, metalworking, Class B	3.5	0.8	23	0.1	3	0.7	20
Inspectors, metalworking, Class B	1.0	0.3	30	0.1	10	0.2	20
Semiskilled metalworking occups., n.e.c.	0.3	0.2	67	0.1	33	0.1	33
Semiskilled occupations in textiles and apparel	0.7	- 0.1	- 14	- 0.3	- 43	0.2	29
Other operatives and kindred workers	22.1	8.5	38	3.8	17	4.7	21
Attendants, auto service and parking	1.0	0.7	70	0.6	60	0.1	10
Laundry and dry cleaning workers	1.2	0.4	33	-	-	0.4	33
Other operatives, n.e.c.	19.9	7.4	37	3.2	16	4.2	21
Service workers	25.4	17.2	68	6.5	26	10.7	42
Private household workers	4.2	2.4	57	- 0.1	- 2	2.5	60
Protective service workers	2.4	1.5	63	0.7	29	0.8	33
Guards and watchmen	1.1	0.6	55	0.1	9	0.5	45
Other protective service workers	1.3	0.9	69	0.6	46	0.3	23

Continued

Table 10-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Service workers (cont'd)							
Waiters, cooks and bartenders	6.8	4.3	63	2.1	31	2.2	32
Cooks, except private household	2.2	1.4	64	0.6	27	0.8	36
Counter and fountain wkrs., and bartenders	1.3	1.1	85	0.6	46	0.5	38
Waiters and waitresses	3.3	1.8	55	0.9	27	0.9	27
Other service workers	12.0	9.0	75	3.8	32	5.2	43
Attendants, hospital and other institutions	1.6	2.4	150	1.7	106	0.7	44
Charwomen and cleaners	1.2	0.9	75	0.3	25	0.6	50
Janitors and sextons	2.2	1.1	50	0.1	5	1.0	45
Other service workers, n.e.c.	7.0	4.6	66	1.7	24	2.9	41
Farmers and farm laborers	7.2	- 1.1	- 15	- 3.0	- 42	1.9	26
Laborers, except farm and mine	9.2	2.2	24	0.2	2	2.0	22

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UTICA-ROME AREA

Table 11-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, UTICA-ROME AREA
(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	224	233	251	270	58.0	53.2	52.6	52.6	130	124	132	142
Male, total	108	114	120	129	79.6	72.8	72.5	71.3	86	83	87	92
14 - 19	13	18	19	22	37.0	31.8	31.9	31.9	5	6	6	7
20 - 24	8	10	14	15	89.1	82.1	82.1	82.9	7	8	11	12
25 - 34	18	16	17	23	97.8	96.8	96.9	96.9	18	15	16	22
35 - 44	22	21	20	17	98.0	97.0	97.0	97.0	22	20	19	16
45 - 54	18	20	21	20	96.3	95.6	95.8	95.8	17	19	20	19
55 - 64	14	14	15	17	87.5	80.6	80.9	79.4	12	11	12	13
65 and over	15	15	14	15	32.7	25.5	24.0	23.3	5	4	3	3
Female, total	116	119	131	141	37.9	34.5	34.4	35.5	44	41	45	50
14 - 19	13	17	19	22	27.0	23.3	23.6	23.8	4	4	4	5
20 - 24	9	10	14	15	49.9	44.9	45.1	45.7	4	4	6	7
25 - 34	19	18	19	24	35.2	32.1	32.2	32.5	7	6	6	8
35 - 44	24	23	21	19	47.7	44.2	45.0	45.8	11	10	9	9
45 - 54	19	21	22	22	54.4	52.9	55.7	56.8	10	11	12	12
55 - 64	15	15	17	19	41.4	36.0	37.5	38.4	6	5	6	7
65 and over	17	15	19	20	12.1	9.2	9.3	9.3	2	1	2	2

a. Civilian labor force as percent of civilian noninstitutional population.

Table 11-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, UTICA - ROME AREA

(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	103.0	103.8	112.7	124.2
Manufacturing	39.2	38.3	38.9	40.1
Durable goods	27.0	25.9	26.6	27.5
Lumber and wood products	0.6	0.6	0.6	0.6
Furniture and fixtures	1.0	1.0	1.0	0.9
Stone, clay and glass products	0.4	0.4	0.4	0.5
Primary metal industries	4.8	4.6	4.4	4.1
Fabricated metal products (b)	4.1	3.7	3.7	3.6
Machinery, except electrical and transportation equipment	10.2	8.7	8.3	7.8
Electrical equipment and supplies	5.7	6.6	7.7	9.3
Instruments and related products (c)	0.2	0.3	0.5	0.7
Nondurable goods	12.2	12.4	12.3	12.6
Food and kindred products	2.3	2.2	2.2	2.1
Tobacco manufactures	-	-	-	-
Textile mill products	1.3	1.2	1.2	1.0
Apparel and other fabric products	1.6	1.5	1.5	1.3
Paper and allied products	1.1	1.2	1.2	1.4
Printing and publishing	0.9	1.0	1.0	1.3
Chemicals and allied products	0.7	0.8	0.8	1.0
Petroleum and coal products	-	-	-	-
Rubber and plastics products, n.e.c.	-	-	-	-
Leather and leather products	2.1	2.1	2.0	2.1
Miscellaneous manufacturing	2.2	2.4	2.4	2.4
Agriculture (d), forestry and fisheries	0.2	0.1	0.1	-
Mining	0.2	0.2	0.3	0.3
Contract construction	3.2	2.9	2.7	2.5
Transportation, communication and public utilities	5.6	5.4	5.6	5.8
Railroads	1.0	0.7	0.6	0.5
Air transportation	0.5	0.8	1.0	1.1
Local and interurban passenger transportation	0.5	0.4	0.4	0.5
Local and suburban transit	0.3	0.3	0.3	0.4
Taxicabs	0.2	0.1	0.1	0.1
Trucking and warehousing	1.1	1.5	1.8	2.1
Trucking	1.0	1.4	1.7	2.0
Warehousing	0.1	0.1	0.1	0.1

Continued

Table 11-B continued

Industry	1960	1965(a)	1970	1975
Transportation, communication and public utilities (cont'd)				
Water transportation	-	-	-	-
Pipelines	-	-	-	-
Transportation services	-	-	-	-
Communication	1.8	1.4	1.2	1.1
Telephone and telegraph	1.6	1.2	1.0	0.9
Radio and television broadcasting	0.2	0.2	0.2	0.2
Electric, gas and sanitary services	0.7	0.6	0.6	0.5
Wholesale and retail trade	16.4	17.0	17.9	20.4
Wholesale trade	3.5	3.4	3.4	3.4
Motor vehicles and allied products	0.2	0.2	0.2	0.2
Drugs, chemicals and allied products	0.1	0.1	0.1	0.1
Dry goods and apparel	0.1	0.1	0.1	0.1
Groceries and related products	0.6	0.5	0.5	0.4
Electrical goods, hardware, plumbing and heating	0.5	0.4	0.4	0.3
Machinery, equipment and supplies	0.8	0.9	0.9	1.1
Other wholesale	1.2	1.2	1.2	1.2
Retail trade	12.9	13.6	14.5	17.0
Building materials, farm equipment	0.9	0.8	0.8	0.7
Retail general merchandise	2.2	2.3	2.4	2.6
Variety stores	0.7	0.5	0.5	0.3
Other general merchandise stores	1.5	1.8	1.9	2.3
Food stores	2.2	2.5	2.7	3.6
Automotive dealers and service stations	1.9	2.0	2.2	2.4
Gasoline service stations	0.5	0.6	0.7	0.8
Other motor vehicle and accessory dealers	1.4	1.4	1.5	1.6
Apparel and accessories	1.0	1.0	1.1	1.4
Furniture, homefurnishings	0.6	0.5	0.5	0.4
Eating and drinking places	2.5	2.8	3.0	3.8
Miscellaneous retail stores	1.6	1.7	1.8	2.1
Drug and proprietary stores	0.4	0.5	0.6	0.8
Other miscellaneous retail stores	1.2	1.2	1.2	1.3
Finance, insurance and real estate	3.9	4.0	4.4	4.4
Banking and credit agencies	1.3	1.4	1.8	1.8
Brokers and investment companies	0.1	0.1	0.1	0.1
Insurance	2.0	2.0	2.0	2.0
Real estate	0.5	0.5	0.5	0.5
Services	9.8	11.7	14.2	17.0
Hotels and lodging places	0.9	0.9	1.0	1.1
Personal services	1.3	1.4	1.5	1.6
Laundries	0.6	1.0	1.1	1.2
Other personal services	0.7	0.4	0.4	0.4

Continued

Table 11-B continued

Industry	1960	1965(a)	1970	1975
Services (cont'd)				
Miscellaneous business services	0.5	0.8	1.2	1.5
Advertising	0.1	-	-	0.1
Other business services	0.4	0.8	1.2	1.4
Automobile repair services and garages	0.4	0.4	0.5	0.7
Miscellaneous repair services	0.2	0.2	0.2	0.3
Motion pictures and other amusement and recreation services	0.8	0.8	0.8	0.9
Theaters and motion pictures	0.2	0.1	0.1	0.1
Other entertainment and recreation	0.6	0.7	0.7	0.8
Medical and other health services	2.7	3.3	4.1	4.8
Hospitals	1.5	2.1	2.7	3.3
Other medical and health services	1.2	1.2	1.4	1.5
Legal services	0.3	0.3	0.3	0.4
Educational services and museums	1.1	1.4	1.7	2.0
Nonprofit membership organizations	1.4	1.7	2.1	2.6
Welfare and religious groups	1.1	1.1	1.2	1.4
Other nonprofit membership organizations	0.3	0.6	0.9	1.2
Miscellaneous services	0.2	0.5	0.8	1.1
Engineering and architectural services	0.1	0.4	0.6	0.8
Accounting, auditing and bookkeeping	0.1	0.1	0.2	0.2
Miscellaneous professional services	-	-	-	0.1
Nonclassifiable	-	-	-	-
Government	24.6	24.3	28.6	33.7
Federal	8.9	7.2	6.7	6.0
Postal service	0.9	0.9	1.0	1.2
Other federal	8.0	6.3	5.7	4.8
State and local	15.7	17.1	21.9	27.7
State	4.9	5.4	6.8	8.5
Local	10.8	11.7	15.1	19.2

a. Data on 1965 Benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.
Note: Detail may not add to totals due to rounding.

Table 11-C. TOTAL NUMBER OF JOBS (a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, UTICA-ROME AREA
(in thousands)

Industry	1960	1965	1970	1975
Total employment	125.9	122.7	131.0	141.2
Manufacturing	39.7	38.4	39.0	40.2
Durable goods	27.1	25.9	26.6	27.5
Lumber and wood products	0.7	0.6	0.6	0.6
Furniture and fixtures	1.0	1.0	1.0	0.9
Stone, clay and glass products	0.4	0.4	0.4	0.5
Primary metal industries	4.8	4.6	4.4	4.1
Fabricated metal products (b)	4.1	3.7	3.7	3.6
Machinery, except electrical and transportation equipment	10.2	8.7	8.3	7.8
Electrical equipment and supplies	5.7	6.6	7.7	9.3
Instruments and related products (c)	0.2	0.3	0.5	0.7
Nondurable goods	12.6	12.5	12.4	12.7
Food and kindred products	2.4	2.2	2.2	2.1
Tobacco manufactures	-	-	-	-
Textile mill products	1.3	1.2	1.2	1.0
Apparel and other fabric products	1.6	1.5	1.5	1.3
Paper and allied products	1.1	1.2	1.2	1.4
Printing and publishing	1.0	1.1	1.1	1.4
Chemicals and allied products	0.7	0.8	0.8	1.0
Petroleum and coal products	-	-	-	-
Rubber and plastics products, n.e.c.	-	-	-	-
Leather and leather products	2.1	2.1	2.0	2.1
Miscellaneous manufacturing	2.4	2.4	2.4	2.4
Nonmanufacturing	86.2	84.3	92.0	101.0
Agriculture, forestry and fisheries	8.7	6.4	4.2	3.0
Mining	0.4	0.2	0.3	0.3
Contract construction	6.8	6.6	6.6	6.2
Transportation, communication and public utilities	6.5	6.3	6.9	7.3
Railroads	1.0	0.7	0.6	0.5
Air transportation	0.5	0.8	1.1	1.2
Local and suburban transit	0.4	0.4	0.4	0.7
Taxicabs	0.2	0.1	0.1	0.1
Trucking	1.2	1.7	2.1	2.5
Warehousing	0.1	0.1	0.1	0.1
Water transportation	0.1	-	-	-
Pipelines	-	-	-	-

Continued

Table 11-C (cont'd)

Industry	1960	1965	1970	1975
Transportation, communication and public utilities (cont'd)				
Transportation services	-	-	-	-
Telephone and telegraph	1.6	1.2	1.0	0.9
Radio and television broadcasting	0.2	0.2	0.2	0.2
Electric, gas and sanitary services	1.2	1.1	1.3	1.1
Wholesale and retail trade	21.5	21.0	21.6	23.8
Wholesale trade	4.2	3.9	3.9	4.0
Motor vehicles and equipment	0.2	0.2	0.2	0.2
Drugs, chemicals and allied products	0.1	0.1	0.1	0.1
Dry goods and apparel	0.1	0.1	0.1	0.1
Groceries and related products	0.7	0.6	0.6	0.6
Electrical goods, hardware, plumbing and heating	0.6	0.5	0.5	0.4
Machinery, equipment and supplies	0.9	1.0	1.0	1.3
Other wholesale	1.6	1.4	1.4	1.3
Retail trade	17.3	17.1	17.7	19.8
Building materials, farm equipment	1.1	1.0	1.0	1.0
Variety stores	0.8	0.5	0.5	0.3
Other general merchandise stores	1.9	2.0	2.1	2.4
Food stores	3.0	3.2	3.1	3.9
Gasoline service stations	1.0	1.0	1.1	1.1
Other motor vehicle and accessory dealers	1.6	1.6	1.7	1.8
Apparel and accessories	1.3	1.2	1.3	1.6
Furniture, homefurnishings	0.8	0.6	0.6	0.5
Eating and drinking places	3.6	3.8	4.0	4.7
Drug and proprietary stores	0.5	0.6	0.7	0.9
Other miscellaneous retail stores	1.7	1.6	1.6	1.6
Finance, insurance and real estate	4.3	4.5	5.2	5.5
Banking and credit agencies	1.3	1.4	1.8	1.8
Brokers and investment companies	0.1	0.1	0.1	0.1
Insurance	2.1	2.1	2.1	2.1
Real estate	0.8	0.9	1.2	1.5
Services	25.5	29.5	36.9	43.5
Hotels and lodging places	1.2	1.2	1.5	1.6
Laundries	0.7	1.2	1.4	1.5
Other personal services	1.6	1.2	1.2	1.1
Advertising	0.1	-	-	0.1
Other business services	0.5	1.1	1.8	2.0
Automobile repair services and garages	0.7	0.7	0.8	0.9
Miscellaneous repair services	0.5	0.4	0.4	0.5
Theaters and motion pictures	0.3	0.1	0.1	0.1
Other entertainment and recreation	0.6	0.8	0.9	1.0

Continued

Table 11-C (cont'd)

Industry	1960	1965	1970	1975
Services (cont'd)				
Hospitals	5.6	6.6	8.8	10.9
Other medical and health services	1.9	2.4	3.1	3.3
Legal services	0.6	0.6	0.7	0.8
Educational services and museums	6.4	8.2	10.2	12.5
Nonprofit membership organizations (incl. welfare and religious groups)	1.6	1.9	2.3	2.8
Engineering and architectural services	0.2	0.6	1.0	1.4
Accounting, auditing and bookkeeping	0.2	0.2	0.3	0.5
Miscellaneous professional services	0.1	0.1	0.1	0.2
Private household workers	2.7	2.2	2.3	2.3
Public administration	12.5	9.8	10.3	11.4
Postal service	0.9	0.9	1.0	1.2
Other federal	7.8	6.2	5.6	4.7
State	0.4	0.4	0.6	0.6
Local	3.4	2.3	3.1	4.9

For footnote see page 10.

Table 11-D. RECONCILIATION OF CIVILIAN LABOR FORCE AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, UTICA-ROME AREA
(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 11-A)	224	233	251	270
II. Civilian labor force, 14 and over (table 11-A)	130	124	132	142
A. Resident employed	121	117	125	135
B. Unemployed	9	7	7	7
1. Rate of unemployment (percent)	6.7	5.4	5.0	5.0
III. Total number of jobs (table 11-C)	126	123	131	141
A. Nonagricultural jobs	117	117	127	138
1. Wage and salary workers (table 11-B)	103	104	113	124
2. Self employed and unpaid family workers, and domestics	14	13	14	14
B. Agricultural jobs	9	6	4	3
IV. Difference between II-A and III	5	6	6	6
A. Net number of commuters into area	2	2	2	2
B. Multiple jobholders, minus persons with a job but not being paid (a)	3	4	4	4

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A) but not among the wage and salary workers (III-A.1).

Table 11E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, UTICA-ROME AREA
(in thousands)

Occupation	1960	1965	1970	1975
All occupations	125.9	122.7	131.0	141.2
Professional, technical and kindred workers	16.7	18.1	21.3	24.4
Engineers, technical	1.7	1.8	2.1	2.4
Engineers, aeronautical	-	-	-	-
Engineers, chemical	-	-	-	-
Engineers, civil	0.2	0.3	0.4	0.5
Engineers, electrical	0.9	0.9	1.1	1.2
Engineers, industrial	0.1	0.1	0.1	0.1
Engineers, mechanical	0.5	0.5	0.5	0.6
Engineers, metallurgical	-	-	-	-
Other engineers, technical	-	-	-	-
Natural scientists	0.2	0.2	0.2	0.2
Chemists	-	-	-	-
Agricultural scientists	-	-	-	-
Biological scientists	-	-	-	-
Geologists and geophysicists	-	-	-	-
Mathematicians	-	-	-	-
Physicists	0.2	0.2	0.2	0.2
Other natural scientists, n.e.c.	-	-	-	-
Technical workers and specialists (exc. medical and dental)	2.8	3.1	3.8	4.5
Draftsmen	0.3	0.3	0.4	0.5
Structural design technicians and related specialists	-	-	-	-
Electro and mechanical engineering technicians	1.1	1.4	1.7	2.2
Mathematics technicians	-	-	-	-
Physical science technicians	0.1	0.1	0.1	0.1
Industrial engineering technicians	0.3	0.3	0.4	0.4
Civil engineering and construction technicians	0.3	0.3	0.3	0.4
Sales and service technicians	-	-	-	-
Technical writing and illustration technicians	0.1	0.1	0.1	0.1
Safety and sanitation inspectors and related specialists	0.1	0.1	0.1	0.1
Product testing and inspection specialists	0.1	0.1	0.2	0.2

Continued

Table 11E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred workers (cont'd)				
Data processing, systems analysis and programming specialists	0.2	0.2	0.3	0.3
Airway tower specialists and flight dispatchers	0.1	0.1	0.1	0.1
Broadcasting, motion picture and recording studio specialists	-	-	-	-
Radio operators	0.1	0.1	0.1	0.1
Medical and other health workers	3.6	4.1	4.9	5.7
Dentists	0.2	0.2	0.2	0.2
Dietitians and nutritionists	0.1	0.1	0.1	0.1
Nurses, professional and student	2.1	2.4	2.9	3.4
Optometrists	0.1	0.1	0.1	0.1
Osteopaths	-	-	-	-
Pharmacists	0.2	0.2	0.2	0.3
Physicians and surgeons	0.5	0.6	0.7	0.7
Psychologists	-	-	-	-
Technicians, medical and dental	0.3	0.4	0.5	0.7
Veterinarians	-	-	-	-
Chiropractors and therapists	0.1	0.1	0.2	0.2
Teachers	4.1	4.5	5.3	6.2
Teachers, elementary	2.2	2.3	2.6	2.9
Teachers, secondary	1.1	1.2	1.5	1.8
Teachers, college	0.2	0.3	0.4	0.5
Teachers, other	0.6	0.7	0.8	1.0
Social scientists	0.1	0.1	0.1	0.1
Economists	-	-	-	-
Statisticians and actuaries	0.1	0.1	0.1	0.1
Other social scientists	-	-	-	-
Other professional, technical and kindred workers	4.2	4.3	4.9	5.3
Accountants and auditors	0.8	0.8	0.8	0.8
Airplane pilots and navigators	0.1	0.1	0.2	0.2
Architects	0.1	0.1	0.2	0.3
Artists, musicians, authors, athletes, and entertainers	0.5	0.6	0.6	0.7
Clergymen	0.1	0.1	0.1	0.1
Designers, except design draftsmen	0.1	0.1	0.1	0.1
Reporters and editors	0.1	0.1	0.1	0.1
Lawyers and judges	0.4	0.4	0.4	0.4
Librarians	0.2	0.2	0.3	0.3
Personnel and labor relations wkrs.	0.2	0.2	0.2	0.2

Continued

Table 11E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred workers (cont'd)				
Photographers	0.2	0.2	0.2	0.2
Social, welfare and recreation wkrs.	0.2	0.2	0.3	0.4
Prof. and tech. workers, n.e.c.	1.2	1.2	1.4	1.5
Managers, officials and proprietors	9.3	9.4	9.7	10.5
Conductors, railroad	-	-	-	-
Credit men	0.1	0.1	0.1	0.1
Ship officers	-	-	-	-
Postmasters and assistants	0.1	0.1	0.1	0.1
Purchasing agents	0.3	0.3	0.3	0.4
Managers, officials, proprietors, n.e.c.	8.8	8.9	9.2	9.9
Clerical and kindred workers	20.7	20.4	22.4	23.9
Stenos, typists and secretaries	5.0	5.0	5.9	6.6
Office machine operators	0.9	0.9	1.2	1.4
Other clerical and kindred workers	14.8	14.5	15.3	15.9
Accounting clerks	0.7	0.7	0.8	0.8
Bookkeepers, hand	1.2	1.2	1.3	1.3
Bank tellers	0.3	0.3	0.4	0.5
Cashiers	1.0	1.0	1.2	1.6
Mail carriers	0.3	0.3	0.4	0.5
Postal clerks	0.3	0.3	0.4	0.4
Shipping and receiving clerks	0.6	0.5	0.5	0.5
Telephone operators	0.9	0.7	0.7	0.6
Clerical and kindred workers, n.e.c.	9.5	9.5	9.6	9.7
Sales workers	8.7	8.2	8.4	9.1
Insurance agents and brokers	0.6	0.6	0.6	0.6
Real estate agents and brokers	0.2	0.2	0.3	0.4
Other sales workers, n.e.c.	7.9	7.4	7.5	8.1
Craftsmen, foremen and kindred workers	17.9	17.2	18.1	19.6
Construction craftsmen	3.7	3.5	3.4	3.2
Carpenters	1.4	1.2	1.1	1.1
Brickmasons, stone and tile setters	0.3	0.3	0.3	0.2
Cement and concrete finishers	-	-	-	-
Electricians	0.5	0.5	0.5	0.5
Excavating, grading machine oprs.	0.3	0.3	0.3	0.3
Painters and paperhangers	0.5	0.5	0.5	0.4
Plasterers	-	-	-	-
Plumbers and pipefitters	0.5	0.5	0.5	0.5
Roofers and slaters	0.1	0.1	0.1	0.1
Structural metalworkers	0.1	0.1	0.1	0.1

Continued

Table 11E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	2.8	2.8	3.0	3.5
Metalworking craftsmen	3.8	3.5	3.4	3.5
Skilled machining workers (incl. machinists)	2.0	1.8	1.7	1.7
Blacksmiths, forgemen, hammermen	0.1	0.1	0.1	0.1
Boilermakers	-	-	-	-
Heat treaters, annealers, tempers	0.1	0.1	0.1	0.1
Millwrights	0.1	0.1	0.1	0.1
Molders, metal (exc. coremakers)	0.2	0.2	0.2	0.2
Patternmakers, metal and wood	0.1	0.1	0.1	0.1
Rollers and roll hands	0.1	0.1	0.1	0.1
Sheet metal workers	0.2	0.2	0.2	0.2
Toolmakers, diemakers, setters	0.6	0.5	0.5	0.5
Electroplaters	-	-	-	-
Assemblers, metalwork, Class A	0.3	0.3	0.3	0.4
Printing trades craftsmen	0.5	0.4	0.4	0.4
Compositors and typesetters	0.4	0.3	0.3	0.3
Electrotypers and stereotypers	-	-	-	-
Engravers, except photoengravers	-	-	-	-
Photoengravers and lithographers	-	-	-	-
Pressmen and plate printers	0.1	0.1	0.1	0.1
Transportation and public utility craftsmen	0.6	0.5	0.5	0.5
Linemen and servicemen	0.5	0.4	0.4	0.4
Locomotive engineers	0.1	0.1	0.1	0.1
Locomotive firemen	-	-	-	-
Mechanics and repairmen	4.8	4.8	5.7	6.7
Airplane mechanics and repairmen	0.4	0.4	0.4	0.4
Motor vehicle mechanics	1.2	1.2	1.3	1.5
Office machine mechanics	0.1	0.1	0.1	0.2
Radio and TV mechanics	0.3	0.3	0.3	0.3
Railroad and car shop mechanics	-	-	-	-
Other mechanics and repairmen	2.8	2.8	3.6	4.3
Other craftsmen and kindred workers	1.7	1.7	1.7	1.8
Bakers	0.2	0.2	0.2	0.2
Cabinetmakers	0.1	0.1	0.1	0.1
Cranemen, derrickmen and hoistmen	0.2	0.2	0.2	0.2
Glaziers	-	-	-	-
Jewelers and watchmakers	0.1	0.1	0.1	0.1
Millers	-	-	-	-
Opticians and lens grinders	-	-	-	-
Stationary engineers	0.4	0.4	0.4	0.4

Continued

Table 11E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	0.1	0.1	0.1	0.1
Upholsterers	0.1	0.1	0.1	0.1
Craftsmen and kindred workers, n.e.c.	0.5	0.5	0.5	0.6
Operatives and kindred workers	24.6	24.3	25.3	26.8
Selected transp. and utility oprs.	4.4	4.5	4.9	5.7
Drivers: bus, truck, tractor	3.2	3.3	3.7	4.3
Deliverymen, routemen, cab drivers	1.0	1.0	1.0	1.2
Brakemen and switchmen, railroad	0.1	0.1	0.1	0.1
Power station operators	0.1	0.1	0.1	0.1
Sailors and deck hands	-	-	-	-
Asbestos and insulation workers	-	-	-	-
Semiskilled metalworking occupations	3.1	2.9	2.8	2.8
Furnacemen, smelters, pourers, and heaters	0.1	0.1	0.1	0.1
Welders and flame cutters	0.4	0.4	0.4	0.5
Electroplater helpers	0.1	0.1	0.1	0.1
Mach. tool opr., metalworking, Class B	0.7	0.6	0.5	0.4
Assemblers, metalworking, Class B	1.3	1.2	1.2	1.2
Inspectors, metalworking, Class B	0.5	0.5	0.5	0.5
Semiskilled occupations in textiles and apparel	1.7	1.5	1.5	1.3
Knitters, loopers and toppers	0.1	0.1	0.1	0.1
Weavers and spinners, textiles	0.2	0.2	0.2	0.1
Sewers and stitchers, manufacturing	1.4	1.2	1.2	1.1
Other operatives and kindred workers	15.4	15.4	16.1	17.0
Attendants, auto service and parking	0.5	0.5	0.7	0.7
Laundry and dry cleaning workers	0.7	0.8	1.1	1.3
Meat cutters, except meat-packing	0.4	0.4	0.4	0.5
Mine operatives and laborers, n.e.c.	0.3	0.2	0.2	0.2
Other operatives, n.e.c.	13.5	13.5	13.7	14.3
Service workers	14.4	14.8	17.7	20.3
Private household workers	2.2	1.8	1.8	1.9
Protective service workers	1.5	1.4	1.6	1.7
Firemen, fire protection	0.5	0.5	0.5	0.6
Guards and watchmen	0.6	0.5	0.5	0.4
Policemen, marshalls, sheriffs	0.4	0.4	0.6	0.7

Continued

Table 1HE (cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	3.3	3.5	4.3	5.0
Bartenders	0.5	0.5	0.6	0.7
Cooks, except private household	1.0	1.1	1.3	1.5
Counter and fountain workers	0.4	0.4	0.6	0.8
Waiters and waitresses	1.4	1.5	1.8	2.0
Other service workers	7.4	8.1	10.0	11.7
Attendants, hospital and other inst.	2.7	3.2	4.6	6.0
Charwomen and cleaners	0.3	0.4	0.5	0.5
Janitors and sextons	1.3	1.3	1.3	1.2
Nurses, practical	0.5	0.6	0.8	1.0
Other service workers, n.e.c. (including airline stewardesses)	2.6	2.6	2.8	3.0
Farmers and farm laborers	8.6	6.2	4.1	2.9
Laborers, except farm and mine	5.0	4.1	4.0	3.7

Table 11-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, UTICA-ROME AREA

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agri-culture (a)	Con-struc-tion	Manu-factur-ing(b)	Trans-porta-tion(c)	Trade	Finance (d)	Services	Public admini-stration
All occupations	125.9	8.7	6.8	40.1	6.5	21.5	4.3	25.5	12.5
Professional, technical, and kindred wkrs.	16.7	0.1	0.4	4.0	0.4	0.4	0.1	9.4	1.9
Engineers, technical	1.7	-	0.1	0.9	0.1	-	-	0.1	0.5
Natural scientists	0.2	-	-	-	-	-	-	-	0.2
Technicians, exc. medical and dental	2.8	-	0.1	1.7	0.1	0.2	-	0.2	0.5
Medical and other health workers	3.6	-	-	-	-	0.1	-	3.5	-
Teachers	4.1	-	-	-	-	-	-	4.0	0.1
Social scientists	0.1	-	-	-	-	-	-	-	0.1
Other prof., tech., and kindred wkrs.	4.2	0.1	0.2	1.4	0.2	0.1	0.1	1.6	0.5
Managers, officials and proprietors	9.3	-	0.6	1.5	0.3	4.0	0.6	1.4	0.9
Clerical and kindred workers	20.7	-	0.4	4.8	2.0	3.2	2.4	2.9	5.0
Stenos, typists and secretaries	5.0	-	0.1	0.6	0.1	0.9	0.7	1.6	1.0
Office machine operators	0.9	-	-	0.3	-	0.1	0.2	0.1	0.2
Other clerical and kindred workers	14.8	-	0.3	3.9	1.9	2.2	1.5	1.2	3.8
Sales workers	8.7	-	-	1.2	0.1	6.5	0.8	0.1	-
Craftsmen, foremen and kindred workers	17.9	-	3.0	8.1	1.5	1.7	0.1	1.9	1.6
Construction craftsmen	3.7	-	2.2	0.7	0.1	-	-	0.2	0.5
Foremen, n.e.c.	2.8	-	0.1	1.5	0.3	0.3	-	0.3	0.3
Metalworking craftsmen, exc. mechanics	3.8	-	0.1	3.7	-	-	-	-	-
Printing trades craftsmen	0.5	-	-	0.5	-	-	-	-	-
Transp. and public utility craftsmen	0.6	-	0.1	-	0.5	-	-	-	-
Mechanics and repairmen	4.8	-	0.4	1.1	0.4	0.9	-	1.3	0.7
Other craftsmen and kindred workers	1.7	-	0.1	0.6	0.2	0.5	0.1	0.1	0.1
Operatives and kindred workers	24.6	-	0.6	18.4	1.7	2.3	-	0.9	0.7
Selected transp. and pub. util. oprs.	4.4	-	0.4	1.1	1.7	0.8	-	0.1	0.3
Semiskilled metal-working occup.	3.1	-	-	3.1	-	-	-	-	-
Semiskilled textiles occupations (e)	1.7	-	-	1.7	-	-	-	-	-
Other operatives and kindred workers	15.4	-	0.2	12.5	-	1.5	-	0.8	0.4
Service workers	14.4	-	-	0.8	0.1	3.0	0.2	8.4	1.9
Private household workers	2.2	-	-	-	-	-	-	2.2	-
Protective service workers	1.5	-	-	0.4	-	-	-	-	1.1
Waiters, cooks, and bartenders	3.3	-	-	-	-	2.4	-	0.9	-
Other service workers	7.4	-	-	0.4	0.1	0.6	0.2	5.3	0.8
Laborers, except farm and mine	5.0	-	1.8	1.3	0.4	0.4	0.1	0.5	0.5
Farmers and farm laborers	8.6	8.6	-	-	-	-	-	-	-

For footnote see page 18.

Table 11-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, UTICA-ROME AREA

2. ESTIMATED 1965

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation (c)	Trade	Finance (d)	Services	Public administration
All occupations	122.7	6.4	6.6	38.6	6.3	21.0	4.5	29.5	9.8
Professional, technical, and kindred workers	18.1	0.1	0.5	4.1	0.4	0.4	0.1	10.6	1.9
Engineers, technical	1.8	-	0.1	0.9	0.1	-	-	0.2	0.5
Natural scientists	0.2	-	-	-	-	-	-	-	0.2
Technicians, exc. medical and dental	3.1	-	0.2	1.7	0.1	0.2	-	0.4	0.5
Medical and other health workers	4.1	-	-	-	-	0.1	-	4.0	-
Teachers	4.5	-	-	-	-	-	-	4.4	0.1
Social scientists	0.1	-	-	-	-	-	-	-	0.1
Other prof., tech., and kindred workers	4.3	0.1	0.2	1.5	0.2	0.1	0.1	1.6	0.5
Managers, officials, and proprietors	9.4	-	0.6	1.3	0.3	4.0	0.7	1.8	0.7
Clerical and kindred workers	20.4	-	0.4	4.8	1.6	3.4	2.5	4.1	3.6
Stenos, typists, and secretaries	5.0	-	0.1	0.6	0.1	0.8	0.7	1.9	0.8
Office machine operators	0.9	-	-	0.3	-	0.1	0.3	-	0.2
Other clerical and kindred workers	14.5	-	0.3	3.9	1.5	2.5	1.5	2.2	2.6
Sales workers	8.2	-	-	1.3	0.1	5.9	0.8	0.1	-
Craftsmen, foremen, and kindred workers	17.2	-	3.0	7.6	1.4	1.7	0.1	2.1	1.3
Construction craftsmen	3.5	-	2.1	0.7	0.1	-	-	0.2	0.4
Foremen, n.e.c.	2.8	-	0.1	1.5	0.2	0.3	-	0.5	0.2
Metalworking craftsmen, exc. mechanics	3.5	-	0.1	3.4	-	-	-	-	-
Printing trades craftsmen	0.4	-	-	0.4	-	-	-	-	-
Transp. and public utility craftsmen	0.5	-	0.1	-	0.4	-	-	-	-
Mechanics and repairmen	4.8	-	0.5	1.0	0.5	0.9	-	1.3	0.6
Other craftsmen and kindred workers	1.7	-	0.1	0.6	0.2	0.5	0.1	0.1	0.1
Operatives and kindred workers	24.3	-	0.6	17.8	1.9	2.2	-	1.4	0.4
Selected transp. and pub. util. oprs.	4.5	-	0.4	1.1	1.9	0.8	-	0.1	0.2
Semiskilled metalworking occupations	2.9	-	-	2.9	-	-	-	-	-
Semiskilled textiles occupations	1.5	-	-	1.5	-	-	-	-	-
Other operatives and kindred workers	15.4	-	0.2	12.3	-	1.4	-	1.3	0.2
Service workers	14.8	-	-	0.7	0.2	3.1	0.2	9.0	1.6
Private household workers	1.8	-	-	-	-	-	-	1.8	-
Protective service workers	1.4	-	-	0.4	-	-	-	-	1.0
Waiters, cooks, and bartenders	3.5	-	-	-	-	2.5	-	1.0	-
Other service workers	8.1	-	-	0.3	0.2	0.6	0.2	6.2	0.6
Laborers, except farm and mine	4.1	0.1	1.5	1.0	0.4	0.3	0.1	0.4	0.3
Farmers and farm laborers	6.2	6.2	-	-	-	-	-	-	-

For footnote see page 18.

Table 11-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, UTICA-ROME AREA

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation (c)	Trade	Finance (d)	Services	Public administration
All occupations	141.2	3.0	6.2	40.5	7.3	23.8	5.5	43.5	11.4
Professional, technical, and kindred workers	24.4	0.1	0.5	5.5	0.6	0.5	0.1	15.2	1.9
Engineers, technical	2.4	-	0.1	1.2	0.1	-	-	0.5	0.5
Natural scientists	0.2	-	-	-	-	-	-	-	0.2
Technicians, exc. medical and dental	4.5	-	0.2	2.4	0.2	0.3	-	0.8	0.6
Medical and other health workers	5.7	-	-	-	-	0.1	-	5.6	-
Teachers	6.2	-	-	-	-	-	-	6.1	0.1
Social scientists	0.1	-	-	0.1	-	-	-	-	-
Other prof., tech., and kindred workers	5.3	0.1	0.2	1.8	0.3	0.1	0.1	2.2	0.5
Managers, officials, and proprietors	10.5	-	0.6	1.3	0.3	3.8	0.9	2.7	0.9
Clerical and kindred workers	23.9	-	0.4	4.5	1.6	3.8	3.0	6.4	4.2
Stenos, typists, and secretaries	6.6	-	0.1	0.6	0.1	0.8	0.8	3.4	0.8
Office machine operators	1.4	-	-	0.6	-	0.2	0.4	-	0.2
Other clerical and kindred workers	15.9	-	0.3	3.3	1.5	2.8	1.8	3.0	3.2
Sales workers	9.1	-	-	1.1	0.1	6.7	1.0	0.2	-
Craftsmen, foremen, and kindred workers	19.6	-	2.8	8.4	1.5	2.2	0.1	3.1	1.5
Construction craftsmen	3.2	-	1.7	0.7	0.1	-	-	0.3	0.4
Foremen, n.e.c.	3.5	-	0.1	1.8	0.3	0.4	-	0.6	0.3
Metalworking craftsmen, exc. mechanics	3.5	-	0.1	3.4	-	-	-	-	-
Printing trades craftsmen	0.4	-	-	0.4	-	-	-	-	-
Transp. and public utility craftsmen	0.5	-	0.2	-	0.3	-	-	-	-
Mechanics and repairmen	6.7	-	0.6	1.5	0.6	1.2	-	2.1	0.7
Other craftsmen and kindred workers	1.8	-	0.1	0.6	0.2	0.6	0.1	0.1	0.1
Operatives and kindred workers	26.8	-	0.8	18.4	2.6	2.7	-	1.8	0.5
Selected transp. and pub. util. oprs.	5.7	-	0.5	1.3	2.6	0.8	-	0.2	0.3
Semiskilled metalworking occupations	2.8	-	-	2.8	-	-	-	-	-
Semiskilled textiles occupations	1.3	-	-	1.3	-	-	-	-	-
Other operatives and kindred workers	17.0	-	0.3	13.0	-	1.9	-	1.6	0.2
Service workers	20.3	-	-	0.5	0.3	3.7	0.2	13.5	2.1
Private household workers	1.9	-	-	-	-	-	-	1.9	-
Protective service workers	1.7	-	-	0.3	-	-	-	-	1.4
Waiters, cooks, and bartenders	5.0	-	-	-	-	3.2	-	1.8	-
Other service workers	11.7	-	-	0.2	0.3	0.5	0.2	9.8	0.7
Laborers, except farm and mine	3.7	-	1.1	0.8	0.3	0.4	0.2	0.6	0.3
Farmers and farm laborers	2.9	2.9	-	-	-	-	-	-	-

For footnote see page 18.

Table 11-G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN THE UTICA-ROME AREA, 1965-1975
(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	122.7	52.4	43	18.5	15	33.9	28
Professional, technical, and kindred workers	18.1	11.2	62	6.3	35	4.9	27
Engineers, technical	1.8	0.9	50	0.6	33	0.3	17
Natural scientists	0.2	-	-	-	-	-	-
Technical workers (exc. medical and dental)	3.1	1.7	55	1.4	45	0.3	10
Electro and mechanical engineering techs.	1.4	0.9	64	0.8	57	0.1	7
Other technical workers, n.e.c.	1.7	0.8	47	0.6	35	0.2	12
Medical and other health workers	4.1	3.0	73	1.6	39	1.4	34
Nurses, professional and student	2.4	1.8	75	1.0	42	0.8	33
Other medical workers, n.e.c.	1.7	1.2	71	0.6	35	0.6	35
Teachers	4.5	3.3	73	1.7	38	1.6	36
Teachers, elementary	2.3	1.6	70	0.6	26	1.0	43
Teachers, secondary	1.2	0.9	75	0.6	50	0.3	25
Teachers, college	0.3	0.3	100	0.2	67	0.1	33
Teachers, other	0.7	0.5	71	0.3	43	0.2	29
Social scientists	0.1	-	-	-	-	-	-
Other prof., tech., and kindred workers	4.3	2.3	53	1.0	23	1.3	30
Accountants and auditors	0.8	0.2	25	-	-	0.2	25
Professional and technical workers, n.e.c.	3.5	2.1	60	1.0	29	1.1	31
Managers, officials, and proprietors	9.4	4.1	44	1.1	12	3.0	32
Clerical and kindred workers	20.4	9.4	46	3.5	17	5.9	29
Stenos, typists, and secretaries	5.0	3.3	66	1.6	32	1.7	34
Office machine operators	0.9	0.7	78	0.5	56	0.2	22
Other clerical and kindred workers	14.5	5.4	37	1.4	10	4.0	28
Bookkeepers, hand	1.2	0.5	42	0.1	8	0.4	33
Cashiers	1.0	0.9	90	0.6	60	0.3	30
Clerical and kindred workers, n.e.c.	12.3	4.0	33	0.7	6	3.3	27

Continued

Table 11-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Sales workers	8.2	3.3	40	0.9	11	2.4	29
Craftsmen, foremen, and kindred workers	17.2	6.0	35	2.4	14	3.6	21
Construction craftsmen	3.5	0.5	14	- 0.3	- 9	0.8	23
Carpenters	1.2	0.2	17	- 0.1	- 8	0.3	25
Construction craftsmen, n.e.c.	2.3	0.3	13	- 0.2	- 9	0.5	22
Foremen, n.e.c.	2.8	1.4	50	0.7	25	0.7	25
Metalworking craftsmen	3.5	0.7	20	-	-	0.7	20
Skilled machining workers (inc. machinists)	1.8	0.2	11	- 0.1	- 6	0.3	17
Other metalworking craftsmen, n.e.c.	1.7	0.5	29	0.1	6	0.4	24
Printing trades craftsmen	0.4	0.1	25	-	-	0.1	25
Transportation and public utility craftsmen	0.5	0.1	20	-	-	0.1	20
Mechanics and repairmen	4.8	2.9	60	1.9	40	1.0	21
Motor vehicle mechanics	1.2	0.5	42	0.3	25	0.2	17
Other mechanics and repairmen	3.6	2.4	67	1.6	44	0.8	22
Other craftsmen and kindred workers	1.7	0.3	18	0.1	6	0.2	12
Operatives and kindred workers	24.3	8.0	33	2.5	10	5.5	23
Selected trans. and utility operators	4.5	2.0	44	1.2	27	0.8	18
Drivers: bus, truck, tractor	3.3	1.6	48	1.0	30	0.6	18
Deliverymen, routemen, cab drivers	1.0	0.4	40	0.2	20	0.2	20
Trans. and utility operators, n.e.c.	0.2	-	-	-	-	-	-
Semiskilled metalworking occupations	2.9	0.5	17	- 0.1	- 3	0.6	21
Assemblers, metalworking, Class B	1.2	0.3	25	-	-	0.3	25
Semiskilled metalworking occups., n.e.c.	1.7	0.2	12	- 0.1	- 6	0.3	18
Semiskilled occupations in textiles and apparel	1.5	0.3	20	- 0.2	- 13	0.5	33
Sewers and stitchers, mfg.	1.2	0.3	25	- 0.1	- 8	0.4	33
Semiskilled occups. in textiles and apparel, n.e.c.	0.3	-	-	- 0.1	- 33	0.1	33
Other operatives and kindred workers	15.4	5.2	34	1.6	10	3.6	23
Laundry and dry cleaning workers	0.8	1.0	125	0.5	63	0.5	63
Other operatives, n.e.c.	14.6	4.2	29	1.1	8	3.1	21

Continued

Table 11-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Service workers	14.8	12.1	82	5.5	37	6.6	45
Private household workers	1.8	1.2	67	0.1	6	1.1	61
Protective service workers	1.4	0.7	50	0.3	21	0.4	29
Waiters, cooks, and bartenders	3.5	2.6	74	1.5	43	1.1	31
Cooks, except private household	1.1	0.8	73	0.4	36	0.4	36
Counter and fountain wkrs., and bartenders	0.9	0.9	100	0.6	67	0.3	33
Waiters and waitresses	1.5	0.9	60	0.5	33	0.4	27
Other service workers	8.1	7.6	94	3.6	44	4.0	49
Attendants, hospital and other institutions	3.2	4.1	128	2.8	88	1.3	41
Janitors and sextons	1.3	0.6	46	- 0.1	- 8	0.7	54
Other service workers, n.e.c.	3.6	2.9	81	0.9	25	2.0	56
Farmers and farm laborers	6.2	- 2.2	- 35	- 3.3	- 53	1.1	18
Laborers, except farm and mine	4.1	0.5	12	- 0.4	- 10	0.9	22

REMAINDER OF STATE

Table 12-A. CIVILIAN NONINSTITUTIONAL POPULATION, 14 AND OVER, AND CIVILIAN LABOR FORCE, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, REMAINDER OF STATE
(in thousands)

Age and sex	Civilian noninstitutional population, 14 and over				Civilian labor force participation rates (a)				Civilian labor force			
	1960	1965	1970	1975	1960	1965	1970	1975	1960	1965	1970	1975
Total, 14 and over	1,599	1,701	1,810	1,958	55.9	53.3	52.7	52.8	894	906	953	1,033.0
Male, total	772	816	871	943	78.5	73.2	72.0	72.2	606	597	627	680.5
14 - 19	103	138	152	170	38.8	35.5	34.9	35.5	40	49	53	60.0
20 - 24	58	72	104	117	81.0	79.2	78.8	79.1	47	57	82	92.5
25 - 34	127	114	121	166	98.1	97.1	97.1	97.1	125	111	117	161.0
35 - 44	138	142	136	121	98.6	97.2	97.4	97.4	136	138	132	118.0
45 - 54	132	131	137	141	97.7	96.8	96.4	96.6	129	127	132	136.0
55 - 64	103	105	109	112	88.3	82.6	82.6	83.2	91	87	90	93.0
65 and over	111	114	112	116	34.2	24.9	18.8	17.6	38	28	21	20.0
Female, total	827	885	939	1,015	34.8	34.9	34.7	34.7	288	309	326	352.5
14 - 19	102	136	148	167	21.8	21.3	21.5	21.9	22	29	32	36.5
20 - 24	66	77	106	113	43.9	46.8	46.6	46.4	29	36	49	52.0
25 - 34	136	123	130	169	33.1	33.9	34.0	34.2	45	42	44	58.0
35 - 44	144	149	143	130	45.8	47.0	47.2	47.6	66	70	67	62.0
45 - 54	133	140	145	151	50.4	50.0	49.7	49.9	67	70	72	75.0
55 - 64	109	112	120	130	38.5	41.1	39.2	40.3	42	46	47	52.0
65 and over	137	148	147	155	12.4	10.8	10.5	10.8	17	16	15	17.0

a. Civilian labor force as percent of civilian noninstitutional population.

Table 12-B. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, ACTUAL 1960 AND 1965 AND PROJECTED 1970 AND 1975, REMAINDER OF STATE
(in thousands)

Industry	1960	1965(a)	1970	1975
Total nonagricultural employment	638.2	671.9	745.5	833.2
Manufacturing	222.4	239.0	248.3	260.0
Durable goods	122.2	140.9	152.1	163.8
Lumber and wood products	5.9	6.1	6.1	6.2
Furniture and fixtures	9.2	8.2	7.3	6.4
Stone, clay and glass products	15.1	15.9	16.9	18.1
Primary metal industries	9.9	10.7	10.7	10.6
Fabricated metal products (b)	12.3	12.6	12.9	13.3
Machinery except electrical	40.2	48.0	53.5	59.1
Electrical equipment and supplies	17.4	32.7	37.9	43.1
Transportation equipment	7.0	4.5	4.5	4.5
Instruments and related products (c)	5.2	2.2	2.3	2.5
Nondurable goods	100.2	98.1	96.2	96.2
Food and kindred products	21.5	21.5	21.5	21.3
Tobacco manufactures	0.1	-	-	-
Textile mill products	15.2	12.3	10.1	9.0
Apparel and other fabric products	17.7	14.4	13.0	12.2
Paper and allied products	13.1	14.1	13.9	14.5
Printing and publishing	9.1	10.0	10.7	10.9
Chemicals and allied products	5.8	7.4	9.1	9.9
Petroleum and coal products	1.3	1.6	1.5	1.5
Rubber and plastics products, n.e.c.	2.3	2.6	2.8	2.9
Leather and leather products	12.0	11.2	9.9	9.8
Miscellaneous manufacturing	2.1	3.0	3.7	4.1
Agriculture (d), forestry and fisheries	1.5	1.6	2.3	2.9
Mining	5.0	4.6	4.6	4.5
Contract construction	25.4	29.1	35.2	43.6
Transportation, communication and public utilities	41.9	34.2	33.0	32.5
Railroads	13.0	5.7	4.5	4.0
Air transportation	-	0.2	0.5	0.6
Local and interurban passenger transportation	2.0	2.2	2.6	2.7
Local and suburban transit	1.3	1.3	1.4	1.4
Taxicabs	0.7	0.9	1.2	1.3
Trucking and warehousing	10.0	10.6	11.2	11.5
Trucking	9.1	9.6	10.1	10.3
Warehousing	0.9	1.0	1.1	1.2

Continued

Table 12-B continued

Industry	1960	1965(a)	1970	1975
Transportation, communication and public utilities (cont'd)				
Water transportation	0.2	-	-	-
Pipelines	0.1	0.1	0.1	0.1
Transportation services	0.5	0.2	0.2	0.2
Communication	9.3	8.4	7.4	7.0
Telephone and telegraph	8.8	7.3	6.0	5.5
Radio and television broadcasting	0.5	1.1	1.4	1.5
Electric, gas and sanitary services	6.8	6.8	6.5	6.4
Wholesale and retail trade	111.3	117.1	131.1	143.8
Wholesale trade	19.6	19.1	20.0	21.1
Motor vehicles and equipment	1.6	1.6	1.6	1.7
Drugs, chemicals and allied products	2.2	2.6	3.0	3.4
Dry goods and apparel	1.1	0.7	0.7	0.7
Groceries and related products	4.1	3.3	3.2	3.0
Electrical goods, hardware, plumbing and heating	1.6	1.4	1.4	1.5
Machinery, equipment and supplies	1.1	1.7	2.2	2.8
Other wholesale	7.9	7.8	7.9	8.0
Retail trade	91.7	98.0	111.1	122.7
Building materials, farm equipment	8.0	7.6	8.0	8.5
Retail general merchandise stores	13.2	15.8	18.3	20.7
Variety stores	3.9	3.9	4.3	4.5
Other general merchandise stores	9.3	11.9	14.0	16.2
Food stores	17.3	17.2	18.3	19.4
Automotive dealers and service stations	15.4	16.9	20.8	24.7
Gasoline service stations	4.5	1.8	2.7	3.6
Other motor vehicle and accessory dealers	10.9	15.1	18.1	21.1
Apparel and accessories	5.0	5.0	5.7	5.5
Furniture, homefurnishings	3.7	3.6	3.8	4.0
Eating and drinking places	17.3	19.6	22.5	24.7
Miscellaneous retail stores	11.8	12.3	13.7	15.2
Drug and proprietary stores	2.3	3.0	3.7	4.4
Other miscellaneous retail stores	9.5	9.3	10.0	10.8
Finance, insurance and real estate	19.4	19.9	22.4	24.7
Banking and credit agencies	8.1	9.0	11.0	12.8
Brokers and investment companies	0.6	0.7	0.9	1.0
Insurance	8.4	6.9	5.9	5.0
Real estate	2.3	3.3	4.6	5.9
Services	88.5	98.6	124.0	157.0
Hotels and lodging places	13.3	18.0	21.7	27.2
Personal services	5.6	6.5	8.2	9.3
Laundries	4.8	4.2	4.2	4.2
Other personal services	0.7	2.3	4.0	5.1

Continued

Table 12-B continued

Industry	1960	1965(a)	1970	1975
Services (cont'd)				
Miscellaneous business services	3.5	4.0	6.5	8.2
Advertising	0.4	0.2	0.2	0.2
Other business services	3.1	3.8	6.3	8.0
Automobile repair services and garages	2.5	2.4	2.9	3.5
Miscellaneous repair services	0.9	0.8	1.1	1.4
Motion pictures and other amusement and recreation services	6.3	5.7	6.2	6.4
Theaters and motion pictures	1.7	1.7	1.9	2.3
Other entertainment and recreation	4.6	4.0	4.3	4.1
Medical and other health services	21.3	28.2	38.8	52.2
Hospitals	15.5	23.2	33.5	46.6
Other medical and health services	5.8	5.0	5.3	5.6
Legal services	1.9	2.3	3.2	4.5
Educational services and museums	13.8	15.3	18.8	23.8
Nonprofit membership organizations	7.0	7.5	8.7	10.3
Welfare and religious groups	3.9	3.9	4.5	5.5
Other nonprofit membership organizations	3.5	3.6	4.2	4.8
Miscellaneous	3.7	4.4	7.9	10.2
Engineering and architectural services	1.2	1.9	2.9	4.2
Accounting, auditing and bookkeeping	0.3	0.7	1.0	1.5
Miscellaneous professional services	2.2	1.8	4.0	4.5
Nonclassifiable	8.7	3.5	-	-
Government	122.9	127.8	144.6	164.2
Federal	18.8	17.8	18.2	18.7
Postal service	8.0	8.4	9.1	10.1
Other federal	10.8	9.4	9.1	8.6
State and local	104.1	110.0	126.4	145.5
State	28.7	37.9	50.8	65.3
Local	75.4	72.1	75.6	80.2

a. Data on 1965 Benchmark.
b. Includes ordnance and accessories, except fire control equipment.
c. Includes fire control equipment.
d. Agricultural services only, excludes farming.
Note: Detail may not add to totals due to rounding

Table 12-C. TOTAL NUMBER OF JOBS (a), BY INDUSTRY, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, REMAINDER OF STATE
(in thousands)

Industry	1960	1965	1970	1975
Total employment	856.4	850.1	901.2	971.7
Manufacturing	227.3	245.3	254.8	266.8
Durable goods	125.7	145.2	156.8	168.6
Lumber and wood products	6.9	7.2	7.2	7.3
Furniture and fixtures	9.3	8.2	7.3	6.4
Stone, clay and glass products	15.6	16.2	17.2	18.3
Primary metal industries	10.1	10.9	10.9	10.8
Fabricated metal products (b)	12.5	13.6	14.1	14.6
Machinery, except electrical	40.7	48.1	53.6	59.2
Electrical equipment and supplies	17.6	32.9	38.1	43.2
Transportation equipment	7.2	4.5	4.5	4.5
Instruments and related products (c)	5.8	3.6	3.9	4.3
Nondurable goods	101.6	100.1	98.0	98.2
Food and kindred products	22.1	22.5	22.2	22.0
Tobacco manufactures	0.1	-	-	-
Textile mill products	15.4	12.5	10.4	9.3
Apparel and other fabric products	17.8	14.5	13.1	12.5
Paper and allied products	13.1	14.2	14.0	14.6
Printing and publishing	9.1	10.3	11.0	11.3
Chemicals and allied products	5.9	7.5	9.2	10.0
Petroleum and coal products	1.3	1.6	1.5	1.5
Rubber and plastics products, n.e.c.	2.3	2.7	2.9	3.0
Leather and leather products	12.2	11.3	10.0	9.9
Miscellaneous manufacturing	2.3	3.0	3.7	4.1
Nonmanufacturing	629.1	604.8	646.4	704.9
Agriculture, forestry and fisheries	113.2	82.9	63.2	59.2
Mining	5.1	4.9	4.9	4.8
Contract construction	51.8	56.9	63.1	69.7
Transportation, communication and public utilities	49.8	41.6	40.4	40.9
Railroads	13.0	5.7	4.5	4.0
Air transportation	0.1	0.3	0.6	1.1
Local and suburban transit	2.2	2.5	2.8	2.9
Taxicabs	0.8	1.4	2.0	2.2
Trucking	11.0	10.9	10.8	10.8
Warehousing	1.4	1.2	1.2	1.3
Water transportation	0.2	-	-	-
Pipelines	0.1	0.1	0.1	0.1
Transportation services	0.6	0.4	0.4	0.3

Continued

Table 12-C (cont'd)

Industry	1960	1965	1970	1975
Transportation, communication and public utilities (cont'd)				
Telephone and telegraph	8.8	7.3	6.0	5.5
Radio and television broadcasting	0.8	1.1	1.4	1.5
Electric, gas and sanitary services	10.8	10.7	10.6	11.2
Wholesale and retail trade	139.9	142.5	157.3	166.4
Wholesale trade	21.0	20.5	21.1	21.9
Motor vehicles and equipment	1.7	1.7	1.7	1.8
Drugs, chemicals and allied products	2.2	2.6	3.0	3.4
Dry goods and apparel	1.2	0.8	0.8	0.8
Groceries and related products	4.7	4.0	3.6	3.2
Electrical goods, hardware, plumbing and heating	1.7	1.4	1.4	1.6
Machinery, equipment and supplies	1.6	2.2	2.7	3.1
Other wholesale	7.9	7.8	7.9	8.0
Retail trade	118.9	122.0	136.2	144.5
Building materials, farm equipment	10.2	9.3	9.4	9.4
Variety stores	4.2	4.1	4.5	4.6
Other general merchandise stores	9.5	12.9	14.9	17.0
Food stores	25.4	28.6	32.7	33.5
Gasoline service stations	6.5	3.1	3.5	4.0
Other motor vehicle and accessory dealers	12.0	16.1	18.8	21.5
Apparel and accessories	5.7	5.3	6.4	6.5
Furniture, homefurnishings	4.7	4.2	4.0	4.2
Eating and drinking places	24.1	23.6	26.1	27.0
Drug and proprietary stores	3.2	3.5	4.0	4.5
Other miscellaneous retail stores	13.4	11.3	11.9	12.3
Finance, insurance and real estate	23.9	27.0	30.2	33.9
Banking and credit agencies	8.2	9.0	11.0	12.8
Brokers and investment companies	2.6	3.1	3.4	3.5
Insurance	8.7	7.9	7.0	6.3
Real estate	4.4	7.0	8.8	11.3
Services	212.3	224.6	260.1	298.2
Hotels and lodging places	18.1	22.5	25.5	30.3
Laundries	5.5	5.0	4.6	4.4
Other personal services	6.9	5.9	6.5	6.2
Advertising	2.3	0.9	0.6	0.3
Other business services	9.5	6.0	7.6	9.3
Automobile repair services and garages	4.9	3.7	3.4	3.9
Miscellaneous repair services	2.0	1.8	2.1	2.6
Theaters and motion pictures	1.9	1.9	2.1	2.4
Other entertainment and recreation	5.7	5.9	5.8	5.2
Hospitals	35.2	40.6	55.0	73.6
Other medical and health services	13.9	14.1	17.9	19.5

Continued

Table 12-C (cont'd)

Industry	1960	1965	1970	1975
Services (cont'd)				
Legal services	2.8	3.4	4.4	5.8
Educational services and museums	61.9	77.7	85.8	96.0
Nonprofit membership organizations (incl. welfare and religious groups)	9.7	9.4	10.6	12.2
Engineering and architectural services	2.0	2.6	3.9	5.7
Accounting, auditing and bookkeeping	1.3	1.2	1.7	2.3
Miscellaneous professional services	5.2	2.9	4.0	4.5
Private household workers	23.5	19.1	18.6	14.0
Public administration	33.1	24.4	27.2	31.8
Postal service	8.0	8.4	8.5	8.5
Other federal	5.1	1.1	1.0	1.0
State	5.7	5.6	9.2	13.3
Local	14.3	9.3	8.5	9.0

For footnote see page 10.

Table 12-D. RECONCILIATION OF CIVILIAN LABOR FORCE AND NUMBER OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, REMAINDER OF STATE
(in thousands)

	1960	1965	1970	1975
I. Noninstitutional civilian population, 14 and over (table 12-A)	1,599	1,701	1,810	1,958
II. Civilian labor force, 14 and over (table 12-A)	894	906	953	1,033
A. Resident employed	846	851	910	982
B. Unemployed	48	55	43	51
1. Rate of unemployment (percent)	5.4	6.1	4.5	4.9
III. Total number of jobs (table 12-C)	856	850	901	971
A. Nonagricultural jobs	747	769	841	916
1. Wage and salary workers (table 12-B)	638	671	745	833
2. Self employed and unpaid family workers, and domestics	109	98	96	83
B. Agricultural jobs	109	81	60	55
IV. Difference between II-A and III	-10	- 1	-9	-11
A. Net number of commuters into area	-14	-25	-36	-40
B. Multiple jobholders, minus persons with a job but not being paid (a)	4	24	27	29

a. Persons with a job but not on the payroll during the week because they were sick, on vacation, or on strike are counted among the resident employed (II-A), but not among the wage and salary workers (III-A.1).

Table 12E. OCCUPATION DISTRIBUTION OF JOBS, ESTIMATED 1960 AND 1965 AND PROJECTED 1970 AND 1975, REMAINDER OF STATE
(in thousands)

Occupation	1960	1965	1970	1975
All occupations	856.4	850.1	901.2	971.7
Professional, technical and kindred workers	106.5	119.8	142.5	165.8
Engineers, technical	8.1	9.6	12.1	14.5
Engineers, aeronautical	-	-	-	-
Engineers, chemical	0.8	0.9	1.1	1.1
Engineers, civil	1.4	1.5	1.8	2.2
Engineers, electrical	2.5	3.3	4.3	5.3
Engineers, industrial	0.6	0.7	0.9	1.2
Engineers, mechanical	2.2	2.5	3.1	3.5
Engineers, metallurgical	0.2	0.2	0.2	0.3
Engineers, mining	-	-	-	-
Other engineers, technical	0.4	0.5	0.7	0.9
Natural scientists	2.3	2.7	3.4	4.2
Chemists	1.1	1.3	1.7	2.1
Agricultural scientists	0.3	0.3	0.3	0.4
Biological scientists	0.3	0.3	0.4	0.5
Geologists and geophysicists	-	-	-	0.1
Mathematicians	0.3	0.4	0.5	0.6
Physicists	0.2	0.3	0.4	0.4
Other natural scientists, n.e.c.	0.1	0.1	0.1	0.1
Technical workers and specialists (exc. medical and dental)	12.5	15.7	21.2	26.7
Draftsmen	1.8	2.2	3.2	4.0
Structural design technicians and related specialists	-	-	0.1	0.1
Electro and mechanical engineering technicians	4.1	5.4	7.1	8.5
Mathematics technicians	-	-	-	0.1
Physical science technicians	1.4	1.9	2.7	3.3
Industrial engineering technicians	1.1	1.3	1.7	2.1
Civil engineering and construction technicians	1.6	2.1	3.2	4.7
Sales and service technicians	0.2	0.2	0.2	0.3
Technical writing and illustration technicians	0.1	0.1	0.1	0.2
Safety and sanitation inspectors and related specialists	0.5	0.6	0.7	0.8
Product testing and inspection specialists	1.1	1.2	1.3	1.4

Continued

Table 12E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Data processing, systems analysis and programming specialists	0.4	0.5	0.6	0.8
Airway tower specialists and flight dispatchers	-	-	0.1	0.1
Broadcasting, motion picture and recording studio specialists	0.1	0.1	0.1	0.1
Radio operators	0.1	0.1	0.1	0.2
Medical and other health workers	22.4	24.6	30.0	36.7
Dentists	1.3	1.3	1.4	1.5
Dietitians and nutritionists	0.5	0.5	0.6	0.7
Nurses, professional and student	12.2	13.5	16.7	20.9
Optometrists	0.2	0.2	0.2	0.2
Osteopaths	0.1	0.1	0.1	0.1
Pharmacists	1.2	1.4	1.5	1.7
Physicians and surgeons	3.0	3.0	3.8	4.1
Psychologists	0.2	0.2	0.2	0.3
Technicians, medical and dental	2.3	2.8	3.7	5.2
Veterinarians	0.5	0.5	0.5	0.5
Chiropractors and therapists	0.9	1.1	1.3	1.5
Teachers	33.4	37.6	41.5	44.6
Teachers, elementary	16.5	17.8	18.6	18.6
Teachers, secondary	9.7	11.3	13.1	14.1
Teachers, college	3.6	4.5	5.2	6.4
Teachers, other	3.6	4.0	4.6	5.5
Social scientists	0.4	0.4	0.5	0.7
Economists	0.2	0.2	0.2	0.3
Statisticians and actuaries	0.1	0.1	0.2	0.3
Other social scientists	0.1	0.1	0.1	0.1
Other professional, technical and kindred workers	27.4	29.2	33.8	38.4
Accountants and auditors	4.3	4.5	4.7	5.2
Airplane pilots and navigators	0.2	0.3	0.7	1.0
Architects	0.2	0.2	0.3	0.4
Artists, musicians, authors, athletes, and entertainers	4.7	4.7	4.8	4.9
Clergymen	3.6	3.7	3.8	3.9
Designers, except design draftsmen	0.4	0.4	0.5	0.6
Reporters and editors	1.1	1.2	1.3	1.4
Lawyers and judges	2.6	2.8	3.4	4.2
Librarians	1.6	1.7	1.9	2.0
Personnel and labor relations wkrs.	0.9	1.0	1.1	1.3

Continued

Table 12E (cont'd)

Occupation	1960	1965	1970	1975
Professional, technical and kindred wkrs. (cont'd)				
Photographers	0.2	0.2	0.2	0.3
Social, welfare and recreation wkrs.	1.7	1.7	2.0	2.5
Prof. and tech. workers, n.e.c.	5.9	6.8	9.1	10.7
Managers, officials and proprietors	74.4	74.5	77.7	83.2
Conductors, railroad	0.8	0.4	0.4	0.4
Credit men	-	-	-	-
Ship officers	0.2	0.1	0.1	0.1
Postmasters and assistants	1.0	0.9	0.8	0.7
Purchasing agents	1.0	1.2	1.4	1.7
Managers, officials, proprietors, n.e.c.	71.4	71.9	75.0	80.3
Clerical and kindred workers	108.2	112.5	123.3	136.8
Stenos, typists and secretaries	26.3	27.9	30.8	33.4
Office machine operators	2.2	2.9	3.8	5.0
Other clerical and kindred workers	79.7	81.7	88.7	98.4
Accounting clerks	4.0	4.2	4.4	4.8
Bookkeepers, hand	10.3	10.1	10.5	10.9
Bank tellers	1.5	1.9	2.4	3.0
Cashiers	6.9	8.0	9.7	11.7
Mail carriers	2.6	2.8	2.9	3.3
Postal clerks	2.7	2.8	2.8	2.8
Shipping and receiving clerks	3.0	3.0	3.0	2.9
Telephone operators	5.1	4.6	4.6	4.5
Clerical and kindred workers, n.e.c.	43.6	44.3	48.4	54.5
Sales workers	49.5	50.6	54.4	57.6
Insurance agents and brokers	4.4	4.0	3.8	3.7
Real estate agents and brokers	1.4	1.9	2.7	3.5
Other sales workers, n.e.c.	43.7	44.7	47.9	50.4
Craftsmen, foremen and kindred workers	113.5	118.2	129.8	141.3
Construction craftsmen	32.2	32.7	33.9	35.6
Carpenters	12.0	11.8	11.7	11.5
Brickmasons, stone and tile setters	2.3	2.4	2.5	2.6
Cement and concrete finishers	0.5	0.6	0.7	0.7
Electricians	4.1	4.3	4.6	4.9
Excavating, grading machine oprs.	2.8	2.9	3.3	3.9
Painters and paperhangers	4.9	4.8	4.8	5.0
Plasterers	0.6	0.6	0.7	0.7
Plumbers and pipefitters	4.0	4.2	4.4	4.8
Roofers and slaters	0.4	0.4	0.5	0.5
Structural metalworkers	0.6	0.7	0.7	1.0

Continued

Table 12E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Foremen, n.e.c.	14.6	15.6	17.7	19.8
Metalworking craftsmen	17.6	18.9	20.9	22.0
Skilled machining workers (inc. machinists)	9.6	10.4	11.6	12.0
Blacksmiths, forgemen, hammermen	0.4	0.3	0.3	0.3
Boilermakers	0.2	0.1	0.1	0.1
Heat treaters, annealers, tempers	0.4	0.4	0.4	0.4
Millwrights	0.7	0.8	0.9	1.0
Molders, metal (exc. coremakers)	0.9	0.9	1.0	1.0
Patternmakers, metal and wood	0.6	0.7	0.7	0.8
Rollers and roll hands	0.4	0.4	0.4	0.4
Sheet metal workers	0.9	1.1	1.1	1.2
Toolmakers, diemakers, setters	2.0	2.1	2.3	2.5
Electroplaters	0.1	0.1	0.1	0.1
Assemblers, metalwork, Class A	1.4	1.6	2.0	2.2
Printing trades craftsmen	3.2	3.0	3.0	2.8
Compositors and typesetters	1.9	1.7	1.5	1.3
Electrotypers and stereotypers	0.1	0.1	0.1	-
Engravers, except photoengravers	0.1	0.1	0.1	0.1
Photoengravers and lithographers	0.2	0.2	0.3	0.4
Pressmen and plate printers	0.9	0.9	1.0	1.0
Transportation and public utility craftsmen	4.5	3.8	3.4	3.3
Linemen and servicemen	3.3	3.3	3.1	3.1
Locomotive engineers	0.6	0.3	0.2	0.2
Locomotive firemen	0.6	0.2	0.1	-
Mechanics and repairmen	27.0	29.3	34.5	39.9
Airplane mechanics and repairmen	0.2	0.2	0.3	0.3
Motor vehicle mechanics	8.8	9.0	10.6	11.6
Office machine mechanics	0.8	0.8	0.9	1.1
Radio and TV mechanics	0.9	1.0	1.2	1.2
Railroad and car shop mechanics	0.7	0.5	0.5	0.5
Other mechanics and repairmen	15.6	17.8	21.0	25.2
Other craftsmen and kindred workers	14.4	14.9	16.4	17.9
Bakers	0.9	0.9	0.9	0.9
Cabinetmakers	0.9	0.8	0.8	0.8
Cranemen, derrickmen, and hoistmen	1.3	1.4	1.7	1.9
Glaziers	0.2	0.2	0.2	0.3
Jewelers and watchmakers	0.3	0.3	0.4	0.5
Millers	0.2	0.1	0.1	0.1
Opticians and lens grinders	0.3	0.4	0.4	0.4
Stationary engineers	3.5	3.6	3.8	3.8

Continued

Table 12E (cont'd)

Occupation	1960	1965	1970	1975
Craftsmen, foremen and kindred workers (cont'd)				
Inspectors, other than metalworking	1.3	1.3	1.4	1.6
Upholsterers	0.7	0.7	0.8	0.9
Craftsmen and kindred wkrs., n.e.c.	4.8	5.2	5.9	6.7
Operatives and kindred workers	153.4	153.4	158.5	163.9
Selected transp. and utility oprs.	31.4	31.6	33.1	35.1
Drivers: bus, truck, tractor	22.8	23.0	24.1	25.8
Deliverymen, routemen, cab drivers	6.1	6.7	7.4	8.0
Brakemen and switchmen, railroad	2.0	1.5	1.2	0.9
Power station operators	0.4	0.4	0.4	0.4
Sailors and deck hands	0.1	-	-	-
Asbestos and insulation workers	0.1	0.1	0.1	0.1
Semiskilled metalworking occupations	15.6	17.0	19.0	20.3
Furnacemen, smelters, pourers, and heaters	0.6	0.6	0.6	0.6
Welders and flame cutters	3.4	3.6	4.2	4.7
Electroplater helpers	0.2	0.2	0.2	0.2
Mach. tool opr., metalworking, Class B	3.5	3.5	3.5	3.3
Assemblers, metalworking, Class B	5.8	6.7	7.8	8.7
Inspectors, metalworking, Class B	2.1	2.4	2.7	2.8
Semiskilled occupations in textiles and apparel	12.2	9.8	8.6	7.8
Knitters, loopers and toppers	0.7	0.6	0.5	0.4
Weavers and spinners, textile	1.0	0.6	0.5	0.3
Sewers and stitchers, manufacturing	10.5	8.6	7.6	7.1
Other operatives and kindred workers	94.1	94.9	97.7	100.6
Attendants, auto service and parking	3.8	3.8	3.8	3.9
Laundry and dry cleaning workers	3.0	3.0	3.1	3.2
Meat cutters, except meat-packing	2.5	2.6	3.2	3.5
Mine operatives and laborers, n.e.c.	1.3	1.2	1.0	0.9
Other operatives, n.e.c.	83.5	84.3	86.6	89.1
Service workers	105.5	107.5	121.7	134.0
Private household workers	23.9	19.1	16.7	13.8
Protective service workers	9.0	9.1	9.2	9.6
Firemen, fire protection	1.1	1.0	0.9	0.9
Guards and watchmen	4.1	4.1	4.1	4.2
Policemen, marshalls, sheriffs	3.8	4.0	4.2	4.5

Continued

Table 12E (cont'd)

Occupation	1960	1965	1970	1975
Service workers (cont'd)				
Waiters, cooks and bartenders	24.7	27.6	31.8	35.5
Bartenders	2.8	3.0	3.1	3.1
Cooks, except private household	8.3	9.2	10.7	11.9
Counter and fountain workers	2.5	3.3	4.4	5.6
Waiters and waitresses	11.1	12.1	13.6	14.9
Other service workers	47.9	51.7	64.0	75.1
Airline stewards and stewardesses	-	-	-	-
Attendants, hospital and other inst.	12.0	14.4	21.3	27.9
Charwomen and cleaners	2.8	2.8	3.1	3.5
Janitors and sextons	8.4	8.6	8.8	8.9
Nurses, practical	3.4	3.8	5.4	7.1
Other service workers, n.e.c.	21.3	22.1	25.4	27.7
Farmers and farm laborers	104.7	75.7	56.3	54.5
Laborers, except farm and mine	40.7	37.9	37.0	34.6

Table 12-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, REMAINDER OF STATE

1. ESTIMATED 1960

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing(b)	Transportation(c)	Trade	Finance (d)	Services	Public administration
All occupations	856.4	113.2	51.8	232.4	49.8	139.9	23.9	212.3	33.1
Professional, technical, and kindred wkrs.	106.5	2.3	3.2	22.2	2.1	2.2	1.0	70.0	3.5
Engineers, technical	8.1	0.1	1.1	5.9	0.2	0.4	-	0.2	0.2
Natural scientists	2.3	0.3	0.1	1.5	-	0.1	-	0.3	-
Technicians, exc. medical and dental	12.5	0.1	0.9	8.5	0.7	0.6	0.1	0.8	0.8
Medical and other health workers	22.4	0.6	-	0.7	-	0.9	-	20.1	0.1
Teachers	33.4	-	-	0.1	-	-	-	33.2	0.1
Social scientists	0.4	-	-	0.3	-	-	-	-	0.1
Other prof., tech., and kindred wkrs.	27.4	1.2	1.1	5.2	1.2	0.2	0.9	15.4	2.2
Managers, officials and proprietors	74.4	0.5	4.2	10.3	3.8	29.9	4.8	17.3	3.6
Clerical and kindred workers	108.2	1.4	2.3	25.2	12.1	21.3	10.5	22.6	12.8
Stenos, typists and secretaries	26.3	0.6	0.7	5.1	1.4	5.6	7.4	4.5	1.0
Office machine operators	2.2	-	-	1.0	0.1	0.5	0.3	0.1	0.2
Other clerical and kindred workers	79.7	0.8	1.6	19.1	10.6	15.2	2.8	18.0	11.6
Sales workers	49.5	0.5	0.4	5.6	0.4	35.7	6.0	0.8	0.1
Craftsmen, foremen and kindred workers	113.5	0.9	27.7	47.5	12.3	9.8	0.3	12.9	2.1
Construction craftsmen	32.2	0.3	23.0	5.1	1.2	0.6	0.2	1.6	0.2
Foremen, n.e.c.	14.6	0.2	1.3	10.5	0.5	0.6	-	1.1	0.4
Metalworking craftsmen, exc. mechanics	17.6	-	0.4	16.5	0.4	-	-	0.2	0.1
Printing trades craftsmen	3.2	-	-	3.2	-	-	-	-	-
Transp. and public utility craftsmen	4.5	-	0.1	0.1	4.3	-	-	-	-
Mechanics and repairmen	27.0	0.3	2.0	4.9	3.9	6.5	0.1	8.0	1.3
Other craftsmen and kindred workers	14.4	0.1	0.9	7.2	2.0	2.1	-	2.0	0.1
Operatives and kindred workers	153.4	1.9	6.3	101.6	16.0	21.5	0.3	4.6	1.2
Selected transp. and pub. util. oprs.	31.4	0.4	4.9	4.3	13.4	7.1	-	0.6	0.7
Semiskilled metal-working occup.	15.6	-	0.2	15.1	0.1	0.1	-	-	0.1
Semiskilled textiles occupations (e)	12.2	-	-	12.2	-	-	-	-	-
Other operatives and kindred workers	94.2	1.5	1.2	70.0	2.5	14.3	0.3	4,0	0.4
Service workers	105.5	0.6	0.4	3.0	0.4	13.9	0.6	77.5	9.1
Private household workers	23.9	-	-	-	-	-	-	23.9	-
Protective service workers	9.0	0.2	0.1	1.0	0.1	-	0.2	0.4	7.0
Waiters, cooks and bartenders	24.7	0.2	-	0.3	0.1	9.7	0.1	14.1	0.2
Other service workers	47.9	0.2	0.3	1.7	0.2	4.2	0.3	39.1	1.9
Laborers, except farm and mine	40.7	0.4	7.3	17.0	2.7	5.6	0.4	6.6	0.7
Farmers and farm laborers	104.7	104.7	-	-	-	-	-	-	-

For footnote see page 18.

Table 12-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, REMAINDER OF STATE

2. ESTIMATED 1965

(in thousands)

Occupation	All industries	Agriculture (a)	Construction	Manufacturing (b)	Transportation (c)	Trade	Finance (d)	Services	Public administration
All occupations	850.1	82.9	56.9	250.2	41.6	142.5	27.0	224.6	24.4
Professional, technical, and kindred workers	119.8	2.2	3.5	27.5	2.3	2.5	1.1	78.3	2.4
Engineers, technical	9.6	0.1	1.2	7.4	0.2	0.4	-	0.2	0.1
Natural scientists	2.7	0.3	0.1	1.9	-	0.1	-	0.3	-
Technicians, exc. medical and dental	15.7	0.1	1.0	10.7	0.8	0.8	0.1	1.5	0.7
Medical and other health workers	24.6	0.6	-	0.8	-	1.0	-	22.1	0.1
Teachers	37.6	-	-	0.1	-	-	-	37.5	-
Social scientists	0.4	-	-	0.3	-	-	-	-	0.1
Other prof., tech., and kindred workers	29.2	1.1	1.2	6.3	1.3	0.2	1.0	16.7	1.4
Managers, officials, and proprietors	74.5	0.3	4.8	12.1	3.0	28.9	5.7	17.3	2.4
Clerical and kindred workers	112.5	1.0	2.9	30.0	8.9	22.9	11.6	25.8	9.4
Stenos, typists, and secretaries	27.9	0.4	0.8	6.3	1.1	5.4	7.9	5.3	0.7
Office machine operators	2.9	-	-	1.6	0.1	0.6	0.3	0.2	0.1
Other clerical and kindred workers	81.7	0.6	2.1	22.1	7.7	16.9	3.4	20.3	8.6
Sales workers	50.6	0.6	0.5	6.2	0.3	36.0	6.4	0.5	0.1
Craftsmen, foremen, and kindred workers	118.2	0.9	29.7	51.9	10.2	10.9	0.5	13.0	1.1
Construction craftsmen	32.7	0.3	23.4	5.3	1.0	0.6	0.4	1.6	0.1
Foremen, n.e.c.	15.6	0.2	1.8	11.5	0.3	0.6	-	1.0	0.2
Metalworking craftsmen, exc. mechanics	18.9	-	0.5	17.7	0.3	-	-	0.4	-
Printing trades craftsmen	3.0	-	-	3.0	-	-	-	-	-
Transp. and public utility craftsmen	3.8	-	0.1	0.2	3.5	-	-	-	-
Mechanics and repairmen	29.3	0.3	2.7	6.1	3.4	7.7	0.1	8.2	0.8
Other craftsmen and kindred workers	14.9	0.1	1.2	8.1	1.7	2.0	-	1.8	-
Operatives and kindred workers	153.4	1.6	7.5	103.5	14.5	21.0	0.3	4.2	0.8
Selected transp. and pub. util. oprs.	31.6	0.3	5.7	4.7	12.4	7.4	-	0.6	0.5
Semiskilled metalworking occupations	17.0	-	0.2	16.5	0.1	0.1	-	-	0.1
Semiskilled textiles occupations	9.8	-	-	9.8	-	-	-	-	-
Other operatives and kindred workers	95.0	1.3	1.6	72.5	2.0	13.5	0.3	3.6	0.2
Service workers	107.5	0.5	0.4	3.1	0.3	14.7	0.8	79.9	7.8
Private household workers	19.1	-	-	-	-	-	-	19.1	-
Protective service workers	9.1	0.1	0.1	1.2	0.1	-	0.2	0.7	6.7
Waiters, cooks, and bartenders	27.6	0.2	-	0.3	-	10.2	0.1	16.7	0.1
Other service workers	51.7	0.2	0.3	1.6	0.2	4.5	0.5	43.4	1.0
Laborers, except farm and mine	37.9	0.1	7.6	15.9	2.1	5.6	0.6	5.6	0.4
Farmers and farm laborers	75.7	75.7	-	-	-	-	-	-	-

For footnote see page 18.

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Table 12-F. OCCUPATION DISTRIBUTION OF JOBS, BY INDUSTRY DIVISION, REMAINDER OF STATE

3. PROJECTED 1975

(in thousands)

Occupation	All industries	Agri-culture (a)	Con-struc-tion	Manu-factur-ing(b)	Trans-porta-tion(c)	Trade	Finance (d)	Services	Public admini-stration
All occupations	971.7	59.2	69.7	271.6	40.9	166.4	33.9	298.2	31.8
Professional, technical, and kindred workers	165.8	1.8	5.7	38.2	3.8	3.6	1.6	105.8	5.3
Engineers, technical	14.5	0.1	1.7	11.4	0.2	0.6	-	0.4	0.1
Natural scientists	4.2	0.3	0.1	2.9	-	0.2	-	0.7	-
Technicians, exc. medical and dental	26.7	0.1	2.1	14.2	1.8	1.3	0.1	4.4	2.7
Medical and other health workers	36.7	0.5	-	0.9	-	1.1	-	34.1	0.1
Teachers	44.6	-	-	0.1	-	-	-	44.4	0.1
Social scientists	0.7	-	-	0.5	-	-	0.1	-	0.1
Other prof., tech., and kindred workers	38.4	0.8	1.8	8.2	1.8	0.4	1.4	21.8	2.2
Managers, officials, and proprietors	83.2	0.2	6.2	12.5	2.7	29.3	7.7	21.9	2.7
Clerical and kindred workers	136.8	0.6	3.7	33.1	7.8	27.6	14.1	39.2	10.7
Stenos, typists, and secretaries	33.4	0.3	1.2	7.8	1.1	5.6	8.6	7.8	1.0
Office machine operators	5.0	-	-	2.8	0.1	0.9	0.4	0.4	0.4
Other clerical and kindred workers	98.4	0.3	2.5	22.5	6.6	21.1	5.1	31.0	9.3
Sales workers	57.6	0.4	0.5	6.4	0.4	41.7	7.5	0.6	0.1
Craftsmen, foremen, and kindred workers	141.3	0.5	34.8	60.1	9.8	15.3	0.7	17.9	2.2
Construction craftsmen	35.6	0.2	25.4	5.6	0.8	0.9	0.5	2.0	0.2
Foremen, n.e.c.	19.8	0.1	2.3	14.1	0.4	0.8	-	1.7	0.4
Metalworking craftsmen, exc. mechanics	22.0	-	0.6	20.8	0.2	-	-	0.3	0.1
Printing trades craftsmen	2.8	-	-	2.8	-	-	-	-	-
Transp. and public utility craftsmen	3.3	-	0.2	0.3	2.8	-	-	-	-
Mechanics and repairmen	39.9	0.2	4.3	7.9	3.8	10.8	0.2	11.3	1.4
Other craftsmen and kindred workers	17.9	-	2.0	8.6	1.8	2.8	-	2.6	0.1
Operatives and kindred workers	163.9	0.9	10.5	106.0	14.9	25.8	0.3	4.6	0.9
Selected transp. and pub. util. oprs.	35.1	0.2	8.0	5.0	13.3	7.4	-	0.6	0.6
Semiskilled metalworking occupations	20.3	-	0.3	19.7	0.1	0.1	-	-	0.1
Semiskilled textiles occupations	7.8	-	-	7.8	-	-	-	-	-
Other operatives and kindred workers	100.7	0.7	2.2	73.5	1.5	18.3	0.3	4.0	0.2
Service workers	134.0	0.2	0.6	3.0	0.3	17.0	1.2	102.1	9.6
Private household workers	13.8	-	-	-	-	-	-	13.8	-
Protective service workers	9.6	0.1	0.1	0.8	0.1	-	0.2	0.7	7.6
Waiters, cooks, and bartenders	35.5	0.1	0.1	0.5	0.1	12.3	0.1	22.0	0.3
Other service workers	75.1	-	0.4	1.7	0.1	4.7	0.9	65.6	1.7
Laborers, except farm and mine	34.6	0.1	7.7	12.3	1.2	6.1	0.8	6.1	0.3
Farmers and farm laborers	54.5	54.5	-	-	-	-	-	-	-

For footnote see page 18.

Table 12-G. OCCUPATION DISTRIBUTION OF JOBS TO BE FILLED IN REMAINDER OF STATE, 1965-1975

(in thousands)

Occupation	1965	Jobs to be filled 1965-1975					
		Total		Jobs resulting from:			
				Industrial change		Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
All occupations	850.1	367.8	43	121.6	14	246.2	29
Professional, technical, and kindred workers	119.8	80.3	67	46.0	38	34.3	29
Engineers, technical	9.6	6.5	68	4.9	51	1.6	17
Engineers, aeronautical	-	-	-	-	-	-	-
Engineers, chemical	0.9	0.3	33	0.2	22	0.1	11
Engineers, civil	1.5	1.1	73	0.7	47	0.4	27
Engineers, electrical	3.3	2.4	73	2.0	61	0.4	12
Engineers, industrial	0.7	0.6	86	0.5	71	0.1	14
Engineers, mechanical	2.5	1.5	60	1.0	40	0.5	20
Engineers, metallurgical	0.2	0.1	50	0.1	50	-	-
Engineers, mining	-	-	-	-	-	-	-
Other engineers, technical	0.5	0.5	100	0.4	80	0.1	20
Natural scientists	2.7	1.9	70	1.5	56	0.4	15
Chemists	1.3	1.0	77	0.8	62	0.2	15
Agricultural scientists	0.3	0.2	67	0.1	33	0.1	33
Biological scientists	0.3	0.3	100	0.2	67	0.1	33
Geologists and geophysicists	-	0.1	(a)	0.1	(a)	-	-
Mathematicians	0.4	0.2	50	0.2	50	-	-
Physicists	0.3	0.1	33	0.1	33	-	-
Other natural scientists, n.e.c.	0.1	-	-	-	-	-	-
Technical workers (exc. medical and dental)	15.7	12.6	80	11.0	70	1.6	10
Draftsmen	2.2	2.0	91	1.8	82	0.2	9
Structural design technicians and related specialists	-	0.1	(a)	0.1	(a)	-	-
Electro and mechanical engineering techs.	5.4	3.5	65	3.1	57	0.4	7
Mathematics technicians	-	0.1	(a)	0.1	(a)	-	-
Physical science technicians	1.9	1.6	84	1.4	74	0.2	11
Industrial engineering technicians	1.3	0.9	69	0.8	62	0.1	8
Civil engineering and construction techs.	2.1	2.9	138	2.6	124	0.3	14

Continued

Table 12-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Professional, technical, and kindred workers (cont'd)							
Sales and service technicians	0.2	0.1	50	0.1	50	-	-
Technical writing and illustration techs.	0.1	0.2	200	0.1	100	0.1	100
Safety and sanitation inspectors and related specialists	0.6	0.3	50	0.2	33	0.1	17
Product testing and inspection spec.	1.2	0.3	25	0.2	17	0.1	8
Data processing, systems analysis and programming specialists	0.5	0.4	80	0.3	60	0.1	20
Airway tower spec. and flight dispatchers	-	0.1	(a)	0.1	(a)	-	-
Broadcasting, motion picture and recording studio specialists	0.1	-	-	-	-	-	-
Radio operators	0.1	0.1	100	0.1	100	-	-
Medical and other health workers	24.6	21.3	87	12.1	49	9.2	37
Dentists	1.3	0.6	46	0.2	15	0.4	31
Dietitians and nutritionists	0.5	0.4	80	0.2	40	0.2	40
Nurses, professional and student	13.5	13.1	97	7.4	55	5.7	42
Optometrists	0.2	0.1	50	-	-	0.1	50
Osteopaths	0.1	-	-	-	-	-	-
Pharmacists	1.4	0.8	57	0.3	21	0.5	36
Physicians and surgeons	3.0	2.3	77	1.1	37	1.2	40
Psychologists	0.2	0.1	50	0.1	50	-	-
Technicians, medical and dental	2.8	3.0	107	2.4	86	0.6	21
Veterinarians	0.5	0.1	20	-	-	0.1	20
Chiropractors and therapists	1.1	0.8	73	0.4	36	0.4	36
Teachers	37.6	20.0	53	7.0	19	13.0	35
Teachers, elementary	17.8	8.1	46	0.9	5	7.2	40
Teachers, secondary	11.3	6.2	55	2.8	25	3.4	30
Teachers, college	4.5	3.0	67	1.9	42	1.1	24
Teachers, other	4.0	2.7	68	1.4	35	1.3	33
Social scientists	0.4	0.4	100	0.3	75	0.1	25
Economists	0.2	0.2	100	0.1	50	0.1	50
Statisticians and actuaries	0.1	0.2	200	0.2	200	-	-
Other social scientists	0.1	-	-	-	-	-	-

Continued

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Table 12-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Professional, technical, and kindred workers (cont'd)							
Other prof., tech., and kindred workers	29.2	17.6	60	9.2	32	8.4	29
Accountants and auditors	4.5	1.9	42	0.7	16	1.2	27
Airplane pilots and navigators	0.3	0.8	267	0.7	233	0.1	33
Architects	0.2	0.3	150	0.2	100	0.1	50
Artists, musicians, authors, athletes, and entertainers	4.7	1.6	34	0.2	4	1.4	30
Clergymen	3.7	1.2	32	0.2	5	1.0	27
Designers, except design draftsmen	0.4	0.3	75	0.2	50	0.1	25
Reporters and editors	1.2	0.5	42	0.2	17	0.3	25
Lawyers and judges	2.8	2.4	86	1.4	50	1.0	36
Librarians	1.7	1.1	65	0.3	18	0.8	47
Personnel and labor relations workers	1.0	0.5	50	0.3	30	0.2	20
Photographers	0.2	0.1	50	0.1	50	-	-
Social, welfare and recreation workers	1.7	1.5	88	0.8	47	0.7	41
Prof. and tech. workers, n.e.c.	6.8	5.4	79	3.9	57	1.5	22
Managers, officials, and proprietors	74.5	33.6	45	8.7	12	24.9	33
Conductors, railroad	0.4	0.2	50	-	-	0.2	50
Credit men	-	-	-	-	-	-	-
Ship officers	0.1	-	-	-	-	-	-
Postmasters and assistants	0.9	0.2	22	- 0.2	-22	0.4	44
Purchasing agents	1.2	0.8	67	0.5	42	0.3	25
Managers, officials, proprietors, n.e.c.	71.9	32.4	45	8.4	12	24.0	33
Clerical and kindred workers	112.5	58.9	52	24.3	22	34.6	31
Stenos, typists, and secretaries	27.9	14.7	53	5.5	20	9.2	33
Office machine operators	2.9	2.8	97	2.1	72	0.7	24
Other clerical and kindred workers	81.7	41.4	51	16.7	20	24.7	30
Accounting clerks	4.2	2.0	48	0.6	14	1.4	33
Bookkeepers, hand	10.1	4.2	42	0.8	8	3.4	34
Bank tellers	1.9	1.5	79	1.1	58	0.4	21

Continued

Table 12-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total		Jobs resulting from: Industrial change		Jobs resulting from: Deaths and retirements	
		Number	Percent of 1965	Number	Percent of 1965	Number	Percent of 1965
Clerical workers (cont'd)							
Cashiers	8.0	6.2	78	3.7	46	2.5	31
Mail carriers	2.8	1.1	39	0.5	18	0.6	21
Postal clerks	2.8	0.4	14	-	-	0.4	14
Shipping and receiving clerks	3.0	0.3	10	- 0.1	- 3	0.4	13
Telephone operators	4.6	1.4	30	- 0.1	- 2	1.5	33
Clerical and kindred workers, n.e.c.	44.3	24.3	55	10.2	23	14.1	32
Sales workers	50.6	22.5	44	7.0	14	15.5	31
Insurance agents and brokers	4.0	0.4	10	- 0.3	- 8	0.7	17
Real estate agents and brokers	1.9	3.1	163	1.6	84	1.5	79
Other sales workers, n.e.c.	44.7	19.0	43	5.7	13	13.3	30
Craftsmen, foremen, and kindred workers	118.2	51.5	44	23.1	20	28.4	24
Construction craftsmen	32.7	11.1	34	2.9	9	8.2	25
Carpenters	11.8	2.7	23	- 0.3	- 3	3.0	25
Brickmasons, stone and tile setters	2.4	0.7	29	0.2	8	0.5	21
Cement and concrete finishers	0.6	0.3	50	0.1	17	0.2	33
Electricians	4.3	1.3	30	0.6	14	0.7	16
Excavating, grading machine oprs.	2.9	1.5	52	1.0	34	0.5	17
Painters and paperhangers	4.8	2.0	42	0.2	4	1.8	38
Plasterers	0.6	0.3	50	0.1	17	0.2	33
Plumbers and pipefitters	4.2	1.7	40	0.6	14	1.1	26
Roofers and slaters	0.4	0.2	50	0.1	25	0.1	25
Structural metalworkers	0.7	0.4	57	0.3	43	0.1	14
Foremen, n.e.c.	15.6	8.3	53	4.2	27	4.1	26
Metalworking craftsmen	18.9	8.2	43	3.1	16	5.1	27
Skilled machining workers (inc. machinists)	10.4	4.6	44	1.6	15	3.0	29
Blacksmiths, forgemen, hammermen	0.3	0.2	67	-	-	0.2	67
Boilermakers	0.1	-	-	-	-	-	-
Heat treaters, annealers, tempers	0.4	0.1	25	-	-	0.1	25

Continued

Table 12-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Craftsmen, foremen, and kindred workers (cont'd)							
Millwrights	0.8	0.4	50	0.2	25	0.2	25
Molders, metal (exc. coremakers)	0.9	0.3	33	0.1	11	0.2	22
Patternmakers, metal and wood	0.7	0.3	43	0.1	14	0.2	29
Rollers and roll hands	0.4	0.1	25	-	-	0.1	25
Sheet metal workers	1.1	0.5	45	0.1	9	0.4	36
Tollmakers, diemakers, setters	2.1	0.7	33	0.4	19	0.3	14
Electroplaters	0.1	-	-	-	-	-	-
Assemblers, metalwork, Class A	1.6	1.0	63	0.6	38	0.4	25
Printing trades craftsmen	3.0	0.3	10	- 0.2	- 7	0.5	17
Compositors and typesetters	1.7	- 0.2	- 12	- 0.4	- 24	0.2	12
Electrotypers and stereotypers	0.1	- 0.1	-100	- 0.1	-100	-	-
Engravers, except photoengravers	0.1	-	-	-	-	-	-
Photoengravers and lithographers	0.2	0.3	150	0.2	100	0.1	50
Pressmen and plate printers	0.9	0.3	33	0.1	11	0.2	22
Transportation and public utility craftsmen	3.8	- 0.2	- 5	- 0.5	- 13	0.3	8
Linemen and servicemen	3.3	-	-	- 0.2	- 6	0.2	6
Locomotive engineers	0.3	-	-	- 0.1	- 33	0.1	33
Locomotive firemen	0.2	- 0.2	-100	- 0.2	-100	-	-
Mechanics and repairmen	29.3	17.5	60	10.6	36	6.9	24
Airplane mechanics and repairmen	0.2	0.1	50	0.1	50	-	-
Motor vehicle mechanics	9.0	4.0	44	2.6	29	1.4	16
Office machine mechanics	0.8	0.4	50	0.3	38	0.1	13
Radio and TV mechanics	1.0	0.3	30	0.2	20	0.1	10
Railroad and car shop mechanics	0.5	0.1	20	-	-	0.1	20
Other mechanics and repairmen	17.8	12.6	71	7.4	42	5.2	29
Other craftsmen and kindred workers	14.9	6.3	42	3.0	20	3.3	22
Bakers	0.9	0.2	22	-	-	0.2	22
Cabinetmakers	0.8	0.2	25	-	-	0.2	25
Cranemen, derrickmen and hoistmen	1.4	0.9	64	0.5	36	0.4	29
Glaziers	0.2	0.1	50	0.1	50	-	-
Jewelers and watchmakers	0.3	0.3	100	0.2	67	0.1	33
Millers	0.1	-	-	-	-	-	-
Opticians and lens grinders	0.4	0.1	25	-	-	0.1	25
Stationary engineers	3.6	0.9	25	0.2	6	0.7	19

Continued

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Table 12-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Craftsmen, foremen, and kindred workers (cont'd)							
Inspectors, other than metalworking	1.3	0.5	38	0.3	23	0.2	15
Upholsterers	0.7	0.4	57	0.2	29	0.2	29
Craftsmen and kindred workers, n.e.c.	5.2	2.7	52	1.5	29	1.2	23
Operatives and kindred workers	153.4	47.3	31	10.5	7	36.8	24
Selected trans. and utility oprs.	31.6	8.6	27	3.5	11	5.1	16
Drivers: bus, truck, tractor	23.0	6.4	28	2.8	12	3.6	16
Deliverymen, routemen, cab drivers	6.7	2.5	37	1.3	19	1.2	18
Brakemen and switchmen, railroad	1.5	- 0.4	- 27	- 0.6	- 40	0.2	13
Power station operators	0.4	0.1	25	-	-	0.1	25
Sailors and deck hands	-	-	-	-	-	-	-
Asbestos and insulation workers	0.1	-	-	-	-	-	-
Semiskilled metalworking occupations	17.0	7.2	42	3.3	19	3.9	23
Furnacemen, smelters, pourers, and heaters	0.6	0.1	17	-	-	0.1	17
Welders and flame cutters	3.6	1.5	42	1.1	31	0.4	11
Electroplater helpers	0.2	-	-	-	-	-	-
Mach. tool opr. metalworking, Class B	3.5	0.6	17	- 0.2	- 6	0.8	23
Assemblers, metalworking, Class B	6.7	3.9	58	2.0	30	1.9	28
Inspectors, metalworking, Class B	2.4	1.1	46	0.4	17	0.7	29
Semiskilled occupations in textiles and apparel	9.8	1.1	11	- 2.0	- 20	3.1	32
Knitters, loopers and toppers	0.6	- 0.1	- 17	- 0.2	- 33	0.1	17
Weavers and spinners, textile	0.6	- 0.2	- 33	- 0.3	- 50	0.1	17
Sewers and stitchers, mfg.	8.6	1.4	16	- 1.5	- 17	2.9	34
Other operatives and kindred workers	94.9	30.4	32	5.7	6	24.7	26
Attendants, auto service and parking	3.8	0.6	16	0.1	3	0.5	13
Laundry and dry cleaning workers	3.0	1.2	40	0.2	7	1.0	33
Meat cutters, except meat-packing	2.6	1.6	62	0.9	35	0.7	27
Mine operatives and laborers, n.e.c.	1.2	- 0.1	- 8	- 0.3	- 25	0.2	17
Other operatives, n.e.c.	84.3	27.1	32	4.8	6	22.3	26

Continued

Table 12-G. (cont'd)

Occupation	1965	Jobs to be filled 1965-1975: Total: Number	Total: Percent of 1965	Jobs resulting from: Industrial change: Number	Industrial change: Percent of 1965	Deaths and retirements: Number	Deaths and retirements: Percent of 1965
Service workers	107.5	68.7	64	26.5	25	42.2	39
Private household workers	19.1	4.7	25	- 5.3	- 28	10.0	52
Protective service workers	9.1	2.6	29	0.5	5	2.1	23
Firemen, fire protection	1.0	-	-	- 0.1	- 10	0.1	10
Guards and watchmen	4.1	1.5	37	0.1	2	1.4	34
Policemen, marshalls, sheriffs	4.0	1.1	28	0.5	13	0.6	15
Waiters, cooks, and bartenders	27.6	16.4	59	7.9	29	8.5	31
Bartenders	3.0	0.9	30	0.1	3	0.8	27
Cooks, except private household	9.2	6.6	72	2.7	29	3.9	42
Counter and fountain workers	3.3	3.3	100	2.3	70	1.0	30
Waiters and waitresses	12.1	5.6	46	2.8	23	2.8	23
Other service workers	51.7	45.0	87	23.4	45	21.6	42
Attendants, hospital and other inst.	14.4	19.2	133	13.5	94	5.7	40
Charwomen and cleaners	2.8	1.9	68	0.7	25	1.2	43
Janitors and sextons	8.6	3.7	43	0.3	3	3.4	39
Nurses, practical	3.8	5.9	155	3.3	87	2.6	68
Other service workers, n.e.c.	22.1	14.3	65	5.6	25	8.7	39
Farmers and farm laborers	75.5	- 0.3	- 1	- 21.0	- 28	20.7	27
Laborers, except farm and mine	38.1	5.3	14	- 3.5	- 9	8.8	23

a. Base zero; percentage not computable.

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PUB DATE - 68 25p.

DESCRIPTORS - *OCCUPATIONAL HOME ECONOMICS; SERVICE OCCUPATIONS; *LUNCH PROGRAMS; *FOOD SERVICE WORKERS; NUTRITION INSTRUCTION; FOODS INSTRUCTION; PROGRAM ADMINISTRATION; *ADULT VOCATIONAL EDUCATION; *PROGRAM GUIDES; PROGRAM DESCRIPTIONS; PILOT PROJECTS
IDENTIFIERS - INDIANA SCHOOL LUNCH PROGRAM

ABSTRACT - As an aid to school administrators, the School Lunch Division of the Department of Public Instruction prepared a blueprint for the training of school personnel. The plan proposes to supplement the usual and necessary orientation program or on-the-job training with indepth training and education. The training offered through the blueprint has been pretested in two pilot programs which were held at New Castle and at Indianapolis, both of which trained area personnel in a basic nutrition course offered by well qualified instructors. The local school lunch fund financed the training program. Administrative procedures and policies are suggested to develop and initiate a school lunch personnel training program. (FP)

VT 008 571

ED0 57254

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A BLUEPRINT FOR THE TRAINING OF SCHOOL LUNCH PERSONNEL IN THE INDIANA PUBLIC SCHOOLS

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VT008571

prepared by

The Office of Superintendent of Public Instruction
Richard D. Wells, Superintendent
Indianapolis, Indiana
46204

This publication was prepared
under the sponsorship of the:

The Research and Coordinating Unit
of
The Office of State Superintendent of Public Instruction

INDIANA

R *esearch*

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U *nit*

in cooperation with:

The Division of School Lunch
The Division of Adult Education

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A

BLUEPRINT FOR THE TRAINING OF SCHOOL LUNCH PERSONNEL IN THE INDIANA PUBLIC SCHOOLS

Superintendent of Public Instruction
Richard D. Wells

Director of Vocational Education
H. Robert Hewlett

M E M O R A N D U M

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(Address) School of Technology, Indiana State University, Terre Haute, Indiana

DATE: April 28, 1969

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FOREWORD

by

Richard D. Wells, Superintendent

I speak to you in the language of food--food to feed, food to teach, and food that others may teach. I speak to you of a school food service program in the vanguard of the learning process. Each of our children, whether he learns to master the universe--or perhaps, more important--to master himself, will need to speak well the language of food. Define not such language in terms of profit and loss. How dismal will be our profit and how tragic our loss if, as the soaring spires of tomorrow's learning reach ever higher, the child is too hungry to hear.

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The Background Of The Indiana School Lunch Program

The first school lunch service in Indiana was established by the Women's Christian Temperance Union at Frankfort in December of 1917. This volunteer group organized a "hot soup dinner" at the courthouse and served the children of the community from a makeshift basement kitchen. Foodstuffs were donated by prominent families and local merchants; preparation and service were handled by volunteers. Once assembled in the lunch room, the children were taught elements of basic nutrition, cleanliness, good manners, and obedience by a local doctor or other person with a knowledge of good health practices.

In the years that followed, lunch at school became a part of the service provided by the more enlightened school administrators throughout the state. During the depression years, rural bus drivers on the morning routes would pick up children and whatever food could be spared by their parents. Preparation of stew or soup, with these donations, was done by civic-minded mothers who realized the benefit to the child of a hot noon meal.

Due to the high incidence of draft rejection during World War II attributed to dietary deficiency and a growing national concern for the health and well-being of future generations, Congress passed the National School Lunch Act in 1946. Today the program operates in all 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and American Samoa. The School Lunch Program is a huge market for farm products to the benefit of the farmers and the food industry. It is

the third largest institutional feeding service of its kind in the world and benefits the whole national economy.

Of the 2300 schools in Indiana, 1839 are currently offering a School Lunch Program with 603,313 children participating daily. In addition to the school lunch, some schools are finding a need for a breakfast program. Five breakfast programs were in operation in the State in the 1966-67 school year, and currently there are fifty-one Breakfast Programs.

The phenomenal growth of the School Lunch Program on a national scale has not been accomplished without problems. Functional guidelines were not established at the beginning of the lunch program. Sometimes surplus foods were sent to schools without requisition, and local school administrators were placed in the position of accepting or rejecting the program. Acceptance placed additional responsibilities on the local school principal, who in many instances was also a classroom teacher. Space was also a problem, and sometimes the meager equipment was placed wherever space could be found--in a hall or in the basement.

Principals were obliged to structure menus, purchase the food and equipment, use their personal cars for transportation, hire the cooks, conduct all the business transactions, and maintain all necessary records.

Coal oil stoves, ice boxes, dishwashing pans rather than sinks, home-loaned cooking utensils, and miscellaneous tables and chairs are a thing of the past. With upsurge of school construction and the inclusion of cafeteria units in school buildings, many of the physical problems have been solved, but others have arisen. The state wide consolidation of schools into large corporate units, the rising cost of

food and labor, the necessary planning for sophisticated equipment in the new construction, satellite food service and centralized purchasing are problems which still exist and will for some time to come.

A Problem And A Need

Of all the problems faced by a harassed school superintendent related to the School Lunch Program, the greatest is the need for trained personnel. There would be no problem if the school administrator had competent people to whom he could turn. All the problems come down to one problem--PEOPLE. But the administrator needs more than warm bodies with willing hearts; he needs people with know-how, some training, and competency in the many areas of the School Lunch Program.

Many school administrators, faced with critical shortages of personnel, have had to turn to the open labor market in order to hire cafeteria staff. These people usually are untrained, or if they have had experience in a local restaurant or cafe do not have the experience and training necessary for the School Lunch Program. People with restaurant and cafe training and experience are "mass feeding" oriented, and this orientation does not fit the purpose of school lunch.

Or school administrators, perplexed with a combination of problems and the lack of personnel, have been sorely tempted by the siren song of those who would convince him to do away with the School Lunch Program and turn this whole matter over to vending machine companies.

This, too, would defeat the basic purpose of school lunch as a part of the educational process.

So the problem remains, and the question still remains unanswered--"Where can I get trained personnel--trained school lunch people who know the needs of my particular situation?" A partial answer to this question is a second question--"Why not train your own?" The ensuing questions of WHO? WHERE? HOW? and WHAT? are hopefully answered in this "BLUEPRINT FOR THE TRAINING OF PERSONNEL IN THE SCHOOL LUNCH PROGRAM."

Personnel Training

The General Objectives of a School Lunch Training Program:

1. To attract personnel for employment in the School Lunch Program
2. To qualify personnel on all levels in knowledge, skill, and efficiency in order to upgrade people and hence, the program
3. To build a team-approach through which the School Lunch Program is a contributing factor to good education
4. To raise the educational level, skill level, and knowledge level in such ways as to increase the self-concept of the trainees and increase the sense of personal worth and importance to the program
5. To offer training in human relationships by which trainees become not only more productive and more efficient workers, but better and more efficient human beings

The Specific Objectives of a School Lunch Training Program:

1. To give specific training and knowledge in the component areas of the School Lunch Program, such as:

Nutrition	Food Preparation
Menu Planning	Sanitation
Food Storage	Quantity Cooking

Management: including (a) Record Keeping (b) Cost Analysis (c) Job Analysis

2. To give specific training in the area of human relationships
3. To develop skills in the arts of food preparation, menu planning, and/or other component areas of the School Lunch Program
4. To implant in trainees the philosophy of the School Lunch Program as opposed to the philosophy of a "mass feeding" program
5. To encourage trainees through a training program to seek further training and education which leads to making a life-long profession in the School Lunch Program

A Pilot Program For The Proposed Personnel Training Program

In August of 1967, a meeting was held at the State House for the purpose of considering a Training Program for School Lunch Personnel on a state-wide basis. In attendance at this meeting were Mr. Walter Penrod of the Division of Vocational Education; Miss Barbara Tingley, Assistant State Supervisor of Home Economics; Mrs. Sheila Elam, State Nutrition Consultant; Mrs. Nadine Kirkpatrick, Director of School Food Service for the New Castle Schools; and Mrs. Wreatha Butler, Director of Food Service at the Washington Township Schools in Indianapolis.

For some years past the State Superintendent of Public Instruction had been providing one-day workshops, during the summer months, for training school lunch personnel. These one-day workshops have proven to be of extreme value to the local school corporations, for without them the work of both the State Department and the local educational agency would be inhibited. These programs were felt to be excellent, informative educational programs. This was reflected in the more positive concept of the School Lunch Program which was developed by those who attended these sessions. Fellowship and interaction with co-workers was also a needed enrichment for school lunch people.

These workshops have fulfilled a long-felt need and will continue to do so in the foreseeable future, but it was felt that the training of school lunch personnel had reached a more critical period. What is needed now is a more in-depth course of study over greater periods of time in order

to meet the needs of school superintendents who are seeking well-trained personnel for school food services.

This working committee made several decisions about the kind and type of workshop which they felt was needed. Their criteria for such a program of study were:

1. The course would be 12 weeks or one semester in length. The class would meet one night each week for two hours and would be scheduled by the local superintendent along with other adult education courses being presented.
2. The classes would be conducted in a public school, as it was found that most schools have modern kitchens equipped in such a manner that these units could be used as learning laboratories. Existing classrooms are usually available for the academic studies that must be correlated with the laboratory experiences.
3. The enrollment would, if possible, be limited to 20 students.
4. Government commodities would be available for use in demonstrations, as this is permissible under the regulations.
5. At the completion of the course of study, a dinner would be planned and prepared by the students. At this time officials of the State Department of Public Instruction and local school officials would be invited to attend and present a "letter of completion."
6. The teachers of such courses would be those Directors of School Lunch Programs who have completed the requirements for non-conventional vocational license teaching such a course. Others could be recruited as consultants; such as, a local Public Service Economist, the State Nutrition Consultant, etc.

In consequence of this meeting, and to test the criteria and the feasibility of such a training program, it was decided that two Pilot Programs would be run. One of these was to be held at New Castle and the second in Indianapolis. In each of these, the same subject would be taught--that of nutrition--over the twelve-week period.

The first Pilot Course was taught at New Castle under the direction of Nadine Kirkpatrick in the fall of 1967. The second was held at Northview Jr. High School in Indianapolis. Both were lecture-type courses, and the students were encouraged and required to build and keep working notebooks on the materials presented.

At the conclusion of the course at New Castle, forty trainees were presented with Certificates of Completion, and at the Indianapolis course, twenty-eight persons were presented with Certificates of Completion.

As no pre-course and/or post-course examination was given, the evaluation of these courses must necessarily be subjective. The notebooks kept by trainees were evaluated and are a source of data on the value of the course to the trainees and, hence, to the school systems involved.

The directors found that, in general, a great deal of dialogue and communication between trainees resulted from the training. Trainees were able to share concerns, experiences and problems, and to work toward a solution of common problems through shared experiences.

Not directly applicable to the work situation, but a valuable outcome of the training program, was the fact that a great deal of the learning was carried into the homes of the trainees and in this way affected the nutrition of the trainee's family. Many stated that the course had a great deal of effect upon shopping habits and grocery lists, as prior to

the training, many of them had no adequate basis upon which to make proper food choices.

A further "spin-off" from the program is the fact that trainees on their own initiative place colored posters on various aspects of nutrition in the cafeterias and kitchens. In this way both faculty and students gained some learning about the nutritional values of the foods put before them. Both faculty and students commented on the posters.

On the negative side, the trainees felt almost unanimously that the course in Nutrition, though valuable in itself, should have not been the first course taught in the Pilot Program. Their feeling was that they needed, as a pre-requisite, a course in Basic Cookery at the practical demonstration level.

All trainees agreed, however, that the course in itself was of great value and requested a follow-up course to be held at a later date. The notebooks were constructed so that they may be built upon in a later, more intensive course of instruction in Nutrition.

The Pilot Programs did demonstrate that properly staffed and properly administered, in depth, longer term training programs can be of value to the school system; that trainees find these programs of benefit to themselves as employees and as persons; and that trainees are generally eager and enthusiastic about training in all areas of school lunch.

A Blueprint For Personnel Training Programs

In Indiana School Districts

A. Determination of Needs

Each school administrator needs to take a hard look at his local needs for personnel training in his School Lunch Program. In consultation with his school lunch director or manager, some decisions must be reached as to those specific areas in which it is felt that the school lunch employees need training.

Perhaps the problem is that there simply are not enough people to adequately staff the School Lunch Program. In this instance, a recruitment program would take precedence over a training program. However, it must be pointed out that recruitment and training go hand in hand. A recruitment program which states positively that "We will train you" has a much better drawing power than one which states "We will pay $____ per hour." People are more drawn to opportunity for self-betterment than to drudgery.

Due to the exigencies of the local situation and the pressure to get lunch started, a One-Day Orientation Program or an On-the-Job Training Program might be undertaken, but these types of programs are only a beginning of the longer, in-depth program of Personnel Training which are envisaged in this BLUEPRINT.

In consultation, the school administrator and his school lunch director or manager should take the next steps and decide which area of in-depth training need to be tackled first. The School

Lunch Division offers programs in the seven areas outlined on Page 5 under Personnel Training.

Having made a decision to present a program in one of the subject areas, other steps must be taken, as follows:

B. Steps in Planning and Implementing the Program

1. The School Lunch Division of the Office of Superintendent of Public Instruction should be contacted for their help, cooperation, and approval of the proposed program.
2. A budget should be drawn up which will incorporate instructional remuneration, travel, trainee stipends, supplies, and teaching materials. Authorization for use of funds for this purpose is covered in the following letter, U. S. Department of Agriculture, Consumer Food Programs, 536 South Clark St., Chicago, Illinois, May 7, 1968. Signed by R. J. Nelson, Supervisor:

   "Any school or school district in Indiana may use funds from the school's food service account to pay tuition costs and other costs incidental to training a member, or members, of the food service staff in food management techniques, provided that the course to be attended has been approved by the School Lunch Office of the Indiana Department of Public Instruction, and provided that the training does not entail out-of-state travel."

3. Teachers for the contemplated training course must be procured. In each area of the State, there are people qualified to teach approved courses in all components of School Lunch.

These people should be contacted through the School Lunch Division.

4. The Local Planning Operation must be worked out and details delegated to responsible personnel, as:

   (a) Enrollment. Decisions must be made as to whether the program is to be limited to personnel from one school, several schools, the district, or the area. One person is delegated the responsibility for inviting participants. Perhaps a letter outlining the program and including all details would be appropriate.

   (b) Dates, Times, Rooms, and Equipment. Size of the enrollment and the type of training to be given will often determine physical arrangements. If demonstrations are to be part of the course, proper equipment will be needed. Classrooms geared to adult learning are necessary. Custodial care must be provided.

   (c) Remuneration. If trainees are to be paid stipends or paid for their hours spent in the training course, this must be understood and arrangements made with proper authorities for such payment. Have all financial matters arranged and understood before the course starts.

   (d) Certificates of Completion. Certificates of satisfactory completion of a course are available at the State Agency. The Director of School Lunch will arrange for the distribution of these certificates at the end of the course.

(e) Awards Dinner. Delegate responsibilities for the dinner. The meal must be prepared, speakers and honor guests invited, favors prepared, and flower arrangements made.

C. Making Plans for Evaluation

1. Evaluation should be built into the Personnel Training Program from its inception.

   When we set the goals for the project, we must determine in what ways we will determine the extent to which we approached these goals.

2. Means of Evaluation. Short instruments may be devised by which progress of the program is measured. Some of these might be:

   (a) Teacher-made tests:

   for cognitive learning
   for skills learning
   for attitude change

   (b) Trainee evaluations:

   of course value
   of skills learned
   of attitudes changed
   of spin-off effects

   (c) Administrator's evaluations:

   of value of program to school
   of improvement in School Lunch Program
   of more efficient program management

(d) Outside evaluations (consumer evaluations)

Dare we ask the consumers, the school faculty, and the young people who are the consumers of the product to evaluate what has happened to the School Lunch Program as a result of the course(s) undertaken? This might be Consumer Research with a vengeance!

3. All evaluations need to be collected and collated and made into one Evaluation Report. Copies of this should be filed with the Division of School Lunch.

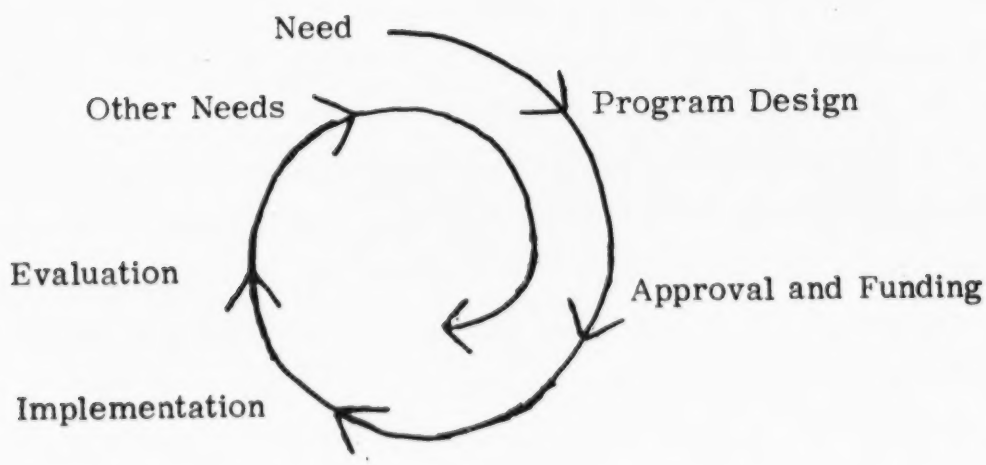
D. Orientation Toward Future Programs

No one training course will solve all the problems nor result in a well-trained school lunch staff. A continuous program is needed.

From the Evaluation Report and the individual evaluations of, and by the trainees, other needs will be evidenced which will give guidance for further training courses.

A study of the Evaluations can give direction and reality to further planning and training in order to meet the ever-changing needs with an evolving program of School Lunch Personnel Training.

Diagrammatically, this BLUEPRINT may be described in a spiral pattern:



Summary

Nearly two thousand schools in Indiana are currently offering a school lunch to more than six hundred thousand students. In Indiana, as well as nationally, the School Lunch Program has had a phenomenal growth since the passage of the School Lunch Act of 1945.

But this growth has not come about without problems arising, and without more and more responsibility devolving upon the school administrator. Chief among these problems has been the recruiting, hiring, and training of personnel to staff the School Lunch Program.

High staff turnover, inefficiency, lack of economy, and student rejection of the program can usually be traced to untrained and unknowledgeable staff. Attracting, training, and holding an efficient staff is an ever present problem for the school administrator.

As an aid to school administrators, the School Lunch Division of the Department of Public Instruction is offering to school districts of Indiana this BLUEPRINT for the Training of School Lunch Personnel.

This BLUEPRINT offers more than the usual and necessary Orientation Program or On-The-Job Training, both of which are necessary and will be continued. This BLUEPRINT is a plan for in-depth training and education over a longer period of time than a one-day affair.

The training offered through the BLUEPRINT has been pre-tested in two Pilot Programs which were held at New Castle and at Indianapolis. Both of these Pilot Programs trained area personnel in a basic Nutrition course offered by well-qualified instructors.

Similar in-depth personnel training programs in any of the subject matter component areas may be conducted in any school or school district in Indiana.

Funding and financing such in-depth training programs has been a difficult problem. The School Lunch Division was happy to be notified that such programs may be financed through the local school lunch fund accounts.

A series of simple steps must be followed in order that the local school administrator may sponsor a training program for his school lunch personnel, or for school districts that wish an area training program cooperatively undertaken:

1. The administrator, together with the Director or Manager of his School Lunch Program and with other persons, determines the need for training and the kind of training needed.
2. An application is made to the School Lunch Division of the Department of Public Instruction for approval for the training program and for their help in staffing an approved program.
3. Local plans are drawn up in detail and provisions made for times, sites, remuneration, credits, etc.
4. The program is implemented.
5. The program is evaluated through every phase, and an Evaluation Report compiled.

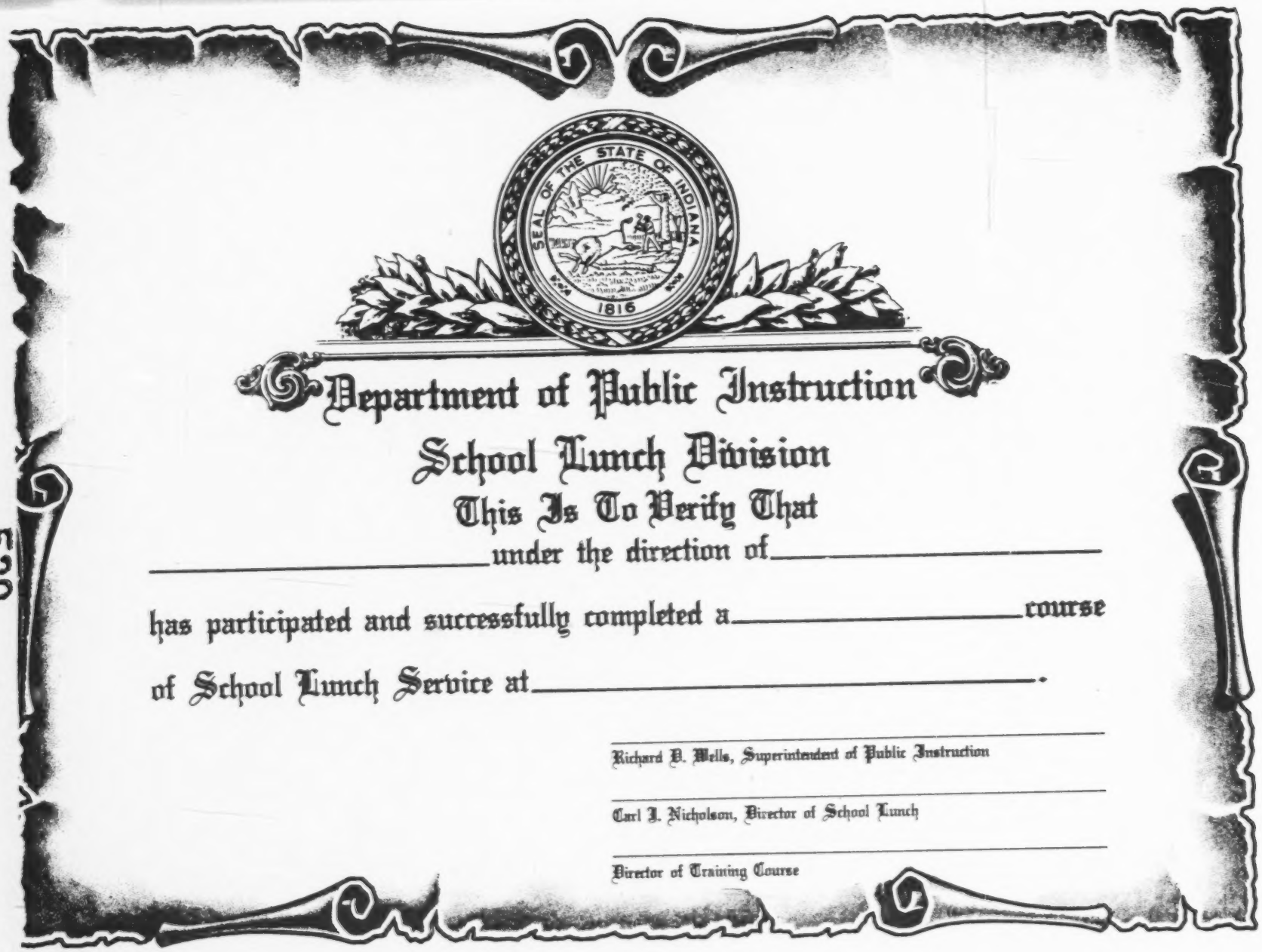
High school credit for the course may be allowed under the following conditions:

1. The course content must be approved by the School Lunch Division of the Department of Public Instruction.
2. The course must have a minimum period of class instruction (42 hours).
3. The teacher is certified in Indiana to teach the course.
4. The Adult Education Director of the Department of Public Instruction has given prior approval for the course.

Appendix

We suggest the following guidelines in administering multi-Unit, local School Lunch Programs:

1. That the Superintendent appoint one person to be responsible for the administration and supervision of all school lunch operations. The Division of School Lunch will work with this person and copies of correspondence will go to the Superintendent.
2. The local school lunch administrator should be responsible to either the Superintendent directly or to the Assistant Superintendent for your school business affairs.
3. It is suggested that the local school lunch administrator or director have as nearly as possible the following qualifications:
   (a) A B.S. degree in Institutional Management or a closely related degree. The collegiate work should include the following areas--Food Technology and Nutrition, Business Economics Education, with emphasis on Foods and Nutrition.
   (b) Two years successful experience in school or institutional food service. Further, part of the experience should involve the supervision of other employees.



Department of Public Instruction

School Lunch Division

This Is To Verify That

_____ under the direction of _____

has participated and successfully completed a _____ course

of School Lunch Service at _____.

Richard D. Wells, Superintendent of Public Instruction

Carl J. Nicholson, Director of School Lunch

Director of Training Course

The above is a reproduction of the certificate which is available from the office of the Superintendent of Public Instruction

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VT 009 178
Ohio Employment Information Series: Part II, Training Directory, 1969.

Ohio State Bureau of Employment Services, Columbus.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 68 158p.

DESCRIPTORS - *DIRECTORIES; OCCUPATIONAL INFORMATION; *TRAINING; *PROGRAM DESCRIPTIONS; ADULT VOCATIONAL EDUCATION; VOCATIONAL EDUCATION; APPRENTICESHIPS; CORRESPONDENCE COURSES; CURRICULUM; JOB TRAINING; *OCCUPATIONAL GUIDANCE; *POST SECONDARY EDUCATION; SECONDARY EDUCATION; STATE PROGRAMS; FEDERAL PROGRAMS
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ABSTRACT - This directory lists training programs available through public and private facilities in Ohio. The types of programs described herein include those offered in colleges and universities, in business schools, through apprenticeship training, through home study schools, those available through special vocational education programs, and several federal and state funded training and employment programs. This directory should be useful to employment services personnel, junior and senior high school counselors, and public librarians with needs for occupational information, and should be supplemented with current local information. This directory replaces the 1968 issue, which is available as ED 025 610 (May 1969 RIE). Parts I and III of the directory are available as ED 025 609 and ED 025 611 (VT 006 275 and VT 006 277, respectively, both in ARM Fall 1970). (CH)

VT 009 178

ED0 57254

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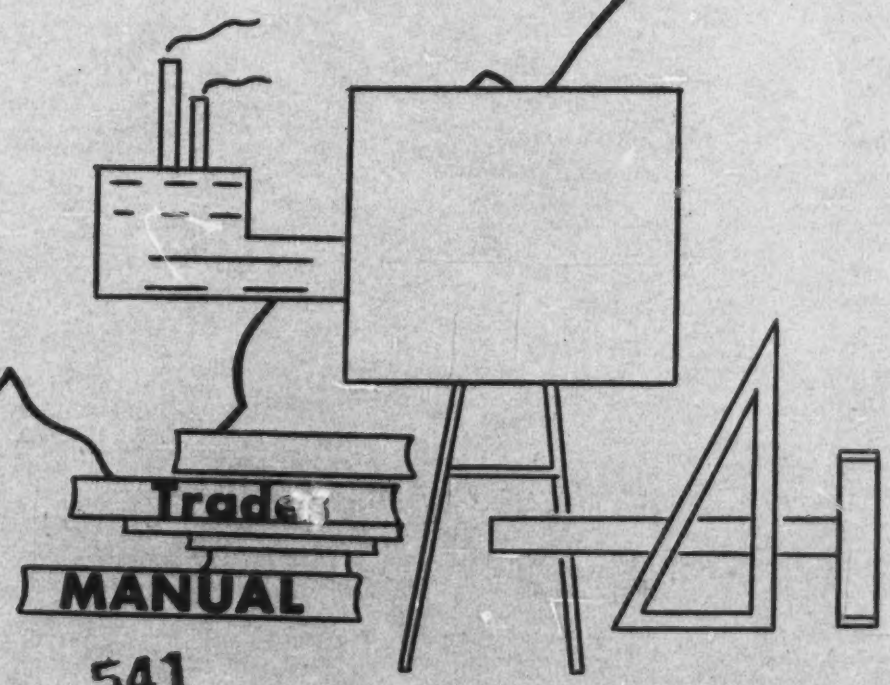
OHIO EMPLOYMENT INFORMATION SERIES

PART II

TRAINING DIRECTORY



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VT009178

FOREWORD

The information in Part II presents training programs available through public and private facilities in Ohio. The types of programs described herein include those offered in colleges and universities, in business schools, through apprenticeship training, in training schools, through home study schools, those available through special vocational education programs, and several federal and state funded training and employment programs.

Ohio State Employment Service counselors, junior and senior high school counselors, and, in a general informational sense, Ohio public librarians should be equipped to discuss with, and be prepared to refer persons to resource information describing the types of training programs existing for them through public and private educational facilities. Information of this nature enables all such personnel to assist applicants desiring or needing additional training to obtain further information prior to enrollment in an effort to help them plan and attain their vocational objectives. The Training Directory was originally developed on a state-wide basis to assist Ohio Bureau of Employment Services personnel in providing such information to applicants. Now, in the knowledge that vocational guidance services are available in a variety of institutions, this publication is made available to other vocational guidance personnel in the hope that it will be a useful resource.

* * * *

The attempt has been made to secure information contained in this directory from reliable and qualified sources. We wish to thank all agencies, organizations, and institutions listed herein for their valuable assistance and cooperation in revising the Training Directory.

STATEMENT ABOUT ACCREDITATION

The listing of any one school in this directory does not denote its recommendation by our agency; neither does its exclusion indicate our disapproval. The related accrediting and approving agencies, where applicable, are listed. For information about facilities, enrollment procedures or courses available at any of the institutions listed in this directory, persons should write or contact the particular institution.

April 1969

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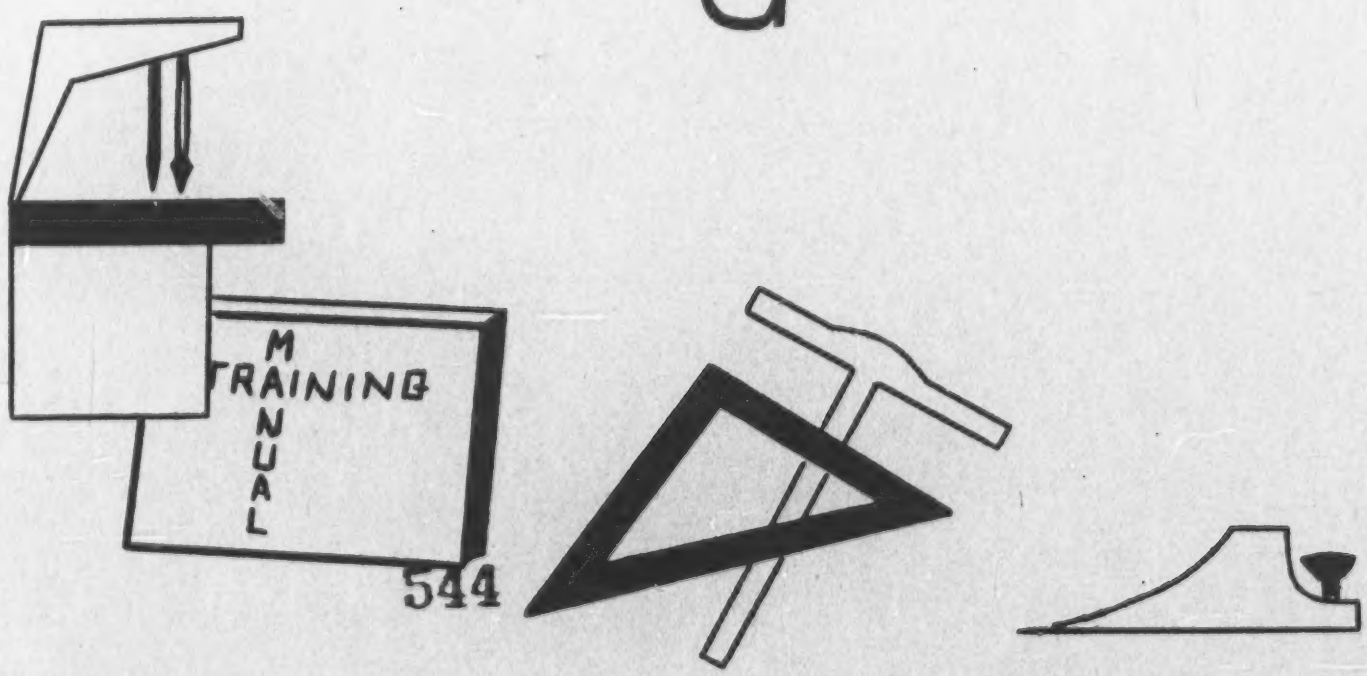
TRAINING

APPRENTICE



I N T R O D U C T I O N

The information presented herein, general in nature, is not an administrative guide for specific apprenticeship preparation. Its purpose is only to acquaint prospective apprentice candidates and counselors alike with general information regarding apprenticeship preparation. To be complete effective, this information will need to be supplemented by current, local, and specific information as it relates to each community's apprentice standards. It is hoped that:

(1) Each prospective apprentice candidate will plan a course of study, including both the academic and the vocational, that best relates to his chosen occupational training area, and

(2) In each school a guidance and/or vocational guidance counselor will keep abreast of local apprentice training requirements and, further, will publicize these requirements for prospective candidates as early in their school careers as possible.

The rewards of such an approach will be measured in:

(1) Each applicant's increased knowledge of the requirements for entry into apprenticeable areas and a more realistic view of the field itself,

(2) A better understanding for both counselor and applicant of the labor market and its individual demands, and

(3) More successful apprentices and apprentice training programs.

PREPARATION FOR APPRENTICESHIP TRAINING

Over 4000 individual apprenticeships are available in Ohio each year. The number of applicants is increasing steadily and the selection of apprentices is competitive. Sponsors can select those applicants who are the best prepared and the most qualified. The applicants selected are the ones whose educational backgrounds and individual experiences reflect conscientious preparation for their vocations.

QUALIFICATIONS REQUIRED OF APPRENTICES

Although it serves a vital role in the preparation of any prospective apprentice, education, in and of itself, does not insure that any one person will receive a training assignment. Qualifications among crafts differ; qualifications within a single craft differ among cities around the state; but, foremost, applicants must be considered as individuals. Education is only one facet of an applicant's total qualifications. The general qualifications which each applicant must meet are these:

(1) Education (specific requirement according to particular craft - Most programs require high school graduation or its equivalent.)
(2) Average or above intelligence
(3) Ambition
(4) Interest
(5) Initiative
(6) Legal working age
(7) Ability to work with hands
(8) Physical fitness as chosen occupation demands
(9) Preferred background in areas related to apprenticeable occupation (such as science, mathematics and vocational education)

The documentary evidence required of apprenticeship applicants is simple and usually easy to obtain. Some applicants may need help though in knowing the best way to obtain these documents. The required documents are:

(1) Birth Certificate
(2) Diploma or certificate showing completion of required high school work (or General Educational Development statement)
(3) Name and address of high school (so that transcript may be requested)
(4) Medical certificate establishing good physical condition
(5) Social Security Number
(6) DD-214 Military Service Discharge or Draft Card

AN APPRENTICE IS:

- a qualified person of legal working age
- who is covered by a written apprenticeship agreement
- which states the terms for learning such apprenticeable trade and
- is bound in a program registered with the Ohio State Apprenticeship Council.

APPRENTICEABLE OCCUPATIONS

Occupations recognized by the Federal Committee on Apprenticeship are those that customarily have been learned in a practical way through two or more years of training and work experience on the job, and that are clearly identified and commonly recognized throughout industry. Apprenticeship sponsors are found in a variety of industries:

- Building and Construction
- Communication
- Manufacturing
- Printing and Publishing
- Retail Trade
- Services
- Transportation

Occupations that traditionally have not used apprenticeships are:

- Selling, retailing, or other occupations in the distributive field
- Managerial occupations
- Clerical occupations
- Professional and semiprofessional occupations (occupations for which entrance requirements customarily include education of college level)
- Agricultural occupations

APPRENTICEABLE OCCUPATIONS BY TRADE CLASSIFICATION:

These occupations represent the occupations for which apprenticeship training was available in previous years in this state.

CONSTRUCTION TRADES GROUP

Asbestos Worker
Bricklayer, Stone Mason
Carpenter, Wood Carver
Cement Mason
Electrician
Floor Coverer
Glazier
Ironworker Erector
Lather
Operating Engineer
Painter-Decorator
Plasterer
Plumber-Pipefitter
Rigger
Roofer
Sheet Metal Worker
Tile and Terrazzo Worker

METAL TRADES GROUP

Aerospace Mechanic
Automotive Body Builder-Repairman
Automotive Mechanic
Heavy-Duty Equipment Mechanic
Boilermaker
Electroplater
Engraver
Foundryman
Heat Treater
Industrial Welder
Ironworker-Fabricator
Machinist
Maintenance Mechanic Repairman
Metal Polisher - Buffer
Molder-Coremaker
Patternmaker-Modelmaker
Tool and Die Maker
Vacuum Plater

PRINTING TRADES GROUP

Bookbinder, Bindery Worker
Compositor (Printer)
Electrotyper
Engraver
Lithographer
Mailer
Photoengraver
Photographer
Plate Printer
Printing Pressman
Rotogravure Engraver
Stereotyper

TRADES NOT ELSEWHERE CLASSIFIED

Armature Winder Repairman
Artist-Sign Painter
Baker
Barber
Butcher-Meat Cutter
Cabinet Maker
Dental Technician
Draftsman-Designer
Electrical Worker (Light and Power)
Electrical Worker (Other)
Electronics Tech.
Lineman (Outside Electrical)
Maintenance Mechanic-Repairman
Musical Instrument Mechanic
Optical Technician
Orthopedic-Prosthetic Technician
Stationary Engineer

TRADES NOT ELSEWHERE CLASSIFIED (CONTINUED):

Cash Register Serviceman
Jeweler
Cellophane Folding Machine Operator
Cook
Fabric Cutter
Farm Equip. Mechanic
Furrier
Glazier (Glass Worker)
Industrial Maintenance-Millwright
Painter (except constr.)
Powerhouse Engineer
Telephone Lineman
Telephone Worker
Upholsterer
Watchmaker

APPRENTICESHIP -- THE END OR THE BEGINNING?

For many, completion of an apprentice training program is an end in itself and provides the new journeyman with a rewarding skill that he can pursue for a lifetime. For many others, apprentice training is the initial step to a career in management, in private business, or, with additional education, in professional areas of business administration, education, and engineering. The benefits are mutual among trainees and employers. Employers, in providing a rich and complete training program, provide the means for maintaining their own organization's strength and continued productivity.

NATIONAL APPRENTICESHIP PROGRAM STANDARDS

The integrity of the nation's apprenticeship programs is enhanced by the standards established and maintained by the Federal Committee on Apprenticeship, a body composed of equal representation from management and labor. The minimum standards recommended by this organization for any agency's or industry's establishing an apprentice training program are these:

(1) Starting age of an apprentice to be legal working age
(2) Full and fair opportunity to apply for apprenticeship
(3) Selection of apprentices on the basis of qualifications alone
(4) Schedule of work processes in which an apprentice is to receive training and experience on the job
(5) Organized instruction designed to provide the apprentice with knowledge of technical subjects related to his trade (a minimum of 144 hours per year is normally considered necessary)
(6) Progressively increasing schedule of wages
(7) Proper supervision of on-the-job training with adequate facilities to train apprentices
(8) Periodic evaluation of the apprentice's progress both in job performance and in related instruction, and the maintenance of appropriate records
(9) Employee-employer cooperation
(10) Recognition for successful completion of the apprentice training program
(11) Non-discrimination in all phases of apprenticeship employment and training.

THE OHIO STATE APPRENTICESHIP COUNCIL

Within our state, the Ohio State Apprenticeship Council cooperates with and serves all businesses and industry concerns interested in organizing an apprentice program by:

(1) Encouraging thorough apprenticeship training within Ohio industry
(2) Establishing minimum training standards in apprenticeable trades
(3) Serving as a clearing house for all matters relating to apprenticeships in Ohio
(4) Working with the Veterans' Administration, the Department of Education, and the Federal Bureau of Apprenticeship and Training to keep applicants informed and programs up-to-date and
(5) Publishing information relating to all aspects of apprentice training.

If you have any questions regarding any of these above statements, contact one of the agencies or individuals listed below:

Mr. John Kostyo
Executive Secretary
Ohio State Apprenticeship Council
Room 310, 220 Parsons Avenue
Columbus, Ohio 43215

Mr. Charles B. Dygert
Apprenticeship Training Consultant
Ohio Department of Education
610 Ohio Departments Building
Columbus, Ohio 43215

Any local Bureau of Apprenticeship any Training representative. See listing of representatives in this section of the Training Directory.

APPRENTICE TRAINING

The following is a listing, according to the National Apprenticeship Program booklet, 1968 edition, of apprenticeable trades as compiled by the Bureau of Apprenticeship, U. S. Department of Labor, Washington, D. C. Interested applicants should contact their local Ohio State Employment Service Office, or persons listed in Apprenticeship Training Service Directory beginning on page 16. For information concerning the development of the Apprenticeship Programs and the criteria for establishing these programs, contact your local Bureau of Apprenticeship and Training Representative or write for the booklet, "Apprentice Training," U. S. Department of Labor, Washington, D. C.

TRADE	YEARS TRAINING
AIRCRAFT FABRICATOR: final assembler (aircraft mfg.) 621.381; 806.381; 806.781; 862.381	3 - 4
AIRPLACE MECHANIC: (air trans. - aircraft mfg.).	3 - 4
Accessories Mechanic. 621.281	
Aircraft Mechanic. 631.281	
Airplace Mechanic; aircraft and engine mechanic. 621.281	
Electrical Mechanic. 825.381	
Engine Mechanic. 621.281	
Helicopter Mechanic. 621.281	
Instrument Mechanic. 710.281	
Line-Service Mechanic. 621.281	
Propeller Mechanic. 621.281	
Radio Mechanic. 823.281	
ARBORIST: (any ind.) 409.181; 407.181; 304.887	3
ASBESTOS WORKER: Insulation Worker (construction; heat and frost insulation) 863.884	4
AUTOMOTIVE-BODY BUILDER-REPAIRMAN (auto mfg.; automotive service)	3 - 4
Automobile Body Repairman. 807.381	
Custom-Body Builder (metal). 807.281	
Custom-Body Builder (wood). 807.281	
Truck-and-Trailer-Body Builder. 807.281	
AUTOMOTIVE MECHANIC (auto service- ordnance)	3 - 4
Automobile Mechanic. 620.281	
Bus Mechanic. 620.281	
Heavy-Duty Equipment Mechanic; construction equip. mechanic; diesel repairman. 625.281	
Mobile-Military-Equipment Mechanic; automotive-test-engine-mechanic; auto-test-vehicle-chassis mechanic. 620.381; 625.281	
Motorboat Mechanic. 623.281	
Motorcycle Repairman. 620.281	
Tractor Mechanic. 620.281	
Truck Mechanic. 620.281	

TRADE	YEARS TRAINING
BAKER: (bakery prod.; hotel & restaurant) 526.781; 313.781. .	3
BARBER: (personal service) 330.371	2
BLACKSMITH: (any ind.) 610.371	4
Hammersmith. 612.381; 611.782; 612.782	
Sawsmith; saw straightener-and-repairer (saw mfg.) 701.381.	3
Spring Maker, Auto.; spring fitter-repairer (auto. mfg., auto serv.) 610.381; 619.380	
Tool Dresser. 610.381	
Tool Sharpener. (stoneworking) 610.381	2
BOILERMAKER: (any ind.) 805.281	4
Mold Loftsman; template maker (shipbuilding; aircraft mfg. boilermaking) 661.381; 601.381; 809.381	
Shipfitter (shipbuilding). 806.381	
BOOKBINDER: (printing and publishing).	
Bindery Worker, Female. 977.884	2
Bindery Worker, Male. 977.884	4
Paper Ruler. 659.782	3
BREWER (malt liquors) 522.782; 526.885; 029.381	2 - 3
BRICKLAYER: Brickmason (construction) 861.381	3
BUTCHER-MEAT CUTTER: (retail trade; slaughtering & meat pack.)	3
Butcher. 525.381	
Meat Cutter. 316.884; 316.781	
CABINET MAKER-MILLMAN: (any ind.)	
Airplane Woodworker (aircraft mfg.) 769.281; 621.281 . . .	3 - 4
Cabinet Maker; bench carpenter (furn.; woodworking) 660.280.	3 - 4
Casket Maker (mortician goods). 739.781	2 - 3
Furniture Maker-Repairman (furniture) 660.280	3 - 4
Millman; shop carpenter (woodworking) 669.380	3 - 4
CANDY MAKER: (confection) 529.381	3 - 4
CANVAS WORKER: (any ind.).	3
Sailmaker (shipbuilding) 739.381	
Tent-Awning Maker (canvas goods) 787.782	
CARMAN: (locomotive and car building and repairing) 622.381. .	4
CARPENTER: (any ind.)	4
Boatbuilder, Wood (shipbuilding) 860.381	
Carpenter (construction) 860.381	
Carpenter, Maintenance (any ind.) 860.281	
Joiner (shipbuilding) 860.381	
Loftsman (shipbuilding) 661.381; 661.131	
Mold Maker, Wood (brick and tile) 769.781	
Shipwright (shipbuilding) 860.381	
CEMENT MASON (construction) 844.884	3
COOK: (hotel and restaurant) 313.381.	3
Pastry Cook 313.381	
COOPER: (cooperage) 764.884	4
COSMETICIAN: Beauty Operator (personal service) 332.271. . . .	2
DAIRY PRODUCTS MAKER: (dairy products)	2 - 3
Buttermaker 529.782	
Cheesemaker 529.381	
DRAFTSMAN-DESIGNER: (any ind.)	3 - 5
Architectural Draftsman 001.281	
Bank-Note Designer (print. & pub.) 142.081	
Detailer-Draftsman 017.281	

TRADE	YEARS TRAINING
Electrical-Draftsman 003.281	
Engineering Aide 018.587; 018.687	
Mechanical Draftsman 007.281	
Structural Draftsman 005.281	
Tool-and-die Designer (machine shop) 007.081; 007.181	
Topographical Draftsman 017.281	
DRY CLEANER, SPOTTER, AND PRESSER: (cleaning, dyeing and pressing) 362.782; 362.381; 363.782	3 - 4
ELECTRICAL WORKER: (any ind.)	4 - 5
Bus Electrician (transportation) 825.281	
Cable Splicer; cableman; underground electrician (const.; light and power) 829.381; 821.381	
Electrical-Appliance Serviceman (electric-refrig. serviceman) (any ind.) 827.281; 637.281	3
Electrical-Instrument Repairman; Pyrometer man 779.281. . . .	4
Electrician; wireman (construction) 824.281	4
Electronic Technician; radio-television repairman; radio repairman; television repairman (any ind.) 720.281; 003.181; 632.281; 828.281	
Lineman; outside electrician (light & power) 821.281.	3
Maintenance Electrician; electrical repairman; industrial electrician (any ind.) 829.281	
Meterman; meter-relay tester; meter tester-repairer (light & power) 821.281; 729.281; 710.281	
Power-House Electrician (light and power) 820.281	
Power-Plant-Equipment Mechanic (light & power) 631.281	
Radio Electrician; broadcast technician; radio-station-maintenance electrician; radio-station tech. (broadcast-telecast) 823.281	
Radio-Telephone-Communications Technician (telephone and telegraph) 823.281	
Repairer-and Winder; electric-motor repairman; shop elect. (any ind.) 721.281	
Ship Electrician; marine electrician (shipbuilding) 825.381	
Sign Electrician (signs) 869.381; 824.281; 729.884	
Signal-System Electrician; burglar-alarm mechanic; fire-alarm mechanic (any ind.) 823.281; 829.281	
ELECTROPLATER: (any ind.).	3 - 4
Aircraft Plater (aircraft manufacturing) 501.782	
Anodizer (electroplating) 501.782	
Plater (electroplating) 500.380	
Plater, Plastics (Vacuum System) 500.380	
ELECTROTYPER: (printing and publishing) 974.381	5 - 6
Finisher 659.380	
Molder 974.381	
Wax Engraver 974.381	
ENGRAVER: (any ind.)	4 - 5
Bank-Note Engraver (engraving) 979.781	
Engraver-Chaser; chaser-engraver (jewelry) 704.381	
Etcher, Hand (printing and publishing) 971.381	
Metal Engraver (engraving) 704.381	

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TRADE	YEARS TRAINING
Pantograph Engraver (any industry). 779.782; 704.884; 979.781	
Siderographer (engraving). 979.381	
Steel-and-Copper-Plate Engraver (printing & publishing) 979.781	
Wood-Block-Engraver (textile-printing & publishing). 979.281	
FABRIC CUTTER: CUTTER (any ind.).	3 - 4
Cap Cutter (hat & cap). 781.884; 699.885	
Garment Cutter (garment). 781.884; 699.885	
Glove Cutter (leather products). 781.884; 781.887	
Shirt Cutter (garment). 781.887; 781.884	
Upholstery-and-Seat-Cover Cutter (furniture & ret. trades) 780.884	
FARM EQUIPMENT MECHANIC: (automotive service). 624.281	3 - 4
FLOOR COVERER: floor layer (construction)	3 - 4
Linoleum, Soft Tile, and Carpet Layer; linoleum and soft-tile-layer. 864.781	
FOUNDRYMAN: (foundry).	
Coremaker. 518.381	4
Melter. 512.782	2 - 3
Molder. 518.381; 518.782; 693.301	4
FURRIER: (fur goods). 142.081	3 - 4
Fur Cutter. 783.781	3 - 4
Fur Finisher. 783.381	2 - 3
Fur-Machine Operator. 787.782	2 - 3
GLAZIER - GLASS WORKER: (any ind.)	
Auto Glass Installation Worker,	
Automobile Glazier (automotive service). 865.884	2
Glass Blower (glass manufacturing). 575.781	3
Glass Blower, Laboratory Apparatus (instruments & apparatus). .	3 - 4
772.281	
Glass Worker,Shop (construction; glass products)	3
775.884; 676.885; 574.884	
Glassware Engraver-Polisher (glass products) 775.381	2 - 3
Glazier (construction) 865.781.	3
Neon-Tube Bender (signs) 824.884; 772.381	3 - 4
Stained-Glass Glazier (glass products) 779.381; 865.381 . . .	4
Window-Glass Cutter (glass manufacturing) 579.887	3
HEAT TREATER: (Heat treating) 504.782	4
IRON WORKER:	
Boatbuilder, Steel (shipbuilding). 806.381; 819.380	4
Bridge-and-Structural-Steel Erector (const.) 801.781	2
Ornamental-Iron Erector (const.) 809.381	2
Ornamental-Metal Fabricator (bronze, wire, & metal spec.). . .	4
809.381; 619.880	
Reinforcing-Iron Worker (const.) 801.884	2
Structural-Steel Fabricator (structural metals) 619.380; 601.381	4
JEWELER: (jewelry)	
Caster-Mold Maker. 502.381; 700.381.	3 - 4
Enameler. 740.884	2 - 3
Goldsmith. 700.281	3 - 4
Jewelry Repairman; Bench Hand. 700.281	3
Lapidary; brilliandeerer; stone cutter. 770.281	3 - 4
Stone Setter. 700.381	3 - 4

TRADE	YEARS TRAINING
LATHER (construction) 842.781.	2 - 3
LEAD BURNER: (chemical; petroleum and refining; shipbuilding). . 815.281	5
LEATHER WORKER: (any industry)	3 - 4
Boot-and-Shoe Maker, Custom; boot maker, custom; (boot & shoe manufacturing) 365.381	
Bottomer, Custom Shoes (boot & shoe Manufacturing) 788.884	
Cutter-Patternmaker, Shoes (boot & shoe manufacturing) 690.782	
Fitter, Custom Shoes (boot & shoe manufacturing) 690.782	
Harness Maker (leather products) 789.781	
Saddle Maker (leather products) 789.781	
Tanner (leather manufacturing) 585.884; 690.780; 589.387; 582.782	
LITHOGRAPHER: Lithoengraver (printing & publishing)	4 - 5
Camera man; photolithographer 972.832	
Lithographic-Press Assistant 651.782	2
Lithographic-Pressman; Offset Pressman 651.782	
Platemaker; Transferer 972.381; 972.781	
Plate grainer 972.782	
Process Artist 972.281	
Proofer 651.782	
Stripper-and-Opaquer 971.381	
Transferer, Hand 972.381	
MACHINIST (any industry) 600.280	4
Aircraft Machinist (air transportation; aircraft mfg.) 600.280	
Automobile Machinist (automotive service) 600.280	
Instrument Maker (any industry) 600.280	
Maintenance Machinist; Industrial machine repairman (any ind.) 600.280	
Marine Machinist (shipbuilding) 623. 281	
Outside Machinist (any ind.) 623.281; 600.280	
Precision-Tool Grinder (any ind.) 600.280	
Roll Turner (iron and steel) 604.280	
MAILER: (printing and publishing) 239.587	4 - 5
MAINTENANCE MECHANIC - REPAIRMAN: (any industry)	
Artillery Repairman; armament mechanic 736.781; 632.281 . . . 801.381	4
Bakery Equipment Mechanic 633.281	
Bookbinding-Machines Mechanic (print. & pub.) 638.281	4
Business-Machines Mechanic; duplicating-machines repairman; office-machines mechanic 633.131; 633.281	3 - 4
Camera Repairman 714.281	3
Chemical-Process-Equipment mechanic (chem.) 630.281	4
Cigar-Making-Machine Mechanic (cigar mfg.) 629.281	3 - 4
Composing-Room Machniist; monotype machine; printing-equipment mechanic (print. & pub.) 627.281	5 - 6
Elevator Repairman 825.381	4
Gas-Engine Repairman (any industry) 625.281	3 - 4
Gas-Meter Repairman (light and power) 710.281	3
Gun Repairman; gunsmith; small arms repairman 632.281	3 - 4
Hydraulic-Equipment Mechanic (any industry) 638.281	3 - 4
Industrial-Sewing-Machine Repairman 639.281	3 - 4
Instrument Repairman 710.281	4
Knitting-Machine Mechanic; full-fashion-hosiery-knitting-mach. mechanic (hosiery; knit goods) 689.280	2 - 3

TRADE	YEARS TRAINING
Lock-and-Safe Repairman; locksmith 709.281	3 - 4
Orthopedic-Shoe Repairman 365.381	3
Power House Repairman (light and power) 631.281	3 - 4
Pump Repairman 630.281	3 - 4
Scale Repairman 633.281	3
Shoe Repairman 365.381	2 - 3
Watch-Clock Repairman 715.281	3 - 4
Wind-Tunnel-Maintenance Mechanic (aircraft mfg.) 827.381	4
X-Ray Equipment Repairman 729.281	3 - 4
MARKING-DEVICE MAKER: (marking device; printing and publishing).	2 - 3
Rubber-Stamp Marker; rubber-die maker 733.381	
MATTRESS MAKER, CUSTOM: (mattress) 780.884	2 - 3
METAL POLISHER-AND-BUFFER: (any industry) 705.884	3 - 4
Polisher-Finisher; lapper (jewelry) 705.884	3
Sandbobber (silverware; holloware) 705.884	3
MILLWRIGHT: (any industry) 638.281	4
Outside Machinist (any industry) 623.281	4
MILLER: (grain mill) 521.782	4
MODEL MAKER: (any industry)	4
Model Maker, Metal; experimental-body builder, metal 693.381; 600.280; 709.281	
Model Maker, Plastic 709.281; 693.381; 661.381	
Model Maker, Wood; experimental-body builder, wood 693.380; 668.381; 661.381	
MUSICAL-INSTRUMENT MECHANIC: (musical instrument)	3 - 4
Accordion Maker 730.281	
Musical-Instrument Repairman 730.281	
Piano Repairman-and-Tuner 730.281; 730.884	
Pipe Organ Builder 730.281	
Pipe Organ Installer-Repairman 730.381	
Stringed-Instrument Repairman 730.281	
Violin Maker 730.281	
OPERATING ENGINEER: hoisting-and-portable engineer (const.)	3 - 4
859.883	
Earth-Moving Equipment Mechanic 620.884	
Grade-and-Paving Equipment Operator 851.883; 852.883	
Heavy Duty Repairman 859.823	
Plant Equipment Operator 859.883	
Universal Equipment Operator 859.883	
Well Driller 859.782; 930.782; 930.280	
OPTICAL TECHNICIAN: Optician (optical goods) 712.251; 713.381	4
Ophthalmic Finisher; benchman; finisher, mounter 711.381	
Ophthalmic Surfacer; lens grinder, surfacer 713.781	
Precision-lens grinder; precision-lens polisher 675.380; 711.781	
ORTHOPEDIC-PROSTHETIC TECHNICIAN: (surgical-dental appliances)	3 - 4
Artificial Eye Maker 713.281	
Dental Technician; dental-plate maker; metal-denture maker; porcelain-acrylic-denture maker 712.381; 712.281	
Orthopedic Appliance Technician 721.281	
Orthopedic-Shoe Builder; pedo-practor 712.281; 788.281	
Orthotist; bracemaker 078.268; 712.281	
Prosthetist; artificial limb maker, metal; artificial limb maker, wood 712.281	
Leather Worker 712.781	
PAINT MAKER: (Paint and varnish) 550.782	3 - 4

TRADE	YEARS TRAINING
PAINTER-AND-DECORATOR: (any industry)	
Aircraft Painter-Doper (air trans & aircarft mfg.) 849.781; 845.781	2 - 3
Automobile Painter (automotive service) 845.781	3
Furniture Finisher; hardwood finisher (furniture). 763.381 . .	2 - 3
Painter (construction). 840.781	
Painter (shipbuilding). 840.781	3
Stained-Glass Painter(glass products). 144.081	4
Statuary Painter (statuary and art goods). 144.081	3
PATTERNMAKER: (foundry)	5
Metal Patternmaker. 963.281	
Plaster Patternmaker, plaster pattern caster (aircraft mfg.) 777.381	
Wood Patternmaker. 661.281	
PHOTOENGRAVER: (Printing and Publishing)	5 - 6
Copper Etcher. 971.381	
Finisher. 971.391	
Masker. 971.684	
Photographer. 971.382	
Proofer. 651.782	
Router-and-Blocker. 979.782	
Stripper-and-Printer. 971.381	
Tint Layer; ben-day artist. 970.381	
Zinc Etcher. 971.381	
PHOTOGRAPHER: (any industry)	3
Commercial Photographer; micro-photographer. 143.062	
Film Developer - Printer, Motion Picture. 976.782	
Photograph Retoucher. 970.281	
Portrait Photographer. 143.062	
PLASTERER: (construction)	3 - 4
Caster. 842.781	
Model-Mold Maker (stationery and art goods). 777.381	
Plasterer. 842.781	
Plate Grainer. 972.782	
Plater, Plastics (Vacuum System). 500.380	
PLATE PRINTER: (printing & publishing)	4
Die Stamper; steel-die embosser. 651.282	
Plate Printer; engraving pressman; pressman, copperplate. 651.782	
PLUMBER-PIPE FITTER: (any industry)	4 - 5
Gas Fitter. 862.381	
Pipe Fitter. 862.381; 862.281	
Plumber. 862.381	
Sprinkler Fitter. 862.381	
Steam Fitter. 862.381	
POTTERY WORKER: (pottery and porcelain)	3
Caster. 575.884	
Decorating-Kiln Placer. 573.782	
Dipper. 774.884; 570.885	
Handler. 575.884	
Jiggerman. 774.884	
Kiln Drawer. 573.887	
Kiln Placer. 573.886	

TRADE	YEARS TRAINING
POTTERY WORKER: (pottery and porcelain) continued	
Liner 740.381	
Mold Maker 777.781	
Sagger Maker 774.784	
Tinter 970.381	
Turner 774.884	
PRINTER: Compositor (printing & publishing) 973.381	5 - 6
PRINTING PRESSMAN: (printing & publishing)	
Cutting-and-Creasing Pressman; envelope-machine adjuster; machine set-up man; paper-goods-machine adjuster; printer-slotter (paper goods; paper box mfg.) 649.782; 651.782; 641.885	
Cylinder Pressman 651.782	4 - 5
Embossing Pressman (printing & publishing) 659.782.	4 - 5
Newspaper (web) Pressman 651.782	4 - 5
Offset Pressman 651.782	4 - 5
Platen Pressman 651.782	4 - 5
Press Assistant (all branches) 751.782	2 - 3
Rotary (magazine) Pressman 751.782	4 - 5
Specialty Pressman; bread-wrapper-and-label pressman 751.782.	4 - 5
RIGGER: (any industry) 921.280	2
Ship Rigger (shipbuilding) 806.281	4
RIVER PILOT: (water transportation) 197.133	3
ROOFER: (construction)	2 - 3
Composition Roofer 866.381	
Damper-Waterproofer 843.884	
Slate-and-Tile Roofer 866.381	
ROTOGRAVURE ENGRAVER: (printing and publishing)	5 - 6
Layout Man, Color 141.081	
Photographer 971.381	
Roto Etcher 971.381	
Roto Plater-Grinder 500.781	
Roto Printer-Transferer 976.782	
Roto Retoucher 970.381	
Roto Stager 971.884	
SHEET METAL WORKER: (any industry)	3 - 4
Aircraft Metalsmith (air trans.; aircraft mfg.) 804.281	
Coppersmith (sheet metal; shipbuilding) 804.281; 862.281	
Metal-Sign Maker (signs) 804.281	
Metal Spinner (machine shop) 619.782	
Sheet-Metal Worker; sheet-metal mechanic; sheet-metal worker, shop (construction; sheet metal; shipbuilding) 804.281	
SIGN, SCENE-AND-PICTORIAL ARTIST: (any industry) 970.381	3 - 4
Commercial Artist 144.081; 970.381; 142.081	2
Sign Painter, Hand (all branches) 970.381	3 - 4
Silk-Screen-Process Printer 979.381	
SILVERSMITH: (silverware) 700.281	3 - 4
Solderer 700.781	
Spinner 619.782	
STATIONARY ENGINEER: Operating Engineer, Stationary (any ind.) 950.757 .	3 - 4
Power House Engineer (light & Power) 952.787	
Power House Operator; substation operation; switchboard operator (light and power) 952.987; 952.782	
STEROTYPER: (Printing & publishing) 975.782	5 - 6

TRADE	YEARS TRAINING
STONEWORKER: (stoneworking)	
Granite Cutter, Sandblaster 771.281	3
Granite Surface Plate Lapper 775.281	
Machine Stone-Cutter; granite-lathe oper.; machine man 673.782;675.782; 673.782	2 - 3
Monument Maker; stone carver 771.281	3 - 4
Stone Cutter, granite cutter 771.381	3
Stone Polisher; turner polisher 673.782; 775.884	2
Stone Sawyer; granite sawyer 677.782; 670.782	2
STONEMASON: (construction) 861.381	3
Stone Setter; marble setter 861.381	
STOVE MOUNTER: (stove) 706.887; 869.281	3
TAILOR: (garment; retail trade) 785.261	4
Alteration Tailor; ready-to-wear tailor; bushelman (retail trade) 785.281	2
Custom Tailor (retail trade) 785.261	4
Finisher; tailoress (garment) 782.884	2
Patternmaker, Garment 781.381	3
Sample Maker, ladies tailor (garment) 785.381	3 - 4
Tailor, shop tailor (garment) 785.381	3 - 4
TELEPHONE WORKER: (telephone and telegraph)	4
Cable Splicer 829.381	
Central Office Installer-Repairman 822.381; 822.281	
Combination Man 822.281	
Lineman 822.381	
PBX Installer 822.281; 822.381	
TERRAZZO WORKER: (construction) 861.781	3
TEXTILE TECHNICIAN-MECHANIC: (textile)	
Card-Room Mechanic 681.280	3 - 4
Comb Fixer 681.280	3 - 4
Drawing-Frame Fixer 681.280	3 - 4
Dyer, Master 582.138	3 - 4
Jacquard Designer; jacquard-card cutter 685.781; 683.782; 142.081	4
Knitter, Full Fashion 654.782	2 - 3
Spinning-Room Mechanic, Mule or Ting 681.280	3 - 4
Twister-Frame Fixer 681.280	3 - 4
Warp-Preparation Mechanic 681.280	3 - 4
Weave-Room Mechanic; loom fixer 683.280	3 - 4
Weaver 683.787	2 - 3
Wool Sorter 589.387	2 - 3
TILE SETTER: tile layer (construction) 861.781	3
TOOL-AND-DIE MAKER: (any industry)	
Cutting-Die Maker; die maker, paper; steel-rule die maker (any industry) 739.381	4
Diamond-Die Maker (machine shop; wire drawing) 770.781	4
Die-Casting-Die Maker (machine shop) 601.280	4
Die Maker 601.281	4 - 5
Die Maker (Carbide Tools) 601.281	
Die Maker; hub cutter (jewelry) 601.381	4
Die Sinker; trimmer-die sinker and/or impression-die sinker (machine shop) 601.280	4 - 8
Gage Maker (machine shop) 601.281	4 - 5

TRADE	YEARS TRAINING
TOOL-AND-DIE MAKER (any industry) (continued)	
Jig and Fixture Builder (aircraft manufacturing; automobile manufacturing). 693.280	4
Mold Maker (machine shop). 600.280; 705.884	4
Plastic Mold and Fixture Maker (fabric plastics products). 754.381	3
Plastic-Tool-and-Die-Maker. 601.280.	4
Tool-and-Die Repairman (machine shop). 601.280	4 - 5
Tool Maker (machine shop). 601.280	4 - 5
Tool Maker (jewelry) 601.280	4
Wood Tool Maker (aircraft manufacturing). 693.280	4
UPHOLSTERER: (any industry)	3 - 4
Automobile Upholsterer (automotive service). 780.381	
Upholsterer (furniture). 780.381	
Upholstery Repairman. 780.381	
WALL-PAPER CRAFTSMAN: (wallpaper)	
Color Mixer. 550.884	4
Print Cutter-Roller Router. 979.281	4 - 5
Sketch Maker. 979.781	5
Wallpaper Printer 652.782	4
WIRE WEAVER: (wirework). 709.884; 616.885	3 - 4
WOOD CARVER: (any industry). 761.281; 661.381; 664.782	3 - 5
Battenmaker (textile)	
Shoe-Last Maker, Wood (boot and shoe manufacturing)	
Shuttlemaker (textile)	
Spindle Carver (furniture)	
Wood Carver, Hand (any industry)	

OHIO REPRESENTATIVES

BUREAU OF APPRENTICESHIP AND TRAINING

REGIONAL OFFICE

Thomas Augustine, Regional Director
219 South Dearborn Street
Room 860
Federal Office Building
Chicago, Illinois 60604
Telephone No. 312-353-7205

BAT OFFICES AND FIELD REPRESENTATIVES:

State Office

William L. Sells, State Supervisor
Mrs. Clare McArtor and Miss Shirley Keith, Secretaries
74 East Gay Street
Room 202
Columbus, Ohio 43215
Telephone: Area Code 614 469-7375, 7377, 7379

Akron Area

Harry S. Quine, Apprenticeship and Training Representative
Miss Helen Almason, Secretary
72 South High Street
Akron, Ohio 44308
Telephone: Area Code 216 762-9511, 2360, 2363

Canton Area

Clayton B. Gabel, Apprenticeship and Training Representative
Mrs. Marie Remley, Secretary
1021 Market Avenue, N.
Canton, Ohio 44702
Telephone: Area Code 216 455-8971, 4263, 4264

Cincinnati Area

Earl A. Shobe and Irvin G. Feldman, Apprenticeship and Training Representatives
Secretarial Vacancy
Room 740, U.S. Post Office
Cincinnati, Ohio 45202
Telephone: Area Code 513 684-2200, 2112, 2113, 2114,
FTS: 513-684-2112, 2113, 2114

Cleveland Area

O. R. Poole, Daniel T. McCarthy, and James E. White, Apprenticeship and Training Representatives
Helen Zingale and Felicia Ksiazek, Secretaries
Cleveland, Ohio 44119
Telephone: Area Code 216 522-2121, 3823, 3824, 3825
FTS: 216-684-3823, 3824, 3825

Columbus Area

Joseph L. Phillips and Jack D. Hughes, Apprenticeship and Training Representatives
Mrs. Helen Kozobarich, Secretary
74 East Gay Street, Room 205
Columbus, Ohio 43215
Telephone: Area Code 614 469-7373, 7376

Dayton Area

Merle Hempel, Apprenticeship and Training Representative
Mrs. Jean Smock, Secretary
25 South Main Building, Room 701
25 South Main Street
Dayton, Ohio 45402
Telephone: Area Code 513 461-4830, 5188, 5189
FTS: 513-461- 5188, 5189

Toledo Area

Thomas A. Wendt, Apprenticeship and Training Representative
Mrs. Jean Cochran, Secretary
7206 Federal Building
Toledo, Ohio 43604
Telephone: Area Code 419 259-6200, 6390, 6391
FTS: 419-259-6390, 6391

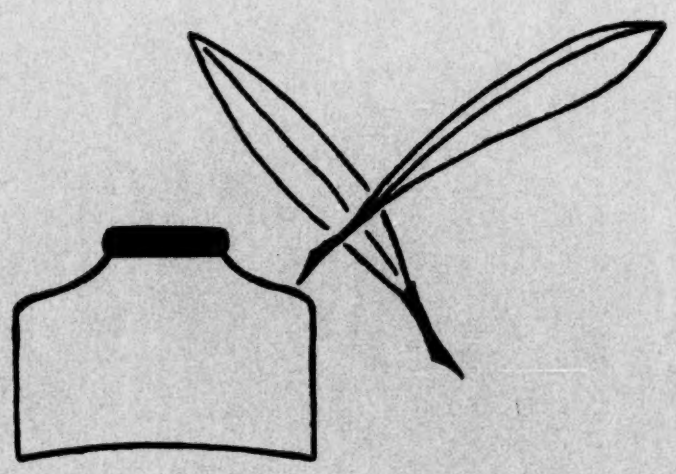
Youngstown Area

Paul A. Moore, Apprenticeship and Training Representative
Miss Mariann Viggiani, Secretary
311 U.S. Post Office
Youngstown, Ohio 44501
Telephone: Area Code 216 746- 8071, 3204, 3219
FTS: 216-746-3204, 3219

COUNTIES ASSIGNED TO BAT STAFF: OFFICE OF JURISDICTION:

Adams	Feldman	Cincinnati
Allen	Wendt	Toledo
Ashtabula	Moore	Youngstown
Athens	Hughes	Columbus
Auglaize	Wendt	Toledo
Belmont	Moore	Youngstown
Brown	Feldman	Cincinnati
Butler	Shobe	Cincinnati
Carroll	Gabel	Canton
Clark	Hempel	Dayton
Champaign	Hempel	Dayton
Clermont	Feldman	Cincinnati
Clinton	Shobe	Cincinnati
Columbiana	Moore	Youngstown
Coshocton	Gabel	Canton
Crawford	Wendt	Toledo
Cuyahoga	Poole	Cleveland
Cuyahoga	McCarthy	Cleveland
Cuyahoga	White	Cleveland
Darke	Hempel	Dayton
Defiance	Wendt	Toledo
Delaware	Phillips	Columbus
Erie	McCarthy	Cleveland
Fairfield	Hughes	Columbus
Fayette	Shobe	Cincinnati
Franklin	Phillips	Columbus
Franklin	Hughes	Columbus
Fulton	Wendt	Toledo
Gallia	Feldman	Cincinnati
Geauga	White	Cleveland
Green	Hempel	Dayton
Guernsey	Gabel	Canton
Hamilton	Shobe	Cincinnati
Hamilton	Feldman	Cincinnati
Hancock	Wendt	Toledo
Hardin	Wendt	Toledo
Harrison	Moore	Youngstown
Henry	Wendt	Toledo
Highland	Shobe	Cincinnati
Hocking	Hughes	Columbus
Holmes	Gabel	Canton
Huron	McCarthy	Cleveland
Jackson	Feldman	Cincinnati
Jefferson	Moore	Youngstown
Knox	Phillips	Columbus
Lake	White	Cleveland
Lawrence	Feldman	Cincinnati
Logan	Hempel	Dayton
Lorain	McCarthy	Cleveland
Lucas	Wendt	Toledo
Madison	Phillips	Columbus
Mahoning	Moore	Youngstown
Mahoning	Moore	Youngstown
Marion	Phillips	Columbus
Medina	Quine	Akron
Meigs	Hughes	Columbus
Mercer	Wendt	Toledo
Miami	Hempel	Dayton
Monroe	Hughes	Youngstown
Montgomery	Hempel	Dayton
Morgan	Hughes	Columbus
Morrow	Phillips	Columbus
Muskingum	Gabel	Canton
Noble	Hughes	Youngstown
Ottawa	Wendt	Toledo
Paulding	Wendt	Toledo
Perry	Hughes	Columbus
Pickaway	Hughes	Columbus
Pike	Feldman	Cincinnati
Portage	Quine	Akron
Preble	Hempel	Dayton
Putnam	Wendt	Toledo
Richland	Quine	Akron
Ross	Hughes	Columbus
Sandusky	Wendt	Toledo
Scioto	Feldman	Cincinnati
Seneca	Wendt	Toledo
Shelby	Hempel	Dayton
Stark	Gabel	Canton
Summit	Quine	Akron
Trumbull	Moore	Youngstown
Tuscarawas	Gabel	Canton
Union	Phillips	Columbus
Van Wert	Wendt	Toledo
Vinton	Hughes	Columbus
Warren	Shobe	Cincinnati
Washington	Hughes	Youngstown
Wayne	Quine	Akron
Williams	Wendt	Toledo
Wood	Wendt	Toledo
Wyandot	Wendt	Toledo

Correspondence or Home Study Schools



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PRIVATE CORRESPONDENCE OR HOME STUDY SCHOOLS

Home study enables a person to obtain thorough instruction in current methods and practices within a respective field of interest or a field to which advancement is sought without interruping regular employment. Home study courses are now available covering almost every known trade and vocation.

High schools approved by the State Department of Education are not authorized to grant credit for work done through correspondence schools, unless required stipulations and high school standards are met. Anyone interested in further information concerning high school credit for such courses should consult his local school board or superintendent.

The following schools offer courses of many different types, including business, professional, and trade school subjects. These schools have been inspected and approved as of July, 1968, by the National Home Study Council, 1601 Eighteenth Street, N.W., Washington, D. C., 20009.

For schools whose course or courses of study are not self-explanatory from the name of the school, a brief description is given of the courses offered.

Academy for Home Study
417 S. Dearborn Street
Chicago, Illinois 60605
Complete high school program with academic, secretarial or general business majors

Academy of Millinery Design
Little Falls, New Jersey 07024

Advance School of Business
5944 North Newark Avenue
Chicago, Illinois 60631

Advance Trade School
5944 North Newark Avenue
Chicago, Illinois 60631
Electrical Service and Engine Repair, Refrigeration and Air-conditioning Service, School of Business

Airline Personnel Training by Humboldt, Incorporated
2201 Blaisdell Avenue, South
Minneapolis, Minnesota 55404

Allied Institute of Technology
1338-42 South Michigan Avenue
Chicago, Illinois 60605

American Association of Medical Record Librarians
211 East Chicago Avenue
Chicago, Illinois 60611

American Automation Training Centers, Inc.
2022 Main Street
Kansas City, Missouri 64108

American Computer Institute
300 Park Avenue, South
New York, New York 10010

American Institute of Maintenance
710 West Wilson Avenue
Glendale, California 91209
Maintenance and Custodial Supervision

American School
Drexel Avenue at 58th Street
Chicago, Illinois 60637
Fifth-three basic courses

American School of Photography
835 Diversey Parkway
Chicago, Illinois 60614

American Technical Society
850 East 58th Street
Chicago, Illinois 60637
Vocational Training

American Technological Institute
35 Mason Street
Greenwich, Connecticut
Review courses for State Professional Engineering License Examination

Art Instruction Schools
500 South 4th Street
Minneapolis, Minnesota 55415

Atlantic School
2020 Grand Avenue
Kansas City, Missouri 64108
Airline Career Training

Automation Training, Inc.
5701 Waterman Avenue
St. Louis, Missouri 63112

Bell & Howell Schools
4141 West Belmont Avenue
Chicago, Illinois 60641
Electronics and Communications

Belsaw Institute
315 Westport Road
Kansas City, Missouri 64111
Locksmithing

Bookkeeping-Accounting Institute
5701 Waterman Avenue
St. Louis, Missouri 63112

Britannica Institute for Executive Development
425 North Michigan Avenue
Chicago, Illinois 60611
Management Training

Britannica Schools, Inc.
425 North Michigan Avenue
Chicago, Illinois 60611
High school and adult self-improvement courses

Business Electronics School
209 West Jackson Boulevard
Chicago, Illinois 60606
Programming for Digital Computers

Career Academy's Division of Famous Broadcasters
825 North Jefferson Street
Milwaukee, Wisconsin 53202
Radio and TV Announcing and Broadcasting

Career Academy's Division of Medical Office Assisting
825 North Jefferson Street
Milwaukee, Wisconsin 53202

Career Academy's Division of Hotel-Motel Training
825 North Jefferson
Milwaukee, Wiscon 53202

Career Academy's Division of Investment Banking
825 North Jefferson Street
Milwaukee, Wisconsin 53202

Central Technical Institute
1644 Wyandotte Street
Kansas City, Missouri 64108

Chicago School of Interior Decoration
835 Diversey Parkway
Chicago, Illinois 60614

Chicago Technical College
2000 South Michigan Avenue
Chicago, Illinois 60616

Cleveland Institute of Electronics
1776 East 17th Street
Cleveland, Ohio 44114

Commerical Trades Institute
1400 West Greenleaf Avenue
Chicago, Illinois 60626

Continental Schools
1330 West Olympic
Los Angeles, California 90015
Cartooning and Commercial Art (Spanish and English)

CREI, Home Study Division
McGraw-Hill Book Company
3224 Sixteenth Street, NW
Washington, D. C.
College-level Programs in Electronic Engineering Technology and Special Programs for Engineers

DeVry Institute of Technology
4141 Belmont Avenue
Chicago, Illinois 60641

Doll Hospital School
2251 Barry Avenue
Los Angeles, California 90064

Educational Institute for the American Hotel & Motel Association
Michigan State University
Kellogg Center
East Lansing, Michigan 48823
Hotel and Motel Management, Food and Beverage Management

Famous Artists Schools
Westport, Connecticut 06881

Famous Photographers
Westport, Connecticut 06881

Famous Writers School
Westport, Connecticut 06881

Genological Institute of America
11940 San Vincente Boulevard
Los Angeles, California 90049

Good Dressmaking Institute
2251 Barry Avenue
Los Angeles, California 90049

Grantham School of Electronics
1505 North Western Avenue
Hollywood, California 90027

Hadley School for the Blind
700 Elm Street
Winnetka, Illinois 60093
Over 100 courses offered through Braille and/or recordings-elementary school beginning at fifth grade, complete high school programs, college courses by individual request

Hemphill Schools
1584 West Washington Boulevard
Los Angeles, California 90007
All courses offered in Spanish language--programs for training technicians and service personnel in programs for electronics and mechanics, basic and advanced English

Henry George School of Social Science
50 East 69th Street
New York, New York 10021
Six courses in economics and related subjects

Hills Business University
920 North Robinson Avenue
Oklahoma City, Oklahoma 73102
Commercial Courses

Home Study Institute
6940 Carroll Avenue
Takoma Park, Maryland 20012
Complete courses for elementary and secondary school level, 48 college-level courses

Industrial Training School, Inc.
11130 Grand River Avenue
Detroit, Michigan 48204
Courses in Time Study, Methods Engineering and Industrial Supervision

Institute of Applied Science
1920 Sunnyside Avenue
Chicago, Illinois 60640
Criminal and Civil Identification and Investigation

Institute for Training in Municipal Administration
International City Managers' Assoc.
1140 Connecticut Avenue, NW
Washington, D. C. 20036

Insurance Adjusters School, Inc.
1901 N.W. 7th Street
Miami, Florida 33125

International Accountants Society, Inc.
209 West Jackson Boulevard
Chicago, Illinois 60606

International Correspondence Schools
Scranton, Pennsylvania 18515
General and specialized courses

Interstate Training Service
4035 N.E. Sandy Boulevard
Portland, Oregon 47212
Mechanic and Handicraft Courses

ITT Educational Services, Inc.
5610 Crawfordsville Road
Indianapolis, Indiana 46224

Jetma Technical Institute
103 South Airport Boulevard
South San Francisco, California 94080
Gas Turbine Engine Maintenance and Repair

John Tracy Clinic
806 West Adams Boulevard
Los Angeles, California 90007
Philosophy and Methods of Teaching Pre-school Deaf Children

Labor Department of the National Safety Council
425 North Michigan Avenue
Chicago, Illinois 60611
Course in Safety for Labor Union Personnel

LaSalle Extension University
417 South Dearborn Street
Chicago, Illinois 60605
High School courses, specialized vocational training, courses in business, law, accounting

Lewis Hotel-Motel Training School
2301 Pennsylvania Avenue
Washington, D. C. 20037

Lifetime Career Schools
2251 Barry Avenue
Los Angeles, California 90064
Landscaping, Floral Work, Dressmaking, Doll Repairs, Decorative Arts and Crafts

Lincoln Extension Institute
1401 West 75th Street
Cleveland, Ohio 44103
Management Courses for Business and Industry

Locksmithing Institute
Little Falls, New Jersey 07024

Massey Technical Institute
148 East 7th Street
Jacksonville, Florida 32206

Metals Engineering Institute
American Society for Metals
Metals Park, Ohio 44073

Midwest Automation Training
2022 Main Street
Kansas City, Missouri 64108
Data Processing and Computer Operation

Motor Transportation Division of the National Safety Council
423 North Michigan Avenue
Chicago, Illinois 60611
Course in Motor Fleet Safety Supervision

National Baking School
835 Diversey Parkway
Chicago, Illinois 60614

National Camera Repair School
2000 West Union Street
Englewood, Colorado 80110

National Floral Institute
2251 Barry Avenue
Los Angeles, California 90064

National Institute of Drycleaning Correspondence School
909 Burlington Avenue
Silver Spring, Maryland 20910

National Institute of Meat Packing
520 North Seymour Avenue
Mundelein, Illinois 60060

National Landscape Institute
2251 Barry Avenue
Los Angeles, California 90064

National Photo Coloring School
835 Diversey Parkway
Chicago, Illinois 60614

National Radio Institute
3939 Wisconsin Avenue, NW
Washington, D. C. 20016

National School of Dress Design
835 Diversey Parkway
Chicago, Illinois 60614

National School of Forestry and Conservation
2000 P Street, NW
Washington, D. C. 20036

National School of Home Study
229 Park Avenue, South
New York, New York 10003
High School, college preparatory, business preparatory and special vocational courses

National Schools
Figueroa and Santa Barbara Avenues
Los Angeles, California 90037
General high school and vocational courses

National Tax Training School
Monsey, New York 10952
Federal Income Tax Course, Higher Course in Federal Taxes, Social Security Course

National Technical Schools
4000 South Figueroa Street
Los Angeles, California 90037

New York Institute of Photography
10 West 33rd Street
New York, New York 10001

New York School of Writing
630 9th Avenue
New York, New York 10036

Newspaper Institute of America
2 Park Avenue
New York, New York 10016
Journalism, Dramatic Writing, Specialized Writing

Niles Bryant School
3631 Stockton Boulevard
Sacramento, California 95820
Piano and Organ Tuning and Repair

North American Institute of Systems and Procedures
4401 Birch Street
Newport Beach, California
Courses in Systems Management

North American School of Advertising
4401 Birch Street
Newport Beach, California 95820

North American School of Conservation
4401 Birch Street
Newport Beach, California 92660

North American School of Drafting
4401 Birch Street
Newport Beach, California 92660

North American School of Recreation
4401 Birch Street
Newport Beach, California 92660
Preparatory Courses for Careers in the Field of Recreation

North American Institute of Surveying and Mapping
4401 Birch Street
Newport Beach, California 92660
Courses in Surveying and Mapping

North American School of Travel
University Plaza
Campus Drive
Newport Beach, California 92660
Preparation Courses for Careers in Travel Industry

Palmer Writers School
500 South Fourth Street
Minneapolis, Minnesota 55415

Philco Technical Institute
219 North Broad Street
Philadelphia, Pennsylvania 19107
Courses for the Experienced Technician and Field Engineer

Radio Television Training of America
229 Park Avenue, South
New York, New York 10003

RCA Institutes, Inc.
320 West 31st Street
New York, New York 10001
Electronics, Drafting, Computer Programming

Refrigeration Service Engineers Society
2720 Des Plaines Avenue
Des Plaines, Illinois 60018
Refrigeration and Air-conditioning

Safety Training Institute
National Safety Council
425 North Michigan Avenue
Chicago, Illinois 60611
Courses in Supervision for Safety and in Human Relations

School of Applied Engineering Division
Advance Trade School
5944 North Newark Avenue
Chicago, Illinois 60631
Drafting

School of Modern Photography
Little Falls, New Jersey 07424

School of Speedwriting
55 West 42nd Street
New York, New York 10036

Slip Cover School
Little Falls, New Jersey 07424

Southern States Academy
Westbury Square Professional Building
Houston, Texas 77035
High School courses

Technical Education Corporation
5701 Waterman Avenue
St. Louis, Missouri 63112
Tabulation, Wiring and Programming of Computers

Technical Home Study Schools
Little Falls, New Jersey 07424
Millinery Design, Locksmithing, Photography, Slip Covers and Upholstery, Typewriter Repair

Technical Training International,
Incorporated
203 Lincoln-Broadway Building
1475 North Broadway
Walnut Creek, California 94596
Courses in Electronics and Diesel

Truck Marketing Institute
2942 De La Vina Street
Santa Barbara, California 93105
Motor Truck Selection and Sales

Typewriter and Business Machine
Repair School
Little Falls, New Jersey 07424

Universal Airlines Personnel Schools,
Incorporated
1901 N.W. 7th Street
Miami, Florida 33125
Airline Personnel Training

Universal Motel Schools, Inc.
1901 N.W. 7th Street
Miami, Florida 33125
Motel Operation

Universal Schools, Inc.
6801 Hillcrest Avenue
Dallas, Texas 75202
Accident Investigation, Claims
Adjusting, Advertising and Survey
Interviewing

Upholstery Trades School
Little Falls, New Jersey

U.S. School of Music
145 Main Street
Port Washington, New York 11050
Courses for Various Instruments

Utilities Engineering Institute
417 South Dearborn Street
Chicago, Illinois 60605
Air-conditioning, Refrigeration,
Heating, Diesel

Washington School of Art
145 Main Street
Port Washington, New York 11050
General Art Course

Wayne School
417 South Dearborn Street
Chicago, Illinois 60605
Dental Assisting and general
diploma high school courses

Weaver Airline Personnel School
3521 Broadway
Kansas City, Missouri 64111

Weaver Institute of Property Management
3521 Broadway
Kansas City, Missouri 64111
Operation and Management of Apart-
ments, Motels and Hotels

Weaver School of Real Estate
3521 Broadway
Kansas City, Missouri 64111
Buying, Selling, Brokerage and
Appraisal of Real Estate

Writer's Digest
22 East 12th Street
Cincinnati, Ohio 45210

Writers Institute
2 Park Avenue
New York, New York 10016
Journalism, Dramatic Writing,
Specialized Writing

STATEMENTS

OF

EQUIVALENCE

GENERAL
EDUCATIONAL
DEVELOPMENT
EXAMINATIONS

570

EQUIVALENCE EXAMINATIONS

I N T R O D U C T I O N

Persons who have not completed their formal high school training or some part thereof are able to establish that equivalence through a program administered by the Ohio State Department of Education. The Statement of High School Equivalence and the Statement of Equivalence for Grades 8, 9, or 10 indicate that this competency has been achieved through examination. (NOTE: The Statement of High School Equivalency is not a substitute for a high school diploma).

An increasing number of employers, employment personnel including Joint Apprenticeship Councils, and training referral agencies will accept an equivalency statement, earned through valid examination, in lieu of a high school education or part thereof. Before applying for an equivalency examination, each prospective candidate should check with the agency(s), institution(s), and/or employer(s) from whom he may later seek acceptance to determine whether or not an equivalence statement is acceptable.

For information about the educational requirements of a specific licensed occupation, see the section "Education and Training" of that occupational brief in Section III, Licensed Occupations and Businesses in Ohio, Employment Information Series.

STATEMENT OF HIGH SCHOOL EQUIVALENCY

The statement is awarded to eligible applicants on the basis of the General Educational Development (GED) Tests. These tests evaluate skills in comprehension and interpretation of those materials considered to be a part of the common culture of most high school graduates. Most colleges accept this statement as meeting their entrance requirements (check with each college individually). Many employers require a statement as a prerequisite to employment or promotion.

APPLICATION: Application forms may be secured by writing to or contacting any of these individuals or addresses:

State Supervisor
OHIO TESTING SERVICES
Division of Guidance and Testing
751 Northwest Boulevard
Columbus, Ohio 43212

Any local office of the
OHIO STATE EMPLOYMENT SERVICE

Any General Education Development Testing Center (see list on page 4.)

The procedure then:

(1) Submit a completed application form with the $5.00 service fee to the State Supervisor, Ohio Testing Services.

(2) The application will be processed and eligible applicants will receive an authorization letter which is to be taken to the testing center.

(3) The test must be taken within 90 days after the authorization letter has been issued, or the application will be cancelled, the fee forfeited.

Veterans and present members of the Armed Forces who have already taken the GED tests through USAFI need not seek such prior approval. However, they must submit a completed application form and service fee. Ohio Testing Services will then request their scores from USAFI.

ELIGIBILITY: To be eligible for the Statement of High School Equivalence an applicant must:

(1) be at least nineteen years of age at the time he applies

(2) be a resident of Ohio.

(3) achieve a standard score of forty or above in each of the five subtests and an average standard score of at least forty-eight (48) on the complete test battery.

FEES:

(1) The fee of $5.00 must accompany each completed application. This is a service fee and is not refundable even though the test may be failed and no Statement of High School Equivalence is issued. This fee must be paid again when re-applying to take the total battery or any portion thereof.

(2) A testing fee is charged by the Testing Center for actual test administration. Fees vary from one center to another.

(3) There is no application processing fee for patients or inmates of State institutions and veterans' hospitals.

EXAMINATION: After receiving authorization, applicants should make their own testing arrangements at one of the officially designated Testing Centers in Ohio (see list of GED testing centers which follows).

The test battery consists of five subtests covering the following areas:

(1) Correctness and Effectiveness of Expression
(2) Interpretation of Reading Materials in Social Studies
(3) Interpretation of Reading Materials in Natural Sciences
(4) Interpretation of Literary Materials
(5) General Mathematical Ability

RE-EXAMINATION: An applicant who fails the GED test may apply to retake the examination again after a minimum waiting period of six (6) months. Exceptions may be made to this waiting period, but only on presentation of evidence that the applicant has enrolled in and completed a training program for the purpose of removing deficiencies. The application and service fee are required for retesting. An applicant need only retake those subtests which were previously failed. If only the average standard score needs to be raised, one or more of the five subtests may be retaken.

STATEMENT OF EQUIVALENCE FOR GRADE 8, 9, OR 10

The Statement of Equivalency for Grade 8, 9, or 10 is issued to applicants upon successful performance of the Ohio Equivalency Tests for Grades 8, 9, and 10.

APPLICATION: Application forms should be requested from a local school counselor or administrator. The student will forward the completed application and the two dollar ($2.00) service fee to:

State Supervisor
OHIO TESTING SERVICES
Division of Guidance and Testing
751 Northwest Boulevard
Columbus, Ohio 43212

** The test must be taken within ninety (90) days after the authorization letter has been issued or the application will be cancelled and the fee forfeited.

ELIGIBILITY: Any person desiring an Ohio Statement of Equivalence for grade 8, 9, or 10 is eligible to apply.

FEES: A fee of two dollars ($2.00) must accompany the application. Only money orders or certified checks should be used; personal checks cannot be honored. This fee is not refundable. A fee of one dollar ($1.00) is charged for patients or inmates of State institutions and veterans' hospitals.

EXAMINATION: Tests are administered at local schools or certified agencies (ES counselors may request permission of the State Supervisor to administer this equivalency examination). (See list of GED testing centers which follows.) Time needed to take the total test is about four (4) hours and thirty (30) minutes. The subject areas covered are:

ARITHMETIC	SOCIAL STUDIES	VERBAL	SCIENCE
Computation	Content	Paragraph Meaning	General
Concepts	Study Skills	Spelling	-Understanding
Application		-Usage	
		-Punctuation	
		-Capitalization	
		-Dictionary Skills	
		-Sentence Sense	

RE-EXAMINATION: Tests failed may be taken again but only after a lapse of six (6) months. No exception is made to this rule. An applicant need not retake the complete test, but only the subtests which have been failed. If an applicant needs only to raise his average score, he may take one or more of the four subtests.

GENERAL EDUCATIONAL DEVELOPMENT

TESTING CENTERS

The General Educational Development Test may be taken at any one of the 41 official testing centers in this state. Applicants who have been authorized by the State Department of Education, OHIO TESTING SERVICES, must contact the GED test coordinator at one of the following official GED testing centers to make arrangements for testing:

AKRON
ASHTABULA
BELLEFONTAINE
CHARDON
CHILLICOTHE
CINCINNATI
CLEVELAND
COLUMBUS
DAYTON
DEFIANCE
DOVER
EAST LIVERPOOL
FINDLAY
GALLIPOLIS
GEORGETOWN
GREENVILLE
HAMILTON
JACKSON
LEBANON
LIMA
LORAIN
LOUISVILLE
LUCASVILLE
MANSFIELD
MARIETTA
MARION
MIDDLETOWN
PORT CLINTON
ST. CLAIRSVILLE
SANDUSKY
STEUBENVILLE
TIFFIN
TOLEDO
URBANA
VAN WERT
WARREN
WAUSEON
WILBERFORCE
WOOSTER
YOUNGSTOWN
ZANESVILE

FEDERAL *and* STATE FUNDED PROGRAMS

MANPOWER DEVELOPMENT AND TRAINING (CON'T):

WHO MAY QUALIFY FOR MDTA?

The four categories of workers named as eligible to receive training:

(1) unemployed workers (including members of farm families with less than $1,200 annual net income)
(2) persons working substantially less than full time
(3) persons who will be working less than full time or who will become unemployed because their skills have become or are becoming obsolete
(4) persons working below their skill capacity

Before training is undertaken, it must be determined that:

(1) these workers cannot reasonably be expected to get appropriate full-time employment without such training and
(2) there is reasonable expectation of employment in the occupation for which the worker is to be trained.

WHAT TYPES OF TRAINING ARE AVAILABLE?

(1) BASIC EDUCATION TRAINING: training in such basic education skills as reading, writing, language skills, and arithmetic is made available both separate from and in conjunction with occupational training to MDTA applicants who demonstrate such a need in order to make themselves more employable.

(2) INSTITUTIONAL TRAINING: a large number of MDTA applicants are assigned to study and/or training in academic and business institutions, the cost for which is paid by the Federal government in conjunction with the designated institution or state.

(3) ON-THE-JOB TRAINING: training is now available in many locations across the state in an on-the-job situation. Applicants are hired as employees at trainee wages and are trained at the job site by fellow workers or by special instructors. MDTA funds pay employers limited amount for the cost of instruction, materials, and other expenses related to training. Trainees are paid by employers for productive work in accordance with prevailing industry and area wage level standards.

(4) COUPLED ON-THE-JOB TRAINING: in cases where an applicant does not have the necessary prerequisites to begin on-the- job training, classroom or institutional training is provided to him prior to assuming his new on-the-job training assignment.

(5) LESS-THAN-CLASS REFERRALS (INDIVIDUAL REFERRALS): in cases where established institutional or on-the-job training programs are not available on a group basis, applicants may be referred to a public or private school to accomplish the training needed. Up to 90% of the cost of tuition for these programs is assumed by the Federal government, the remainder being provided by the state or by a related state agency.

MANPOWER DEVELOPMENT AND TRAINING

The material presented here is to provide general information to vocational and school counselors about Manpower Development and Training opportunities and is not to be used or interpreted as an official instruction for administrative purposes. Frequent revisions are being made in the MDT Act and in its interpretations. In this light, it will not be possible to keep counselors informed of all revisions in the Employment Information Series. For specific information about training courses available, starting dates, eligibility for enrollment, and training allowances, counselors should contact the nearest local office of the Ohio Bureau of Employment Services or the Chief, Manpower Development and Training, Ohio Bureau of Employment Services, 145 South Front Street, Columbus, Ohio, 43216.

WHAT IS MANPOWER DEVELOPMENT AND TRAINING?

The Manpower Development and Training Act (MDTA) was passed in 1962 as a result of continuing unemployment in spite of steady economic growth, a growing labor force, and the mounting influence of technological change upon employment. Employment improved for the general population, but in view of the persistently high unemployment rate, among other problems, for such working groups as teenagers, non-whites, older workers, and the unskilled, the Act has been amended almost every year with the most recent revisions being made in 1968.

(1) a critical need for more and better trained workers in many vital job classifications
(2) the need to up-date the skills of many workers who had been affected by economic changes resulting from automation or other technological developments, foreign competition, relocation of industry, and shifts in the labor market demands
(3) an unusually rapid growth in the work force in the 1960's and
(4) an unusually large number of young people entering the work force in the 1960's

To meet these problems, Congress directed that:

(1) present and future manpower shortages be identified
(2) persons who can be qualified to fill these shortages through education and training be sought out and trained
(3) government provide the leadership necessary to insure that benefits of automation do not become burdens to society in the form of prolonged and wide-spread unemployment and
(4) improved planning and expanded efforts be taken to help assure that workers of all ages will be trained and available to meet shifting employment needs

(6) YOUTH TRAINING: special youth programs have been designed for disadvantaged out-of-school young people aged 16 through 21 years. Because of their severely impoverished environments, applicants who fall into this category suffer from inadequate educational attainment and work preparation. The services and training provided in special youth programs include:

(a) continuing counseling, testing, and guidance while in the special program
(b) training in basic education and pre-vocational courses, in basic work skills, in work and social adjustment, in occupational training, or in any combination of these
(c) job development and other individualized placement services
(d) follow-up services including counseling, placement, program development and evaluation, and in employment orientation

(7) NON-OCCUPATIONAL TRAINING: this type of training is available for those applicants who need other than specific skill training or retraining. Among the areas of instruction, there are courses in basic education, in communication skills, and in general employment orientation, which may include intensive counseling, counseling instruction with regard to general attitudes and work habits, orientation to the labor market, employer-employee working relationships and the demands of each, suggestions about personal hygiene, and techniques and methods of interviewing for a job.

(8) PART-TIME TRAINING: for applicants who are currently employed and who wish to continue working but who desire to up-grade their own skill level, part-time training is offered. Among several objectives of this program, one is to better prepare participants for promotion and for more highly skilled positions in order that new people may be hired in their places.

WHO PAYS FOR TRAINING?

There is no cost to trainees for any training under this Act. For on-the-job and institutional training programs, most of the cost incurred in training is paid by the Federal government. Employers or other sponsors provide training facilities and pay trainees for all hours spent in their gainful employ.

TRAINING ALLOWANCES

REGULAR TRAINING ALLOWANCE

Unemployed individuals who are selected and referred to training under the Act may be entitled to training allowances if they have at least one (1) year's experience in gainful employment and are either (a) the head of a family or household, (b) a member of a family or

household whose head is unemployed, provided such head did not terminate his employment for the purpose of qualifying a member of his family or household for training allowances, or (c) a single person living alone or with other persons to whom he bears no dependency relationship, including members of his natural family.

An individual who has satisfactorily completed an NYC (Neighborhood Youth Corps) out-of-school program within six (6) months of his referral to MDTA irrespective of the above requirements will be entitled to regular allowances without augments.

YOUTH TRAINING ALLOWANCE

Unemployed disadvantaged youth who are not entitled to a regular training allowance, who are 17 years of age but not yet 22, and who have been selected and referred to training under section 202(b) of the MDT Act or who have been referred to training in other MDTA programs or basic education training as a component element of the training program approved under section 202(b) may be entitled to youth training allowances if they:

(1) are high school graduates, or
(2) have been out of school one year or more at the time of enrollment, or, if out of school for less than one year, the selection and referral officer has determined, based on the youth program counselor's certification, that further school attendance is not appropriate to the youth's circumstances, such as needs, aptitude, capacity, dependency status, etc.

Any person receiving youth training allowances who becomes 22 years of age during the course of his training may be eligible for continued payments of youth training allowances if he has completed more than half the weeks of his training program on his twenty-second birthday.

INCENTIVE TRAINING ALLOWANCE

Any person applying for MDTA training who

(1) meets all the requirements of an applicant for youth or regular training allowance and
(2) is a welfare recipient under Titles I, IV, X, and XIV of the Social Security Act will receive an incentive training allowance plus an expense allowance in lieu of a training and transportation allowance for weeks that he is receiving welfare payments as indicated. Incentive payments are in the amount of $20 for those eligible for a regular training allowance and $10 for those eligible for a youth training allowance. The expense payment is in the amount of $10 in lieu of transprotation allowance within the commuting area.

SUBSISTENCE ALLOWANCE

For an applicant receiving training farther away from his home community than commuting distance and who must reside near his training site, a subsistence allowance of $5 per day (for each night spent at the training location) to a maximum of $35 per week may be awarded to him.

TRANSPORTATION ALLOWANCE

In cases where a trainee is referred to training outside the commuting area, a transportation allowance will be awarded to him to cover the cost of transportation to the training site from his home and again for the return trip home upon completion of the entire training course. This allowance may be paid in addition to an applicant's receiving the subsistence allowance.

For trainees who are receiving subsistence allowance and who travel back and forth to their homes over the weekend (candidates are eligible for subsistence allowance only while at the training location), a transportation allowance may be awarded to them for such weekend travel fare. In no case, however, shall such allowance exceed the subsistence allowance that they would have received had they remained at the training site.

For those trainees who are deemed disadvantaged and who must commute daily to the training location, the entire cost of transportation will be paid to them. For those trainees who commute daily but who are not deemed disadvantaged, all but the first $.50 of each day's transportation costs will be paid.

WHAT IS THE ROLE OF THE OHIO STATE EMPLOYMENT SERVICE LOCAL OFFICE?

Through the combined efforts of counselors, placement personnel, testing staff, and compensation administrators, applicants for MDTA training are interviewed and the need for training is determined.

Applicants are then selected and referred consistent with their interests and abilities and with the training program available. During the training period, the local ES office maintains a system of statistical reporting on all candidates and pays all allowances to them. The Employment Service provides a continuity of counseling services during the training period, and assures liaison between the local ES office and the school or training site. Placement, job development and follow-up services are offered to each trainee upon completion of his training course to best match his new skills with the needs of employers around the state.

WHAT COURSES ARE AVAILABLE UNDER MDTA?

The location of an applicant and the needs of the employers in his area, in part, determine the training opportunities that exist under the titles of MDTA. The number of occupations for which training is offered in any one area is subject to change at all times. Among some of the courses that have been offered in different cities in Ohio since 1963 are:

SKILLED AND SEMI-SKILLED

Auto Body Repairman
Auto Mechanic
Auto Mechanic Helper
Auto Service Station Mechanic
Auto Transmission and Differential Repair
Electric Motor Repairman
Electrical Appliance Serviceman
Electronic Assembler
Engine Lathe Operator I
Gasoline Engine Repairman
Highway Engineering Aide
Milling Machine Operator
Multi-Metal Machining Occupations
Production Machine Operator
Shoe Repairman
Turret Lathe Operator
Welder, Arc
Welder, Combination
Welder, Fitter
Various Building Trades

AGRICULTURAL

Farm Hand, Dairy
Farm Mechanic (Equipment)
Farmer, General (Business Mgmt. and Anal.)
Landscape Gardener
Nurseryman II (Agric. and Hort.)

CLERICAL AND SALES

Accounting Clerk
Bookkeeper II
Bookkeeping Machine Operator
Cashier-Checker
Clerk, General Office
Clerk, General Office (Medical Service)
Clerk-Stenographer
Computer-Peripheral Equipment Operator
Clerk-Typist
Duplicating Machine Operator
Key Punch Operator
Multi-Occupation (Clerical)
Salesperson (Retail Trade)
Secretary
Secretary (Clerical)
Stenographer
Stock Clerk

SERVICE

Baker
Cook, Hotel and Restaurant
Cook, Helper (Hotel and Restaurant)
Cook, Short Order
Counter Girl
Custodian
Home Attendant
Maintenance Man, Building
Nurse Aide (Geriatrics)
Nurse Aide (Medical Service)
Routeman

SEMI-PROFESSIONAL

Civil Engineering Aide
Dental Assistant
Draftsman, Mechanical
Nurse, General Duty (Refresher)
Nurse, Licensed Practical
Occupational Therapist Assistant
Teacher Aide

MANPOWER DEVELOPMENT AND TRAINING (CON'T):

This list is by no means exhaustive of the training possibilities available under MDTA in Ohio. For further information, contact the nearest office of the Ohio State Employment Service or write the Chief, Manpower Development Section, Ohio Bureau of Employment Services, 145 South Front Street, Columbus, Ohio, 43216.

OHIO STATE EMPLOYMENT SERVICE LOCAL OFFICES AND ADDRESSES

The following list represents all the local offices of the Ohio State Employment Service accurate as of this January, 1969, writing. Both screening and referrals for MDTA training are made through these offices. Contact the office nearest you for additional information regarding MDTA and all other training and employment possibilities in this state.

AKRON

323 South Main Street
417 South Main Street

ALLIANCE

717 Main Street, East

ASHTABULA

4150 Main Street

BARBERTON

440 Fourth Street, NW

BELLEFONTAINE

143 West Columbus Avenue

BOWLING GREEN

139 West Wooster Street

BRIDGEPORT

853 National Road

CAMBRIDGE

914 Wheeling Avenue

CANTON

1100 Cleveland Avenue, NW
316 East Tuscarawas Street

CHILLICOTHE

45 West Main Street

CINCINNATI

1916 Central Parkway
108 East Seventh Street

CLEVELAND

623 Saint Clair Avenue
2163 Chester Avenue
821 Superior Avenue
740 Superior Avenue
799 Rockwell Avenue
9216 Superior Avenue
4415 Lee Road
17001 Lorain Avenue

COLUMBUS

309 South Fourth Street
239 South Fourth Street

COSHOCTON

130 South Sixth Street

DAYTON

222 Salem Avenue
20 North Jefferson Street
126 South Ludlow Street

MANPOWER DEVELOPMENT AND TRAINING (CON'T):

DEFIANCE
122 South Clinton Street

EAST LIVERPOOL
401 College Street

ELYRIA
251 Sixth Street

FINDLAY
204 North Main Street

FOSTORIA
120 East North Street

FREMONT
408 Croghan Street

GALLIPOLIS
443 Second Avenue

GREENVILLE
350 Walnut Street

HAMILTON
112 North Second Street

IRONTON
706 Park Avenue

JACKSON
260 Main Street

LANCASTER
111 East Chestnut Street

LIMA
610 North Main Street

LOGAN
30 South Spring Street

LORAIN
707 Broadway
710 Broadway

MANSFIELD
88 West Third Street

MARIETTA
120 Frontier Shopping Center

MARION
451 North Main Street

MASSILLON
51 North Avenue, NE

MIDDLETOWN
18 North Clinton Street

MOUNT VERNON
2 Public Square

NEWARK
144 West Main Street

NEW PHILADELPHIA
407 Fourth Street, NW

PAINESVILLE
1314 Mentor Street

PIQUA
320 West Water Street

PORTSMOUTH
816 Fourth Street

RAVENNA
135 East Main Street

SAINT MARYS
114 North Main Street

SALEM
130 Penn Avenue

SANDUSKY
207 East Water Street

SIDNEY
133 South Ohio Street

SPRINGFIELD
239 East Columbia Street

STEUBENVILLE
229 North Fifth Street

TOLEDO
724 Monroe Street
317 Superior Street
1201 Jefferson Avenue

WARREN
684 North Park Avenue

WASHINGTON COURT HOUSE
236 East Court Street

MANPOWER DEVELOPMENT AND TRAINING (CON'T):

WAUSEON
114 Depot Street

WOOSTER
221 Beall Avenue

YOUNGSTOWN
2026 South Avenue
26 West Indianola Avenue

ZANESVILLE
57 North Third Street

THE JOB CORPS

The Job Corps is a training program for young people 16 through 21 years of age who have dropped out of school and cannot find employment. Any young person meeting the selection criteria, primarily related to age, behavior, family income, and school status, may apply for a position in the Corps.

The Job Corps, through its training centers, enables young people to obtain educational and vocational training plus work experience in preparation for gainful employment. At the centers there are well-qualified teachers to guide Corpsmen into programs that are suited to their abilities and interests. Corpsmen live at the centers located in various parts of the United States, in national parks and forests or in those located in or near large cities, usually a center nearest their home. At these centers they are offered the opportunity to learn to read and write, to develop useful skills and work habits, and to secure entry prior to employment in such fields as automotive mechanics, electronics, selling, business machine repair, accounting, and other occupational and industrial fields of work in which opportunities exist. A Corpsmen may spend as many as two years in training, although most candidates complete training in one year or less. The centers provide comfortable living quarters, good food, clothing, medical and dental care, recreational activities such as sports, movies, and libraries, and with access to religious facilities.

A Corpsman must attend classes, work hard, keep his room and possessions neat and clean, and help in the care of the center itself. Corpsmen are expected to stay in the Job Corps long enough to complete their training, and, although no one is forced to remain in this program, one must remain in the Corps for at least 180 days in order to claim his readjustment allowance. If a Corpsman completes his training in less than 180 days or if he is forced to leave the program for any reason which Job Corps determines is beyond his control, he is given his readjustment allowance.

While in the Corps, enrollees are given a $30 per month allowance. When their training is completed, they receive, as a readjustment allowance, $50 for each month's satisfactory service with the Corps. Corpsmen are eligible for home leave with round-trip transportation paid by the Federal government once each fiscal year, a privilege extended to Corpsmen after six months' successful service.

Young people under 21 years of age must have the written consent of their parents in order to enroll in the Job Corps. The counselors of the Ohio State Employment Service, both in regular Employment Service offices and in Youth Opportunity and Vocational Planning Centers, are available for guidance and referral of interested youth. For additional information regarding these programs in your area, contact your nearest ES office, the nearest Youth Opportunity or Vocational Planning Center, or write to the Director, Job Corps, Office of Economic Opportunity, Washington, D. C., 20506.

NEIGHBORHOOD YOUTH CORPS

The Neighborhood Youth Corps, funded under the Economic Opportunity Act of 1964 as amended, has three major programs: an in-school program, an out-of-school program, and a summer program. The in-school program provides part-time work and on-the-job training for students of high school age from low income families. The summer program provides these students with job opportunities during the summer months. The out-of-school program provides economically deprived school dropouts with practical work experience and on-the-job training to encourage them to return to school and to resume their education, or if this is not feasible, to help them acquire work habits and attitudes that will improve their employability.

Federal funds and technical assistance are given to projects that are initiated, developed, and sponsored by local groups. The Federal government will finance up to 90 percent of the cost of these projects. The local sponsor's share may be in cash or in kind (facilities, equipment, services provided, and supplies). In private on-the-job training projects, the Federal government will pay legitimate training costs while the employer is responsible for the trainee's wages.

The in-school program is open to students from low income families, grades nine through twelve, or to those who are of high school age but are in lower grades. The out-of-school program is open to unemployed youth from low income families who are 16 through 21 years of age.

Enrollees may not be employed on projects involving construction, operation, or maintenance of any facility used or intended for use in sectarian or religious worship. Also, enrollees must not displace any employed workers nor impair existing contracts for service.

Interested applicants should contact their nearest local Employment Service office or the nearest Youth Opportunity Center or Vocational Planning Center or write to the Neighborhood Youth Corps, Bureau of Work Training Programs, Manpower Administration, U. S. Department of Labor, Washington, D. C., 20210.

HEALTH OCCUPATIONS CURRICULA

in

UNIVERSITIES
COLLEGES
TECHNICAL INSTITUTES
HOSPITALS

587

HEALTH OCCUPATIONS CURRICULA IN UNIVERSITIES, COLLEGES, TECHNICAL INSTITUTES, AND HOSPITALS

OCCUPATION	TRAINING INSTITUTION	LENGTH OF PROGRAM	DEGREE AWARDED
ANESTHESIA FOR NURSES	Aultman Hospital Canton	24 months	Certificate
	Cincinnati General Hospital Cincinnati	18 months	Diploma
	Ohio State University Hospital Columbus	2 years	Certificate
	Trumbull Memorial Hospital Warren	18 months	Certificate
	St. Elizabeth's Hospital Youngstown	18 months	Certificate
CERTIFIED LABORATORY ASSISTANTS	Aultman Hospital Canton	1 year	Certificate
	Timken Mercy Hospital Canton	1 year	Certificate
	Cuyahoga Community College Cleveland	1 year	Certificate
	Lima Memorial Hospital Lima	1 year	Certificate
	Lorain Community Hospital Lorain	1 year	Certificate
	Marietta Memorial Hospital Marietta	1 year	Certificate
	Middletown Hospital Middletown	1 year	Certificate
	Mercy Hospital Portsmouth	1 year	Certificate
	St. John Hospital Steubenville	1 year	Certificate
	Dettmer General Hospital Troy	1 year	Certificate
	Bethesda Hospital Zanesville	1 year	Certificate

CIRCULATION TECHNOLOGY	Ohio State University Columbus	4 years	B.S.
COSMETIC THERAPY	Cleveland Academy of Cosmetic Therapy	6 months--1 year	Certificate
CYTOTECHNOLOGY	Akron General Hospital Akron	12 months	Certificate
	Cleveland Metropolitan General Hospital Cleveland	12 months	Certificate
	St. Luke's Hospital Cleveland	12 months	Certificate
	University Hospitals of Cleveland	12 months	Certificate
	Ohio State University Columbus	12 months	Certificate
	Marymount Hospital Garfield Heights	12 months	Certificate
	Cytology Laboratory Toledo	12 months	Certificate
	St. Elizabeth Hospital Youngstown	12 months	Certificate
	Youngstown Hospital Association Youngstown	12 months	Certificate
DENTAL ASSISTANT	Akron Hower Vocational School Akron	1 year	H.S. Diploma
	Timken Vocational High School	2 years	H.S. Diploma
	Jane Addams High School Cleveland (Post high school course)	1 year	Certificate
	Career Academy Columbus	4 months	Certificate
	Patterson Cooperative High School Dayton	2 years	H.S. Diploma
	Lorain Community College Elyria	2 years	A.A.

DENTAL ASSISTANT (Con't):	Vanguard Joint Vocational School Fremont	2 years	H.S. Diploma
	Southwest Technical Training Center Grove City (also)	2 years 1 year	H.S. Diploma Certificate
	Eastland Joint Vocational School Groveport	2 years	H.S. Diploma
	EHOVE Joint Vocational School Milan	2 years	H.S. Diploma
	Clay Senior High School Oregon	1 year	H.S. Diploma
	Normandy High School Parma	2 years	H.S. Diploma
	Penta County Joint Vocational School Perrysburg	2 years	H.S. Diploma
	Pioneer Joint Vocational School Shelby	2 years	H.S. Diploma
	Springfield and Clark County Joint Vocational School Springfield	1 year	H.S. Diploma
	Jefferson County Technical Institute Steubenville	2 years	A.S.
	Whitney Vocational High School Toledo	2 years	H.S. Diploma
	Choffin Vocational Center Youngstown	2 years	H.S. Diploma
DENTAL HYGIENIST	University of Cincinnati Raymond Walters Branch Cincinnati	2 years	Certificate of Graduate Dental Hygienist
	Cuyahoga Community College Cleveland	2 years	Associate of Science and Dental Hygiene
	Ohio State University Columbus	2 years	Certificate of Graduate Dental Hygienist

DENTAL LABORATORY TECHNICIAN	Columbus Technical Institute Columbus	2 years	A.A.
	Dayton Technology Center Dayton	2 years	Certificate
DENTIST	School of Dentistry Case Western Reserve Univ. Cleveland	4 years of grad. study	D.D.S.
	College of Dentistry Ohio State University Columbus	4 years of grad. study	D.D.S.
DIETARY AIDE	Manpower Training Center Cleveland (MDTA course)	10 weeks	Certificate
	Choffin Vocational Center Youngstown (MDTA course)	10 weeks	Certificate
DIETETICS			
Internship with Emphasis on Food Service Administration	Stouffer Foods Corporation Division of Litton Industries 1375 Euclid Avenue Cleveland 44115	12 months	Certificate
Internship with Emphasis on Hospital Food Service Administration and Therapeutic Dietetics	Case Western Reserve Univ. with Mount Sinai Hospital, University Hospitals of Cleveland and VA Hospital Cleveland	19 months	M.S.
	St. Luke Hospital Cleveland	12 months	Certificate
	Cincinnati General Hospital Cincinnati	12 months	Certificate
	Good Samaritan Hospital Cincinnati	12 months	Diploma
	Miami Valley Hospital Dayton	12 months	Certificate
Medical Dietetics for Undergraduate Students	Ohio State University Columbus	4 years	B.S.
FOOD SERVICE SUPERVISION	Jane Addams High School Cleveland (Post high school course)	1 year	Certificate
	Kettering College Kettering	2 years	A.S.

HOSPITAL ADMINISTRATION	Xavier University Cincinnati	1 year plus 1 year residency	M.B.A.
INHALATION THERAPY	University of Cincinnati Raymond Walters Branch Cincinnati	2 years	A.S.
	St. Alexes Hospital Cleveland (with Cuyahoga Community College)	2 years	A.A. or A.S.
	Kettering College Kettering	2 years	A.A.
LABORATORY AIDE	Whitney Vocational High School Toledo	Varied program	H.S. Diploma
MASSAGE	The Great Lakes College Cleveland	12 months	Certificate
	Central Ohio School of Massage Columbus	12 months	Certificate
MECHANOTHERAPY	The Great Lakes College Cleveland	27 months	D.M.
	Charlton College Newbury	27 months	D.M.
MEDICAL ARTS ASSISTANT	Patterson Cooperative High School Dayton	2 years	H.S. Diploma
MEDICAL ASSISTANT	Career Academy Columbus	4 months	Certificate
	North High School Columbus	2 years	H.S. Diploma
	Cuyahoga Community College Cleveland	2 years	A.S.
	Griswold Institute (Clinical) Medical Associates Division Cleveland (Administrative)	12 months 6 months	Diploma Diploma
	Lorain Community College Elyria	2 years	A.S.
	Normandy High School Parma	2 years	H.S. Diploma

MEDICAL ASSISTANT (Con't):			
	Jefferson County Technical Institute Steubenville	2 years	H.S. Diploma
	University of Toledo Toledo	2 years	A.S.
MEDICAL COMMUNICATIONS	Ohio State University Columbus	4 years	B.S.
MEDICAL ILLUSTRATOR	University of Cincinnati Cincinnati	3 years	Certificate
	Ohio State University Columbus	4 years	B.S.
MEDICAL LABORATORY ASSISTANT	Akron City Hospital Akron	1 year	(Job recommendations)
MEDICAL LABORATORY TECHNICIAN	Griswold Institute Medical Associates Division Cleveland	12 months	Diploma
	Columbus Technical Institute Columbus	2 years	A.S.
MEDICAL LIBRARY SCIENCE	Case Western Reserve Univ. Cleveland	1 year	M.S.L.S.
MEDICAL RADICISOTOPE	University of Cincinnati Raymond Walters Branch Cincinnati	2 years	A.S.
MEDICAL RECORD TECHNICIAN	Marymount Hospital Garfield Heights	9 months	Certificate
MEDICAL SECRETARY	University of Akron Community and Technical College Akron	2 years	A.S.
	University of Cincinnati University College Cincinnati	2 years	A.S.
	University of Cincinnati Raymond Walters Branch Cincinnati	2 years	A.S.
	Jane Addams High School Cleveland	2 years	H.S. Diploma
	Griswold Institute Medical Associates Division Cleveland	48 weeks	Diploma
	Lakeland Community College Technical Institute Mentor	2 years	A.A.

MEDICAL SECRETARY (Con't):	Jefferson County Technical Institute Steubenville	2 years	A.A.B.
	Choffin Vocational School Youngstown	1 year	Certificate
MEDICAL TECHNOLOGIST (3 years college minimum prerequisite)	Akron City Hospital Akron	12 months	B.S.
	Akron General Hospital Akron	12 months	B.S.
	Children's Hospital Akron	12 months	B.S.
	St. Thomas Hospital Akron	12 months	B.S.
	Barberton Citizens Hospital Barberton	12 months	B.S.
	Southwest Community Hospital Berea	12 months	B.S.
	Aultman Hospital Canton	12 months	B.S.
	Mercy Hospital Canton	12 months	B.S.
	Bethesda Hospital Cincinnati	12 months	B.S.
	Children's Hospital Cincinnati	12 months	B.S.
	Christ Hospital Cincinnati	12 months	B.S.
	Cincinnati General Hospital Cincinnati	12 months	B.S.
	Good Samaritan Hospital Cincinnati	12 months	B.S.
	Jewish Hospital Association Cincinnati	12 months	B.S.
	Our Lady of Mercy Hospital, Mariemont Cincinnati	12 months	B.S.
	Cleveland Clinic Educational Foundation Cleveland	12 months	B.S.

MEDICAL TECHNOLOGIST (Con't):

Cleveland Metropolitan General Hospital Cleveland	12 months	B.S.
Fairview General Hospital Cleveland	12 months	B.S.
Huron Road Hospital Cleveland	12 months	B.S.
Lutheran Hospital Cleveland	12 months	B.S.
Mount Sinai Hospital Cleveland	12 months	B.S.
St. Alexis Hospital Cleveland	12 months	B.S.
St. Vincent Charity Hospital Cleveland	12 months	B.S.
University Hospitals of Cleveland Cleveland	12 months	B.S.
Mt. Carmel Hospital Columbus	12 months	B.S.
University Hospital Columbus	15 months	B.S.
Good Samaritan Hospital Dayton	12 months	B.S.
Miami Valley Hospital Dayton	13 months	B.S.
St. Elizabeth Hospital Dayton	12 months	B.S.
Elyria Memorial Hospital Elyria	12 months	B.S.
Mercy Hospital Hamilton	12 months	B.S.
Kettering Memorial Hospital Kettering	13 months	B.S.
Lakewood Hospital Lakewood	12 months	B.S.
St. Rita's Hospital Lima	12 months	B.S.

MEDICAL TECHNOLOGIST (Con't):			
	St. Joseph Hospital Lorain	12 months	B.S.
	Mansfield General Hospital Mansfield	12 months	B.S.
	Licking County Memorial Hospital Newark	12 months	B.S.
	Central Clinic and Hospital Salem	12 months	B.S.
	Community Hospital Springfield	12 months	B.S.
	Mercy Hospital Springfield	12 months	B.S.
	Ohio Valley Hospital Steubenville	12 months	B.S.
	Mercy Hospital Toledo	12 months	B.S.
	Riverside Hospital Toledo	12 months	B.S.
	St. Charles Hospital Toledo	12 months	B.S.
	St. Vincent's Hospital Toledo	12 months	B.S.
	Toledo Hospital Toledo	12 months	B.S.
	Trumbull Memorial Hospital Warren	12 months	B.S.
	St. Elizabeth Hospital Youngstown	12 months	B.S.
	Youngstown Hospital Assoc. Youngstown	12 months	B.S.
MEDICAL TECHNOLOGIST (GRADUATE)	Ohio State University Department of Pathology Columbus	1½ years	Certificate
MEDICINE	University of Cincinnati College of Medicine Cincinnati	7 years	M.D.
	Case Western Reserve Univ. School of Medicine Cleveland	7 years	M.D.

MEDICINE (Con't):	Ohio State University School of Medicine Columbus	7 years	M.D.
MENTAL HEALTH TECHNICIAN	Sinclair Community College Dayton	2 years	A.A.
	Muskingum Area Technical Institute Zanesville	2 years	A.A.
MUSIC THERAPY	Ohio University Athens	4 year	B.S.
NURSE ASSISTANT	Timken Vocational School Canton	1 semester	H.S. Diploma
	Manpower Training Center Cleveland (MDTA Course)	16 weeks	Certificate
	Mohawk High School Columbus	1 year	H.S. Diploma
	Whitney Vocational School Toledo	1 year	H.S. Diploma
NURSING (DIPLOMA PROGRAMS)	Akron City Hospital Akron	33 months	Diploma
	Akron General Hospital Akron	33 months	Diploma
	St. Thomas Hospital Akron	30 months	Diploma
	Samaritan Hospital Ashland	33 months	Diploma
	Aultman Hospital Canton	33 months	Diploma
	Mercy Hospital Canton	30 months	Diploma
	Bethesda Hospital Cincinnati	33 months	Diploma
	The Christ Hospital Cincinnati	33 months	Diploma
	Deaconess Hospital Cincinnati	36 months	Diploma
	Good Samaritan Hospital Cincinnati	34 months	Diploma
	The Jewish Hospital Cincinnati	33 months	Diploma

NURSING (Con't):	Metropolitan General Hospital Cleveland	32 months	Diploma
	Fairview General Hospital Cleveland	33 months	Diploma
	Huron Road Hospital Cleveland	33 months	Diploma
	Lutheran Hospital Cleveland	35 months	Diploma
	St. Alexis Hospital Cleveland	34 months	Diploma
	St. John's Hospital Cleveland	30 months	Diploma
	St. Vincent Charity Hospital Cleveland	34 months	Diploma
	Grant Hospital Columbus	33 months	Diploma
	Mt. Carmel Hospital Columbus	30 months	Diploma
	St. Anthony Hospital Columbus	30 months	Diploma
	Riverside Methodist Hospital Columbus	36 months	Diploma
	Good Samaritan Hospital Dayton	36 months	Diploma
	Miami Valley Hospital Dayton	34 months	Diploma
	St. Elizabeth Hospital Dayton	35 months	Diploma
	East Liverpool City Hosp. East Liverpool	36 months	Diploma
	Elyria Memorial Hospital Elyria	32 months	Diploma
	Holzer Hospital Gallipolis	33 months	Diploma
	Mansfield General Hospital Mansfield	36 months	Diploma
	Massillon City Hospital Massillon	33 months	Diploma

NURSING (Con't):	Middletown Hospital Middletown	34 months	Diploma
	Providence Hospital Sandusky	30 months	Diploma
	Community Hospital of Springfield and Clark County	33 months	Diploma
	Ohio Valley Hospital Steubenville	36 months	Diploma
	Flower Hospital Toledo	36 months	Diploma
	Maumee Valley Hospital-- Toledo	36 months	Diploma
	Mercy Hospital Toledo	33 months	Diploma
	Riverside Hospital Toledo	33½ months	Diploma
	St. Vincent's Hospital Toledo	34 months	Diploma
	Toledo Hospital Toledo	34 months	Diploma
	Trumbull Memorial Hospital Warren	32½ months	Diploma
	St. Elizabeth Hospital Youngstown	34 months	Diploma
	Good Samaritan Hospital Zanesville	33 months	Deploma
NURSING (ASSOCIATE DEGREE PROGRAMS)	Kent State University Ashtabula Branch Ashtabula	2 years	A.S.
	University of Cincinnati Raymond Walters Branch Blue Ash	2 years	A.S.
	Cuyahoga Community College Metropolitan Campus Cleveland	2 years	A.S.
	Lorain County Community College Elyria	2 years	A.S.
	Miami University Hamilton Branch Hamilton	2 years	A.S.

NURSING (Con't):	Kettering College of Medical Arts Kettering Medical Center Kettering	2 years	A.S.
	Lima Technical Center Division of Penta Technical College Lima	2 years	A.S.
	Lakeland Community College Mentor	2 years	A.S.
	Kent State University Tuscarawas County Branch New Philadelphia	2 years	A.S.
	Cuyahoga Community College Western Campus Parma	2 years	A.S.
	Clark County Technical Inst. Springfield	2 years	A.S.
	Youngstown State University Youngstown	2 years	A.S.
	Ohio University Zanesville Campus Zanesville	2 years	A.S.
NURSING (BACCALAUREATE DEGREE PROGRAMS)	University of Akron Akron	4 years	B.S.
	College of Mount Saint Joseph Cincinnati	4 years	B.S.
	University of Cincinnati College of Nursing and Health Cincinnati	4 years	B.S.
	Case Western Reserve Univ. Frances Payne Bolton School Cleveland	4 years	B.S.
	St. John College Cleveland	4 years	B.S.
	Capital University Columbus	4 years	B.S.
	Ohio State University Columbus	4 years	B.S.
	Kent State University Kent	4 years	B.S.

NURSING (PRACTICAL)	Akron School of P.N. Akron	12 months	Diploma
	Bellaire School of Practical Nursing Bellaire (MDTA course)	12 months	Diploma
	Bowling Green Area School of Practical Nursing Bowling Green	12 months	Diploma
	Practical Nursing Program of Canton City Schools	12 months	Diploma
	Timken Mercy Hospital School of Practical Nursing Canton	12 months	Diploma
	C.V. Courter Technical High School, School of Practical Nursing Cincinnati (MDTA and tuition courses)	12 months	Diploma
	St. Francis Central School of Practical Nursing Cincinnati	12 months	Diploma
	Central School of Practical Nursing Cleveland	12 months	Diploma
	Jane Addams School of Practical Nursing Cleveland (MDTA and tuition courses)	12 months	Diploma
	School of Practical Nursing Columbus Public Schools Columbus	12 months	Diploma
	Tri-County School of Practical Nursing Coshocton (MDTA course)	12 months	Diploma
	School of Practical Nursing Cuyahoga Falls High School Cuyahoga Falls (MDTA course)	12 months	Diploma
	Dayton School of Practical Nursing Dayton (MDTA and tuition courses) (also evening school--18 months--Diploma)	12 months	Diploma
	Practical Nurse School of Elyria Elyria (Evening school only)	18 months	Diploma
	Euclid School of Practical Nursing Euclid (Evening school only)	18 months	Diploma

NURSING PRACTICAL (Con't):	Marymount School of Practical Nursing Garfield Heights	12 months	Diploma
	Hamilton Program of Practical Nursing Education Hamilton	12 months	Diploma
	Lakewood School of Practical Nursing Lakewood	12 months	Diploma
	Lima School of Practical Nursing Lima	12 months	Diploma
	St. Joseph Hospital School of Practical Nursing Lorain	12 months	Diploma
	Mid-Ohio Practical Nurse Program Mansfield	12 months	Diploma
	Marietta Area Technical School of Practical Nursing Marietta	12 months	Diploma
	Marion General Hospital School of Practical Nursing Mation	12 months	Diploma
	Southeastern Ohio School of Practical Nursing Nelsonville	12 months	Diploma
	Parma School of Practical Nursing Parma	12 months	Diploma
	Practical Nursing Program of Portsmouth City Schools Portsmouth	12 months	Diploma
	Hannah E. Mullins School Salem	12 months	Diploma
	Sandusky School of Practical Nursing Sandusky	12 months	Diploma
	Springfield and Clark County Joint Vocational School District, School of Practical Nursing Springfield	12 months	Diploma

NURSING PRACTICAL (Con't):	Northwestern Ohio Practical Nursing Training Center Toledo	12 months	Diploma
	Warren City Schools, School of Practical Nursing Warren	12 months	Diploma
	Willoughby-Eastlake Adult School of Practical Nursing Willoughby	12 months	Diploma
	Willoughby-Eastland High Program of Practical Nursing Willoughby	12 months	Diploma
	Wayne Practical Nurse Program Wooster (MDTA course)	12 months	Diploma
	Choffin School of Practical Nursing Youngstown	12 months	Diploma
	Muskingum Area Vocational School of Practical Nursing Zanesville (both high school and adult)	12 months	Diploma
OCCUPATIONAL THERAPY	Ohio State University Columbus	4 years	B.S.
OCCUPATIONAL THERAPY ASSISTANT (CERTIFIED)	Columbus Public Schools Columbus	9 months	Certificate
OPERATING ROOM TECHNICIAN	Lorain Community College Elyria	2 years	A.A.
	St. Vincents Hospital Toledo (MDTA course)	48 weeks	Certificate
OPTOMETRY	Ohio State University Columbus	6 years	D. of Optometry
ORTHOPTIC TECHNICIAN	Ohio State University Hosp. Department of Opthalmology Columbus	3½ years	Certificate
PHARMACY	Ohio Northern University Ada	5 years	B.S.
	University of Cincinnati Cincinnati	5 years	B.S.
	Ohio State University Columbus	5 years	B.S.

PHARMACY (Con't):	University of Toledo Toledo	5 years	Bach. of Pharmacy
Residency in Hosp. Pharmacy	St. Luke's Hospital Cleveland	1 year	Certificate
	Grant Hospital Columbus	2 years	M.S.
	Mount Carmel Hospital Columbus	2 years	M.S.
	Ohio State University Hospital Columbus	2 years	M.S.
	Community Hospital of Springfield and Clark County Springfield	1 year	Certificate
PHYSICAL THERAPY	Ohio University Athens	4 years	B.S.
	Ohio State University Columbus	4 years	B.S.
PHYSICAL THERAPY (GRADUATE)	Case Western Reserve Univ. Cleveland	2 years	M.S.
	Ohio State University Columbus	1 year	B.S. or B.A.
PHYSIOLOGICAL OPTICS	Ohio State University Columbus	4 years	B.S. or B.A.
PHYSIOLOGICAL OPTICS (GRADUATE)	Ohio State University Columbus	2 years 6 years	M.S. or M.A. Ph. D.
PODIATRY	Ohio College of Podiatry Cleveland	4 years	D.P.M.
PSYCHIATRIC ATTENDANT	Manpower Training Center Cleveland (MDTA course)	17 weeks	Certificate
	St. Vincents Hospital Toledo	17 weeks	Certificate
SANITARIAN	Ohio University Athens	4 years	B.S.
SOCIAL WORK (MEDICAL)	Cincinnati Center of Ohio State University University of Cincinnati Cincinnati	2 years	M.S.S.W

SOCIAL WORK (MEDICAL) (Con't):	Case Western Reserve University School of Applied Social Sciences Cleveland	2 years	M.S.S.W.
	Ohio State University School of Social Work Columbus	2 years	M.S.S.W.
SPEECH AND HEARING THERAPY	Bowling Green State Univ. Bowling Green	4 years	B.S. or B.A.
	University of Cincinnati Cincinnati	4 years	B.S.
	Kent State University Kent	4 years	B.S.
SPEECH PATHOLOGY AND AUDIOLOGY	Ohio University Athens	4 years	B.S. or B.A.
	University of Cincinnati Cincinnati	4 years	B.S.
	Cleveland State University Cleveland	4 years	B.A.
	Ohio State University Columbus	4 years	B.A.
	Kent State University Kent	4 years	B.S.
SPEECH PATHOLOGY AND AUDIOLOGY (GRADUATE)	The University of Akron Akron	1 year	M.A.
	Ohio University Athens	1 year 2 years	M.A. Ph.D.
	Bowling Green State Univ. Bowling Green	1 year 2 years	M.A. Ph. D.
	University of Cincinnati Cincinnati	1 year	M.A.
	Case Western Reserve Univ. Cleveland	1 year 2 years	M.A. Ph. D.
	Ohio State University Columbus	1 year 2 years	M.A. Ph. D.
	Kent State University Kent	1 year	M.A.
	Miami University Oxford	1 year	M.A.

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SURGICAL ASSISTANT	Great Lakes College Cleveland	1 year	Certificate
WARD CLERK	St. Vincents Hospital Toledo (MDTA course)	18 weeks	Certificate
	Choffin Vocational Center Youngstown	18 weeks	Certificate
X-RAY TECHNOLOGY	Akron City Hospital Akron	24 months	Certificate
	Akron General Hospital Akron	24 months	Certificate
	Children's Hospital Akron	24 months	Certificate
	St. Thomas Hospital Akron	24 months	Certificate
	Barberton Citizens Hospital Barberton	24 months	Certificate
	Southwest General Hospital Berea	24 months	Certificate
	Aultman Hospital Canton	24 months	Certificate
	Mercy Hospital Canton	24 months	Certificate
	Christ Hospital Cincinnati	24 months	Certificate
	Cincinnati General Hospital Cincinnati	24 months	Certificate
	Good Samaritan Hospital Cincinnati	24 months	Certificate
	Jewish Hospital Cincinnati	24 months	Certificate
	Our Lady of Mercy Hospital Cincinnati	24 months	Certificate
	St. Francis Hospital Cincinnati	24 months	Certificate
	Cleveland Clinic Educational Foundation Cleveland	24 months	Certificate

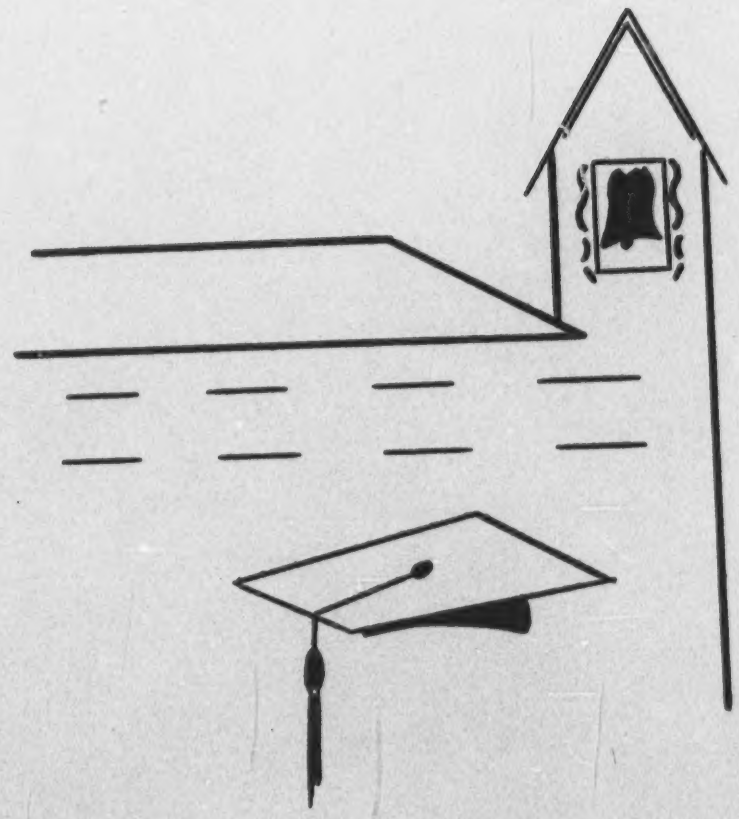
X-RAY TECHNOLOGY (Con't):	Cleveland Metropolitan General Hospital Cleveland	24 months	Certificate
	Marymount Hospital Cleveland	24 months	Certificate
	Mt. Sinai Hospital Cleveland	24 months	Certificate
	St. Alexis Hospital Cleveland	24 months	Certificate
	St. Luke's Hospital Cleveland	24 months	Certificate
	St. Vincent Charity Hospital Cleveland	24 months	Certificate
	University Hospitals of Cleveland Cleveland	24 months	Certificate
	Doctors Hospital Cleveland Heights	24 months	Certificate
	Mount Carmel Hospital Columbus	24 months	Certificate
	Ohio State University University Hospital Columbus	24 months	Certificate
	Riverside Methodist Hospital Columbus	36 months	Certificate
	Good Samaritan Hospital Dayton	24 months	Certificate
	Miami Valley Hospital Dayton	24 months	Certificate
	St. Elizabeth Hospital Dayton	24 months	Certificate
	Twin City Hospital Dennison	24 months	Certificate
	Union Hospital Association Dover	24 months	Certificate
	Huron Road Hospital East Cleveland	24 months	Certificate
	Elyria Memorial Hospital Elyria	24 months	Certificate

Euclid General Hospital Euclid	24 months	Certificate
Fort Hamilton Hospital Hamilton	24 months	Certificate
Mercy Hospital Hamilton	24 months	Certificate
Kettering Memorial Hospital Kettering College Kettering	24 months	Certificate
Lancaster-Fairfield County Hospital Lancaster	24 months	Certificate
Lima Memorial Hospital Lima	24 months	Certificate
St. Rita's Hospital Lima	24 months	Certificate
St. Joseph Hospital Lorain	24 months	Certificate
Mansfield General Hospital Mansfield	24 months	Certificate
Marietta Memorial Hospital Marietta	24 months	Certificate
Marion General Hospital Marion	24 months	Certificate
Medina Community Hospital Medina	24 months	Certificate
Middletown Hospital Middletown	24 months	Certificate
Licking County Memorial Hospital Newark	24 months	Certificate
Fisher-Titus Memorial Hospital Norwalk	24 months	Certificate
Lake County Memorial Hospital Painesville	24 months	Certificate
Parma Community General Hospital Parma	24 months	Certificate

X-RAY TECHNOLOGY (Con't):	Mercy Hospital Portsmouth	24 months	Certificate
	Robinson Memorial Hospital Ravenna	24 months	Certificate
	Salem City Hospital Salem	24 months	Certificate
	Good Samaritan Hospital Sandusky	24 months	Certificate
	Providence Hospital Sandusky	24 months	Certificate
	Springfield Community Hosp. Springfield	24 months	Certificate
	Ohio Valley Hospital Steubenville	24 months	Certificate
	St. John Hospital Steubenville	24 months	Certificate
	Flower Hospital Toledo	24 months	Certificate
	Maumee Valley Hospital Toledo	24 months	Certificate
	Mercy Hospital Toledo	24 months	Certificate
	Riverside Hospital Toledo	24 months	Certificate
	St. Charles Hospital Toledo	24 months	Certificate
	St. Luke's Hospital Toledo	24 months	Certificate
	St. Vincent's Hospital and Medical Center	24 months	Certificate
	Toledo Hospital Toledo	24 months	Certificate
	Stouder Memorial Hospital Troy	24 months	Certificate
	Wadsworth-Rittman Hospital Wadsworth	24 months	Certificate
	Trumbull Memorial Hospital Warren	24 months	Certificate

X-RAY TECHNOLOGY (Con't):	St. Elizabeth Hospital Youngstown	24 months	Certificate
	Youngstown Hospital Association (North Side Unit) Youngstown	24 months	Certificate
	Youngstown Hospital Association (South Side Unit) Youngstown	24 months	Certificate
	Good Samaritan Hospital Zanesville	24 months	Certificate

INSTITUTIONS of HIGHER EDUCATION



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INSTITUTIONS OF HIGHER EDUCATION IN OHIO

Listed within this section are the colleges and universities in Ohio having at least a two-year program of study and those offering courses of study leading to bachelors' and graduate degrees. The information contained herein is arranged as follows: the name of the institution, its location, its accreditation, the code which represents the extent of the programs and the type of programs offered, by whom the institution is sponsored, and the complement of the student body.

As of the February, 1968, revision, the list of "Major Courses of Study in Ohio" was deleted from the Training Directory. In light of the resources available which present this information (i.e. The Ohio College Notebook, Division of Guidance and Testing, State of Ohio Department of Education, 751 Northwest Boulevard, Columbus, Ohio, 43215, and additional literature available from that office) and its excellent manner of presentation, we have discontinued our efforts here. Please see the material above or contact the Division of Guidance and Testing for further information.

Prior to registration at any school, students are advised to check the requirements for entry carefully with their academic background to determine their eligibility for enrollment. Each prospective applicant should also check the programs of study offered to be certain that those courses will fulfill his specific objectives.

The primary resource for this information was the U.S. Department of Health, Education, and Welfare's Education Directory, Part III, 1967-68, Higher Education.

COLLEGES AND UNIVERSITIES IN OHIO

COLLEGES AND UNIVERSITIES	LOCATION	I*	II*	SUPPORTED BY	STUD. BODY CO ED	M	W
AIR FORCE INST. OF TECHNOLOGY	Wright-Patterson Air Force Base	N	IVg	U.S.A.F.		X	
ANTIOCH COLLEGE	Yellow Springs	N	IIIe	Private	X		
ART ACADEMY OF CINCINNATI	Cincinnati	*	Other	Private	X		
ASHLAND COLLEGE	Ashland	N	IIj	Brethren	X		
ATHENAEUM OF OHIO	Cincinnati	N	IIIe	Catholic		X	
BALDWIN-WALLACE COLLEGE	Berea	N	IIe	Methodist	X		
BLISS COLLEGE	Columbus	*	IIc	Proprietary	X		
BLUFFTON COLLEGE	Bluffton	N	IIe	Mennonite	X		
BORROMEO SEMINARY OF OHIO	Wickliffe	N	IIb	Catholic		X	
BOWLING GREEN STATE	Bowling Green	N	IVk	State	X		
CAPITAL UNIVERSITY	Columbus	N	IIk	Lutheran	X		
CASE WESTERN RESERVE UNIVERSITY	Cleveland	N	IVk	Private	X		
CEDARVILLE COLLEGE	Cedarville	-	IIe	Baptist	X		
CENTRAL STATE UNIVERSITY	Wilberforce	N	IIIk	State	X		
CINCINNATI BIBLE SEMINARY	Cincinnati	*	IIIg	Ch. of Christ	X		
CLEVELAND INSTITUTE OF ART	Cleveland	*	IIg	Private	X		
CLEVELAND INSTITUTE OF MUSIC	Cleveland	*	IIIg	Private	X		
CLEVELAND-MARSHALL LAW SCHOOL	Cleveland	*	IIIg	Private	X		
CLEVELAND STATE UNIVERSITY	Cleveland	N	IIk	State	X		
COLLEGE OF MOUNT ST. JOSEPH	Mount St. Joseph	N	IIe	Catholic		X	
COLLEGE: OHIO DOMINICAN	Columbus	N	IIe	Catholic	X		
COLLEGE OF STEUBENVILLE	Steubenville	-	IIe	Catholic	X		
COLLEGE OF WOOSTER	Wooster	N	IIIe	Presbyterian	X		
COLUMBUS COLLEGE OF ART AND DESIGN	Columbus	-	Other	Private	X		

COLLEGES AND UNIVERSITIES	LOCATION	I*	II*	SUPPORTED BY	STUD. BODY		
					CO ED	M	W
CUYAHOGA COMMUNITY COLLEGE	Cleveland	N	Ic	County	X		
DAVIS JUNIOR COLLEGE OF BUSINESS	Toledo	*	Ia	Proprietary	X		
DEFIANCE COLLEGE	Defiance	N	IIe	Private	X		
DENISON UNIVERSITY	Granville	N	IIb	Private	X		
DYKE COLLEGE	Cleveland	*	IIi	Private	X		
EVANGELICAL LUTHERAN THEOLOGICAL SEMINARY	Columbus	*	IIIg	Lutheran		X	
FINDLAY COLLEGE	Findlay	N	IIe	Church of God	X		
FRANKLIN UNIVERSITY	Columbus	-	IIc	Private	X		
HEBREW UNION COLLEGE	Cincinnati	N	IVg	Jewish	X		
HEIDELBERG COLLEGE	Tiffin	N	IIe	U. Ch. Christ	X		
HIRAM COLLEGE	Hiram	N	IIe	Private	X		
JOHN CARROLL UNIVERSITY	Cleveland	N	IIIj	Catholic	X		
KENT STATE UNIVERSITY	Kent	N	IVk	State	X		
KENYON COLLEGE	Gambier	N	IIj	Private		X	
LAKE ERIE COLLEGE	Painesville	N	IIe	Private			X
LAKELAND COMMUNITY COLLEGE	Mentor	-	Ic	County	X		
LORAIN COUNTY COMMUNITY COLLEGE	Lorain	-	Ic	County	X		
LOURDES JUNIOR COLLEGE	Sylvania	N	Ib	Catholic			X
MALONE COLLEGE	Canton	N	IIe	Friends	X		
MARIETTA COLLEGE	Marietta	N	IIe	Private	X		
MARY MANSE COLLEGE	Toledo	N	IIIe	Catholic			X
METHODIST THEOLOGICAL SCHOOL	Delaware	*	IIg	Methodist	X		
MIAMI-JACOBS JUNIOR COLLEGE OF BUSINESS	Dayton	*	Ia	Proprietary	X		
MIAMI UNIVERSITY	Oxford	N	IVk	State	X		
MOUNT UNION COLLEGE	Alliance	N	IIe	Methodist	X		

COLLEGES AND UNIVERSITIES	LOCATION	I*	II*	SUPPORTED BY	STUD. BODY		
					CO ED	M	W
MOUNT VERNON NAZARENE COLLEGE	Mount Vernon	-	Ic	Nazarene	X		
MUSKINGUM COLLEGE	New Concord	N	IIe	U. Pres.	X		
NOTRE DAME COLLEGE	Cleveland	N	IIb	Catholic			X
OBERLIN COLLEGE	Oberlin	N	IIIj	Private	X		
OHIO COLLEGE OF APPLIED SCIENCE	Cincinnati	*	Ic	Private	X		
OHIO COLLEGE OF PODIATRY	Cleveland	*	IIg	Private	X		
OHIO NORTHERN UNIVERSITY	Ada	N	IIk	Methodist	X		
OHIO STATE UNIVERSITY	Columbus	N	IVk	State	X		
OHIO TECHNICAL COLLEGE	Columbus	*	Ic	Private		X	
OHIO UNIVERSITY	Athens	N	IVk	State	X		
OHIO WESLEYAN UNIVERSITY	Delaware	N	IIIe	Private	X		
OTTERBEIN COLLEGE	Westerville	N	IIe	Evan. UB	X		
OUR LADY OF CINCINNATI COLLEGE	Cincinnati	N	IIe	Catholic			X
PONTIFICAL COLLEGE JOSEPHINUM	Worthington	-	IIj	Catholic		X	
RABBINICAL COLLEGE OF TELSHE	Wickliffe	-	IIh	Jewish		X	
RIO GRANDE COLLEGE	Rio Grande	-	IIe	Private	X		
ST. JOHN COLLEGE	Cleveland	N	IIIh	Catholic			X
SALMON P. CHASE COLLEGE	Cincinnati	*	IIg	YMCA	X		
ST. MARYS SEMINARY	Cleveland	-	IIg	Catholic		X	
ST. PAUL'S SEMINARY	Canfield	-	IIg	Catholic		X	
SCHOOL OF THE DAYTON ART INSTITUTE	Dayton	*	Other	Private	X		
SINCLAIR COMMUNITY COLLEGE	Dayton	*	Ic	County	X		
TIFFIN UNIVERSITY	Tiffin	*	IIg	Private	X		
UNITED THEOLOGICAL SEMINARY	Dayton	*	IIIg	Evan UB	X		
UNIVERSITY OF AKRON	Akron	N	IVk	City	X		
UNIVERSITY OF CINCINNATI	Cincinnati	N	IVk	City	X		
UNIVERSITY OF DAYTON	Dayton	N	IIIk	Catholic	X		

COLLEGES AND UNIVERSITIES	LOCATION	I*	II*	SUPPORTED BY	STUD. BODY		
					CO ED	M	W
UNIVERSITY OF TOLEDO	Toledo	N	IVk	State	X		
URBANA COLLEGE	Urbana	*	Ib	Private	X		
URSULINE COLLEGE	Cleveland	N	IIe	Catholic			X
WALSH COLLEGE	Canton	-	IIe	Catholic	X		
WESTERN COLLEGE FOR WOMEN	Oxford	N	IIe	Private			X
WILBERFORCE UNIVERSITY	Wilberforce	N	IIj	Afr. Meth. E.	X		
WILMINGTON COLLEGE	Wilmington	N	IIe	Friends	X		
WITTENBERG UNIVERSITY	Springfield	N	IIIj	Lutheran CA	X		
WRIGHT STATE UNIVERSITY	Dayton	N	IIIk	State	X		
XAVIER UNIVERSITY	Cincinnati	N	IIIj	Catholic		X	
YOUNGSTOWN UNIVERSITY	Youngstown	N	IIk	State	X		

* Column I: -, not accredited by any nation-wide or regional accrediting association
N, accredited by North Central Association of Colleges and Secondary Schools
*, accredited by a professional association

** Column II: I , two but less than four years of work beyond the twelfth grade
II , Bachelor's degree and/or first professional degree
III, Master's degree and/or second professional degree
IV , Doctor of Philosophy degree and equivalent degrees

a. , terminal-occupational (below Bachelor's degree)
b. , liberal arts and general
c. , liberal arts and general, and terminal-occupational
d. , primarily teacher preparatory
e. , liberal arts and general, and teacher preparatory
f. , liberal arts and general, teacher preparatory, and terminal-occupational
g. , professional only (not including teacher preparatory)
h. , professional and teacher preparatory
i. , professional and terminal-occupational
j. , liberal arts and general with one or two professional schools
k. , liberal arts and general with three or more professional schools including institutions organized as universities

SERVICES

FOR THE

VOCATIONALLY HANDICAPPED

SERVICES FOR THE VOCATIONALLY HANDICAPPED

A. VOCATIONALLY HANDICAPPED

Counselors who plan training programs for physically or mentally handicapped persons must be skilled in this special type of counseling. Employment Service and other guidance and vocational counselors should seek the assistance of qualified vocational rehabilitation specialists for assisting many handicapped persons.

The list enclosed represents qualified personnel of the Bureau of Vocational Rehabilitation. For detailed information regarding rehabilitation programs in your community, contact the office nearest you. In the event of general questions, contact Mr. Edward J. Moriarty, Deputy Director, Bureau of Vocational Rehabilitation, 240 South Parsons Avenue, Room 207, Columbus, Ohio, 43215.

PERSONNEL OF THE

BUREAU OF VOCATIONAL REHABILITATION

CENTRAL OFFICE
240 South Parsons Avenue, Room 207
Columbus, Ohio 43215

Edward J. Moriarty, Deputy Director
Mrs. Mary A. Staker, Secretary to the Deputy Director
Dr. Jack Hutchison, Assistant Superintendent of Public Instruction for Vocational Rehabilitation — Telephone: 614-469-2555

Norbert L. Smithberger, Supervisor, Accounting
David Rogers, Statistician — Telephone: 614-469-2606

William D. VanHorn, Assistant Director, Administrative Services
Ralph E. Dyke, Rehabilitation Advisor
Miss Lois E. Elsass, Supervisor, Finance and Statistics
Miss Carol A. Jones, Administrative Assistant — Telephone: 614-469-2616

William V. Herbein, Assistant Director, Field Services
Francis J. Gattas, Supervisor, Rehabilitation of Deaf and Hard-of-Hearing
Stanley J. Grenn, Assistant Supervisor, Field Services
Mrs. Georgia Rogers, Supervisor, Beneficiary Rehabilitation Program
Dr. Oscar L. Coddington, Medical Administration Consultant
Telephone: 614-469-2407

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Mrs. Betty A. Wilson, Personnel Aide — Telephone: 614-469-2338

Orin Davis, Consultant - Program Development
Cooper Sontag, Assistant Director, Program Development
William P. Gregg, Coordinator, Rehabilitation Facilities and Workshop Planning

CENTRAL OFFICE (Continued)

James D. Hite, Coordinator, Rehabilitation Facilities and Workshop Planning — Telephone: 614-469-2330

Wesley Y. Harris, Jr., Supervisor, Special Services
Earl J. Payne, Systems Coordinator — Telephone: 614-469-2330

Mrs. Isabelle H. Donahey, Public Information Officer
Miss Barbara A. Wade, Publication Writer — Telephone: 614-469-2555

Miss Margaret Scholes, Supervisor, Staff Development and Training
Charles Parish, Rehabilitation Educator, Staff Development and Training
Perry Hall, University Liaison, Staff Development and Training — Telephone: 614-469-2937

John H. Agnew, Statistician — Telephone: 614-469-2444

REGION I

PENTA COUNTY JOINT VOCATIONAL SCHOOL UNIT
30335 Oregon Road
Perrysburg, Ohio 43351

Robert L. Young, Unit Supervisor
Walter E. Basil, Counselor
Mrs. Mary D. Warr, Counselor — Telephone: 419-691-5723

TIFFIN OFFICE
65 St. Francis Avenue, 44883
(Betty Jane Memorial Rehabilitation Center)

Alfred L. Wagers, District Office Supervisor
Allen Schaengold, M.D., Field Medical Consultant
Mrs. Marjorie J. Kranz, Counselor
Charles D. Steedman, Counselor — Telephone: 419-447-1858

COUNTIES SERVED: Erie, Hancock, Huron, Seneca, Wyandot, Sandusky

TOLEDO OFFICE
506 Madison Avenue, Room 507, 43604
(Regional Headquarters)

R. Thayer Church, Regional Supervisor
Floyd J. Cogan, District Office Supervisor
Miss Marianne E. Almeroth, Counselor, Beneficiary Rehabilitation Program
Miss Evelyn Berres, Counselor Aide
Joseph S. Byrum, Counselor
Vernie R. Collins, Counselor for the Deaf
Miss Jeanette A. Damman, Counselor
Harry H. Hollinger, M.D., Field Medical Consultant
Mrs. Fern W. Lushbough, Counselor

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REGION I (Continued)

Harold W. Schnack, Counselor
Vernon Sconberg, Counselor
Miss Marjorie D. Scott, Counselor
Richard I. Weisman, Counselor

Telephone: 419-244-4641

COUNTIES SERVED: Defiance Henry Ottawa Wood
Fulton Lucas Williams

TOLEDO STATE HOSPITAL UNIT
Box 2027
Toledo, Ohio 43603

Mrs. Mary S. Smith, Unit Supervisor
Mrs. Grace E. McCarthy, Mecical Services Coordinator
Miss M. Diana Anderson, Counselor
Douglas L. Burleigh, Counselor
Miss Margaret A. Duffey, Counselor
Edward B. Meinders, Counselor Aide
James A. Perry, Counselor
Mrs. Delores Scott, Counselor Aide
John F. Wernert, Counselor

Telephone: 419-385-5731
Ext - 221

REGION II

BROADVIEW CENTER UNIT
9543 Broadview Road
Brecksville, Ohio 44141

Terry M. Vaughn, Unit Supervisor
Miss Phyllis Elmo, Counselor
Miss Diane A. Jones, Counselor
Miss Elaine A. Toomey, Counselor

Telephone: 216-526-5000
Ext - 276

CLEVELAND DOWNTOWN OFFICE
405 Perry-Payne Building
740 Superior Avenue, W
Cleveland, Ohio 44113

Joseph E. Arnett, District Office Supervisor
John P. Cadwell, Counselor
Norman Goldston, M.D., Field Medical Consultant
Mrs. Henrietta H. Crouch, Counselor
George A. Johnston, Counselor
Mrs. Marie E. Malko, Counselor, Beneficiary Rehabilitation Program
Mrs. Norma T. McCaleb, Counselor
Edward E. Peebles, Counselor
Victor R. Resar, Counselor
Edward J. Schirra, Counselor

Telephone: 216-579-2910

COUNTIES SERVED: Western Cuyahoga, Lorain

CLEVELAND EAST OFFICE
2239 E. 55th Street
Cleveland, Ohio 44103
(Regional Headquarters)

Carlysle F. Adams, Regional Supervisor
Jesse W. Fowler, District Office Supervisor
Robert C. Grotz, M.D., Field Medical Consultant
Robert T. D'Amico, Counselor
Daniel M. Duchez, Counselor
Leonard J. Gitson, Counselor
Maurice L. Goldstein, Counselor
Miss Carol M. Lehecka, Counselor, Beneficiary Rehabilitation Program
Cecil C. Lovejoy, Counselor
Miss Mary E. Mulroy, Counselor
Patrick H. Robinette, Counselor
John A. Stewart, Counselor
Miss Rachel G. Towne, Counselor — Telephone: 216-579-2920

COUNTIES SERVED: Eastern Cuyahoga

CLEVELAND PSYCHIATRIC INSTITUTE UNIT
1708 Aiken Avenue
Cleveland, Ohio 44109

Mrs. Nancy J. Borgeson, Unit Supervisor
Joseph J. Cronin, Counselor — Telephone: 216-351-8688

FAIRHILL PSYCHIATRIC INSTITUTE UNIT
12000 Fairhill Road
Cleveland, Ohio

John V. Johnston, Unit Supervisor — Telephone: 216-421-1340

CLEVELAND INNER CITY PROJECT
2223 Superior Avenue
Cleveland, Ohio 44114

George E. Minteer, Unit Supervisor
William P. Hedl, Counselor
Richard Pollard, Counselor — Telephone: 216-696-6171 Ext-150

HAWTHORNDEN STATE HOSPITAL UNIT
P. O. BOX 283
Northfield, Ohio 44067

Thomas G. Nahra, Unit Supervisor
Miss Theodosia F. Jones, Counselor
Miss Carol M. Poske, Counselor — Telephone: 216-467-7131

REGION II (Continued)

MADISON OPPORTUNITY VILLAGE UNIT
6769 Middle Ridge Road
Madison, Ohio 44057

Miss Martha J. Smith, Acting Unit Supervisor
Mrs. Mary A. Carter, Home Economics Instructor
Miss Phyllis A. Zima, Community Resources Instructor
Terry W. Morris, Counselor

Telephone: 216-428-2157

MENTOR DISTRICT OFFICE
Suite L, Brentwood Center Building
7601 Mentor Avenue
Mentor, Ohio 44060

Ernest J. Karhu, District Office Supervisor
Miss Jean M. Bonnema, M.D., Field Medical Consultant
Richard M. Bock, Counselor
Clifford E. Hodge, Counselor

Telephone: 216-946-7100

COUNTIES SERVED: Ashtabula, Geauga, Lake

THOMAS A. EDISON OCCUPATIONAL SCHOOL
7101 Hough Avenue
Cleveland, Ohio 44103

Felix W. Haney, Jr., Unit Supervisor
Miss Jacquelyn L. Sheppard, Counselor

Telephone: 216-579-2990
Summer: 431-6858

REGION III

AKRON OFFICE
Room 600 Central Y.M.C.A.
80 West Center Street
Akron, Ohio 44308

David L. Cox, District Office Supervisor
Luther H. Robinson, Jr., M.D., Field Medical Consultant
Kenneth W. Brewster, Counselor
Guy W. Calissi, Counselor
Leland R. Magnuson, Counselor
James A. McCullough, Counselor
Mrs. Ann L. Miller, Counselor
Miss Caren E. Nelson, Counselor
Herbert G. Reis, Counselor, Beneficiary Rehabilitation Program

Telephone: 216-253-2167

COUNTIES SERVED: Medina, Portage, Summit

APPLE CREEK STATE HOSPITAL UNIT
P. O. Box 148
Apple Creek, Ohio 44606

Terry D. Etling, Unit Supervisor

Russell A. Gold, Counselor
Stanley D. Marsden, Counselor

Telephone: 216-698-2411
Ext - 499
or 698-3591

CANTON OFFICE
818 Renkert Building
306 Market Avenue, North
Canton, Ohio 44702
(Regional Headquarters)

Samuel D. Yocco, Regional Supervisor
Raymond G. Chapman, District Office Supervisor
Mrs. Lolita M. Anderson, Counselor
Robert J. Ash, Regional Planning Coordinator
Edward J. Hanley, Jr., M.D., Field Medical Consultant
Mrs. Vivian Geltz, Counselor
James W. Kardos, Counselor
William M. King, Counselor
Miss C. Rebecca Rogers, Counselor, Beneficiary Rehabilitation Program

Telephone: 216-453-8478

COUNTIES SERVED: Stark, Wayne

MAHONING VALLEY VOCATIONAL SCHOOL UNIT
P. O. Box 248
Vienna, Ohio 44473

Edward W. Werden, Unit Supervisor
Glenn J. Baumblatt, M.D., Medical Consultant
John A. Medert, Counselor

Telephone: 216-856-3661
Warren, Ohio

WOODSIDE RECEIVING HOSPITAL UNIT
800 East Indianola Avenue
Youngstown, Ohio 44502

Clifton W. Anderson, Jr., Unit Supervisor
Carl J. Felger, Counselor
Robert J. Stanko, Counselor

Telephone: 216-788-5005

YOUNGSTOWN OFFICE
3119 Market Street, Room 223
Youngstown, Ohio 44507

Ronald B. Perrin, District Office Supervisor
Thomas G. Assion, Counselor
Mrs. Elinor L. Eckles, Counselor
Kent T. Foulkes, Counselor

Robert L. Jenkins, Jr., M.D., Field Medical Consultant
Michael D. Marcis, Counselor
Robert H. Rhoads, Counselor
Lowell Wellman, Counselor for the Deaf and
Hard of Hearing
Charles M. Zillo, Counselor

Telephone: 216-783-0160

COUNTIES SERVED: Columbiana, Mahoning, Trumbull

REGION IV

MANSFIELD OFFICE
510 Stewart Towers, 13 Park Avenue, West
Mansfield, Ohio 44902

Walter E. Bates, District Office Supervisor
Donald R. Adair, M.D., Field Medical Consultant
Donald J. Lazar, Counselor
Lavell L. McDermott, Counselor
Mrs. Evelyn M. Cheape, Counselor Aide

Telephone: 419-522-5990

COUNTIES SERVED: Ashland, Holmes, Morrow, Crawford, Marion, Richland

BUREAU OF VOCATIONAL REHABILITATION UNIT
OHIO STATE REFORMATORY
Olivesburg Road
Mansfield, Ohio 44901

Joseph W. Thornbury, Unit Supervisor
Jay D. Harford, Counselor
Edward A. Moore, Counselor

Telephone: 419-524-9962

ST. CLAIRSVILLE OFFICE
Christy Building, Newell & Marietta Streets
St. Clairsville, Ohio 43950

Miss Margaret G. Whelan, District Office Supervisor
Robert N. Lewis, M.D., Field Medical Consultant
Donald G. McIntyre, Counselor

Telephone: 614-695-0404

COUNTIES SERVED: Belmont, Jefferson, Tuscarawas, Carroll, Monroe, Harrison

REGION IV (Continued)

ZANESVILLE OFFICE
308 Masonic Building, North 4th Street
Zanesville, Ohio 43701
(Regional Headquarters)

Carl E. Wheeler, Regional Supervisor (Room 301)
William B. McDonald, District Office Supervisor
Charles I. Cerney, M.D., Field Medical Consultant
Herbert D. Dennis, Counselor
Clarence J. Fritz, Counselor
James A. Kees, Regional Planning Coordinator

Telephone: Area Code 614
Reg. Off. 453-6102
Dist. Off. 452-4594

COUNTIES SERVED: Coshocton, Knox, Noble, Guernsey, Licking, Morgan, Muckingum

REGION V

ATHENS OFFICE
8 North Court Street, Room 412
Athens, Ohio 45701

John N. Patchen, District Office Supervisor
Robert M. Betz, Counselor
Lawrence I. Goldberg, M.D., Field Medical Consultant
Oscar A. King, Counselor, Beneficiary Rehabilitation Program

Telephone: 614-593-6608 or 593-6609

COUNTIES SERVED: Athens, Fairfield, Gallia, Hocking, Jackson, Meigs, Perry, Vinton, Washington

COLUMBUS OFFICE
517 South High Street
Columbus, Ohio 43215
(Regional Headquarters)

Charles R. Brashear, Regional Supervisor
Charles Z. Nichols, District Office Supervisor
Bulent Jajuli, M.D., Field Medical Consultant
Lowell D. Bassett, Regional Planning & Program Development Coordinator
Leslie C. Gray, Jr., Counselor
Glenn E. Gress, Counselor
Russell L. Jenkins, Counselor
Miss Julia A. Morrissey, Counselor
Mrs. Florence Putnam, Counselor Aide
Miss Joyce E. Teegardin, Counselor

625

Telephone: 614-469-4576

REGION V - COLUMBUS OFFICE (Continued)

COUNTIES SERVED: Delaware Madison Pickaway
Franklin Union

COLUMBUS STATE HOSPITAL UNIT
1960 West Broad Street
Columbus, Ohio 43223

Patrick Toliver, Unit Supervisor
Mrs. Harriett L. Bowen, Counselor
James D. Comer, Counselor
Miss Wilma T. Fountroy, Counselor
Miss Maxine E. Jackson, Counselor
Mrs. Yvonne B. Schmidt, Counselor

Telephone: 614-469-3122
or
469-5950

COLUMBUS STATE SCHOOL UNIT
1601 West Broad Street
Columbus, Ohio 43223

Gregory W. Wotschak, Unit Supervisor
Mrs. Susanna M. Westrick, Counselor

Telephone: 614-469-4970

BUREAU OF VOCATIONAL REHABILITATION
OHIO REFORMATORY FOR WOMEN UNIT
Route #5, Box 2
Marysville, Ohio 43040

Mrs. Colleen B. Mitchell, Counselor
Miss Helen A. Dill, Counselor
Miss Patricia A. Neubert, Counselor
Mrs. Bonnie M. Poff, Counselor

Telephone: 513-642-1075

REGION VI

CINCINNATI OFFICE
100 E. 8th Street
Cincinnati, Ohio 45202
(Regional Headquarters)

Miss Evelyn Lempereur, Regional Supervisor
Hubert R. Speakman, District Office Supervisor
Edwin I. Armitage, Counselor
Michael P. Brickley, Counselor

REGION VI - CINCINNATI OFFICE (Continued)

Robert L. Caplinger, Beneficiary Rehabilitation Program
John W. Dalton, Counselor
Miss Karen A. Dixon, Counselor
James B. Downey, Counselor
Ignatius Gatalo, Counselor
Joseph E. Levinson, M.D., Field Medical Consultant
Miss Mary J. Mendez, Regional Planning Coordinator
Mrs. Brenda D. Olson, Counselor
Thomas R. Parker, Counselor
Wayne B. Phillips, Counselor
Miss Ethel J. Schaen, Counselor for the Deaf
Paul E. Stockman, Counselor
Miss Virginia R. Tobey, Casework Supervisor — Telephone: 513-621-5920

COUNTIES SERVED: Brown, Butler, Clermont, Clinton, Fayette, Hamilton, Highland, Warren

LONGVIEW STATE HOSPITAL UNIT
6600 Paddock Road (R & T Building)
Cincinnati, Ohio 45216

Evaristo A. Giglio, Unit Supervisor
Robert B. DeFlaun, Counselor
Mrs. Rosemary Griffin, Counselor
Mrs. Christy L. Shipman, Counselor
Miss Constance J. Shook, Counselor
Miss Lenore M. Smalley, Counselor — Telephone: 513-821-7500

McMILLAN CENTER
608 E. McMillan Street
Cincinnati, Ohio 45229

Thomas S. Daniels, Unit Supervisor
Leonard L. Brown, Counselor Aide
Bernard E. Cotton, Counselor - Evaluator
Robert E. Davis, Counselor
Mrs. Barbara J. Majors, Counselor — Telephone: 513-221-6800 Ext - 206

PORTSMOUTH OFFICE
203 Masonic Building, 6th & Chillicothe Streets
Portsmouth, Ohio 45662

Bernard L. Black, District Office Supervisor
Chester H. Allen, M.D., Field Medical Consultant
Gary M. Igney, Counselor
Dale R. Mullens, Counselor — Telephone: 614-353-5420

REGION VI - PORTSMOUTH OFFICE (Continued)

COUNTIES SERVED: Adams, Pike, Scioto, Lawrence, Ross

PORTSMOUTH RECEIVING HOSPITAL UNIT
P.O. Box 651
Portsmouth, Ohio 45662

Mrs. Mary H. Talan, Counselor — Telephone: 614-354-2804

REGION VII

REGIONAL OFFICE
1163 Reibold Building, 117 S. Main Street
Dayton, Ohio 45502

John L. Gephart, Regional Supervisor — Telephone: 513-224-9769

DAYTON OFFICE
879 Reibold Building
117 South Main Street
Dayton, Ohio 45502

William J. Grohs, District Office Supervisor
Kenneth D. Arn, M.D., Field Medical Consultant
Miss Wanda E. Beamer, Counselor
Miss Nancy G. Chester, Counselor
Leo Scott Cornelius, Counselor
Mrs. Mary P. Fleming, Counselor
Robert C. Funk, Counselor
Robert J. Murphy, Counselor, Beneficiary Rehabilitation Program
Mrs. Sylvia I. Reinfuss, Counselor
Miss Mildred A. Taylor, Counselor
Miss Frances E. Smith, Counselor — Telephone: 513-223-8151

COUNTIES SERVED: Champaign, Darke, Miami, Greene, Montgomery, Preble, Clark

DAYTON SCHOOL PROJECT
809 Reibold Building, 117 S. Main Street
Dayton, Ohio 45502

Warner P. Simpson, Unit Supervisor
Mrs. Jane A. Barrow, Counselor
Mrs. Carolyn Joseph, Counselor
Miss Nancy J. Sutton, Counselor — Telephone: 513-224-9277

DAYTON STATE HOSPITAL
2335 Wayne Avenue
Dayton, Ohio 45420

Mrs. Martha L. Bradford, Acting Unit Supervisor
Miss Carol A. Krauss, Counselor

Telephone: 513-252-1111

LIMA OFFICE
708 National Bank Building
Market and Main Streets
Lima, Ohio 45802

J. Lucas Thompson, District Office Supervisor
Larry Bennett, Counselor
Mrs. Dixie Lee B. Soo, M.D., Field Medical Consultant
John M. Nester, Counselor, Beneficiary Rehabilitation Program

Telephone: 419-228-1421

COUNTIES SERVED:				
	Paulding	Putnam	Van Wert	Allen
	Hardin	Mercer	Auglaize	Shelby
	Logan			

SPECIAL RESIDENT SCHOOLS

The Ohio State School for the Blind
5220 North High Street
Columbus, Ohio 43214

The Ohio State School for the Deaf
500 Morse Road
Columbus, Ohio 43214

These schools offer special education up to and including high school academic and vocational training for persons requiring such assistance.

*** Non-veterans who are visually handicapped should be referred to the nearest counselor in the Rehabilitation Services for the Blind listed on the following pages.

PERSONNEL OF THE

BUREAU OF SERVICES FOR THE BLIND

STATE CENTRAL STAFF
85 South Washington Avenue
Columbus, Ohio 43215

Telephone: (614) 469-3942

Everett R. Steece, Chief, Services for the Blind
Juanita Frank, Administrative Assistant
Doris Barcomb, Supervisor, Research and Statistics
Don F. Chesser, Facilities Specialist
Virginia Davis, Projects Supervisor
Leona Mahaffey, Supervisor, Home Industries Unit
Lowell Morris, Supervisor, Vocational Rehabilitation Services
Neil Murphy, Training Officer, Business Enterprises
Thomas Taylor, Promotion
Grace Whitmire, Supervisor, Production and Sales
Donivan Evans, Supervisor, Business Enterprise Program
Alma Bean, Supervisor, Sales and Production

Medical Services:
Mrs. Mary Zimpfer, R.N., Consultant
Claude S. Perry, M.D., Consultant

Marguerite Klein, Supervisor, Children's Services
Elizabeth Willson, Supervisor, Talking Books

CANTON DISTRICT

117 Walnut Avenue, N.E.
Canton, Ohio 44702

Telephone: (216) 453-7729

Carl Albu, Deputy Director
John Duran, District Supervisor

Norma Weaver, Vocational Rehabilitation Counselor
Norman Young, Vocational Rehabilitation Counselor
James E. Babb, Vocational Rehabilitation Counselor

Elizabeth Haag, Home Teacher
Myrtle Wells, Home Teacher
Joan Hart, R.N., Ophthalmological Nursing Consultant
James H. Pollock, M.D., Medical Consultant
Edward Medved, Retail Business Counselor

COUNTIES SERVED

Ashland	Guernsey	Monroe	Stark
Belmont	Harrison	Morgan	Tuscarawas
Carroll	Holmes	Muskingum	Washington
Columbiana	Jefferson	Noble	Wayne
Coshocton	Mahoning	Richland	

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CINCINNATI DISTRICT

100 E. Eighth Street

Telephone: (513) 621-5920

Dante Bernardini, Deputy Director
Philip B. Sekola, District Supervisor

Charles Zack, Vocational Rehabilitation Counselor
John H. Quilhot, Jr., Vocational Rehabilitation Counselor
Barbara Heisier, Vocational Rehabilitation Counselor
Martha B. Hahnel, Home Teacher

Maurine Henkle, R.N., Ophthalmological Nursing Consultant
Thomas Levine, M.D., Medical Consultant
George W. Smith, Retail Business Counselor
Melda Silberman, Children's Services Consultant

COUNTIES SERVED

Adams	Clermont	Hamilton
Brown	Clinton	Highland
Butler	Fayette	Warren

CINCINNATI DISTRICT OFFICE
DAYTON BRANCH OFFICE

201 W. Fifth Street
Dayton, Ohio 45406

Telephone: (513) 228-6188

Dante Bernardini, Deputy Director
Philip Sekola, District Supervisor
Morris Busch, Vocational Rehabilitation Counselor
Paul DeSarro, Vocational Rehabilitation Counselor
Martha Hahnel, Home Teacher
Cecil Hites, Business Counselor
Thomas Littleton, Vocational Rehabilitation Counselor
John McAhren, Vocational Rehabilitation Counselor
Melda Silberman, Children's Services Consultant
Thomas Levine, M.D., Medical Consultant
Georgia Quellhorst, Ophthalmological Nursing Consultant

COUNTIES SERVED

Champaign	Madison
Clark	Miami
Darke	Montgomery
Greene	Preble

CLEVELAND DISTRICT

Room 320, Perry-Payne Building
740 Superior Avenue, N.W.

Telephone: (216) 579-2937

Kwigyir Aggrey, Deputy Director
Joseph Sullivan, District Supervisor
Daniel Brubaker, Vocational Rehabilitation Counselor
Walter O. Dietz, Vocational Rehabilitation Counselor
John D. Gregory, Vocational Rehabilitation Counselor
James A. Joyce, Vocational Rehabilitation Counselor
William L. Pegues, Vocational Rehabilitation Counselor
Susan Troia, Vocational Rehabilitation Counselor

Linda Wiener, Home Teacher
Patricia Stone, Children's Services Consultant
Elloise Frisk, R.N., Ophthalmological Nursing Consultant
James H. Pollock, M.D., Medical Consultant
Howard Rome, Retail Business Counselor

COUNTIES SERVED

Ashtabula	Geauga	Lorain	Summit
Cuyahoga	Lake	Medina	Trumbull
			Portage

COLUMBUS DISTRICT

85 South Washington Avenue
2nd Floor

Telephone: (614) 469-3942

Marvin O. Adams, Deputy Director
C. William Roberts, District Supervisor
Charle Baumgartner, Vocational Rehabilitation Counselor
J. David Cameron, Vocational Rehabilitation Counselor
Edward Marko, Vocational Rehabilitation Counselor
Mary O'Brien, Vocational Rehabilitation Counselor
George Stewart, Vocational Rehabilitation Counselor

Lucille Newsom, Home Teacher
Darlene Sue Combs, Home Teacher
Marjorie Dussault, Children's Services Consultant

Marvin Spiegel, M.D., Medical Consultant
Mary Ellen Ebright, R.N., Ophthalmological Nursing Consultant

Carl Vickers, Retail Business Counselor
Clarence Stevens, Retail Business Counselor
John Littler, Retail Business Counselor
Larry Skinner, Retail Business Counselor

COUNTIES SERVED

Athens	Hocking	Meigs	Ross
Delaware	Jackson	Morrow	Scioto
Fairfield	Knox	Perry	Union
Franklin	Lawrence	Pickaway	Vinton
Gallia	Licking	Pike	

TOLEDO DISTRICT

3rd Floor, B.U.C. Building
720-724 Monroe Street

Telephone: (419) 243-5186

L. E. Noggle, Deputy Director
Joseph Stahl, District Supervisor

George Arnold, Vocational Rehabilitation Counselor
J. Dewey Cummings, Vocational Rehabilitation Counselor
Barry McEwan, Vocational Rehabilitation Counselor
Robert Oberhouse, Vocational Rehabilitation Counselor

Margaret A. Wensel, Home Teacher

Rozena Mauk, R.N., Ophthalmological Nursing Consultant
Richard E. Baer, M.D., Medical Consultant

Thomas J. Ryan, Retail Business Counselor

COUNTIES SERVED

Allen	Hancock	Marion	Seneca
Auglaize	Hardin	Mercer	Shelby
Crawford	Henry	Ottawa	Van Wert
Defiance	Huron	Paulding	Williams
Erie	Logan	Putnam	Wood
Fulton	Lucas	Sandusky	Wyandot

Training Schools in Ohio Offering Specialized Programs of Study

TRAINING SCHOOLS IN OHIO OFFERING SPECIALIZED PROGRAMS OF STUDY - LISTED ACCORDING TO PROGRAMS OF STUDY

ACCOUNTING

Four-County Technical Center
Archbold 43502

University of Cincinnati
University College
Cincinnati 45221

University of Cincinnati
Raymond Walters Branch
Cincinnati 45236

Cuyahoga Comunity College
Cleveland 55115
Parma 44130

Columbus Technical Institute
Columbus 43215

Franklin University
Columbus

Sinclair Community College
Dayton 45402

Penta County Technical Institute
Perrysburg 43551

ACCOUNTING (JUNIOR)

Lorain County Community College
Elyria 44035

Lakeland Community College
Technical Institute
Mentor 44060

Tri-County Technical Institute
Nelsonville 45764

Clark County Technical Institute
Springfield 45502

ADMINISTRATIVE MANAGEMENT TECHNOLOGY

Muskingum Area Technical Institute
Zanesville

AGRI-BUSINESS

Four-County Technical Center
Archbold 43502

Penta County Technical Institute
Perrysburg 43551

AGRI-BUSINESS (Con't):

Clark County Technical Institute
Springfield 45502

AGRI-EQUIPMENT

Clark County Technical Institute
Springfield 45502

ANESTHESIA FOR NURSES

See Health Occupations, Section V
Ohio Employment Information Series

ARCHITECTURAL AND STRUCTURAL DRAFTING

Cleveland Engineering Institute
Cleveland 44114

Columbus Technical Institute
Columbus 43215

Youngstown Technological Institute
Youngstown 44507

ARCHITECTURAL ENGINEERING TECHNOLOGY

American Technical Institute
Akron 44308

Griswold Institute, Inc.
Cleveland 44114

Acme Institute of Technology, Inc.
Dayton 45414

ITT Technical Institute
Dayton 45414

ART

The University of Akron
Community and Technical College
Akron 44304

Art Academy of Cincinnati
Cincinnati 45202

Central Academy of Commercial Art
Cincinnati 45206

Gable Advertising School
Cincinnati 45206

ART (Con't):

Gebhardt and Associates
Cincinnati 45202

Cleveland Institute of Art
Cleveland 44106

Cooper School of Art
Cleveland 44115

Columbus College of Arts and Design
Columbus 43215

Dayton Art Institute
Dayton 45401

AUDIO-VISUAL TECHNOLOGY

Columbus Technical Institute
Columbus 43215

AUTOMATION

The University of Akron
Community and Technical College
Akron 44304

Automation Institute of Cincinnati
Cincinnati 45202

Electronic Computer Programming
Institute of Cincinnati, Inc.
Cincinnati 45202

Cincinnati Cooperative School of
Technology
Cincinnati 45223

International Data Processing
Institute
Cincinnati 45202

University of Cincinnati
University College
Cincinnati 45221

Automation Institute of Ohio, Inc.
Cleveland 44113

Cuyahoga Community College
Cleveland 44115
Parma 44130

Griswold Institute
Cleveland 44114

Institute of Computer Management
of Cleveland, Inc.
Cleveland 44115

AUTOMATION (Con't):

International Data Processing
Institute
Cleveland 44114

Columbus Technical Institute
Columbus 43215

Electronic Computer Programming
Institute of Columbus, Inc.
Columbus 43214

MATA College of Automation
Columbus 43215

Ohio Career College
Columbus 43215

Victor Business Schools
Columbus 43215

New York Technical Institute
Dayton 45402

Sinclair Community College
Dayton 45402

Victor Business Schools
Dayton 45402

Lorain County Community College
Elyria 44035

Vanguard Area Technical Center
Fremont 43420

Lakeland Community College
Mentor 44060

Tri-County Technical Institute
Nelsonville 45764

Penta County Technical Institute
Perrysburg 43551

Automated Business Academy, Inc.
Springfield 45502

Clark County Technical Institute
Springfield 45502

Youngstown Technological Institute
Youngstown 44507

Muskingum Area Technical Institute
Zanesville 43701

AUTO AIR-CONDITIONING

ATES Technical School
Niles 44446

AUTOMOTIVE SERVICE AND MECHANICS TECHNOLOGY

Cincinnati Cooperative School of Technology
Cincinnati 45223

New York Technical Institute
Cincinnati 45202

New York Technical Institute
Cleveland 44114

New York Technical Institute
Columbus 43222

Dayton Technology Center
Dayton 45402

Automotive Service and Training Center
Kent 44240

AVIATION TECHNOLOGY

Columbus Technical Institute
Columbus 43215

BANKING MANAGEMENT

Four-County Technical Center
Archbold 43502

Jefferson County Technical Institute
Steubenville 43952

BARBER (All approved by the State Board of Barber Examiners)

Akron Barber College
Akron 44308

Cincinnati Barber College
Cincinnati 45210

Moler Barber College
Cincinnati 45202

Allstate Barber College
Cleveland 44113

BARBER (Con't):

Cleveland Barber College
Cleveland 44109

Erma Lee Barber College
Cleveland 44104

Moler Barber College
Cleveland 44115

Ohio Barber College
Cleveland 44109

Andrew-Columbus Barber College
Columbus 43215

Ohio State Barber College
Columbus 43215

Dayton Barber College
Dayton 45402

Andrew-Toledo Barber College
Toledo 43604

BLUE PRINT READING

ATES Technical School
Niles 44446

BUILDING AND CONSTRUCTION TECHNOLOGY

Four-County Technical Center
Archbold 43502

Cuyahoga Community College
Cleveland 44115
Parma 44130

West Side Institute of Technology
Cleveland 44102

BUSINESS EDUCATION

Letters designate the following approvals and memberships:

A - Approved by the National Accrediting Commission for Business Schools
B - Approved by the State Approving Agency for Veterans' Education
C - Member of the United Business Schools Association
D - Member of the Ohio Business Schools Association

Hammel-Actual College
Akron 44308 A,B,C,D

BUSINESS (Con't):

Barberton School of Commerce
Barberton B,D

Canton College
Canton 44702 B,C,D

McKinley Business College
Canton 44709 B,C

Raedel Secretarial School
Canton 44702 B,C

Business Training School
Chillicothe B,D

Campbell Commercial College, Inc.
Cincinnati 45202 B,C,D

Katherine M. Betz School
Cincinnati B

Miller-Daughon College
Cincinnati B,C,D

Southern Ohio Business College
Cincinnati 45202 B

Becker CPA Review Course, Inc.
Cleveland B,C

Dyke College
Cleveland 44114 B,C,D

Griswold Business College
Cleveland 44115 A,B,C,D

Patricia Stevens Carrer and
Finishing School
Cleveland B

Whiting Business College
Cleveland 44113 B,C,D

Becker CPA Review Course
Columbus B

Bliss College
Columbus 43215 B,C,D

Columbus Business University
Columbus 43215 B,C,D

Franklin University
Columbus B

Coshocton Business College
Coshocton B

BUSINESS (Con't):

Becker CPA Review Course
Dayton 45402 B

Miami-Jacobs Junior College of
Business
Dayton 45401 A,B,C,D

Sinclair Community College
Dayton 45402 A,B

MTI Business School
Dayton 45402 B

Ohio Valley Business College
East Liverpool 43920 B,C,D

Gallipolis Business College
Gallipolis 45631 B,C,D

Lancaster Business College
Lancaster 43130 C,D

Northwestern School of Commerce
Lima A,B,C,D

Lorain Business College
Lorain 44052 B,C

Mansfield Business College
Mansfield A,B,D

Marion Business College, Inc.
Marion B,D

Middletown Business College
Middletown B,D

Mount Vernon Business College
Mount Vernon 43050 B,D

Union College of Commerce, Inc.
New Philadelphia B

Oberlin School of Commerce
Oberlin B

Portsmouth Interstate Business College
Portsmouth 45662 A,B,C,D

Bohecher's Business College
Ravenna B

Springfield School of Business, Inc.
Springfield B,D

Steubenville Business College
Steubenville 43952 A,B,C,D

BUSINESS (Con't):

Tiffin University
Tiffin 44883 A,B,C,D

Davis Junior College of Business
Toledo 43624 A,B,C,D

Patricia Stevens Career College
Toledo B

Stautzenberger Business College
Toledo A,B,C,D

Warren College of Business and Professional Drafting, Inc.
Warren B,D

Ohio Institute of Business
Wooster 44691 A,B,C,D

Penn-Ohio Junior College
Youngstown B

The Meredith College Company
Zanesville 43701 B,C,D

BUSINESS MANAGEMENT

Cincinnati Cooperative School of Technology
Cincinnati 45223

University of Cincinnati
University College
Cincinnati 45221

Cuyahoga Community College
Cleveland 44115
Parma 44130

Franklin University
Columbus

Sinclair Community College
Dayton 45402

Lorain County Community College
Elyria 44035

Jefferson County Technical Institute
Steubenville 43952

CASH REGISTER TECHNOLOGY

Cash Register Training Center
Dayton 45404

CERAMIC ENGINEERING

Tri-County Technical Institute
Nelsonville 45764

CERTIFIED LABORATORY ASSISTANTS

See Health Occupations Curricula
Section V, Ohio EIS

CHEMICAL ENGINEERING

The University of Akron
Community and Technical College
Akron 44304

Ohio College of Applied Sciences
Cincinnati

Cleveland Technician School
Cleveland

Columbus Technical Institute
Columbus 43215

Lorain County Community College
Elyria 44035

CHILD DEVELOPMENT TECHNOLOGY

University of Cincinnati
University College
Cincinnati 45221

Cuyahoga Community College
Cleveland 44115
Parma 44130

Vanguard Joint Vocational School
Fremont 45622

Penta County Technical Institute
Perrysburg 43551

Muskingum Area Technical Institute
Zanesville 43701

CIVIL ENGINEERING TECHNOLOGY

Cincinnati Cooperative School of Technology
Cincinnati 45223

Ohio College of Applied Sciences
Cincinnati

Columbus Technical Institute
Columbus

CIVIL ENGINEERING TECHNOLOGY (Con't):

Lorain County Community College
Elyria 44035

Kent State University
Salem Branch
Salem 44460

Clark County Technical Institute
Springfield 45502

CLINICAL TECHNOLOGY

Cincinnati Cooperative School of Technology
Cincinnati 45223

COMMERCE

The University of Akron
Community and Technical College
Akron 44304

CONSERVATION TECHNOLOGY

Tri-County Technical Institute
Nelsonville 45764

CONSTRUCTION DRAWING TECHNOLOGY

Franklin University
Columbus

CONSUMER FINANCE MID-MANAGEMENT

Columbus Technical Institute
Columbus 43215

COSMETIC THERAPY

See Health Occupations Curricula
Section V, Ohio EIS

COSMETOLOGY

Akron Beauty School, Inc.
Akron

Garfield Vocational High School
Akron

Hower Vocational High School
Akron

Riggs, Lemar & Sayre Beauty School
Akron

COSMETOLOGY (Con't):

Alliance Beauty School
Alliance

Carnation Beauty College
Alliance

Isabel School of Beauty Culture, Inc.
Ashtabula

Barberton Public Schools (Vocational)
Barberton

Charmayne School of Cosemtology
Bedford

Cambridge Beauty College
Cambridge

Canton Beauty School
Canton

National Beauty College
Canton

Oakwood Vocational High School
Canton

Timken Vocational High School
Canton

Preston Beauty School
Chesapeake

Cincinnati School of Beauty Culture
Cincinnati

Claude V. Courter Technical High School (Vocational)
Cincinnati

Glen Este High School (Vocational)
Cincinnati

Hollywood School of Hair Designing
Cincinnati

Les Blondes Beauty Academy
Cincinnati

Moler System of Beauty Culture
Cincinnati

Moore Universite' of Hair Design, Inc. (Advanced and Basic)
Cincinnati

COSMETOLOGY (Con't):

National School of Cosmeticians, Inc.
Cincinnati

Poro School of Beauty Art
Cincinnati

Robert A. Taft Senior High School (Vocational)
Cincinnati

Western Hills Academy of Beauty Culture
Cincinnati

American School of Beauty Culture
Cleveland

Beatrice Academy of Beauty
Cleveland

Cleveland Academy of Cosmetology, Inc.
Cleveland

Erieview Beauty College, Inc.
Cleveland

Erma Lee Beauty School
Cleveland

Euclid Academy of Beauty Culture Corporation
Cleveland

Jane Addams Vocational High School
Cleveland

La Jose College of Hair Design
Cleveland

Les Femmes School of Beauty
Cleveland

State Academy of Advanced Hair Design
Cleveland

State College of Cosmetology
Cleveland

Vogue Beauty Academy (two locations)
Cleveland

COSMETOLOGY (Con't):

West Side American School of Beauty Culture, Inc.
Cleveland

White Cross School of Beauty Culture, Inc.
Cleveland

Wilkins School of Cosmetology
Cleveland

Capital School of Beauty Culture
Columbus

DeLuca's Courtright Beauty College, Inc.
Columbus

Nationwide Beauty Academy, Inc.
Columbus

Ohio State School of Cosmetology, Inc.
Columbus

Poro School of Cosmetology
Columbus

Rosemont Vocational School
Columbus

Carousel Beauty College
Dayton

Charles of Stephans Advanced Hairstyling Academy
Dayton

Continental Beauty School
Dayton

Honey's School of Cosmetology
Dayton

Miami Valley Beauty School, Inc.
Dayton

Walter E. Stebbins High School
Dayton

Rutherford B. Hayes High School (Vocational)
Delaware

Gerber's Town and Country
Dover

COSMETOLOGY (Con't):

North High School
Eastlake

A. and H. School of Beauty Culture
East Liverpool

Lewis, Weinberger and Hill Academy
of Beauty Culture, Inc.
East Liverpool

Elyria Academy of Beauty Culture
Elyria

Euclidian Beauty College, Inc.
Euclid

Modina's College of Beauty Culture
Fairborn

Fairview Academy
Fairview Park

Findlay Beauty College
Findlay
*See Page 21
Fremont Beauty School
Fremont

Vanguard Vocational Center
Fremont

Southwestern City Schools
(Vocational)
Grove City

Eastland Vocational Center
Groveport

Carousel Beauty College of
Hamilton
Hamilton

Heath Vocational School
Heath

Hudson High School
(Vocational)
Hudson

Marycrest Vocational High School
Independence

Ironton Beauty College
Ironton

Lancaster City Schools
(Vocational)
Lancaster

COSMETOLOGY (Con't):

Marche Academy of Beauty Culture
Lakewood

Carousel Beauty College of Lima
Lima

Frederick's Beauty Academy
Lima

Ohio State Beauty Academy, Inc.
Lima

Northern Institute of Cosmetology
Lorain

International School of Beauty Culture
Lyndhurst

Mansfield Beauty College
Mansfield

DuBarry College of Cosmetology, Inc.
Maple Heights

Valley Beauty School
Marietta

State Beauty Academy
Marion

Martins Ferry High School (Vocational)
Martins Ferry

Massillon Beauty School
Massillon

Vogue Beauty Academy
Mayfield Heights

Morgan High School (Vocational)
McConnelsville

Grace College of Cosmetology, Inc.
Middleburgh Heights

Carousel Beauty College of Middletown
Middletown

3-B School of Beauty Culture
Newark

Twin City Beauty College
New Philadelphia

McKinley Heights College of Cosmetology
Niles

COSMETOLOGY (Con't):

Norwood Technical School
(Vocational)
Norwood

Lake County Vocational School
Painesville

Lake Erie Academy of Cosmetology
Painesville

Parma City School District
(Vocational)
Parma

Skelly-Roos Beauty Academy
Parma

Penta County Vocational School
Perrysburg

Piketon Vocational School
Piketon

Continental Beauty School
Piqua

Paramount Beauty Academy
Portsmouth
*See Page 21
Scioto Village School of
Cosmetology (Vocational)
Powell

Beauticians Academy, Inc.
Rocky River

Sandusky High School
Sandusky

Sandusky International College
of Beauty
Sandusky

Pioneer Joint Vocational School
Shelby

Eduardo's Beauty College
South Eculid

Continental Beauty School
Springfield

Frederick's Academy of Beauty
Culture
Springfield

COSMETOLOGY (Con't):

Springfield and Clark County Joint
Vocational District
Springfield

Clark, Gilbert and Silverthorn
Academy of Cosmetology, Inc.
Steubenville

Steubenville School of Cosmetology
Steubenville

Georgeann Academy of Hair Design
Tiffin

Herrons's Beauty School
Toledo

Machere' Style Academy
Toledo

Miss Ruby's Beauty College
Toledo

Toledo Academy of Beauty Culture
Toledo

Warner College of Beauty Culture
Toledo

Whitmer Senior High School (Vocational)
Toledo

Whitney Vocational High School
Toledo

Wadsworth City Schools (Vocational)
Wadsworth

Long and McKlveen College of Cosmetology,
Inc.
Warren

Warren G. Harding Senior High School
(Vocational)
Warren

Warren Academy of Beauty
Warren

Riverview High School (Vocational)
Warsaw

Andrews School for Girls (Vocational)
Willoughby

COSMETOLOGY (Con't):

Continental Academy of Beauty Culture of Willoughby
Willoughby

Wooster Beauty School
Wooster

Green County Joint Vocational School
Xenia

Woodrow Wilson High School (Vocational)
Xenia

Boardman Beauty Academy
Youngstown

Lewis, Weinberger and Hill Academy of Beauty Culture, Inc.
Youngstown

Ohio School of Beauty Culture
Youngstown

Paramount Beauty Academy
Youngstown

Renee's School of Cosmetology
Youngstown

Victor George Beauty School
Youngstown

Youngstown Beauty Academy
Youngstown

Youngstown City Schools (Vocational)
Youngstown

Carousel Beauty College of Zanesville
Zanesville

CREDIT MANAGEMENT

University of Cincinnati
University College
Cincinnati 45221

University of Cincinnati
Raymond Walters Branch
Cincinnati 45236

CYTOTECHNOLOGY

See Health Occupations Curricula
Section V, Ohio EIS

DENTAL ASSISTANT

See Health Occupations Curricula
Section V, Ohio EIS

DENTAL HYGIENIST

See Health Occupations Curricula
Section V, Ohio EIS

DENTAL LABORATORY TECHNICIAN

See Health Occupations Curricula
Section V, EIS

DIETARY AIDE

See Health Occupations Curricula
Section V, Ohio EIS

DIETETICS (MEDICAL)

See Health Occupations Curricula
Section V, Ohio EIS

DRAFTING TECHNOLOGY

Miller-Draughon College
Cincinnati 45202

Southern Ohio College
Cincinnati 45202

Griswold Institute, Inc.
Cleveland 44114

Columbus Drafting College
Columbus 43215

Stautzenberger Business College
Toledo 43604

DRESSMAKING AND FASHION DESIGN

Clarke School of Dressmaking
Cleveland 44106

Progressive Fashion School
Cleveland 44114

EDUCATION

Columbus Technical Institute
Columbus

Lakeland Community College
Mentor

Penta County Technical Institute
Perrysburg 43551

Clark County Technical Institute
Springfield 45502

ELECTRICAL ENGINEERING TECHNOLOGY

Four-County Technical Center
Archbold 43502

Kent State University
Ashtabula Branch
Ashtabula 44004

Canton Area Technical School
Canton 44702

Ohio College of Applied Sciences
Cincinnati 45210

Cuyahoga Community College
Cleveland 44115
Parma 44130

Columbus Technical Institute
Columbus 43215

Lorain County Community College
Elyria 44035

Miami Valley Institute of Technology
Hamilton 45012

North Central Ohio Technical Institute
Springfield 45502

Penta County Technical Institute
Perrysburg 43551

Kent State University
Salem Branch
Salem 44460

Clark County Technical Institute
Springfield 45502

Jefferson County Technical Institute
Steubenville 43952

Muskingum Area Technical Institute
Zanesville 43701

ELECTRO-MECHANICAL TECHNOLOGY

Kent State University
Salem Branch
Salem

ELECTRONIC ENGINEERING TECHNOLOGY

The University of Akron
Community and Technical College
Akron 44304

American Technical Institute
Akron 44308

Electronic Engineering Technology Institute
Akron 44320

McKim Technical Institute
Akron 44305

Electronic Engineering Technology Institute
Canton 44708

Cincinnati Cooperative School of Technology
Cincinnati 45223

New York Technical Institute
Cincinnati 45202

Ohio College of Applied Sciences
Cincinnati

Cleveland Technician School
Cleveland

Electronic Engineering Technology Institute
Cleveland 44103

Griswold Institute, Inc.
Cleveland 44115

Columbus Technical Institute
Columbus 43215

Franklin University
Columbus 43215

Ohio Technical College
Columbus 43224

RETS Electronic School
Columbus 43222

RETS Electronic School
Dayton 45439

ELECTRONIC ENGINEERING TECHNOLOGY (Con't):

Sinclair Community College
Dayton 45402

Vanguard Area Technical Center
Fremont 43420

Lakeland Community College
Mentor 44060

ATES Technical School
Niles 44446

Penta County Technical Institute
Perrysburg 43551

ENGINEERING GRAPHICS

Findlay Technical College
Findlay 45840

Franklin University
Columbus 43215

FASHION MERCHANDISING

Ohio Career College
Columbus 43215

FIRE SCIENCE

Cuyahoga Community College
Cleveland 44115
Parma 44130

Sinclair Community College
Dayton 45402

Penta County Technical Institute
Perrysburg

Clark County Technical Institute
Springfield 45502

FOOD SERVICES

The University of Akron
Community and Technical College
Akron 44304

Four-County Technical Center
Archbold 43502

Lorain County Community College
Elyria

Columbus Technical Institute
Columbus 43215

FOOD SERVICES (Con't):

Tri-County Technical Institute
Nelsonville 45764

Penta County Technical Institute
Perrysburg 43551

FOOD SERVICE SUPERVISION (MEDICAL)

See Health Occupations Curricula
Section V, Ohio EIS

FORESTRY TECHNOLOGY

Tri-County Technical Institute
Nelsonville 45764

GRAPHIC COMMUNICATIONS

Cincinnati Cooperative School of
Technology
Cincinnati

Dayton Technology Center
Dayton 45402

HOME ECONOMICS

University of Cincinnati
University College
Cincinnati 45221

HORTICULTURE

Cleveland Technician School
Cleveland

HOTEL AND MOTEL MANAGEMENT

Cuyahoga Community College
Cleveland 44115
Parma 44130

Tri-County Technical Institute
Nelsonville 45764

INDUSTRIAL ELECTRONICS

McKim Technical Institute, Inc.
Akron 44305

RETS Electronic School
Columbus 43222

ATES Technical School
Niles 44446

INDUSTRIAL ENGINEERING TECHNOLOGY

The University of Akron
Community and Technical College
Akron 44304

Four-County Technical Center
Archbold 43502

Kent State University
Ashtabula Branch
Ashtabula 44004

University of Cincinnati
University College
Cincinnati 45221
*See Page 21
Cuyahoga Community College
Cleveland 44115
Parma 44130

Dayton Technology Center
Dayton 45402

Lorain County Community College
Elyria 44035

Miami Valley Institute of Technology
Hamilton 45012

North Central Ohio Technical Institute
Mansfield 44903

Lakeland Community College
Mentor 44060

Tri-County Technical Institute
Nelsonville 45764

Kent State University
Salem Branch
Salem 44460

Jefferson County Technical Institute
Steubenville 43952

INDUSTRIAL MANAGEMENT

Franklin University
Columbus

INDUSTRIAL MATHEMATICS

Northern Technical Institute
Toledo 43605

INHALATION THERAPY TECHNOLOGY

See Health Occupations Curricula
Section V, Ohio EIS

INSTRUMENTATION

The University of Akron
Community and Technical College
Akron 44304

Columbus Technical Institute
Columbus 43215

INSURANCE MANAGEMENT

Four-County Technical Center
Archbold 43502

LABORATORY AIDE

See Health Occupations Curricula
Section V, Ohio EIS

LAW

Salmon P. Chase College
School of Law
Cincinnati 45210

Weiner and Miner Bar Review
Cincinnati 45201

Cleveland-Marshall Law School
Cleveland 44113

Ohio Bar Review and Writing Seminar
Cleveland 44118

Weiner and Miner Bar Review
Cleveland 44114

Weiner and Miner Bar Review
Columbus 43215

LAW ENFORCEMENT

University of Cincinnati
University College
Cincinnati 45221

Cuyahoga Community College
Cleveland 44115
Parma 44130

Lorain County Community College
Elyria 44035

LAW ENFORCEMENT (PHYSICAL EVIDENCE TECHNOLOGY)

Miami Valley Institute of Technology
Hamilton

North Central Ohio Technical Institute
Mansfield 44903

Tri-County Technical Institute
Nelsonville 45764

Penta County Technical Institute
Perrysburg 43551

Clark County Technical Institute
Springfield 45502

Muskingum Area Technical Institute
Zanesville 43701

LIBERAL ARTS

The University of Akron
Community and Technical College
Akron 44304

University of Cincinnati
University College
Cincinnati 45221

Sinclair Community College
Dayton 45402

LIBRARY

Cuyahoga Community College
Cleveland 44115
Parma 44130

Lakeland Community College
Mentor 44060

MACHINE DESIGN

Cleveland Engineering Institute
Cleveland 44114

ATES Technical School
Niles 44446

MARKETING

Sinclair Community College
Dayton 45402

MASSAGE

See Health Occupations Curricula
Section V, Ohio EIS

MEAT CUTTING AND MERCHANDISING

National School of Meat Cutting, Inc.
Toledo 43604

MECHANICAL DESIGN TECHNOLOGY

Cincinnati Cooperative School of Technology
Cincinnati

Cleveland Engineering Institute
Cleveland 44114

Lorain County Community College
Elyria

Vanguard Area Technical Center
Fremont 43420

MECHANICAL DRAWING

Northern Technical Institute
Toledo 43605

MECHANICAL ENGINEERING TECHNOLOGY

The University of Akron
Community and Technical College
Akron 44304

American Technical Institute
Akron

Four-County Technical Center
Archbold 43502

Kent State University
Ashtabula Branch
Ashtabula 44004

American Technical Institute
Canton

Canton Area Technical School
Canton 44702

Ohio College of Applied Sciences
Cincinnati

Ohio Mechanics Institute
Cincinnati 45210

Cleveland Technician School
Cleveland

Cuyahoga Community College
Cleveland 44115
Parma 44130

MECHANICAL ENGINEERING TECHNOLOGY (Con't):

Griswold Institute
Cleveland 44114
*See Page 21
Sinclair Community College
Dayton 45402

Lorain County Community College
Elyria 44035

Vanguard Area Technical Center
Fremont 43420

Miami Valley Institute of Technology
Hamilton

North Central Ohio Technical Institute
Mansfield 44903

Lakeland Community College
Mentor 44060

Tri-County Technical Institute
Nelsonville 45764

ATES Technical School
Niles 44446

Penta County Technical Institute
Perrysburg 43551

Kent State University
Salem Branch
Salem 44460

Clark County Technical Institute
Springfield 45502

Jefferson County Technical Institute
Steubenville 43952

Youngstown Technological Institute
Youngstown 44507

Muskingum Area Technical Institute
Zanesville 43701

MECHANOTHERAPY

See Health Occupations Curricula
Section V, Ohio EIS

MEDICAL ARTS ASSISTANT

See Health Occupations Curricula
Section V, Ohio EIS

MEDICAL ASSISTANT

See Health Occupations Curricula
Section V, Ohio EIS

MEDICAL ILLUSTRATOR

See Health Occupations Curricula
Section V, Ohio EIS

MEDICAL LABORATORY ASSISTANT

See Health Occupations Curricula
Section V, Ohio EIS

MEDICAL LABORATORY TECHNICIAN

See Health Occupations Curricula
Section V, Ohio EIS

MEDICAL RADIOISOTOPE

See Health Occupations Curricula
Section V, Ohio EIS

MEDICAL RECORD TECHNICIAN

See Health Occupations Curricula
Section V, Ohio EIS

MEDICAL SECRETARY

See Health Occupations Curricula
Section V, Ohio EIS

MEDICAL TECHNICIAN

See Health Occupations Curricula
Section V, Ohio EIS

MENTAL HEALTH TECHNICIAN

See Health Occupations Curricula
Section V, Ohio EIS

METALLURGICAL ENGINEERING TECHNOLOGY

Columbus Technical Institute
Columbus 43215

Jefferson County Technical Institute
Steubenville 43952

MODELING

Noni Charm and Modeling School
Columbus

MORTUARY SCIENCE

(The following college is recognized by the Board of Embalmers and Funeral Directors of Ohio and has been accredited by the American Board of Funeral Service Education.)

Cincinnati College of Mortuary Science
3200 Reading Road
Cincinnati 45229

MUSIC

Cleveland Institute of Music
Cleveland 44106

NATURAL RESOURCES CONSERVATION

Muskingum Area Technical Institute
Zanesville 44124
*See Page 21

NURSE ASSISTANT

See Health Occupations Curricula
Section V, Ohio EIS

NURSING

See Health Occupations Curricula
Section V, Ohio EIS

OCCUPATIONAL THERAPY ASSISTANT

See Health Occupations Curricula
Section V, Ohio EIS

OPERATING ROOM TECHNICIAN

See Health Occupations Curricula
Section V, Ohio EIS

ORTHOPTIC TECHNICIAN

See Health Occupations Curricula
Section V, Ohio EIS

PIANO TUNING

Perkins School of Piano Tuning
Cleveland 44102

PILOT SCHOOLS (CERTIFIED AIRPLANE AND HELICOPTER PILOTS)

The schools listed in this section are approved, as of December 1968, by the Federal Aviation Administration in Ohio. The rating code for these schools is given below:

A - Advanced Ground School, Airplane
P - Primary Flying School, Airplane
C - Commercial Flying School, Airplane
I - Instrument Flying School
F - Flight Instructor School
B - Basic Ground School
PH- Primary Flying School, Helicopter
CH- Commercial Flying School, Helicopter

As asterisk (*) denotes that the school listed is operated by, or in conjunction with, an accredited university or college.

Shawnee Airways, Inc.
Akron 44306 P,C,I,F,B,A

*Ohio University
Athens 45701 P,C,I,F

Mather Flying Service
Avon 44011 P,C,I,F,B,A

Bluffton Flying Service
Bluffton 45817 P,C,I,F,B,A

Crow, Inc.
Bowling Green 43402 P,B

Brunswick Flight Service
Brunswick 44212 P,B,A

Canton Public Evening School
Canton 44721 B

Horn's Flying School, Inc.
Chagrin Falls 44022 P,C,I,F,B,A

Huntington Airport, Inc.
Chesapeake P,C,I,F,A

Cardinal Air Training, Inc.
Cincinnati 45226 P,C,I,F

PILOT SCHOOLS (Con't):

Cincinnati Aircraft, Inc.
Cincinnati 45226 P,C,I,F,A

Clermont Airways, Inc.
Cincinnati 45226 P,C,I,F,B,A

Queen City Flying Service
Cincinnati 45226 P,C,I,F,A

Air Executive. Inc.
Cleveland 44143 P,C,I,F,B,A

Mayfield City School District
Cleveland 44124 B,A

Midpark High School
Cleveland B

Ohio Aviation Company
Cleveland 44143 P,C,I,F,B,A

Ortner Air Service, Inc.
Cleveland 44135 P,C,I,F

Sundorph Aeronautical Corp.
Cleveland 44135 P,C,I,F,B,A

Air Columbus, Inc.
Columbus 43207 P,C,I,F,B,A

Clark Flying Service, Inc.
Columbus 43219 P,C,I,F,B,A

Columbus Flying Service, Inc.
Columbus 43219 P,C,I,F

E.C. Aviation Services
Columbus 43219 P,C,I,F

Haussermann Aviation, Inc.
Columbus 43219 P,C,I,F

Lane Aviation Corporation
Columbus 43219 P,C,I,F,A

*Ohio State University
Columbus 43210 P,C,I,F,A

Price Field Aviation
Columbus 43227 P,C,B,A

Delaware Aviation, Inc.
Columbus 43227 P,C,I,F

Eddy Flying Service, Inc.
Findlay 45840 P,C,F

PILOT SCHOOLS (Con't):

Fischer Brothers Flight Training, Inc.
Galion P,C,I,F,B,A

Hamilton Airport, Inc.
Hamilton 45015 P,C,I,F,B

Miami Whitewater Flying School
Harrison P,C,I,F

Air Transport, Inc.
Hebron P,C,I,F

Lane's Lebanon Air Service
Lebanon P,C,I,F

Lima Aviation Corporation
Lima 45802 P,C,I,F

Richland Aviation, Inc.
Mansfield P,C,I,F,B,A

Freedom Field, Inc.
Medina 44256 P,C,I,F,B,A

Wedekind Aircraft, Inc.
Middletown 45042 P,C,I,F

Tuscarawas County Aviation, Inc.
New Philadelphia 44663 P,C,I,F

Sundin Aviation Company
Newark P,C,I,F

Crow, Inc.
North Benton P,C,I,F,B,A

Akron Canton Airways
North Canton 44720 P,C,I,F,B,A

McKinley Air Transport, Inc.
North Canton 44720 P,C,I,F,B,A

Executive Air Service, Inc.
North Jackson 44451 P,C,I,F

Haski Aviation, Inc.
North Lima P,C,F

*Miami University
Department of Aeronautics
Oxford B

*Miami University
Oxford P,C,I

Casement Aviation
Painesville P,C,I,F,B,A

PILOT SCHOOLS (Con't):

Parma Aircraft Co., Inc.
Parma B
*See Page 21
Piqua Aircraft Co., Inc.
Piqua P

Sky Tours, Inc.
Port Clinton P,C,I,F

Griffing Flying Service, Inc.
Sandusky 44870 P,C,I,F,B,A

Sidney Flying Service
Sidney 45365 P,C,I,F

Beacon Airways Co., Inc.
Springfield 45502 P,C,I,F,B,A

Springfield Aviation, Inc.
Springfield P,C

*Kent State University Airport
Stow 44224 P,C,I,F,B,A

Strongsville Airport
Strongsville 44136 P,C,I,B,A

Crow, Inc.
Swanton 43558 P,C,I,F

National Flight School
Swanton 43558 P,C,I,F,B,A

Executive Aviation, Inc.
Toledo 43601 P,C,I,F,B,A

Aviation Sales, Inc.
Vandalia 45377 P,C,I,F,B

Ohio Aviation Company
Vandalia 45377 P,C,I,F,A

Skyways, Inc.
Vandalia 45377 P,C,I,F,B,PH,CH

Ortner Air Service, Inc.
Wakeman 44889 P,C,I,F

Southern Ohio Aviation Sales, Inc.
West Carrolton 45449 P,C,I,F

General Aviation, Inc.
Willoughby 44004 P,C,I,F,B

Aero Dynamics, Inc.
Wooster 44691 P,C,I,F

PILOT SCHOOLS (Con't):

Midtown Aviation Corporation
Youngstown 44505 P,C,I,F,B,A

Southern Airways, Inc.
Youngstown 44512 P,C,I,F,B,A

Southeastern Ohio Air Service, Inc.
Zanesville 43701 P,C,I,F,B

PRINTING MID-MANAGEMENT

Columbus Technical Institute
Columbus 43215

PROCUREMENT AND MATERIALS MANAGEMENT

Sinclair Community College
Dayton 45402

PSYCHIATRIC ATTENDANT

See Health Occupations Curricula
Section V, Ohio EIS

PURCHASING

Cuyahoga Community College
Cleveland 44115
Parma 44130

RADIO AND TV BROADCASTING

Career Academy
Columbus 43217

RADIO AND TELEVISION ELECTRONICS

McKim Technical Institute
Akron 44305

Griswold Institute
Cleveland 44115

RETS Electronic School
Columbus 43222

ATES Technical School
Niles 44446

REAL ESTATE

Cuyahoga Community College
Cleveland 44115
Parma 44130

Miles Real Estate School
Dayton 45409

REAL ESTATE (Con't):

Jefferson County Technical Institute
Steubenville 43952

REFRIGERATION SYSTEMS

West Side Institute of Technology
Cleveland 44102

RETAIL MID-MANAGEMENT

Four-County Technical Center
Archbold 43502

University of Cincinnati
University College
Cincinnati 45221

University of Cincinnati
Raymond Walters Branch
Cincinnati 45236

Cleveland Technician School
Cleveland

Cuyahoga Community College
Cleveland 44115
Parma 44130

Columbus Technical Institute
Columbus 43215

Dayton Technology Center
Dayton 45402

Lorain County Community College
Elyria 44035

Miami Valley Institute of Technology
Hamilton 45012

North Central Ohio Technical Institute
Mansfield 44903

Lakeland Community College
Technical Institute
Mentor 44060

Tri-County Technical Institute
Nelsonville 45764

Penta County Technical Institute
Perrysburg 43551

RETAIL MID-MANAGEMENT (Con't):

Clark County Technical Institute
Springfield 45502

Jefferson County Technical Institute
Steubenville 43952

Muskingum Area Technical Institute
Zanesville 43701

SALES AND MERCHANDISING

The University of Akron
Community and Technical College
Akron 44304

Cincinnati Cooperative School of Technology
Cincinnati 45223

Cuyahoga Community College
Cleveland 44115
Parma 44130

SCIENCE

University of Cincinnati
University College
Cincinnati 45221

University of Cincinnati
Raymond Walters Branch
Cincinnati 45236

SCIENCE EDUCATION

Columbus Technical Institute
Columbus 43215

SECRETARIAL (EXECUTIVE, INDUSTRIAL, INTERNATIONAL, LEGAL, MEDICAL AND/OR TECHNICAL)

The University of Akron
Community and Technical College
Akron 44304

Four-County Technical Center
Archbold 43502

Kent State University
Ashtabula Branch
Ashtabula 44004

Cincinnati Cooperative School of Technology
Cincinnati 45223

SECRETARIAL (Con't):

University of Cincinnati
University College
Cincinnati 45221

University of Cincinnati
Raymond Walters Branch
Cincinnati 45236

Cuyahoga Community College
Cleveland 44115
Parma 44130

Columbus Technical Institute
Columbus 43215

Franklin University
Columbus

Ohio Career College
Columbus 43215

Sinclair Community College
Dayton 45402

Lorain County Community College
Elyria 44035

Miami Valley Institute of Technology
Hamilton 45012

Lakeland Community College
Technical Institute
Mentor 44060

Tri-County Technical Institute
Nelsonville 45764

Penta County Technical Institute
Perrysburg 43551

Clark County Technical Institute
Springfield 45502

Jefferson County Technical Institute
Steubenville 43952

Muskingum Area Technical Institute
Zanesville 43701

SURGICAL ASSISTANT

See Health Occupations Curricula
Section V, Ohio EIS

SURVEYING AND CONSTRUCTION

The University of Akron
Community and Technical College
Akron 44304

Columbus Technical Institute
Columbus 43215

TIMESTUDY AND METHODS ENGINEERING

Industrial Timestudy Institute
Akron 44134

Industrial Timestudy Institute
Canton 44702

TOOL AND DIE TECHNOLOGY

American Technical Institute
Akron 44308

Cleveland Engineering Institute
Cleveland 44114
*See Page 21
Ohio Career College
Columbus 43215

Acme Institute of Technology
Dayton 45402

ITT Technical Institute
Dayton 45414

Northern Technical Institute
Toledo 43605

Youngstown Technological Institute
Youngstown 44507

TOOL ENGINEERING TECHNOLOGY

Acme Institute of Technology
Dayton 45402

ITT Technical Institute
Dayton 45414

TOOL AND MANUFACTURING

Four-County Technical Center
Archbold 43502

TRANSPORTATION

The University of Akron
Community and Technical College
Akron 44304

TRANSPORTATION (Con't):

Cuyahoga Community College
Cleveland 44115
Parma 44130

Sinclair Community College
Dayton 45402

WARD CLERK

See Health Occupations Curricula
Section V, Ohio EIS

WATCH REPAIR

Ohio Valley Watchmaking Institute
Cincinnati 45246

WELDING

Akron Testing and Welding
Akron 44312

Industrial Welding School
Canton 44706

Technicron, Inc., School of Welding
Cincinnati 45225

Cleveland School of Welding
Cleveland 44115

Lincoln Electric Company
Cleveland 44117

MATA College
Columbus 43215

Galion Welding School
Galion 44833

Hebart Trade School, Inc.
Troy 45373

WHOLESALE MERCHANDISING

Cuyahoga Community College
Cleveland 44115
Parma 44130

Columbus Technical Institute
Columbus 43215

Penta County Technical Institute
Perrysburg 43551

X-RAY TECHNOLOGY

See Health Occupations Curricula
Section V, Ohio EIS

*ADDITIONS TO ABOVE LISTING:

COSMETOLOGY

State Beauty Academy
Findlay

Portsmouth Beauty College
Portsmouth

INDUSTRIAL ENGINEERING TECHNOLOGY

University of Cincinnati
Raymond Walters Branch
Cincinnati 45236

MECHANICAL ENGINEERING TECHNOLOGY

Columbus Technical Institute
Columbus 43215

NUCLEAR MEDICINE

Nuclear Medicine Institute
Cleveland 44124

PILOT SCHOOLS

Parma Adult Evening School
Parma

TOOL AND DIE TECHNOLOGY

Griswold Institute, Inc.
Cleveland 44114

TRAINING SCHOOLS IN OHIO OFFERING SPECIALIZED PROGRAMS OF STUDY
LISTED ACCORDING TO LOCATION OF SCHOOL

(This list excludes health occupations which are listed separately in Section V of the Training Directory, Ohio EIS)

AKRON

Akron Barber College 39 South Main Street 44308	Barber Training
Akron Beauty School 166 South Main Street	Cosmetology
Akron Testing and Welding 1726 Massillon Road 44312	Welding
The University of Akron Community and Technical College 304 East Buchtel Avenue 44304	Chemical Engineering Commerce Commercial Art Data Processing Electronics Engineering Executive Secretary Food Service Management Industrial Technology Instrumentation International Secretary Legal Secretary Liberal Arts Mechanical Engineering Medical Secreatry Sales and Merchandising Surveying and Construction Technical Secretary Transportation
American Technical Institute 26 North Main Street 44308	Architectural Engineering Electronic Engineering Theory Mechanical Engineering Tool and Die Design
Electronic Engineering Technology Institute 377 South Portage Path 44320	Electronics Engineering
Garfield High School (Vocational) 435 North Firestone Boulevard	Cosmetology
Hammel-Actual College 55-59 East Market Street 44308	Business
Hower Vocational High School 100 West Exchange Street	Cosmetology
Industrial Timestudy Institute 995 Kenmore Boulevard	Timestudy and Methods Engineering
McKim Technical Institute 1002 East Market Street 44305	Electronics Engineering Technology Industrial Electronics Technology Radio and TV Servicing

AKRON (Con't):

Riggs, Lemar and Sayre Beauty School 39 South Main Street	Cosmetology
Shawnee Airways, Inc. Akron Municipal Airport 44306	Pilot (Certified)

ALLIANCE

Alliance Beauty School 1917 South Union Avenue	Cosmetology
Carnation Beauty College, Inc. 550 East Main Street	Cosmetology

ARCHBOLD

Four-County Technical Center 101 Depot Street 43502	Accounting Agri-Business Banking Management Building and Construction Electrical Engineering Executive Secretary Food Service Management Industrial Engineering Insurance Management Mechanical Engineering Retail Mid-Management Tool and Manufacturing

ASHTABULA

Isabel School of Beauty Culture, Inc. 4423 Main Avenue	Cosmetology
Kent State University Ashtabula Branch 3325 West 13th Street 44004	Electrical Technology Executive Secretary Industrial Technology Mechanical Technology

ATHENS

Ohio University Ohio University Airport 45701	Pilot (Certified)

AVON

Mather Flying Service 4400 Nagel Road 44011	Pilot (Certified)

BARBERTON

Barberton Public Schools (Vocational) 489 West Hopocan Avenue	Cosmetology
Barberton School of Commerce 646 West Tuscarawas Avenue	Business

BEDFORD

Charmayne School of Cosmetology 402 Northfield Road	Cosmetology

BLUFFTON

Bluffton Flying Service Bluffton Airport 45817	Pilot (Certified)

BOWLING GREEN

Crow, Inc. RFD #2, Box 264 Bowling Green Airport 43402	Pilot (Certified)

BRUNSWICK

Brunswick Flight Service Substation Road 44212	Pilot (Certified)

CAMBRIDGE

Cambridge Beauty College 706 Wheeling Avenue	Cosmetology

CANTON

American Technical Institute 428 North Market Avenue 44702	Mechanical Engineering Technology
Canton Area Technical School 521 Tuscarawas Street, West 44702	Electrical Engineering Technology Mechanical Engineering Technology
Canton Beauty School 400 Market Street	Cosmetology
Canton College 428 North Market Avenue 44702	Business
Canton Public Evening School 800 North Market Avenue 44721	Cosmetology
Electronic Engineering Technology Institute 3203 West Tuscarawas Street 44708	Electronics Engineering Technology
Industrial Timestudy Institute 318 North Cleveland Avenue 44702	Timestudy and Methods Engineering
Industrial Welding School 1733 Perry Drive S.W. 44706	Welding
McKinley Business College 1916 Cleveland Avenue N.W. 44709	Business
National Beauty College 237 Court Avenue NW	Cosmetology

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CANTON (Con't):

Oakwood High School (Vocational) 2300 Schneider Road NE	Cosmetology
Raedel Secretarial School 312 Third Street NW 44702	Business
Timkin Vocational High School 521 West Tuscarawas Street	Cosmetology

CHAGRIN FALLS

Horn's Flying School, Inc. Chagrin Falls Airport 44022	Pilot (Certified)

CHESAPEAKE

Huntington Airport, Inc. P.O. Box 301 45619	Pilot (Certified)
Preston Beauty School 609 Third Avenue	Cosmetology

CHILLICOTHE

Business Training School 45½ South Paint Street	Business

CINCINNATI

Automation Institute of Cincinnati 309 Vine Street 45202	Automation
Campbell Commercial College 31 East Fourth Street 45202	Business
Cardinal Air Training, Inc. Lunken Airport, Hangar #22 45226	Pilot (Certified)
Central Academy of Commercial Art 2326 Upland Place 45206	Commercial Art
Cincinnati Aircraft, Inc. 358 Wilmer Avenue 45226	Pilot (Certified)
Cincinnati Barber College 1228-30 Vine Street 45210	Barber
Cincinnati College of Mortuary Science 3200 Reading Road 45229	Mortuary Science
Cincinnati Cooperative School of Technology 3520 Central Parkway 45223	Automotive Service Technology Business Management Civil Engineering Technology Clinical Technology Data Processing Electronics Engineering Technology Executive Secretary Graphic Communications

CINCINNATI (Con't):

Cincinnati Coop. School (Con't):	Mechanical Design Technology Sales Merchandising
Cincinnati School of Beauty Culture 37 West Seventh Street	Cosmetology
University of Cincinnati University College 45221	Accounting Business Management Child Development Credit Management Data Processing Executive Secretary Home Economics Industrial Engineering Technology Law Enforcement Legal Secretary Liberal Arts Medical Secretary Retail Mid-Management Science
University of Cincinnati Raymond Walters Branch 9555 Plainfield Road 45236	Accounting Credit Management Education Executive Secretary Industrial Engineering Technology Legal Secretary Medical Secretary Retail Mid-Management Science
Clermont Airways, Inc. 382 Wilmer Road 45226	Pilot (Certified)
Claude V. Courter Technical High School (Vocational) 3520 Central Parkway	Cosmetology
Electronic Computer Programming Institute of Cincinnati, Inc. 31 East Fourth Street	Automation
Gable Advertising Art School 2521 Hackberry Street	Commercial Art
Gebhardt and Associates 228 East Fifth Street	Commercial Art and Design
Glen Este High School (Vocational) 4342 Glen-Este-Withamsville Road	Cosmetology
Hollywood School of Hair Designing 615 Main Street	Cosmetology
International Data Processing Institute 617 Vine Street 45202	Automation

CINCINNATI (Con't):

Katherine M. Betz School 307 East Fourth Street	Business
Les Blondes Beauty Academy 4109 North Avenue	Cosmetology
Miller-Draughon College 700 Walnut Street 45202	Business Drafting
Moler Barber College 432 Main Street 45202	Barber
Moler System of Beauty Culture 606 Vine Street	Cosmetology
Moore Universite' of Hair Design Inc. (Basic) 6011 Montgomery Road	Cosmetology
Moore Universite' of Hair Design, Inc. (Advanced) 6003 Montgomery Road	Cosmetology
National School of Cosmeticians, Inc. Greyhound Terminal Building	Cosmetology
New York Technical Institute 217 East Eighth Street 45202	Automotive Mechanics Electronics Technology
Ohio College of Applied Science 1104 Walnut Street 45210	Chemical Technology Civil Engineering Technology Electrical Engineering Technology Electronics Engineering Technology Mechanical Engineering Technology
Ohio Mechanics Institute 1104 Walnut Street	Mechanical Technology
Ohio Valley Watchmaking Institute 10600 Springfield Pike 45246	Watch Repair
Poro School of Beauty Art 1514-16 Linn Street	Cosmetology
Queen City Flying Service Hangar #3, Lunken Airport 45226	Pilot (Certified)
Southern Ohio Business College 704 Race Street 45202	Business Drafting
Robert A. Taft Senior High School (Vocational) 420 Lincoln Park Drive	Cosmetology
Technicron, Inc., School of Welding 2917 Colerain Avenue 45225	Welding

CINCINNATI (Con't):

Weiner and Miner Bar Review Sheraton Gibson Hotel	Law
Western Hills Academy of Beauty Culture 3732 Lovell Avenue	Cosmetology

CLEVELAND

Jane Addams Vocational High School 2373 East 30th Street	Cosmetology
Air Executive, Inc. 355 Richmond Road 44143	Pilot (Certified)
Allstate Barber College 2538 Lorain Avenue 44113	Barber
American School of Beauty Culture 2051 East Fourth Street	Cosmetology
Automation Institute of Ohio, Inc. 1 Public Square 44113	Automation
Beatrice Academy of Beauty 2071 East 100th Street	Cosmetology
Becker CPA Review Course, Inc. 146 Engineers Building 1365 Ontario Street	Business
Clarke School of Dressmaking 8903 Cedar Avenue	Dressmaking, Tailoring and Fashion Design
Cleveland Academy of Cosmetology 1148 Euclid Avenue	Cosmetology
Cleveland Barber College 3204 West 25th Street 44109	Barber
Cleveland Engineering Institute 3133 Chester Avenue 44114	Architectural and Structural Drafting Machine Design Mechanical Design Technology Tool and Die Design
Cleveland School of Welding 2261 East 14th Street	Welding
Cleveland Technician School 4600 Detroit Avenue	Chemical Engineering Electronics Engineering Horticulture Mechanical Engineering Retail Mid-Management
Cooper School of Art 2112 Euclid Avenue 44115	Commercial Art

CLEVELAND (Con't):

Cuyahoga Community College 2214 East 14th Street (Metropolitan Campus) Cleveland 44115 300 York Road (Western Campus) Parma 44130	Accounting Building and Construction Business Management Child Development Data Processing Electrical Engineering Fire Prevention Hotel-Motel Management Industrial Engineering Law Enforcement Library Mechanical Engineering Purchasing Real Estate Management Retail Mid-Management Sales and Merchandising Secretarial Science Transportation Wholesale Merchandising
Dyke College 1375 East Sixth Street 44114	Business
Electronic Engineering Technology Institute 4400 Euclid Avenue	Electronic Engineering Technology
Erieview Beauty College 734 Euclid Avenue	Cosmetology
Erma Lee Beauty School 3223 East 93rd Street 44104	Cosmetology
Euclid Academy of Beauty Culture 720 Euclid Avenue	Cosmetology
Griswold Business College 1836 Euclid Avenue 44115	Business
Griswold Institute 2975 Superior 44114 and 2031 Euclid Avenue 44115	Industrial and Communications Electronics Technology AM-FM Circuit Analog and Digital Computers FCC License Preparation Industrial Applications Transistors and Semi-Conductors Video Communications Mechanical Technology Tool and Die Technology Architectural Technology Drafting Technology Electronic Engineering Technology
Institute of Computer Management of Cleveland, Inc. 1935 Euclid Avenue 44115	Automation

CLEVELAND (Con't):

International Data Processing Institute 2340 Payne Avenue	Automation
La Jose College of Hair Design 3873 Rocky River Drive	Cosmetology
Les Femmes School of Beauty 691 East 105th Street	Cosmetology
Lincoln Electric Company 22801 St. Clair Avenue 44117	Welding
Mayfield City School District 1123 S.O.M. Center Road 44124	Cosmetology
Midpark High School 7000 Paula Drive	Cosmetology
Moler Barber College 500 Prospect Avenue 44115	Barber
New York Technical Institute 2128 Payne Avenue 44114	Automotive Mechanics
Nuclear Medicine Institute 6760 Mayfield Road 44124	Nuclear Medicine
Ohio Aviation Company Cuyahoga County Airport 355 Richard Road	Pilot (Certified)
Ohio Bar Review and Writing Seminar 3636 Blanche Road 44118	Law
Ohio Barber College 4174-76 Pearl Road 44109	Barber
Ortner Air Service, Inc. Cleveland Division Cleveland Hopkins International Airport 44135	Pilot (Certified)
* Progressive Fashion School 406 Euclid Avenue 44114	Dressmaking and Fashion Design
State Academy of Advanced Hair Design 6876 East Pearl Road	Cosmetology
State College of Cosmetology 6876 East Pearl Road	Cosmetology
Patricia Stevens Career and Finishing School 1515 South Euclid Avenue	Business
*Perkins School of Piano Tuning 9607 Lorain Avenue 44102	Piano Work and Repair

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CLEVELAND (Con't):

Sundorph Aeronautical Corporation Cleveland-Hopkins International Airport 44135	Pilot (Certified)
Vogue Beauty Academy (East) 13238 Cedar Road	Cosmetology
Vogue Beauty Academy (Southeast) 4861 Turney Road	Cosmetology
Weiner and Miner Bar Review 531 Leader Building	Law
West Side American School of Beauty Culture, Inc. 3329 Broadview Road	Cosmetology
West Side Institute of Technology 9613 Denison Avenue 44102	Refrigeration Systems
White Cross School of Beauty Culture, Incorporated 2132 East Ninth Street	Cosmetology
Whiting Business College 75 Public Square 44113	Business
Wilkins School of Cosmetology 2112 East 46th Street	Cosmetology

COLUMBUS

Air Columbus, Inc. 1185 Williams Road 43207	Pilot (Certified)
Andrew-Columbus Barber College 245 South High Street 43215	Barber
Becker CPA Review Course 205 North High Street 43215	Business
Bliss College 131 East State Street 43215	Business
Career Academy 71 South High Street 43215	Dental Assisting Medical Assisting Radio and TV Broadcasting
Capital School of Beauty Culture 144½ South High Street	Cosmetology
Clark Flying Service, Inc. 4920 East Fifth Avenue 43219	Pilot (Certified)
Columbus Business University 208 North High Street 43215	Business

COLUMBUS (Con't):

Columbus Drafting College 415 East Broad Street	Drafting
Columbus Flying Service, Inc. 4800 East Fifth Avenue 43219	Pilot (Certified)
Columbus Technical Institute	Accounting Architectural Drafting Audio-Visual Technology Aviation Technology Chemical Engineering Civil Engineering Consumer Finance Mid-Management Data Processing Electrical Engineering Electronics Engineering Food Processing Food Service Management Instrumentation Mechanical Engineering Metallurgical Engineering Printing Mid-Management Retail Mid-Management Science Education Technology Executive Secretarial Science Surveying Technology Wholesale Merchandising
DeLuca's Courtright Beauty College Inc. 1334 Courtright Road	Cosmetology
E.C. Aviation Services Hangar #4 725 North Hamilton Road 43219	Pilot (Certified)
Electronic Computer Programming Institute of Columbus, Inc. 4544 Indianola Avenue 43214	Automation
Franklin University 40 West Long Street	Business Business Administration Secretarial Science Industrial Management Accounting Electronics Engineering Technology Construction Drawing Technology Engineering Drawing Technology
Haussermann Aviation, Inc. 4920 East Fifth Avenue 43219	Pilot (Certified)
Lane Aviation Corporation Port Columbus International Airport 43219	Pilot (Certified)
MATA College of Automation 415 East Broad	Automation

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COLUMBUS (Con't):

Nationwide Beauty Academy, Inc. 210 North High Street	Cosmetology
New York Technical Institute 1516 West Broad Street 43222	Automotive Mechanics
Noni Charm and Modeling School 209 South High Street	Charm and Self-Improvement Modeling Fashion Commentary
Ohio Career College 340 East Broad Street 43215	Automation Fashion Merchandising Executive Secretarial Tool and Die Design
Ohio State Barber College 195 South High Street 43215	Barber
Ohio State School of Cosmetology 199½ South High Street	Cosmetology
Ohio Technical College 886 Sunbury Road	Electronics Engineering Technology
Ohio State University Department of Aviation Box 3022	Pilot (Certified)
Poro School of Cosmetology 599-601 Mount Vernon Avenue	Cosmetology
Price Field Aviation 3680 Refugee Road 43227	Pilot (Certified)
RETS Electronic School 894 West Broad Street 43222	Electronic Technology Industrial Electronics Technology Radio and TV Electronics
Rosemont School (Vocational) 2440 Dawnlight Avenue	Cosmetology
United Technical Institute 71 South High Street 43215	Architectural Drafting Mechanical Drafting
Victor Business Schools 79 East State Street 43215	Automation
Weiner and Miner Bar Review Sheraton Columbus Motor Hotel 43215	Law

COSHOCTON

Coshocton Business College 301½ Main Street	Business

DAYTON

Acme Institute of Technology, Inc. 133 East Third Street	Architectural Engineering Technology Tool Engineering Technology Tool and Die Technology
Becker CPA Review Course 38 North Ludlow Street 45402	Business
Carousel Beauty College 125 East Second Street	Cosmetology
Cash Register Training Center 2334 North Main Street 45404	Cash Register Technology
Charles of Stephans Advanced Hairstyling Academy 121 North Main Street	Cosmetology
Continental Beauty School 406-412 American Building Main Street	Cosmetology
Dayton Barber College 28 West Fifth Street 45402	Barber
Dayton Technology Center 118 East First Street 45402	Automotive Service Technology Graphic Communications Industrial Engineering Retail Mid-Management
Honey's School of Cosmetology 107 South Western Avenue	Cosmetology
ITT Technical Institute 4920 Northcutt Place 45414	Architectural Engineering Technology Tool Engineering Technology
MTI Business School 40 South Main Street 45402	Business
Miami-Jacobs Junior College of Business 38 North Ludlow Street 45401	Business
Miami Valley Beauty School, Inc. 50 South Jefferson	Cosmetology
Miles Real Estate School 2185 South Dixie Drive	Real Estate Course
New York Technical Institute 32 North Main Street 45402	Automation
RETS Electronics School 3944 Kettering Boulevard 45439	Electronics Engineering Technology
Sinclair Community College 117 West Monument Avenue 45402	Accounting Business Business Management

DAYTON (Con't):

Sinclair Community College (Con't)	Data Processing Electronics Engineering Executive Secretary Fire Prevention Liberal Arts Marketing Mechanical Engineering Procurement and Materials Management Transportation
Walter E. Stebbins High School 1900 Harshman Road	Cosmetology
Victor Business Schools 11 West Monument Avenue 45402	Automation

DELAWARE

Delaware Aviation, Inc. P.O. Box 203 43015	Pilot (Certified)
Rutherford B. Hayes High School (Vocational) Euclid Avenue	Cosmetology

DOVER

Gerber's Town and Country 814 Boulevard	Cosmetology

EAST LIVERPOOL

A. and H. School of Beauty Culture 329½ Broadway	Cosmetology
Lewis, Weinberger and Hill Academy of Beauty Culture, Inc. 128 East Fourth Street	Cosmetology
Ohio Valley Business College 423 Market Street 43920	Business

EASTLAKE

North High School 34041 Stevens Building	Cosmetology

ELYRIA

Elyria Academy of Beauty Culture 333 Broad Street	Cosmetology

ELYRIA (Con't):

Lorain County Community College 1005 North Abbe Road 44035	Accounting (Junior) Business Management Chemical Engineering Civil Engineering Data Processing Electrical Engineering Food Service Administration Industrial Engineering Law Enforcement Mechanical Design Mechanical Engineering Retail Mid-Management Executive Secretarial Science

EUCLID

Euclidian Beauty College, Inc. 22741 Shore Center Drive	Cosmetology

FAIRBORN

Modina's College of Beauty Culture 11 South Wright Street	Cosmetology

FAIRVIEW PARK

Fairview Academy 22610 Lorain Road	Cosmetology

FINDLAY

Eddy Flying Service, Inc. P.O. Box 828 45840	Pilot (Certified)
Findlay Beauty College 108 South Main Street	Cosmetology
Findlay Technical College 1041 North Main Street 45840	Engineering Graphics
State Beauty Academy 123 East Main Street	Cosmetology

FREMONT

Fremont Beauty School 228 Park Avenue	Cosmetology
Vanguard Area Technical Center 1306 Cedar Street 43420	Child Development Technology Data Processing Technology Electronics Technology Mechanical Design Technology Mechanical Engineering Technology
Vanguard Vocational Center 1306 Cedar Street	Cosmetology

GALION

Fischer Brothers Flight Training, Inc. Galion Municipal Airport 44833	Pilot (Certified)
Galion Welding School 825 Edwards Street 44833	Welding

GALLIPOLIS

Gallipolis Business College 36 Locust Street 45631	Business

GROVE CITY

Southwestern City Schools (Vocational) 3850 Haughn Road	Cosmetology

GROVEPORT

Eastland Vocational Center 4465 South Hamilton Road	Cosmetology

HAMILTON

Carousel Beauty College of Hamilton 320 High Street	Cosmetology
Hamilton Airport, Inc. 2820 Bobmyer Road 45015	Pilot (Certified)
Miami Valley Institute of Technology 332 Dayton Street 45012	Electrical Engineering Executive Secretary Industrial Engineering Law Enforcement (Physical Evidence Technology) Mechanical Engineering Retail Mid-Management

HARRISON

Miami Whitewater Flying School 10004 West Road, 45030	Pilot (Certified)

HEATH

Heath Vocational School 300 Licking View Drive	Cosmetology

HEBRON

Air Transport, Inc. P.O. Box 778 43025	Pilot (Certified)

HUDSON

Hudson High School (Vocational) 77 Oviatt Street	Cosmetology

INDEPENDENCE

Marycrest Vocational High School 7800 Brookside Road	Cosmetology

IRONTON

Ironton Beauty College 309-309½ South Third Street	Cosmetology

KENT

Automotive Service and Training Center 814 North Mantua Street 44240	Automotive Mechanics

LANCASTER

Lancaster Business College 124 South Broadway 43130	Business
Lancaster City Schools (Vocational) 345 East Mulberry Street, Route 37	Cosmetology

LAKEWOOD

Marche Academy of Beauty Culture 15207-15209 Detroit Avenue	Cosemtology

LEBANON

Lane's Lebanon Air Service R.R. #2, 45036	Pilot (Certified)

LIMA

Carousel Beauty College of Lima 17-19 Public Square	Cosmetology
Frederick's Beauty Academy 226 North Main Street	Cosemtology
Lima Aviation Corporation P.O. Box 933 45802	Pilot (Certified)
Northwestern School of Commerce 219 North McDonal Street	Business
Ohio State Beauty Academy, Inc. 57 Public Square	Cosmetology

LORAIN

Lorain Business College 106 Sixth Street 44052	Business
Northern Institute of Cosmetology 212 West Erie Avenue	Cosmetology

LYNDHURST

International School of Beauty Culture 5470 Mayfield Road	Cosmetology

McCONNELSVILLE

Morgan High School (Vocational) Rural Route 3	Cosmetology

MANSFIELD

Mansfield Beauty College 78½ North Diamond Street	Cosmetology
Mansfield Business College 30 East Cook Road	Business
North Central Ohio Technical Institute 218 Marion Avenue 44903	Electrical Engineering Industrial Engineering Law Enforcement (Physical Evidence Technology) Retail Mid-Management
Richland Aviation, Inc. Box 509 Municipal Airport 44901	Pilot (Certified)

MAPLE HEIGHTS

DuBarry College of Cosmetology 17409 Broadway Avenue	Cosmetology

MARIETTA

Valley Beauty School 410 Front Street	Cosmetology

MARION

Marion Business College, Inc. 135 West Center Street	Business
State Beauty Academy 163 East Center Street	Cosmetology

MARTINS FERRY

Martins Ferry High School (Vocational) 800 Hanover Street	Cosmetology

MASSILLON

Massillon Beauty School 47 Erie Street North	Cosmetology

MAYFIELD HEIGHTS

Vogue Beauty Academy 6420 Mayfield Road	Cosmetology

MEDINA

Freedom Field, Inc. R.R. #2 Box 28 44256	Pilot (Certified)

MENTOR

Lakeland Community College Technical Institute 7547 Mentor Avenue 44060	Accounting (Junior) Data Processing Electronics Engineering Executive Secretary Industrial Engineering Library Mechanical Engineering Medical Secretary Retail Mid-Management

MIDDLEBURGH HEIGHTS

Grace College of Cosmetology 6800-6805 Pearl Road	Cosmetology

MIDDLETOWN

Carousel Beauty College of Middletown 920 West Central	Cosmetology
Middletown Business College 2000 Central Avenue	Business
Wedekind Aircraft, Inc. P.O. Box 118 Hook Field Municipal Airport 45042	Pilot (Certified)

MOUNT VERNON

Mount Vernon Business College 9 West High Street 43050	Business

NELSONVILLE

Tri-County Technical Institute Route 1 45764	Accounting (Junior) Ceramic Engineering Conservation Recreation Technology Data Processing Electrical Engineering Executive Secretary Food Service Technology Forestry Technology Hotel-Motel Management Industrial Engineering Law Enforcement (Physical Evidence Technology)

NELSONVILLE (Con't):

Tri-County Technical Institute (Con't)	Mechanical Engineering Retail Mid-Management

NEW PHILADELPHIA

Tuscarawas County Aviation, Inc. 1834 East High Avenue 44663	Pilot (Certified)
Twin City Beauty College 120 North Broadway	Cosmetology
Union College of Commerce, Inc. 122 Fourth Street, NW	Business

NEWARK

Sundin Aviation Company Licking County Airport 43055	Pilot (Certified)
Three-B School of Beauty Culture 17½ South Park Place	Cosmetology

NILES

ATES Technical School 314 Youngstown-Warren Road 44446	Auto Air Conditioning Blue Print Reading Electronic Engineering Technology Industrial Electronics Mechanical Engineering Technology TV Servicing Machine Design
McKinley Heights College of Cosmetology 2415-2416 Robbins Avenue	Cosmetology

NORTH BENTON

Crow, Incorporated RFD #1 44449	Pilot (Certified)

NORTH CANTON

Akron Canton Airways P.O. Box 2161 44720	Pilot (Certified)
McKinley Air Transport, Inc. P.O. Box 2222 44720	Pilot (Certified)

NORTH JACKSON

Executive Air Service, Inc. Youngstown Executive Airport 44451	Pilot (Certified)

NORTH LIMA

Haski Aviation, Inc.	Pilot (Certified)

NORWOOD

Norwood Technical School (Vocational) 2033 Elm Avenue	Cosmetology

OBERLIN

Oberlin School of Commerce 124 East College Street	Business

OXFORD

Miami University Miami University Airport Fairfield Road 45056	Pilot (Certified)

PAINESVILLE

Casement Aviation, Inc. P.O. Box 231 44077	Pilot (Certified)
Lake County Vocational School 8140 Auburn Road	Cosmetology
Lake Erie Academy of Cosmetology 39 South State Street	Cosmetology

PARMA

Cuyahoga Community College 300 York Road 44130 Western Campus	(See course listing under Cleveland listing of Cuyahoga Community College - Metropolitan Campus)
Parma Adult Evening School Parma City School District 6726 Ridge Road 44139	Pilot (Certified)
Parma City School District (Vocational) Normandy High School 2500 West Pleasant Valley Road	Cosmetology
Skelly-Roos Beauty Academy 5404 Pearl Road	Cosmetology

PERRYSBURG

Penta County Technical Institute Oregon Road 43551	Accounting Agri-Business Child Development Data Processing Electrical Engineering Electronics Engineering Executive Secretary Food Distribution Food Service Management Education (Elementary)

PERRYSBURG (Con't):

Penta County Technical Institute (Con't):	Fire Science Law Enforcement (Physical Evidence Technology) Mechanical Engineering Retail-Wholesale Technology
Penta County Vocational School Oregon Road	Cosmetology

PIKETON

Piketon Vocational School Box 161	Cosmetology

PIQUA

Continental Beauty School 417 North Wayne Street	Cosmetology
Piqua Aircraft Company, Inc. 5464 West State Route 85	Pilot (Certified)

PORT CLINTON

Sky Tours, Inc. P.O. Box 172 43452	Pilot (Certified)

PORTSMOUTH

Paramount Beauty Academy 826½ Gallia Street	Cosmetology
Portsmouth Beauty College 902 Gallia Street	Cosmetology
Portsmouth Interstate Business College 815 Roy Rogers Esplanade 45662	Business

POWELL

Scioto Village School of Cosmetology (Vocational) Box 100	Cosmetology

RAVENNA

Bohecher's Business College 309 East Main Street	Business

ROCKY RIVER

Beauticians Academy, Inc. 21190 Center Ridge Road	Cosmetology

SALEM

Kent State University Salem Branch 250 Franklin Street 44460	Civil Technology Electrical Technology Electro-Mechanical Technology Industrial Technology Mechanical Technology

SANDUSKY

Griffing Flying Service, Inc. Box 2204 44870	Pilot (Certified)
Sandusky High School (Vocational) Adams and Decatur Streets	Cosmetology
Sandusky International College of Beauty 242 East Market Street	Cosmetology

SHELBY

Pioneer Joint Vocational School P.O. Box 309	Cosmetology

SIDNEY

Sidney Flying Service R.R. #3 45365	Pilot (Certified)

SOUTH EUCLID

Eduardo's Beauty College 4431 Mayfield Road	Cosmetology

SPRINGFIELD

Automated Business Academy 32 West High Street 45502	Automation
Beacon Airways Co., Inc. 1425 West Blee Road 45502	Pilot (Certified)
Clark County Technical Institute 1901 Selma Road 45502	Accounting (Junior) Agri-Business Agri-Equipment Civil Engineering Data Processing Electrical Engineering Executive Secretary Fire Prevention Law Enforcement (Physical Evidence Technology) Mechanical Engineering Education Retail Mid-Management
Continental Beauty School 203-212 Arcue Building	Cosmetology

SPRINGFIELD (Con't):

Frederick's Academy of Beauty Culture 13 East High Street	Cosmetology
Springfield and Clark County Joint Vocational District 1901 Selma Road	Cosmetology
Springfield Aviation, Inc. Springfield Municipal Airport 45502	Pilot (Certified)
Springfield School of Business, Inc. 35 South Spring Street	Business

STEUBENVILLE

Clark, Gilbert and Silverthorn Academy of Cosmetology, Inc. 119 South Fifth Street	Cosmetology
Jefferson County Technical Institute 400 Sunset Boulevard 43952	Banking Management Business Management Electrical Engineering Executive Secretary Industrial Engineering Industrial Secretary Insurance Management Legal Secretary Mechanical Engineering Medical Secretary Metallurgical Engineering Real Estate Management Retail Mid-Management
Steubenville Business College 185 North Fourth Street 43952	Business
Steubenville School of Cosmetology 147-149 South Fifth Street	Cosmetology

STOW

Kent State University Airport 4020 Kent Road 44224	Pilot (Certified)

STRONGSVILLE

Strongsville Airport 1243- Prospect Road 43558	Pilot (Certified)

SWANTON

Crow, Incorporated Toledo Express Airport 43558	Pilot (Certified)
National Flight School R.R. #4 Box 302 43558	Pilot (Certified)

TIFFIN

Georgeann Academy of Hair Design 104 East Market Street	Cosmetology
Tiffin University 155 Miami Street 44883	Business

TOLEDO

Andrew-Toledo Barber College 329 Superior 43604	Barber
Davis Junior College of Business 701 Adams at Erie 43624	Business
Executive Aviation, Inc. P.O. Box 766 43601	Pilot (Certified)
Herron's Beauty School 1409 Collingwood Boulevard	Cosmetology
Machere' Style Academy 1814-1816 Jefferson Avenue	Cosmetology
National School of Meat Cutting 514 Summit Street	Meat Cutting Meat Merchandising
Northern Technical Institute 128-130 Main Street	Industrial Mathematics Mechanical Drawing Tool and Die Design
Miss Ruby's Beauty College 1216 Madison Avenue	Cosmetology
Stautzenberger Business College 224 Superior Street 43604	Business
Patricia Stevens Career College 228 Erie Street	Business
Toledo Academy of Beauty Culture 331 St. Clair Street	Cosmetology
Warner College of Beauty Culture 221½ Huron Street	Cosmetology
Whitmer Senior High School (Vocational) 4501 Clegg Drive	Cosmetology
Whitney Vocational High School 16th at Washington	Cosmetology

TROY

Hobart Trade School Trade Square East 45373	Welding

WADSWORTH

Wadsworth City Schools (Vocational) 360 College Street	Cosmetology

WAKEMAN

Ortner Air Service, Inc. R.R. #1 44889	Pilot (Certified)

WARREN

Long and McKlveen College of Cosmetology, Inc. 156 North Pine Street	Cosmetology
Warren Academy of Business and Professional Drafting 176 Chestnut Street	Business Drafting
Warren Academy of Beauty 134 South Park Avenue	Cosmetology
Warren G. Harding Senior High School (Vocational) 860 Elm Road NE	Cosmetology

WARSAW

Riverview High School (Vocational) Route 1	Cosmetology

WEST CARROLLTON

Southern Ohio Aviation Sales, Inc. School of Aviation P.O. Box 97 45449	Pilot (Certified)

WILLOUGHBY

Andrews School for Girls (Vocational) Mentor Avenue	Cosmetology
Continental Academy of Beauty Culture of Willoughby 4847 Robinhood Drive	Cosmetology
General Aviation, Inc. Lost Nation Airport 44004	Pilot (Certified)

WOOSTER

Aero Dynamics, Inc. Wayne County Airport 44691	Pilot (Certified)
Ohio Institute of Business North Side Public Square 44691	Business
Wooster Beauty School 350 West Liberty Street	Cosmetology

VANDALIA

Aviation Sales, Inc. 501 North Dixie Drive 45377	Pilot (Certified)
Ohio Aviation Company P.O. Box 398	Pilot (Certified)
Skyways, Inc. Dayton Municipal Airport 45377	Pilot (Certified)

XENIA

Green County Joint Vocational School Route 3 West Enon Road	Cosmetology
Woodrow Wilson High School (Vocational) Ohio Soldiers' and Sailors' Orphans Home	Cosmetology

YOUNGSTOWN

Boardman Beauty Academy 7110 Market Street	Cosmetology
Lewis, Weinberger and Hill Academy of Beauty Culture, Inc. 125 West Commerce Street	Cosmetology
Midtown Aviation Corporation Lansdowne Airport 44505	Pilot (Certified)
Ohio School of Beauty Culture 111 West Commerce Street	Cosmetology
Paramount Beauty Academy 10 North Hazel Street	Cosmetology
Penn-Ohio Junior College 3517 Market Street	Business
Renee's School of Cosmetology 668 Elm Street	Cosmetology
Southern Airways, Inc. 837 Bordman-Canfield Road 44512	Pilot (Certified)
Victor George Beauty School 304 Erie-Lackawana Terminal Building	Cosmetology
Youngstown Beauty Academy 141 West Federal Street	Cosmetology
Youngstown City Schools (Vocational) Choffin Vocational Center East Wood and Walnut Streets	Cosmetology

YOUNGSTOWN (Con't):

Youngstown Technological Institute 2151 Market Street	Automation Mechanical Engineering Technology Tool and Die Design

ZANESVILLE

Carousel Beauty College of Zanesville 627 Main Street	Cosmetology
The Meredith College Company 55½ North Fifth Street	Business
Muskingum Area Technical Institute 704 Main Street 43701	Administrative Management Technology Child Development Technology Computer Technology Natural Resources Conservation Electrical Engineering Technology Executive Secretarial Law Enforcement (Physical Evidence Technology) Mechanical Engineering Retail Mid-Management
Southeastern Ohio Air Service, Inc. Municipal Airport 43701	Pilot (Certified)

To check the approval of any school for the enrollment of Veterans Administration students under Public Laws #358 and 90-77, write to the Ohio State Department of Education, Division of Vocational Education, State Approving Agency, 240 Parsons Avenue, Columbus, Ohio, 43215.

VOCATIONAL EDUCATION

DISTRIBUTIVE EDUCATION

Distributive occupations are those followed by workers engaged in buying, selling, transporting, financing, insuring and grading activities when (1) distributing the products and services of farm and industry to consumers, retailers, wholesalers and others or (2) managing, operating or conducting retail, wholesale, or service businesses.

Distributive education is a program of vocational instruction designed to prepare, maintain, and advance people in distributive or marketing occupations. The program of instruction is provided through high schools, post-secondary institutions, and adult education centers and involves a combination of:

1. Classroom instruction in marketing
2. Practical and/or simulated job oriented experiences
3. Individual studies related to a learner's career interest. Each student enrolled has an occupational objective which is a matter of record.
4. Experiences involving basic skills and personal development
5. Career counseling
6. Supervised on-the-job training
7. An active youth organization appropriate to the level of program of instruction.

Training programs for adults are based on the needs of the enrollees and are related to their job experiences. Instruction is made available through the State Department of Education, local public schools, or state universities. Programs include basic techniques of selling, creative selling, business speech, supervision, leadership, banking, restaurant service training, and human relations training. Programs are designed for preparatory and/or supplementary instruction for persons desiring to enter distributive occupations or for persons desiring up-grading on the job.

For details on the types of programs available in a particular community, contact the local coordinator of Distributive Education in any of the schools listed below. If you do not have a local coordinator, contact Bernard C. Nye, State Supervisor of Distributive Education, Room 504, 34 North High Street, Columbus, Ohio, 43215.

AKRON
- Akron Buchtel High School
- Akron South High School
- Coventry High School
- Kenmore High School
- Springfield Senior High School

ALLIANCE
- Alliance High School

AMELIA
- Amelia High School

ASHLAND
- Ashland High School

ASHTABULA
- Ashtabula High School

ATHENS
- Athens High School

ATTICA
- Attica High School

AVON
- Avon High School

BARBERTON
- Barberton High School

BASCOM
Hopewell Louden High School

BEACHWOOD
Beachwood High School

BEDFORD
Bedford High School

BELLAIRE
Bellaire High School

BELLEFONTAINE
Bellefontaine High School

BELLEVUE
Bellevue High School

BELLVILLE
Clear Fork Valley High School

BEREA
Berea High School

BLANCHESTER
Blanchester High School

BOWLING GREEN
Bowling Green High School

BRECKSVILLE
Brecksville High School

BROOKLYN
Brooklyn High School

BRUNSWICK
Brunswick High School

BUCYRUS
Bucyrus High School

BYESVILLE
Meadowbrook High School

CANTON
Canton McKinley High School
Lehman High School
Lincoln High School
McKinley High School
Oakwood High School
Timken Vocational High School

CARLISLE
Carlisle High School

CASSTOWN
Miami East High School

CENTERVILLE
Centerville High School

CHILLICOTHE
Chillicothe High School

CINCINNATI
Aiken High School
Anderson High School (Forest Hills)
Colerain Senior High School
Finneytown High School
Green Hills High School
(Anderson Local
Hughes High School
Madeira High School
North College Hill High School
Princeton High School
Sycamore High School
Taft High School
Western Hills High School
Withrow High School
Woodward High School

CIRCLEVILLE
Circleville High School

CLAYTON
Northmont High School

CLEVELAND
John Adams High School
Jane Addams Vocational High School
Collinwood High School
East High School
Glenville High School
J.F. Kennedy High School
John Marshall High School
James F. Rhodes High School
South High School
West High School
John Hay High School

CLEVELAND HEIGHTS
Cleveland Heights High School

COLDWATER
Coldwater High School

COLUMBIANA
Columbiana High School

COLUMBUS
Brookhaven High School
Central High School
East High School
Franklin Heights High School
Grove City High School
Hamilton Township High School
Marion Franklin High School

COLUMBUS (continued)
- Mifflin High School
- North High School
- Pleasant View High School
- Bishop Ready High School
- South High School
- Upper Arlington High School
- Walnut Ridge High School
- West High School

CONTINENTAL
- Continental High School

COPLEY
- Copley High School

COSHOCTON
- Coshocton High School

CUYAHOGA FALLS
- Cuyahoga Falls High School

DAYTON
- Northridge High School
- Patterson Cooperative High School
- Walter E. Stebbins High School
- Wayne High School
- Colonel White High School

DEFIANCE
- Defiance High School

DELAWARE
- Buckeye Valley High School

DELPHOS
- Delphos High School

DESHLER
- Patrick Henry High School

EAST CLEVELAND
- Shaw High School

EAST LIVERPOOL
- East Liverpool High School

EATON
- Eaton High School

EDON
- Edon High School

ELYRIA
- Elyria High School

EUCLID
- Euclid Senior High School

FAIRFIELD
- Fairfield High School

FAIRVIEW
- Fairview High School

FINDLAY
- Findlay High School

FOSTORIA
- Fostoria High School

FRANKLIN
- Franklin High School

FREDERICKTOWN
- Fredericktown Senior High School

GAHANNA
- Lincoln High School

GALION
- Galion Senior High School

GERMANTOWN
- Germantown High School

GOSHEN
- Goshen High School

GREENFIELD
- Edward L. McClain High School

GREENVILLE
- Greenville High School

HAMILTON
- Stephen T. Badin High School
- Garfield High School
- Ross High School
- Taft High School

HILLIARD
- Hilliard High School

IRONTON
- Ironton High School

JACKSON
- Jackson High School

KALIDA
- Kalida High School

KENT
Kent Roosevelt High School

KENTON
Kenton Senior High School

KINGS MILLS
Kings High School

LAKEWOOD
Lakewood High School

LANCASTER
Lancaster High School

LEBANON
Lebanon High School

LEIPSIC
Leipsic High School

LIMA
Lima Senior High School

LOGAN
Logan High School

LORAIN
Lorain Admiral King
Lorain Southview

LYNDHURST
Charles F. Brush High School

MANSFIELD
Madison Senior High School
Malabar High School
Mansfield Senior High School

MAPLE HEIGHTS
Maple Heights High School

MARIETTA
Marietta High School

MARION
Marion Harding High School

MASON
William Mason High School

MASSILLON
Washington High School

MEDINA
Medina High School

MENTOR
Mentor High School

MIAMISBURG
Miamisburg High School

MIDDLETOWN
Madison High School
Middletown High School

MIDVALE
Indian Valley North High School

MILFORD
Milford High School

MOGADORE
Mogadore High School

MOUNT GILEAD
Mount Gilead High School

MOUNT HEALTHY
Mount Healthy High School

MOUNT VERNON
Mount Vernon High School

NAPOLEON
Napoleon High School

NEW ALBANY
New Albany High School

NEW LEXINGTON
New Lexington High School

NEW PHILADELPHIA
New Philadelphia High School

NEWBURY
Newbury High School

NEWARK
Newark High School

NORTH BALTIMORE
North Baltimore High School

NORTH OLMSTED
North Olmsted High School

NORTH RIDGEVILLE
North Ridgeville High School

NORTH ROYALTON
E.E. Root High School

NORTON
Norton High School

NORWALK
Norwalk High School

NORWOOD
Norwood High School

ONTARIO
Ontario Senior High School

OTTAWA
Ottawa-Glandorf High School

OXFORD
Talawanda High School

PAINESVILLE
Harvey High School

PARMA
Normandy High School
Parma Senior High School
Valley Forge High School

PIQUA
Piqua Central High School

PORT CLINTON
Port Clinton High School

PORTSMOUTH
Portsmouth High School

RAVENNA
Ravenna High School

REYNOLDSBURG
Reynoldsburg High School

ROCKY RIVER
Rocky River High School

ROOTSTOWN
Rootstown High School

SANDUSKY
Sandusky High School

ST. BERNARD
St. Bernard High School

ST. MARYS
Memorial High School

SIDNEY
Sidney High School

SPRINGBORO
Clearcreek High School

STOW
Stow High School

STRONGSVILLE
Strongsville Senior High School

SUNBURY
Big Walnut High School

SYLVANIA
Sylvania High School

TALLMADGE
Tallmadge High School

TIFFIN
Columbian High School

TOLEDO
E.L. Bowsher High School
DeVilbiss High School
Libbey High School
Rogers High School
Scott High School
Start High School
Waite High School
Whitmer High School
Whitney High School
Whitney Vocational High School
Woodward High School

TRENTON
Trenton High School

TROTWOOD
Trotwood-Madison High School

TROY
Troy High School

UPPER SANDUSKY
Upper Sandusky High School

VANDALIA
Vandalia-Butler High School

VAN WERT
Lincolnview High School
Van Wert High School

WADSWORTH
Wadsworth High School

WAPAKONETA
Wapakoneta Senior High School

WARREN
Champion High School

WARRENSVILLE HEIGHTS
Warrensville Heights High School

WASHINGTON COURT HOUSE
Miami Trace High School
Washington Senior High School

WAUSEON
Wauseon High School

WESTERVILLE
Westerville High School

WEST CARROLLTON
West Carrollton High School

WEST CHESTER
Lakota High School

WEST MANCHESTER
National Trails High School

WEST MILTON
Milton-Union High School

WEST RICHFIELD
Revere Senior High School

WHITEHALL
Whitehall-Yearling High School

WILLARD
Willard High School

WILLOUGHBY
North High School

WILMINGTON
Wilmington High School

WOOSTER
Wooster High School

YOUNGSTOWN
Austintown-Fitch High School
Boardman High School
Choffin Vocational Center

ZANESVILLE
Zanesville High School

VOCATIONAL EDUCATION IN AGRICULTURE PROGRAMS IN OHIO

Agriculture is comprised of the group of related courses or units of subject matter which are organized for carrying on learning experiences concerned with developing knowledge, understandings, and skills involved in preparation for or upgrading in occupations requiring knowledge and skills in agricultural subjects. The functions of production agriculture, agricultural supplies, agricultural mechanization, agricultural products (processing), ornamental horticulture, agricultural resources (conservation, forestry and the services related thereto), are emphasized in the instruction designed to provide opportunities for individuals to prepare for or improve their competencies in agricultural occupations. An agricultural occupation may include one or any combination of these functions.

The instruction and training programs are under the direction of competent teachers of vocational agricultural who possess the technical agriculture and professional educational background to provide quality instruction.

Vocational Agriculture Programs Designed For the Following:

High School Students
- Those, with interests and aptitudes, wishing to explore opportunities for careers in agriculture and to acquire the necessary knowledge, skills and abilities to become employed in an agricultural occupation.
  1. Agricultural production (farming)
  2. Agricultural business and industry
  3. The agricultural professions

Adult In Agricultural Occupations
- Farmers (full-time or part-time and those in the process of getting established)
- Employees in occupations requiring additional knowledge, skills and abilities in agriculture
- Agricultural businessmen
- Professional people who work with people in agriculture
- Young people wishing to become established in agricultural production or agricultural service occupations
- Agricultural technicians
- Others who need and can profit from such training

Types of Vocational Agriculture Programs

The following is a description of the vocational education programs in agriculture that have been designed to meet the employment needs and demands of the agricultural industry. They include:

Agricultural Production -- Subject matter and learning activities which are concerned with the principles and processes involved in the planning related to and the

economic use of facilities, land machinery, chemicals, finance, and labor in the production of plant and animal products. In practice, activities include classroom instruction, shop and laboratory experiences, in and out of school, including farms and other agriculturally related establishments. Aspects of production agriculture are organized under a variety of descriptive titles, such as Animal Science, Plant Science, Farm Mechanics, Farm Business Management, and Other Production Agriculture.

Agricultural Supplies -- Subject matter and learning experience which are concerned with preparing students for occupations which provide consumable supplies used in the production phase of agriculture--including consultative and other services. The program is designed for the student to receive specific on-the-job training under the direction of a teacher coordinator. The students Cooperative Occupational Experience Program is conducted in an agricultural business or service establishment.

Agricultural Mechanics and Equipment -- A combination of subject matter and activities designed to develop abilities necessary for assisting with and performing the common and important operations or processes concerned with the selection, operation, maintenance, and use of agricultural power, agricultural machinery and equipment, structures and utilities, soil and water management, agricultural mechanics shop and management procedures in an agricultural equipment business.

Agricultural Products (Processing) -- A combination of subject matter and planned learning experience designed to teach about processes, science principles, and management decisions concerned with agricultural competencies in the food technology occupations. The groups of products include: (1) meat, fish, poultry, and eggs; (2) dairy products; (3) fruits and vegetables; (4) cereal grains, and (5) other foods and beverages. Instruction may be provided in any or all groups of these products.

Ornamental Horticulture -- Organized subject matter and practical experiences which are concerned with the culture of plants used principally for ornamental or aesthetic purposes. Subject matter and practical experiences in ornamental horticulture are organized under such descriptive titles as Arboriculture, Fine Turf Management, Floriculture, Greenhouse Management, Landscaping, Nursery Operation, and Other Ornamental Horticulture.

Agricultural Resources and Recreation -- A combination of subject matter and planned learning experience which are concerned with the principles and processes involved in the preservation and/or improvement of natural resources such as air, forests, soil, water, fish, and wildlife for economic and recreation purposes. Instruction also emphasizes such factors as the establishement, management, and operation of forest lands used for recreational purposes.

Forestry -- An organization of subject matter and learning activities concerned with the management of trees grown as a crop. Other aspects of forestry are protection, logging, wood utilization, recreation and special products.

Other Agriculture (Specify) -- Include here other organized subject matter and experience emphasized in agriculture which are not listed or classifiable in one of the above categories.

The local Future Farmers of America (FFA) Chapters and related leadership training and supervised occupational experience programs are important instructional media and are highly significant in making contributions to the guidance and total general education development of the students. The FFA and related leadership training permeate every aspect of the instructional program in agriculture.

VOCATIONAL HOME ECONOMICS

The two purposes of Vocational Home Economics are to train for home-making and for family living and to train for occupations directed toward gainful employment. This program prepares secondary school youth for the skills needed to provide for the needs of the family and the maintenance of the home. The areas of home-making instruction at the secondary level include: personal and family relations and home management; consumer competence and responsibility; care and guidance of children; selection and care of home and its furnishings and equipment; clothing for individuals and the family; and food for families. Vocational Home Economics also trains youth and adults for wage earning occupations that require knowledge of this area and skills that lead directly toward employment. The following is a list of the training opportunities in this area:

HIGH SCHOOL

I. CHILD CARE AREA
   A. Cooperative
      1. Aides (1 year)
      2. Assistants (2 years)

II. INSTITUTIONAL AND HOME SERVICE AIDES
   A. Cooperative (1 year)
   *B. Occupational (2 years)

III. HOMEMAKING AIDES FOR NURSING AND REST HOMES
   A. Cooperative (1 year)
   *B. Occupational (2 years)

IV. FOOD SERVICE WORKERS
   A. Cooperative (1 or 2 years)
   *B. Occupational (2 years)

V. CLOTHING SERVICE WORKERS
   A. Cooperative
      1. Clothing Seamstress (1 year)
      2. Drapery, Slipcover or Upholstery Seamstress (1 year)

VI. MULTI AREAS
   A. Cooperative (1 year)
   *B. Occupational (2 years)

ADULT

I. Child Care Aides

II. Clothing Service Workers

III. Drapery, Slipcover and/or Upholstery Workers

IV. Food Service Workers

V. Institutional and Home Service Assistants

VI. Visiting Homemakers

VII. Management Aides

VIII. Hotel and Motel Housekeeping Aides

IX. Homemaking Aides for Nursing and Rest Homes

X. Teaching Aides

* Occupational Programs for Students of Limited Abilities

*NOTE: No Occupational Programs to be offered in the Child Care Area

For further information concerning these programs, contact your city superintendent of public schools or the Home Economics Service of the State Department of Education, Miss Margaret McEniry, Head State Supervisor, G-15 Ohio Departments Building, 65 South Front Street, Columbus Ohio, 43215.

CHILD DEVELOPMENT TECHNOLOGY

In response to the rapidly growing need for qualified workers in nursery schools, day care centers and Project Head Start programs, Vocational Home Economics has established a technical program to train workers for these positions.

With the increasing emphasis by educators and civic leaders on the importance of pre-school training, especially in culturally deprived areas, the possibilities for employment in the pre-school field are especially high.

In Ohio, in addition to the many privately and community operated nursery schools and day care centers, the Federal Government under the Economics Opportunity Act provided funds for 591 Project Head Start programs in 1968. Several schools are continuing full year pre-school programs.

In these programs, as well as in the privately sponsored ones, there is a need for trained personnel at both professional and semi-professional levels.

Jobs in this field involve work with groups of young children in programs especially designed to provide opportunities for social, physical, emotional and intellectual growth. To accomplish this growth, the teacher guides and supervises the children in a wide variety of creative activities such as dramatic play, art, music, storytelling, and trips.

The Child Development Technology curriculum is designed to provide the academic background and practical experience necessary to become a successful assistant to a nursery school teacher or a day care director and to provide the foundation for further growth as a teacher of pre-school children.

The program is especially suited to those who are interested in working with young children and who have the personal qualities needed to perform successfully in this field.

High school graduates are eligible to apply. Additional information may be obtained by writing to the Director of Admissions at any of the institutions listed in this section of the Training Directory, Ohio EIS.

FOOD SERVICE TECHNOLOGY

There is an urgent widespread need for trained food service personnel. The outlook for employment of food service supervisors as assistants to dietetions is bright. This position was almost literally created within the last sixteen years. Currently, supervisory positions are available in hospitals, nursing homes and other extended care facilities, child care centers, schools and universities, restaurants and other organizations where quantity food service is provided.

Food service supervisors must have a fundamental knowledge of the principles of food preparation and service and must exhibit leadership ability in directing work activities of others.

Under the auspices of the Vocational Home Economics Department, technical programs in food service were initiated in September, 1966. The programs are open to both boys and girls who are high school graduates. Persons satisfactorily completing the full two-year curriculum as required will be given a transcript, a certificate of completion or an Associate Degree. Additional information may be obtained by writing to the Director of Admissions at any of the institutions listed in this section of the Training Directory, Ohio EIS.

The curriculum will consist of selected basic courses offered by the Technician School with emphasis in food service supervision. During the two-year program practical work experience in restaurants, hospitals, and other institutions will be provided.

Successful completion of this course may entitle graduates to membership in the Hospital Institution and Educational Food Service Society which is recognized by the American Dietetic Association. Qualified members of this Society are entitled to wear the pin and the sleeve badge of this organization.

TECHNICAL EDUCATION PROGRAMS IN HOME ECONOMICS

Name of Institution	Type of Program
The University of Akron Community and Technical College 304 East Buchtel Avenue Akron, Ohio 44304	Food Service Management
Four County Joint Vocational School Technical Center 101 Depot Street Archbold, Ohio 45221	Food Service Management
University College University of Cincinnati Cincinnati, Ohio 45221	Child Development Technology
Cuyahoga Community College 2214 East 14th Street Cleveland, Ohio 44115	Child Development Technology
Columbus Technical Institute 557 Mount Vernon Avenue Columbus, Ohio 43215	Food Service Administration
Lorain County Community College Elyria, Ohio 44035	Food Service Administration
Vanguard Joint Vocational School Technical Center 1306 Cedar Street Fremont, Ohio 45622	Child Development Technology

Name of Institution	Type of Program
Tri-County Joint Vocational School Technical Center Route 1 Nelsonville, Ohio	Food Service Administration
Penta Technical Institute Oregon Road Perrysburg, Ohio 43551	Food Service Management Child Development Technology
Muskingum Joint Vocational School Technical Center 704 Main Street Zanesville, Ohio 43701	Child Development Technology

VT 009 597
Communication: Effective Application of Innovative Teaching Media.

Ball State Univ., Muncie, Ind. Dept. of Business Education and Office Administration.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 68 20p.Proceedings of the 45th Annual Business Education Conference and the 29th Annual Business Education Exhibit (November 15-16, 1968).

DESCRIPTORS - *BUSINESS EDUCATION; *INSTRUCTIONAL MATERIALS; *CONFERENCE REPORTS; *COMPUTERS; *SYSTEMS APPROACH; TELEVISED INSTRUCTION; TRANSPARENCIES; EDUCATIONAL INNOVATION
IDENTIFIERS - *FORTY FIFTH ANNUAL BUSINESS EDUCATION CONFERENCE AND THE 29TH ANNUAL BUSINESS EDUCATION EXHIBIT, NOVEMBER 15-16, 1968, MUNCIE, INDIANA

ABSTRACT - At the 2-day conference, business education teachers were encouraged to improve their classroom performance by innovatively using teaching media such as closed circuit television, transparencies, and models. New developments identified as having significant importance to business education were the computer and the systems approach to curriculum development. Presentations were: (1) "This Age of Acceleration" by P. Pair, (2) "Television for Teaching Skills" by M. Betterman, (3) "Now! Transparencies Show This" by R. Swanson, (4) "The Therapy of Laughter" by J. Wick, (5) A television program "Roads to Learning--The Hagerstown VE Program," (6) "A Five-and-Ten Addition to Transparencies" by F. Schmidt, (7) "New Developments in Business Education," a telelecture by F. Bangs, and (8) "We Pierce the Wall" by L. Hollis. (JS)

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Communication: Effective Application of Innovative Teaching Media

Proceedings of the 45th Annual Business
Education Conference and the 29th
Annual Business Education Exhibit
November 15-16, 1968

Sponsored by
Business Education and Office Administration Department
College of Business
Ball State University
Muncie, Indiana 47306

U.S. DEPARTMENT OF HEALTH,
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VT009597

THE 45th ANNUAL
BUSINESS EDUCATION CONFERENCE

and

THE 29th ANNUAL
BUSINESS EDUCATION EXHIBIT

November 15-16, 1968

Theme: COMMUNICATION: Effective Application of Innovative Teaching Media

Sponsor: Business Education and Office Administration Department
College of Business

Exhibits and Meetings:
Teachers College Auditorium
Ball State University

Friday, November 15

E.S.T.		
10:30 a.m. to 1:30 p.m.	Registration:	2nd floor foyer of Teachers College Auditorium
	Visit exhibits:	Teachers College Auditorium
	First Session:	Mrs. Jane Whelan presiding
1:45 p.m.	Welcome	Dr. John J. Pruis President, Ball State University
2:00-2:40 p.m.	Innovative Predictions	Mr. Paul M. Pair, Senior Staff Consultant, Control Data Corporation; former president of National Business Teachers Association, The Chicago Area Business Education Association, and the Chicago Guidance and Personnel Association THIS AGE OF ACCELERATION
2:40-3:00 p.m.	Visit exhibits	
3:05-3:45 p.m.	Typewriting and Office Skills	Mr. Merle Betterman, Vocational Division Coordinator, Arlington Heights High School Arlington Heights, Illinois TELEVISION FOR TEACHING SKILLS
3:50-4:30 p.m.	Bookkeeping and Correspondence	Dr. Robert M. Swanson, Professor, BEOA Department, Ball State University; Co-author, 20th Century Bookkeeping NOW! TRANSPARENCIES SHOW THIS
	Second Session:	Dr. Bruce C. Shank presiding
6:30-8:45 p.m.	Banquet	Cardinal Hall, Student Center
	Laughter!	Rev. Joseph G. Wick, First Christain Church, Lafayette, Indiana THE THERAPY OF LAUGHTER
9:00 p.m.	Reception	honoring Chet Elson, Indiana's South-Western Publishing Company representative

Saturday, November 16

E.S.T.		
8:00-8:45 a.m.	Registration and visit exhibits--Teachers College Auditorium	
	Third Session:	Dr. Adaline Jones presiding
8:55-9:30 a.m.	Simulated Instruction and Office Education	Roads to Learning--The Hagerstown VE Program A public service program live from station WISH, Indianapolis. Mrs. Betty Fields, Moderator
9:35-10:15 a.m.	Data Processing without Hardware	Father Fred Schmitt, Chartrand High School, Indianapolis, Indiana A FIVE-AND-TEN ADDITION TO TRANSPARENCIES
10:15-10:40 a.m.	Delta Pi Epsilon Visit exhibits	Coffee Hour
10:45-11:00 a.m.	Greetings	Dr. Robert P. Bell, Dean, College of Business
11:05-11:45 a.m.	Teacher Applications	Telelecture: Dr. F. Kendrick Bangs, National President, Delta Pi Epsilon; Chairman, General Business Division, School of Business, University of Colorado, Boulder, Colorado NEW DEVELOPMENTS IN BUSINESS EDUCATION
	Fourth Session:	Mr. Ken Pickard presiding
12:15-2:00 p.m.	Luncheon	Cardinal Hall, Student Center
	Teacher-Student Perception	Mrs. Lucile U. Hollis, Special Assistant Professor, BEOA Department, Ball State University; Co-author, Organizing for Effective Guidance 'WE' PIERCE THE WALL

THE 45th ANNUAL BUSINESS EDUCATION CONFERENCE

and

THE 29th ANNUAL BUSINESS EDUCATION EXHIBIT

November 15-16, 1968

Theme: COMMUNICATION: Effective Application of Innovative Teaching Media

First Session: Mrs. Jane Whelan, Conference Chairman, presiding

The theme of the 45th Business Education Conference is COMMUNICATION: Effective Application of Innovative Teaching Media.

This theme originated from two concepts:

One, that today's teacher must be both a communicator and an innovator;

And two, that new methods and media can motivate student learning if a teacher uses innovative techniques in teacher-student communication.

The task of communication is to move information, and a teacher acts as an interpreter in this two-way communication process.

Because people remember only

10 per cent of what they read,
20 per cent of what they hear,
30 per cent of what they see,
70 per cent of what they say, and
90 per cent of what they say as they do something,

a teacher obviously needs to use innovative media to intensify the impact of information being communicated to students.

Media, then, become the physical facilities used by a teacher to achieve goals. This physical facilities climate in the classroom affects--probably even determines--teacher and student roles and responsibilities.

Such a situation makes it impossible for physical facilities to change faster than the teacher and community are ready; therefore, responsibility for change rests with the teacher. The community--Administrators, fellow teachers, business, industry, and parents--expects a teacher to interpret change to students.

In turn, students expect a teacher to communicate their desires, wants, and understandings regarding change back to the community.

We can't do anything about our classroom communication of yesterday--or today--but we can do something about tomorrow if we accept our responsibility for change--

then interpret the change by innovative techniques that educate today's students more effectively.

This conference has been planned to expand our horizon of the interpretative role of the teacher, both as a communicator and an innovator.

Each conference speaker acts as a catalyst in performing the communication task of moving information.

Welcome: Dr. John J. Pruis
President, Ball State University

I was very interested in the opportunity of records reported by the chairman, particularly in the 70 per cent of what we hear and 90 per cent of what we are doing.

What I consider to be the most important problems, and I say that they are problems in our society today, are namely, communications and innovations.

It may be possible to over-emphasis the importance of communication in society, but I rather doubt it. It is interesting to know that those of us who are in education so frequently talk about innovation. We are ready to talk about it, but I ask if you are really ready to innovate.

We know that we are getting more and more students all the time and that more and more needs to be done. So we are faced with the simple fact of needing to develop new ways of doing things.

It seems to me that administrators and teachers, as well as parents in many cases, like what we see as the best of the past. Because, after all, it accomplished certain things for us and we are reluctant to give up those things which we see as the best for something new. If you have ever worked in a lab school, you will recognize that almost every time it is talked about, it is something "over at the lab school" kind of thing.

I am not saying that you are doing the all that is possible, but the business education department is of such great importance to the business, industrial, and professional communities that anything less than the best becomes very noticeable.

But as one person extremely interested in everybody doing a good job, I am particularly hopeful that in the future, maybe people in this group will come up with an idea that will really help us do a good job.

I was asked to welcome you, but it doesn't take the President of the university to say that. He can say it, he does say it frequently, but it is really up to the people on the staff to say to you welcome. Now we'll carry on with the rest of the details of the program.

I sincerely want to make you indeed feel welcome. Best wishes to all of you.

"This Age of Acceleration"
Paul M. Pair, Senior Staff Consultant
Control Data Corporation

I was really pleased to come and talk with you. "Some are born great, some achieve greatness, some have greatness thrust upon them." I accepted with self-humility and with self-respect.

I refer to TIME, August, 1965, "Communication Explosion," on the cover. HERE COMES TOMORROW--living and working in the year 2000. DATA-MATION--talking about what you are doing on the campus. JOURNAL OF DATA MANAGEMENT--Change? I should say so! DATA PROCESSING ASSOCIATION--data processing programs for colleges and universities. Change? I should say so!

A datemark was October, 1957; eleven years ago Russia shot Sputnik into space; shock and impact put the emphasis on science. Now business has increased again. The Vocational Act of 1963 began a national interest to subsidize business education to bring us up to the level of the science courses.

"Necessity is the mother of invention." "There must be a better way." The Industrial Revolution caused this. We are now in a Second Industrial Revolution or the Technical Revolution. EDP has been around twenty-five or thirty years.

On the average, a computer provides ten jobs for ten people. Training for young people for 60,000 computers equals 600,000 jobs. Basic training needs to be offered in high school, junior colleges, and collegiate schools. But a list of the subjects offered in 1920 in business education compared to a list of courses offered in 1958 shows little change. The computer is new in business, and courses in business should be related to the change.

Mrs. Whelan:
Thank you, Mr. Pair, for portraying the vista of this age of acceleration. There are so many challenges for us to perceive.

Mr. Merle Betterman, our next speaker, was sure he wanted to teach social studies after he received his B. A. degree from Valparaiso University. Then his path crossed mine because his future wife and I were teachers in the same high school--and good friends.

I like to think I influenced Merle to be a business educator--and to come to Ball State for his M. A. degree. He has completed additional graduate study at DePaul University and Northern Illinois University, also.

Presently, Mr. Betterman is Division Head, Vocational Education, at Arlington Heights High School, Arlington Heights, Illinois. Also, he is president-elect of District 241 Teachers Association. In addition to his teaching activities, he is a professional photographer.

Mr. Betterman has been using closed circuit television as an innovative medium forteaching typewriting and other office skills. Last spring he showed me some pictures of this teaching technique in use--now he is going to share his experience with you.

"Television for Teaching Skills"
Merle W. Betterman, Division Head--Practical Arts, Arlington Heights High School, Arlington Heights, Illinois

This will be a show-and-tell session. Our school uses television in the classrooms. The television equipment costs approximately $2,000: $1,100 for tape records; $300 for camera; $750 for lens; and $89 for tripod. This TV technique enables everyone in classroom to see.

Use a portable television set so you can move it from room to room.

Discipline: No problems because there is no monkey business going on. One teacher can show only three to five students at a time while other students creat commotion.

One disadvantage is that there is no uniformity yet in the size of the tapes used on the various tape recorders. With TV a teacher can direct the subject matter to the student's ability. A teacher with imagination can also make tapes in industries and businesses and replay them to the students in the classroom. Also, replay directions or demonstrations to students who were absent from class.

Mr. Betterman showed slides by TV of a teacher in his school demonstrating the preparations of a master and explained how the demonstration was filmed and programmed.

Mrs. Whelan:

Dr. Robert W. Swanson, our last afternoon speaker, is one of our own BEOA department faculty. He received his B. S. degree from Indiana State University of Pennsylvania; both his M. A. and Ed. D. degrees from Columbia University. He came to Ball State from Columbia in 1953.

Since Dr. Swanson became a co-author of 20th Century Bookkeeping and Accounting, he's been on the lecture circuit as an innovative teacher of bookkeeping. It seemed to me if Bob told educators abroad about the effectiveness of using transparencies as a teaching medium, his home folks should hear his words of wisdom, too.

Of course, he was willing to share his transparency acumen with us; however, if you look at the title of his speech, you'll see he isn't going to be fenced in because he wouldn't identify the question "what?" after the word "this" in the title--NOW! Transparencies Show This.

Dr. Swanson, tell us what transparencies show.

"Now! Transparencies Show This"

Dr. Robert Swanson, Professor
Business Education and Office Administration Department
Ball State University

Material is never where you want it when you need it. I was invited because I'm in the department, which means I am good for nothing. College professors come across one good idea and beat it to death in different courses.

The idea I am starting with is not transparencies. The idea I am starting with is that in teaching and learning the situation proceeds from the simple to the complex. An illustration that I have used in my classes, as any of you who have been in my classes before will recognize, is the manner of driving an automobile. If you will think back to the clutch and brake, some of you will remember the great task of getting the gear shifted, your foot off the accelerator, and so many problems coming at you at the same time. Today we get in the car, turn on the ignition, and take off; because it is an automatic thing. Today this very complex problem is a very simple one for you. It is a simple thing for you because it does not present much of a problem to you. We know how to drive a car, so this is an illustration of starting with a known and proceeding to the unknown. Any good learning starts with the simple situation. It is to this end that I would like to demonstrate something today. Let me start with one problem that will look familiar to you.

In each teaching-learning example, transparency overlays were used to illustrate the process the teacher can project a page of the workbook containing typing problems. The problem with which the student is faced in typing a telegram. I have seen situations where the teacher holds up the typing book and points out different parts of the telegram. I have been in the back of the room, and I know that students can't see the things they are going to have to do. Then this teacher asks what is probably the most useless question: "Are there any questions?"

My point is that I want to get into one problem at a time. Look at all the problems that are contained in the preparation of this one lesson. Now let's see what I can do. Let's take just the first thing that I might want them to do. I might ask them what kind of letter it is. Here is where I indicate what kind of letter it is and where it is to be sent. It is a day letter and is to be sent to Chicago.

We discuss what to do with the problem. Now I am ready to explain each element by showing with transparencies correct placement. After I have given all the instructions, the students are ready to go to work.

One of the student teachers this week was explaining a problem, and the instructions were given in three different parts of the book! It's not any wonder that the student could not understand what they were to do. I explain to the student what to do one step at a time. I can use the board and talk about the new material. After I do this, they will have no difficulty in doing this problem.

Now let's talk about writing a sales letter. This time I prepare the lesson so that it makes sense to them. I must start with the simple and

move to the complex. I will use the same idea of starting with what they know and add the new material to it. First we talk about the parts of a letter which we already know--the return address, the inside address, the salutation, the body, and the closing. Now we relate these things to the new parts of a sales letter. The first paragraph of the sales letter is to get the individual's attention, and then move on. What do you do in a letter to get the reader's attention, to arouse his interest, and to get him to take action? Up to this point, there has been no real letter. From here they would look for what they already know, and I would add one thing at a time so that they can see it.

Now we can move to the next item. This is one of my favorite areas, because I know more about it. The subject is analyzing steps in bookkeeping. Students learn to debit in the debit column. The important thing is that they look for the debit in the terms of what they already know. Therefore, it is not a complex problem to learn. Now move into the cash journal. General journals have the same data, same accounts, and columns. Students know the special columns. You have to start with what students already know. The bookkeeping step-by-step process is similar to the process followed in the sales letter; trying to determine what students already know. For example, the modified block letter style is not an entirely different letter style. Tie style into teaching a balance sheet. The day may come when columns will not be called debit and credit columns, because students do not understand their meaning. Data processing has impressed a lot of things on us and more of us will live to see it used than some of us will anticipate.

In bookkeeping students learn about what would be recorded, and what can be seen, and what they already know. We know there is a debit column and a credit column. So we put our emphasis on what we know.

The first step is to get some T-accounts on the board; then move on to the accounts that are affected by each transaction. The next step is to decide what kind of accounts these are; however, we must know what steps are useful to decide what kind of accounts these are. Lead students through steps one at a time so that they will have a guide. Then take them from one form they already know to one they do not know. Here again, the students have to start with something they already know and build on that. In amount columns, they move from a general credit column. The new thing to show is a column that has a general credit or debit column.

When we get to the merchandise account, where are we going to put it? Now try to explain to students why you debit the merchandise inventory in the purchases account. After you inform the students on how to do a problem, you ask if there are any questions. If there aren't any, then you say, "Do the first problem." The class then becomes pale, glassy-eyed, and act like they've really had a lot thrown at them.

Take the first problem and work through it with them one step at a time. The same procedure can apply to elements such as financial statements, special journals, etc.

Alot of our students are not going to be bookkeepers or high-level accountants; in fact, we have a struggle putting some of them through class. If the students would think and think logically, they would have a better understanding of accounting. I challenge my better students by asking them to create flow charts, bulletin boards, etc.

The afternoon session ended with an invitation to the conference participants to visit the exhibits.

SATURDAY

"Roads to Learning" Program
Hagerstown Vocational Education Program
Mrs. Betty Fields, Moderator
WISH-TV--Indianapolis

A public service program that offers the public an opportunity to learn about special programs in the schools of Indiana. The Hagerstown Vocational Education program involves operating a business that takes a product from the raw materials to the finished product and markets it. The students perform all the operations and get practice experience.

Mr. Marion Davis donated a factory to the school that was tooled to produce a mini-car that fits on train tracks and workes with a bicycle type action. The Industrial Arts Department produces the car and the Business Department does the office operations.

The intent of this program is to keep the young people in the Hagerstown community after they leave high school. The benefit to the community is having fully trained worker enter its business and industry.

"A Five-and-Ten Addition to Transparencies"
Father Fred Schmidt
Chartrand High School, Indianapolis

In our diocese tomorrow, we have a letter from the Archbishop on the clothing drive, and since it is my turn in the Parrish where I live to preach tomorrow, you will have to suffer this morning though a preaching session, I suppose. There is a statement, "Fools rush in where angels fear to tread." It might be better said that "Fools trip in where angels fear to tread." The only reason I teach this course is because no one else in the faculty is brave enough to try. When I was director at Delco Remy, we used data processing for our classes; and that was the only knowledge I had of data processing and that is all. There is absolutely nothing else in my background that says anything about data processing. I take the materials provided to us by the 3M Company and, with a little assurance, I try to teach the skills and better still convey first of all the basic skills involved in data processing. Please remember when you talk about data processing, you consider everything from the ability to count on your fingers to the ability to use a computer. As far as data processing equipment goes, we have none, and I doubt seriously if we will ever have any, unless I can steal it. There is no money available for us, and as I said, unless I can steal it, we are probably not going to have any. But, we do feel we owe students an opportunity to learn something about this field which certainly is not going out; in fact, it is coming in.

As a result, we have to improvise. Everything that we have done has been student construed. I have no mechanical knowledge at all. If my car doesn't start in the morning, I do two things. I check to see if I have put the key in the ignition and if there is gas; and if it doesn't start, then I call somebody. We are blessed with students who seem to have some mechanical skills.

Dr. Swanson showed us yesterday a beautiful way to mark on a flow chart. We use the overhead in the class, and there are certain concepts to cover in data processing that are logical. There are 32 students in ou class, and we are located above the foods lab. Many students think I arranged this, but I did not. Most of you have seen a flow chart. Most of us have seen the material that Dr. Swanson used for the flow charting. We divided our class into four groups of eight each. The boys in each group had to decide how to make a sandwich and then send a flow chart down to the girls in the foods lab on how to produce the end product. Some sandwiches are very tasty; some of them their mothers wouldn't care to eat. If they turn out badly, we try again.

All of the girls are very happy about this because it shows how stupid the boys are. After this has occurred, they have learned the ideas of logic. Then about a week or two later, we take the boys and girls outside, and the boys are very happy because they get to let the air out of the tires on my car; and the girls send a flow chart on how to fix the flat tire. Then, of course, the boys like it when thegirls can't fix the flat tire. As you can see, you can do things without any equipment at all. Anybody with a small amount of imagination can create a project like this. You can buy a few needed items, but you can use your imagination Paper is easy to get. If you don't believe me, walk down the halls. There is paper in all the halls. Look for the materials available. You don't have to spend all kinds of money. The students will not be happy with it if you do.

My students currently are attempting to produce a reproduction of a key punch. It is not going to work; it is not going to punch cards--but it is designed to show what the machine does. I'm planning to buy stock in the General Electric Company. The Christmas tree light bulbs are always shorting out becuase students are trying to use different colored Christmas tree light bulbs on the machine. They used more than we did at the Parrish. This key punch process is done by regulating the wiring. If you start with the brushes, and you want a light to light, you make sure that the brush and light are connected with the battery. This type of wiring is relatively easy. I know no better way to teach wiring. The only problem is that you understand the basic elements of electricity.

This is not done in a lab, because the only room we have is the classroom. The students bring everything we need and provide everything we need from the information given. The second semester of our course has been built into it several field trips, where students can actually see how the machines are made. As far as our course is concerned, that is as close as they will ever come to the machine.

This panel board (a piece of peg board about 3' by 5') may be used by four students in a section of the classroom. We are able to use this for two reasons. First of all, it acts as a reproducer. The students have to look at the material on the panel board and built it little by

little. In the long run I think that they have learned very well what the panel looks like. You say, what in the name of God do they do with it? The boys are very happy about one thing--there are girls in every group. To make this panel board work properly, they have to buy hair spray. It's sticky! To make it work properly they have to buy yarn. You have to get one other item, scissors. Well, what do you do?

Let's take something like offset. If you have no idea what that is, most students don't have any idea either. So you are all in the same boat. All I tell them is offset means you move it from one area of the card to another area. That's all it means. If you were driving on a street, and you have to turn left or right on that street, the condition is offset. So you take information from one part of the card and move it to another part of the card. And they have difficulty understanding that. Then they say, why is this done? Why you are trying to punch information, it must be done by punching magnetic keys, they have already received information concerning the machine. Please understand that this must be done by the magnets. Where is the card when it is read? It is on the punched side of the machine so that the card will be at the punching position. If I wanted it to be punched, the magnet and the brushes must be in close contact. It is supposed to be four colors. The brighter the colors, the better. All you have to do is begin my cutting your yarn. Then you tell the students what you are going to have them do. You have them divide the brushes at the point where the yarn is tied. You have to wire the brushes very carefully. Now read the information which appears in a certain place. Let us say that it appears to be in column 5 of the stencil master card, so you shove your "yarn" wire into column 5. And if it doesn't work, you simply wet your fingers and tie down the ends.

The students know that the information has been offset, and that it makes the machine we developed operate to different types of information.

What to do with the hair spray? Use it for setting up samples by spraying it on the yarn. It will hold the yarn just as it will hold your hair--and it will hold and serves for inspection purposes.

This type of thing can be used for any panel setup because any panel setup is the same. You can do certain refinements on it. But for teaching purposes, it does two things: 1) It lets the student do what he has to do; and 2) it makes him do what he has to do. You have to use a manual, but we all have to use a manual unless we have equipment, and we have to live with the fact that we don't have any machines. It has one drawback; you can't test it against a manual.

I am the only man in the world who can pick up a sorter and carry it around. This sorter is a product of a combined group. I also urge you to buy stock in tomatos or Campbell's soups because I think all my students use soup cans for the rollers. These rollers do not move, but the cans are all about the same size. The cans are the brushes in a sorter. Explain about the short blades. If you use the 3M Company's materials, you know that underneath the blades there is a magnet which is an electric magnet that is used to sort cards. Even though the sorter is manually operated, it teaches without a great deal of money and without a great deal of equipment.

I don't think IBM will hire any of my students as an engineer, and the kids don't think so either; but not one of them will walk by a sorter and say, "I wonder how it operates." They will understand the process and see what it does and why it does what it does.

As I said before, "Fools trip in where angels fear to tread." All it takes is a little bit of invention, and we all have that because it is surprising how we all get up out of bed in the morning. We have to convince ourselves that we are not dead, that we are not asleep, and that we are not tired. It takes only a certain amount of basic knowledge about the equipment. Somewhere along the line back in Rome this is what a teacher is supposed to be: an individual who is not afraid to walk a different way and to try something new. It's a willingness to step away from the podium, to get up from a desk and maybe even to open a second book. It's a willingness to be what you say you are--teachers. How can we expect our students to be imaginative if we are not willing to be the same. There is no one in this room who with his general knowledge could not teach out of a textbook. And you know what the students would do. There would be a wonderful and definite roar of appreciation--snoring galore. In our general field of teaching, we can see what education has done for us, but how do you wake up the student in the back of the room? The only way you can keep him awake is by being imaginative enough to involve him. He does get involved when he reproduces something. But it takes on your part a willingness to be an exciting teacher; and it does require you to rely on your imagination. Don't be afraid to translate your imagination into reality.

New Developments in Business Education
Telelecture delivered by Dr. Kendrick Bangs
Chairman, General Business Division, School of Business
University of Colorado, from his office.

This telelecture was illustrated by using the VERB telewriter.

Congratulations to the people at the Business Teachers Convention and especially to the Department of Business Education at Muncie, on its 45th Annual Business Education Conference today. It is a pleasure for me to bring you greetings from Delta Phi Epsilon in Business Education, of which I am also president. I am also pleased to be a part of your conference on communication and effective application of teaching media. The media we are using for making this teaching possible illustrates the many uses of the telelecture and telewriter.

Many persons in education today could not be in the Teachers College Auditorium at Muncie, Indiana. I am here in an office overlooking the football field where we will be watching Nebraska and Colorado play football later today. To the east of here mountains are covered with snow already. We have a 25 degree temperature outside.

It is indeed a pleasure to be with you by remote control this morning, and I am pleased now to give you some ideas on new developments in Business Education. We have just celebrated our National Business Association's 25th year of professional status. The celebration was the first through

a professional organization working together for the solidarity and integrity of ours through a period of common support aided in getting Business Education established in public-supported schools.

It has now become half secretary and wife. It has established businessmen, and has been demanded more and more each year. We have made the challenge, and their use is based on the needs. Now come big technical changes in the computer in the outer office to make Business Education as we have known it lag behind technologically-developed computers. We in Business Education need some help in the meeting of this challenge.

Many think M. Kahn and Weiman, in a book entitled "The Year 2000," made some interesting points. They state that the United States in the year 2000; and at the time we are projecting in the overhead projector--you will notice that in the year 2000, the population is expected to be 318 billion. The 1960 census figure shows that the population was 178,464,000. This shows quite an increase in population figures between 1960 and 2000 in a 40-year period. If we look back 40 years from 1960, we find that the population in the United States was 105,700,000. This shows a major increase in the next 40 years.

Our employed labor force will be 148 million who will only work about 1100 hours a week. Our gross national product is 321 billion dollars. We are going to be a leisure-oriented society. Particularly our national gross product, which will be considerably more than it is today, will be about double what it is today. Then let us look at what we will do workdays. We will be working 7½ hours each day, 39 weeks per year and that we will have 10 legal holidays and that 7 will be legal holidays in all the states, 3-day weekends, 13 weeks of vacation, and work-weeks of only 4 days. Our society is going to be a very leisure-oriented society.

And the young people we are teaching in high school today will be in the prime of their productive lives in the last 2 decades of this century. Thus, we will be working in a leisure-oriented society; one in which our people will be spending 40 per cent of their time on a vacation, 40 per cent on a vocation, and 20 per cent just relaxing. And so a business career today or tomorrow should mean what anyone should want it to mean. There are many opportunities from one area to another in the world, in society, from military to business, from education to politics. We can all go career-wise if we can project our own thinking and that beyond for job training. It is not only possible, but probable that our students can carry on more than one career at any given time. Our students can become a part-time worker in areas in which they can show promise and interest. They may take advantage of any service and political endeavor their community may offer and still have leisure time to spend as they choose. It will mean that although we consider the tools--shorthand and bookkeeping--important, they are tools and we should consider them as such. These tools are used to enhance the experience and knowledge of those exposed in an office.

This will mean our curriculum must be expanded, enriches; and educators and teachers of business education be trained to include the basic skills. We need to keep in mind the two objectives of Business Education. The first is a contribution to the total education of our young people.

The society and culture in which we will live; young not middle-aged; listened to, not ignored. This culture will be economically more comfortable than ever before and leisure will become an important part of our lives. We cannot become involved in every business endeavor today, and we certainly will not be able to in the year 2000.

We have made history, math, ethics, logics and other subjects all united into one big challenge. The behavioral sciences have become our science too. We must be realistic of what the real demands are today and for the future. The introduction of the computer into the office has revolutionized office work, and this then becomes the number one development which we shall considering Business Education.

Office management suggests that the final product of the white collar worker is computers. The raw material that they use in data and the process from which those raw materials must go is data processing: Data that is stored until it is needed for decision-making within the company. Office workers are responsible for processing of data; therefore, we in Business Education are seeking ways in which to determine all the activities that are involved in order to prepare young people for office work.

Should office workers be trained in automated offices? I say yes, they should. According to what the 1960 census says, one-half of our total population is less than 25 years of age. These young people are our vital business employees, our secretaries, our office workers at all levels. Consequently, the majority of our high school graduates will need to enter the labor force immediately upon gradiation. Governor Otto Kerner and other recently published a study report of the nation. That study has some startling facts and especially in business. As you will remember a few weeks ago, there was about 3.7 per cent; but as operations in the cases with advantages, we sometimes become distorted. Governor Kerner states that if we consider the population between 18 and 25 years and thus the unsatisfactory conditions in our education system. These people are persons who have recently come from our educational systems. The age group for the white male constitutes 25 per cent of the unemployment rate. The unemployment rate for the white female in the 18-25 age group is 35 per cent. The white male unemployment rate is 35 per cent between 18 and 25 years, I am sorry, males is 25 per cent, and the female is 35 per cent.

If we consider the hard core city areas that are basically Negro, we find that the unemployment rate is running over 50 per cent. What does it take to get a job today? The prerequisite for a job today is education.

The type of education they get often has not served the purpose. The United States Office of Education Research in 1963 has been to improve the situation and the disadvantages of the hard core city area problems. But the solution to our social and economic problems in education are a long and involved process. We can't give these disadvantaged people a few usable office skills and expect them to become productive persons in our society. Business Education is vocational and is the basic in training for business. It takes years of education to develop the types of persons who can adjust and fit into an office situation.

If we look back over the history in Business Education, I think we can say that we have done an adequate job for girls for secretarial jobs

in business. That is, we have done an adequate job for young girls but the figure of 35 per cent for the 18-25 age group would indicate that we should have reached a larger number of girls. That is, maybe because of this number, we need to publicize to parents and school counselors the fact that it is possible for the youth to follow a college preparatory course and still take enough Business Education in high school to be able to attend and hold a job, and have a basic understanding of how the business operates. We have sorely neglected at the high school level courses which prepare the use of man forces for a place in the business world. We need to dispell the idea that Business Education, for which we can take care of at the high school level, is not for men. Doesn't this mean that there must be something to attract the young men, our potential business leaders today?

Today there is a revolution taking place in information and communication. It's greatest impact is upon office work and office workers. Industries are producing in the use of our offices, but they cannot bring about the revolution without the willingness and cooperation of the educational establishment.

You are to be congratulated today upon the approach for Business Education. Today, as the result of the computer in the office, we are told that the high school graduate will change jobs three times in his life. In fact, in the next 10 to 20 years, people will be in jobs that are not even known about today. If we accept this idea, we must realize that we cannot train for an average job in school and expect the graduate to stay with the continuing education. We must face the fact that these students must continue his education throughout his life.

Because of the increase in office jobs in recent years, we will have to train more and more in the years ahead. Yet the introduction of the computer into the office has changed the curriculum of office work. The computer has broughta great change in our office work. There are three major parts. The first was the tube; the second, the transistor; and the third, heart stage. In 10 years, we have moved ahead over 100 years in computer development. And since education grew for several years, this means that in Business Education we are still lagging behind by several generations. We can illustrate this in an analysis of secretarial duties and traits in 1925. And still, today, 40 years later, much of our Business Education curriculum is still the same.

In Business Education today we must engage in research just to catch up and stay in tune. How does the new Business Education curriculum compare to other careers? The approach to business which led to the development of the NOBELS Project is the newest and next development we have in Business Education, and it is the logical necessary result of the impact of the computer in business. This new approach, which the word NOBELS stands for, is New Office Business Education Learning Systems. A research project to develop for Business Education a new curriculum patterned something agter the new curriculum developed in math and science. The NOBELS is to be fronted for a preliminary study for which is now taking place and will be in operation in a few months. NOBELS will be one, two, and three places in the United States Office of Education and we will be hearing from them in a very short time. The result, we hope, will be a new curriculum for Business Education. What do we mean by the Total Systems Approach? To illustrate, the computer necessitates the Total Systems

to the office. All functions and activities of the office must be built into that Total System. Any person working in an office must understand the Total System.

He will be required to operate the machinery as it relates to operating the equipment of the computer. He will be moved up in the organizational structure of ~~the office~~.

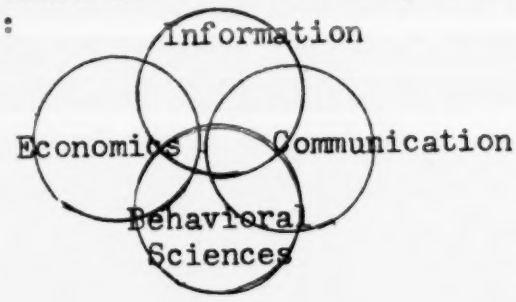
We will have secured office workers at the clerical level, but more office workers at the middle management level making decisions upon mass data made available by the computer. The old classical way of approaching the organization structure was illustrated something like this. We will illustrate it by a triangle. The point of the triangle was represented by top management while the bottom represented the total clerical workers in the office, the many people who are necessary to type work to get the job done. As we move up in the organization and get here in the middle management level, we find this is where you will notice that we require fewer people in this level. As we go to the top of the diagram, this is where we have the management: The president at the top level of management. This is the way we taught the organization structure for many years; however, with the advent of the computer, we found that this is to be changed somewhat. We had an article diagramming what this illustrated, a diagram something like this. They said that in time the computer will do away with the clerical workers; the detail workers who are in the office, and there will be very few in the office. As we will indicate here on the chart, as the computer puts out more and more data, we will have to decrease the number of people in the middle management today. Of course, going on up, we would have again relatively fewer at the top of the diagram. An opinion in a recent article illustrates the influence of the computer on the office as something like this: I cannot quite agree with this one. But it is a diagram that looks something like this, where we have a large number of people where you are doing the feeding in of the data into the computer and then we have relative decisions. More people at the top make management decisions.

This is a new idea, but I don't believe I go along with it. It seems to me that when we put all this together I get a diagram that looks something like this. We will have a decrease in the number of routine clerical workers that we would have at this level, but not as drastic a change as the article in Business Week would indicate. But we would have had a much larger increase in the middle management level figure and again fewer at the top level. It seems to me that this is the way the computer affects the organization structure with the more sophisticated data processing equipment that the office worker needs to have a much more interrelationship with all areas of the business. If we think of the office as the function of information processing, we can visualize the development of a curriculum approach by Dr. Harry Huffman a number of months ago.

The interesting things in Dr. Huffman's presentation, as we are trying to determine an approach to Business Education curriculum is concerned with four different areas and I will try to illustrate them.

One we would call information. A second one, communication and the communication processing. The third area is economics and then the fourth area is as I referred to earlier, the need for Business Education to get involved with behavioral sciences. In other words, we in Business Education

are now involved with these four areas of knowledge; information, communication, economics, and behavioral sciences. If we overlap these, we get an illustration something like this:



We take our information and our communication and we get a shaded area here that is overlapping and this is the area of information and communication with which we should be concerned in Business Education. Then if we add our third circle of economics, this area here becomes the areas of economics within the business education; and then finally add our communication and here we get this overlapping part that we pull out of these areas of knowledge, so that we can build a curriculum in Business Education.

It seems to me that this type of analysis should be included in business education. I can see the Total Systems Approach in the office through another illustration that was an outgrowth of Dr. Huffman's presentation.

We must accept that the office is vitally changing with information processing. This is made up of several of these activities. First we have recording; second we have processing; third, storage; fourth, computing; fifth, retrieving. Then communicating, and last, interpreting. These are terms that are used today with the computer systems. However, they are processes that we do in a non-computerized office as well. In other words, if we will accept the fact that the office is information processing, storage, computing, retrieving, communicating, and interpreting, I think we can move them to a way of looking at the curriculum construction through a cube arrangement; and I will now have this cube on the screen and look at it at this point.

This is a three-dimensional type of operation, and the processes of information processing that we have just talked about; recording, processing, storage, computing, retrieving, communicating, interpreting, are across the bottom of the cube listed as information processing. All of these information processes relate with the total business operation. All of the basic functions of business, and these are illustrated on the left side of the cube. We can have other functions of business listed here, but for purpose of illustration, we have chosen these. We have two ideas of the cube information processing and the functions of business. Then we have to determine the educational objective that we wish to arrive at through our course work, through our curriculum and just for the purpose of illustration, we have indicated such things as success in learning the development of abasic information and we are acquiring techniques in developing skills and so on.

Now then, we have a three-dimensional illustration which we shall see on the screen. In the upper right hand corner we have a total illustration which would indicate that this could be a part of a curriculum. It could be a course in the total curriculum so that if we approach this

information processing in this way, we will be able to come up with the detail that would be necessary to train people for an automated office. This seems to me to be a way of developing a curriculum for Business Education. We can see that preparing young people for office work is developing an understanding of the total business system. This actually insures an understanding to make individual jobs interrelated with all the business courses necessary in the capitalisitc system.

To summarize this, I believe that we have two big developments in business education with which we should be concerned. First, of the computer in the office and its effect on training a person for computerized offices; and second, the use of the total system approach in business education and the development of the approach that will be the outgrowth of the NOBEL's idea.

I say to you today, be constantly alert about the use of the total systems approach and sell business education. Let's prepare students for the computerized society in whcih they will live and work.

'WE' PIERCE THE WALL

Mrs. Lucile Hollis, Special Assistant Professor
Business Education and Office Administration Department
Ball State University

As of this morning, we moved our students into middle management (according to Dr. Bangs' statement)--this is the change we are thinking about.

We can no longer teach from the past to the future. No decision is final except at the moment it is made.

Examine the concepts we hold; change will remove what you now believe Education should be just as natural for students as breathing. Communication requires a transmitter and a receiver and there must be a two-way flow--there must be an exchange. We are so busy trying to get done what we want done that we assign volumes for students to read. Let the student get involved--if you don't know how to do it, let the student figure it out.

Keep the "we" in the teaching learning situation--students are questioning methods, content, and effectiveness; and demanding their right to get what they want in education. We bury ourselves in paper work while students get information from what we assigned them.

Every advancement in the world affects our work in business. Have we taken advantage of what has happened, or do we just know about it?

A personally dictated and transcribed letter costs $3.50. Can processes affect shorthand? We need to take a serious look at what we are doing. Regardless of the potential of a machine, it is only as advantageous

as we who use it. An interesting experiment (Mr. Betterman's speech)--if students could monitor their own work, we could teach a group, but we can't have group learning. A teacher can only facilitate learning if the learner will permit--a two-way flow. "Working with students" sounds simple, but the techniques in working with students are unique. They are composed of a combination of variables--values, appearances, attitudes, environment, wants, needs, desires, expectations, aspirations, knowledges and skills, and concepts of self-identity and self-concept. All are used in education. It requires the "we" attitude to be effective.

Teachers can be replaced by machines in a certain aspect. Yet the teacher can make the difference in learning. We can truly become the facilities of learning. If a machine can do it better, let it do it--but we should do the thinking. We must find time in our busy schedule to make meditations. We must integrate the information. We are not going to be able to make the change unless we stop and consider. We must have the courage and stamina to change.

We teach what is best at the moment. How do we know what new ideas and approaches are good? We are a team and we need to work together as high school educators and college instructors. We are going to have to do better than use the lock-step approach; we must develop mental education.

The wall--students build a wall with beliefs, values, and attitudes. Teachers make transactions with people in which four worlds are involved: the teacher's real world and perceived world, the student's real world and perdeived world. The student will only let you pass through his wall with his permission.

The teacher must provide the climate for learning. We need to permit students the privilege of agreeing and disagreeing with us. Start with the simple--think about the level where the students are. Help individuals to search and strive for an effective approach to any situation that comes up to them. How the individual perceives his own potential will make the difference in learning.

All decisicns are based on a student's system. Teacher must understand the basis and remember that what he says is not always the way he perceives things.

Treat a student according to what he ought to be and what he can be, and he will become so. As teacher "we" pierce the wall by moving him from goal to development. How? There is no canned solution.

VT 009 757
Graduate Follow Up; Statistical Data on Connecticut Students Completing Vocational Programs in 1968.

Connecticut State Dept. of Education, Hartford. Div. of Vocational Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 58p.

DESCRIPTORS - *FOLLOWUP STUDIES; *VOCATIONAL EDUCATION; SECONDARY EDUCATION; POST SECONDARY EDUCATION; *STATE SURVEYS; TABLES (DATA); GRADUATE SURVEYS; *EMPLOYMENT PATTERNS; PLACEMENT; WORK EXPERIENCE PROGRAMS; *VOCATIONAL FOLLOWUP; WAGES; UNEMPLOYMENT
IDENTIFIERS - CONNECTICUT

ABSTRACT - Placement data for all seven vocational fields and the diversified work experience program are presented in tabular form for graduates of vocational-technical and local high schools and technical, community, and 4-year state colleges. Of the graduates from 143 schools who were available for placement, 83.7 were employed in occupations for which they were trained or in related occupations at an average hourly wage of $2.08. Graduates employed in non-related occupations numbered 12.6 percent, graduates continuing their education on a full-time basis represented 29.8 percent, and only 127 graduates, or 1.2 percent, were unemployed. (CH)

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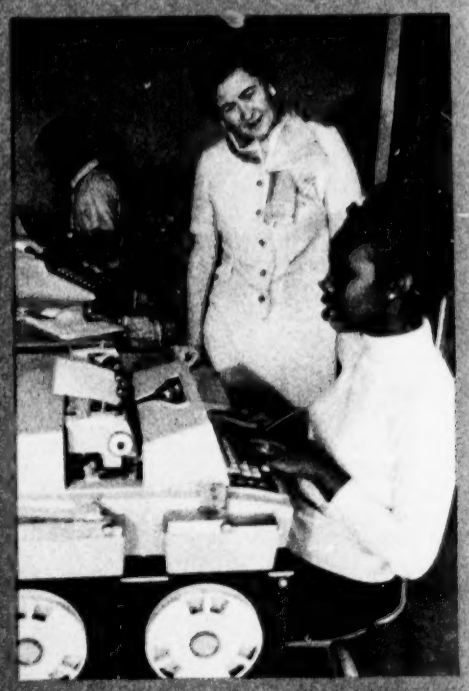
Graduate Follow Up

Statistical Data on Connecticut Students Completing Vocational Programs in 1968



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Graduate Follow Up

Statistical Data on Connecticut Students Completing Vocational Programs in 1968

Connecticut State Department of Education
Division of Vocational Education

Joseph F. Murphy, *Director* Richard W. Howes, *Assistant Director*
Herbert Righthand, *Chief,* Bureau of Vocational Services
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Foreword

The Research Coordinating Unit of the Division of Vocational Education has for several years conducted an annual follow-up survey of vocational graduates. This year's report includes data concerning graduates of vocational-technical and local high schools, and technical, community, and four-year state colleges. Placement data for all seven vocational program fields and the diversified work experience program are presented.

This report will be distributed to vocational educators throughout the state. One of its main purposes will be to serve as a tool in measuring the effectiveness of vocational education programs through student placement in the occupation for which trained.

It is our hope that this booklet will be of value and interest to you.

Joseph F. Murphy, *Director*
Division of Vocational Education

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Introduction

One hundred and forty-three schools and colleges reported a total of 10,546 students, representing eight program fields in vocational education in Connecticut, graduating from full-time preparatory courses.

A total of 9,157 graduates completed secondary level programs while the remaining 1,389 graduates came from post-secondary programs offered in state, community, and technical colleges and vocational-technical schools.

It should be noted that 83.7 percent of those graduates who were available for placement were employed in occupations for which they were trained or in related occupations. The average hourly wage for this group was $2.08 per hour. Seven hundred and sixty, or 12.6 percent of the available graduates were employed in non-related occupations.

Graduates continuing their education on a fulltime basis represented 29.8 percent of the total. Also worthy of note is the fact that only 127 graduates, or 1.2 percent, were unemployed.

Of the total number of graduates, 419, or 4 percent, were unaccounted for.

Charles J. Bertagna
Richard C. Wilson
Research Coordinating Unit

Highlights

	Number	Percent
Total Number of Vocational Graduates	10546	
Not Available for Placement		
Continued Full-Time School	3144	29.8
Entered Armed Services	672	6.3
Status Unknown	419	4.0
Other Reasons	287	2.7
Available for Placement	6024	
Employed in Occupation Trained or Related	5044	83.7
Employed in Occupation Unrelated to Training	760	12.6
Employed Part-Time	93	1.5
Unemployed	127	1.2
Mean Hourly Wage	$2.08	

725

Vocational Programs

Placement Summary

(1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Vocational Agriculture	168	27	66	2	0	73	57	78	2.05	15	1	0
Distributive Education	916	97	301	34	44	440	348	79	1.91	70	14	8
Health Education	690	2	34	6	15	633	581	92	2.37	25	17	10
Home Economics for Gainful Employment	203	16	47	12	34	94	44	45	1.84	48	1	1
Business and Office Education	5763	134	2047	270	160	3152	2594	82	1.83	421	45	92
Technical Education	495	54	182	28	3	228	226	99	3.17	1	0	1
Trade and Industrial Education	1770	289	366	61	18	1036	876	85	2.33	147	4	9
Diversified Work Experience	541	53	101	6	13	368	318	86	1.93	33	11	6
GRAND TOTAL	10546	672	3144	419	287	6024	5044	84	2.03	760	93	127

Vocational Agriculture

(1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary												
Housatonic Valley Reg. (Canaan)	7	1	2	0	0	4	4	100	2.12	0	0	0
Glastonbury High School	11	3	2	0	0	6	4	67	2.06	2	0	0
Killingly High School	3	1	1	0	0	1	1	100	1.00	0	0	0
Lyman Memorial High (Lebanon)	8	2	4	0	0	2	2	100	2.75	0	0	0
Wamogo Regional (Litchfield)	11	3	2	0	0	6	5	83	1.96	1	0	0
Woodrow Wilson (Middletown)	17	1	7	2	0	7	6	86	1.95	1	0	0
Nathan Hale-Ray (Moodus)	9	0	4	0	0	5	3	60	2.20	2	0	0
Norwalk (Center Voc. Arts)	5	1	0	0	0	4	3	75	2.15	1	0	0
Norwich Free Academy	7	2	4	0	0	1	1	100	2.10	0	0	0
Rockville High School	7	1	3	0	0	3	3	100	1.50	0	0	0
Southington High School	23	3	10	0	0	10	5	50	2.31	5	0	0
E.O. Smith (Storrs)	14	1	6	0	0	7	7	100	2.02	0	0	0
Suffield High School	9	2	2	0	0	5	3	60	1.85	2	0	0
Lyman Hall High (Wallingford)	21	5	8	0	0	8	7	88	2.15	1	0	0
Woodbury High School	16	1	11	0	0	4	3	75	2.16	0	1	0
GRAND TOTAL	168	27	66	2	0	73	57	78	2.05	15	1	0

Distributive Education

(1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary												
Branford High School	16	5	9	0	0	2	1	50	1.65	1	0	0
Cromwell High School	9	1	1	0	1	6	6	100	1.95	0	0	0
Danbury High School	8	0	4	0	0	4	3	75	2.26	1	0	0
East Hartford High School	18	3	7	0	0	8	8	100	1.85	0	0	0
Penney High School (E. Hartford)	45	7	18	0	0	20	20	100	1.97	0	0	0
East Haven High School	26	1	5	3	0	17	11	65	1.51	3	3	0
Greenwich High School	8	2	3	0	0	3	2	67	1.72	1	0	0
Fitch High School (Groton)	47	6	7	5	6	23	12	52	1.70	9	1	1
Bulkeley High School (Hartford)	22	1	9	1	0	11	7	64	1.65	1	3	0
Hartford Public High School	17	0	6	0	0	11	11	100	1.77	0	0	0
Weaver High School (Hartford)	27	1	9	1	6	10	9	90	2.05	1	0	0
Manchester High School	15	1	4	0	2	8	7	88	1.89	1	0	0
Middletown High School	15	1	9	0	0	5	4	80	1.68	1	0	0
Milford High School	37	7	19	0	0	11	10	91	2.15	1	0	0
Jonathan Law High (Milford)	88	27	15	5	15	26	16	62	1.90	5	5	0
Naugatuck High School	33	6	18	1	1	7	4	57	2.00	3	0	0
Wilbur Cross High (New Haven)	11	0	2	0	2	7	0	—	—	6	0	1

Distributive Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Secondary (contd.)												
Hillhouse High (New Haven)	22	2	4	2	3	11	8	73	1.91	2	0	1
North Haven High School	1	0	1	0	0	0	0	—	—	0	0	0
Brien McMahon (Norwalk)	7	0	4	0	0	3	1	33	2.00	2	0	0
Norwalk (Center Voc. Arts)	21	3	5	0	0	13	12	92	2.33	1	0	0
Norwalk High School	26	0	7	3	1	15	9	60	1.95	5	1	0
Ridgefield High School	22	0	14	0	0	8	8	100	1.65	0	0	0
Shelton High School	24	1	10	2	0	11	6	55	1.84	3	0	2
Stamford High School	26	1	9	0	1	15	15	100	2.41	0	0	0
Rippowam High School (Stamford)	13	1	3	0	0	9	7	78	2.07	2	0	0
Thomaston Jr.-Sr. High School	14	1	6	0	0	7	2	29	2.00	5	0	0
Torrington High School	34	0	13	0	0	21	15	71	1.91	4	1	1
Trumbull High School	32	0	6	0	1	25	23	92	1.86	2	0	0
Lyman Hall High (Wallingford)	12	1	6	1	0	4	0	—	—	3	0	1
Crosby High School (Waterbury)	36	4	9	5	2	16	16	100	1.79	0	0	0
Kennedy High School (Waterbury)	35	3	14	3	0	15	14	93	1.78	1	0	0
Wilby High School (Waterbury)	29	3	9	1	0	16	13	81	1.79	3	0	0
Watertown High School	22	1	12	0	1	8	8	100	1.88	0	0	0

Distributive Education (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary (contd.)												
Hall High School (West Hartford)	17	3	9	0	2	3	3	100	2.19	0	0	0
West Haven High School	12	0	0	0	0	12	11	92	1.74	1	0	0
Wethersfield High School	14	1	2	0	0	11	11	100	2.00	0	0	0
Windham High School	16	1	5	0	0	10	10	100	1.88	0	0	0
Wolcott High School	18	0	1	0	0	17	16	94	1.89	1	0	0
Total – Secondary	895	95	294	33	44	429	339	79	1.90	69	14	7
Post-Secondary												
Central Conn. State College	6	0	0	0	0	6	4	67	2.15	1	0	1
Manchester Community College	6	0	3	0	0	3	3	100	2.16	0	0	0
Northwestern Community College	4	0	3	1	0	0	0	—	—	0	0	0
Norwalk Community College	5	2	1	0	0	2	2	100	3.00	0	0	0
Total – Post-Secondary	21	2	7	1	0	11	9	82	2.34	1	0	1
GRAND TOTAL	916	97	301	34	44	440	348	79	1.91	70	14	8

Health Education

(1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary												
Nurse Aide	106	2	23	0	2	79	55	70	1.83	20	0	4
Branford High School	8	0	2	0	0	6	5	83	1.95	1	0	0
Voc. Opportunity Center (Bpt.)	7	0	0	0	0	7	7	100	1.57	0	0	0
Danbury High School	27	0	4	0	2	21	12	57	1.70	9	0	0
Fitch High School (Groton)	14	1	4	0	0	9	5	56	1.96	3	0	1
Wamogo Regional (Litchfield)	3	0	1	0	0	2	0	—	—	1	0	1
Norwalk (Center Voc. Arts)	10	1	3	0	0	6	3	50	2.05	1	0	2
Ridgefield High School	5	0	2	0	0	3	3	100	1.75	0	0	0
Southington High School	3	0	2	0	0	1	1	100	1.60	0	0	0
Stamford High School	2	0	0	0	0	2	2	100	1.60	0	0	0
Rippowam High School (Stamford)	8	0	4	0	0	4	1	25	1.60	3	0	0
Lyman Hall High (Wallingford)	8	0	1	0	0	7	7	100	2.00	0	0	0
Watertown High School	11	0	0	0	0	11	9	82	2.00	2	0	0
Total — Secondary	106	2	23	0	2	79	55	70	1.83	20	0	4

Health Education (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Post-Secondary												
Practical Nursing	529	0	10	4	13	502	478	95	2.47	2	17	5
Bullard-Havens Tech School	74	0	0	0	4	70	70	100	2.25	0	0	0
Henry Abbott Tech School	29	0	0	3	4	22	17	77	2.57	1	2	2
Eli Whitney Tech School	79	0	2	1	1	75	74	99	2.43	0	0	1
A.I. Prince Tech School	119	0	7	0	0	112	110	92	2.50	1	0	1
Vinal Tech School	25	0	0	0	0	25	17	68	2.50	0	8	0
E.C. Goodwin Tech School	45	0	1	0	0	44	40	91	2.50	0	4	0
J.M. Wright Tech School	35	0	0	0	0	35	35	100	2.50	0	0	0
W.F. Kaynor Tech School	84	0	0	0	4	80	80	100	2.65	0	0	0
Windham Tech School	39	0	0	0	0	39	35	90	2.48	0	3	1
Dental Assistant	51	0	1	0	0	50	46	92	1.95	3	0	1
Eli Whitney Tech School	21	0	1	0	0	20	17	85	1.82	3	0	0
A.I. Prince Tech School	14	0	0	0	0	14	13	93	2.00	0	0	1
J.M. Wright Tech School	16	0	0	0	0	16	16	100	2.07	0	0	0

Health Education (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Post-Secondary (contd.)												
Medical Secretary	2	0	0	1	0	1	1	100	2.00	0	0	0
Manchester Community College	2	0	0	1	0	1	1	100	2.00	0	0	0
Medical Lab. Assistant	2	0	0	1	0	1	1	100	2.82	0	0	0
Manchester Community College	2	0	0	1	0	1	1	100	2.82	0	0	0
Total – Post-Secondary	584	0	11	6	13	554	526	95	2.43	5	17	6
GRAND TOTAL	690	2	34	6	15	633	581	92	2.37	25	17	10

Home Economics For Gainful Employment (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary												
Child Care	22	0	4	4	2	12	0	—	—	11	1	0
New Britain H.S.	3	0	0	2	0	1	0	—	—	1	0	0
Pulaski H.S.	9	0	1	1	2	5	0	—	—	4	1	0
Windham H.S.	10	0	3	1	0	6	0	—	—	6	0	0
Clothing Management	8	1	4	0	1	2	1	50	1.82	1	0	0
Windham H.S.	8	1	4	0	1	2	1	50	1.82	1	0	0
Food Service	158	15	36	8	30	69	35	49	1.82	33	0	1
Avon H.S.	3	0	0	0	0	3	3	—	1.80	0	0	0
Branford H.S.	6	1	0	0	0	5	3	60	1.75	2	0	0
Voc. Opportunity Center (Bpt.)	9	2	0	0	0	7	6	86	1.70	1	0	0
Hamden High School	16	2	5	1	4	4	2	50	2.00	2	0	0
Hartford Public H.S.	14	0	0	4	0	10	2	20	1.60	8	0	0
Manchester H.S.	9	0	3	0	0	6	2	33	2.08	4	0	0
New Britain H.S.	9	2	0	0	1	6	3	75	1.90	3	0	0
Pulaski H.S. (New Britain)	7	0	0	1	1	5	1	20	1.90	4	0	0

Home Economics For Gainful Employment (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary (contd.)												
Food Service (contd.)												
Norwalk (Center Voc. Arts)	3	0	2	0	1	0	0	—	—	0	0	0
Southington High School	13	0	2	0	0	11	4	36	1.60	6	0	1
Lyman Hall High (Wallingford)	19	0	14	0	0	5	5	100	2.00	0	0	0
Windham High School	9	0	3	0	1	5	3	60	1.97	2	0	0
Windsor High School	7	3	2	1	0	1	0	—	—	1	0	0
Rham Regional (Hebron)	18	5	5	0	7	1	1	100	1.80	0	0	0
Hamden-New Haven Coop. Ed. Ctr.	16	0	0	1	15	0	0	—	—	0	0	0
Homemaker's Assistant	4	0	2	0	0	2	0	—	—	2	0	0
Windham H.S.	4	0	2	0	0	2	0	—	—	2	0	0
Vocational Homemaking	11	0	1	0	1	9	8	89	1.91	1	0	0
Bullard-Havens Tech.	3	0	0	0	1	2	1	50	1.70	1	0	0
J.M. Wright Tech.	8	0	1	0	0	7	7	100	1.94	0	0	0
GRAND TOTAL	203	16	47	12	34	94	44	45	1.84	48	1	1

Business and Office Education

(1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary												
General Clerk-Typist	2914	70	970	145	85	1644	1310	80	1.73	248	24	62
Stenographer	1476	5	533	40	43	855	759	89	1.88	73	7	16
Bookkeeper	814	41	334	34	14	391	318	81	1.84	55	7	11
Data Processing	393	10	150	37	13	183	134	73	1.83	42	5	2
Total — Secondary	5597	126	1987	256	155	3073	2521	82	1.80	418	43	91
Post-Secondary												
Business Administration	79	7	47	7	3	15	12	80	1.85	2	0	1
Accounting	31	1	12	3	0	15	14	93	2.91	1	0	0
Secretarial	52	0	0	4	2	46	44	96	2.00	0	2	0
Data Processing	4	0	1	0	0	3	3	100	2.55	0	0	0
Total — Post-Secondary	166	8	60	14	5	79	73	92	2.44	3	2	1

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Business and Office Education (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary												
Ansonia High School	43	2	11	2	2	26	20	77	1.67	6	0	0
Avon High School	18	0	3	0	0	15	15	100	1.67	0	0	0
Berlin High School	52	1	14	7	1	29	20	69	1.82	7	0	2
Bethel High School	20	4	9	0	0	7	7	100	1.95	0	0	0
Bloomfield High School	47	0	25	0	0	22	22	100	2.03	0	0	0
Bolton – Jr.-Sr. High School	20	5	5	0	0	10	10	100	1.76	0	0	0
Branford High School	46	1	14	0	1	30	27	90	1.90	3	0	0
Bassick High School (Bridgeport)	50	1	4	0	2	43	41	95	1.72	2	0	0
Central High School (Bridgeport)	134	1	15	0	7	111	104	94	1.70	6	0	1
Harding High School (Bridgeport)	73	0	14	0	2	57	48	84	1.76	7	0	2
Bristol Central High School	100	3	18	0	0	79	73	92	1.73	5	1	0
Bristol Eastern High School	68	0	21	15	1	31	22	71	1.56	8	1	0
Brookfield High School	21	0	8	7	1	5	1	20	2.00	3	1	0
Canton High School	13	0	3	1	0	9	9	100	1.68	0	0	0
Cheshire High School	82	9	37	4	4	28	24	86	1.79	4	0	0
The Morgan School (Clinton)	20	1	4	0	0	15	8	53	1.84	5	2	0
Bacon Academy (Colchester)	21	0	9	0	4	8	5	63	1.66	3	0	0
Cromwell High School	25	1	16	1	0	7	6	86	2.16	1	0	0

Business and Office Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Secondary (contd.)												
Danbury High School	83	1	14	0	2	66	31	47	1.65	35	0	0
Derby High School	68	3	34	0	4	27	22	81	1.83	4	0	1
Durham High School	35	2	15	2	0	16	9	56	2.17	5	0	2
Nathan Hale-Ray (East Haddam)	15	1	2	0	1	11	11	100	1.82	0	0	0
East Hampton High School	21	4	6	0	0	11	11	100	1.92	0	0	0
East Haven Senior High School	100	0	18	1	4	77	62	81	1.68	13	1	1
Ellington High School	28	0	4	8	0	16	13	81	1.79	2	0	1
Roger Ludlowe H. S. (Fairfield)	76	1	27	2	5	41	38	93	1.67	2	1	0
Andrew Warde H. S. (Fairfield)	86	3	43	1	3	36	29	81	1.66	7	0	0
Farmington High School	36	0	19	0	0	17	13	76	1.94	4	0	0
Granby Memorial High School	18	3	5	0	0	10	9	90	1.72	1	0	0
Greenwich High School	46	0	7	27	0	12	6	50	2.46	5	0	1
Fitch High School (Groton)	36	0	6	2	5	23	18	78	1.94	2	1	2
Hamden High School	103	1	40	8	0	54	48	89	1.68	1	1	4
Bulkeley High School (Hartford)	106	2	32	13	3	56	53	95	1.72	0	0	3
Hartford Public High School	160	2	43	10	6	99	71	72	1.71	26	0	2
Weaver High School (Hartford)	56	0	4	7	2	43	19	44	1.94	9	0	15
Litchfield High School	20	3	7	0	0	10	9	90	1.83	0	0	1

Business and Office Education (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary (contd.)												
Daniel Hand High School (Madison)	37	0	28	1	0	8	4	50	1.78	4	0	0
Manchester High School	116	1	38	3	5	69	64	93	1.96	5	0	0
Francis Maloney High (Meriden)	73	0	22	0	4	47	38	81	1.70	7	0	2
Orville Platt High (Meriden)	85	1	20	2	0	62	53	85	1.51	5	3	1
Masuk High School (Monroe)	52	0	21	5	0	26	22	85	1.92	2	0	2
Montville High School	41	1	9	5	1	25	24	96	1.71	0	0	1
Naugatuck High School	65	8	19	0	0	38	26	68	1.69	9	0	3
New Britain Senior High School	110	1	35	5	0	69	58	84	1.92	6	1	4
Pulaski High School (New Britain)	46	1	11	3	0	31	25	81	1.94	0	1	5
New Canaan Senior High School	12	0	10	0	0	2	1	50	2.00	1	0	0
New Milford High School	28	0	8	1	3	16	7	44	1.72	8	0	1
Newtown High School	29	1	9	0	2	17	12	71	1.94	5	0	0
North Haven High School	130	2	58	1	7	62	44	71	1.85	9	4	5
Norwalk High School	100	2	28	3	0	67	63	94	1.91	4	0	0
Brien McMahon High School	43	0	13	0	0	30	30	100	1.93	0	0	0
Norwalk (Center Voc. Arts)	15	0	2	1	2	10	10	100	2.15	0	0	0
Old Saybrook High School	20	0	10	0	0	10	7	70	1.75	2	1	0
Plainville Senior High School	47	4	11	0	1	31	15	48	1.84	15	0	1

Business and Office Education (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary (contd.)												
Terryville High (Plymouth)	9	0	4	0	0	5	4	80	1.85	1	0	0
Portland High School	48	4	30	0	2	12	9	75	1.68	3	0	0
Ridgefield High School	23	0	14	0	2	7	6	86	1.75	1	0	0
Rocky Hill High School	35	2	12	0	4	17	15	88	2.05	2	0	0
Seymour High School	32	1	11	0	1	19	18	95	1.73	1	0	0
Shelton High School	59	0	15	11	0	33	20	61	1.92	5	0	8
Southbury High School	21	0	7	13	0	1	1	100	—	0	0	0
Southington High School	89	1	33	4	1	50	50	100	1.85	0	0	0
South Windsor High School	102	1	42	6	9	44	37	84	2.02	7	0	0
Stafford High School	37	1	14	0	0	22	14	64	1.87	7	0	1
Stamford High School	434	6	257	6	13	152	131	86	1.90	20	0	1
Rippowam High School (Stamford)	193	1	120	0	6	66	52	79	1.86	14	0	0
Stratford High School	85	4	13	7	0	61	49	80	1.80	7	1	4
F. Scott Bunnell High (Stratford)	152	2	62	3	5	80	66	83	1.74	12	2	0
Suffield High School	24	0	12	0	0	12	11	92	1.85	0	0	1
Thomaston Jr.-Sr. High School	31	0	14	0	0	17	11	65	1.75	6	0	0
Trumbull High School	176	3	76	29	0	68	60	88	1.74	8	0	0
Rockville High School (Vernon)	70	0	17	0	0	53	46	87	2.04	4	2	1

Business and Office Education (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary (contd.)												
Lyman Hall High (Wallingford)	64	2	19	1	0	42	35	83	1.78	4	1	2
Washington High School	4	0	2	0	0	2	1	50	1.75	1	0	0
Watertown High School	21	0	4	0	0	17	12	71	1.76	4	1	0
Westbrook Jr.-Sr. High School	4	0	1	0	0	3	3	100	1.60	0	0	0
West Haven High School	180	4	23	0	0	153	127	83	1.68	15	11	0
Staples High School (Westport)	66	6	17	7	2	34	32	94	1.97	1	1	0
Wethersfield High School	38	0	15	0	0	23	21	91	1.93	1	0	1
Wilton High School	19	1	11	0	1	6	0	—	—	6	0	0
The Gilbert School (Winchester)	45	0	18	3	4	20	13	65	1.65	2	0	5
Windham High School	152	3	18	3	10	118	105	89	1.83	9	4	0
Windsor Locks High School	52	2	9	1	0	40	34	85	1.84	6	0	0
Wolcott High School	24	0	11	0	2	11	10	91	1.74	1	0	0
Valley (Reg. Dist. No. 4)	37	3	16	0	2	16	15	94	1.67	1	0	0
Amity (Reg. Dist. No. 5)	141	0	119	6	0	16	13	81	1.69	3	0	0
Wamogo (Reg. Dist. No. 6)	36	2	17	0	4	13	9	69	1.81	4	0	0
Regional (District No. 7)	16	0	4	1	2	9	6	67	1.76	1	0	2
Rham (Reg. Dist. No. 8)	15	0	5	0	0	10	6	60	1.88	2	0	2
Joel Barlow (Reg. Dist. No. 9)	16	0	6	0	0	10	10	100	1.81	0	0	0

Business and Office Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Secondary (contd.)												
Lewis S. Mills (Reg. Dist. No. 10)	27	0	8	2	0	17	17	100	2.00	0	0	0
Woodbury (Reg. Dist. No. 14)	17	0	3	5	0	9	7	78	1.68	1	1	0
American School for the Deaf	8	0	0	0	0	8	8	100	1.81	0	0	0
Total – Secondary	5597	126	1987	256	155	3073	2521	82	1.80	418	43	91
Post-Secondary												
Central Conn. State College	20	0	0	0	0	20	20	100	2.25	0	0	0
Manchester Community College	42	1	13	8	2	18	15	83	2.22	3	0	0
Middlesex Community College	20	3	13	0	0	4	3	75	2.66	0	1	0
Northwestern Community College	31	0	19	3	0	9	8	89	–	0	1	0
Norwalk Community College	53	4	15	3	3	28	27	96	2.69	0	0	1
Total – Post-Secondary	166	8	60	14	5	79	73	92	2.44	3	2	1
GRAND TOTAL	5763	134	2047	270	160	3152	2594	82	1.83	421	45	92

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Technical Education

(1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Post-Secondary												
Agricultural Technology	49	5	12	8	0	24	24	100	2.33	0	0	0
Ratcliffe-Hicks School of Agricul., UConn.	49	5	12	8	0	24	24	100	2.33	0	0	0
State Technical Colleges												
Chemical Technology	31	4	9	1	1	16	16	100	3.46	0	0	0
Norwalk	15	0	3	1	1	10	10	100	3.44	0	0	0
Thames Valley	9	3	2	0	0	4	4	100	3.48	0	0	0
Waterbury	7	1	4	0	0	2	2	100	3.55	0	0	0
Data Processing Technology	87	9	31	4	1	42	41	98	3.20	0	0	1
Hartford	16	2	5	1	0	8	8	100	3.20	0	0	0
Norwalk	31	4	7	3	1	16	15	94	3.13	0	0	1
Thames Valley	12	2	2	0	0	8	8	100	3.49	0	0	0
Waterbury	28	1	17	0	0	10	10	100	3.07	0	0	0

Technical Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Post-Secondary (contd.)												
Electrical Technology	109	15	34	5	1	54	54	100	3.27	0	0	0
Hartford	27	1	11	3	0	12	12	100	3.36	0	0	0
Norwalk	47	12	7	2	1	25	25	100	3.28	0	0	0
Thames Valley	10	1	3	0	0	6	6	100	3.45	0	0	0
Waterbury	25	1	13	0	0	11	11	100	3.06	0	0	0
Mechanical Technology	103	9	50	3	0	41	40	98	3.32	1	0	0
Hartford	18	1	11	2	0	4	4	100	3.34	0	0	0
Norwalk	46	2	24	0	0	20	20	100	3.38	0	0	0
Thames Valley	14	2	2	1	0	9	8	89	3.25	1	0	0
Waterbury	25	4	13	0	0	8	8	100	3.26	0	0	0
Civil Technology	28	2	14	0	0	12	12	100	2.87	0	0	0
Hartford	28	2	14	0	0	12	12	100	2.87	0	0	0

Technical Education (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Post-Secondary (contd.)												
Tool Technology	51	6	20	2	0	23	23	100	3.29	0	0	0
Hartford	11	0	5	1	0	5	5	100	3.32	0	0	0
Norwalk	9	1	5	1	0	2	2	100	3.23	0	0	0
Thames Valley	14	3	3	0	0	8	8	100	3.33	0	0	0
Waterbury	17	2	7	0	0	8	8	100	3.27	0	0	0
Electro-Mech. Technology	9	0	3	0	0	6	6	100	3.41	0	0	0
Norwalk	9	0	3	0	0	6	6	100	3.41	0	0	0
Metallurgical Technology	28	4	9	5	0	10	10	100	3.42	0	0	0
Norwalk	28	4	9	5	0	10	10	100	3.42	0	0	0
GRAND TOTAL	495	54	182	28	3	228	226	99	3.17	1	0	1

Trade and Industrial Education

(1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary												
Vocational-Technical Schools												
Automobile Body Repair	8	1	0	0	0	7	7	100	2.29	0	0	0
W. F. Kaynor	8	1	0	0	0	7	7	100	2.29	0	0	0
Automotive Mechanics	149	23	12	3	0	111	94	85	2.29	17	0	0
Bullard-Havens	13	3	2	0	0	8	8	100	2.83	0	0	0
Henry Abbott	14	0	1	0	0	13	12	92	2.12	1	0	0
H. H. Ellis	1	0	0	0	0	1	1	100	2.50	0	0	0
Eli Whitney	18	4	0	0	0	14	13	93	2.36	1	0	0
A. I. Prince	8	3	0	0	0	5	5	100	2.50	0	0	0
Howell Cheney	8	2	0	0	0	6	6	100	2.50	0	0	0
H. C. Wilcox	8	0	0	0	0	8	5	63	2.00	3	0	0
Vinal	10	1	0	0	0	9	7	78	2.00	2	0	0
E. C. Goodwin	11	1	2	0	0	8	7	87	2.59	1	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Automotive Mechanics (contd.)												
Norwich	12	1	0	2	0	9	7	78	2.20	2	0	0
J. M. Wright	12	1	3	0	0	8	7	87	2.12	1	0	0
Oliver Wolcott	8	3	0	0	0	5	4	80	2.00	1	0	0
W. F. Kaynor	13	2	1	1	0	9	6	67	2.29	3	0	0
Windham	13	2	3	0	0	8	6	75	2.15	2	0	0
Aviation Mechanics	14	0	1	0	0	13	10	77	3.96	3	0	0
H. H. Ellis	14	0	1	0	0	13	10	77	3.96	3	0	0
Baking	8	3	0	0	0	5	4	80	2.20	1	0	0
Bullard-Havens	2	2	0	0	0	0	0	—	—	0	0	0
E. C. Goodwin	6	1	0	0	0	5	4	80	2.20	1	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Beauty Culture	63	0	5	1	4	53	52	98	1.68	1	0	0
Bullard-Havens	9	0	4	0	1	4	4	100	1.60	0	0	0
H. H. Ellis	2	0	0	0	0	2	2	100	1.68	0	0	0
Eli Whitney	11	0	0	1	0	10	10	100	1.61	0	0	0
A. I. Prince	1	0	0	0	0	1	1	100	1.60	0	0	0
H. C. Wilcox	11	0	0	0	1	10	10	100	1.65	0	0	0
E. C. Goodwin	6	0	0	0	0	6	6	100	1.85	0	0	0
J. M. Wright	15	0	1	0	0	14	13	93	1.75	1	0	0
W. F. Kaynor	8	0	0	0	2	6	6	100	1.67	0	0	0
Carpentry	177	41	11	5	1	119	104	87	2.74	13	1	1
Bullard-Havens	29	7	3	1	0	18	14	78	2.50	4	0	0
Henry Abbott	12	9	0	0	0	3	3	100	3.69	0	0	0
H. H. Ellis	6	1	0	0	0	5	4	80	4.00	1	0	0
Eli Whitney	11	3	1	0	0	7	6	86	2.54	1	0	0

Trade and Industrial Education (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Vocational-Technical Schools (contd.)												
Carpentry (contd.)												
A. I. Prince	12	1	0	1	0	10	10	100	3.04	0	0	0
Howell Cheney	7	2	1	0	0	4	4	100	2.50	0	0	0
H. C. Wilcox	13	1	0	0	0	12	11	92	2.65	1	0	0
Vinal	9	3	0	0	0	6	5	83	2.50	1	0	0
E. C. Goodwin	12	2	1	1	0	8	8	100	2.43	0	0	0
Norwich	10	1	1	0	0	8	7	87	2.45	0	0	1
J. M. Wright	15	3	0	2	1	9	9	100	2.64	0	0	0
Oliver Wolcott	11	1	2	0	0	8	8	100	2.85	0	0	0
W. F. Kaynor	14	5	1	0	0	8	7	87	2.65	1	0	0
Windham	16	2	1	0	0	13	8	62	3.01	4	1	0
Chemistry Industrial	14	0	12	0	0	2	2	100	2.32	0	0	0
J. M. Wright	14	0	12	0	0	2	2	100	2.32	0	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation: Number	Percent	Mean Hourly Wage	Unrelated Occupation	Part-Time	Unemployed
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Drafting Architectural	27	7	9	2	0	9	8	89	2.58	1	0	0
Bullard-Havens	7	1	2	2	0	2	2	100	2.50	0	0	0
H. H. Ellis	10	2	5	0	0	3	3	100	2.52	0	0	0
Eli Whitney	3	3	0	0	0	0	0	—	—	0	0	0
Windham	7	1	2	0	0	4	3	75	2.71	1	0	0
Drafting, Machine	107	15	37	3	1	51	38	75	2.27	12	0	1
Bullard-Havens	6	1	2	0	0	3	2	67	2.35	1	0	0
Henry Abbott	5	1	2	0	0	2	1	50	2.30	1	0	0
H. H. Ellis	4	0	2	0	1	1	0	—	—	1	0	0
Eli Whitney	6	1	2	0	0	3	1	33	3.00	1	0	1
A. I. Prince	5	2	0	0	0	3	2	67	2.25	1	0	0
Howell Cheney	3	0	1	0	0	2	2	100	2.25	0	0	0
H. C. Wilcox	9	1	5	0	0	3	2	67	2.00	1	0	0
Vinal	4	0	0	0	0	4	4	100	2.00	0	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Drafting, Machine (contd.)												
E. C. Goodwin	17	2	3	2	0	10	10	100	2.40	0	0	0
Norwich	10	2	3	1	0	4	3	75	2.52	1	0	0
J. M. Wright	10	0	2	0	0	8	6	75	2.43	2	0	0
Oliver Wolcott	7	2	2	0	0	3	2	67	1.90	1	0	0
W. F. Kaynor	13	0	12	0	0	1	1	100	—	0	0	0
Windham	8	3	1	0	0	4	2	50	2.70	2	0	0
Electrical	175	34	48	1	0	92	71	77	2.41	19	0	2
Bullard-Havens	6	0	1	0	0	5	4	80	2.55	1	0	0
Henry Abbott	12	1	1	0	0	10	7	70	2.96	2	0	1
H. H. Ellis	5	2	3	0	0	0	0	—	—	0	0	0
Eli Whitney	15	2	0	0	0	13	11	85	2.50	1	0	0
A. I. Prince	18	5	2	0	0	11	8	73	2.25	3	0	0
Howell Cheney	6	1	2	0	0	3	3	100	2.50	0	0	0
H. C. Wilcox	13	2	3	0	0	8	5	63	2.15	3	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Electrical (contd.)												
Vinal	10	1	5	0	0	4	3	75	2.20	1	0	0
E. C. Goodwin	20	6	3	1	0	10	9	90	2.26	1	0	0
Norwich	18	2	8	0	0	8	7	87	2.55	1	0	0
J. M. Wright	14	4	9	0	0	1	1	100	2.30	0	0	0
Oliver Wolcott	7	1	2	0	0	4	3	75	2.58	1	0	0
W. F. Kaynor	13	4	5	0	0	4	4	100	2.12	0	0	0
Windham	18	3	4	0	0	11	6	55	2.49	5	0	0
Electronics, Industrial	160	30	82	3	3	42	30	71	2.72	11	0	1
Bullard-Havens	13	2	9	0	0	2	2	100	3.50	0	0	0
Henry Abbott	10	0	8	0	0	2	0	—	—	2	0	0
H. H. Ellis	6	4	1	0	0	1	1	100	2.72	0	0	0
Eli Whitney	18	4	8	1	0	5	1	20	2.80	4	0	0
A. I. Prince	18	5	5	0	3	5	5	100	3.00	0	0	0
Howell Cheney	9	2	3	0	0	4	4	100	2.68	0	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Electronics, Industrial (contd.)												
H. C. Wilcox	13	3	8	0	0	2	1	50	2.00	1	0	0
Vinal	10	0	9	1	0	0	0	—	—	0	0	0
E. C. Goodwin	11	1	7	1	0	2	2	100	2.42	0	0	0
J. M. Wright	5	1	1	0	0	3	2	67	3.10	1	0	0
Oliver Wolcott	13	3	5	0	0	5	4	80	2.39	0	0	1
Windham	14	1	4	0	0	9	6	67	2.48	3	0	0
Fashion Design	34	1	6	0	2	25	17	68	1.91	7	0	1
Bullard-Havens	6	0	1	0	0	5	4	80	1.85	1	0	0
Eli Whitney	8	0	0	0	0	8	6	75	1.98	1	1	0
A. I. Prince	3	1	1	0	1	0	0	—	—	0	0	0
E. C. Goodwin	11	0	2	0	1	8	4	50	2.12	4	0	0
W. F. Kaynor	6	0	2	0	0	4	3	75	1.62	1	0	0
Food Trades	16	4	7	1	0	4	4	100	2.23	0	0	0
E. C. Goodwin	10	4	4	1	0	1	1	100	3.25	0	0	0
J. M. Wright	6	0	3	0	0	3	3	100	1.90	0	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Machine	179	25	46	7	1	100	90	90	2.32	7	1	2
Bullard-Havens	18	6	4	0	0	8	7	87	1.90	1	0	0
Henry Abbott	15	2	1	0	0	12	11	92	2.37	1	0	0
H. H. Ellis	6	2	2	0	0	2	2	100	2.39	0	0	0
Eli Whitney	14	1	3	1	0	9	9	100	2.17	0	0	0
A. I. Prince	9	1	3	0	1	4	4	100	2.75	0	0	0
Howell Cheney	3	0	1	0	0	2	2	100	2.00	0	0	0
H. C. Wilcox	16	1	5	0	0	10	9	90	2.36	0	1	0
Vinal	9	4	1	0	0	4	4	100	2.30	0	0	0
E. C. Goodwin	15	3	3	4	0	5	3	60	2.23	2	0	0
Norwich	17	2	3	0	0	12	10	83	2.98	1	0	1
J. M. Wright	9	0	8	0	0	1	1	100	2.50	0	0	0
Oliver Wolcott	8	1	1	0	0	6	6	100	2.25	0	0	0
W. F. Kaynor	28	0	8	1	0	19	19	100	2.14	0	0	0
Windham	12	2	3	1	0	6	3	50	2.46	2	0	1

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Masonry	9	2	2	1	0	4	3	75	2.24	0	1	0
Bullard-Havens	6	2	0	1	0	3	3	100	2.24	0	0	0
A. I. Prince	1	0	1	0	0	0	0	—	—	0	0	0
H. H. Ellis	2	0	1	0	0	1	0	—	—	0	1	0
Painting and Decorating	5	1	1	0	0	3	3	100	3.75	0	0	0
Bullard-Havens	5	1	1	0	0	3	3	100	3.75	0	0	0
Printing and Lithography	51	10	5	3	0	33	30	91	2.24	3	0	0
Bullard-Havens	20	5	1	2	0	12	11	92	2.16	1	0	0
Eli Whitney	9	3	1	0	0	5	4	100	2.19	1	0	0
A. I. Prince	1	0	0	0	0	1	1	100	2.25	0	0	0
H. C. Wilcox	11	1	3	0	0	7	6	86	2.60	1	0	0
E. C. Goodwin	4	0	0	1	0	3	3	100	1.90	0	0	0
J. M. Wright	6	1	0	0	0	5	5	100	2.25	0	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Plumbing	39	9	4	0	0	26	22	85	2.56	3	0	1
Bullard-Havens	10	4	0	0	0	6	6	100	2.80	0	0	0
Eli Whitney	8	1	1	0	0	6	5	86	2.30	1	0	0
A. I. Prince	3	0	0	0	0	3	3	100	2.50	0	0	0
E. C. Goodwin	5	2	0	0	0	3	2	67	2.26	1	0	0
Norwich	7	1	1	0	0	5	3	60	2.68	1	0	1
J. M. Wright	6	1	2	0	0	3	3	100	2.66	0	0	0
Screw Machine Operation	6	3	1	1	0	1	1	100	2.65	0	0	0
E. C. Goodwin	6	3	1	1	0	1	1	100	2.65	0	0	0
Sheet Metal	16	7	0	0	1	8	8	100	2.76	0	0	0
A.I. Prince	2	1	0	0	1	0	0	—	—	0	0	0
H.C. Wilcox	5	1	0	0	0	4	4	100	3.22	0	0	0
Norwich	9	5	0	0	0	4	4	100	2.31	0	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Tool and Die	84	10	15	2	0	57	55	96	2.41	2	0	0
Bullard-Havens	11	2	4	0	0	5	5	100	2.30	0	0	0
H.H. Ellis	7	0	3	0	0	4	4	100	2.42	0	0	0
Eli Whitney	7	1	0	1	0	5	5	100	2.12	0	0	0
Howell Cheney	11	1	2	0	0	8	8	100	2.50	0	0	0
H.C. Wilcox	12	0	1	0	0	11	11	100	2.45	0	0	0
Vinal	8	1	0	0	0	7	6	86	2.65	1	0	0
E.C. Goodwin	15	5	4	1	0	5	5	100	2.30	0	0	0
J.M. Wright	8	0	0	0	0	8	8	100	2.45	0	0	0
Oliver Wolcott	5	0	1	0	0	4	3	75	2.45	1	0	0
Total – V.T.S. (secondary)	1341	226	304	33	13	765	653	85	2.39	100	4	8

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Secondary												
Local High Schools												
Appliance Repair	17	1	4	0	0	12	6	50	2.05	5	0	1
Hartford Public H.S.	12	1	3	0	0	8	3	38	2.25	5	0	0
New London H.S.	5	0	1	0	0	4	3	75	1.85	0	0	1
Automotive Servicing	87	12	25	9	0	41	32	78	2.03	9	0	0
Avon H.S.	2	0	1	0	0	1	1	100	1.80	0	0	0
Danbury H.S.	32	4	13	9	0	6	5	83	1.75	1	0	0
Hartford Public H.S.	19	5	4	0	0	10	8	80	2.25	2	0	0
Weaver (Hartford)	8	2	2	0	0	4	2	50	1.75	2	0	0
New London H.S.	15	1	1	0	0	13	11	85	2.05	2	0	0
Norwalk (Center Voc. Arts)	3	0	1	0	0	2	2	100	2.25	0	0	0
Reg. #12, H.S. (Washington)	8	0	3	0	0	5	3	60	1.75	2	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Local High Schools (contd.)												
Body and Fender	6	0	1	1	0	4	4	100	2.16	0	0	0
American School for the Deaf	6	0	1	1	0	4	4	100	2.16	0	0	0
Building Maintenance	10	1	2	0	0	7	7	100	2.10	0	0	0
Voc. Oppor. Center (Bpt.)	2	0	0	0	0	2	2	100	1.70	0	0	0
Norwalk (Center Voc. Arts)	1	0	0	0	0	1	1	100	2.30	0	0	0
Watertown H.S.	7	1	2	0	0	4	4	100	2.25	0	0	0
Draftsman, Learner	14	1	4	0	0	9	8	89	2.16	1	0	0
Avon H.S.	1	0	0	0	0	1	1	100	2.00	0	0	0
New London H.S.	13	1	4	0	0	8	7	87	2.18	1	0	0
Electronics Assembler	9	0	0	2	0	7	5	71	2.27	2	0	0
Voc. Opportunity Center (Bpt.)	9	0	0	2	0	7	5	71	2.27	2	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Local High Schools (contd.)												
Graphic Arts	5	0	0	0	0	5	5	100	2.15	0	0	0
American School for the Deaf	5	0	0	0	0	5	5	100	2.15	0	0	0
Machine Operator	121	27	16	8	2	68	56	82	2.14	12	0	0
Avon High School	4	0	0	0	0	4	4	100	1.80	0	0	0
Danbury H.S.	24	6	5	1	1	11	8	73	1.75	3	0	0
Fitch H.S. (Groton)	10	4	1	0	1	4	4	100	2.32	0	0	0
Hartford Public H.S.	11	3	1	1	0	6	4	67	2.50	2	0	0
Manchester H.S.	13	2	1	1	0	9	5	56	2.47	4	0	0
New Britain	13	3	2	2	0	6	6	100	2.00	0	0	0
Pulaski H.S. (New Britain)	11	2	4	0	0	5	4	80	2.00	1	0	0
New London H.S.	16	4	0	0	0	12	10	83	2.28	2	0	0
Norwalk (Center Voc. Arts)	5	0	1	0	0	4	4	100	2.35	0	0	0
Seymour H.S.	6	1	1	0	0	4	4	100	1.98	0	0	0
Southington H.S.	8	2	0	3	0	3	3	100	1.90	0	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Local High Schools (contd.)												
Mechanical Inspector	30	5	6	1	0	18	12	67	2.33	6	0	0
Danbury H.S.	7	1	3	0	0	3	1	33	1.75	2	0	0
Manchester H.S.	13	1	3	1	0	8	4	50	2.53	4	0	0
Watertown High School	10	3	0	0	0	7	7	100	2.30	0	0	0
Welder, Learner	7	3	0	0	0	4	4	100	2.41	0	0	0
Voc. Opportunity Center (Bpt.)	3	1	0	0	0	2	2	100	2.50	0	0	0
Fitch Sr. High School (Groton)	4	2	0	0	0	2	2	100	2.35	0	0	0
Total – Local H.S.	306	50	58	21	2	175	139	79	2.12	35	0	1
Total – Secondary	1647	276	362	54	15	940	792	84	2.34	135	4	9

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Post-Secondary												
Vocational-Technical Schools												
Automotive Mechanics	8	3	0	0	0	5	5	100	2.50	0	0	0
A.I. Prince	8	3	0	0	0	5	5	100	2.50	0	0	0
Barbering	28	2	0	2	0	24	23	96	1.83	1	0	0
Bullard-Havens	15	0	0	2	0	13	13	100	1.90	0	0	0
A.I. Prince	13	2	0	0	0	11	10	91	1.75	1	0	0
Carpentry	1	0	0	0	0	1	1	100	5.25	0	0	0
A.I. Prince	1	0	0	0	0	1	1	100	5.25	0	0	0
Construction Design Drafting	11	0	1	0	0	10	6	60	2.00	4	0	0
A.I. Prince	11	0	1	0	0	10	6	60	2.00	4	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Electrical	6	3	0	0	0	3	3	100	2.50	0	0	0
A.I. Prince	6	3	0	0	0	3	3	100	2.50	0	0	0
Fashion Design	3	0	0	0	0	3	3	100	1.60	0	0	0
A.I. Prince	3	0	0	0	0	3	3	100	1.60	0	0	0
Industrial Electronics	8	0	1	0	0	7	6	86	2.50	1	0	0
A.I. Prince	8	0	1	0	0	7	6	86	2.50	1	0	0
Machine	13	0	0	1	0	12	10	83	2.15	2	0	0
W.F. Kaynor	13	0	0	1	0	12	10	83	2.15	2	0	0
Machine Drafting	13	0	1	4	0	8	5	62	2.17	3	0	0
A.I. Prince	3	0	1	0	0	2	2	100	2.25	0	0	0
W.F. Kaynor	10	0	0	4	0	6	3	50	2.13	3	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Masonry	2	0	0	0	0	2	2	100	2.40	0	0	0
A.I. Prince	2	0	0	0	0	2	2	100	2.40	0	0	0
Printing Lithography	5	1	1	0	0	3	3	100	2.40	0	0	0
A.I. Prince	5	1	1	0	0	3	3	100	2.40	0	0	0
Plumbing	5	0	0	0	0	5	4	80	2.50	1	0	0
A.I. Prince	5	0	0	0	0	5	4	80	2.50	1	0	0
Sheet Metal	2	1	0	0	1	0	0	—	—	0	0	0
A.I. Prince	2	1	0	0	1	0	0	—	—	0	0	0

Trade and Industrial Education	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Vocational-Technical Schools (contd.)												
Tool and Die	4	1	0	0	0	3	3	100	2.90	0	0	0
A.I. Prince	4	1	0	0	0	3	3	100	2.90	0	0	0
Welding	14	2	0	0	2	10	10	100	2.75	0	0	0
A.I. Prince	14	2	0	0	2	10	10	100	2.75	0	0	0
TOTAL–V.T.S. (post-secondary)	123	13	4	7	3	96	84	88	2.26	12	0	0
GRAND TOTAL	1770	289	366	61	18	1036	876	85	2.33	147	4	9

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Diversified Work Experience

(1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary												
Bethel High School	12	4	0	0	0	8	6	75	2.12	2	0	0
Bloomfield High School	64	8	15	0	0	41	41	100	1.89	0	0	0
Branford High School	19	3	3	0	1	12	10	83	2.07	2	0	0
Ellington High School	14	2	3	0	3	6	4	67	1.93	2	0	0
Enfield High School	37	2	8	0	0	27	27	100	1.98	0	0	0
Masuk High School (Monroe)	30	1	10	0	1	18	11	61	1.91	4	1	2
Montville High School	41	2	4	1	2	32	29	91	1.72	2	0	1
Newtown High School	22	2	2	1	0	17	13	76	2.14	4	0	0
North Haven High School	49	6	0	0	1	42	40	95	1.85	0	0	2
Plainville High School	34	4	1	0	2	27	25	93	1.73	0	2	0
Shelton High School	18	1	5	1	0	11	6	55	1.82	3	2	0
Southington High School	27	4	0	3	0	20	18	90	2.07	2	0	0

Diversified Work Experience (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Secondary (contd.)												
Stamford High School	45	2	18	0	0	25	21	84	2.18	4	0	0
Rippowam High School (Stamford)	50	6	11	0	0	33	33	100	1.99	0	0	0
Stonington High School	34	2	12	0	1	19	14	74	1.89	5	0	0
Suffield High School	13	2	6	0	1	4	4	100	1.72	0	0	0
Lyman Hall High (Wallingford)	10	1	0	0	0	9	2	22	1.77	1	6	0
Windsor High School	22	1	3	0	1	17	14	82	1.99	2	0	1
GRAND TOTAL	541	53	101	6	13	368	318	86	1.93	33	11	6

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School Totals

(1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Vocational-Technical Schools												
Bullard-Havens (Bridgeport)	253	36	34	8	6	169	159	94	2.30	10	0	0
Henry Abbott (Danbury)	97	13	13	3	4	64	51	80	2.54	8	2	3
H.H. Ellis (Danielson)	63	11	18	0	1	33	27	82	3.19	5	1	0
Eli Whitney (Hamden)	228	23	19	5	1	180	162	90	2.27	14	1	3
A. I. Prince (Hartford)	299	32	23	1	9	234	220	94	2.46	12	0	2
Howell Cheney (Manchester)	47	8	10	0	0	29	29	100	2.42	0	0	0
H.C. Wilcox (Meriden)	111	10	25	0	1	75	64	85	2.33	10	1	0
Vinal (Middletown)	85	10	15	1	0	59	46	78	2.36	5	8	0
E.C. Goodwin (New Britain)	194	30	31	13	1	119	105	88	2.37	10	4	0
Norwich (Norwich)	83	14	16	3	0	50	41	82	2.56	6	0	3
J.M. Wright (Stamford)	199	15	56	2	1	125	120	96	2.30	5	0	0
Oliver Wolcott (Torrington)	59	11	13	0	0	35	30	86	2.43	4	0	1
W.F. Kaynor (Waterbury)	210	12	29	7	6	156	146	93	2.43	10	0	0
Windham (Willimantic)	127	14	18	1	0	94	69	73	2.53	19	4	2
TOTAL	2055	239	320	44	30	1422	1269	89	2.44	118	21	14

School Totals (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Local High Schools												
Ansonia High School	43	2	11	2	2	26	20	77	1.67	6	0	0
Avon High School	28	0	4	0	0	24	24	100	1.73	0	0	0
Berlin High School	52	1	14	7	1	29	20	69	1.83	7	0	2
Bethel High School	32	8	9	0	0	15	13	87	2.03	2	0	0
Bloomfield High School	111	8	40	0	0	63	63	100	1.95	0	0	0
Bolton High School	20	5	5	0	0	10	10	100	1.77	0	0	0
Branford High School	95	10	28	0	2	55	46	84	1.93	9	0	0
Bassick High School (Bridgeport)	50	1	4	0	2	43	41	95	1.73	2	0	0
Central High School (Bridgeport)	134	1	15	0	7	111	104	94	1.70	6	0	1
Warren Harding High (Bridgeport)	73	0	14	0	2	57	48	84	1.77	7	0	2
Voc. Opportunity Ctr. (Bridgeport)	30	3	0	2	0	25	22	88	1.86	3	0	0
Bristol Central High School	100	3	18	0	0	79	73	92	1.73	5	1	0
Bristol Eastern High School	68	0	21	15	1	31	22	71	1.56	8	1	0
Brookfield High School	21	0	8	7	1	5	1	20	2.00	3	1	0
Canton High School	13	0	3	1	0	9	9	100	1.68	0	0	0
Cheshire High School	82	9	37	4	4	28	24	82	1.80	4	0	0
The Morgan School (Clinton)	20	1	4	0	0	15	8	53	1.84	5	2	0

School Totals	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Local High Schools (contd.)												
Bacon Academy (Colchester)	21	0	9	0	4	8	5	63	1.66	3	0	0
Cromwell High School	34	2	17	1	1	13	12	92	2.06	1	0	0
Danbury High School	181	12	43	10	5	111	60	54	1.71	51	0	0
Derby High School	68	3	34	0	4	27	22	81	1.84	4	0	1
Durham High School	35	2	15	2	0	16	9	56	2.17	5	0	2
Nathan Hale-Ray H.S. (E. Haddam)	24	1	6	0	1	16	14	88	1.91	2	0	0
East Hampton High School	21	4	6	0	0	11	11	100	1.92	0	0	0
East Hartford High School	18	3	7	0	0	8	8	100	1.85	0	0	0
East Hartford (Penney)	45	7	18	0	0	20	20	100	1.97	0	0	0
East Haven High School	126	1	23	4	4	94	73	78	1.66	16	4	1
Ellington High School	42	2	7	8	3	22	17	77	1.83	4	0	1
Enfield High School	37	2	8	0	0	27	27	100	1.99	0	0	0
Fairfield (Roger Ludlowe H.S.)	76	1	27	2	5	41	38	93	1.67	2	1	0
Fairfield (Andrew Warde H.S.)	86	3	43	1	3	36	29	81	1.66	7	0	0
Farmington High School	36	0	19	0	0	17	13	76	1.95	4	0	0
Glastonbury High School	11	3	2	0	0	6	4	67	2.06	2	0	0
Granby Memorial High School	18	3	5	0	0	10	9	90	1.72	1	0	0

School Totals (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Local High Schools (contd.)												
Greenwich High School	54	2	10	27	0	15	8	53	2.28	6	0	1
Groton (Fitch Sr. H.S.)	111	13	18	7	12	61	41	67	1.93	14	2	4
Hamden High School	119	3	45	9	4	58	50	86	1.70	3	1	4
Hartford (Bulkeley H.S.)	128	3	41	14	3	67	60	90	1.72	1	3	3
Hartford (Public H.S.)	233	11	57	15	6	144	99	69	1.81	43	0	2
Hartford (Weaver H.S.)	91	3	15	8	8	57	30	53	1.96	12	0	15
Killingly High School	3	1	1	0	0	1	1	100	1.00	0	0	0
Lebanon (Lyman Memorial H.S.)	8	2	4	0	0	2	2	100	2.75	0	0	0
Litchfield High School	20	3	7	0	0	10	9	90	1.84	0	0	1
Madison (Daniel Hand H.S.)	37	0	28	1	0	8	4	50	1.79	4	0	0
Manchester High School	166	5	49	5	7	100	82	82	2.02	18	0	0
Meriden (Francis Maloney H.S.)	73	0	22	0	4	47	38	81	1.71	7	0	2
Meriden (Orville Platt H.S.)	85	1	20	2	0	62	53	85	1.51	5	3	1
Middletown High School	15	1	9	0	0	5	4	80	1.68	1	0	0
Middletown (Woodrow Wilson H.S.)	17	1	7	2	0	7	6	86	1.95	1	0	0
Milford High School	37	7	19	0	0	11	10	91	2.15	1	0	0
Milford (Jonathan Law H.S.)	88	27	15	5	15	26	16	62	1.91	5	5	0

School Totals	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Local High Schools (contd.)												
Monroe (Masuk H.S.)	82	1	31	5	1	44	33	75	1.92	6	1	4
Montville High School	82	3	13	6	3	57	53	93	1.72	2	0	2
Naugatuck High School	98	14	37	1	1	45	30	67	1.74	12	0	3
New Britain High School	135	6	37	9	1	82	67	82	1.93	10	1	4
New Britain (Pulaski H.S.)	73	3	16	5	3	46	30	65	1.95	9	2	5
New Canaan High School	12	0	10	0	0	2	1	50	2.00	1	0	0
New Haven (Wilbur Cross H.S.)	11	0	2	0	2	7	0	—	—	6	0	1
New Haven (James Hillhouse H.S.)	22	2	4	2	3	11	8	73	1.91	2	0	1
New London High School	49	6	6	0	0	37	31	84	2.13	5	0	1
New Milford High School	28	0	8	1	3	16	7	44	1.73	8	0	1
Newtown High School	51	3	11	1	2	34	25	74	2.05	9	0	0
North Haven High School	180	8	59	1	8	104	84	81	1.85	9	4	7
Norwalk High School	126	2	35	6	1	82	72	88	1.92	9	1	0
Norwalk (Brien McMahon H.S.)	50	0	17	0	0	33	31	94	1.94	2	0	0
Norwalk (Center Voc. Arts)	63	5	14	1	3	40	35	88	2.24	3	0	2
Norwich Free Academy	7	2	4	0	0	1	1	100	2.10	0	0	0
Old Saybrook High School	20	0	10	0	0	10	7	70	1.75	2	1	0

School Totals (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Local High Schools (contd.)												
Plainville High School	81	8	12	0	3	58	40	69	1.78	15	2	1
Plymouth (Terryville H.S.)	9	0	4	0	0	5	4	80	1.85	1	0	0
Portland High School	48	4	30	0	2	12	9	75	1.68	3	0	0
Ridgefield High School	50	0	30	0	2	18	17	94	1.70	1	0	0
Rocky Hill High School	35	2	12	0	4	17	15	88	2.06	2	0	0
Seymour High School	38	2	12	0	1	23	22	96	1.78	1	0	0
Shelton High School	101	2	30	14	0	55	32	58	1.89	11	2	10
Southbury High School	21	0	7	13	0	1	1	—	—	0	0	0
Southington High School	163	10	47	10	1	95	81	85	1.92	13	0	1
South Windsor High School	102	1	42	6	9	44	37	84	2.03	7	0	0
Stafford High School	37	1	14	0	0	22	14	64	1.88	7	0	1
Stamford High School	507	9	284	6	14	194	169	87	1.98	24	0	1
Stamford (Rippowam H.S.)	264	8	138	0	6	112	93	83	1.93	19	0	0
Stonington High School	34	2	12	0	1	19	14	74	1.90	5	0	0
Stratford High School	85	4	13	7	0	61	49	80	1.81	7	1	4
Stratford (Bunnell High School)	152	2	62	3	5	80	66	83	1.74	12	2	0
Suffield High School	46	4	20	0	1	21	18	86	1.82	2	0	1

School Totals	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Local High Schools (contd.)												
Thomaston High School	45	1	20	0	0	24	13	54	1.79	11	0	0
Torrington High School	34	0	13	0	0	21	15	71	1.92	4	1	1
Trumbull High School	208	3	82	29	1	93	83	89	1.78	10	0	0
Vernon (Rockville H.S.)	77	1	20	0	0	56	49	88	2.01	4	2	1
Wallingford (Lyman Hall H.S.)	134	9	48	2	0	75	56	75	1.87	9	7	3
Washington High School	12	0	5	0	0	7	4	57	1.75	3	0	0
Waterbury (Crosby H.S.)	36	4	9	5	2	16	16	100	1.80	0	0	0
Waterbury (Wilby H.S.)	29	3	9	1	0	16	13	81	1.79	3	0	0
Waterbury (Kennedy H.S.)	35	3	14	3	0	15	14	93	1.79	1	0	0
Watertown High School	71	5	18	0	1	47	40	85	1.98	6	1	0
Westbrook High School	4	0	1	0	0	3	3	100	1.60	0	0	0
West Hartford (Hall H.S.)	17	3	9	0	2	3	3	100	2.19	0	0	0
West Haven High School	192	4	23	0	0	165	138	84	1.69	16	11	0
Staples High School	66	6	17	7	2	34	32	94	1.98	1	1	0
Wethersfield High School	52	1	17	0	0	34	32	94	1.96	1	0	1
Wilton High School	19	1	11	0	1	6	0	—	—	6	0	0
Winchester (The Gilbert School)	72	0	28	5	7	32	24	75	1.65	3	0	5

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School Totals (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
Local High Schools (contd.)												
Windham High School	172	5	25	2	9	131	108	82	1.87	19	4	0
Windsor High School	29	4	5	1	1	18	14	78	1.99	3	0	1
Windsor Locks High School	52	2	9	1	0	40	34	85	1.84	6	0	0
Wolcott High School	42	0	12	0	2	28	26	93	1.84	2	0	0
Woodbury High School	16	1	11	0	0	4	3	75	2.17	0	1	0
Regional High Schools												
Housatonic Valley (Reg. Dist. #1)	7	1	2	0	0	4	4	100	2.13	0	0	0
Valley (Reg. Dist. #4)	37	3	16	0	2	16	15	94	1.67	1	0	0
Amity (Reg. Dist. #5)	141	0	119	6	0	16	13	81	1.70	3	0	0
Wamogo (Reg. Dist. #6)	50	5	20	0	4	21	14	67	1.87	6	0	1
Regional District #7	16	0	4	1	2	9	6	67	1.77	1	0	2
Rham (Reg. Dist. #8)	33	5	10	0	7	11	7	64	1.87	2	0	2
Joel Barlow High School	16	0	6	0	0	10	10	100	1.81	0	0	0
Lewis S. Mills (Reg. Dist. #10)	27	0	8	2	0	17	17	100	2.00	0	0	0
Woodbury (Reg. Dist. #14)	17	0	3	5	0	9	7	78	1.69	1	1	0

School Totals	Total No. of Graduates	Entered Armed Service	Continued Training in Full-Time School	Status Unknown	Other	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13)	Employed In Occupation for Which Trained or in Related Occupation			Unrelated Occupation	Part-Time	Unemployed
							Number	Percent	Mean Hourly Wage			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Other High Schools												
Hamden-New Haven High School	16	0	0	1	15	0	0	—	—	0	0	0
E.O. Smith High School	14	1	6	0	0	7	7	100	2.02	0	0	0
American School for the Deaf	19	0	1	1	0	17	17	100	1.99	0	0	0
Total (high schools)	7805	369	2575	330	249	4282	3465	81	1.85	637	70	110
State Technical Colleges												
Hartford	100	6	46	7	0	41	41	100	3.18	0	0	0
Norwalk	185	23	58	12	3	89	88	99	3.32	0	0	1
Thames Valley	59	11	12	1	0	35	34	97	3.39	1	0	0
Waterbury	102	9	54	0	0	39	39	100	3.17	0	0	0
Total	446	49	170	20	3	204	202	99	3.22	1	0	1

School Totals (1)	Total No. of Graduates (2)	Entered Armed Service (3)	Continued Training in Full-Time School (4)	Status Unknown (5)	Other (6)	Available for Employment (Col. 2 minus 3, 4, 5, and 6) (Col. 8 plus 11, 12, and 13) (7)	Employed In Occupation for Which Trained or in Related Occupation: Number (8)	Percent (9)	Mean Hourly Wage (10)	Unrelated Occupation (11)	Part-Time (12)	Unemployed (13)
State and Community Colleges												
Central Conn. State College	26	0	0	0	0	26	24	92	2.23	1	0	1
Manchester Community College	52	1	16	10	2	23	20	87	2.24	3	0	0
Northwestern Community College	35	0	22	4	0	9	8	—	—	0	1	0
Norwalk Community College	58	6	16	3	3	30	29	97	2.71	0	0	1
Middlesex Community College	20	3	13	0	0	4	3	75	2.67	0	1	0
Ratcliffe-Hicks School of Agri., UConn.	49	5	12	8	0	24	24	100	2.33	0	0	0
Total	240	15	79	25	5	116	108	93	2.41	4	2	2
GRAND TOTAL	10,546	672	3144	419	287	6024	5044	84	2.03	760	93	127

VT 010 482
Questionnaire for Review of Curricula in Engineering Technology.

Engineers' Council for Professional Development, Inc., New York, N.Y. Engineering Technology Committee.
MF AVAILABLE IN VT-ERIC SET.
Engineers Council for Professional Development, 345 East 47th Street, New York, New York 10028.
PUB DATE - ND 26p.

DESCRIPTORS - *ENGINEERING TECHNOLOGY; TECHNICAL EDUCATION; *QUESTIONNAIRES;

ABSTRACT - Introductory material describes types of accreditation granted for approved curriculums in engineering technology by the Engineers' Council for professional Development. Procedures are also given for institutions to follow in obtaining council accreditation. The major portion of the document consists of the questionnaire to be completed by the institution for submission to the council. Sections request information concerning administrative organization, funding, faculty policy, physical facilities, admission requirements, graduation requirements, and placement services. Related documents are ED 039 324 or VT 010 481 (Aim Spring 1971) and VT 010 483 (also in this issue). (GR)

VT 010 482

ED0 57254

QUESTIONNAIRE FOR REVIEW
of
CURRICULA IN ENGINEERING TECHNOLOGY

Submitted by

_____

(Name of Institution)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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Date

to the

Engineering Technology Committee

of the

Engineers' Council for Professional Development, Inc.

United Engineering Center
345 East 47th Street, New York, New York 10017

Representing

American Institute of Aeronautics and Astronautics, Inc.
American Institute of Chemical Engineers
American Institute of Industrial Engineers, Inc.
American Institute of Mining, Metallurgical and Petroleum Engineers
American Nuclear Society
American Society of Agricultural Engineers
American Society of Civil Engineers
American Society for Engineering Education
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Engineering Institute of Canada *(Affiliate)*
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VT019482

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ENGINEERS' COUNCIL
FOR PROFESSIONAL DEVELOPMENT
Engineering Technology Committee
Questionnaire for Review of Curricula in Engineering Technology

INTRODUCTION

TYPES OF ECPD RECOGNITION

An institution may request one of three types of ECPD recognition. The granting of one type of recognition does not mean automatic advancement to the next.

Reasonable Assurance of Accreditation. Reasonable Assurance of Accreditation is designed to provide guidance in the initial development of a new curriculum or program, or in changing the goals of an existing curriculum or program to meet Engineering Technology objectives. Reasonable Assurance of Accreditation is an acknowledgment, in the planning state of a new program, that the financial support is adequate and the organizational plans and philosophy, the existing and planned personnel, and the academic program, including laboratories, have been examined and found to be sound.

Candidate for Accreditation. Candidate for Accreditation status may be requested when the Engineering Technology curriculum or program has been in operation for a year or more. It may serve as a guidance or check point prior to applying for curriculum accreditation. However, neither Reasonable Assurance of Accreditation nor Candidate for Accreditation status is a requirement for accreditation.

Accreditation. Accreditation of an Engineering Technology curriculum by ECPD constitutes a public acknowledgment that the curriculum, the faculty, the facility, and the institutional policy have been searchingly evaluated in terms of published definitions and criteria and have been found to be accomplishing the objectives claimed for it and that these objectives are considered to be appropriately within the scope of Engineering Technology.

Evaluation for accreditation may be requested when the curriculum has been in operation long enough to have graduates employed in industry.

Re-evaluation for accreditation is required periodically to assure ECPD standards are being maintained and that the curriculum is being kept abreast of developments in the field.

Use of Questionnaire. The completion of Section One is required for applicants seeking Reasonable Assurance of Accreditation for their curricula and for those seeking Candidate for Accreditation status. The completion of Sections One and Two of this questionnaire is required for the Accreditation or Re-accreditation of Engineering Technology curriculums.

ACCREDITING PROCEDURE

An institution desiring the evaluation of one or more curricula in engineering technology for recognition in any of the above categories should communicate with the Secretary of the Engineering Technology Committee in the office

of the Engineers' Council for Professional Development, United Engineering Center, 345 East 47th Street, New York, New York, 10017. This will bring action by the Engineering Technology Committee through which appropriate arrangements with reference to the requested visitation will be completed with the institution. The Committee usually functions on a regional basis, and visitation arrangements should be completed directly between the Regional Chairman and the Institution. A visiting Committee normally is led by the Regional Chairman or Vice-Chairman responsible for the Region in which the applying Institution is situated. The Visiting Committee will consist of members representing ECPD's constituent bodies, and/or personnel from the listing of Personnel for ad hoc Visiting Committees as published in the ECPD Annual Report, selected to assure qualified specialists in the various areas to be covered in the visitation.

ACTION FOLLOWING VISITATION

Immediately after the visit to the institution, the Visiting Committee reports in writing to the Engineering Technology Committee. The Chairman of the Engineering Technology Committee will provide the President of the institution a comprehensive report of the findings of the visiting committee. The President may respond if he chooses to correct any misstatements of fact or provide additional information. The Engineering Technology Committee reviews the Visiting Committee reports and all other available information.

PERIOD OF ACCREDITATION

Accreditation of a curriculum is granted for a limited period varying from one to six years, with reappraisal by report or visit at the end of the period. Visitations are required at intervals of no longer than six years. If a re-visitation is to be made, it must be requested by the institution. Accreditation is based upon conditions as they exist at the time of the visit. When conditions are found which fail to meet minimum requirements at the time of an initial visit, accreditations will be withheld. When such conditions are found in a curriculum which is accredited, accreditation may be granted for the minimum time considered necessary to correct the weaknesses or deficiencies and at the end of this time accreditation may be terminated. Such unsatisfactory conditions may include uncertainty about financial status, instability due to nature of administrative organization, need for additions to or improvements in staff or equipment, uncertainty because of a changing curriculum, and undue dependence upon a single individual.

BASIS FOR ACCREDITING

The qualitative and quantitative criteria on which accreditation is based are published in the Annual Report of ECPD in connection with the list of accredited curricula. Please consult the latest Annual Report for the criteria currently in effect.

Attention is called to the usual requirement that the institution must—with a single exception—have accreditation of the relevant regional accreditation association for accreditation by ECPD in Engineering Technology. When a school shows in writing that the region does not give consideration for accreditation to a school of its class or type, exception can be granted. In the event of a school having status of "Candidate for Accreditation" with a regional association, it can be considered for a similar status by the Engineering Technology Committee. In such a case, the school must then obtain regional accreditation before visitation for engineering technology accreditation.

DISTRIBUTION OF QUESTIONNAIRE

With each completed copy of this Questionnaire should be assembled a copy of the latest general catalog of the institution covering course details and other institutional information, a copy of the most recent financial statement, and one copy each of published descriptive or promotional literature.

These sets of materials should be completed and distributed as soon as possible as follows:

1. One to the Chairman of the Engineering Technology Committee.
2. One to the Vice Chairman for Operations of the Engineering Technology Committee.

3. One retained in the institutional files.
4. One to Committee Secretary at the New York Office.
5. The remainder (one for each curriculum being submitted, plus one) to the Regional Chairman.

TIMING OF COMMITTEE VISITS TO INSTITUTION

Because of the time required for a visitation team to analyze, evaluate, and write a comprehensive report on its findings, after an institutional visit, no invitation by an institution for a visitation after April 20th will be accepted.

Normally such visitations are scheduled between October 15th and April 20th with preference on the earlier dates, to avoid last minute rushes and possible delay of the team visit for another year.

Visitations to institutions seeking Candidate or Reasonable Assurance status may occur outside of the schedule suggested above. Special arrangements should be made well in advance for these visits with the Regional Chairman.

SECTION ONE

NOTE: Since Section One applies to all categories of recognition, answer questions in terms of time limits applicable. Information supplied by this Questionnaire, or by other means related to it, is solely for the confidential use of Engineers' Council for Professional Development and its authorized agents, and will not be disclosed without written authorization of the institution concerned.

I. THE INSTITUTION AS A WHOLE:

A. General Information:

Name of Institution _____ Date _____

Address _____
(Street) (City) (Zone) (State)

Name of President _____

Name and official position or person submitting completed questionnaire:

_____
(Name) (Position)

B. Type of Control (check more than one if necessary):

- ☐ Privately endowed
- ☐ Denominational
- ☐ (State denomination) _____
- ☐ Proprietary
- ☐ Municipal
- ☐ State
- ☐ County
- ☐ Federal
- ☐ Junior College
- ☐ College
- ☐ University

If above classifications do not apply properly to institution, please describe its type of control:

C. Name of Regional Organization by which Accredited

D. Request is made for: Check One

1. Reasonable Assurance for Accreditation ☐
2. Candidate for Accreditation ☐
3. Accreditation or Re-accreditation ☐
4. Advice please, which should apply ☐

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Institution _____ Date _____

E. Finances:

Indicate approximate amount and percentage distribution for current year (left-hand column) and for the year of the last previous ECPD inspection (or five years ago if this is an initial inspection) of the total operating income for the entire institution from the following sources. (Exclude funds for additions to plant.)

Source	19	19	19	19
	Amount ($)	%	Amount ($)	%
Tuition Fees				
Other Student Fees*				
Endowment Income				
Voluntary Public Support				
State Support				
Municipal Support				
County Support				
Federal Support				
Other				
Other				
Other				
Other				

*For instruction. Not to include income from rooms, meals, athletic fees, bookstore, etc.

II. GENERAL INFORMATION REGARDING THE ENGINEERING TECHNOLOGY UNIT:

A. Administrative Head

_____

(Name) (Title)

B. Type of Organization:

(1) Independently organized college or technical institute (not a division within a university).

(2) School, or Division within a college or university under an administrative head (e.g. Dean or Director) reporting directly to president or to equivalent executive officer.

(3) Separate evening division and not under same administration as full-time day division.

(4) Or other.

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Institution _____ Date _____

C. Research Organizations

Describe any research activities, institutes, or other related facilities which are part of the Engineering Technology Unit or which closely affect its operation.

D. Curricula Offered and Degrees Granted (Directions for page 7)

The first column should list all degrees or credentials conferred and the second column lists the professors in charge of each department.

The third column should list all curricula in Engineering Technology. Options should be listed separately when they are submitted for separate listing in the ECPD Annual Report and thus require separate evaluators. If day, evening, and/or co-operative curricula in a given field are not substantially identical, or if less than 75% of the courses are taught by the regular day faculty, the curricula should be listed on separate lines in anticipation of separate evaluators.

Institution _____ Date _____

CURRICULA OFFERED

Degree or Credential Conferred	Professor in Charge	Curriculum	Day	Eve	Coop	Full Time	Part Time	Submitted for Evaluation		Offered, not Submitted for Evaluation	
								Now Accredited	Not Now Accredited	Now Accredited	Not Now Accredited

Institution _____ Date _____

III. FINANCES RELATED TO ENGINEERING TECHNOLOGY UNIT:

A. Allotment of Funds

Indicate below the operating funds allotted to the Engineering Technology Unit during the current year and during the year of the last previous ECPD inspection (or five years ago if this is an initial inspection). (Exclude funds for addition to plant.)

Purpose	Amount	
	19 -19	19 -19
Administrative Salaries and Expenses		
Salaries – Teaching		
Other Salaries		
New Equipment		
Replacements		
Maintenance		
Supplies		
Library*		
Scholarship Awards		
Research		
Taxes		
Promotional Expense		
Other (Specify Each)		
Total	$	$

* Engineering technology library, whether administered in engineering technology division or by central library.

Institution _____ Date _____

B. Salary and Expense Appropriations

Give salary and expense appropriations, for the latest year for which such information is available, for all departments, **other than degree-granting engineering technology departments,** that provide a major portion of the instruction for engineering technology students, indicating whether the departments serve only the Engineering Technology Unit or the entire institution. Indicate the number of members of the teaching staff in each department in terms of equivalent numbers of full-time teachers (e.g., equivalence of three half-time members is 1½). Include all engineering technology departments (e.g., Mechanics, Drawing, Shops, etc., if organized as separate departments).

If the figures cover more than one program, e.g., full-time day program plus evening program, please provide data for each program separately on supplementary sheets.

Year 19 -19

Department	*Department Serves		Teaching Staff	Appropriations		
				Salaries		Expenses and Equipment
	Eng. Technology Unit only	Entire Institution		Instruction	Other	
Mathematics						
Physics						
Chemistry						
Geology						
History						
English						
Economics						
Others (Specify)						

*If not applicable, explain or substitute an appropriate page.

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Institution _____ Date _____

C. Departmental Appropriations, **degree-granting engineering technology departments.** Normal operating expenses only should be included; large items of new equipment, new construction, and scholarships are not to be included.

If the figures cover more than one program, e.g., full-time day program plus evening program, please provide data for each program separately on supplementary sheets.

Year 19 - 19

Department	Number of Teaching Staff			Appropriations		
	Full-time		Part-time*	Salaries		Expenses and Equipment
	In Residence	Number of Resignations in Last Five Years		Instructions	Other	

*Give in terms of equivalent number of full-time teachers (e.g., equivalence of three half-time members is 1½).

Institution _____ Date _____

IV. ENGINEERING TECHNOLOGY FACULTY SALARIES, TENURE, RETIREMENT, AND OTHER POLICIES:

A. Salary Ranges

Indicate below the range of salaries paid at the present time to staff in various ranks in the Engineering Technology Unit and the number of individuals in each rank. State period of annual appointment on which these salary figures are based, i.e., 9 months, 10 months, 12 months.

Period _____

Rank	Number	Salary Range			Number of Resignations in Last Five Years
		Maximum	Minimum	Average	
Professors					
Associate Professors					
Assistant Professors					
Instructors					
Teaching Assistants					
Other (Specify Rank)					

B. Pension and Retirement Plan

*Describe briefly the nature of the pension and retirement plan in effect in the Engineering Technology Unit.

C. *Policy of Tenure

For each rank give the customary term in years of staff appointment (i.e., one year, five years, indefinite, etc.) and indicate the conditions under which the appointment involves tenure.

Professor _____ Associate Professor _____

Assistant Professor _____ Instructor _____

*Formal written policies may be attached to this questionnaire in lieu of answering any or all of these questions.

Institution _____ Date _____

D. Policy Regarding Consulting Work

*Describe policy toward private consulting work, sponsored research projects, and extra compensation.

E. Policy Regarding Attendance at Society Meetings

*Describe policy toward permission to attend meetings of local or state and national professional societies and allowance of travel expenses for such meetings.

*Formal written policies may be attached to this questionnaire in lieu of answering any or all of these questions.

V. PHYSICAL FACILITIES

A. Additions to Technology Unit

Indicate approximate value of additions to the physical facilities of the Engineering Technology Unit made since the last inspection in 19..... If not previously inspected, indicate cost of additions made during the past five years.

	Buildings	Equipment
Approximate value of additions	$ _____	$ _____
Approximate present total value[1]	$ _____	$ _____

[1]Give basis of valuation, i.e., cost, book value, insurance, etc. _____

_____

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Institution _____ Date _____

B. Additions to Laboratories

Indicate the approximate value of additions to laboratory equipment and increases in the area of laboratory space made available to each engineering technology department since the last inspection in 19..... (or in the past five years if this is an initial inspection).

Department	Approximate value of equipment added	Approximate present total value of equipment	Increase in area of laboratory space	Present total area of laboratory space
	$	$	sq. ft.	sq. ft.

C. Additions to Physical Facilities

Describe below significant additions within the past five years to the physical facilities of the entire institution that are used in connection with the instruction of engineering technology students or are of importance to the work of the Engineering Technology Unit.

Institution_____ Date _____

D. Library Acquisitions

1. Indicate the approximate number of acquisitions since the last inspection in 19.....(or in the past five years if this is an initial inspection) and the present total number of books and bound periodicals.

	Added		Total	
	Books	Periodicals	Books	Periodicals
Entire Institutional Library				
In the following fields (included above) Engineering and Related				
Chemistry				
Mathematics				
Physics				
Other				

2. Give appropriation to the library for the most recent year for which such information is available, and indicate the amounts allotted for books and periodicals in the field of engineering technology.

Year 19 -19

Total Library Appropriation _____

For engineering books _____

For engineering and related periodicals_____

3. Are there separate engineering collections located in the various technology departments or are all volumes housed in the central library? Please explain arrangement.

4. During what hours are library facilities available to engineering technology students? When is reference service available? Are the stacks open?

5. Describe the professional services of trained library staff available and assigned primarily to Engineering Technology Unit.

Institution _____ Date _____

VI. ENROLLMENT AND DEGREE DATA:

Give below enrollment figures for the first term of the current academic year, and undergraduate degrees conferred during preceding year (19 –19).

List separately for day, co-op and evening.

Eng. Technology Curriculum	Enrollment Year					Degrees Conferred		
	1st	2nd	3rd	4th	Other	Associate	Bachelor	Other
Totals, Engineering Technology Division								
Totals, Entire Institution								

Comments, if any:

Institution _____ Date _____

VII. ADMISSION REQUIREMENTS

A. Principal Bases for Admission

Indicate below in order of importance the principal bases of admission into the Engineering Technology Unit (e.g., College Entrance Board Examination; State Board Examination; Certification from Secondary Schools, specifying portion of class and basis of approval of schools; Aptitude Test, etc.). Give approximate percentage of students admitted under each plan. If admission requirements to the evening or co-operative curricula are different, please explain.

B. Special Qualitative Requirements

Describe any special qualitative requirements, such as admission of specified segments of graduating class from the secondary school, special emphasis upon grades in Mathematics or English, etc.

C. Changes in Requirements During Past Five Years

Describe any changes in requirements for admission to school or division of Engineering Technology Unit since the date of last visitation or during past five years if this is an initial visitation.

Institution _____ Date _____

D. Policy on Admission with Conditions

Explain the policy of the institution in admitting students with conditions, and state how conditions must be made up.

E. Policy Regarding Admission with Advanced Standing

Describe the general policy and methods of the Engineering Technology Unit in regard to admission with advanced standing. How are credits available (if any are allowed) for courses taken in curricula not accredited by ECPD?

F. How often are students admitted each year?

G. Describe Guidance Service rendered to students.

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Institution _____ Date _____

VIII. REQUIREMENTS FOR GRADUATION

A. Average Grade Required

What average grade is required for graduation? _____

B. In Evening and/or Cooperative Program

Describe briefly the administrative and academic procedures utilized to supervise evening and/or cooperative programs and to coordinate them with day programs. Especially, please explain differences and effects on graduation.

C. Bachelor's Degree

If a bachelor degree in engineering technology is offered, explain if it is an integrated four-year program, or if it is an extension of an associate degree program. Are credits from other ECPD accredited curricula accepted?

Institution _____ Date _____

D. Graduation Requirements in Each Curriculum:

One semester credit hour represents a total of three preparation and class hours of work per week for a period of 14 to 16 weeks depending on the length of the institution's school year. Quarters are proportional. School year is _____ weeks long.

Curriculum _____

Type: Day ☐ Evening ☐ Cooperative ☐

Credits: Semester ☐ Quarter ☐

	Courses	Required Credit Hours: Courses	Required Credit Hours: Sub-Totals
Mathematics			
Basic Sciences			
Written and Oral Communications			
Humanities and Social Sciences			

Institution _____ Date _____

	Courses	Required Credit Hours Courses	Sub-Totals
Technical Courses			
Physical Education & ROTC			
Other Non-technical Courses			
Co-op Work when Applicable			
	Total		

E. Have students been graduated from this curriculum? Yes ☐ No ☐

Institution _____ Date _____

IX. INFORMATION REGARDING FACULTY

A. Furnish for each engineering technology department a tabulation of teaching assignments for this academic year, listing for each faculty member the courses taught each term, hours of lecture, recitation, and laboratory, number of sections, and total contact hours.

B. On separate sheets of plain paper to be bound into the questionnaire immediately following part A, furnish the following information for each person holding an academic appointment in the engineering technology division whose work affects a curriculum for which accreditation is requested. Please arrange these sheets alphabetically within each department listing departments alphabetically.

1. Name
2. Department
3. Age
4. Academic rank. (State whether full-time or part-time, and if part-time indicate his non-academic activity.)
5. Degrees. (State field, institution and date.)
6. Number of years service on this faculty.
7. Other teaching experience. (State capacity, where, when?)
8. Full-time industrial experience. (State where, when, and in what capacity?)
9. Part-time industrial experience. (State where, when, and in what capacity?)
10. Professional recognition: (a) Indicate whether registered as Professional Engineer, and, if registered name the States of registry; (b) if certified by NSPE Institute for Certification of Engineering Technicians, indicate date and classification.
11. Consulting work.
12. Principal publications of last five years. (Give titles and references.)
13. Scientific and professional societies of which a member. (State grade, any offices held and committee assignments.)
14. Honors and Awards.
15. Other duties performed for regular base salary during academic year, with average hours per week:
16. Other duties performed for extra compensation during academic year, with average hours per week:
17. Recent summer assignments not shown above:
18. Any other pertinent information:

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Institution _____ Date _____

SECTION TWO

X. OBJECTIVES AND SELF-APPRAISAL (Use extra sheets if more space is required.)

A. State the objectives which the institution endeavors to achieve by offering each of the curricula which are being submitted. Include needs the curricula are designed to meet.

B. Describe any recent studies which the institution has made to determine the extent to which it is meeting its objectives.

C. Describe any evidence which indicates that graduates of the curricula being submitted have performed capably in industry, and/or in advanced educational programs. Discuss the nature and level of work assignments into which a substantial majority of graduates of each curriculum go.

D. If suggestions for changes were made by ECPD following a previous visitation please refer to them and indicate the action taken by the institution in each case.

E. Describe any significant developments which have occured since the previous ECPD visitation (or during the past five years), not included earlier in the questionnaire.

F. Indicate any significant plans which are being made for future developments of the programs of instruction and research.

G. Make a listing of the subtractions, additions and revisions to the administrative staff of the technology unit (or institution) since the previous ECPD visit, or during the past five years. State reasons.

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Institution _____ Date _____

XI. PLACEMENT SERVICES

Describe the institution's placement services, and indicate measures for co-ordinating the work of the Technology Unit with industries and other agencies served.

Provide a complete listing of the last graduating class (give date) for each curriculum being submitted, indicating for each graduate the name, address, and contact person for his employer. In addition, provide the same information for not more than thirty graduates of five preceding years for ECPD contact.

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VT 010 483
Manual of Evaluation Procedures and Instructions.

Engineers' Council for Professional Development, Inc., New York, N.Y. Engineering Technology Committee.
MF AVILABLE IN VT-ERIC SET.
Engineers Council for Professional Development, 345 East 47th Street, New York, New York 10028.
PUB DATE - 69 40p.

DESCRIPTORS - *ACCREDITATION (INSTITUTIONS); EVALUATION CRITERIA; *EVALUATION TECHNIQUES; *CURRICULUM EVALUATION; *ENGINEERING TECHNOLOGY; TECHNICAL EDUCATION; GUIDELINES; RECORDS (FORMS); *MANUALS

ABSTRACT - This manual outlines procedures for evaluation teams to use in determining whether a school's engineering technology curriculum is deserving of the Engineers' Council for Professional Development (ECPD) accreditation. Duties and responsibilities of evaluation team members are discussed, and guidelines are given for preparing and submitting the necessary reports. Before using this manual, the evaluator must first become familiar with the official objectives, procedures, and criteria for accreditation which appear in the current annual report of ECPD. Various sample forms for use by the evaluating team are appended. (GR)

VT 010 483

ED0 57254

MANUAL OF EVALUATION PROCEDURES AND INSTRUCTIONS

Engineering Technology Committee

of the

Engineers' Council for Professional Development, Inc.

United Engineering Center
345 East 47th Street, New York, New York 10017

Representing

American Institute of Aeronautics and Astronautics, Inc.
American Institute of Chemical Engineers
American Institute of Industrial Engineers, Inc.
American Institute of Mining, Metallurgical and Petroleum Engineers
American Nuclear Society
American Society of Agricultural Engineers
American Society of Civil Engineers
American Society for Engineering Education
The American Society of Mechanical Engineers
The Institute of Electrical and Electronics Engineers, Inc.
National Council of Engineering Examiners
Society of Automotive Engineers
Engineering Institute of Canada *(Affiliate)*
National Institute of Ceramic Engineers *(Affiliate)*
National Society of Professional Engineers *(Affiliate)*

REVISED - 1969

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OFFICE OF EDUCATION
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VT010483

ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT, INC.

ENGINEERING TECHNOLOGY COMMITTEE

MANUAL OF EVALUATION PROCEDURES AND INSTRUCTIONS

1969

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I. FOREWORD

It should be emphasized that each individual member of an Evaluation Team is acting on behalf of the entire professional membership of ECPD's constituent member societies. He carries a serious responsibility at a high professional level. He is expected to provide expert knowledge concerning engineering technology curricula and practice; careful preparation and skill to determine all important relevant facts; breadth of outlook and sympathy in order to understand the institution's objectives and the relation of these objectives to the environment in which it works; sound judgment, wisely and sympathetically, yet objectively, exercised; oftentimes courage; and a full sense of responsibility to professional ideals, to the welfare of the institution, to ECPD, and to himself as a professional man and as an individual. A member of an Evaluation Team must be prepared to give real time and effort to his task, but can expect to find the activity to be a challenging, stimulating, and rewarding experience.

II. INTRODUCTION

The purpose of this manual is to provide information which should be helpful to those persons who participate as members of Evaluation Teams representing the Engineering Technology Committee of ECPD, either alone or in conjunction with accreditation teams of regional associations, and to the institutions which have requested an evaluation by ECPD. The official objectives, procedures, and criteria for accreditation appear in the annual report of ECPD. Each Visitor and institutional staff and faculty member should make himself familiar with these statements in the current annual report.

The guiding principle of these procedures and criteria is the desire to achieve a sound *engineering technology* education for the student. Only those curricula which can legitimately claim to lead towards a first degree in some recognized field of engineering technology are within the scope of ECPD.

An *Engineering Technology Curriculum* is a planned sequence of college-level courses, leading to an associate or baccalaureate degree, designed to prepare students to work in the field of engineering technology.

Other curricula containing lesser amounts of engineering technology subject matter may be a good educational experience for the student, but they should not appear on a list of ECPD-accredited curricula in engineering technology.

The fundamental policy of ECPD is to accredit curricula rather than institutions. Although each curriculum is evaluated separately, consideration also is given to administrative and other institutional factors as they affect the curriculum.

The quantitative criteria are not to be considered as indicating a list of required courses, but rather the listing is a guide to subject matter which is desirable for inclusion in varing amounts in all curricula that claim to be engineering technology curricula. The Engineering Technology Committee desires to avoid making any specifications that would tend to put engineering technology curricula into one standard pattern. The Committee always will give sympathetic consideration to well-considered experimentation in engineering technology curricula.

Prior to the visit, each member of the Team will have received a copy of the completed questionnaire as prepared by the appropriate officials of the institution that is being visited. Each Visitor should make it his business to be familiar with this questionnaire prior to the visit, so that items which should be questioned can be discussed by the Team as a whole at its first meeting.

The purposes for an on-the-spot visit to supplement the questionnaire for accrediting purposes are threefold:

First, an Evaluation Team is able to assess qualitatively as well as quantitatively those factors that cannot be documented in a written questionnaire. These might include such items as the intellectual atmosphere, the morale of the staff, the caliber of the student body, the character of the work performed, and other intangible factors.

Second, the Evaluation Team should help the institution assess its weak points as well as its strong points.

Third, to examine in detail the material compiled by the institution.

III. TYPES OF ECPD RECOGNITION

An institution may request one of three types of ECPD recognition. The granting of one type of recognition does not mean automatic advancement to the next.

A. REASONABLE ASSURANCE OF ACCREDITATION. Reasonable Assurance of Accreditation is designed to provide guidance in the initial development of a new curriculum or program, or in changing the goals of an existing curriculum or program to meet Engineering Technology objectives. Reasonable Assurance of Accreditation is an acknowledgment, in the planning state of a new program, that the financial support is adequate and the organizational plans and philosophy, the existing and planned personnel, and the academic program, including laboratories, have been examined and found to be sound.

B. CANDIDATE FOR ACCREDITATION. Candidate for Accreditation status may be requested when the Engineering Technology curriculum or program has been in operation for a year or more. It may serve as a guidance or check point prior to applying for curriculum accreditation. However, neither Reasonable Assurance of Accreditation nor Candidate for Accreditation status is a requirement for accreditation.

NOTE: The first two types of evaluation procedures may be requested by educational institutions such as technical institutes, junior colleges, senior colleges and universities, or similar educational agencies planning to establish programs in engineering technology with the intent of being recognized as having reasonable assurance of, or as candidates for, accreditation by the Engineers' Council for Professional Development for appropriate curricula.

Newly established engineering technology programs may exist at one of two stages. If a program exists as a plan rather than as an actuality, it can be considered for the status of "Reasonable Assurance of Accreditation". An operating institution, which has yet to graduate its first class, may request status as a "Candidate for Accreditation".

Acceptance in the status of Reasonable Assurance or as a Candidate is not accreditation, nor a promise of it. Preliminary recognition of an engineering technology program for accreditation by the Engineers' Council for Professional Development is simply an acknowledgment, before the new program has had time to qualify for accreditation, that the financial support is adequate; and the organizational plans and philosophy, the existing and planned personnel, and the academic program including laboratories have been examined and found to be sound.

The decision on whether or not to recognize the institution's programs is based largely on the submission of statements required as evidence of readiness for the preliminary evaluation, and an on-campus visit by two or more evaluators from the Engineering Technology Committee of the Engineers' Council for Professional Development. The time for the visit is selected after consultation with the institution. The Evaluation Team will ordinarily spend two days at the institution and make a detailed written report of its findings to the Engineering Technology Committee.

The statements required as evidence of readiness for preliminary evaluation by the Engineers' Council for Professional Development is prepared through the completion of the "Questionnaire for Review of Curricula in Engineering Technology" and will include: (1) a justification of the need to establish the particular engineering technology program in the region concerned; (2) statements covering the educational authority and the financial support of the program; (3) a statement of building plans or modifications including both a building budget and an estimated operating budget for the program; (4) curricula and course descriptions; (5) a listing of laboratories, both currently available and proposed, including lists of major equipment; (6) a statement covering library facilities applicable to the program; (7) a listing of faculty qualifications and salary scales; (8) a statement of entrance requirements for students enrolling in the program; (9) a statement indicating the length of the curriculum and completion document to be awarded; (10) a time schedule for the completion of the above items as applicable; and (11) other information as required by the Evaluation Committee.

Following the evaluation of the engineering technology curricula, the Chairman of the Engineering Technology Committee of the Engineers' Council for Professional Development (after a conference with the Vice Chairman for ETC Operations, and based upon the report and recommendation of the Chairman of the Evaluation Committee) will provide the institution with a letter of acceptance or rejection of the program for recognition by the Engineers' Council for Professional Development, and an analytical report including recommendations and suggestions for improvements.

Recognition for accreditation of an engineering technology program may remain in effect on a year-to-year basis by action of the Engineering Technology Committee. This action will be based upon the acceptance of a progress report to be prepared by the institution. It is a matter of accepted policy that early recognition is given only with full accreditation as the ultimate objective.

Engineering technology programs recognized for Reasonable Assurance of Accreditation or Candidate for Accreditation will not be included by the Engineers' Council for Professional Development in any published listing. The institution will not be permitted to publicize any statement of these two types of recognition, nor to issue any statement of accreditability of the curricula involved, other than to governmental agencies.

Procedures for the evaluation of an engineering technology program, to determine the institution's eligibility for recognition will not be initiated by the Engineers' Council for Professional Development except upon receipt of a written request from the institution. Such written request must be received from the chief administrative officer of the college or university, junior college, or technical institute, and should state that the institution is seeking appropriate recognition status for its engineering technology program and that it desires to have the En-

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gineers' Council for Professional Development evaluators visit the campus following the submission of statements required as evidence of readiness for such preliminary evaluation.

The fees charged to an institution seeking review of a new program for Reasonable Assurance of Accreditation or Candidate for Accreditation will be entirely separate from any fees charged for accreditation of the program or curricula at a later date. Information on fees charged may be obtained from the Secretary of the Engineering Technology Committee, ECPD Headquarters, in New York City.

C. ACCREDITATION. Accreditation of an Engineering Technology curriculum by ECPD constitutes a public acknowledgment that the curriculum, the faculty, and the institutional policy have been searchingly evaluated in terms of published definitions and criteria and have found to be accomplishing the objectives claimed for it and that these objectives are considered to be appropriately within the scope of Engineering Technology.

Evaluation for accreditation may be requested when the curriculum has been in operation long enough to have graduates employed in industry.

Re-evaluation for accreditation is required periodically to assure ECPD standards are being maintained and that the curriculum is being kept abreast of developments in the field.

IV. ACCREDITING PROCEDURE

An institution desiring the evaluation of one or more curricula in engineering technology for recognition in any of the above categories should communicate with the Secretary of the Engineering Technology Committee in the office of the Engineers' Council for Professional Development, United Engineering Center, 345 East 47th Street, New York, New York 10017. This will bring action by the Engineering Technology Committee through which appropriate arrangements with reference to the requested evaluation will be completed with the institution. The Committee usually functions on a regional basis, and visitation arrangements should be completed directly between the Regional Chairman and the institution. An Evaluation Committee normally is led by the Regional Chairman or Vice-Chairman responsible for the region in which the applying institution is situated. The Evaluation Committee will consist of members representing ECPD's constituent bodies, and/or personnel from the listing of Personnel for *ad hoc* Visiting Committees as published in the ECPD Annual Report, selected to assure qualified specialists in the various areas to be covered in the evaluation.

A. ACTION FOLLOWING VISITATION

Immediately after the visit to the institution, the Evaluation Committee reports in writing to the Engineering Technology Committee. The Chairman of the Engineering Technology Committee will provide the President of the institution with a comprehensive report of the findings of the Evaluation Committee. The President may respond if he chooses to correct any misstatements of fact or provide additional information. The Engineering Technology Committee reviews the Evaluation Committee reports and all other available information. The Engineering Technology Committee presents its recommendations to ECPD. The President of the visited institution is notified action taken by ECPD after the July or October meeting.

B. PERIOD OF ACCREDITATION

Accreditation of a curriculum is granted for a limited period varying from one to six years, with reappraisal by report or visit at the end of the period. Visitations are required at intervals of no longer than six years. If a re-visitation is to be made, it must be requested by the institution. Accreditation is based upon conditions as they exist at the time of the visit. When conditions are found which fail to meet minimum requirements at the time of an initial visit, accreditation will be withheld. When such conditions are found in a curriculum which is accredited, accreditation may be granted for the minimum time considered necessary to correct the weaknesses or deficiencies and at the end of this time accreditation may be terminated. Such unsatisfactory conditions may include uncertainty about financial status, instability due to the nature of administrative organization, need for additions to or improvements in staff or equipment, uncertainty because of a changing curriculum, and undue dependence upon a single individual.

V. BASIS FOR ACCREDITING

The qualitative and quantitative criteria on which accreditation is based are published in the Annual Report of ECPD in connection with the list of accredited curricula. Please consult the latest Annual Report for the criteria currently in effect.

Attention is called to the usual requirement that the institution must — with a single exception — have accreditation of the relevant regional accrediting association for accreditation by ECPD in Engineering Technology. When a school shows in writing that the region does not give consideration for accreditation to a school of its class or type, exception can be granted. In the event of a school having status of "Candidate for Accreditation" with a regional association, it can be considered for a similar status by the Engineering Tech-

nology Committee. In such a case, the school must then obtain regional accreditation before visitation for engineering technology accreditation.

VI. DUTIES AND RESPONSIBILITIES OF INDIVIDUAL MEMBERS OF EVALUATION TEAMS

The individual members of the Evaluation Team are selected by the Team Chairman from a list approved by ECPD. Each member usually is assigned to one engineering technology curriculum and one service area for his particular responsibility as noted below.

No institution is visited by ECPD except by invitation of the institution. Each individual who is a member of an Evaluation Team to an institution is (a) to act as a reporter to record information about the institution and (b) to interpret that information in order to help ECPD and the institution assess its strong and weak points. The entire procedure is one of a confidential nature both between the Evaluation Team members and the institution, and also between these members and ECPD. *No member of an Evaluation Team ever is authorized to make any comment regarding his recommendations for accrediting except through regular ECPD channels.* He should not inform the institution regarding the nature of his recommendation. The final recommendation that is made by ECPD to the institution is that of ECPD alone. The recommendations of the individual Team members are not necessarily the same as the actions that are taken by ECPD. It should be made quite clear that the actual process of accreditation consists essentially of the publication of an approved list by ECPD. Accreditation of a curriculum is granted for a limited period, usually two, four, or six years, with reappraisal stipulated at the end of the period (except for "Reasonable Assurance" and "Candidacy" which are on a yearly basis). Accreditation is based upon conditions as they exist at the time of visitation, and is granted only when conditions are considered as *currently* meeting or surpassing minimum over-all requirements. A comprehensive evaluation of the total program under ECPD purview at an institution, including all engineering technology curricula and the supporting and related offerings, will be held at intervals not exceeding six years.

If the action of ECPD differs radically from the recommendation of individual Team members, reasons for these changes in action will be explained to the individual Team members through appropriate ECPD channels.

Since so many intangible factors are involved and so much is at stake to the individual institutions as a result of accreditation actions by ECPD, it is essential that the confidential nature of the Team's assignments and findings be maintained without exception.

VII. DUTIES OF THE CHAIRMAN OF THE EVALUATION TEAM

It is the policy of ECPD to have at least one member of the Engineering Technology Committee present at each visit to an institution. Usually, either the Chairman or the Vice-Chairman of the Region in which the institution is located will be Chairman of the Evaluation Team. When this is not feasible, at least one member of the Evaluation Team shall also be a member of the Engineering Technology Committee.

The Chairman of the Evaluation Team, in addition to being familiar with the current questionnaire, supplied to all members of the Team, is obligated to familiarize himself with the previous reports and actions by ECPD on the institution being visited. As a minimum, he should have the report of the last previous Evaluation Team, and also the resulting report and comments sent to the institution. In addition, the reports of any previous visits to the institution are always helpful to have and in some instances are of particular significance. If his regional files are not complete, he may borrow this material from the Secretary of the Engineering Technology Committee at ECPD Headquarters in New York, or from the Vice Chairman for ETC Operations.

Since the Chairman of the Evaluation Team is responsible for inviting the members of his Team, he should be careful to select a balanced team. A balanced team will include a sufficient number of persons with diversified backgrounds so that each engineering technology curriculum which is to be evaluated can be assessed fairly. While, in general, it is desirable to have one member of the Team picked particularly for each curriculum which is to be examined, this is not always feasible or the best possible solution. In some cases where the adjective describing the engineering technology curriculum is different from that of any of the member societies of ECPD, it may be desirable to have the curriculum visited jointly by two members of a Team. Team members normally should be selected from the list published in the Annual Report of ECPD. Authority should be obtained from the Chairman of the Engineering Technology Committee to invite any person not on the published list.

The Chairman of the Evaluation Team has responsibility for the overall operation of the visit, the overall preparation of the report, and the submission of that report to the Engineering Technology Committee. This Committee, after thorough discussion at one of its meetings, then makes a recommendation to the Engineers' Council for Professional Development.

The Chairman of the Evaluation Team supplies each member with four copies of the Expense Account Form. These are returned in triplicate to the Chairman of the Team for endorsement and forwarding, in

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duplicate, to the Chairman of the Engineering Technology Committee, and providing one copy for the files of the Regional Chairman.

VIII. REPORT PREPARATION

Various reports are prepared by the Evaluation Team members, the Team Chairman, and the Chairman of the Engineering Technology Committee for the purpose of presenting in succinct and concise form the factual observations, evaluations, and recommendations concerning the curricula, facilities, faculty, and administration of an institution. Reports should be carefully prepared, with complete yet minimum content, expressed in clear and concise English. The report should be written in good taste so as not to offend any person or contain libelous statements which might subject ECPD to legal action. The format of the report as well as the English used should reflect the high standards of ECPD. Each type of report serves a particular purpose. This purpose should be kept in mind during the preparation of each report.

A. The Team Chairman is responsible for establishing the format of the report and should be sure that all Team members have been briefed prior to the visitation. This preparation will result in a pattern of information collection that should coincide with the ultimate grouping of the final documents.
B. Remember that the Engineers' Council for Professional Development is trying to be helpful to an institution in improving the quality of its engineering technology education. A tactful but substantive approach at times may be needed for greatest effectiveness.
C. The Chairman of the Visiting Team must present the report and defend the recommendations at the June Meeting of the Engineering Technology Committee.
D. Bear in mind that the Chairman of the Engineering Technology Committee must defend the report before ECPD and the institution.
E. Reports and statements should be *typed double-spaced.*
F. Refer to the "Committee" and "ECPD" — avoid using the first person and all personal references.
G. Be concise and accurate in following the procedure outlined.

IX. THE REPORTS REQUIRED

Prior to the visit, the Team members will have available completed questionnaires and information on placement of graduates. This information is supplied by the host institution, on request by the Team Chairman.

A. The Oral Report (Exit Interview)
B. The Individual Team Member's Report
C. The Comprehensive Evaluation Report
D. The Summary Report—To the Engineering Technology Committee (Confidential)
E. The President's Letter and Statements from ECPD to the Institution

A. ORAL REPORT — (EXIT INTERVIEW)

The Oral Report of the Evaluation Team is presented to the President and/or Dean of the institution on the afternoon of the second day. The President may have additional administrative personnel invited as he sees fit. The Team Chairman will open the session with a review or summary of the critical factors concerning the strengths and weaknesses which have been observed and identified by the Visiting Team. He may then call on each committee member to report briefly on the areas of his responsibility. (Each member of the committee will have developed notes from which to speak for a period of 5-10 minutes.)

The Dean and President may take notes and ask questions at any point, but the meeting must not degenerate into a debate. If some material error of fact appears to be evident, and the correction is not immediately available, the Dean or President will be encouraged to write promptly to the Chairman of the Engineering Technology Committee in enough supporting detail to correct an erroneous impression or conclusion resulting from insufficient or inaccurate information.

The meeting will be conducted in a spirit of frankness and friendliness. It is, of course, improper to divulge at this time what the recommendations with respect to accreditation will be.

Exit interviews in cases of evaluation for Reasonable Assurance and Candidate status may carry the additional philosophy of helpfulness with the Team discussing frankly possible suggestions for improvement in the programs.

1. Report Preparation

The Team Chairman will advise the Evaluation Team members concerning the format and procedures. The instructions will be given during the orientation session on the evening prior to the first day. The individual Team members should, during the visit on campus, develop statements or an outline of items appropriate for oral presentation at the exit interview. The Visiting Team, in executive session at the noon luncheon of the second day, should agree concerning the items to be presented to the President, as well as the format of the oral presentation. The Team Chairman will chair and lead the exit interview. A critical, but factual presentation of strengths and weaknesses should be presented as an oral brief of the Comprehensive Evalu-

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ation Report which the President of the institution will receive within thirty days. As a general policy it is not desirable that the exit interview be taped or recorded. However, it is appropriate for the administrative members of the institution to make notes concerning the items presented.

B. INDIVIDUAL REPORTS OF THE TEAM MEMBER'S

Each Team member shall write a report covering his particular assignment. While there is no desire to stylize the reports, it is important that each report cover certain specific items. Check lists help in this regard.

The Team Chairman ordinarily has the responsibility for the evaluation of the organization and administration of the institution as a whole.

It is important to emphasize that the reports cover two important objectives, and that they must include two summary statements as follows:

1. A confidential statement of observations, facts, assessments, and recommended recognition actions for the information of the Engineering Technology Committee.

2. A less-confidential summary which will be the basis for the Comprehensive Evaluation Report of the Visiting Team and which will be transmitted by ECPD to the institution for its guidance and help in improving its operation. The Comprehensive Evaluation Report will be sent initially by the Chairman of the Engineering Technology Committee to the institution for review, comments, and corrections (if any). This part of the report should stress not only the weaknesses which need correcting, but also the strengths which should be recognized. Especial care should be exercised to prepare this statement in tactful language. The proper choice of words will determine whether a suggestion will be accepted with a desire for action or be deeply resented.

The Individual Report should be prepared (in rough draft form if necessary) and given to the Team Chairman before departing from the institution being visited.

The report on *each curriculum* that is to be evaluated should cover the following points which should be rated for accreditation purposes in about this order:

(a) The Faculty

The effectiveness of any educational program depends upon the faculty which guides the program. All other matters are secondary to a competent, qualified, and forward-looking faculty that can give an over-all scholarly atmosphere to the operation. The number of persons comprising the faculty, the student-faculty ratio, the distribution of faculty rank, and the diversity of faculty background should all be noted and taken into account. Teaching loads of faculty, and their activities in the various professional areas including research, are important factors. One important source of information is the materials which each faculty member has made available, including such items as course outlines, examples of student work, quizzes, examinations, reports, lists of problems, and similar items which he uses in his courses.

(b) Curriculum Supervision

A capable faculty can perform its functions best in a favorable administrative climate. Although administration as a whole is covered in a separate section usually written by the Chairman, each Team member should comment on the administration in his area of the evaluation assignment.

(c) Facilities and Methods of Instruction

A capable staff operating under favorable administrative conditions can perform best where facilities are adequate and opportunities are given for the use of modern methods of instruction. It is pertinent to comment on the adequacy of the laboratory facilities and the availability of instructional aids. At this point it is quite pertinent to note whether the library is used appropriately as an instructional tool and whether the students are taught to use the library properly.

(d) Curriculum Content

Considerable latitude in the choice and arrangement of the subject matter in the curriculum (here used in the narrowest sense) is allowed. While qualitative factors are more important than the quantitative number of credit hours assigned to any particular area, the general principles outlined in the current Annual Report of ECPD should be checked closely in analyzing any particular curriculum. The coverage of basic information, rather than specific courses, is the important criterion.

It is emphasized that any curriculum which is to be accredited by ECPD under the program described in this manual must be primarily an "engineering technology" or a "technology" curriculum whose title contains at least one of these two terms preceded by some sort of modifying adjective. Therefore, the prime consideration of the Team member in writing a report about any engineering technology curriculum is whether or not it qualifies as a satisfactory engineering technology curriculum regardless of what modifying word is used. Curricula other than those in engineering technology are not within the province of the ECPD program described in this manual. Other curricula may be very good educational experiences for their students, and may be worthy of appearing on an "accredited list" of something other than engineering technology, but entire-

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ly out of place on the ECPD list of accredited curricula in engineering technology.

(e) Graduates of the Curriculum

No curriculum is eligible for accreditation by ECPD until there have been graduates from that curriculum. A strong department usually is aware of the progress of its graduates, and can report on the character of the careers of a representative sample. The exception can be the curriculum which is submitted for evaluation for "Reasonable Assurance" or "Candidacy". In each of these no graduates are required.

(f) Appraising the Institution in the Area Identified by the Curriculum

In preparing the appraisal of each curriculum area being evaluated, the report should contain two separate concluding paragraphs:

(1) An appropriately detailed confidential statement of conclusions and recommendations for the Engineering Technology Committee, and

(2) A less-confidential summary statement of strengths, weaknesses, and suggestions that can be transmitted to the institution.

(1) REPORTS ON SUPPORTING DEPARTMENTS

The reports covering the assignments of the Team member on departments other than the major curricula are patterned after the reports on the major curricula. Reports on service departments such as chemistry, physics, mathematics, and general studies are not designed to indicate whether or not these departments should be accredited, but whether they are presenting the subject matter in such a way as to give good background and support to engineering technology students. A chemistry department, for example, composed of outstanding professors, none of whom ever meets an engineering technology student, may not be a good supporting department. In the same way, a physics department which allows students with an improper mathematical background to take the same course in the same section with engineering technology students having better backgrounds is not performing its function well. These are the kinds of matters which the Team member should look for and cover in his report.

When each Team member has completed his report, he should review it again from two points of view: (a) the confidential detailed information that he wishes to convey to the Engineering Technology Committee for accreditation purposes and (b) the information which he would like to have ECPD convey to the institution for its help in improving weaknesses or for its information about the good points of its program of engineering technology curricula. The Team member should make these distinctions quite clear in his report. He is expected to supply *four complete copies to be sent to the Chairman of the Evaluation Team* for incorporation into the report which the Team Chairman will prepare.

C. COMPREHENSIVE EVALUATION REPORT

The Comprehensive Evaluation Report is prepared by the Team Chairman and should contain a critical evaluation of both the factual quantitative information contained in the questionnaire supplied by the institution, as well as the qualitative information developed by the Visiting Team during its visit to the campus. This report is:

1. Submitted to the institution,
2. Filed at ECPD Headquarters, and
3. A reference source for the June Meeting of the Engineering Technology Committee.
   (a) The Comprehensive Evaluation Report, without any references to or inferences of accreditation recommendations, is submitted by the Chairman of the Engineering Technology Committee to the President of the visited institution within thirty days from the completion of the visit. This allows the visited institution an opportunity to respond to any obvious errors of fact or correct misunderstandings which may be included in the report. Corrections and/or additions may thus be submitted to the Engineering Technology Committee Chairman by the institution prior to consideration of the Report by the Engineering Technology Committee at its June meeting. The early receipt of the Report by the institution also serves the purpose of allowing the institution to take corrective action to strengthen its programs at an early date.
   (b) The Report is also filed at ECPD Headquarters and becomes part of the historical record of the institution. It may be used in considering and evaluating any future interim reports from the institution. It is further used by any succeeding visitation team for their orientation concerning the status and development of the curricula within the institution.
   (c) The Comprehensive Evaluation Report is used by the Chairman of the Evaluation Team as reference and back-up information for his presentation to the Engineering Technology Committee at the June meeting in deliberations concerning recommended accreditation actions.

1. Report Procedure

The Chairman of the Evaluation Team has the major responsibility for combining and editing the individual reports of the Team members into the "Comprehen-

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sive Evaluation Report". The Team members should complete their individual reports (in rough form if necessary) and transmit the reports to the Team Chairman prior to departing from the institution. The Comprehensive Evaluation Report in final form in triplicate should be submitted to the Vice Chairman for ETC Operations within two weeks from the completion of the visit. The Vice Chairman for ETC Operations will review the Report, edit it if necessary, and submit it in duplicate to the Chairman of the Engineering Technology Committee for transmittal to the President of the institution for initial review to provide the opportunity for rebuttal, comments, corrections, and additions.

Institutions being evaluated for Reasonable Assurance or Candidate status will receive the Report together with a letter from the Chairman of the Engineering Technology Committee concerning the decision on the requested early recognition, as well as recommendations for continuing improvements. This action will be reported to the Engineering Technology Committee at its annual June meeting.

Requests for continuation of Reasonable Assurance or Candidacy status are presented by the Evaluation Team Chairman or the Regional Chairman at the June Meeting of the Engineering Technology Committee for action.

2. Content of the Comprehensive Evaluation Report

The cover sheet should include "Engineers' Council for Professional Development—Engineering Technology Committee", the name and address of the institution visited, dates of the visit, curricula visited, names and affiliations of the visitors, and the names and titles of the personnel contacted at the visited institution.

The Chairman of the Evaluation Team will prepare the Comprehensive Evaluation Report based upon the following individual reports.

(a) Report on the Institution as a whole, prepared by the Team Chairman;
(b) Reports on each curriculum visited, prepared by the Team members responsible; and
(c) Reports on Service Departments, Library, Personnel Services, etc., prepared by the Team members responsible.

These reports may follow the general format of the Check Lists in this Manual.

(1) Report on the Institution as a Whole

a. Contents — Strengths and weaknesses concerning such items as:
   - General statement concerning the institution
   - Administration plan and policies
   - Admission and scholarship standards
   - Student body
   - Teaching loads, faculty salaries, and qualifications
   - Clerical and technical services
   - Laboratory equipment and facilities
   - Library and supporting facilities
   - (See Check List)

b. This report should be prepared so as to be a part of the Comprehensive Evaluation Report to the institution — carefully factual.

(2) The Report on Each Curriculum Visited

a. Contents — Strengths and weaknesses concerning the:
   - Curriculum
   - Faculty
   - Facilities
   - Organization
   - Support
   - (See Check List)

b. This report should be prepared so as to be a part of the Comprehensive Evaluation Report to the institution — carefully factual.

(3) Reports on Service Departments, Library, Personnel Services, Etc.

Should include comments which apply directly to that service or function.

a. Contents should include evaluation of strengths and weaknesses of the department or service as related to the institution as a whole and the quality of the curriculum offerings.
   (See Check List)

b. This report should be prepared so as to be a part of the Comprehensive Evaluation Report to the institution — carefully factual.

D. SUMMARY REPORT — TO THE ENGINEERING TECHNOLOGY COMMITTEE — CONFIDENTIAL

This report is prepared by the Team Chairman, is a summary of the Comprehensive Evaluation Report, and is prepared for distribution to the Engineering Technology Committee members. Members of the Engineering Technology Committee must obtain a full understanding of the curricular strengths and weaknesses from this report in order to take action on the recommended accreditation actions of the Evaluation Committee.

The Summary Report should contain a frank discussion of major strengths and major or critical weaknesses. Important and critical factors should be stressed while inconsequential items should be deleted from this report. Except where it is critical, detailed information should not be included since this will be available in the Comprehensive Evaluation Report which the Evaluation Team Chairman will have avail-

able for reference at the June Meeting of the Engineering Technology Committee. Twenty copies of the Summary Report should be sent to the Vice Chairman for ETC Operations at least three weeks before the June Meeting. These will be distributed to the members of the Engineering Technology Committee as preparatory materials for review prior to the June Meeting.

1. RECOMMENDED ACCREDITATION ACTIONS — CONFIDENTIAL

The Report of the Recommended Accreditation Actions is prepared by the Team Chairman and should be the actual recommendations as to appropriate accreditation status, as well as a detailed defense of those recommendations. This report becomes a part of the file on the institution and is prepared for the Engineering Technology Committee's use in its deliberations, recommendations, and actions. For institutions seeking Reasonable Assurance and Candidate for Accreditation status this report forms a basis for decision by the Chairman of the Engineering Technology Committee.

2. THE RECOMMENDATIONS

The accreditation recommendations should be considered according to the following guidelines:

(a) **Accreditation — Full 6 Years**
Recommended for a new or continuing curriculum of satisfactory academic content and level, completely acceptable, and with a stable history and excellent indications of continuity.

(b) **Accreditation — 4 Years**
Recommended for a new or continuing curriculum of satisfactory academic content and level, but full acceptability is clouded by certain marginal areas which need correction or by factors which might not guarantee satisfactory operations for a full six-year period. In cases of four-year accreditation, a report would usually be required in two years.

(c) **Accreditation — 2 Years — Show Cause**
A two-year — show cause — accreditation is generally recommended for presently accredited curricula not meeting minimum standards, requiring major but correctable action. The limited period of continued accreditation may be granted, rather than immediate termination of accreditation, to allow the institution time to respond to the major difficulties. A report will be required within one year in order for the Committee to determine whether to terminate accreditation or revisit at the end of the two years. A new curriculum would not normally be granted a two-year accreditation period.

(d) **Accreditation Denied**
Recommended for new curricula not meeting minimum requirements. This action would also be taken following unsatisfactory response to a Two-Year Show Cause accreditation.

(e) **Approval of Reasonable Assurance or Candidate for Accreditation**
Recommended for new curricula in a dynamic situation or developing institution with excellent indications of meeting regular accreditation criteria in the near future. An Annual Progress Report will be required for possible continuation of this status on a year-to-year basis.

(f) **Denial of Reasonable Assurance or Candidate for Accreditation**
Recommended for new curriculum not meeting requirements of early recognition as an engineering technology program.

NOTE: The Engineering Technology Committee will not recommend for accreditation as a curriculum in engineering technology any curriculum for which the claim is made that it produces qualified engineers. Caution and discretion must be exercised by institutions in all publications and references to avoid ambiguity or confusion between engineering technology and engineering. No curriculum will be approved for accreditation or reaccreditation unless the word "technology" is used as the final noun in the title.

3. CORRECTIVE ACTION

An outline of corrective action to be expected in any subsequent report or evaluation should be included.

4. MINORITY REPORT

Every effort should be made to avoid a Minority Report. However, if this becomes necessary, the Minority Report should be accepted and included in the Report of Recommended Accreditation Actions for presentation to the Engineering Technology Committee at the June Meeting.

Note: This report, if made, should be highly confidential and is to be prepared only for the Engineering Technology Committee's use in its deliberations, recommendations, and actions in June.

E. THE PRESIDENT'S LETTER WITH STATEMENTS FROM ECPD TO THE INSTITUTION

Following the June Meeting of the Engineering Technology Committee, a letter will be prepared for transmittal to the institution. This letter will include statements reporting the accreditation actions, as well as recommendations for action by the institution. The let-

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ter and statements will be "tailor-made" depending upon the actions taken at the June Meeting of the Engineering Technology Committee.

The Evaluation Team Chairman should prepare the first draft of this letter and statements in preliminary form for discussion at the June Meeting of the Committee. This must be carefully written and edited since it will form the foundation and content of the official statements which will eventually be sent from the President of ECPD or the Chairman of the Engineering Technology Committee to the President of the institution after action is taken on the recommendations by the ECPD Executive Committee.

The letter to the institution should be prepared in two parts:

1. The first part covers the action taken by the Engineers' Council for Professional Development on accreditation.
2. The second part covers —
   a) General items which pertain to engineering technology as a whole at the institution, and reference to the Comprehensive Evaluation Report which was sent to the institution;
   b) Items of concern regarding the individual curriculum problems. Each curriculum report should be as brief as possible and include comments and suggestions directly relevant to the accreditation actions. These should be itemized so that there can be no basis for uncertainty or ambiguity regarding the recommended actions;
   c) Items where constructive criticism might be deemed helpful in improving the general quality of the engineering technology program and any action expected of the institution in responding to the request for an interim report. This section can be prefaced with the statement such as, "The following observations do not pertain directly to the accreditation action taken by ECPD, but they are offered with the hope that they may be of value in the continuing effort of your institution to improve the quality of its engineering technology education".

If it is apparent that minimum criteria for accreditation are not being met, the statement must be specific as to deficiencies. In drastic cases, it is the intent of such a statement to serve notice on the institution to "show cause" why accreditation should not be discontinued.

In some instances corrective action is necessary but not so critical as to require another visitation at the end of a limited time period. In these cases a report from the institution to the Regional Chairman will be necessary. The instructions or statements should be specific about what this report should cover.

Request reports on items requiring corrective action, which are tangible, reportable, quantitative, and subject to evaluation by the Engineering Technology Committee. Do *not* request a report on items which can only be evaluated by a campus visit.

X. DISPOSITION OF REPORTS AND RECOMMENDATIONS

It is stressed again that the Evaluation Team is a temporary ad hoc committee and is dismissed after its consolidated report is sent to the Vice Chairman for ETC Operations of the Engineering Technology Committee. The Engineering Technology Committee is the continuing committee of ECPD which has responsibility for making recommendations to the Engineers' Council for Professional Development.

Should an Evaluation Team report favorably for preliminary recognition, the Vice Chairman for ETC Operations of the Engineering Technology Committee is to prepare the appropriate correspondence and recommended action to the Chairman of the Engineering Technology Committee. The Chairman will report to the institution and establish the status of "Reasonable Assurance of Accreditation" or "Candidate for Accreditation". On request, the Chairman will notify the appropriate agencies concerning the action.

In the event that the recommendation of the Evaluation Team is unfavorable insofar as preliminary recognition is concerned, the institution is to be notified. The combined Comprehensive Evaluation Report, as well as the summary report including the recommendations of the Evaluation Team, are presented by the Regional Chairman for review of the Engineering Technology Committee at its June Meeting. Normally, at least one member of the Engineering Technology Committee will have been present at each evaluation.

On accreditation, the deliberations of the Committee result in recommendations which are transmitted by the Chairman of the Engineering Technology Committee to the Executive Committee of the Engineers' Council for Professional Development for approval at their subsequent meeting, which is held in July. The action taken by the Executive Committee is reported to the institution by the Official Letter from the President of ECPD. In case of negative action, the institution can initiate action for review at the Fall Meeting of ECPD — if they feel it is warranted.

Those curricula accredited are published in the Annual Report of the Engineers' Council for Professional Development.

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XI. ARRANGEMENTS AND SUGGESTED SCHEDULE FOR A VISIT - HOST INSTITUTION

Prior to the evaluation and at a time established by the Chairman of the Evaluation Team, in consultation with the host institution, the host institution should make the following arrangements:

A. RESERVATIONS FOR LODGING

1. Firm reservations for a single room for each Team member should be made for two nights, the night previous to the first day of visitation and the night of the first day.
2. It is requested that the Reservations Clerk acknowledge the reservations to each one of the team members directly as soon as possible.

B. TRANSPORTATION DETAILS

The host institution should notify the Team members of the airlines serving the city, the means of transportation from the airport to the place of lodging, and the transportation method from the place of lodging to the institution.

C. CONFERENCE ROOM

It will be necessary to have accommodations for a comfortable meeting of all Team members from 7:00 to 11:00 p.m. on the night prior to the evaluation and again on the night of the first day. This meeting may be conducted in the room assigned to the Team Chairman if a sufficient number of chairs and a good work table is provided in the same room. Otherwise, a separate or adjoining room should be made available. This meeting room preferably should be at the place of lodging, but might be at the host institution if it is nearby.

D. MEALS

1. It is desirable that the lodging place selected have an arrangement at least for breakfast and preferably also for dinner. It usually is more convenient to have luncheons at the host institution or at a place selected by the institution.
2. It is customary to make arrangements for the Team members to meet privately at luncheon on the second day in order to prepare for the summary discussions.

E. INFORMATION MATERIALS

The host institution should make available a room on campus for the use of the evaluation team. There a quantity of materials can be displayed. The display should include such items as course outlines, texts, examples of student work, quizzes, examinations, reports, laboratory procedures, lists of problems, projects, and similar items which the faculty use in all courses. This room can be used as "headquarters" for the Team at the institution.

XII. TEAM SCHEDULE AND PROCEDURES

Normally, two full days of time at the institution should be provided in each evaluation. Even with a small institution, it is undesirable to try to accomplish a visit in one working day. With even the largest institution, proper organization of the Team work makes it possible to accomplish the objectives in two days. A normal schedule is as follows:

A. EVENING SESSION PRIOR TO VISIT

It is important that the Chairman of the Evaluation Committee call the Team together the evening before the visit to the institution. Such a mutual orientation session can profitably run from two to four hours, depending upon circumstances. At this evening meeting, the Chairman should review with the members of the Team all reports involved in the last previous accreditation and the comments that have been sent to the institution as a result of all prior visits. This will give a valuable pattern of trend for the Team's orientation. Each member of the Evaluation Team should note carefully the comments made about the particular curriculum and departments for which he has primary responsibility.

The Team Chairman should impress on the Team at this first meeting that while individual members of the Team have primary responsibility for observation of a specific curriculum, the report is expected to be that of the Team as a whole and not a series of individual recommendations.

After reviewing the previous actions, the Chairman should outline the procedure for the visit and assign specific tasks to each member of the Evaluation Team. An individual assignment should be made for each of the engineering technology curricula for which accreditation has been requested plus an assignment for service departments, such as mathematics, physics, chemistry, other physical sciences such as geology and metallurgy if they are not included within one of the major engineering technology departments, the library, and the humanities-social sciences stem. Administration usually is discussed by the full Team, but is generally the responsibility of the Team Chairman to prepare this section of the report.

B. THE MORNING OF THE FIRST DAY

Usually it is desirable for the full Team to meet at the start of the visit with the President and the chief administrative officer of the engineering technology program. The Team Chairman should handle this meeting in such a way as not to involve the whole Team for more than an hour.

At this meeting, if not already arranged, schedules for the various Team members to visit their appropriate engineering technology and service departments

should be prepared. All Team members should proceed with their individual assignments no later than mid-morning.

C. LUNCHEON MEETING FIRST DAY

If the institution desires to give a luncheon for the Team, it may do so on the first day. ECPD requests that the institution limit entertainment for the Team to this one event. Obviously, the invitation to this luncheon must come from the institution without prompting from the Team.

D. AFTERNOON OF THE FIRST DAY

Each Team member will proceed with his individual assignments.

E. EVENING OF THE FIRST DAY

The Team as a whole should reassemble for, or immediately after, dinner. This discussion session, usually requiring the whole evening of the first day, is very important. At this time each Team member should review his findings with the other members of the Team. Each should discuss the weaknesses found, the strengths discovered, and crosscheck with the other Team members. It is important to determine whether these strengths and weaknesses occur throughout the engineering technology program or are peculiar to particular departments or curricula. Whenever a Team member finds unusual conditions in one particular department the Team Chairman should make it his business to have at least one other member of the Team join with that Team member on the following morning to crosscheck on these particular points.

F. MORNING OF THE SECOND DAY

Each individual Team member should complete the search work on his particular assignments. He should recheck any points needing re-examination and accomplish such crosschecking of other departments as is warranted by the previous evening's discussion.

G. LUNCHEON ON THE SECOND DAY

The Team should reassemble in executive session on the second day, perhaps for luncheon, or right after. Each individual Team member should discuss the recommendations which he expects to make in his report; what strengths and what weaknesses he expects to mention. When each Team member has made his recommendations, the recommendations of the Team as a whole should be correlated and agreed upon. If there are points of differences, these should be resolved as early in the afternoon of the second day as possible. When differences, if any, have been resolved, the Team is ready for the next step. It is important that the general nature and content of the ultimate evaluation report be firmly established by this time, and specific arrangements for its early completion agreed upon.

H. AFTERNOON OF THE SECOND DAY

Having established agreement between the Team members on their recommendations, strengths, and weaknesses as noted above, the Chairman and as many members of the Team as convenient should meet with the President, and such administrative personnel as he may wish to assemble, for the following purposes:

1. To review the significant factual findings of the Team at the institution;
2. To discuss the strengths and weaknesses observed; and,
3. To provide opportunity for additional pertinent information.

It is very important in this administrative conference that the Chairman or other Team members mention *only* facts and observations as found and verified.

The agreed recommendations of the Team regarding accreditation must *not* be mentioned, or indicated.

I. REPORTS

It is recommended that the reports be written by an agreed-upon date soon after the meeting (usually within ten days). It is important that no member of the Team change his recommendations beyond that which was agreed upon in principle by the Team as a whole, without consultation with the Team Chairman.

XIII. OBLIGATION OF TRUST

Each member of an Evaluation Team is hereby reminded that, in accepting this appointment, he has assumed an obligation of trust to guard as utterly confidential all matters involved in this visitation, such to be discussed nowhere at any time except through the ECPD channels established for that express purpose.

XIV. SUGGESTED CHECK LIST FOR PROCEDURE AND REVIEW

The following check list is provided to enable the host institution and the Evaluation Team to properly prepare for the ETC/ECPD visit. If the information and personnel requested are available for the Team when they appear on campus, their work will be greatly facilitated and the institution will be assured that the Team has sufficient information to provide an equitable report to the ETC/ECPD Committee. Arrangements should be made by the host institution and reviewed

by the Team Chairman to have the host personnel available and scheduled for the several interviews herein suggested.

A. PERSONNEL SERVICES

1. Testing and counselling program:

a) Persons consulted
b) Size, qualifications, and experience of staff
c) Purposes, objectives, scope, and nature of the program
d) Tests generally administered and norms available
e) Uses of test results
f) Procedures to establish security, reliability, and validity
g) Facilities
h) Part I — Confidential statement of conclusions, observations, and recommendations for the Team
i) Part II — Less-Confidential statement to serve as the basis of the Comprehensive Evaluation Report to be sent to the institution for information and review by ECPD

2. Student records:

a) Persons consulted
b) Admission status (including deficiencies)
c) Attendance
d) Courses undertaken; grades, credits, failures, and repetitions
e) Size and qualifications of staff
f) Part I — Confidential statement of conclusions, observations, and recommendations for the Team
g) Part II — Less-Confidential statement to serve as the basis of the Comprehensive Evaluation Report to be sent to the institution for information and review by ECPD

3. Studies of student performance:

a) Persons consulted
b) Studies of performance of enrolled students
c) Attrition or drop-out rate; during first semester (or quarter), and over-all
d) Causes for drop-out
e) Morale
f) Follow-up studies of transfers
g) Number and qualifications of persons performing the following studies
h) Part I — Confidential statement of conclusions, observations, and recommendations for the Team
i) Part II — Less-Confidential statement to serve as the basis of the Comprehensive Evaluation Report to be sent to the institution for information and review by ECPD

4. Placement services

a) Persons consulted
b) Size, qualifications, and experience of staff
c) Objectives, scope, and nature of the services
d) Records of initial placement
e) Follow-up records
f) Facilities
g) Evaluation of graduate placements (coordinate with placement items in curriculum check lists)
h) Part I — Confidential statement of conclusions, observations, and recommendations for the Team
i) Part II — Less-Confidential statement to serve as the basis of the Comprehensive Evaluation Report to be sent to the institution for information and review by ECPD

5. Recruitment and promotion

a) Persons consulted
b) Size, qualifications, and experience of the staff
c) Objectives and scope
d) Methods and media used
e) Extent and appropriateness of paid advertising
f) Extent of use of field representatives; their salaries, and commissions, and procedures
g) Relations with secondary schools and civic groups
h) Appropriateness of brochures and other printed matter
i) Cost per student
j) Part I — Confidential statement of conclusions, observations, and recommendations for the Team
k) Part II — Less-Confidential statement to serve as the basis of the Comprehensive Evaluation Report to be sent to the institution for information and review by ECPD

6. Signature of Examiner and Date

B. CHECK LIST FOR PREPARATION OF THE REPORT ON EVALUATION OF (NAME OF INSTITUTION) RE: CURRICULUM IN (NAME) TECHNOLOGY

1. Persons consulted

2. Department Chairman's statement of objectives of the curriculum (and its options)

3. Faculty and supervision:

a) Academic qualification
b) Professional and technical experience
c) Professional memberships and activity
d) Attitude and morale
e) Understanding of philosophy and objectives of the engineering technology program

4. Course outlines and descriptions:

a) Form (short, for catalogues; and detailed)
b) Adequacy
c) Currency
d) Availability

5. Definition of credit-hour or unit of credit for courses, in terms of contact hours and hours of outside study:

a) For lecture or theory course
b) For laboratory course
c) For drafting course
d) For shop course

6. Analyses of curriculum content with respect to proportions in mathematics, in physical sciences, in engineering sciences, in general studies, in major field specialties, and in related technical subjects:

a) Total number of credit-hours, and percentages, in each stem
b) Numbers of credit-hours, and percentages, in lecture classes and in laboratory or shop classes in each stem

c) Number of contact hours, and percentages, in each stem

7. **Organization; coordination among stems, between introductory and advanced courses, and between laboratory and lecture courses.**

8. **Instructional methods; including use of library, standard reference manuals, and instructional aids:**
   a) Lecture and theory classes
   b) Laboratories
   c) Shops
   d) Homework

9. **Textbooks, laboratory manuals, work sheets, and examinations; level, currency, emphasis upon problem-solving.**

10. **Adequacy of supporting personnel for faculty; secretaries, and assistants for teaching, laboratory, or shop.**

11. **Adequacy of technical works and periodicals in library for courses in major field:**
    a) Number of volumes
    b) Variety
    c) Level

12. **Adequacy of content of reference shelves in laboratories and shops for major field.**

13. **Class sizes:**
    a) Lecture and theory classes
    b) Laboratories
    c) Shops

14. **Teaching loads, assignment formulas, weighting factors for various types of instruction.**

15. **Adequacy of physical facilities:**
    a) Office space
    b) Classrooms
    c) Laboratories and preparation rooms
    d) Shops

16. **Grading system as revealed by samples of student work:**
    a) Criteria and standards
    b) Distributions
    c) Use made of grades

17. **Quality of student work on sample tests, homework, laboratory and project reports, and drawings:**
    a) Organization
    b) Neatness
    c) Computations
    d) Statements of answers (clarity and units)

18. **Current enrollments in the curriculum (and its options), by semester or year, and trends.**

19. **Placement of graduates:**
    a) Variety of locally available jobs
    b) Titles of beginning jobs
    c) Beginning salaries
    d) Promotion rates

20. **Liaison with local and regional employers (industrial and governmental):**
    a) Curriculum advisory committee
    b) Employment studies
    c) Faculty contacts

21. **Qualitative appraisal of curriculum:**
    a) Mathematics; level and topics
    b) Physical sciences; level and topics
    c) General studies; level and topics
    d) Subjects in major field; level and topics

22. **Major needs for growth and development of curriculum.**

23. **Curriculum planning and development.**

24. **Part I — Confidential statement of conclusions, observations, and recommendations for the Team.**

25. **Part II — Less-Confidential statement to serve as the basis of the Comprehensive Evaluation Report to be sent to the institution for information and review by ECPD.**

26. **Signature of Examiner and Date.**

C. CHECK LIST FOR PREPARATION OF THE REPORT ON EVALUATION OF (NAME OF INSTITUTION) RE: ADMINISTRATION

1. **Persons consulted.**

2. **Nature, objectives, and history of institution.**

3. **Acceptance of the institution in the community.**

4. **Acceptance of the engineering technology program, within the institution and in the community.**

5. **Financial stability of the institution and of the engineering technology program:**
   a) Support by the community
   b) Support by industry
   c) Support by graduates

6. **Administration of the institution:**
   a) Professional stature and qualifications
   b) Record of stability and prospects for continuity in leadership

7. **Dean (or administrative head) of the Engineering Technology Program:**
   a) Relationship to administration of the institution
   b) Professional stature and qualifications
   c) Record of stability and prospects for continuity in supervision of the engineering technology program

8. **Admission policy:**
   a) Entrance requirements
   b) High school transcripts
   c) Basis for "equivalence" of high school graduation

9. **Faculty compensation:**
   a) Salary and promotion policies
   b) Retirement plan

10. **Faculty tenure policy.**

11. **Faculty development policy:**
   a) Provisions for advanced study or research
   b) Encouragement for participation in local activities of technical and professional societies
   c) Provisions for attendance at regional and national meetings
   d) Opportunities for contacts with colleagues in industry, business, and government

12. **Degrees, diplomas, or certificates awarded; requirements for each.**

13. **General aspects of physical facilities:**
   a) Adequacy and suitability for engineering technology program
   b) Appearance and up-keep
   c) Provisions for expansion and renovation

14. **Long-range plans for the institution and the engineering technology program:**
   a) Enrollment projects
   b) Employment trends
   c) Evaluations and revisions of objectives and program
   d) Physical facilities
   e) Supporting funds

15. **Part I — Confidential statement of conclusions, observations, and recommendations for Team.**

16. **Part II — Less-Confidential statement to serve as the basis of the Comprehensive Evaluation Report to be sent to the institution for information and review by ECPD.**

17. **Signature of Examiner and Date.**

D. CHECK LIST FOR PREPARATION OF THE REPORT ON EVALUATION OF (NAME OF INSTITUTION) RE: LIBRARY

1. **Persons consulted.**

2. **Size, qualifications, and experience of the staff.**

3. **Average annual appropriations:**
   a) Total
   b) For engineering technology program

4. **Service to students and faculty:**
   a) Hours for use of reading rooms
   b) Reference services
   c) Inter-Library loans
   d) Browsing shelf

5. **Use of library and its facilities and services by students and faculty of the engineering technology program.**

6. **Role of engineering technology faculty in selection of books and periodicals.**

7. **Physical facilities:**
   a) Adequacy of space
   b) Accessibility of stacks to students
   c) Audio-visual aids, teaching machines, etc.

8. **Part I — Confidential statement of conclusions, observations, and recommendations for the Team.**

9. **Part II — Less-Confidential statement to serve as the basis of the Comprehensive Evaluation Report to be sent to the institution for information and review by ECPD.**

10. **Signature of Examiner and Date.**

E. CHECK LIST FOR PREPARATION OF THE REPORT ON EVALUATION OF (NAME OF INSTITUTION) RE: SERVICE DEPARTMENT OF (NAME)

1. **Persons consulted.**

2. **Department chairman's statement of role of the department with respect to the engineering technology program.**

3. **Faculty and Supervision:**
   a) Academic qualifications
   b) Professional and/or technical experience
   c) Professional memberships and activity
   d) Understanding of philosophy and objectives of the engineering technology program
   e) Attitude toward engineering technology program and students

4. **Course outlines and descriptions:**
   a) Form (short, for catalogues; and detailed)
   b) Adequacy
   c) Currency
   d) Availability

5. **Definition of credit-hour or unit of credit for courses, in terms of contact hours and hours of outside study:**
   a) For lecture or theory course
   b) For laboratory course
   c) For drafting course
   d) For shop course

6. **Level and quality of subject matter in service courses offered for the engineering technology program.** For example, fundamental or descriptive; emphasis on understanding or manipulation.

7. **Instructional methods, including use of library, standard reference manuals, and instructional aids:**
   a) Lecture and theory classes
   b) Laboratories
   c) Shops
   d) Homework

8. **Adequacy of supporting personnel for faculty: secretaries, and assistants for teaching, laboratory, or shop.**

9. **Textbooks, laboratory manuals, work sheets, and examinations; level, currency, emphasis upon problem-solving.**

10. **Adequacy of works and periodicals in library for service courses given by the department for the engineering technology department:**
    a) Number of volumes
    b) Variety
    c) Level

11. **Class sizes:**
    a) Lecture and theory classes
    b) Laboratories
    c) Shops

12. **Teaching loads, assignment formulas, weighting factors for various types of instruction.**

13. **Adequacy of physical facilities:**
    a) Office space
    b) Classrooms
    c) Laboratories and preparation rooms
    d) Shops

14. **Grading system as revealed by samples of student work:**
    a) Criteria and standards
    b) Distributions
    c) Use made of grades

15. **Quality of student work on sample tests, homework, laboratory and project reports, and drawings:**
    a) Organization
    b) Neatness
    c) Computations
    d) Statements of answers (clarity and units)

16. **Part I — Confidential statement of conclusions, observations, and recommendation for the Team.**

17. **Part II — Less-Confidential statement to serve as the basis of the Comprehensive Evaluation Report to be sent to the institutions for information and review by ECPD.**

18. **Signature of Examiner and Date.**

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APPENDIX

SAMPLE FORMS

APPENDIX - A

Sample of Individual Report of Team Member

REPORT ON EVALUATION OF

_____

CURRICULUM IN _____ ENGINEERING TECHNOLOGY

Prepared by_____

1. Persons consulted_____

2. Department chairman's statement of objectives of the curriculum (and its options)

3. Faculty and Supervision:

   (a) Academic qualification_____

   (b) Professional and technical experience_____

   (c) Professional memberships and activity_____

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(d) Attitude and morale

(e) Understanding of philosophy and objectives of the engineering technology program

4. Course outlines and descriptions:

(a) Form (short, for catalogues, and detailed)

(b) Adequacy

(c) Currency

(d) Availability

5. Definition of credit-hour or unit of credit for courses, in terms of contact hours and hours of outside study:

(a) For lecture or theory course

(b) For laboratory course

(c) For drafting course

(d) For shop course

6. Analyses of curriculum content with respect to proportions in mathematics, in physical sciences, in engineering sciences, in general studies, in major field specialties, and in related technical subjects:

7. Organization; coordination among stems, between introductory and advanced courses and between laboratory and lecture courses:

8. Instructional methods; including use of library, standard reference manuals, and instructional aids:

   (a) Lecture and theory classes

   (b) Laboratories

   (c) Shops

   (d) Homework

9. Textbooks, laboratory manuals, work sheets, and examinations; level, currency, emphasis upon problem-solving:

10. Adequacy of supporting personnel for faculty; secretaries, and assistants for teaching laboratory, or shop:

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11. Adequacy of technical works and periodicals in labrary for courses in major fields:

    (a) Number of volumes

    (b) Variety

    (c) Level

12. Adequacy of content of reference shelves in laboratories and shops for major field:

13. Class sizes:

    (a) Lecture and theory classes

    (b) Laboratories

    (c) Shops

14. Teaching loads, assignment formulas, weighting factors for various types of instruction:

15. Adequacy of physical facilities:

    (a) Office space

    (b) Classrooms

    (c) Laboratories and preparation rooms

    (d) Shops

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16. Grading system as revealed by samples of student work:

    (a) Criteria and standards _____

    _____

    (b) Distributions _____

    _____

    (c) Use made of grades _____

    _____

17. Quality of student work on sample tests, homework, laboratory and project reports, and drawings:

    (a) Organization _____

    _____

    (b) Neatness _____

    _____

    (c) Computations _____

    _____

    (d) Statements of answers (clarity and units) _____

    _____

18. Current enrollments in the curriculum (and its options), by semester or year, and trends:

    _____

    _____

    _____

    _____

19. Placement of graduates:

    (a) Variety of locally available jobs _____

    _____

    _____

    (b) Titles of beginning jobs _____

    _____

    _____

    (c) Beginning salaries _____

    _____

    _____

    (d) Promotion rates _____

    _____

    _____

20. Liaison with local and regional employers (industrial and governmental):

    (a) Curriculum advisory committee _____

    _____

    _____

    (b) Employment studies _____

    _____

    _____

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(c) Faculty contacts

21. Qualitative appraisal of curriculum:

(a) Mathematics; level and topics

(b) Physical sciences; level and topics

(c) General studies; level and topics

(d) Subjects in major field; level and topics

22. Major needs for growth and development of curriculum:

23. Curriculum planning and development:

24. Confidential statement of conclusions, observations, and accreditation recommendations for Team and Committee - not to be sent to the institution:

25. Less confidential statement — proposed for transmittal to the institution by ECPD:

Signature of Examiner_____

Date_____

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APPENDIX - B

SAMPLE

SUMMARY REPORT

OF

THE ENGINEERING TECHNOLOGY PROGRAMS AT_____

TO

ENGINEERING TECHNOLOGY COMMITTEE

CONFIDENTIAL

The following is a **confidential** report on the evaluation of two engineering technology curricula submitted for reaccreditation and one curriculum submitted for initial accreditation by the above institution. The members of the Evaluation Team and the individual assignments were as follows:

Air Conditioning Design Technology

Professor of Air Conditioning -_____

Aircraft Design Technology

Professor of Aerospace -_____

Drafting Technology

Associate Professor of Drafting -_____

Administration, Admissions, Records, Finance, and Faculty Benefits

_____, Chairman

Date of Visitation: February 10 and 11, 1969

I. Accreditation History

II. Summary of Findings

III. Accreditation Recommendations

IV. Confidential Statement of Strengths and Weaknesses Observed

- A. Implementation of the Recommendations of 1963 Visitation Team
- B. Faculty Salaries and Benefits
- C. Improvement in Physical Facilities
- D. Student Activities - Counselling
- E. Student Records, Admissions, Publications, Public Relations
- F. Library
- G. Placement and Alumni Services
- H. Industry's Evaluation of Graduates—from Industrial Reports
- I. Student Attitude and Morale

V. Confidential State by Curriculum Evaluator

- A. Air Conditioning Design Technology
- B. Aircraft Design Technology
- C. Drafting

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APPENDIX - C

LETTER TO PRESIDENT OF INSTITUTION - TRANSMITTAL OF COMPREHENSIVE EVALUATION REPORT

E.C.P.D. ENGINEERING TECHNOLOGY COMMITTEE LETTERHEAD

President_____

_____University

_____

Dear President_____:

Attached is the Comprehensive Evaluation Report on the following engineering technology programs offered by_____, reviewed by the Engineering Technology Committee of the Engineers' Council for Professional Development evaluation team on February 10 and 11, 1969:

1. Electrical Engineering Technology — Power Option
2. Electrical Engineering Technology — Electronics Option
3. Instrumentation Engineering Technology
4. Sanitary Engineering Technology

Please review the information for applicability, accuracy, and factual content. You may wish to comment on some of the findings or supply additional information if you think it necessary to correct an impression.

This is an opportunity presented to the President of an institution for a response if he deems a response necessary.

Sincerely,

H. E. McCallick
Chairman

HEM/kw

Enclosures

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APPENDIX D

SAMPLE

LESS-CONFIDENTIAL STATEMENT

COMPREHENSIVE EVALUATION REPORT

OF

THE ENGINEERING TECHNOLOGY PROGRAMS AT_____

I. History and Financial Support

II. Philosophy and Purpose

III. Organization and Administration

IV. Faculty - Qualifications, Salary, and Benefits

V. Physical Facilities

VI. Admissions and Records

VII. Library

VIII. Service Departments

IX. Student Activities

X. Curriculum Evaluation

APPENDIX - E

THE PRESIDENT'S LETTER FROM ECPD TO THE INSTITUTION

ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT LETTERHEAD

President_____

_____University

Dear President_____:

The Engineers' Council for Professional Development at its July 15 Executive Meeting in New York City, took the following actions relating to the curricula offered by your institution:

Full-time FOUR-YEAR Day Programs

1. **Design and Drafting Technology**

2. **Manufacturing Technology**
   These two programs have been reaccredited for six years (1975) as engineering technology curricula. Accreditation expires September 30, 1975.

Full-time TWO-YEAR Day Programs

3. **Electronics Engineering Technology**
   This program has been reaccredited for four years (1973) with a proviso that a Progress Report shall be submitted to ECPD by February 1, 1973, setting forth the extent to which your institution has taken action to implement the recommendations of the visiting team. Particular emphasis is requested in the areas noted in the attached supplement. Any extension of accreditation beyond September 30, 1973, will depend on the evaluation of this report by the visiting team.

4. **Civil Engineering Technology**
   To accredit for four years (1973); initial accreditation as two-year engineering technology program. Accreditation expires September 30, 1973.

5. **Architectural Engineering Technology**

6. **Chemical Technology**
   These two programs represent initial evaluations and have been accredited as engineering technology curricula for four years (1973) with the same proviso as set forth above, with reports requested addressing themselves to the recommendations made in the supplement attached.

For your guidance, please refer to the attached policy statement in respect to all public announcements, newspaper advertisements, catalogues, etc. where mention is made of ECPD accreditation.

The accredited list as it will appear in ECPD publications will show only the curriculum which has been accredited and will not indicate the period for which accreditation has been granted. The accredited list, however, will be subject to continual revision at the discretion of the ECPD Board of Directors.

Should there be any comments or observations you wish to make in connection with the report of the visitation team or the actions taken by the ECPD Board of Directors, please be sure that this is done prior to September 1, 1969.

I am pleased to offer my personal congratulations and do hope sincerely that you will have a long history of ECPD accreditations.

Cordially yours,

Ernst Weber
President

EW/kw

Enclosures

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APPENDIX - F

SAMPLE

ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT

ENGINEERING TECHNOLOGY COMMITTEE

UNIVERSITY VISITATION

April 19, 20, 21, 1967

SUMMARY OF OBSERVATIONS

1. The University should be complimented for having an alert, dynamic administration. It is well informed about the role of the engineering technology programs and provides support.

2. The supportive and service areas are well organized and directed.

3. The campus as a whole is pleasing and the University has an unusually attractive student body.

4. Student-faculty activities receive an unusual degree of emphasis.

5. The staff and faculty in Technology seem completely dedicated to these activities and anxious to progress.

6. The administration of the technical programs is knowledgeable, qualified and competent.

7. Laboratory facilities and equipment are good and the institution should be encouraged to construct the additional facilities planned for technology.

8. The students are serious, dedicated, and high grade.

9. The faculty has a fine morale.

10. The excellent relationship and support which currently exist between the Dean of Sciences and Engineering and the Technology Division should be encouraged and a closer liaison provided between the two faculties.

11. It is suggested that faculty be added to the Electronics and Design and Drafting areas in order to strengthen the programs and provide greater stability.

12. The mathematics and science content of the specific curricula could be strengthened in order to provide the graduate with the background required to continue and advance in his field.

13. It is suggested that, as the faculty is expanded or replaced, emphasis be placed on the employment of more persons with an engineering academic background.

14. There appears to be a degree of overlap between the Industrial Arts and the Technology laboratories which could be separated in the proposed building addition.

15. Since the programs are in the engineering support areas, the faculty should be encouraged to visit other institutions where engineering technology programs are offered and should be encouraged to participate actively in the sectional and national meetings of the American Society for Engineering Education.

16. Joint use of some of the engineering laboratories should be continued and encouraged.

17. It is suggested that the curricula of Drafting and Design Technology and Manufacturing Technology be reviewed as to the possibility of having one program with the appropriate options since the two are quite similar.

18. The specific courses in Electronics need to be reviewed and brought to a current status.

APPENDIX - G

ENGINEERING TECHNOLOGY COMMITTEE

Engineers' Council for Professional Development
345 East 47th Street, New York, New York 10017

ALL PUBLICITY CONCERNING ECPD ACCREDITATION OF ENGINEERING TECHNOLOGY CURRICULA MUST CONFORM TO THE FOLLOWING POLICY . . .

1. All statements are to avoid the creation of any confusion between the accreditation of Engineering Technology curricula by ECPD and the accreditation of Engineering curricula by ECPD.

2. All statements should make clear that ECPD/ETC accreditation is curriculum by curriculum and not for the institution. Even if every curriculum offered by an institution is ECPD/ETC accredited, there must be no implication that the entire institution is so accredited.

3. Each curriculum that has received ECPD/ETC accreditation is to be clearly identified by one of the following statements in this exact form:

   An ECPD accredited Engineering Technology Curriculum
   (the word Program may be used to replace Curriculum).

4. Any curriculum which has not been accredited under ECPD/ETC criteria must not be described by any statement that indicates either implicitly or explicitly that criteria for such ETC accreditation are met by or endorsed in connection therewith.

5. A general description (definition) of the ECPD/ETC accreditation objectives and procedures may be included and must be presented in such form as to appear

   a. Completely factual;

   b. Professional in tone as opposed to advocacy.

6. When any advertising is done by a school, in addition to the above noted items, special care must be taken to show ECPD/ETC accreditation as an incidental, and not as a prominent item in the copy.

7. Term of accreditation is considered personal information between the Engineers' Council for Professional Development and the institution concerned, and must not be publicized in any way.

8. Reasonable Assurance of Accreditation and/or Candidate for Accreditation status for any program is not to be publicized.

April, 1969

APPENDIX - H

PRESIDENT'S LETTER — CANDIDATE FOR ACCREDITATION

E.C.P.D. ENGINEERING TECHNOLOGY COMMITTEE LETTERHEAD

President_____
_____University

Dear President_____:

In accordance with the procedures to be followed in applying for recognition as a Candidate for Accreditation of Engineering Technology Curricula, as approved by the ECPD Executive Committee, I am pleased to furnish you with this **Letter of Acceptance** of the following five curricula as Candidates for ECPD Accreditation:

1. Aeronautical Technology
2. Civil Technology
3. Computer Technology
4. Detail and Design Technology
5. Electronic Technology

This Letter of Acceptance is based on a study of written information supplied by you and an on-the-spot visit to the campus made on April 12, 13, 14, 1969, by an Ad Hoc Visiting Committee. The members of the Committee were_____,_____, and_____.

For your guidance, the following excerpts are quoted from the Engineering Technology Committee **Manual of Evaluation Procedures and Instructions:**

> Acceptance in the status of Reasonable Assurance or as a Candidate is not accreditation, nor a promise of it. Preliminary recognition of an engineering technology program for accreditation by the Engineers' Council for Professional Development is simply an acknowledgment, before the new program has had time to qualify for accreditation, that the financial support is adequate; and the organizational plans and philosophy, the existing and planned personnel, and the academic program including laboratories have been examined and found to be sound.
>
> Recognition for accreditation of an engineering technology program will remain in effect on a year-to-year basis by action of the Engineering Technology Committee. This action will be based upon the acceptance of a progress report to be prepared by the institution. It is a matter of accepted policy that early recognition is given only with full accreditation as the ultimate objective.
>
> Engineering technology programs recognized for Reasonable Assurance of Accreditation or Candidate for Accreditation will not be included by the Engineers' Council for Professional Development in any published listing. The institution will not be permitted to publicize any statement of these two types of recognition, nor to issue any statement of accreditability of the curricula involved, other than to governmental agencies.

For your information and guidance, I am enclosing a summary of observations made by the Visitation Team.

Sincerely,

H. E. McCallick
Chairman

HEM/kw

Enclosure

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APPENDIX - I

PRESIDENT'S LETTER — REASONABLE ASSURANCE OF ACCREDITATION

E.C.P.D. ENGINEERING TECHNOLOGY COMMITTEE LETTERHEAD

President_____
_____University
_____

Dear President_____:

In accordance with the procedures to be followed in applying for recognition for Reasonable Assurance of Accreditation of Engineering Technology Curricula, as approved by the ECPD Executive Committee, I am pleased to furnish you with this **Letter of Acceptance** of the following four curricula for Reasonable Assurance of ECPD Accreditation.

1. Air Conditioning Design Technology
2. Construction Technology
3. Industrial Engineering Technology
4. Mechanical Engineering Technology

This Letter of Acceptance is based on a study of written information supplied by you and an on-the. spot visit to the campus made on April 15, 16, 17, 1969, by an Ad Hoc Visiting Committee. The members of the Committee were_____,_____, and_____

For your guidance, the following excerpts are quoted from the Engineering Technology Committee **Manual of Evaluation Procedures and Instructions:**

> Acceptance in the status of Reasonable Assurance or as a Candidate is not accreditation, nor a promise of it. Preliminary recognition of an engineering technology program for accreditation by the Engineers' Council for Professional Development is simply an acknowledgment, before the new program has had time to qualify for accreditation, that the financial support is adequate; and the organizational plans and philosphy, the existing and planned personnel, and the academic program including laboratories have been examined and found to be sound.
>
> Recognition for accreditation of an engineering technology program will remain in effect on a year-to-year basis by action of the Engineering Technology Committee. This action will be based upon the acceptance of a progress report to be prepared by the institution. It is a matter of accepted policy that early recognition is given only with full accreditation as the ultimate objective.
>
> Engineering technology programs recognized for Reasonable Assurance of Accreditation or Candidate for Accreditation will not be included by the Engineers' Council for Professional Development in any published listing. The institution will not be permitted to publicize any statement of these two types of recognition, nor to issue any statement of accreditability of the curricula involved, other than to governmental agencies.

For your information and guidance, I am enclosing a summary of observations made by the Visiting Team.

Sincerely,

H. E. McCallick
Chairman

HEM/kw

Enclosure

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APPENDIX - J

ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT
ENGINEERING TECHNOLOGY COMMITTEE
Visitation Team Members Response Check List

TO: **ECPD Team Members**

Please complete this checklist in triplicate and send copies as follows:

1. Send a complete copy to Team Chairman
2. Send a complete copy to Host Institution - Arrangements Chairman

---

To: **TEAM CHAIRMAN**

I have	I need	The completed Institutional Questionnaire
I have	I need	The reference publication: "Characteristics of Excellence in Engineering Technology Education"
I have	I need	The "Manual of Visitation Procedure"
I have	I need	ECPD Annual Report, latest edition
	I need	The following **additional** information concerning the visited organization:

TO: **HOST INSTITUTION** - Arrangements Representative

I have	I need	Confirmation of lodging arrangements
	I need	The following **additional** information about:

a) The Institution

b) The curriculum which I will be reviewing

c) The arrangements for the visitation

My travel plans are:

ARRIVAL.....
Via Place Time

DEPARTURE.....
Via Place Time

SUBMITTED BY_____ Date_____
Team Member

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APPENDIX - K

SAMPLE LETTER TO COMPANIES EMPLOYING GRADUATES OF CURRICULA EVALUATED

E.C.P.D. ENGINEERING TECHNOLOGY COMMITTEE LETTERHEAD

RE:_____

Gentlemen:

The above institution has applied for Engineers' Council for Professional Development recognition of engineering technology curricula. A committee has been assigned to inspect and evaluate these curricula. The Engineers' Council for Professional Development is the national accrediting agency for institutions offering programs in engineering and engineering technology.

It is the responsibility of the committee to evaluate each engineering technology curriculum designed for the education of engineering technicians and technologists in terms of its academic level and objectives. It is felt that one of the best ways of determining the success of a curriculum is in the evaluation of the work of its graduates.

To help us serve both industry and future students of the requesting institution, will you please fill out and return one copy of the attached questionnaire for the students named. We are informed that these students are with your organization. All information will be held in strict confidence within the committee itself.

Please accept the sincere appreciation and thanks of the committee for your valuable help in this evaluation.

Very truly yours,

Chairman, Region_____

APPENDIX - L

ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT
ENGINEERING TECHNOLOGY COMMITTEE
EVALUATION OF GRADUATES

Name of Employing Company_____

Name of Graduate_____ Curriculum_____

College_____

1. Describe briefly the work being done by this graduate_____

2. At what level would you classify his work; i.e., skilled craftsman_____, engineering technician_____, engineering technologist_____, sales engineering_____, supervision or management_____, engineering_____, other_____

3. In your opinion, does the graduate's educational background qualify him for the work he is doing?

4. Based on your answer on educational background, how far could he advance in your organization? (Give titles of positions, if possible.)_____

5. If you had other vacancies, would you seek more employees with the same educational background?

6. What in your opinion is his educational weaknesses:
   (a) In performing present assignments_____
   (b) In advancing in your organization_____

7. Do you feel this graduate is qualified to carry out the work of an engineering technician in his particular field as described in the attached letter?_____

8. Other comments_____

SIGNED:_____ TITLE:_____

PLEASE RETURN TO:

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VT 010 584
Barlow, Melvin L.
Principles of Vocational Education.

American Vocational Association, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
Publication Sales, American Vocational Association, 1510 H Street, N.W., Washington, D.C. 20005 ($.50).
PUB DATE - Nov69 8p.

DESCRIPTORS - *HISTORICAL REVIEWS; *VOCATIONAL EDUCATION; *FEDERAL LEGISLATION; *FEDERAL AID; *FEDERAL PROGRAMS; EDUCATIONAL PRINCIPLES
IDENTIFIERS - *VOCATIONAL EDUCATION ACT OF 1968

ABSTRACT - Vocational education as it exists today had its origin in the early 1900's. The National Society for the Promotion of Industrial Education was formed to promote vocational-industrial education in the public schools in 1906. From this early period the program has grown from a training program for high school students and employed adults to a program at secondary and post secondary levels for in-school youth, out-of-school youth and adults, the employed, unemployed, handicapped, and disadvantaged. In 1968 a comprehensive Vocational Education Act was passed which authorized Federal grants to assist states in maintaining, extending, and improving existing programs and to develop new programs. Federal funding of vocational education programs increased from $55 million dollars in 1963 to $279 million in 1968. However in 1968 the Federal budget provided $650 million for manpower programs which aided only about 10 percent of the number of people served by vocational education. (BC)

VT 010 584

ED0 57254

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

Principles of Vocational Education

a review of the historical background with a focus on the present

VT010584

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Vocational educators are aware of the general and basic ideas upon which their profession is grounded but it is beneficial to have them spelled out from time to time—as viewed by different leaders in the field. In an effort to stimulate thought and discussion, the AVA proposes to present these ideas as articulated by various vocational educators.

The basic ideas as stated here were included in a speech Melvin L. Barlow gave before the United States Chamber of Commerce in San Francisco on October 19, 1969.

Dr. Barlow is Professor of Education, UCLA, and Director of the Division of Vocational Education, University of California. He also is the author of the *History of Industrial Education in the United States*, and numerous booklets, pamphlets, and articles concerning vocational education. Dr. Barlow served as Staff Director of the 1968 Advisory Council on Vocational Education.

Brief History

The program of vocational education, as we know it today, had its origin in the early part of the twentieth century. The causal factors of the vocational movement in education occurred, however, during the nineteenth century, and the historical roots can be traced to very ancient times.

During the latter part of the nineteenth century, the need for occupational training produced a number of private trade schools. Although there were many different kinds of trade schools, organized for many different purposes, the schools can be described as belonging to one of three types: (1) schools that offered only trade training, (2) schools that offered a combination of trade training and general education, and (3) schools that apprenticed their students to the boards of trustees in addition to offering trade and general education.

In addition to trade schools, a large number of private business schools were organized throughout the nation, and supplied occupational preparation for the business world. Here and there, it was possible to find a few schools offering instruction in agriculture.

A second major development, prior to the beginning of the twentieth century, was the establishment of programs—in the public schools—known as manual training, commercial training, domestic science, and agriculture. Each represented a protest against

the thorough academic orientation and traditional education of the day.

Around the turn of the century, some of the farsighted people in the manual training area observed that many of their graduates were using the skills and knowledges gained in manual training classes for vocational purposes. This was not the major intent of the manual training program; the proponents claimed educational rather than vocational purposes. However, the manual training leaders were encouraged to develop a separate system of vocational education that would achieve vocational goals on purpose, rather than by accident, as in manual training of the day. Accordingly, in 1906, the National Society for the Promotion of Industrial Education (NSPIE) was formed to promote vocational-industrial education in the public schools.

The work of the NSPIE between 1906 and 1917 created a fabulous period in the history of vocational education. People from all walks of life joined together to discuss the need for vocational education. The program captured the attention of national and state public officials, educators, labor, management, the public at large, and members of Congress. It was a period of intense study and the needs of society and the economy for trained manpower were reviewed extensively. Throughout all of this period, the United States Chamber of Commerce was involved, working hand in glove with NSPIE. It was the action of the Chamber in 1914 that really cleared the path through some of the troublesome areas of theory related to the proposed legislation that made the difference in achieving the passage of the Smith-Hughes Act in 1917. This was an exciting period in education's history as individuals and groups searched their best judgment concerning the future

of the youth and adults of the nation as related to vocational preparation.

The dramatic developments and vocational education's contribution to the general welfare in World War I, the depression years, and World War II deserve hours of discussion. But the essential points are that in peace, in war, in conditions of great economic depression or economic expansion vocational education has come to the rescue of the American people. Vocational education has been tested and found to be capable, willing, and able to adapt to the needs of society. Vocational education is the unsung savior of the American economy. The program has grown year by year and now serves more than 8 million people, but we still have not been able to reach all of the people who need vocational education. Only in the future will the real growth period be experienced.

Principles of Vocational Education

During the period between 1906 and 1917, the foundations of vocational education were developed in the United States. The many years of concentrated study by the NSPIE probed the depths of the social need for vocational education and helped forge the basic principles. The men and women concerned with the formative period of vocational education were not seeking a "band-aid" for a particular social disturbance; they were seeking a means of strengthening the social and economic fabric of the nation.

In the records of this formative period of more than a half century ago, we find the following ideas developing as basic to the solid foundation of vocational education.

All vocational education programs

should be open to everyone; neither sex, creed, color nor nationality should be the cause of anyone's debarment.

Much of the instruction must be individual rather than group in order to adapt it to the varied abilities and experiences of the pupil.

Vocational education should produce skilled workmen who possess the necessary theoretical knowledge and as much practical knowledge as possible.

Vocational educators are concerned with the entire individual and advocate that prior to vocational specialization a firm foundation of general education and training be laid. Vocational education is not calculated to interfere with any education that leads to cultural growth or hinder development of things noble and beautiful in life.

Federal aid and encouragement are essential to vocational education. Attempts by the states to establish and maintain sound programs will be isolated and spasmodic without such interest.

Definite vocational education for pupils of 16, or over, who have chosen an occupation must be carried on in every section of every state where there is a demand for such training.

Instructors should have extensive experience, preferably current, in the trades dealt with and, if possible, wide-ranging skill in the practical operations.

Vocational education is a public necessity and should be a public function—not a private one. It should be conducted and controlled by the public at public expense.

Representatives of labor and management should serve on the boards of directors of schools that conduct vocational education programs.

Vocational education recognizes the American tradition that abhors class distinction and prefers an educational system that gives little evidence of demarcation between groups of students.

These are only a few of the ideas which generated the vocational education program in the United States. There are many more, and taken in total, the principles do, in fact, provide satisfactory guides for the development of vocational education.

One of the strong proponents of vocational education in those early days was Senator Carroll S. Page of Vermont. While addressing the Senate on July 24, 1916, he said:

> Mr. President, I wish to emphasize what I regard as the fundamental purpose of federal effort to blaze a trail which the several states may follow toward greater industrial efficiency and better citizenship for our young men and young women. Its purpose is to stimulate and encourage stronger state action along educational lines, with the central idea of promoting that equality of opportunity which this country owes to all, rich and poor alike. In my judgment . . . the chief purpose of [this bill] is . . . good citizenship, because good citizenship is an absolute sine qua non for the general welfare and the common good. I submit, Mr. President, that this can be done [achieve good citizenship] in no way so well as by vocational education—indeed it is probable that there is no other way in which it can be done at all.

Pattern for Review

From this historical background, and supported by 30 years of study and experience

in vocational education, I have formulated a way of thinking about vocational education and change that has been helpful to me in understanding the contemporary scene and in looking toward the future.

First, the principles of vocational education are sound. No new basic principles have been discovered since the 1906-1917 period. All of the principles are related to the needs of the economy and the social structure, and hence to people and the work they do as they enjoy the benefits of a democracy.

Second, the principles must be *interpreted* from time to time in relation to the needs of the social and economic structure. Such interpretations were made in 1917, 1936, 1946, 1963, and 1968. As society and the economic structure change, it is reasonable to believe that the principles must be re-interpreted again in the future.

Third, the principles as interpreted in relation to the needs of social and economic conditions must be *implemented* at the state and local levels. This is where the theory becomes practice; this is where ideas become reality; this is where we achieve definite outcomes—outcomes that are directly related to contemporary social and economic needs.

The system of vocational education, then, is one in which the principles do not change, but must be re-interpreted from time to time, and the programs organized, or reorganized, to achieve the goals of contemporary society and technology—goals related to people and their vocational needs.

So, for more than 50 years, vocational education has grown from a program for high school students and employed adults to a program at secondary and post-secondary levels for in-school youth, out-of-school

youth and adults, the employed, the unemployed, the handicapped, and the disadvantaged—in short, those people who want to get into the labor market or who want to improve their mobility in the labor force. They number more than eight million and the programs they need are being conducted, today, on a shoestring federal budget of $279 million—an investment of federal funds of about $35 per person.

The Vocational Education Amendments of 1968

The Vocational Education Act of 1968 (P.L. 90-576) represents a modern up-to-date interpretation of the principles of vocational education.

The Declaration of Purpose tells, in brief, what the Act is to accomplish:

> It is the purpose of this title to authorize federal grants to states to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, and to provide part-time employment for youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the state—those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market but need to upgrade their skills or learn new ones, those with special educational handicaps, and those in post-secondary schools—will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training.

This Act exists NOW; it is the law of the

land for vocational education. It was developed upon the basis of a depth study of vocational education, and enacted into law by an enlightened Congress.

Contemporary Problems

Two national groups, both appointed by a President of the United States, have studied vocational education during the past decade. The first, a Panel of Consultants on Vocational Education (1961-1962) provided the background data the Congress required to produce the Vocational Education Act of 1963. Federal funding under this Act increased from $55 million to $279 million, but did not reach the funding level recommended by the Panel. The second group, the Advisory Council on Vocational Education (1966-1967), provided the background data needed by Congress as it developed the Vocational Education Amendments of 1968. Federal funding under this Act—authorized unanimously by the Congress—was set at about $850 million. But despite the significant increases in this authorization, the President's budget still contained only $279 million for vocational education. At the same time, the President's budget contains about $650 million for manpower programs—programs that serve about 10 percent of the number of people served by vocational education.

I would not suggest that there is too much money in the manpower program, but I do state emphatically that there is too little in the vocational education program. I am not alone in this point of view. Recently the House of Representatives, while considering the budget of the United States, appropriated an additional $209 million for the vocational education fund. The Senate must now consider the additional amount

for vocational education, and they can reduce it, leave it as it is, or raise it.

The irony of the situation is that the President has stated that he will not spend the money even if the Congress appropriates it. The President is obviously making this judgment on the basis of either poor advice or biased viewpoints held by his advisors.

Meanwhile in the Congress, three bills have been introduced: H.R. 10908 (May 5, 1969), the Steiger bill; H.R. 11620 (May 26, 1969), the O'Hara bill; and, S. 2838 (August 12, 1969), the Javits bill. All of these bills are concerned with the development of manpower training programs, and all propose to improve the present situation in manpower training, which is a good idea.

Without comparing the three bills, or citing the merits and possible defects of each, it is clear that vocational education has reason to be concerned. Under the terms of the bills, the Secretary of Labor would have broad responsibilities to organize national, state, and local manpower committees, would control the allocation of funds, and would have general control of the programs. All of this is purported to be good under the guise of expediency, improvement, consolidation, and a variety of other such items.

But the fact is that the existing vocational education program of the nation has been ignored. These new proposals, in the main, set up an entirely new structure—national, state, and local. It is my belief that such a structure is unnecessary and that most of the education and training suggested under the proposed manpower bills can and should be the responsibility of the existing structure of vocational education. Certainly some of the facets of the bills are unquestionably the responsibility of the Secretary

of Labor, but the vast majority of the provisions for education and training are not, in my opinion, the responsibility of the Secretary of Labor.

Bringing the Department of Labor prominently into the educational field has been justified in part by attempting to show that the responsibilities for manpower training are somehow different from the vocational education responsibilities as expressed in the Vocational Education Act of 1968, but, these differences are vaguely explained and extremely difficult to accept. Although the proponents of the new proposals for manpower training indicate that they have no intention of setting up a dual system of education and training, I believe that this is exactly what will happen. Right or wrong about this point, there is no question whatsoever that the vocational education structure has been ignored.[1]

I believe that the vocational education and manpower training programs of the nation involve coordinated responsibility of both the Department of Labor and the Department of Health, Education, and Welfare, and that these responsibilities should be clearly delineated in any new legislation. I believe also that the more appropriate and logical way to approach the manpower education and training problems is to utilize the existing structure of vocational education throughout the nation—a structure that

[1] Early in September, the American Vocational Association called a legislative seminar in Washington, D. C. AVA organized this grassroots review in order to provide a forum for discussion of the problems of vocational education and manpower training. Three hundred people from 46 states and the District of Columbia attended. The report, *Vocational Education and Manpower Training*, of this seminar is available from AVA Headquarters. Single copies 50 cents.

has proven its worth, and has an expanded authority and capability under the provisions of the Vocational Education Amendments of 1968.

But the expanded structure of vocational education cannot work effectively until, and unless, the President and the Bureau of the Budget provide the funds that Congress unanimously indicated were necessary. For some strange reason, the soundness of vocational education and its importance to the development of a strong social and economic fabric for the nation keeps getting lost in the Executive Branch of the government.

It is unfortunate that everyone does not see the value of the programs. Despite any defects it may have had in the past, or has now, vocational education is the success story of the century.

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Rhodes, James A. *Alternative to a Decadent Society.* Indianapolis: Howard W. Sams Co., 1969.

Vocational Education and Manpower Training. Washington, D. C.: American Vocational Association, 1969.

U.S., Department of Health, Education, and Welfare, Office of Education. *Vocational Education: The Bridge Between Man and His Work.* Washington: U.S. Government Printing Office, 1968.

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Single copy, $.50. Order number (26369). 10 per cent discount on orders of 10 or more. Postage charge added to orders not accompanied by payment. All orders of less than $2.00 must be accompanied by payment. Order from **Publication Sales, American Vocational Association, 1510 H St., N.W., Washington, D. C. 20005.**

NOVEMBER 1969 861

VT 010 912
Rogers, James P.; Thorne, H. Walter
The Development and Evaluation of an Improved Electronics Troubleshooting Manual. Technical Report 65-1.

George Washington Univ., Alexandria, Va. Human Resources Research Office.
Department of the Army, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Mar65 61p.

DESCRIPTORS - *MATERIAL DEVELOPMENT; *ELECTRONICS; *EQUIPMENT EVALUATION; TRADE AND INDUSTRIAL EDUCATION
IDENTIFIERS - HUMAN RESOURCES RESEARCH OFFICE; HUMRRO; *ELECTRONICS TROUBLESHOOTING MANUAL

ABSTRACT - Research was conducted to develop an improved maintenance manual for use in training technicians to troubleshoot modern electronic equipment faster and more accurately, and to specify procedures for preparing such manuals. First, on the basis of a review of literature, hypotheses were developed concerning the information to be included and methods of presenting and organizing this information. From this, an experimental manual was prepared for use with an experimental group of inexperienced technicians while a control group used standard schematic and functional diagrams and personal notes. Based on results of an objective test administered to the two groups, a list of desirable contents for troubleshooting manuals was developed, and procedures for preparing manuals of this type were written. The new manuals were thought to be better because they include some information not previously included, and because the information is organized according to when it will be needed in troubleshooting. Examples of suggested contents for troubleshooting manuals are given along with a bibliography and malfunctions used in testing the manual. (DM)

VT 010 912

AD 472254

Technical Report 65-1

The Development and Evaluation of an Improved Electronics Troubleshooting Manual

by

James P. Rogers and H. Walter Thorne

HumRRO Division No. 5 (Air Defense)

AD _____

March 1965

Prepared for:

Office, Chief of Research and Development, The Department of the Army

Contract DA 44-188-ARO-2

HumRRO

The George Washington University
HUMAN RESOURCES RESEARCH OFFICE
operating under contract with
THE DEPARTMENT OF THE ARMY

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AD_____Div. 8, 23

Human Resources Research Office, George Washington U., Alexandria, Va. 22314
THE DEVELOPMENT AND EVALUATION OF AN IMPROVED ELECTRONICS TROUBLESHOOTING MANUAL, by James P. Rogers and H. Walter Thorne, Mar. 65, 64 pp. incl. figs., 12 refs. (Technical Report 65-1)
(Contract DA 44-188-ARO-2) (DA Proj 2J024701A712 01) Unclassified Report

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2. Textbooks—Development
3. Maintenance personnel—Military training

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James P. Rogers and H. Walter Thorne

March 1965

Prepared for:

Office, Chief of Research and Development,
The Department of the Army
Contract DA 44-188-ARO-2 (DA Proj 2J024701A712 01)

HumRRO Division No. 5 (Air Defense)
Fort Bliss, Texas

The George Washington University
HUMAN RESOURCES RESEARCH OFFICE
operating under contract with
THE DEPARTMENT OF THE ARMY

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Technical Report 65-1
Task MAINTRAIN
Subtask V

The Human Resources Research Office is a nongovernmental agency of The George Washington University, operating under contract with the Department of the Army (DA 44-188-ARO-2). HumRRO's mission, outlined in AR 70-8, is to conduct research in the fields of training, motivation, and leadership.

The contents of this publication do not necessarily represent the official opinion or policy of the Department of the Army

Published
March 1965
by
The George Washington University
HUMAN RESOURCES RESEARCH OFFICE
300 North Washington Street
Alexandria, Virginia 22314

Distributed under the authority of the
Chief of Research and Development
Department of the Army
Washington, D.C. 20310

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FOREWORD

The objectives of the research described in this report were to develop a type of maintenance manual that would permit trained technicians to troubleshoot modern complex electronic equipment faster and more accurately, and to specify procedures for preparing such manuals. The research was conducted under HumRRO Subtask MAINTRAIN V, The Design and Evaluation of Selected Technical Literature for Nike Missile Maintenance.

The MAINTRAIN V research is completed with the publication of this description of the development and evaluation of an improved type of troubleshooting manual. Procedures for preparing such manuals were developed in a working paper, "Preparation of MAINTRAIN Troubleshooting Manuals," which will be tried out and revised during the course of the current HumRRO Task HAWKEYE, in which a course for radar technician training is being developed.

The MAINTRAIN V research was conducted by HumRRO Division No. 5 (Air Defense) at Fort Bliss, Texas. The study was initiated while Dr. Joseph C. Hammock was the Director of Research, and was continued while Dr. Robert G. Smith, Jr., directed the division. At the time the study was completed, Dr. Robert D. Baldwin was the Director of Research.

Military support for the study was provided by the U.S. Army Air Defense Human Research Unit. The Military Chief of the Unit at the time the study was completed was Lt. Col. Leo M. Blanchett, Jr.

Many individuals, both within the Army and among its contractors, contributed their time and assistance to this study. Their contribution is greatly appreciated, although space does not permit recognition of each of them individually. One such individual who does deserve particular mention, however, is Mr. Jack Ver Hulst, who began work on the study while he was a military technician assigned to the Air Defense Human Research Unit, and later continued it as a HumRRO employee. He contributed substantially to the success of the study, especially in the development of the procedures for circuit analysis.

MAINTRAIN V was the final subtask of HumRRO Task MAINTRAIN, Maintenance Proficiency and Its Relation to Training Procedures for Guided Missile Personnel. The research was completed under Army Contract DA 44-188-ARO-2 and Army Project 2J024701A712 01, Training, Motivation, Leadership Research. Earlier subtasks dealt with various aspects of experimental instruction, analysis of troubleshooting behaviors, and study of the knowledges and skills required for missile maintenance, and included a survey of current practices in relevant industrial training programs.

Previous MAINTRAIN publications include the following: HumRRO Technical Report 60, Experimental Comparison of Two Basic Electronics Courses for Fire Control Technicians, by Lloyd Hitchcock, Jr., February 1960 (MAINTRAIN I); HumRRO Research Report 2, Some Problems in the Analysis of Trouble Shooting Behavior, by Paul G. Whitmore, October 1959 (MAINTRAIN II); Research Memorandum, A Survey of Organizational Maintenance of the Nike Ajax Missile, by Robert A. Goldbeck et al., July 1960 (MAINTRAIN III); Research Memorandum, Current Practices in Electronics Training in Industry, by Robert F. Mager, May 1960 (MAINTRAIN IV); Research Memorandum, An Annotated Bibliography on the Troubleshooting of Electronic Equipment, by Clinton S. Trafton, March 1962 (MAINTRAIN V).

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SUMMARY AND CONCLUSIONS

Objectives

The objectives of the present research were to develop a type of maintenance manual that would permit trained technicians to troubleshoot modern complex electronic equipment faster and more accurately, and to specify procedures for preparing such manuals.

Method and Results

These objectives were accomplished through three major steps:

(1) Hypotheses were developed as to what information should be included in a troubleshooting manual and how the information should be presented and organized. These hypotheses were based on a review of the literature on troubleshooting, an analysis of the behaviors involved in troubleshooting, determination of the information needed at each stage of troubleshooting, and a comparison of presentation techniques. The Nike Ajax missile and its associated test equipment was used as the primary system in developing hypotheses, but other systems, larger and smaller, were examined also.

(2) To evaluate the hypotheses, an experimental manual was prepared for use in troubleshooting the Nike Ajax and its test equipment. This manual was evaluated by means of an objective test in which two groups of inexperienced technicians were required to locate malfunctions in the system. The Experimental Group used only the experimental manual, while the Control Group used the standard schematic and functional diagrams and personal notes. Troubleshooting by the group using the improved troubleshooting manual was substantially faster and more effective than that by the group using conventional manuals.

(3) A list of the desirable contents for troubleshooting manuals was developed, and procedures for preparing troubleshooting manuals of this type were written.

Conclusions

Experimental evidence collected during this study demonstrated that substantial improvements in troubleshooting can be obtained through improved troubleshooting manuals.

The improved manuals differ from conventional manuals in two ways: They present some information that is currently not supplied, and the information is organized according to when and how it is to be used in troubleshooting. The improved manuals do not differ significantly from conventional manuals in size, and they contain all of the information that is presented in current manuals used in troubleshooting.

The suggested contents for improved troubleshooting manuals are listed in this report. A guide for use in preparation of manuals of this type has been prepared.

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The Development and Evaluation of an Improved Electronics Troubleshooting Manual

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BACKGROUND OF THE STUDY

During recent years the importance of complex electronic systems to the Army has increased considerably. Many elements of the modern Army become nonoperational if their electronic equipment is not functioning properly. Since it is not possible to produce electronic equipment which never malfunctions, it is important that the time required to locate and correct malfunctions be reduced to a minimum.

Concurrent with the increased need to keep troubleshooting and repair time to a minimum, there has been an increase in the size (or complexity) of electronic equipments. This increase would normally tend to increase both the frequency of malfunctions and the time required to troubleshoot. In an effort to avoid a potentially critical maintenance problem, hardware manufacturers have made a number of improvements in equipment design. Three of these improvements are of particular importance for troubleshooting.

First, there has been an increase in the utilization of plug-in units. In certain cases, this has reduced the time required to make a replacement, thereby increasing the feasibility of using replacement as a troubleshooting check. Also, if spare chassis are available, the technician can return the system to an operational status as soon as he has located the defective chassis—often intrachassis troubleshooting can wait.

Second, there has been an increase in the reliability of certain types of parts which formerly had high failure rates. In addition, designers have eliminated, or at least reduced in number, other types of low reliability parts. The net effect of these changes has been to produce systems in which the failure rates of various types of parts are more nearly uniform. Therefore, the proportion of malfunctions that can be located on the basis of past malfunction experience is reduced. To keep the hardware operational, the technician must be able to locate many different malfunctions, any one of which may occur only rarely.

Third, there has been an increase in the number of built-in indicators and test-points intended to facilitate troubleshooting. While these do permit the technician to take readings and to make measurements more rapidly, they are not an undiluted blessing. By increasing the number of indicators and test-points, the designers have actually increased the technician's problems in deciding where to check and in remembering the reading that should be present at each test-point. Thus, this "improvement" has contributed to the complexity of modern weapons systems.

Despite these and other improvements in the equipment, troubleshooting continues to be a demanding and time-consuming task. Thus, there is a need to consider other factors affecting troubleshooting. In this connection, attention has usually been focused on the selection and training of maintenance personnel. By comparison, little attention has been directed toward the possibility of improving troubleshooting by means of improved job aids or manuals.

RESEARCH OBJECTIVES AND APPROACH

The MAINTRAIN V research was undertaken in 1958 at HumRRO Division No. 5 (Air Defense) at Fort Bliss, Texas[1]. Its objectives were to develop a type of maintenance manual which would permit trained technicians to troubleshoot modern complex electronic equipment faster and more accurately, and to specify procedures for preparing such manuals.

The accomplishment of these objectives involved three major steps. First, hypotheses were developed as to what information should be included in a troubleshooting manual and how the information should be presented and organized. Second, an experimental manual was prepared according to these hypotheses, and the effectiveness of this manual in supporting troubleshooting was experimentally determined. Third, a list of desirable contents for troubleshooting manuals was developed, and procedures for preparing troubleshooting manuals of this type were written.

DEVELOPMENT OF HYPOTHESES ON IMPROVING TROUBLESHOOTING MANUALS

Literature Review and Analysis

A review of the literature relating to electronic maintenance revealed several hundred studies **(11)**, comparatively few of which dealt directly with troubleshooting manuals or job aids **(1, 7, 9, 10, 12)**. In all of the published studies in which experimental troubleshooting manuals were tested, it was found that both experienced and inexperienced technicians could troubleshoot faster and more accurately with the experimental manuals than with conventional manuals, that is, manuals of the types commonly supplied by hardware manufacturers and/or used by military technicians.

The Army has procured troubleshooting manuals for several complex electronic systems, notably the Nike Ajax and Hercules systems **(4, 6)**. Experience with these troubleshooting manuals has not been favorable. Technicians do not use the troubleshooting manuals, reportedly because they are of no help. Consequently, the Army no longer procures this type of manual.

If troubleshooting manuals are effective under experimental conditions, why have they been of so little value for operational use by the Army? One possibility is that the manuals used in the experiments differ markedly from those used by the Army. Examination of some of these manuals suggests that this is the case.

The manuals used in the published research all had one thing in common: They contained procedures for finding each of the malfunctions included on the evaluation test. This was possible because all of the experimental manuals were based on relatively small electronic

[1]Prior to 1 January 1965, the term "U.S. Army Air Defense Human Research Unit" was used to include both the HumRRO research staff and the Unit supporting military staff provided by the U.S. Continental Army Command. The term is now used, more specifically, to denote the military contingent of the Fort Bliss research group.

systems or on only portions of larger ones. The relatively small number of malfunctions which could occur in these small hardware systems made it possible to include complete troubleshooting instructions in manuals of reasonable size.

The Army troubleshooting manuals, however, were developed for large, complex hardware systems. For these large systems, it was not possible to utilize the same detailed troubleshooting instructions and page formats employed in the published studies. To do so would have resulted in manuals containing many thousands of pages.

Unfortunately, the development of the successful troubleshooting manuals used in the published studies did not extend to specifying how the technique used could be adapted to larger systems. Thus, the technical publications agencies which produced the troubleshooting manuals for the Army did not have the benefit of research guidance in deciding what information should be presented and how it should be organized. The decision which was reached was to include detailed instructions for the more common malfunctions and to omit any guidance for less frequent malfunctions. The result was that the Army troubleshooting manuals tended to give detailed instructions for finding those malfunctions which experienced technicians find rather readily with conventional manuals, and to omit those malfunctions which are normally difficult for technicians to locate. That is, these manuals tended to give help where it was needed least and to give no help where it was needed most.

As a result of this literature review and analysis, three conclusions were reached:

(1) Troubleshooting tends to be more effective when procedures for troubleshooting are specified in troubleshooting manuals than when the technician is required to develop his own procedures as he troubleshoots.

(2) Troubleshooting manuals that present detailed procedures for <u>all</u> troubleshooting steps in large systems will tend to be prohibitively large, and thus may be impractical and/or unusable.

(3) To be of <u>practical</u> value, a troubleshooting manual must be based on a thorough understanding of the problems encountered in troubleshooting, and of the relative advantages of specifying procedures for troubleshooting versus providing information that will permit the technician to develop his own procedures.

Observations of Troubleshooting

The next step in the research was to develop a description of troubleshooting behavior in terms of the problems encountered in troubleshooting and the information needed to solve these problems. Several weeks were spent in observing and questioning experienced technicians during troubleshooting, in order to develop a description of troubleshooting behavior that could provide a basis for developing hypotheses about the kinds of information needed in troubleshooting manuals.

These observations indicated the following distinct phases in troubleshooting:

(1) During the first phase of troubleshooting, the technician typically uses built-in indicators (meters, lights, etc.) to collect

symptoms. This usually results in isolation of the malfunction to an area of one or two chassis, or their interconnecting wiring.

(2) During the second phase of troubleshooting, portable test equipment (meters, oscilloscopes, etc.) is used to isolate the malfunction to a single chassis or to identify it as being in the interconnecting wiring.

(3) During the third phase of troubleshooting, the activities and problems differ, depending on where the malfunction is located. If the malfunction is in the interconnecting wiring (a possibility ignored in most descriptions of troubleshooting), the third (and final) phase of troubleshooting involves isolation to a specific wire or connection. If the malfunction is in a chassis, the technician must do "intrachassis" troubleshooting. Here the third phase of troubleshooting involves isolation to a "stage" (e.g., a tube and its related parts). This is usually done with portable test equipment by a process called signal tracing.

(4) In intrachassis troubleshooting, there is usually a fourth phase during which the technician must isolate to a specific part. This is called "intrastage" troubleshooting and involves using test equipment to make voltage and/or resistance measurements.

This description of troubleshooting is, of course, not original. Similar descriptions have been published frequently, and almost any instructor or technician would discuss troubleshooting in some similar manner. However, the description is useful in that it seems to cover all possible troubleshooting activities for any electronic system. Equally important, it provides categories that differ in terms of the portions of the hardware involved, the test equipment used (or the measurement made with the test equipment), and the types of job aids commonly provided.

Within each of these phases of troubleshooting it was found that the technician's overt behavior consisted of little more than the performance of a series of checks. This was particularly true for experienced technicians. Questioning of the technicians, and observation of less experienced ones, revealed that five distinct problems arose each time a check was to be made. These problems were the same for each check regardless of the stage in troubleshooting. They were:

(1) Selection of a test-point.
(2) Determination of the signal that <u>should be</u> present at the test-point.
(3) Determination of the physical location of the test-point.
(4) Determination of the signal that <u>is</u> present at the test-point.
(5) Decision as to whether or not the signal present is "correct."

A sixth problem existed—the interpretation of measurements or symptoms. However, since the solution of this problem resulted in the selection of another test-point, it became a part of the first problem listed.

Troubleshooting One Hardware System

The next step in hypothesis development was to study the information actually required in troubleshooting one particular system. The specific items of equipment in this study were the Nike Ajax missile,

its RF Test Set, and its Electrical Test Set. In selecting this equipment for study, several factors were considered:

(1) The equipment was sufficiently small to permit a study of almost all malfunctions that could occur. Thus, it was possible to study rare and multiple malfunctions as well as the more common ones.

(2) The equipment contained a variety of circuits, which provided a wide range of possible malfunctions. From the troubleshooting viewpoint, the equipment used in the study differs from the larger radar and fire control systems primarily in size. The larger systems have more circuits of each type, and more possible individual malfunctions, but most types of malfunctions found in the larger systems are also possible in the equipment studied.

(3) Because of the relatively small size of the equipment, the time required to prepare experimental manuals was short enough so that it was possible to compare a number of different combinations of information and presentation for the experimental manuals.

(4) Finally, it was anticipated (incorrectly) that the system would be unclassified by the time the research was completed. This would have facilitated storage and distribution of the complete experimental manuals to agencies reviewing or using the research results.

It was recognized that the use of a relatively small system for this phase of the research could be interpreted as a repetition of one of the major deficiencies of the earlier studies of job aids. It was believed, however, that the recognition of the need to develop approaches that would be applicable to larger systems, and the plans for considering other equipments in a later phase of the study, would provide adequate safeguards.

In studying the information used in troubleshooting this equipment, a two-man team was employed. One member of the team, a technician trained at the U.S. Army Air Defense School, Fort Bliss, Texas, would troubleshoot a malfunction. The other member of the team, a psychologist with some knowledge of electronics, would observe and question the technician to determine the information being used at each step in troubleshooting.

During the troubleshooting of the first 50 or 60 malfunctions, written records were made of the specific information used at each stage in troubleshooting. It became apparent that the information needed to solve two of the five types of problems would be greatly dependent upon the packaging of the particular hardware system under consideration and upon the specific test equipment available. Therefore, specification of the information necessary to determine the physical location of test-points (Problem 3) and that required to determine the signal that is present at a particular test-point (Problem 4) was postponed to a later phase of the study.

The information required to solve each of the three remaining problems in making a check was then determined empirically. The psychologist member of the team prepared tentative lists of the types of information required for (1) selection of test-points, (2) determination of the signal that should be present at each test-point, and (3) decision as to whether the signal present was correct. The lists of information

were then given to an illustrator who presented the specified information on specially prepared diagrams. Next, the psychologist checked the diagrams to see that they contained only the desired information. Finally, the technician attempted to troubleshoot using only the information presented on the specially prepared diagrams (plus, of course, any knowledges and skills he had acquired through training).

During the early stages of this study, the technician would often find that he could not locate the malfunction with the information available to him. When this occurred, the lists and diagrams were modified to supply additional information, and further testing would continue. After approximately 1,000 malfunctions had been studied in this way, it was found that the lists of necessary information were adequate for rapid and effective troubleshooting of any malfunction which had been encountered. An additional 2,000 malfunctions were then studied to verify the results.

This study of troubleshooting one hardware system led to several hypotheses:

(1) There is no single, unique set of information required to solve each of the problems encountered in troubleshooting. A technician with a thorough understanding of electronic theory can often derive a specific item of information (e.g., what the voltage should be at a particular point) from other information (e.g., resistance and current) by the use of "laws" of electronics (e.g., Ohm's Law).

(2) The use of the laws of electronics to derive one item of information from others can be quite time-consuming, and it introduces opportunities for errors in mathematics. Also, the number of electronics laws which might be applicable in deriving a specific item of information is so large that a technician may experience considerable difficulty in deciding which law(s) to use in a particular case.

(3) The difficulty of deriving one item of information from others through the use of the laws of electronics increases more-or-less geometrically as the number of piece-parts in the circuit increases.[1]

In addition, this study of troubleshooting on one particular system revealed two major facts about conventional manuals:

(1) Every item of information presented in the available (conventional) technical manuals appeared to be useful in troubleshooting some malfunction in the equipment. However, some of the information was presented several times in the available manuals, and some of this redundancy appeared to have little utility in troubleshooting.

(2) In some cases, needed information could not be found in the available manuals, and the staff was unable to derive the information from any combination of available information and theoretical knowledge. In these cases, it was necessary to resort to piece-part removal and replacement as a troubleshooting check. (While this is not always inefficient or undesirable, it could substantially delay troubleshooting

[1]This is probably a useful generalization, but it is not strictly correct. The addition of a few piece-parts to a large circuit may enormously increase the difficulty of deriving information, while the addition of many piece-parts to a small circuit may add little to the difficulty. The effect depends upon the specific piece-parts added, and the functions they perform.

if the required spare piece-parts were not readily available.) This difficulty was encountered most often in connection with the determination of the signal that should be present at a test-point. Even when the input to a circuit was known, it was sometimes impossible to calculate the expected output because of incomplete specification of the electronic characteristics of some of the parts in the circuit (e.g., dynamic curves for vacuum tubes).

Examination of Other Hardware Systems

Having determined the information required to solve the problems encountered in troubleshooting one particular hardware system, the staff next examined other electronic equipments to estimate the generality of the findings. To facilitate this study, the staff was augmented by two technicians—one with many years of experience on a wide variety of Army equipments, and the other a graduate engineer who had also been trained in radar maintenance at the U.S. Army Air Defense School.

These technicians examined available schematic diagrams, theory manuals, malfunction reports, and so forth, on a variety of systems ranging from simple radios to Nike Zeus, to determine whether these equipments contained any circuits that would require additional types of information for troubleshooting. In addition, they tried to recall malfunctions which they had encountered or heard of to see what information was used in locating those malfunctions.

This examination of other hardware systems indicated that the hypotheses developed during the study of the Nike Ajax missile and its associated test equipment were generally applicable to other systems. Differences in size and complexity of equipments did not appear to alter the information required for selecting test-points, determining what signal should be present at each test-point, or deciding whether the signal that is present is correct. However, it was again found that the difficulty of deriving one item of information from others through the use of the laws of electronics appears to increase rapidly as hardware size increases. Also, it was noted that different electronics laws are sometimes required for deriving information in vacuum tube and solid-state circuits.

During this phase of the study, attention was also focused on the kinds of information needed to solve the two types of problems not previously studied—that is, determining the physical location of test-points in different types of equipment, and determining the signal that is present at test-points.

The information needed to determine physical location of test-points can best be described in terms of the types of diagrams and charts which can be used to present the information. The results of this aspect of the study therefore will be included in the section of the report in which presentation techniques are discussed.

The information needed to determine the signal which is present at a test-point was found to be dependent primarily upon the test equipment to be used in monitoring the signal. If the signal is to be monitored with a device which directly measures the critical aspect(s) of the signal, all that is required is a clear specification of the procedures for using

the device for that type of measurement. If, however, the test equipment measures some other aspect of the signal, there is a need for other information to permit the technician to calculate the value of the critical aspect(s) of the signal through the use of electrical laws. Fortunately, the test equipment available to the military technician almost always measures the critical aspect(s) of signals directly.

In summary, the examination of other hardware systems served to increase confidence in the generality of the hypotheses developed earlier in the study, and to provide some guidance as to the types of information required to locate test-points and determine the signal that is present at each test-point.

Study of Presentation Techniques

During the literature review and the study of information required in troubleshooting, many different ways of presenting information came under consideration. It is apparent that various presentation techniques differ in terms of the amount of space required to present information (i.e., compactness), the costs of preparation and printing, and the ease with which information can be located. A study was therefore undertaken to assess the relative advantages and disadvantages of using various presentation techniques to present information needed in each stage of troubleshooting.

Types of Presentation Techniques

A review of manuals, operational and experimental, which had been used to present troubleshooting information indicated that there are basically five types of presentation techniques available.

Schematic diagrams. This term is used to refer to diagrams that depict intra- and interchassis wiring in a schematized or stylized form. The essential characteristic of these diagrams is that every part is represented. Often some of the description of parts, connections, and so forth, is presented in an accompanying tabulation, as in a voltage and resistance chart or a table of switch connections.

Functional diagrams. These diagrams indicate the electrical function performed by each major part in a system. They show, in schematized form, the major elements (e.g., vacuum tubes) involved in the generation and transmission of major signals. They are, in effect, schematic diagrams in which most minor elements, such as resistors and capacitors, are not shown and in which secondary signal paths may be omitted.

Block diagrams. Block diagrams usually show only the chassis or other similar units involved in the generation and transmission of major signals. They differ from functional diagrams primarily in that block diagrams are less detailed. Individual tubes or stages within a chassis are usually not shown.

Troubleshooting charts. Schematic diagrams, functional diagrams, and block diagrams all show (in various levels of detail) how one part of the hardware is related to another part of the hardware. Troubleshooting charts, on the other hand, show what parts of the

hardware are related to specific abnormal indications that might be encountered in operating or checking the hardware. Thus, troubleshooting charts differ from the first three types of presentations in that troubleshooting charts indicate more precisely what should be checked when a particular abnormal indication is detected.

Written instructions. This type of presentation differs from all others in that it specifies what the technician should do when an abnormal indication is detected, whereas all other presentations supply information which might permit the technician to decide what to do. These instructions are sometimes presented diagrammatically, but more commonly they consist simply of written material. When such written instructions are presented for each action required in isolating a malfunction to a specific piece-part, the resulting manual is often called a "cookbook."

Evaluation Criteria

Each of the five presentation techniques was evaluated in terms of three criteria:

(1) How compact and economical is the technique? Generally, any technique that appeared to increase the cost or size of manuals as much as 25% above that of present manuals was rejected. Within this limit, increases in size and cost were considered less important than other criteria.

(2) Does the technique require unusual training and/or aptitude requirements for user personnel? Any technique that appeared to require knowledges and skills not currently required of technicians was rejected, unless it was judged that the necessary knowledges and skills could be imparted readily during training.

(3) Does the technique permit maximally fast and effective troubleshooting? In employing this criterion, judged differences of less than five minutes in average troubleshooting times were considered of little importance.

Comparison of Presentation Techniques

The available technical manuals contained block diagrams, functional diagrams, and schematic diagrams for the Ajax system. The research staff prepared both written instructions and troubleshooting charts for the Ajax equipment. This made possible the direct comparision of five different techniques for presenting information needed at each phase in troubleshooting.

Each of the diagrams (presentation techniques) was then examined to determine whether or not it presented all of the information needed at each phase of troubleshooting. If it was found that one type of diagram did not present all of the necessary information, an attempt was made to modify it to provide the information that was needed. For example, the available block diagrams did not present the information needed for symptom collection; therefore, these diagrams were redrawn to include more precise information on what portions of the hardware could produce abnormal indications on each meter.

If it was possible to modify a diagram to include the information needed at a particular phase of troubleshooting, that modified diagram was then compared with each other presentation technique in terms of the criteria specified. If it was not possible to present some of the information needed at a particular phase of troubleshooting on a particular type of diagram, that type of diagram was rejected for use during that phase and no comparison with other techniques was made.

This evaluation provided a basis for selecting presentation techniques for use with a system similar to the Ajax equipment in size and complexity. The techniques which appeared most suitable for this kind of system were then used to prepare materials for selected portions of larger and/or more complex circuits (usually the M33 Fire Control System). Some techniques which had appeared to be quite desirable for relatively small circuits were rejected at this stage because they no longer met the criteria when applied to systems involving several thousand tubes.

No one of the available presentation techniques is suitable for presenting the information needed in all stages of troubleshooting. The relative advantages and disadvantages of various techniques may be stated as follows:

Schematic diagrams. These diagrams are quite useful for presenting detailed information about the interrelations among piece-parts in the hardware. In fact, there appears to be no other practical way in which this information can be presented. Thus, if troubleshooting is to involve isolation of malfunctions to a single piece-part, schematic diagrams appear to be indispensable. However, schematic diagrams for an entire system may involve several hundred pages. It is obviously impractical to require a technician to use information from so many different pages at any one time during troubleshooting. Thus, some other type of presentation must be used to present the information needed during the first few steps of troubleshooting for large systems.

Functional diagrams. These are essentially schematic diagrams on which some detailed information (e.g., some resistors and capacitors) has been omitted. The omission of this information greatly reduces the number of pages involved. Thus, these diagrams are much more suitable than schematic diagrams for use during the earlier stages of troubleshooting. However, for large systems the functional diagrams for one circuit may still involve a dozen or more pages. They still place an undue burden upon the technician during the first few steps in troubleshooting, and some other type of presentation should be used. Also, the omission of some of the details that are included on schematic diagrams renders functional diagrams essentially useless for intra-chassis troubleshooting. Thus, it appears that functional diagrams as typically prepared are of little value in troubleshooting manuals for large systems. (A different type of "functional diagram" was developed during this research and will be described later.)

Block diagrams. Because of the extremely limited amount of information presented, block diagrams typically are of little value during troubleshooting. The information presented on typical block

diagrams can be learned during training rather readily and thus there is no need for these diagrams to be included in job aids. Rather, they can be presented in other manuals that are used as texts during training, for example, theory of operation manuals.

Troubleshooting charts. These charts can be of value when used in conjunction with other presentation techniques. Since troubleshooting charts indicate which portions of the hardware could cause certain abnormal indications, they tend to focus the technician's attention and limit the number of parts that he must check in troubleshooting. However, these charts seldom list all possible abnormal indications or all possible causes of each, since this would result in excessively large manuals. For this reason, troubleshooting charts tend to be of little value to trained technicians. Also, troubleshooting charts usually specify only what should be checked, not what the technician should do to check it.

Written instructions. The use of written instructions for presenting troubleshooting information could, at least theoretically, reduce training requirements to an absolute minimum. These instructions specify what the technician is to do, thus reducing his decision-making or problem-solving to a minimum. However, any attempt to produce such detailed instructions for every check that the technician may be required to make in isolating malfunctions to a single piece-part would result in manuals which would be prohibitively large. Therefore, written instructions cannot be used for every check that a technician must make. Fortunately, written instructions for the first few checks in troubleshooting can be presented in manuals of reasonable size. As indicated earlier, this is the very stage in troubleshooting for which other presentation techniques are least suitable.

Tentative Conclusions

The study of troubleshooting, information required in troubleshooting, and techniques for presenting this information led to some tentative conclusions as to what should be presented in troubleshooting manuals. These conclusions, which served as hypotheses to be tested in the next stage of the research, are presented with a summary of the rationales on which they are based:

(1) During the first stage of troubleshooting (i.e., symptom collection), the technician is concerned with large portions of the hardware. None of the available presentation techniques can present, in a reasonable number of pages, all of the detailed information required for the selection of test-points and for the determination of the signal that should be present at these test-points. During these early steps of troubleshooting, it is both necessary and practical to use a technique that tells the technician directly what to measure—that is, written instructions and/or troubleshooting charts. Since these early checks are made with built-in indicators, the written instructions can also specify how the technician determines what signal is present at the test-point.

(2) During the second stage of troubleshooting (i.e., isolation to a single chassis or to interchassis wiring), common test equipment is used and the technician is concerned with only a few chassis. The information needed to select test-points can be presented on schematic diagrams occupying only a few pages, but making such a selection can involve substantial amounts of time for the technician. Since the technician cannot readily determine the signal that should be present at each test-point from the information presented in schematic diagrams, it is preferable to specify directly on the schematic diagrams what signal should be present at each test-point. Since the information required to determine the signal that is present at each test-point varies according to the particular test equipment available, and since the precise test equipment that will be available is unknown, this information cannot be presented in the troubleshooting manual.

(3) If the malfunction is in the interchassis wiring, the problems typically encountered in troubleshooting are so simple as to be practically nonexistent when the interchassis wiring is clearly presented. For this aspect of troubleshooting, troubleshooting manuals need only contain clear, compact schematic diagrams of this wiring.

(4) When the malfunction is within a chassis, the technician is concerned with only a small portion of the equipment during intrachassis troubleshooting, if the inputs and outputs of the chassis are specified. (If they are not specified, the technician is also concerned with other portions of the hardware since these other portions determine, in part, what the chassis inputs and outputs should be.) Thus, troubleshooting manuals should present typical schematic diagrams, but with inputs and outputs specified, for intrachassis troubleshooting. This information should also be adequate for intrastage troubleshooting, that is, isolation to a single piece-part.

(5) In relatively simple electrical, as distinct from electronic, circuits, the problems of troubleshooting are similar to those encountered in isolating malfunctions in interchassis wiring. Thus, the same type of information is required—clear, compact schematic diagrams. These are often called "partial schematic diagrams" since they show all of one functional circuit rather than all of the wiring and parts within one hardware unit.

(6) The information required to determine the physical location of a test-point consists of a line drawing or photograph that shows where the test-point is. When test-points and piece-parts are clearly labeled on the hardware, the manuals need only present diagrams which identify the locations rather roughly. If clear labels are not present on the hardware (e.g., in some printed circuits), the precise location of test-points should be shown on diagrams.

(7) The information needed to determine whether the signal is correct is best presented in the form of tolerances (or range of value) specification during the first and second stages of troubleshooting. For intrachassis troubleshooting, the information normally presented on schematic diagrams should be adequate if chassis inputs and outputs have been specified with tolerances.

EVALUATION OF THE EXPERIMENTAL MANUAL

To provide a basis for evaluating the hypotheses developed earlier in the study, an experimental manual was prepared for use in troubleshooting the Nike Ajax missile and its associated test equipment (RF Test Set and Electrical Test Set). The manual was then evaluated by means of a test in which trained technicians were required to locate malfunctions in the equipment.

Description of the Experimental Manual

The experimental manual was composed of the seven parts described in this section.

Index to Troubleshooting Instructions and Diagrams

This index (see Fig. 1) was a feature not found in existing manuals. The essential characteristics of this index were that it listed all of the indicators (lights, meters, scopes, etc.) used in checking or operating the hardware, and that it referred the user to the instructions or diagrams which should be used in troubleshooting any malfunction producing a symptom on each of these indicators.

This index was included because it appeared to minimize the possibility of the technician's getting started on the wrong circuit. To use the index, the technician must know the name of some indicator that is giving a bad reading, but he does not need to remember which circuit it is monitoring.

Written Instructions and Data-Flow Diagrams

In most cases, the troubleshooting index referred the user to a set of written instructions and data-flow diagrams (see Fig. 2). There was at least one set of written instructions and one data-flow diagram for each indicator. If the indicator could be used to monitor two or more different circuits, there was a corresponding set of instructions and diagrams for each of these circuits.

The essential feature of the written instructions was that they specified the precise procedure to be used for collecting symptoms with the use of built-in indicators. Each data-flow diagram showed in block form every portion of the hardware, except power supplies, that could produce a symptom on a given indicator. Color-coding of the written instructions and data-flow diagrams permitted the technician to determine which portions of the equipment could have produced the combination of symptoms that he detected while using the written instructions.

The data-flow diagram for each circuit presented the information usually presented in troubleshooting charts. It also showed the sequence in which the portions of the hardware are used in generating and transmitting the signal, thus presenting some information commonly presented on functional diagrams.

INDEX TO TROUBLESHOOTING INSTRUCTIONS AND DIAGRAMS

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ROLL		
STRG PLATE BAL	41	87
CONT SIG BAL	41	88
POS	42	89
RATE	45	92
FIN	46	93
VALVE	47	94

Figure 1

Experimental Manual: Sample Written Instructions and Data-Flow Diagram

CONDITIONS	SYMPTOM	CHECK	INDICATION	CHECK	INDICATION	CHECK	INDICATION
49 RESPONSE OR VOLTAGE meter TSS: REC SENS		PMC: MEAS TSS: RF TEST SIG T/Ds: 04.00 ATTEN-DB: 0 Adjust RF SIG OUTPUT knob	RF POWER meter does not read 0	TSS: RF TEST SIG PMC: MEAS T/Ds: 00.00 Adjust ATTEN-DB Knob and REPELLER Knob for maximum indication toward 0	RF POWER meter reads between 0 and 2	TSS: COMM SIG CCS: MEAS Operate RESET sw, wait 3 seconds and then operate START sw	Glow moves around count tubes and stops after 59 to 69 milliseconds
			RF POWER meter reads 0	TSS: TRANS TEST PMC: MEAS T/Ds: missile code	RF POWER meter does not read between 0 and 2	TSS: COMM SIG CCS: MEAS YAW COMMAND: +5G	

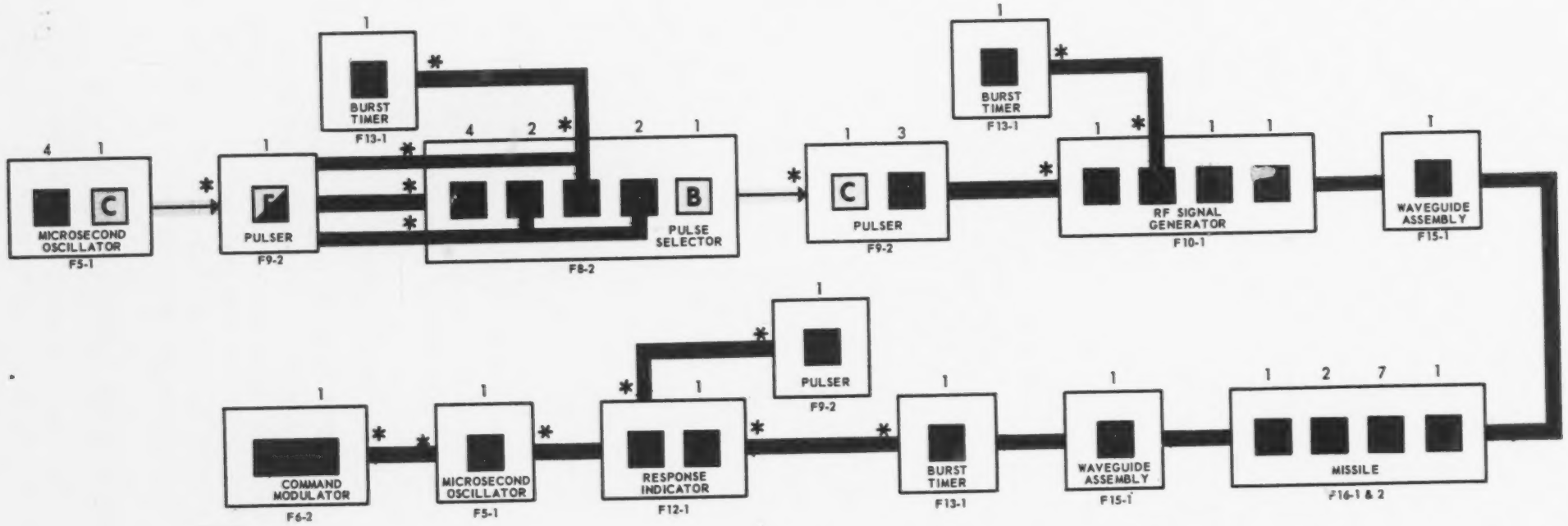

Figure 2

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Partial Schematic Diagrams

In some cases, the troubleshooting index referred the user to a partial schematic diagram (see Fig. 3). These diagrams, used for relatively simple electrical circuits, were quite similar to the partial schematic diagrams found in current manuals. The essential difference was that the experimental partial schematic diagrams showed only the circuitry that could affect a particular indicator in a particular mode of operation of the hardware.

Chassis Functional Diagrams

For each chassis in the equipment there was a functional diagram (see Fig. 4) that showed all plug-in parts, all adjustments, and all inputs and outputs other than those coming directly from a power supply.

For some chassis, it is possible to supply all of this information on the schematic diagram itself, rather than on a separate functional diagram. But many chassis involve so many tubes, and other parts, that it is difficult for inexperienced technicians to clearly identify which tubes, adjustments, and so forth, are related to a specific output. For these chassis, separate functional diagrams appeared justified. To provide a consistent system of presentation, they were supplied for all chassis.

Distribution Diagrams

For each chassis there was a diagram (see Fig. 5) that showed the complete wiring path connecting that chassis with the immediately preceding one for each signal input. The diagram also showed the wiring from the power supply(s) to the chassis. Separate diagrams were shown for each cable connecting two end-items of hardware. These indicated the plug and pins at each end of the cable and named the signal carried by each wire in the cable.

Location Diagrams

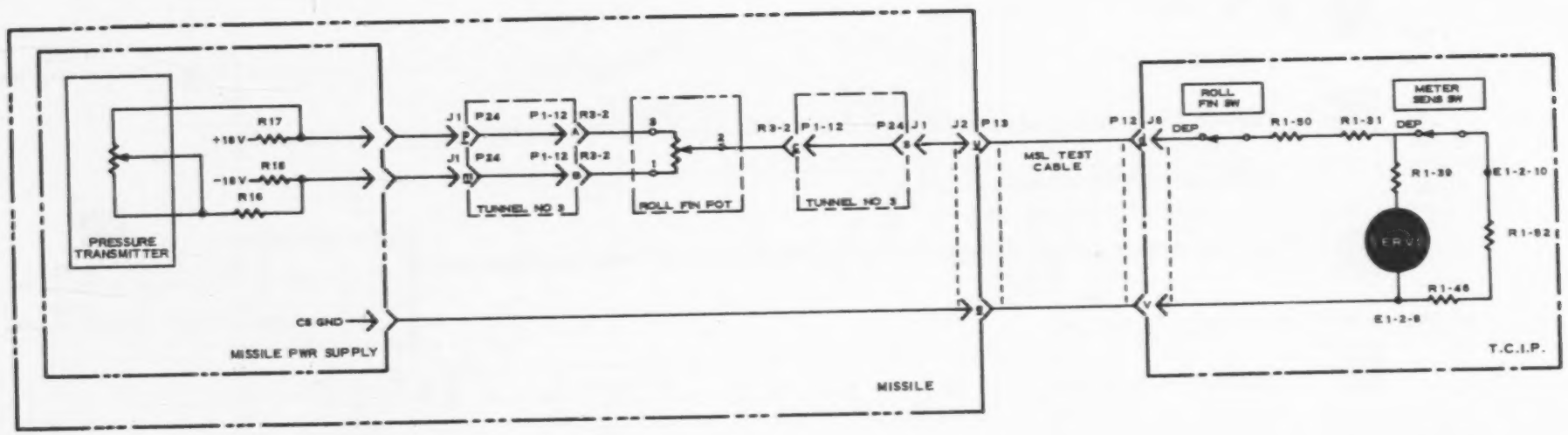
Pictorial diagrams were used to show the exact location of each chassis and of each indicator or control used in operation or check-out of the equipment. These diagrams were essentially identical with those commonly provided.

Schematic Diagrams

The experimental manual included the existing schematic diagrams for each chassis as presented in current technical manuals. These diagrams (see Fig. 6) were assumed to be adequate for intra-chassis troubleshooting. (This assumption was found to be incorrect; suggested modifications are discussed in the section on "Revision of the Experimental Manual.")

Testing of the Experimental Manual

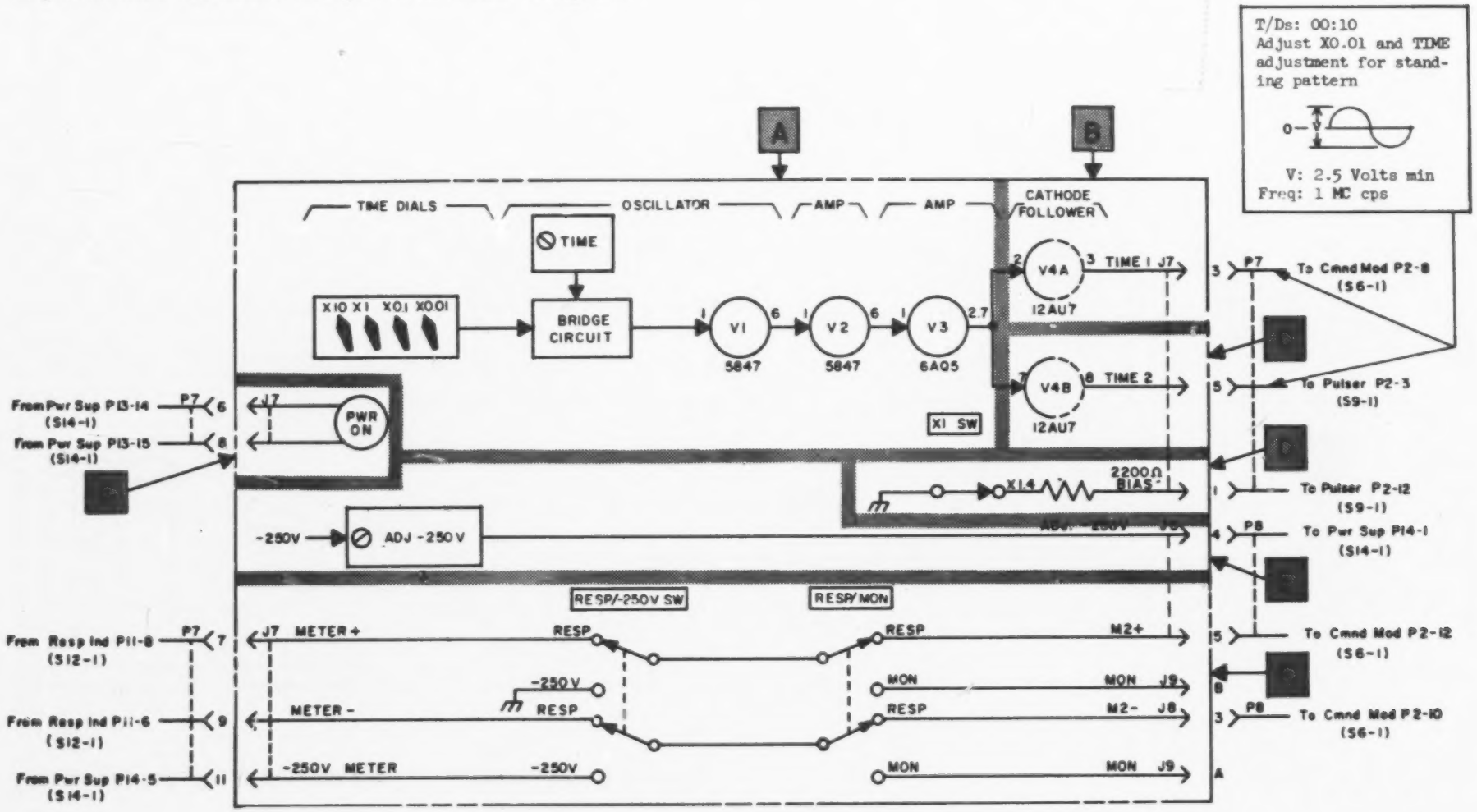
The experimental manual was evaluated by means of an objective test in which inexperienced technicians were required to locate



SERVO meter - ROLL FIN pushbutton depressed

Figure 3

Experimental Manual: Sample Functional Diagram



MICROSECOND OSCILLATOR F5-1
8016569

Figure 4

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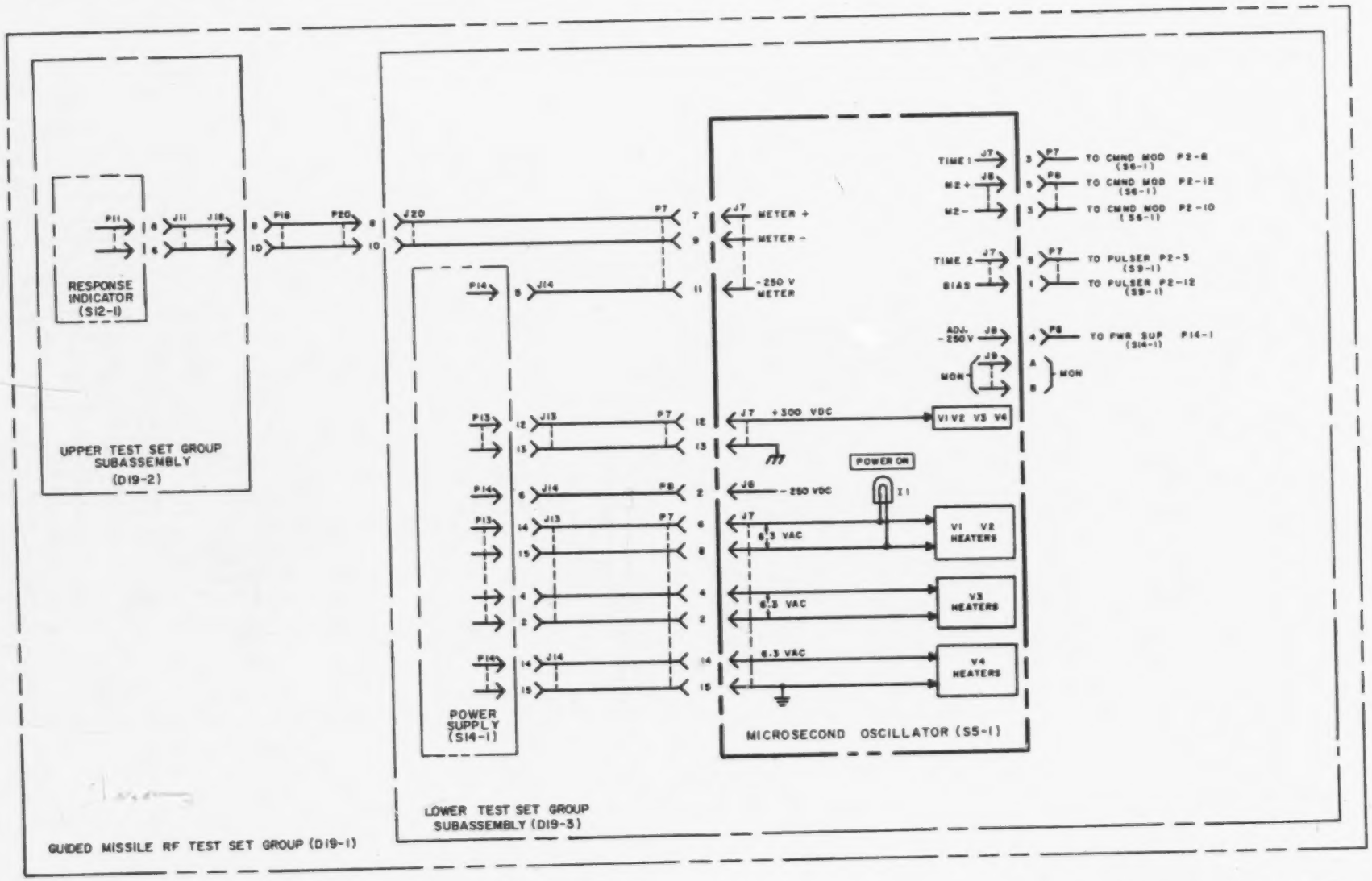
Experimental Manual: Sample Distribution Diagram



MICROSECOND OSCILLATOR
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Figure 5

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Experimental Manual: Sample Schematic Diagram

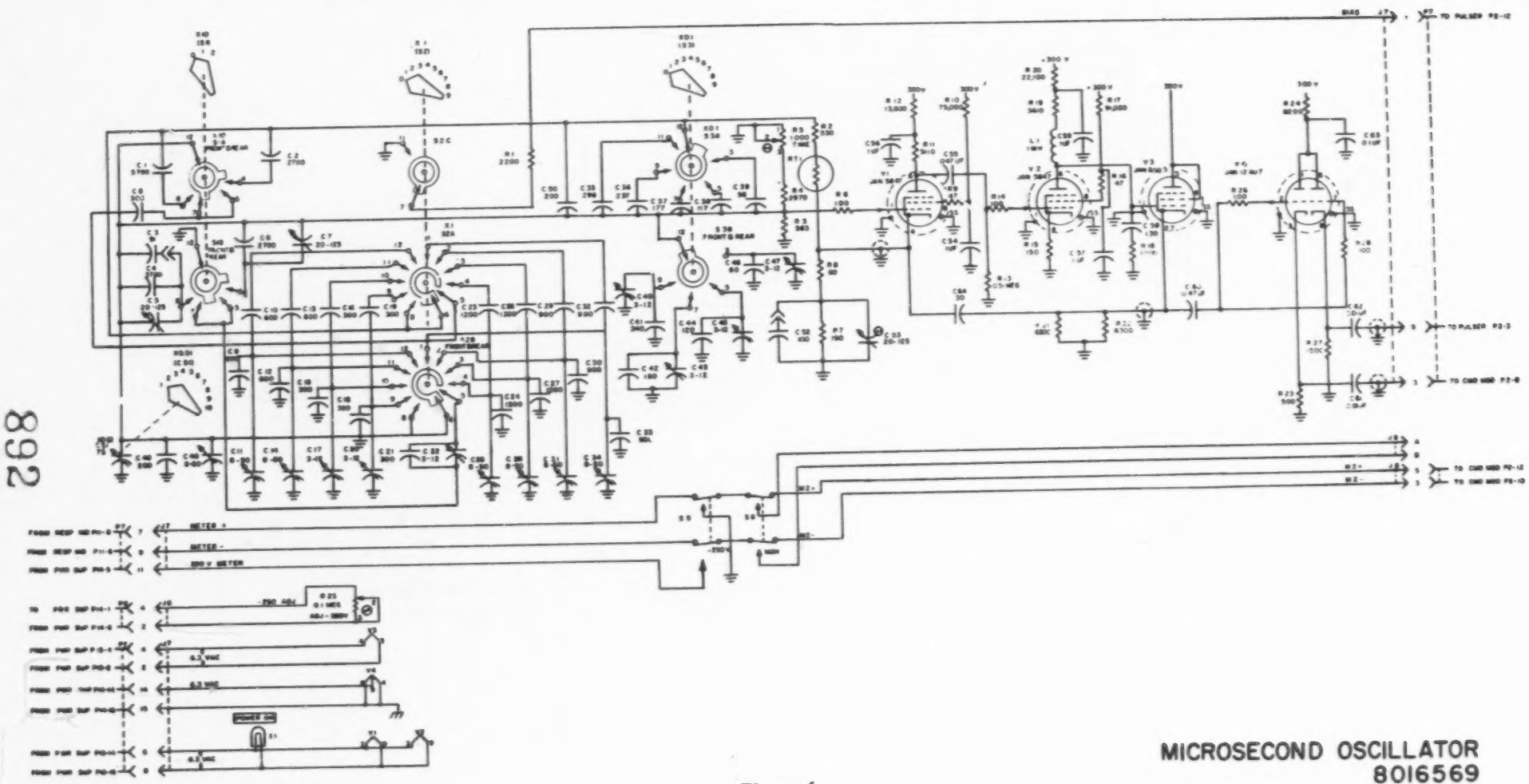

Figure 6

MICROSECOND OSCILLATOR
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malfunctions in the Nike Ajax missile and its associated test equipment. The test was constructed, administered, and scored by the U.S. Army Air Defense School. Two groups of subjects were used in the experiment. The Experimental Group used only the experimental manual, while the Control Group used the standard schematic and functional diagrams (special texts used during training) and any personal notes which they had. The technicians in the Experimental Group were allowed to familiarize themselves with the experimental manual for four hours on the day before testing, but they did not use the manual in troubleshooting until the testing began.

Test Items

The test items consisted of 44 malfunctions in the Nike Ajax missile and its associated test equipment. These items were selected by the Air Defense School from a list of several hundred malfunctions that had occurred in actual use of the equipment. In selecting these 44 items, Air Defense School personnel were careful to include malfunctions of different types and levels of difficulty. The specific malfunctions are listed in Appendix A.

Thirty-five of the 44 items involved electronic malfunctions. Of these, 21 could be corrected by replacement of a vacuum tube in the missile or the RF Test Set, and 14 required the replacement or adjustment of soldered-in parts within the missile or the RF Test Set. The remaining nine items involved electrical malfunctions and required the replacement of soldered-in parts in the electrical portions of the system, that is, the Electrical Test Set.

In most cases, only one malfunction was present in the equipment while a subject was troubleshooting. However, each subject encountered two problems in which the equipment contained two interacting malfunctions.

Subjects

The test subjects were 16 recent graduates (MOS 223) of the Ajax Missile Maintenance Course at the Air Defense School. None of the subjects had had training or experience in electronics prior to this course. The subjects were divided into matched pairs on the basis of their grades at the Air Defense School, and one subject from each pair was randomly assigned to the Experimental Group or the Control Group. Thus, the two groups each contained eight subjects.

Time Limits

Because of the limited time available, the test items were divided into four approximately equal groups of 11 items each. Each of these four subtests was administered to two subjects from the Experimental Group and to the two corresponding subjects in the Control Group. To avoid undesired dissemination of information, all four subjects who were to be assessed on a given item were tested simultaneously.

In those cases where the equipment contained only one malfunction, a time limit of 30 minutes was imposed. If two malfunctions were involved, the time limit was one hour. The imposition of these time limits was primarily to limit the time required for test administration. However, these limits were judged to be reasonable by the subjects, by the Air Defense School personnel who administered the test, and by research personnel. In addition, these time limits correspond approximately to the time available in most operational situations, since it is customary for these technicians to request assistance if they are unable to correct the malfunction within 30 minutes.

The subjects were expected to make adjustments that were needed to correct a malfunction, but they were not required to actually replace parts, since the purpose of the experimental manuals was to assist in troubleshooting rather than in making repairs, and since some malfunctions included in the test of troubleshooting could not be repaired by second echelon personnel taking the test. If a subject desired to replace a part, he would point to the part and tell the examiner that he wanted to replace it. If that part was defective, the examiner would replace it. If it was not defective, the examiner would inform the subject of that fact. In order to provide a more realistic estimate of troubleshooting times, and to discourage excessive parts replacement, the recorded troubleshooting times were increased two minutes for each plug-in replacement and five minutes for each soldered-in replacement. The subjects were informed of these facts immediately before testing began.

Scoring

Air Defense School personnel assigned each subject a score of from 0 to 11, representing the number of malfunctions that the subject was able to locate. Since there were eight subjects in each group, the maximum possible score for either the Experimental Group or the Control Group was 88. In addition, the time required to locate each malfunction was recorded for each subject.

While the subjects were being tested, research observers kept a continual record, wherever possible, of the pages being used in each manual and of the information being sought on each page. They also noted any errors made in troubleshooting procedures or use of test equipment. These records were somewhat incomplete since the observers recorded only what could be noted without interfering with the subjects.

Results of Testing

Subjects who used experimental manuals were successful in locating 56 of the possible 88 malfunctions; subjects who used conventional manuals located 41 malfunctions. Thus it appears that the experimental manual resulted in a 37% increase in the total number of malfunctions which inexperienced technicians could locate. These results are statistically reliable ($p < .10$, sign test).

For electronic malfunctions (Fig. 7), the maximum possible score for each group was 66. Personnel using the experimental

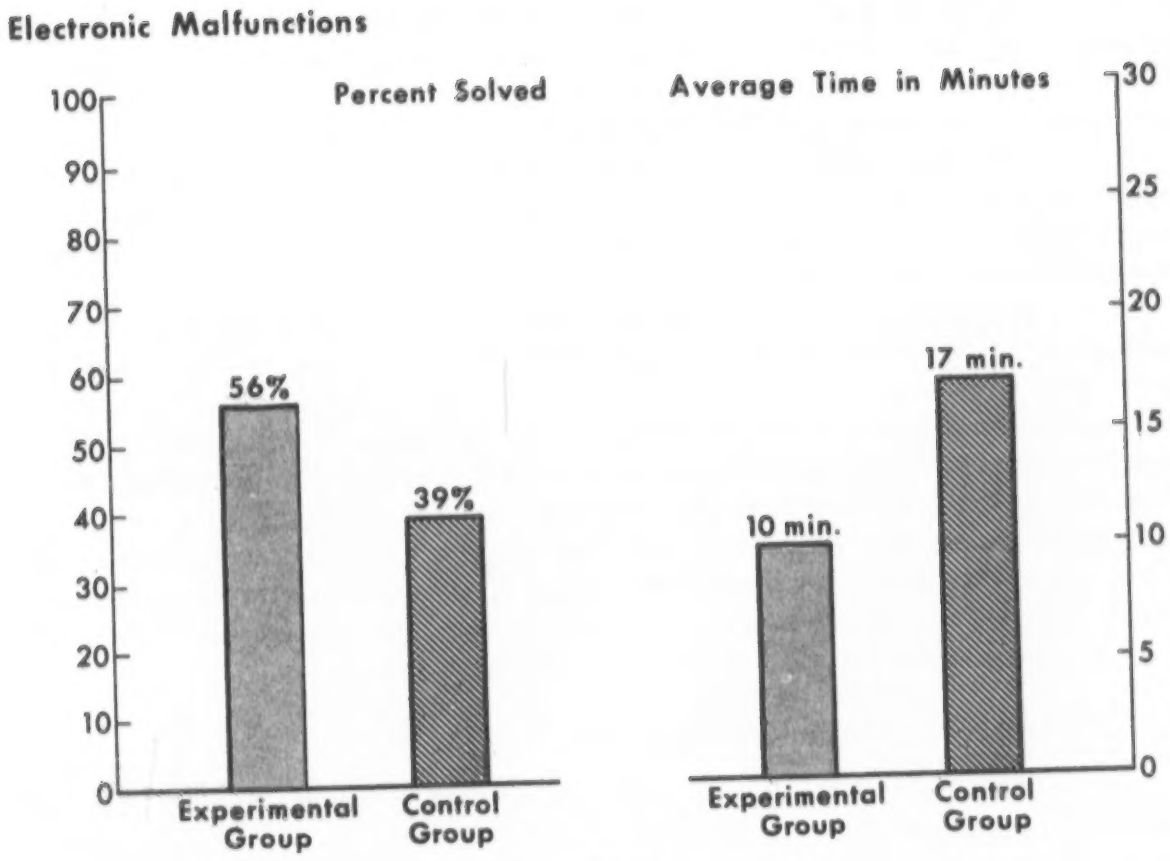

Figure 7

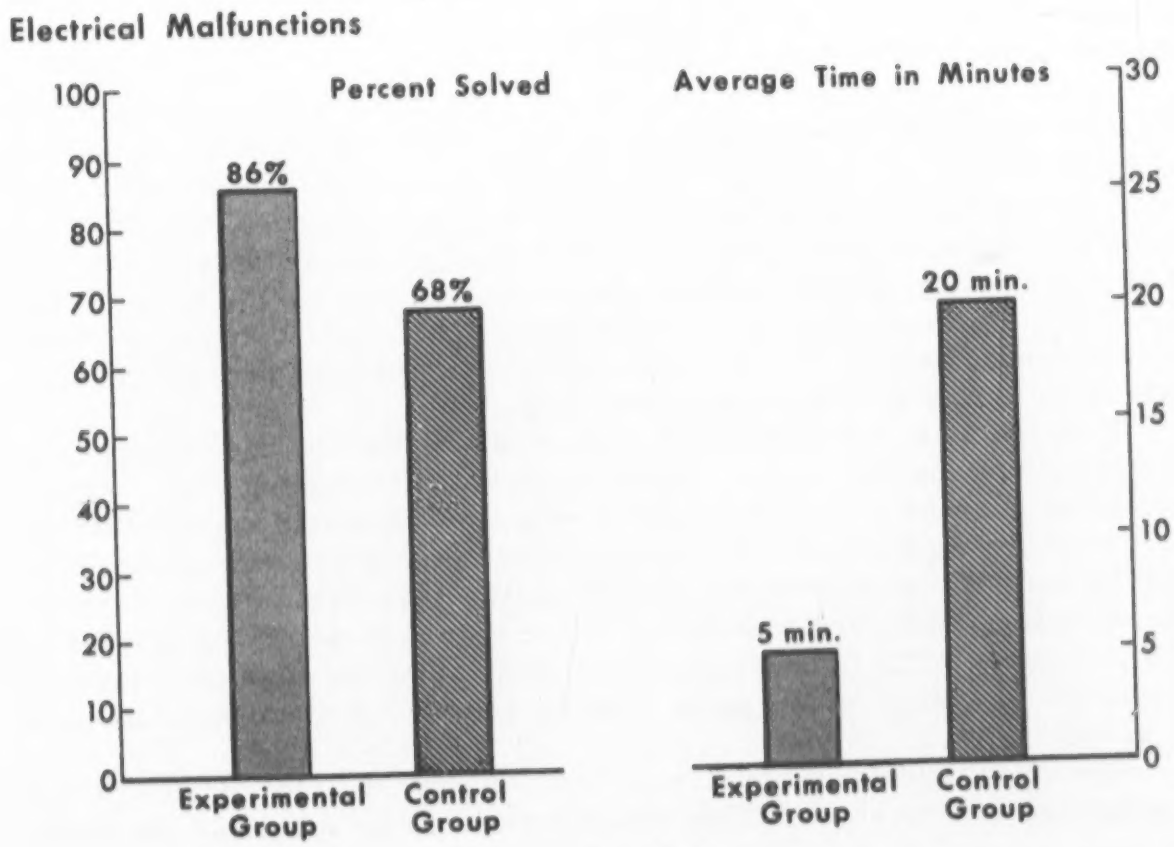

Figure 8

manual located 37 malfunctions while those using conventional manuals located only 26. Thus, the experimental manual produced a 42% increase in the number of malfunctions located. These results are statistically reliable ($p < .10$, sign test).

For electrical malfunctions (Fig. 8), the maximum possible score was 22. Of this number, personnel using the experimental manual solved 19, while those using conventional manuals solved 15. This difference is not statistically reliable.

The experimental manual also produced a reduction in the median time required to locate malfunctions. For electronic malfunctions (Fig. 7), personnel using the experimental manual required 10 minutes as compared with 17 minutes for personnel using the conventional manuals. This 41% reduction in average times is statistically reliable ($p < .10$, medians test). For electrical malfunctions (Fig. 8), personnel using the experimental manual had a median time of only five minutes as compared with 20 minutes for those using conventional manuals. This 75% reduction in median time is statistically reliable ($p < .10$, medians test).

Revision of the Experimental Manual

Observations made during the testing and examination of the test results suggested several changes in the manuals. Technicians using the experimental manuals experienced little difficulty in isolating malfunctions covered by the written instructions and data-flow diagrams. However, it was noted that technicians did have difficulty in isolating beyond this level, indicating that some modifications should be made in schematic and functional diagrams.

Some technicians performed adjustments incorrectly, thus preventing their identification of the malfunction. Although correct adjustment procedures are normally given in other technical manuals, there was a strong tendency for technicians in the Control Group to perform these adjustments from memory rather than to use the other manuals. It is practical to specify the adjustment procedures on the appropriate chassis functional diagrams. This should reduce the tendency for technicians to rely on memory and should increase the probability that adjustments will be performed correctly.

Considerable difficulty was also experienced by technicians in selecting test-points within chassis and in determining what signal should be present at each of these test-points. It would appear that this difficulty could be reduced by having test-points preselected and specified on the chassis schematic diagrams, together with normal signals and tolerances for each test-point.[1] The value of specifying test-points within chassis would be increased by indicating on the chassis schematic diagrams just what piece-parts could produce an abnormal signal at each test-point.

The experimental manual was revised after the test to include the changes discussed above. The revised manual was not experimentally

[1]Current schematic diagrams commonly specify the signal which should be present at some points within chassis, but the selection of these points does not appear to be based on a careful consideration of troubleshooting requirements.

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tested for three reasons. First, the equipment involved was becoming obsolete and newly trained technicians were no longer available. Second, design and development personnel familiar with this particular equipment were no longer available to select test-points and perform similar functions. (The use of other personnel would not give a valid indication of how accurately this could be done by the appropriate design and development engineers.) Third, the logic used in deciding on these changes appears sufficiently clear to eliminate the need for any empirical demonstration of their utility.

There is one additional change which would appear to be useful in the manuals to be used during troubleshooting. The apparatus lists that are included in current technical manuals have comparatively little utility during troubleshooting, but are often necessary when a repair is to be made. Since troubleshooting and repair are so intimately related, these apparatus lists should be retained in troubleshooting manuals. Their utility could be increased, however, if the Federal Stock Number for each part were listed on the apparatus lists, since the Federal Stock Number is used by the technician in ordering replacement parts. Also, the echelon at which replacement or repair of each part is authorized could be specified on the apparatus lists. These changes to the apparatus lists should eliminate the need for the technician to use the Maintenance Allocation Chart and/or the Repair Parts and Special Tools Lists during troubleshooting and repair.

Size and Cost of the Improved Manuals

Questions that may arise regarding the size and cost of the improved manuals as compared with conventional manuals are an important factor in assessing the experimental results. If use of written instructions required a disproportionate number of pages, the desirability of the method would be questionable and the use of color on these pages might be prohibitively expensive.

Use of written instructions for troubleshooting within each chassis would require an excessive number of pages. However, the manuals developed in this study do not use written instructions for this phase of troubleshooting; instead, they contain written instructions for symptom collection only. When used in this way, written instructions need not add to the bulk of technical manuals. For example, all of the suggested contents for the improved manuals require only 140 pages for the equipment used in this study (about 15% of the pages are printed with color coding). The Department of the Army Technical Manuals (2, 3, 5,) on the same equipment use 158 pages to present essentially the same information.

Thus, in this one case, the improved manuals required some 10% fewer pages than the conventional manuals. It must be remembered, however, that the number of pages used to present information is greatly affected by the print size, page size, and art style used, and manuals of the improved type would not necessarily require fewer pages than do conventional manuals.

Questions regarding the cost of color as used in the improved manuals sometimes arise because of incomplete understanding of factors

that tend to make color pages cost more than black-and-white ones. For example, a page that is an intermixture of lines and letters in four colors involves preparing four color separations, each of which must register with the other three; a presentation that requires very precise registration of the four units can increase time and other costs both in preparing the art work and in printing. For this reason, in the written instructions pages in the new manuals, all lines and lettering—which make up the detailed basic illustration—are printed in black, as for a conventional black-and-white illustration. Color is used only for coding roughly defined blocks or areas, thus eliminating the need for very precise registry, simplifying the preparation of color separations, and in general minimizing preparation time and cost requirements.

CONCLUSIONS

Results and Products of the Research

The experimental evidence collected during this study demonstrated that substantial increases in the speed and effectiveness of troubleshooting can be obtained through the use of improved troubleshooting manuals.

The improved manuals differ from conventional troubleshooting manuals primarily in two ways: They present some information that is currently not supplied, and the information is organized according to when and how it is to be used in troubleshooting. The improved manuals do not differ significantly from conventional manuals in size, and they contain all of the information that is presented in the manuals currently used in troubleshooting. The suggested contents of the revised troubleshooting manuals are listed in the following section.

A guide for use by publications agencies during the preparation of manuals of this type for new electronics systems has been prepared (8). This guide provides detailed procedures for preparing the various parts of troubleshooting manuals.

Suggested Contents of Troubleshooting Manuals

Instructions on How to Use the Improved Manual

Whenever a new type of manual is adopted for use, it would appear desirable to present instruction for use of the manual in the manual itself. These instructions should both describe the use of the manual and illustrate the correct usage with an example. A sample set of instructions for using the manuals developed in this study is presented in Appendix B.

Index to Troubleshooting Instructions and Diagrams

This index should list each of the built-in indicators (lights, meters, scopes, etc.) used in checking or operating the hardware, and refer the user to the data-flow diagram or the partial schematic diagram which should be used in troubleshooting any malfunction producing

a symptom on any of these indicators. There should be at least one data-flow diagram and corresponding set of troubleshooting instructions or one partial schematic diagram for each indicator. If the indicator can be used to monitor two or more different circuits, there should be a corresponding diagram for each of these circuits. (See example in Appendix B, p. 46.)

Data-Flow Diagrams and Troubleshooting Instructions

In most cases, the troubleshooting index would refer the user to these data-flow diagrams and accompanying troubleshooting instructions. Each data-flow diagram should show every portion of the hardware, except power supplies, that could produce a symptom on a given indicator. Lettered blocks should be used on the data-flow diagrams to represent portions of chassis. The troubleshooting instructions should specify the precise procedure to be used for collecting symptoms using the built-in indicators. Color-coding or some other technique should be used to permit the technician to determine which portions of the equipment could have produced the combination of symptoms which he detected while using the troubleshooting instructions. (See example in Appendix B, p. 47.)

Partial Schematic Diagrams

In some cases, the troubleshooting index would refer the user to a partial schematic diagram. These diagrams, which should be used for relatively simple electrical circuits, differ from the partial schematic diagrams found in current manuals in that the improved partial schematic diagrams show only the circuitry that could affect a particular indicator in a particular mode of operation of the hardware. (See example in Appendix B, p. 47.)

Chassis Functional Diagrams

For each chassis in the equipment there should be a functional diagram that shows all plug-in parts, all adjustments, and all inputs and outputs other than those coming directly from a power supply. Shading should be used on these functional diagrams to indicate which inputs, outputs, parts, and adjustments are included in each of the lettered blocks used on the data-flow diagrams. The chassis functional diagram should give adjustment procedures for all second and third echelon adjustments. Normal signal or voltage values should be given, with tolerance or range of values, for each chassis input or output. (See example in Appendix B, p. 49.)

Schematic Diagrams

Schematic diagrams should differ from conventional schematic diagrams in several ways. First, the specific parts which constitute each lettered block shown on the data-flow and functional diagrams should be identified. Second, for each of these troubleshooting blocks a specific checkpoint should be designated. Third, the normal signal,

with tolerances, should be specified for each of these checkpoints. (See example in Appendix B, p. 51.)

Voltage and Resistance Charts

Voltage and Resistance (V-R) charts should differ from conventional ones only in that they should show tolerances for each voltage or resistance value. (Because of the similarity between these and conventional V-R charts, no samples are included in this report.)

Distribution Diagrams

For each chassis there should be a diagram showing the complete wiring path connecting that chassis with the immediately preceding one for each signal input. The diagram should also show the wiring from the power supply(s) to the chassis. Separate diagrams should be given for each cable connecting two end-items of hardware, indicating the plug and pins at each end of the cable and naming the signal carried by each wire in the cable. (See examples in Appendix B, p. 50.)

Apparatus Lists

These lists should be identical with those currently supplied except that the Federal Stock Number for each part should be given, and a column should be added to indicate the echelons at which replacement or repair of each part is authorized. (Because of the similarity of these and conventional apparatus lists, no samples are included in this report.)

Location Diagrams

These should be similar to the location diagrams normally provided. (No samples are included in this report.)

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REFERENCES
AND
APPENDICES

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Appendix A

MALFUNCTIONS USED IN TESTING THE **MAINTRAIN** TROUBLESHOOTING MANUAL

1. Trouble: Bad tube (V5) in Pulse Selector.
   Instructions: Proper indications were obtained until TSS: 2. Start there and continue until the malfunction is cleared.

2 & 3. Trouble: Shorted coil on K1 relay, and bad tube (V3) in Reference Oscillator.
   Instructions: Proper indications were obtained until CCS: 5. Start there and continue until the malfunction is cleared.

4. Trouble: Defective 38-second timer.
   Instructions: Trouble appeared when the missile was energized. Start there and continue until the malfunction is cleared.

5. Trouble: Bad tube (V1) in Pulser.
   Instructions: Proper indications were obtained through TSS: 3. Start there and continue until the malfunction is cleared.

6 & 7. Trouble: Blown fuse in Electrical Test Set, and bad connection of wire 2F at E1-1.
   Instructions: Trouble appeared when the Electrical Test Set was turned ON. Start there and continue until the malfunction is cleared.

8 & 9. Trouble: Bad tube (V3) in Pulser, and bad connection at P7.
   Instructions: Proper indications were obtained until CCS: 9. Start there and continue until the malfunction is cleared.

10. Trouble: Bad connection at pin 12 of Ground Power Plug.
   Instructions: Trouble appeared when the missile was placed on internal power with the inertia weight. Start there and continue until the malfunction is cleared.

11. Trouble: Bad tube (V2) in Microsecond Oscillator.
   Instructions: Proper indications were obtained until CCS: 8. Start there and continue until the malfunction is cleared.

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12. Trouble: Bad tube (V3) in Pulser.
Instructions: Proper indications were obtained until CCS: 9. Start there and continue until the malfunction is cleared.

13 & 14. Trouble: Short pins 9 and 11 of P4 in Burst Timer, and pins 4 and 6 of P2 in Command Modulator.
Instructions: Proper indications were obtained through TSS: 5. Start there and continue until the malfunction is cleared.

15. Trouble: Bad tube (V4B) in Pulser.
Instructions: Proper indications were obtained through TSS: 3. Start there and continue until the malfunction is cleared.

16. Trouble: Bad fuse in Electrical Test Set.
Instructions: Trouble appeared when the Electrical Test Set was turned ON. Start there and continue until the malfunction is cleared.

17 & 18. Trouble: Bad tube (V1) in Yaw Oscillator, and bad connection at P4 of Reference Oscillator.
Instructions: Proper indications were obtained until CCS: 5. Start there and continue until the malfunction is cleared.

19. Trouble: Bad connection at wire 2F of E1-1.
Instructions: Trouble appeared when the TPCI was energized. Start there and continue until the malfunction is cleared.

20 & 21. Trouble: Bad tube (V5) in Pulse Selector, and bad connection at P7 of Power Measuring circuit.
Instructions: Proper indications were obtained until CCS: 9. Start there and continue until the malfunction is cleared.

22. Trouble: Bad tube (V3) in Command Modulator.
Instructions: Trouble appeared in CCS: 1. Start there and continue until the malfunction is cleared.

23. Trouble: Bad tube (V1) in Pitch Oscillator.
Instructions: Proper indications were obtained until CCS: 6. Start there and continue until the malfunction is cleared.

24 & 25. Trouble: Bad connection at pin 9 of P15 in Reference Oscillator, and bad connection of pin 18 on Ground Power Receptacle.
Instructions: Proper indications were obtained until TSS: 6. Start there and continue until the malfunction is cleared.

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26. Trouble: Bad tube (V1) in Oscilloscope.
Instructions: Trouble appeared in CCS: 1. Start there and continue until the malfunction is cleared.

27. Trouble: Broken wire 2F in Electrical Test Set.
Instructions: Trouble appeared when the Electrical Test Set was turned ON. Start there and continue until the malfunction is cleared.

28 & 29. Trouble: Bad tube (V3) in Pulser, and bad klystron.
Instructions: Proper indications were obtained until CCS: 9. Start there and continue until the malfunction is cleared.

30 & 31. Trouble: Improper adjustment of R18 in Reference Oscillator (no 6KC output), and bad tube (V1) in Command Modulator.
Instructions: Proper indications were obtained until CCS: 5. Start there and continue until the malfunction is cleared.

32. Trouble: Pins 9 and 11 of P4 shorted.
Instructions: Proper indications were obtained through CCS: 5. Start there and continue until the malfunction is cleared.

33. Trouble: Bad tube (V2) in Pulse Selector.
Instructions: Proper indications were obtained until CCS: 9. Start there and continue until the malfunction is cleared.

34. Trouble: Bad tube (V3) in Pulser.
Instructions: Proper indications were obtained until CCS: 9. Start there and continue until the malfunction is cleared.

35 & 36. Trouble: Bad tube (V5) in Pulse Selector, and bad R1 in Response Indicator.
Instructions: Proper indications were obtained until TSS: 2. Start there and continue until the malfunction is cleared.

37. Trouble: Bad vibrator in missile power supply.
Instructions: Trouble appeared when the missile was energized. Start there and continue until the malfunction is cleared.

38. Trouble: Short pins 4 and 6 of P2 in Command Modulator.
Instructions: Proper indications were obtained until TSS: 6. Start there and continue until the malfunction is cleared.

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39 & 40. Trouble: Bad tube (V1) in Yaw Oscillator, and bad coil in K1 relay.

Instructions: Proper indications were obtained until CCS: 5. Start there and continue until the malfunction is cleared.

41 & 42. Trouble: Bad connection of wire 2E at E1-1, and broken pin 12 of Ground Power Plug.

Instructions: Proper indications were obtained until inertia weight was moved to rear. Start there and continue until the malfunction is cleared.

43. Trouble: Bad tube (V4) in Pulser.

Instructions: Proper indications were obtained until TSS: 4. Start there and continue until the malfunction is cleared.

44. Trouble: Bad tube (V4) in Reference Oscillator.

Instructions: Proper indications were obtained until CCS: 8. Start there and continue until the malfunction is cleared.

Appendix B

SUGGESTED CONTENTS FOR TROUBLESHOOTING MANUALS: EXAMPLES

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HOW TO USE THIS MANUAL

	PROCEDURE	REMARKS	EXAMPLE
PRELIMINARY CHECKS	1. When a trouble is first noticed check all relevant switch and control settings to be sure they are correct.	Before you can troubleshoot the equipment, you must know how to operate it, or at least how to find and follow the operating instructions. Often what first appears to be a trouble turns out to be only an error in checking or using the equipment. Don't start troubleshooting until you are sure there is a trouble!	In order to illustrate how the manual is used, assume that you encountered a bad reading on the RESPONSE OR VOLTAGE meter while performing a Receiver Sensitivity check with the RF Test Set.
	2. Check the power supplies as prescribed in the routine check-out procedure. If the power supply checks show a bad power supply, use this as your indication of trouble in the following steps, rather than using the first symptom you really noticed.	The MAINTRAIN manuals were designed to be used after the power supply checks are completed, thus the procedures for making these checks are not given in the manuals. However, the results of the troubleshooting checks will be misleading unless you first correct power supply problems. And it may be that the <u>only</u> trouble present is the one in the power supply.	Assume that the power supply checks were made and that all power supplies are good.
INDEX	3. Turn to the "Index to Troubleshooting Instructions and Diagrams." (There is an index to each section of the manual, and each index page has a black edge so you can find it easily. The <u>first</u> index in the manual is the one for troubleshooting instructions, and this is where you will normally start.)	If you know the chassis in which the trouble is located, you can turn directly to the "Index to Schematic Diagrams," locate the proper schematic, and start troubleshooting there.	Turn to the "Index to Troubleshooting Instructions and Diagrams" on page 3* of this manual. *See page 46 of this report.
	4. On the Index page, locate the name of the indicator on which you first noticed a bad reading.	All indicators, motors, etc., which could have told you something was wrong are listed, and are grouped according to the cabinet on which they are located. You may start troubleshooting from <u>any</u> indicator which shows a bad reading (except as noted in 2 regarding power supplies), since the manual was designed with the consideration that you might have overlooked the first symptom to appear, or that the trouble might have first appeared after the check-out was completed and while you were using the equipment.	Under the heading RF TEST SET, locate the RESPONSE OR VOLTAGE meter.

(Continued)

How to Use This Manual (Continued)

	PROCEDURE	REMARKS	EXAMPLE
	5. Find the page and step number for the troubleshooting instructions and diagrams for the particular indicator.	These are given in the two columns to the right of the indicator name.	Notice that page number is 19,* and that the step number is 47. *See page number 47 of this report.
WRITTEN INSTRUCTIONS	6. Turn to the indicated page and locate the step number given in the Index.	Step numbers are given on the left side of the page.	Turn to page 19 and locate step 47, which happens to be at the top of the page.
	7. Starting with this step, look down the steps until you find the correct one, i.e., one that shows only the switch settings that existed on the equipment when the trouble was first noticed. (If the page you are on has columns of written instructions, the switch settings are given in the conditions column on the left along with the name of the indicator. If the page shows Schematic diagrams, the switch settings are listed below the diagrams.) --If you are working with written instructions, go to 8. --If you are working with a Data-flow diagram without any written instructions, go on to 13. --If you are working with a Schematic diagram, troubleshoot as you would with any other Schematic diagram.	Not all switches are mentioned. Just check the ones that are listed. There is only one set of settings which match the ones on the hardware for any given symptom.	Notice that the switch setting given for step 47 is "RESPONSE/-250V: -250V." Assume that you looked at the equipment and found this switch was not in the "-250V" position. Go on to step 48. Assume that you looked at the equipment and noticed the Test Selector Switch (TSS) was not in the "RF TEST SIG" position. Go on to step 49. Assume that you looked at the equipment and noticed that the TSS was in the "REC SENS" position. Since the setting shown in the manual for this step agrees with the settings on the equipment, this is the correct set of instructions. On looking at step 49 you will notice that written instructions are given, so go to 8.
	8. Having found the correct set of instructions, select the correct symptom in the SYMPTOM column, if symptoms are given. --If SYMPTOM column is blank, or symptom encountered is in a white rather than colored box, proceed to 9. --If symptom encountered is in a colored box, proceed to 12.	Usually this column is blank because the troubleshooting procedure will be the same regardless of the symptom.	The SYMPTOM column is blank, so go to 9.

(Continued)

How to Use This Manual (Continued)

PROCEDURE	REMARKS	EXAMPLE
9. Note the first check you will make and the indication you will be looking for. The third column (labeled CHECK) tells you the checks and adjustments to make, the fourth column (labeled INDICATION) tells you what to look for when you make these checks and adjustments.	Be careful to select the check directly to the right of the symptom box you selected if symptoms were given, not the check given for another symptom.	Note the check you will make and the indication you will be looking for.
10. Make the checks and adjustments shown, and note the indication obtained. --If the indication obtained is in a white box, go to 11 below. --If the indication obtained is in a colored box, remember the color and go on to 12.	Often these checks are the same as part of the monthly check-out procedure, but sometimes they differ because the monthly check-out is not always the best procedure for troubleshooting. If you performed the check during check-out, go ahead and repeat it.	Assume that you made the check shown and that RF POWER meter read 0. Since this indication is in a white box go to 11.
11. Note the next CHECK and INDICATION columns just to the right of the indication you obtained in 10, make this check and note the indication. Repeat this procedure until you find an indication in a colored box, remember the color and go on to 12.	In making these checks, notice that you never move up or down across a horizontal line. You always make the check which is listed on the same line and just to the right of the indication you had just obtained.	Set the switches as shown in the next CHECK column: TSS: TRANS TEST PMC: MEAS T/Ds: missile code. Assume the RF POWER meter does not read between 0 and 2. Go on to the next CHECK column and assume the yaw fins do deflect. Notice that you are now in a colored box and that the color is green.
DATA-FLOW DIAGRAM 12. On the Data-flow diagram, locate the arrows and blocks which are colored the same color as the last indication or symptom. The malfunction is in one of these blocks or in the associated wiring.	The Data-flow diagram shows all parts of the equipment, except power supplies, that could be causing a bad reading. The data-flow starts at the top left and flows as indicated by the arrows.	Green areas are shown in five different units: Microsecond Oscillator Burst Timer Pulse Selector Missile Waveguide Assembly.

(Continued)

PROCEDURE	REMARKS	EXAMPLE
13. Select a particular block to check first. a. Notice the numbers above each block. The higher the number, the more likely the malfunction is to be in that block. b. Notice the asterisks (*) above the arrows. The arrows represent cables, and the asterisks indicate where the wires in the cable are readily accessible for measurement of the signal.	There are four approaches which can be used in selecting a particular block to check first: (1) Start with the one nearest the signal i.e., the one nearest the top left of the Data-flow diagram. (2) Start with the one nearest the indicator. (The indicator is usually shown as a black ball.) (3) Start with the chassis having the highest probability of containing the malfunction, i.e., the one having the highest number above the chassis blocks. (4) Use the split-half approach, i.e., start with a chassis in the middle of the correctly-colored area. NOTE: To use this approach you <u>must</u> reset the switches and controls as they were when the trouble was first noticed. The correct settings are listed in the conditions column discussed above.	One reasonable approach is to start with Block "A" of the Microsecond Oscillator since that is where the signal originates.
14. Having selected a block to check first, note the name of the chassis in which that block is located. Also remember the letters of the blocks shown in that chassis, even if they are of a different color.	Since your next checks will be at the chassis margin, you need to remember the blocks through which the signal enters and leaves the chassis.	The signal leaves the Microsecond Oscillator through Block "C".
15. Find the page reference for the information you will need to check the block. The page reference is given just below the chassis on the Data-flow diagram.	The letter in the page reference (F, S, or D) tells you the type of page to which you are to turn: Functional, Schematic, or Distribution. The number given after the letter and before the dash is a code number for a particular chassis. All diagrams relating to a particular chassis have the same number. The number after the dash is usually "1." If the number is higher than "1" it means that there are several diagrams of that type (e.g., Functionals) for that chassis. Be sure to get the right one.	The page reference below the Microsecond Oscillator is F5-1.

(Continued)

How to Use This Manual (Continued)

	PROCEDURE	REMARKS	EXAMPLE
	16. Turn to the correct Functional, Schematic or Distribution page as referenced. --If the page to which you have just turned is a Schematic or Distribution diagram, troubleshoot as you would with any other manual. --If the page is a Functional diagram, proceed to 17.	These special page numbers are given in the lower outside corner of the page. The pages are grouped with all Functionals in one section of the manual, then all Schematics in another, and all Distributions in another.	Turn to page F5-1 This page number is located in the lower corner of the page. Since F5-1 is a Functional diagram, go on to 17.
FUNCTIONAL DIAGRAMS	17. Determine whether or not the chassis contains a malfunction. a. On the Functional diagram, locate the lettered block which was indicated on the Data-flow diagram as possibly containing the malfunction. b. Trace the signal from this block to the chassis margins. The other blocks through which the signal goes in this chassis were the ones shown on the Data-flow diagram. c. Measure the signal at the chassis margins to determine whether the trouble is in this chassis. --If the trouble is not in this chassis, go back to the Data-flow diagram and pick another block of the same color. Then repeat 13 through 17. --If the trouble is in this chassis, it is in the lettered block you have been checking. Go to 18.	The blocks are labeled with large letters in gray boxes. The different blocks are separated by gray shading. Remember that the data-flow on the Data-flow diagram starts at the top left.	Remember from the Data-flow diagram that it is Block "A" in the Microsecond Oscillator that might contain the malfunction. Locate Block "A". As indicated by the gray shading on F5-1, Block "A" contains: Time dials Time screwdriver adjustment Bridge circuit V1, V2, and V3 Remember from the Data-flow diagram that the output of Block "A" leaves the chassis through Block "C". On the Functional diagram, notice that the output of Block "C" can be measured at P7-5, and that the correct signal at this pin is given in the box at the top right corner of the page. Assume that you checked the signal at P7-5 and that it was bad. This tells you that the trouble is in Block "A" of the Microsecond Oscillator or in the wiring bringing power to that Block (it could not be in any other Block, since Block "A" was the only one shown in green, and it could not be the Power Supply itself since you checked that during the preliminary checks). Since the trouble is in this chassis, go on to 18.

(Continued)

How to Use This Manual (Continued)

	PROCEDURE	REMARKS	EXAMPLE
	18. If any adjustments are shown in this lettered block, make these adjustments according to the procedures given. Check to see if this corrects the trouble.		Notice that there is an adjustment shown for Block "A", but in making the measurement at P7-5 you would have made this adjustment and found that it did not correct the trouble (if it had corrected the trouble the signal at P7-5 would have been good). Go on to 19.
	19. Replace any plug-ins (tubes, etc.) shown in this block. Check to see if this corrects the trouble.		Note that there are three plug-ins in Block "A": V1, V2, and V3 (the Bridge Circuit is not a plug-in). Assume that replacing these did not correct the trouble.
SCHEMATIC DIAGRAMS	20. If the trouble is still present, turn to the Schematic diagram of this chassis. Remember that the special page number (lower outside corner) for the Schematic diagram is the same as for the Functional except it is preceded by "S" instead of "F".		Turn to page S5-1.
	21. Use the Schematic to troubleshoot as you would with any other manual. Remember that the trouble is in the parts or wiring associated with the tubes you just replaced.	The measurements specified at each of the starred test points check all of the parts shown in the corresponding block <u>except</u> those parts enclosed in dotted gray boxes. Failure of parts in dotted boxes may or may not be detected by the measurements specified, depending upon how the part fails.	Check at A1 first. If the measurement is correct, all of the parts in Block A1 are good, with the possible exception of C55 and R13. These two parts are not completely checked at A1, and some failures of these parts would not be detected until the check is made at A2. An incorrect reading at A2 would indicate that the trouble is in Block A2 or in C55 or R13. Finally, an incorrect reading at A3 indicates the trouble is in Block A3. But note that C60, C63, or R24 could be bad even though the reading at A3 is correct. If the chassis output is incorrect but the measurement at A3 is normal, the trouble is in C60, C63, R24, or the power supply to the chassis.
	22. If the trouble appears to be in the power or signal input circuits rather than within the chassis itself, use the Distribution diagram for the chassis. This page carries the same reference number as the Functional and Schematic diagrams except that it is preceded by the letter "D".		Turn to page D5-1.

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INDEX TO TROUBLESHOOTING INSTRUCTIONS AND DIAGRAMS

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Blower	28	61
YAW RATE GYRO	28,34	63,70
PITCH RATE GYRO	28,36	63,75
ROLL RATE GYRO	28,45	63,92
ROLL AMOUNT GYRO PRESET	43	90
ROLL AMOUNT GYRO	28	63
Miscellaneous		
Fins	25	56
TPCI		
Indicators		
Lights		
POWER ON	27	57
HEATERS EXTERNAL	27	58
VIBRATOR EXTERNAL	27	59
MISSILE INTERNAL	27	60
UNCAGE IND	30	65
Meters		
MISSILE VOLTAGE	28	62
MISSILE CURRENT	28	63
Miscellaneous		
Blower	28	61
Delay Timer	35	74
Relays		
Heaters	35	73
Battery Power	35	72
Motors		
Blower	28	61
Delay Timer	35	74
TCIP		
Meters		
VOLTAGE		
230	36	75
300	36	76
STRG PLATE	36	77
150	37	78
CONT SIG	37	79
FIN VOLT	37	80
SERVO		
YAW		
+5G	39	83
-5G	39	83
ACC	38	81
RATE	38	82
FIN	39	83
PITCH		
+5G	40	86
-5G	40	86
ACC	39	84
RATE	40	85
FIN	40	86
ROLL		
STRG PLATE BAL	41	87
CONT SIG BAL	41	88
POS	42	89
RATE	45	92
FIN	46	93
VALVE	47	94

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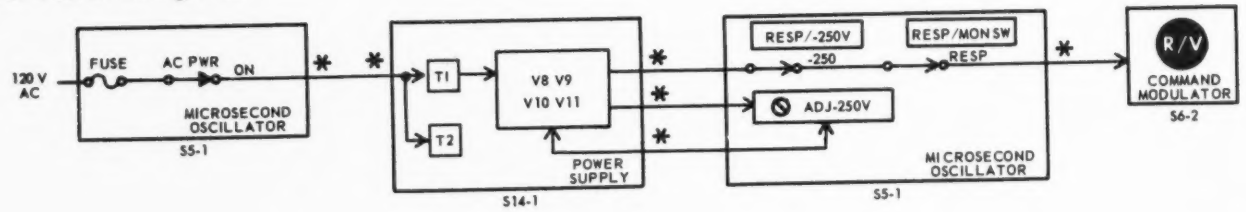
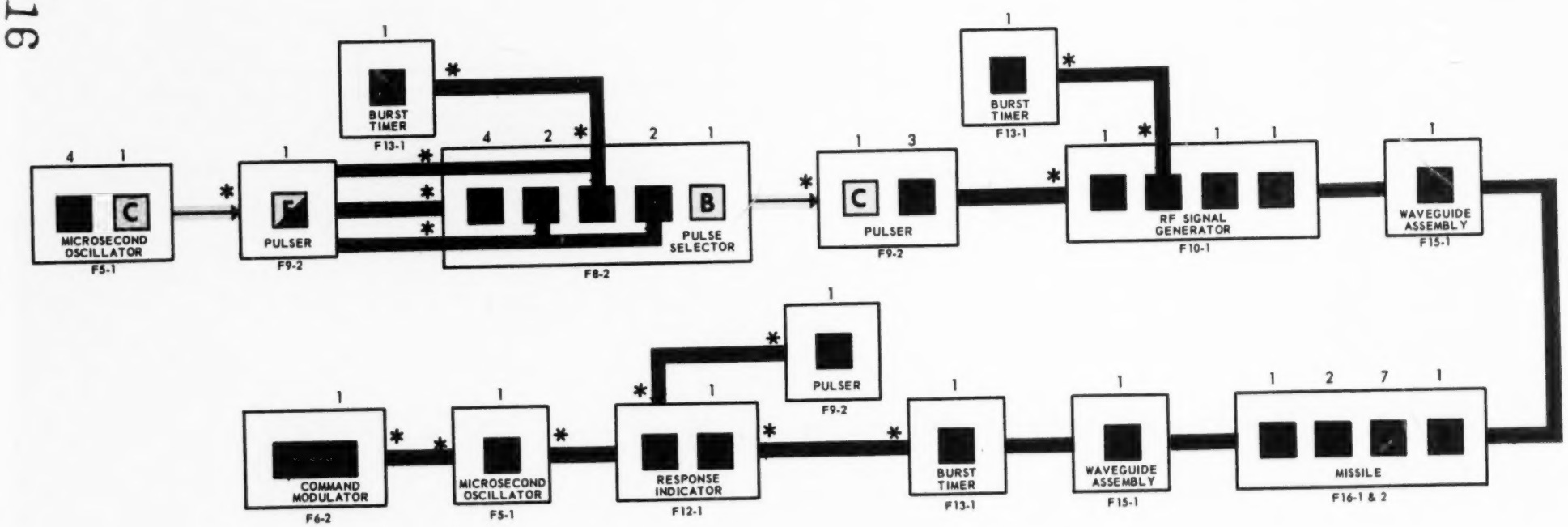
Written Instructions and Data-Flow Diagram

47 RESPONSE OR VOLTAGE meter
RESPONSE/-250V: -250V



48 RESPONSE OR VOLTAGE meter
TSS: RF TEST SIG — RESPONSE meter inoperative (response indicator cut off by bias voltage thru TSS)

CONDITIONS	SYMPTOM	CHECK	INDICATION	CHECK	INDICATION	CHECK	INDICATION
49 RESPONSE OR VOLTAGE meter TSS: REC SENS		PMC: MEAS TSS: RF TEST SIG T/Ds: 04.00 ATTEN-DB: 0 Adjust RF SIG OUTPUT knob	RF POWER meter does not read 0	TSS: RF TEST SIG PMC: MEAS T/Ds: 00.00 Adjust ATTEN-DB Knob and REPELLER Knob for maximum indication toward 0	RF POWER meter reads between 0 and 2	TSS: COMM SIG CCS: MEAS Operate RESET sw, wait 3 seconds and then operate START sw	Glow [illegible] around [illegible] tubes and [illegible] after 59 to 69 [illegible] seconds
							[redacted]
					[redacted]		
			RF POWER meter reads 0	TSS: TRANS TEST PMC: MEAS T/Ds: missile code	RF POWER meter does not read between 0 and 2	TSS: COMM SIG CCS: MEAS YAW COMMAND: +5G	[redacted]



Partial Schematic Diagram

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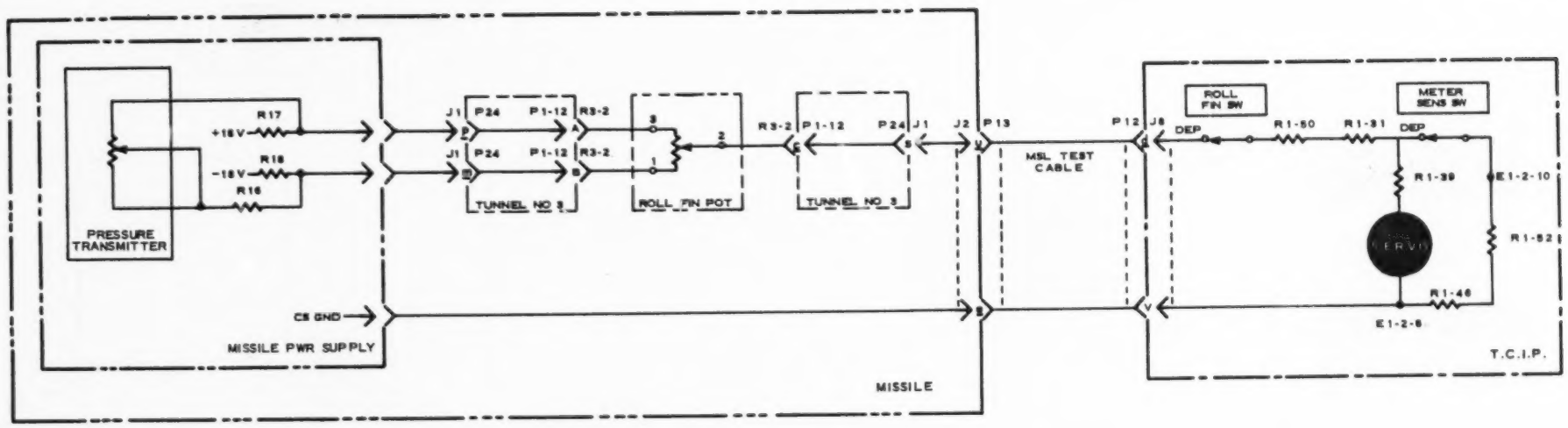
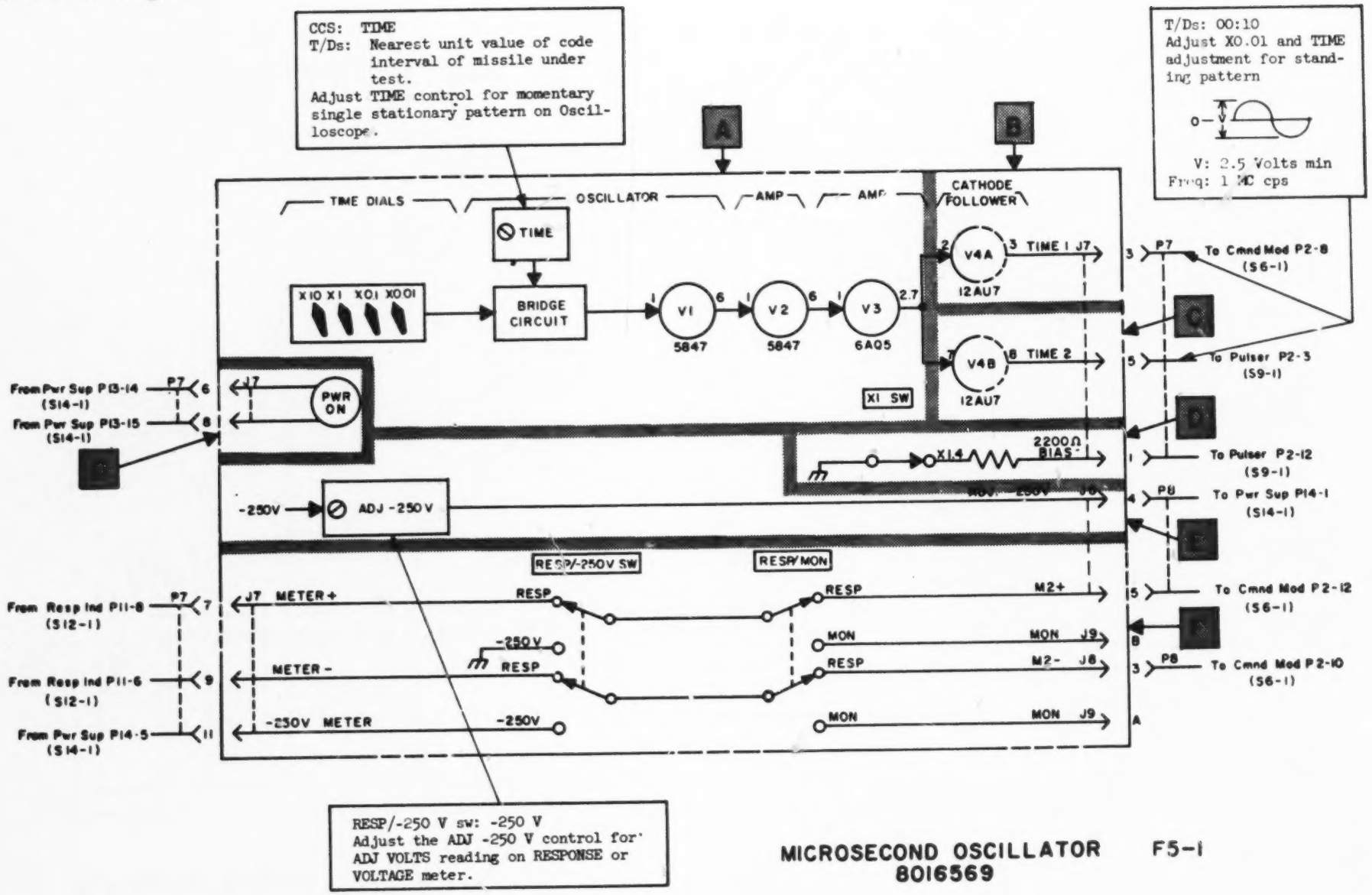


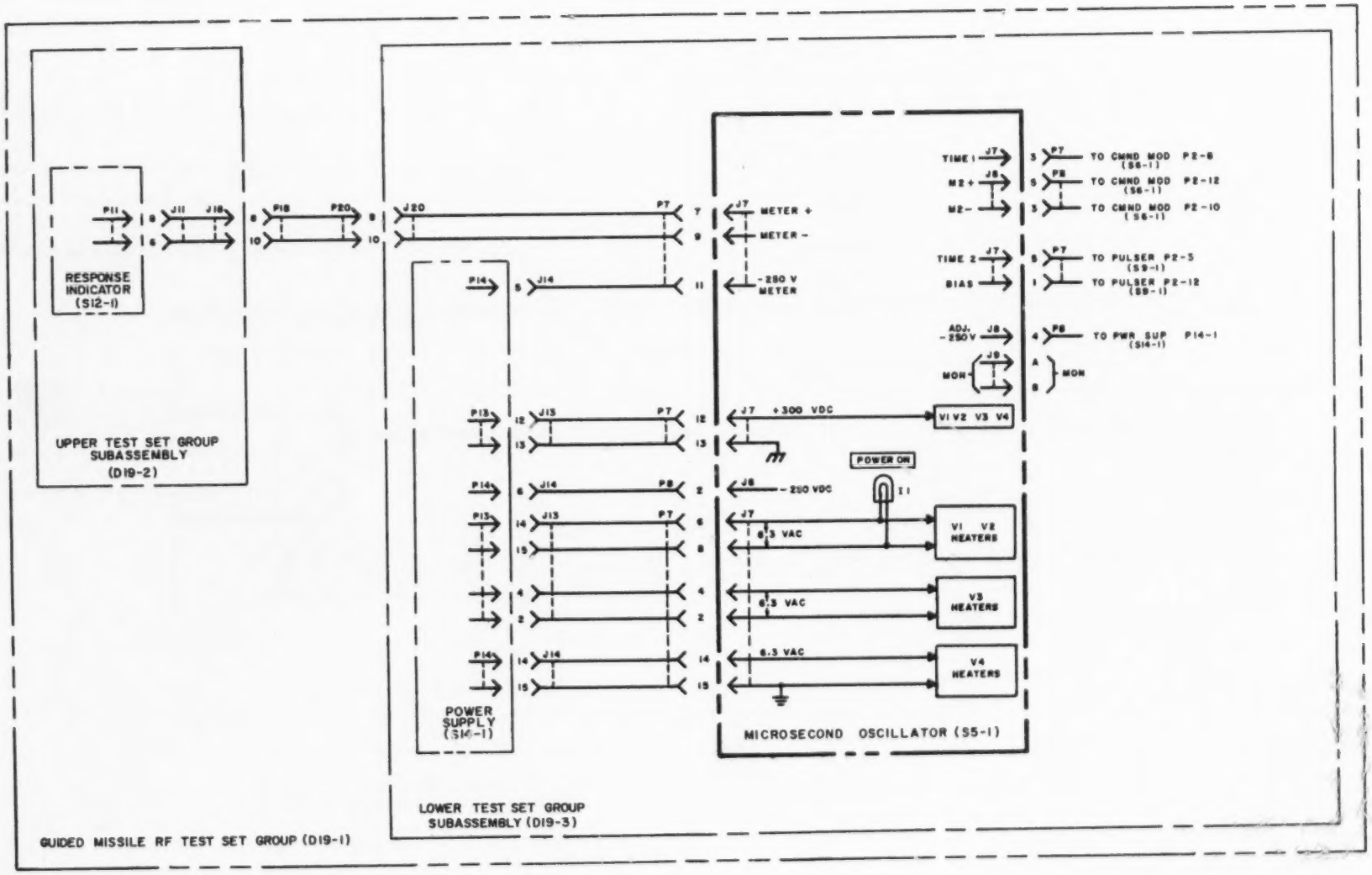
SERVO meter - ROLL FIN pushbutton depressed

Functional Diagram



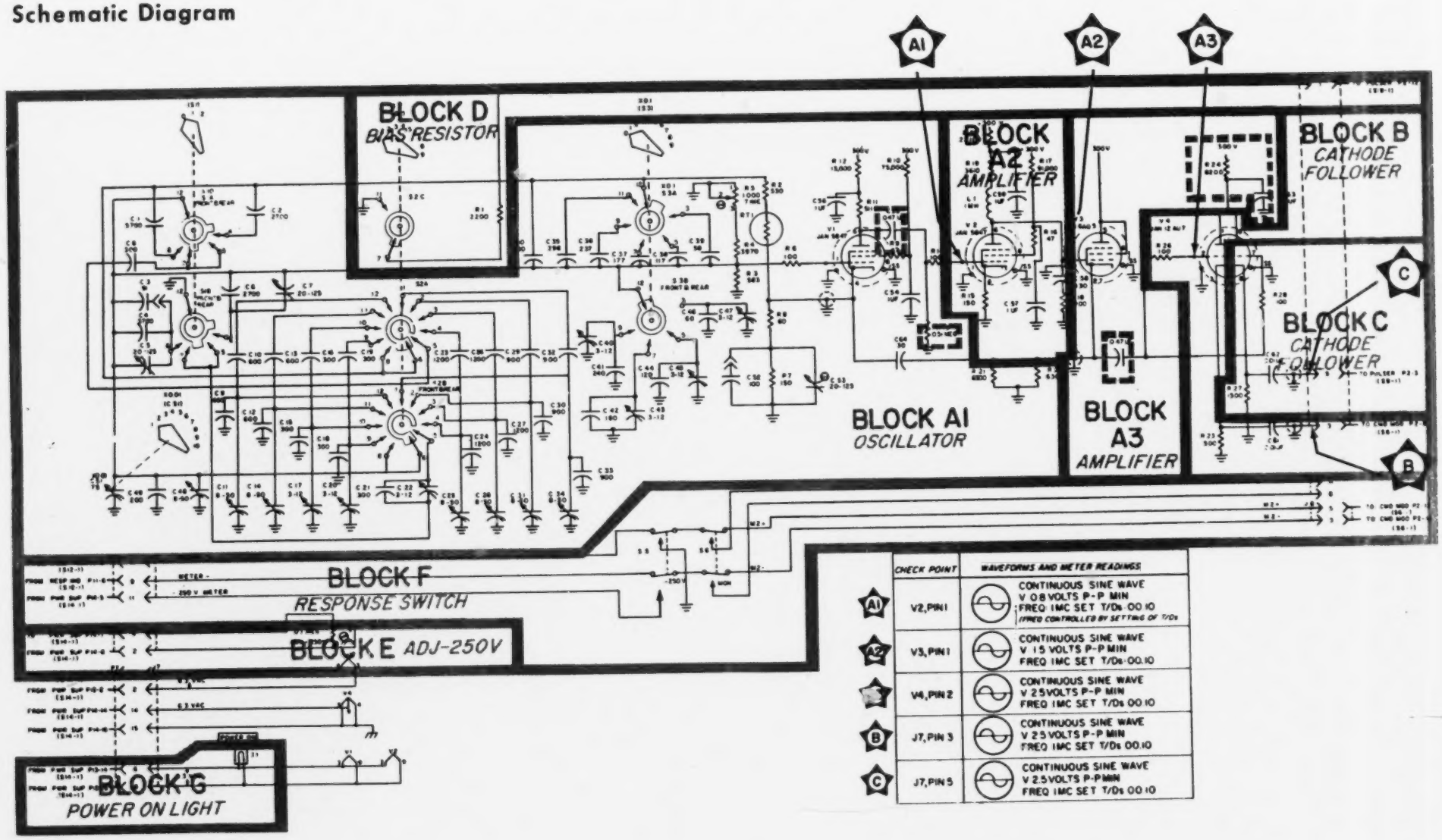
MICROSECOND OSCILLATOR F5-1
8016569

Distribution Diagram



MICROSECOND OSCILLATOR
8016569 D5-1

Schematic Diagram



	CHECK POINT	WAVEFORMS AND METER READINGS
A1	V2, PIN 1	CONTINUOUS SINE WAVE V 0.8 VOLTS P-P MIN FREQ 1MC SET T/Ds 00.10 (FREQ CONTROLLED BY SETTING OF T/Ds)
A2	V3, PIN 1	CONTINUOUS SINE WAVE V 1.5 VOLTS P-P MIN FREQ 1MC SET T/Ds 00.10
A3	V4, PIN 2	CONTINUOUS SINE WAVE V 2.5 VOLTS P-P MIN FREQ 1MC SET T/Ds 00.10
B	J7, PIN 3	CONTINUOUS SINE WAVE V 2.5 VOLTS P-P MIN FREQ 1MC SET T/Ds 00.10
C	J7, PIN 5	CONTINUOUS SINE WAVE V 2.5 VOLTS P-P MIN FREQ 1MC SET T/Ds 00.10

MICROSECOND OSCILLATOR
8016569

S5-1

DISTRIBUTION LIST

02 DIR OF RES TNG METHODS DIV HUMRRO
02 DIR OF RES LANG + AREA TNG DIV HUMRRO
01 MILIT ADV HUMAN FACTORS + OPNS RES DIV ARMY RES OFC HUMRRO
05 DIR OF RES ARMY ARMOR HRU FT KNOX
03 DIR OF RES ARMY TNG CTR HRU PRES OF MONTEREY
05 DIR OF RES ARMY INF HRU FT BENNING
05 DIR OF RES ARMY AIR DEF HRU FT BLISS
02 DIR OF RES ARMY AVN HRU FT RUCKER
10 CG US CONARC FT MONROE ATTN DCS IT
01 CHF OF R+D DA ATTN SCI INFO BR RES SPT DIV
02 HUMAN FACTORS + OPNS RES DIV ARMY RES OFC OFC CHF OF R+D
02 DIR MANPOWER REQUIREMENTS + UTILIZATION OASD MANPOWER SS+R
01 DIR WEAPONS SYS EVAL GP
02 COMDR FLD COMD DEF ATOMIC SPT AGY SANDIA BASE ATTN FCTG7
02 SCI + TECH INFO FACILITY ATTN NASA REP S-AK-DL
01 CINC US ARMY PACIFIC APO 958 SAN FRAN ATTN G3 CBT DEVEL DIV
02 CG SOUTHERN EUROPEAN TASK FORCE APO 168 NY
01 CG US ARMY JAPAN APO 343 SAN FRAN ATTN G3
01 CG US ARMY CARIBBEAN APO 834 N ORLEANS ATTN CARCD
01 CG US ARMY ALASKA APO 949 SEATTLE ATTN ARACD
02 CG US ARMY EUROPE APO 403 NY ATTN OPNS DIV
06 CG FIRST ARMY GOVERNORS ISL NY ATTN G3
06 CG SECOND ARMY FT GEO G MEADE ATTN DCSOT
01 CG THIRD ARMY FT MCPHERSON
01 CG FOURTH ARMY FT SAM HOUSTON ATTN G3
07 CG FIFTH ARMY CHICAGO ATTN ALFGC TNG
01 CG EIGHTH ARMY APO 301 SAN FRAN ATTN AG-AC
02 CG EIGHTH ARMY APO 301 SAN FRAN ATTN G3
01 DIR HUMAN ENGNR LABS ABERDEEN PG
02 ENGNR PSYCHOL LAB PIONEERING RES DIV ARMY NATICK LABS NATICK MASS
01 TECH LIB ARMY NATICK LABS NATICK MASS
03 CO ARMY CHEM R+D LABS EDGEWOOD ARSNL MD ATTN LIBN
01 CO ARMY CBT DEVEL COMD CHEM BIOL + RADIOL AGY FT MCCLELLAN
01 CO ARMY PICTORIAL CTR LONG ISL ATTN APPLICAT DEVEL BR TV DIV
01 CG ARMY ELEC PG FT HUACHUCA ATTN TECH LIB
12 CO 1ST AIR DEF GUIDED MSL BRGD TNG FT BLISS
01 CG ARMY CBT DEVEL COMD EXPRM CTR FT ORD
01 SIXTH ARMY LIB DEPOT PRES OF SAN FRAN
05 CG FT ORD ATTN G3 TNG DIV
01 DIR WALTER REED ARMY INST OF RES WALTER REED ARMY MED CTR
ATTN NEUROPSYCHIAT DIV
01 CO HQ ARMY ENLISTED EVAL CTR FT BENJ HARRISON
01 DPTY FOR BIOASTRONAUT PG AIR PG CTR EGLIN AFB
01 DIR ARMY ENGNR R+D LABS FT BELVOIR ATTN TECH DOCU CTR
01 CO FRANKFORD ARSNL ATTN SMUFA 1031/65-1
01 CG 2D RGN ARADCOM RICHARDS-GEBAUR AFB
01 CG 5TH RGN USARADCOM FT SHERIDAN ATTN G3 TNG
03 6TH RGN USARADCOM FT BAKER
02 11TH AIR ASSAULT DIV FT BENNING
01 FIRST ARMY MSL COMD MED APO 221 NY
02 CO PICATINNY ARSNL DOVER N J ATTN SUMPA VCI
01 DEF SUPPLY AGY CAMERON STATION ATTN LIB
01 CO ARMY CBT DEVEL COMD FT BENJ HARRISON ATTN ADJ GEN AGY
01 CBT OPNS RES GP ARMY CBT DEVEL COMD FT BELVOIR
ATTN OPNS ANLS HUMAN FACTORS
01 CO ARMY CBT DEVEL COMD FT BENNING ATTN INF AGY
01 CO ARMY CBT DEVEL COMD FT KNOX ATTN ARMOR AGY
08 ARMY CBT DEVEL COMD FT BRAGG ATTN SPEC WARFARE AGY
01 EVAL DIV OAO ARMY SIG CTR + SCH FT MONMOUTH
03 ARMY WAR COLL CARLISLE BKS ATTN LIB
01 ASST COMDT ARMY INTEL SCH FT HOLABIRD ATTN PLANS DIV OAO
01 US MILIT ACAD WEST POINT ATTN LIB
01 COMDT ARMY AVN SCH FT RUCKER ATTN SCH LIB
02 COMDT ARMY SECUR AGY TNG CTR + SCH FT DEVENS ATTN LIB
01 MED FLD SERV SCH BROOKE ARMY MED CTR FT SAM HOUSTON ATTN STIMSON LIB
10 DIR OF INSTR ARMOR SCH FT KNOX
01 COMDT ARMY ARMOR SCH FT KNOX ATTN WEAPONS DEPT
01 COMDT ARMY CHAPLAIN SCH FT SLOCUM
01 COMDT ARMY CHEM CORPS SCH FT MCCLELLAN ATTN EDUC ADV
01 ARMY INF SCH FT BENNING ATTN EDUC ADV
01 ARMY QM SCH FT LEE ATTN LIB
01 COMDT ARMY TRANS SCH FT EUSTIS ATTN EDUC ADV
01 COMDT ARMY SOUTHEASTERN SIG SCH FT GORDON
01 CG ARMY ORD CTR + SCH ABERDEEN PG ATTN AISO-SL
01 ASST COMDT ARMY AIR DEF SCH FT BLISS ATTN CLASSF TECH LIB
10 CG ARMY ARTY + MSL CTR FT SILL ATTN AVN OFFR
01 COMDT ARMY DEF INTEL SCH ATTN SI+AS DEPT
01 COMDT ARMED FORCES STAFF COLL NORFOLK
01 COMDT ARMY SIG SCH FT MONMOUTH ATTN EDUC COORD
01 COMDT JUDGE ADVOCATE GEN SCH U OF VA
01 EDUC CONSLT ARMY MILIT POLICE SCH FT GORDON
06 COMDT ARMY ENGNR SCH FT BELVOIR ATTN AIBBES-SY
02 COMDT US ARMY SCH EUROPE APO 172 NY ATTN REF LIB
01 SPEC WARFARE SCH FT BRAGG ATTN LIB
01 ARMY SIG CTR + SCH FT MONMOUTH ATTN TNG LIT DIV OAO
02 SECY ARMY ORDNANCE GUIDED MISSILE SCH REDSTONE ARSNL
02 COMDT WOMENS ARMY CORPS SCH + CTR FT MCCLELLAN
02 HQ ABERDEEN PG ATTN TECH LIB
01 SECY OF ARMY
01 DCS-PERS DA ATTN CHF C+S DIV
02 AGS FOR FORCE DEVEL DA ATTN CHF TNG DIV
01 HQ ARMY MAT COMD R+D DRCTE ATTN AMCRD-RC
01 CHF OF PERS OPNS OFCR PERS DRCTE DA ATTN SIG BR
01 ARMY PERS RES OFC ATTN CRD-AR
02 OFC OF PERS OPNS DA ATTN OPOSS-A
01 STANDARDS + SYS OFC OPO OCCUP R+D SECT ATTN OPOSS-A
01 ARMY PROVOST MARSHAL GEN
01 OFC RESERVE COMPON DA
02 CHF ARMY SECUR AGY ARLINGTON HALL STA ATTN ACS-G1
20 CDR DEF DOCUMENTATION CTR CAMERON STA
01 CG ARMY ELECT COMD FT MONMOUTH ATTN AMSEL CB
01 CHF OF R+D DA ATTN CHF TECH + INDSTR LIAISON OFC
01 EDUC + TNG BR CBT DEVEL + OPNS DIV OFC OF CHF SIG OFFR DA
01 PERS + TNG DIV ORDHC OFC OF CHF OF ORD DA
01 ARMY PERS RES OFC ATTN CRD-AIC
01 COMDT ARMY CBT SURVEIL SCH FT HUACHUCA ATTN ATSUR S3
01 CG ARMY AIR DEF COMD ENT AFB
01 PRES ARMY ARMOR BD FT KNOX
01 PRES ARMY INF BD FT BENNING ATTN FE+SP DIV
02 PRES ARMY AIR DEF BD FT BLISS ATTN MST DIV
01 PRES ARMY MAINT BD FT KNOX
02 PRES ARMY AVN TEST BD FT RUCKER
02 PRES ARMY ARTY BD FT SILL
01 ARMY ABN ELEC + SPEC WARFARE BD FORT BRAGG ATTN LIB
01 DPTY PRES ARMY MAT COMD BD ABERDEEN PG
01 PRES ARMY TRANS BD FT EUSTIS
01 CG 4TH ARMORED DIV APO 326 NY
01 CO 11TH ARMORED CAV REGT APO 305 NY
01 CO 14TH ARMORED CAV REGT APO 26 NY
02 1ST INF DIV 1ST MED TANK BN 63D ARMOR FT RILEY
01 3D INF DIV 1ST BN 64TH ARMOR APO 36 NY
01 CO 3D MED TANK BN 37TH ARMOR APO 36 NY
03 CO 2D BN 34TH ARMOR FT IRWIN
01 CALIF NG 40TH ARMORED DIV LOS ANGELES ATTN ACS-G3
01 55TH COMD HQ DIV ARMY NG JACKSONVILLE FLA
01 CG HQ 27TH ARMORED DIV NY AIR NG SYRACUSE
01 TEXAS NG 49TH ARMORED DIV DALLAS
01 CO 3D MED TANK BN 32D ARMOR APO 29 NY
02 CG 1ST INF DIV FT RILEY ATTN G3
01 CG 2D INF DIV FT BENNING ATTN DIV AVN COMDR
03 CG 4TH INF DIV FT LEWIS ATTN G3
01 CG 8TH INF DIV APO 111 NY ATTN G2
01 CG 5TH INF DIV (MECH) FT CARSON
03 CG 24TH INF DIV APO 112 NY ATTN G3
03 CG 82D ABN INF DIV FT BRAGG ATTN G3
07 CO 3D BN 6TH INF REGT APO 742 NY
03 CG 25TH INF DIV APO 25 SAN FRAN
01 CO 3D BN 19TH INF APO 29 NY
04 CO 1ST BN (MECH) 52D INF 1ST ARMORED DIV (OLD IRONSIDES) FT HOOD
07 4TH BN (MECH) 54TH INF FT KNOX
01 CO ARMY PARTIC GP NAV TNG DEVICE CTR PT WASHINGTON ATTN CODE 01A
02 CHF AUDIO VISUAL APPLICAT OFC ARMY PICTORIAL DIV OFC OF CHF SIG OFCR
01 TECH DIR R+E DIV OFC OF QM GEN
01 US DOCU OFCR OFC OF US NATL MILIT REP SHAPE APO 55 NY
02 HQ ARMY LIAISON GP PROJ MICH U OF MICH
01 DIR ARMY LIB
01 CHF OF MILIT HIST DA ATTN GEN REF BR
01 82D ABN DIV FT BRAGG
05 HQ 40TH ARTY BRGD AIR DEF PRES OF SAN FRAN
01 CO 56TH ARTY BRGD AIR DEF FT BANKS
01 CG 31ST ARTY BRGD AIR DEF OAKDALE PENNA
01 26TH ARTY GP AIR DEF FT LAWTON
02 HQ 4/59TH ARTY HAMPTON RDS ARMY TERM NORFOLK
01 28TH ARTY GP AIR DEF SELFRIDGE AFB
01 52D ARTY BRGD AIR DEF HIGHLANDS AFS
01 HQ NIAGARA-BUFFALO DEF 31ST ARTY BRGD AIR DEF LOCKPORT
01 HQ 45TH ARTY BRGD AIR DEF ARLINGTON HTS ILL
01 35TH ARTY BRGD AIR DEF FT GEO G MEADE
01 CO ARMY AVN TEST BD FT RUCKER
01 CG 101ST ABN DIV FT CAMPBELL
01 CG 1ST CAV DIV APO 24 SAN FRAN
01 ARMY R+D OFC PANAMA FT CLAYTON CANAL ZONE ATTN BEHAV SCI COORD
02 CINC US PACIFIC FLT FPO SAN FRAN
01 CINC PACIFIC OPNS ANLS SECT FPO SAN FRAN
01 BUR OF NAV PERS ATTN TECH LIB PERS 11B
03 DIR PERS RES DIV BUR OF NAV PERS
03 CHF OF NAV PERS
02 BUR OF NAV WEAPONS FLT READINESS REP ATLANTIC NAV AIR STATION NORFOLK
01 CHF OF NAV PERS ATTN PERS-C1123
01 CO + DIR NAV TNG DEVICE CTR PT WASHINGTON ATTN LIBN
02 NAV MSL CTR POINT MUGU CALIF ATTN HUMAN FACTORS ENGNR DIV
02 FLT ANTI-AIR WARFARE TNG CTR DAM NECK VA BEACH
02 CO FLT TNG CTR NAV BASE NEWPORT
02 OIC ATLANTIC FLT MSL WEAPON SYS TNG UNIT FLT ANTI-AIR WARFARE TNG CTR
DAM NECK VA BEACH
01 CDR FLT TNG GP NAV BASE CHARLESTON
02 CO FLT TNG CTR NORFOLK
02 HUMAN FACTORS DEPT COMM PSYCHOL DIV NAV TNG DEVICE CTR PT WASHINGTON
03 CO NAV GUIDED MSL SCH DAM NECK VA BEACH
01 CO NUCLEAR WEAPONS TNG CTR ATLANTIC NAV AIR STA NORFOLK
02 CO FLT ANTI-AIR WARFARE TNG CTR DAM NECK VA BEACH
02 CO FLT SONAR SCH KEY WEST
01 CHF OF NAV RES ATTN HEAD PERS + TNG BR CODE 458
01 OIC NAV PERS RES ACTVY NAV YD WASHINGTON
05 CO OFC OF NAV RES BR OFC FPO 39 NY
01 CO MED FLD RES LAB CAMP LEJEUNE
01 CDR NAV MSL CTR POINT MUGU CALIF ATTN TECH LIB CODE 3022
01 CO + DIR NAV ELEC LAB SAN DIEGO ATTN LIB
03 OIC NAV PERS RES ACTVY SAN DIEGO
01 NAV AIR TECH TNG CTR MEMPHIS
02 CDR NAV MSL CTR POINT MUGU CALIF ATTN HUMAN ENGNR DIV CODE N-335
01 NAV TNG PERS CTR NAV STA NAV YD ANNEX WASHINGTON ATTN CODE B3 LIB
02 COMTRL NAV BASE NORFOLK
01 COMDT MARINE CORPS HQ MARINE CORPS ATTN CODE AO-1B
01 HQ MARINE CORPS ATTN AX
01 DIR MARINE CORPS EDUC CTR MARINE CORPS SCH QUANTICO
ATTN SECRET + CONF FILES GP
01 DIR MARINE CORPS INST ATTN EVAL UNIT
01 CHF OF NAV OPNS OP-01P1
01 CHF OF NAV OPNS OP-07T2
01 CHF OF NAV AIR TECH TNG NAV AIR STA MEMPHIS
02 COMDT PTP COAST GUARD HQ
01 CHF OFCR PERS RES + REVIEW BR COAST GUARD HQ
01 OPNS ANLS OFC HQ STRATEGIC AIR COMD OFFUTT AFB
01 CINC STRATEGIC AIR COMD OFFUTT AFB ATTN SUP-3
01 HQ AIR TNG COMD ATTES RANDOLPH AFB
03 DIR OF PERS PROCUR + RETENTION AIR FORCE MILIT PERS CTR RANDOLPH AFB
01 CHF SCI DIV DRCTE SCI + TECH DCS R+D HQ AIR FORCE AFRSTA
01 CHF OF PERS RES BR DRCTE OF CIVILIAN PERS DCS-PERS HQ AIR FORCE
01 CHF EVAL BR(AFPDPCE) CAREER DEVEL DIV DRCTE OF PERS PLAN HQ AIR FORCE
02 HQ AIR FORCE STAFF COLL SCGB 3 ANDREWS AFB
01 ROME AIR DEVEL CTR RASH GRIFFISS AFB
02 CDR ELEC SYS DIV L G HANSCOM FLD BEDFORD MASS ATTN ESRHO
02 SACRAMENTO AIR MAT AREA SMACU-PERS RES MCCLELLAN AFB
01 AIR TNG COMD ATTWS W RANDOLPH AFB
01 AERO MED RES LAB MRPTO WRIGHT-PATTERSON AFB
01 AIR MOVEMENT DESIGNATOR MRPTO WRIGHT-PATTERSON AFB
01 HQ BALLISTICS SYS DIV PERS SUBSYS BR BSDSP NORTON AFB
02 MILIT TNG CTR OPE LACKLAND AFB
02 6570TH AERO MED RES LAB MRPT WRIGHT-PATTERSON AFB
01 AIR MOVEMENT DESIGNATOR AMRH BROOKS AFB
02 HQ AIR TRANS COMD ATCTD-M RANDOLPH AFB
01 DIR AIR U LIB MAXWELL AFB ATTN AUL3T-63-253
01 AIR FORCE SCH OF AEROSPACE MED BROOKS AFB ATTN AEROMED LIB
01 DIR OF LIB US AIR FORCE ACAD
01 DRCTE OF AEROSPACE SAFETY AFIAS-L DPTY IG NORTON AFB
01 COMDR ARCTIC AEROMED LAB APO 731 SEATTLE
01 6570TH PERS RES LAB PRA-4 AEROSPACE MED DIV LACKLAND AFB
01 DIR NATL SECUR AGY FT GEO G MEADE ATTN DIR OF TNG
03 CENTRAL INTEL AGY ATTN OCR MAIL RM
01 DEPT OF STATE BUR OF INTEL + RES EXTERNAL RES STAFF
01 SCI INFO EXCH WASHINGTON
02 CHF REGL TNG BR TNG DIV FED AVN AGY ATTN PT 38
01 RES INFO CTR NATL BUR OF STANDARDS ATTN RES PSYCHOL

01 CHF PSYCHOL BR CIVIL AEROMED RES INST FED AVN AGY OKLAHOMA CITY
01 SYS DEVEL CORP SANTA MONICA ATTN LIB
02 DUNLAP + ASSOC INC DARIEN ATTN LIB
02 RES ANLS CORP BETHESDA
01 RAND CORP WASHINGTON ATTN LIB
01 DIR RAND CORP SANTA MONICA ATTN LIB
02 U OF SO CALIF ELEC PERS RES GP
01 COLUMBIA U ELEC RES LABS ATTN TECH EDITOR
01 MITRE CORP BEDFORD MASS ATTN LIB
01 WESTERN ELECTRIC CO WINSTON-SALEM
02 U OF PGH LEARNING R+D CTR ATTN DIR
01 HUMAN SCI RES INC NORFOLK
01 HUMAN SCI RES INC MCLEAN VA
02 TECH INFO CTR ENGNR DATA SERV N AMER AVN INC COLUMBUS O
01 CHRYSLER CORP MSL DIV DETROIT ATTN TECH INFO CTR
01 AVCO CORP LAWRENCE MASS ATTN MANGR HUMAN FACTORS DEPT
01 RAYTHEON CO ELEC SERV OPNS BURLINGTON MASS
02 EDUC + TNG CONSULTANTS LOS ANGELES ATTN PRINCIPAL SCI
01 INFO SYS DEPT 197 SPACE + INFO SYS DIV N AMER AVN INC DOWNEY CALIF
01 GEN DYNAMICS POMONA CALIF ATTN LIB
01 BELL AEROSYS CO CASTLE AFB
01 AVN CRASH INJURY RES SKY HARBOR AIRPORT PHOENIX ATTN TECH LIBN
02 MARQUARDT CORP POMONA CALIF ATTN DEPT 580
02 REFLECTONE ELEC INC STAMFORD CONN
01 CHF PERS SUBSYS AIRPLANE DIV MS 74-90 RENTON WASH
01 SYLVANIA ELECTRIC PRODUCTS INC NEEDHAM HGTS MASS ATTN PERS SUBSYS MANGR
01 THIOKOL CHEM CORP HUMETRICS DIV LOS ANGELES ATTN LIBN
01 INST FOR DEF ANLS RES + ENGNR SUPPORT DIV WASHINGTON
01 DIR CTR FOR RES ON LEARNING + TEACHING U OF MICH
01 EDITOR TNG RES ABSTR AMER SOC OF TNG DIRS U OF TENN
01 GEO WASHINGTON U DEPT OF PSYCHOL
06 BRITISH EMBSY BRITISH DEF RES STAFF WASHINGTON
03 CANADIAN JOINT STAFF OFC OF DEF RES MEMBER WASHINGTON
03 CANADIAN ARMY STAFF WASHINGTON ATTN GS02 TNG
03 ACS FOR INTEL FOREIGN LIAISON OFCR TO NORWEG MILIT ATTACHE
02 ACS FOR INTEL FOREIGN LIAISON OFCR FOR SWEDISH EMBSY ATTN ARMY ATTACHE
01 NATL INST FOR ALCOHOL RES OSLO
01 AUSTRALIAN EMBSY OFC OF AIR ATTACHE WASHINGTON ATTN T A NAVGN SQDN LDR
01 YORK U DEPT OF PSYCHOL
02 AUSTRALIAN EMBSY OFC OF MILIT ATTACHE WASHINGTON
01 U OF SHEFFIELD DEPT OF PSYCHOL
01 MENNINGER FOUNDATION TOPEKA
02 AMER INST FOR RES WASHINGTON
01 AMER INST FOR RES PGH ATTN LIBN
03 MATRIX CORP ARLINGTON ATTN TECH LIBN
01 AMER TEL+TEL CO NY
01 OBERLIN COLL DEPT OF PSYCHOL
01 GEN ELECTRIC CO SANTA BARBARA ATTN LIB
01 VITRO LABS SILVER SPRING MD ATTN LIBN
01 TENN VALLEY AUTHORITY KNOXVILLE ATTN LABOR RELATIONS OFCR DIV OF PERS
01 U OF GEORGIA DEPT OF PSYCHOL
01 AMER INST FOR RES LOS ANGELES
01 AMER INST FOR RES PALO ALTO CALIF
01 MICH STATE U COLL OF SOC SCI
01 N MEX STATE U
01 ROWLAND + CO HADDONFIELD NJ ATTN PRES
01 NORTRONICS DIV OF NORTHROP CORP ANAHEIM CALIF
01 LING TEMCO VOUGHT INC WARREN MICH ATTN HEAD HUMAN FACTORS
02 AIRCRAFT ARMAMENTS INC COCKEYSVILLE MD
01 AMER MACH + FOUNDRY CO GREENWICH ENGNR DIV STAMFORD CONN
01 TUFTS U HUMAN ENGNR INFO + ANLS PROJ
01 AMER PSYCHOL ASSOC WASHINGTON ATTN PSYCHOL ABSTR
01 NO ILL U HEAD DEPT OF PSYCHOL
01 GEORGIA INST OF TECH DIR SCH OF PSYCHOL
01 BELL TEL LABS INC TECH INFO LIB WHIPPANY LAB NJ ATTN TECH REPORTS LIBN
01 WASHINGTON ENGNR SERV CO INC KENSINGTON MD
01 LIFE SCI INC FT WORTH ATTN PRES
01 INTERNATL INVENTORS CONGRESS CHICAGO
02 DIR INSTR RESOURCES STATE COLL ST CLOUD MINN
01 COLL OF WM + MARY SCH OF EDUC
01 SO ILLINOIS U DEPT OF PSYCHOL
02 HOWARD RES CORP ARLINGTON
01 NORTHWESTERN U DEPT OF INDSTR ENGNR
01 NY STATE EDUC DEPT ABSTRACT EDITOR AVCR
01 CHF PROCESSING DIV DUKE U LIB
01 U OF CALIF GEN LIB DOCU DEPT
01 FLORIDA STATE U LIB GIFTS + EXCH
01 HARVARD U PSYCHOL LABS LIB
01 U OF ILL LIB SER DEPT
02 U OF KANSAS LIB PERIODICAL DEPT
01 U OF NEBRASKA LIBS ACQ DEPT
01 OHIO STATE U LIBS GIFT + EXCH DIV
01 PENNA STATE U PATTEE LIB DOCU DESK
01 PURDUE U LIBS PERIODICALS CHECKING FILES
01 STANFORD U LIBS DOCU LIB
01 LIBN U OF TEXAS
01 SYRACUSE U LIB SER DIV
01 U OF MINNESOTA LIB
01 STATE U OF IOWA LIBS SER ACQ
01 NO CAROLINA STATE COLL DH HILL LIB
02 BOSTON U LIBS ACQ DIV
01 U OF MICH LIBS SER DIV
01 BROWN U LIB
02 COLUMBIA U LIBS DOCU ACQ
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AD_____Div. 8, 23

Human Resources Research Office, George Washington U., Alexandria, Va. 22314
THE DEVELOPMENT AND EVALUATION OF AN IMPROVED ELECTRONICS TROUBLESHOOTING MANUAL, by James P. Rogers and H. Walter Thorne, Mar. 65, 64 pp. incl. figs., 12 refs. (Technical Report 65-1)
(Contract DA 44-188-ARO-2) (DA Proj 2J024701A712 01) Unclassified Report

To develop a maintenance manual that would permit a trained technician to troubleshoot electronic equipment faster and more accurately, hypotheses were developed about what information should be presented. An experimental manual was prepared for troubleshooting the Nike Ajax and its test equipment; it contained some information not found in conventional manuals and was organized according to when and how information is to be used. An experimental group using the experimental manual was able to troubleshoot faster and more effectively than a control group using standard schematic and functional diagrams and personal notes. A list of desirable contents for troubleshooting manuals was drawn up, and procedures for preparing troubleshooting manuals were written.

UNCLASSIFIED

1. Electronic maintenance—Instruction manuals
2. Textbooks—Development
3. Maintenance personnel—Military training

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VT 011 472
Resnick, Harold S.
The Implementation of Flexible Modular Scheduling for Industrial Education.

Wayne State Univ., Detroit, Mich. Dept. of Industrial Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Apr70 22p.

DESCRIPTORS - *INDUSTRIAL EDUCATION; *FLEXIBLE SCHEDULING; *SCHEDULE MODULES; *NATIONAL SURVEYS; DOCTORAL THESES; BIBLIOGRAPHIES; SECONDARY SCHOOLS
IDENTIFIERS - *FLEXIBLE MODULAR SCHEDULING

ABSTRACT - "The Implementation of Flexible Modular Scheduling for Industrial Education" is summarized. For abstract of full report, see ED 043 738 (VT 011 473, ARM Spring 1971). (GR)

VT 011 472

ED0 57254

THE IMPLEMENTATION OF FLEXIBLE MODULAR SCHEDULING FOR INDUSTRIAL EDUCATION

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April, 1970

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THE IMPLEMENTATION OF FLEXIBLE MODULAR SCHEDULING FOR INDUSTRIAL EDUCATION

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During the past several years, a number of innovative school curriculums and scheduling patterns have been introduced, because of recent technological advance. Computers have been used frequently in this effort. They have been used to develop sophisticated instructional programs, to facilitate computer-assisted instruction, and for many non-instructional purposes. Flexible modular scheduling is one example of their use as a non-instructional device to broaden a school's master schedule, and program students. It is a scheduling technique that allows schools to use the concept of time as a variable, rather than a constant in the scheduling pattern.

The three words, flexible modular scheduling, define the program to a degree. The word scheduling means that FMS is a technique used to schedule students. By itself, this does nothing to create different kinds of learning patterns. It does, however, allow for different learning patterns to occur. Flexible signifies that this program allows for a greater deal of flexibility in terms of possible learning activities, and the individualization of student programs. The term modular refers to a module of time - a single small unit, usually approximately fifteen minutes. These modules, replacing the "period," are the basic building blocks for the school program. Flexible modular scheduling then, is a computer based administrative device used to schedule the students in a school. This schedule generally follows a weekly cycle, using time as a variable rather than a constant, and basing the school scheduling cycle upon building blocks called modules.

This report consists of four major subdivisions. First, an attempt is made to provide a general description and the supportive rationale for flexible modular scheduling, including an example of its use. Second, the background information for this study which examined the "state of the art" of flexible modular scheduling in industrial education is provided. Third, the findings of this study are reviewed. These data consider the total school program, as well as the industrial education area. It is believed that the range of reported findings may well point out some of the limitations as well as the advantages of flexible modular scheduling. And fourth, a brief summarization and the conclusions and observations of this study are presented.

General Information Regarding Flexible Modular Scheduling

The traditional master schedule provides for variability in scheduling students, teachers, and curriculum, holding time as a constant; while the flexible schedule manipulates time as an additional variable. By reducing the basic unit of time - now referred to as module or "mod" - to approximately fifteen minutes, mods may be built upon one another in various patterns to meet the curriculum needs of any particular course. Thus, large groups of students can be brought together for designated periods of time, small groups can be scheduled to meet with individual teachers, laboratory activities can be structured for any needed length of time, and students can have unstructured time for independent study or development.

The essence of this system can be explained best by comparing the flexible and inflexible systems of scheduling. In the inflexible system most academic subjects are typically scheduled for five class meetings per week, and classes last the same length of time, usually one hour. Although this pattern is altered somewhat in industrial education, the scheduling cycle established generally tends to be quite rigid and inflexible. The learners constantly meet the same teacher and the same students always meet in the same class.

In the flexible system, the school day is divided into smaller modules. These modules are combined so that industrial education classes generally schedule laboratory activities for three, four, or more modules. The schedule can thus allow for the specific requirements of each course and, within courses, differentiate between the different activities associated with the instruction in the subject. Large group instruction, small group instruction, laboratory, and independent study can be scheduled so that different combinations of modules are allocated to each of these activities. The following description of a typical course exemplifies the curriculum changes made feasible through FMS.

A tenth grade industrial education course in materials and processes has an enrollment of 140 students. Time allocated for this course is fifteen modules per week, which is comparable to the traditional provision (i.e. 15 x 20 minutes = 300 minutes; 5 x 60 = 300 minutes). A team of three teachers is teaching this course.

These teachers determined that part of their instruction could be provided for 140 students in one group as effectively as for twenty or thirty, with a much greater degree of efficiency. A large group meeting for all students, therefore, was designated for two modules (40 minutes) once each week. This large group session was typically used for safety instruction, and related technical and occupational information.

In addition, two structured laboratory sections of three modules each (60 minutes) were established for each student. Twenty-five students were set as the number for a structured laboratory group. The remainder of time was allocated for unscheduled open laboratories. If three teachers were to teach this course within a traditional schedule, a total of 900 minutes per week would be required, with 46 students per course. Under the modular system, 40 minutes was set aside for large group activity, and a total of 720 minutes was required for structured laboratory sections. This left 140 minutes per week for open laboratory activities, and reduced class size in a structured lab from 46 to 25 students. Opportunity to use the open lab provided the necessary time for additional activities for those students needing such time.

The most significant change created by flexible modular scheduling is the instructured mod - the opportunity for each student to have as much as 40 or 50 percent of his school day unscheduled so that he can independently assume the responsibility for his own learning, to complete the aim for each specific course, and study in those areas that are relevant to him utilizing his own cognitive learning style.

The Rationale for Utilizing Flexible Modular Scheduling

The present typical school schedule is based on the philosophy that it takes the same amount of time, within the same instructional pattern, to perform all instructional tasks. This is evidenced by the existence of the Carnegie Unit, and the fact that all courses meet for the same length of time per meeting, and the same number of meetings per week, within the same instructional pattern. Yet, educational psychology and theories of learning would suggest that this is not an optimum pattern for all subjects. Not all children need the same amount of time to learn specific things. Nor do all learners come to school with equal backgrounds and talents.

Flexible modular scheduling is designed to resolve these problems. Rather than prescribe a series of standard experiences for all youth, FMS changes the learning pattern so that each student can assume the responsibility for his own education. The objectives of flexible scheduling are to make students responsible for their education, and to teach them how to learn, rather than what to learn.

Basic to any educational innovation is a supportive theory of learning. Perhaps the single truism accepted by all education philosophies is the concept that people are unique, and each person learns best in a style unique to himself, based on his past experiences. Teaching must take into account, therefore, the differences in the capacity of given individuals to absorb material. Certainly the assumption that everyone learns in the same manner is patently untrue.

The fundamental rationale for the development of flexible modular scheduling is that the student, rather than the teacher or the school system, should be placed at the hub of the learning process. If one is to accept such an organizational design, a very critical assumption must be made: that time is not the prime criterion for successful achievement, and that learning should be measured in skills attained, rather than hours spent in the classroom. The modular concept of course structure is predicated on the premise that those involved with curriculum planning can determine those kinds of specific learning activities students need to have in the structured phase of the program. The modular schedule is then adapted in such a manner to facilitate the types of learning experiences prescribed. Flexibility then, is the means to an end, operating on two levels. First, the responsibility for learning is placed on the learner; and second, the school structure is redesigned to facilitate the achievement of the goals established for the learner.

Background for this Study

In March of 1965, the School of Education of Stanford University submitted to the United States Commissioner of Education a proposal for a three year developmental pilot program entitled Flexibility for Vocational Education through Computer Scheduling. This proposal was funded in two phases. The first phase was established to test the feasibility of applying computer-generated scheduling techniques to vocational education. The second phase was intended to implement computer scheduling on a broad scale, and to involve more schools and educational programs than were involved during the first year of the project. The computer schedule employed was called the Stanford School Scheduling System (SSSS). The key personnel in the development and administration of this project were Dwight W. Allen, Robert N. Bush, Norman J. Boyan, and Robert V. Oakford, at that time, all at Stanford University. This project terminated in September, 1968.

When the research phase of the Stanford School Scheduling System was completed, Educational Coordinates, a private corporation, was established to provide continuity to the schools using the system, and to provide service to new schools interested in this activity. At the time of this study, Educational Coordinates was under contract to schedule more than 115 schools, and conducted several national conferences related to flexible modular scheduling each year. Since the schools scheduled by Educational Coordinates were a highly select group, representing a cross section of the United States, a wide range of student population, and the benefit of several years of implementation, it was decided that they would serve also as the basic population for the study described in this report.

The specific purpose of this study, then, was to examine the industrial education departments of schools utilizing flexible modular scheduling, and prepare a manuscript describing the administrative and instructional procedures employed by these departments. This examination was comprised of five major steps: 1) a review of the literature in the field of flexible modular scheduling for the purpose of identifying characteristics of existing programs; 2) selection of the schools to be used in the study; 3) visits to several of the selected schools to aid in the development of the data-gathering instrument; 4) a survey of the industrial education programs in the sample with the goal of an identification of the administrative and instructional procedures employed; and 5) the preparation of this manuscript of practices employed in these schools. The purpose of this document was to serve as a guide in the further implementation of flexible modular scheduling for industrial education.

On October 8, 1969 an initial data-gathering instrument was sent to the principals of all schools scheduled by Educational Coordinates. The purpose was to determine which schools met all criteria for the study, and to identify an individual who would represent the industrial education department for the completion of the major data-gathering instrument. In addition, an attempt was made to identify a number of individuals who would be willing to serve also on a special team to help validate the major data-gathering instrument prior to its release. From this initial survey, 77 schools were identified for the study. Nine individuals, from nine different schools, were identified also to serve on the validating team. The instrument was validated during the month of December, and mailed during the months of January, February, and March. Sixty-five responses (82 percent) were received, from which the data was collated and reported. The following pages describe the results of these data.

Presentation of the Data

These results have been subdivided to correspond with the various sections of this research instrument.

General School Information

It was the purpose of this section to determine the overall scheduling pattern for each school. Based upon the data returned, the length of time that the reporting schools have been using flexible modular scheduling ranges from one to seven years, with an average of 2.9 years, and a mode of three years. They typical structure for a school day appears to be twenty mods, twenty minutes long, for a school

day of six hours forty minutes. Although the range of figures represented show a larger diversity, both the average and the mode indicate that the twenty-twenty pattern is most common.

The Industrial Education Department

Information about the respective industrial education departments showed a much greater range of data. For example, the number of students within a given industrial education department ranged from a small rural school with 72 students to a multi-school urban complex with approximately 1,500 students. Corresponding numbers of teachers within these departments ranged from one to fourteen.

On the average, the typical industrial education department reported 435 students, serviced by 4.1 teachers; or approximately one teacher for every 100 students. The number of labs per department ranged from one to ten, with a corresponding average of 4.3, or approximately one lab per teacher and for each 100 students. It was rather disappointing to note that of the sixty-two school responding, only eleven had any full-time paraprofessional or other types of supportive personnel in industrial education. Of these eleven schools, all but three had one aide; the other three had two aides. In addition, thirteen schools did report the use of part-time aides, ranging from one to sixteen per department. The one school reporting sixteen aides stated that these were students who served in the labs during some of their unscheduled mods.

Large Group Instruction

Of the sixty-two schools which reported acceptable data, twenty-nine stated that they did not use large group instruction, while thirty-three reported its use. Corresponding percentages reveal that only 53 percent of these industrial education departments use this instructional pattern.

It appears that the areas of woodworking, metalworking, and electricity - electronics use large group instruction (instruction for forty or more held in a separate large group facility) at a ratio of approximately three to one. For example, of the thirty-three schools using large group instruction, twenty-two had an electricity - electronics lab. Of these twenty-two, sixteen reported the use of large group instruction in this area, while six stated that they did not use it.

The area of power (including automechanics) reported a very high ratio of large group instructional use, with a positive response from fourteen schools and a negative response from only three schools. Another area with a high ratio for large group instruction was general industrial arts. While only seven of these thirty-three schools reported the use of a general industrial arts lab, all seven stated that they did use large group instruction.

All other areas reported an approximate even split between the use or non-use of large group instruction. It was interesting to note that of all areas reporting, only in drafting and graphic arts courses were there a higher number not using large groups, than using it. It should be reported, however, that the difference was only by one lab in each case.

In determining the administrative pattern for large group instruction, four questions were asked: 1) how many times per week does the large group meet, 2) for how many minutes per meeting, 3) with how many students per meeting, and 4) in what type of facility.

All schools but five reported that their large groups met once a week. The other five schools reported a meeting twice per week. This indicates a strong trend to one meeting per week. The average length of time per meeting was forty-two minutes, which corresponds highly to a two mod meeting, when the established time of twenty minutes for a mod is used. Although the number of students per meeting ranged from 15 to 325, an average of ninety-one was established. This tends to correspond with a combined group of approximately four structured lab sections at an average of twenty students per structured lab section.

The majority of these large groups meet in some type of formal large group meeting room. The use of a typical classroom was reported by fifteen schools, seven stated that they used a lecture hall, and seven reported the use of the auditorium for their large group meetings. Only two schools reported an attempt to conduct large group meetings in the lab, and these schools maintain an average of thirty-five and forty students per large group meeting, which is far below the average of ninety-one.

A wide diversity was recorded in the amount and kind of equipment maintained on a permanent basis to support instruction for large groups. The single most commonly available device is an overhead projector, with 87.2 percent of the schools reporting its full-time installation. Other than this, the only items reported always available by more than 50 percent of these schools were a microphone (56.2 percent), and a slide film or 16mm projector (53.0 percent). Also reported in rather substantial numbers were a film projection booth (43.8 percent) and a stage with podium (40.6 percent). To a somewhat lesser degree,

31.3 percent of these schools reported the availability and use of closed-circuit TV, whereas only 9.6 percent indicated a set of master controls for this equipment at the podium. When asked to specify other equipment not indicated in the data-gathering instrument, responses indicated such hardware as tape recorders, opaque projectors, and film strip projectors.

The data indicates that the most commonly used methods for taking attendance at a large group meeting are roll call, the use of a seating chart, or both. The use of each of these techniques was reported by fifteen schools. To a somewhat lesser degree, seven schools reported the use of a sign-in sheet, often in conjunction with a roll call. Other individual techniques for taking attendance included the use of quizzes or review questions, and the use of lab assistants or para-professionals for this function.

In reporting the subject topics for large group meetings, the schools in this study devoted the highest percentage of time (41 percent) to technical information related to laboratory work. The next highest area was occupational information related to the course. The amount of time used for this activity averaged 16 percent. Approximately 14 percent of the time used in large group meetings was devoted to demonstrations of tools and machines; 13 percent to safety instruction; and 10 percent to evaluation. Other items indicated by individual schools included technical information not related to the lab, discussion and planning sessions, and school problems and functions.

A number of different instructional methods were employed for large group meetings. The primary method by far is the traditional one-teacher presentation, relied on approximately 62 percent of the time. Other than the traditional one-teacher presentation, the next highest rating is for visual presentations based on the use of films. An average of all schools indicates that 19 percent of the large group meeting time is devoted to films. The only other substantially reported method was team teacher presentations, using a variety of instructional methods and techniques. This grouping received an average of 8 percent. Other instructional methods receiving overall averages from 2 to 4 percent included single or team student presentations, guest speakers, and field trips. One other instructional method reported by only one school was the use of 10 percent of the instructional time for viewing videotapes of demonstrations.

These teachers were also asked to rank the method they use to evaluate the effectiveness of large group instruction. The data indicate that laboratory performance is the most highly considered determiner of instructional effectiveness; written test performance is reported next; and large group attendance is the least considered factor.

The last major question focused on an attempt to assess the respondents' reactions to the effectiveness of large group instruction. Eighty-one percent of the teachers responded positively, whereas 19 percent responded in a negative manner. A number of respondents indicated a variety of suggestions to increase the effectiveness of large group instruction. In general, these tend to fall within three categories. First, a number of teachers indicated a need for more audio-visual materials and "software". Second, and related to the first item, was the identified need for better facilities for large group instruction, including more equipment, or "hardware." Third, and perhaps most important, was the stated need for more personnel, additional teacher preparation time, and teachers trained with skills for large group presentations.

Structured Laboratory Sections

This section attempts to answer several basic questions identified with the structured laboratory sections. The first of these questions deals with the administrative scheduling pattern and personnel utilization for the structured lab. The average scheduled lab meets two times per week. The range of meetings is only one to five, and the mode is well established at two meetings per week, this number represented by thirty-one of the sixty-one schools with acceptable responses. The average length of each meeting is sixty-six minutes, which corresponds closely to the sixty minute mode, representing three, twenty minute mods. Approximately twenty students are scheduled for a structured lab (more accurately, an average of 20.3 students and a mode of twenty-four students). A typical structured lab, then, will meet twice a week for three mods per meeting, and twenty students per group.

The standard personnel pattern for a structured lab meeting consists of one teacher per meeting, and no supportive personnel. Only two of these sixty-one schools indicated two teachers for a structured lab, and seven reported the use of one support person.

In identifying available facilities for small group discussion, the greatest percentage (41.0 percent) of the respondents indicated the use of a portion of a lab. The use of a separate conference or classroom for this activity was noted by 32.8 percent of these teachers. A sizeable portion of the teachers (26.2 percent) reported no facilities for small discussion groups. A smaller percentage (16.4 percent) indicated the use of the resource center for this activity.

To the surprise of this researcher, seventeen of these schools, representing 27.9 percent of the total, were utilizing facilities expressly designed for flexible modular scheduling. Approximately 61 percent were in facilities that had been designed for a traditional program, and had not undergone any changes. The remaining 13.1 percent were in traditional facilities that had been modified in some manner to adapt to FMS. In most cases, these changes represented the removal of walls and/or the construction of large instructional and small group discussion areas.

The next section attempted to report data regarding the typical instructional pattern for scheduled laboratory activities. By far, the greatest percentage of time is devoted to student performance at the work station. This activity accounts for an average of 59.1 percent of all structured lab time. The next highest ranked activity in terms of percentage of time is the teacher demonstration of manipulative operations, accounting for an average of 21.7 percent of the time, with a somewhat lower mode of 10 percent. The remaining time is divided between discussion of related technical (11.2 percent) and occupational (5.6 percent) information. Individual responses from teachers identifying other activities were most often concerned with either student evaluation or clean-up.

In ascertaining whether the general involvement of students in leadership or service capacities, in the structured lab sessions has changed under the modular system, 60.3 percent of the respondents reported no change. Positive responses from 39.7 percent of these teachers include a great range of comments. The majority of these teachers report a greater student involvement, more student responsibility, self-direction, and assumption of leadership roles. The general comment seems to be one of more individualization - greater opportunity for each student to develop a program to meet his particular needs. There were, however, a number of teachers who reported decreased student involvement, leadership, and motivation.

The last question dealing with the structured laboratory section called for a respondent evaluation of the effectiveness of such an instructional pattern. The vast majority (84.7 percent) of these teachers responded positively to structured lab sessions. Many teachers, including those who responded both positively and negatively, made a number of suggestions to increase the effectiveness of this instructional phase. Many of these suggestions called for longer meetings, more meetings per week, and fewer students per meeting. Some teachers indicated a need for more structured instruction, while others expressed a desire for less structure and more flexibility. These responses seem to be as much a factor of each teacher's personal relationships with his students, as anything else.

Independent Study - The "Unstructured" Mod

Of the fifty-nine schools responding to this section, fifty-six, representing 94.9 percent, reported the use of independent study. It would appear, therefore, that this instructional phase is an essential part of flexible modular scheduling. The first basic question in this section attempted to determine the extent of independent study in each school. This was determined by identifying the percentage of each student's time that was not scheduled, and then noting the degree of freedom he had during this unscheduled time. As shown in the data, the average study has 36.7 percent unscheduled time, with a reported mode of 40 percent. Forty of these fifty-nine schools, representing 72.7 percent, gave their students complete freedom to travel anywhere on the school campus during unscheduled time. Those schools specifying restrictions generally state one of three qualifications: 1) students may not roam the halls during unscheduled mods, 2) students must be in areas where supervisory personnel are present, or 3) students must report to certain designated areas, usually the library, resource centers, a commons area, or open labs.

An attempt was made also to identify those facilities available to the student for independent study. All schools responding indicated that they had a central library for student use during independent study. This central library contained resources for industrial education in 78.9 percent of the reporting schools. A smaller number, representing 40.4 percent, specified also that they had a separate resource center for industrial education. In addition, 75.4 percent of the schools reported the use of a cafeteria which served also as a student center. When asked to identify any other kinds of student centers or lounges, twenty-seven schools, or 47.4 percent, specified some kind of area. The majority of these were open courts, patios, recreation rooms, and lounges. Also included, however, were resource centers, student carrels, and a paperback library.

The next series of questions attempted to provide data in determining the pattern of use for the open lab in respect to: 1) facility and staff availability, 2) kinds of activities conducted in the open lab, and 3) special organizational patterns established. There appears to be a very wide range (3-105) of numbers of mods per week that a lab is available for unscheduled activities. Both the mean and mode, however, settle at approximately thirty, which is roughly equivalent to six mods or two hours per day. During this time the number of students allowed to use an open lab ranges from seven to "no limit." Two modes exist for this item; both a "no limit" response, and a mode of twenty-four. The mode of twenty-four corresponds also to the mean of 24.4, and to the standard number of students assigned to a structured laboratory section.

The percent of students who use the open lab also varies greatly from school to school, with a range from 5 to 100 percent. It is interesting to note that although the average number of students using the open lab is 59.7 percent, the greatest single number reported is a usage of 100 percent. The number of personnel staffing a lab ranges from one to three, with a very large mode (forty-two of fifty-six) of one. In fifty of these fifty-six schools, this type of personnel is a teacher. Only six schools, representing 10.7 percent, include the use of a paraprofessional or aide. The staffing pattern for this instructional approach has remained, therefore, rather traditional.

A number of questions were asked in an attempt to determine the percentage of student time devoted to varied activities in the open lab. The results indicate that approximately equal time is devoted to individual projects designed by students, and teacher-directed study projects being done for student credit. These two areas received averages of 37.9 and 37.3 percent, respectively. In both cases it is interesting to note a mode of ten with a range from zero to one hundred percent. The next highest area was the completion of homework or independent study assignments. Such activities received an average of 19.3 percent, and a mode of zero. The other area identified, special club activities, received a rating of only 1.2 percent, and forty-two of the schools reported no time for this activity.

The use of the open lab by non industrial education students was also examined. It appears that thirty-four of these fifty-six schools, or 60.7 percent, allow students not currently registered for an industrial education course to use the open lab. There are, however, a number of special considerations that need to be made for them. The prime concern seemed to be one of safety, and the IED teachers responded typically with one or more of the following restrictions for these students: 1) they must be accompanied by a teacher approved IED student or by the teacher while they are working, 2) they must first pass the safety tests, 3) they must be "checked out" on the equipment, or 4) they may use hand tools only.

The next section attempted to report any unique organizational patterns that were needed for the open lab in respect to attendance, tool distribution and control, safety procedures, and clean-up procedures. As shown, 54.7 percent of the schools reporting indicated that they did not take attendance during the unstructured lab. Of those schools taking attendance, a sign-in or check-in sheet was most prevalent. Some schools have an official time clock, while others use a student foreman to take attendance. An open tool panel honor system is used by 76 percent of these schools, in which students take tools as they are needed. In those few schools where this system is not being employed, a student tool attendant is generally in charge of all tools in a "crib", and he

signs them out to students as needed. It was interesting to note that virtually all schools reported the same safety policies and procedures as for all other phases of laboratory activity. In no school did there seem to be deviation from this pattern. In terms of clean-up procedures, 75.5 percent of the schools use the informal procedure of each student assuming responsibility for cleaning the area in which he was working. Those schools not using this informal procedure generally report the use of a formal system similar to the one used in the structured lab, often utilizing the aid of a student foreman.

The last basic question regarding this instructional phase was the respondents' reaction to independent study. 50 percent of the respondents stated that they believed the unstructured mod had been effective; 48.1 percent responded in a negative manner, and one person said "yes and no."

The number of suggestions to increase the effectiveness of the open lab were many and varied. A number of teachers indicated the need for paraprofessional support. Some teachers complained of problems relating to clean-up and tool loss. Several teachers indicated the need for more structure; others wanted less of it. No generalizations or conclusions could be drawn.

The Resource Center

Of the sixty-one schools responding to this section, only twenty-four, representing 39.3 percent, indicated that they have a resource center for industrial education. An immediate conclusion could be drawn, therefore, that this is an area in need of further development.

The data in this section attempted to provide information regarding the administrative structure of the resource center for industrial education. Of the twenty-four schools with such a resource center, ten, or 41.7 percent, maintain a center solely for industrial education. The other fourteen centers were shared typically with others in practical arts, although in several cases they were combined with either fine arts or math and science. The number of students who can be served in this center ranges from 4 to 150, with a mode of twenty-five and an average of 39.9 students. The typical center is open on the average for 17.7 mods per day, although the largest single response was an "all day" availability.

In determining the kinds of equipment and resources contained within this facility, it was indicated that the most widely housed resource is a library of technical books and magazines (91.7 percent). Also generally available in most facilities is a place to use audio-visual equipment (79.2 percent) and teacher made instructional materials (75.0 percent). Maintained by approximately 50 percent of the resource

centers for industrial education are a general library area (66.7 percent), audio-visual equipment (54.2 percent), films, tapes, slides, etc. (54.2 percent), individual study carrels (50.0 percent), and drafting tables (50.0 percent). Maintained to a much lesser degree are student and teacher lounge areas (16.7 percent each). In addition, individual items mentioned by specific schools included typewriters, a keypunch machine, business machines, electrical breadboards, a spirit master duplicator, and a dial access system.

This study attempted also to determine the level of personnel that staffs this center. Of the reporting schools, eight, representing 36.4 percent, reported no use of paraprofessionals to maintain the resource center. The remaining 63.6 percent did report the use of paraprofessionals, ranging from one to sixteen per center, with an average of approximately two (precisely 2.3) and a mode of one. The use of teachers to help maintain this center was reported by 45.5 percent of the schools, either instead of, or in addition to, paraprofessional support. Other persons cited by individual schools included an audio-visual specialist "on call," a librarian, a full-time secretary, and student aides.

The last basic question dealing with the resource center recorded the respondents' evaluation of the use of this facility. Approximately 46 percent of the respondents were pleased with the effectiveness of their resource center. A negative response was received from 54.5 percent of these teachers. The majority of suggestions to improve the use of this facility centered around the acquisition of more audio-visual equipment and materials, and the further use of paraprofessional support. Those teachers utilizing a resource center that is currently part of the regular lab facility expressed a desire to remove it from the lab and establish it as a separate entity.

Conclusion

This last section recorded the respondents' evaluation of FMS in general, and identified any noted additional problems or comments mentioned by individual respondents.

A positive response was reported from 71.7 percent of all schools, when asked whether they believed FMS to be better than a traditional scheduling pattern. Only 13.3 percent responded in a negative way, and 15.0 percent were on the fence with a "yes and no" response.

The respondent's suggestions for increasing the effectiveness of FMS fell within several categories. The one major problem is in assisting the academically unmotivated student. This learner is

apparently wasting much of his unscheduled time, and is no better off in the flexible system than he was in the traditional plan. This is a question yet to be resolved.

Interpretation of the Findings

Throughout the middle decades of the twentieth century, a number of innovative approaches have been developed in the field of education. Flexible modular scheduling may well prove to be one of the more significant of these innovations. Too often, however, an approach is developed too rapidly, field tested too hurriedly, and condemned prematurely.

In an attempt to avoid a premature evaluation of FMS prior to a fair period of research, development, and implementation, this study gathered information to report the "state of the art" of flexible modular scheduling in respect to industrial education. The goals were: 1) to review the development of flexible modular scheduling, 2) to identify and gather data from individuals representing the industrial education departments of a number of schools utilizing flexible modular scheduling and 3) to report these data to teachers in the field.

Each of the preceding chapters provide supporting data and findings related to these objectives. These findings also provide a base for the conclusions of the study, and the observations and recommendations of the researcher. Conclusions in this chapter are defined as those comments supported by the findings and related directly to the results of this study. Observations are findings which lack sufficient data to be classified as conclusions, but were felt by the author to be pertinent to the study. Recommendations suggest some possible extrapolations that might further examine, and begin to evaluate the success of this educational innovation.

Conclusions of the Study, With Observations, and Recommendations

Based on the historical review of the flexible modular scheduling movement, and the many descriptive comments made in the data-gathering instruments, a large number of conclusions could have been made. The researcher took the position, however, that it would be more significant to examine the several subdivisions of the data, and report only major conclusions. Observations and recommendations, where applicable, have been interspersed with the conclusions, to provide continuity of thought.

Conclusion Number One. Although the schools in this study were experimenting with an innovative program, the formal arrangement for industrial education remains, at the time of this study, essentially the same. To illustrate, the typical industrial education department averaged 100 students per teacher, assigned one lab to each teacher, and did not rely on paraprofessional support, or utilize the concept of differentiated staffing.

Observation. If developed properly, the FMS system does permit greater use of existing facilities. The reduction of structured lab sections, and the use of open labs and large group instruction, permits more students to register for IED courses in any given term.

Observation. FMS does allow for more students who are not enrolled in the industrial education program to utilize the laboratory facilities.

Recommendation. The concept of faculty load, and formal class meeting time to meet Carnegie Unit and State Reimbursement requirements should be abandoned. These concepts were based on the criterion of student time invested in the classroom, rather than specified performances and skills attained.

Conclusion Number Two. Large group instruction was not used in industrial education by almost 50 percent of the identified schools.

Observation. The use of this instructional phase appeared to be both a factor of the teaching style of the instructor, and the particular course content. For example, the subject of automechanics generally tended to have more large group instruction than graphic arts. And, for any particular subject, some teachers were more prone to use this instructional phase than were other teachers.

Observation. A number of schools would either begin to use or increase their use of large group instruction if facilities for such instruction, audio-visual hardware for instructional technology, and the supportive software, were more generally available.

Recommendation. Much more attention needs to be given to this area, both in terms of training teachers in the methodology of making large group presentations, and in the development of curriculum materials to support this instructional phase.

Conclusion Number Three. Despite the verbal homage paid to team teaching, student involvement, and the use of paraprofessional support, the pattern for presenting subject matter in large group instruction is overwhelmingly a formal one teacher presentation. The single exception to this statement is the fairly widespread use of films for large group presentation.

Recommendations. Curriculum materials should be developed that provide for the utilization of a differentiated staff.

Conclusion Number Four. The amount of time students meet for structured laboratory sections, has been reduced from the traditional five hours to approximately two hours per week.

Observation. It would seem, therefore, that the other instructional phases do provide for a very substantial portion of the total instruction.

Recommendation. Teacher education institutions must be concerned with preparing teachers who have skills in all of the instructional phases of FMS. Research and subsequent instructional programs are needed for large group instruction, small group discussions, and open laboratory activities.

Conclusion Number Five. The activities conducted in the structured lab in FMS generally follow the same pattern as the traditional structured laboratory activity.

Observation. While small group discussion in many subject areas has assumed the function of group interaction and total individual involvement, there is little of this in industrial education programs.

Recommendation. Those in industrial education should determine whether any of their curriculum objectives could best be met through the group interaction function. If so, then steps should be taken to incorporate this method into the instructional program.

Conclusion Number Six. Most schools allocate to their students approximately 40 percent unscheduled time, with a large degree of freedom of activity during this period. There is a very great range of student ability to accept and use this scheduled time. Generally, the more mature

student assumes more leadership activities and opportunities; while the unmotivated student does not often use this time to further his education.

Observation. While flexible modular scheduling appears to have done much for the above average student, the unmotivated learner has trouble using his unscheduled time wisely, and is frequently unable to cope with the freedom provided by this system.

Observation. The fundamental assumption underlying flexible modular scheduling is that the student should assume the responsibility for his own learning. If this assumption is accepted, then the observation may be made that the heart of FMS is the independent study, for this is where the student may develop at his own pace, using those resources of most interest to him. This is where he may discover "how to learn," rather than "what to learn."

Observation. The process of education must become a more personal experience for each student. Relevant programs for every individual in society must be developed. Each learner must feel that he is an important part of the structure, and that it is the function of the school to assist him in meeting his goals. When the learning situation is relevant, there are no unmotivated learners.

Conclusion Number Seven. The percentage of students who use the open lab, and the types of activities conducted during this instructional phase vary so greatly that no patterns could be determined.

Observation. It would seem that this is correlated to the personality of each individual teacher and his program, rather than a function of the modular system.

Observation. If flexible modular scheduled is to make learning a very individualized affair, perhaps it is proper that the function of the open lab be so diverse as to meet the unique needs of all learners.

Conclusion Number Eight. The organizational patterns in the open lab in respect to safety, clean-up, tool usage, and attendance appear to rely most heavily on a student honor system. Very few schools reported the use of a formal organizational structure for these functions during the open lab mods.

Observation. The wide range of satisfaction and dissatisfaction with this honor system would indicate that success is primarily a factor of each individual teacher's relationships with his students.

Recommendation. Experimentation should be conducted regarding other organizational patterns. Teachers utilizing successful techniques should be encouraged to share their plans with others.

Conclusion Number Nine. There is a lack of adequate paraprofessional support and differentiated staffing patterns in all instructional phases.

Recommendation. Experimentation should be conducted to determine the optimum utilization of a differentiated staff. A plan should then be devised that would implement this plan in those schools utilizing flexible modular scheduling.

Conclusion Number Ten. A very low percentage of the participating schools have developed a resource center for industrial education.

Observation. In those schools where this center does exist, there is a paucity of educational materials, and the staffing pattern is predominantly teacher oriented, with a lack of paraprofessional support.

Recommendation. Plans for model resource centers for industrial education should be developed, including the physical facility, equipment to be maintained in such a facility, staffing patterns, and the kinds of activities that such a facility would be best equipped to support.

Conclusion Number Eleven. The general pattern for industrial education within FMS includes one large group meeting for two mods per week; two structured labs for three mods per week, greatly resembling a traditional lab approach; and the use of open labs.

Observation. Paraprofessional support, a resource center, experimental curriculums, and all other innovations then seem to be a factor of each individual school and industrial education teacher.

Observation. The implementation of FMS means little without an accompanying curriculum revision. And, this revision must replace the old criteria of time invested in the classroom by performances to be achieved by the learner. Only when the performances are specifically identified, can the best instructional patterns be employed to achieve the desired performances.

Observation. Only a positive attitude on the part of the teacher can make the modular schedule a flexible one. Flexibility lies within the ability of each teacher to use the added variable of time to a positive instructional advantage. Innovation can occur only when it is implemented by innovators.

Recommendation. Curriculum studies in industrial education are needed to provide greater specificity in terms of stated objectives, course content, and the best instructional methodology to meet the specified objectives. Results and materials from such studies should be placed in a central depository for widespread and inexpensive dissemination.

General Recommendations for Education

The previous section of this report reported the conclusions, observations, and recommendations of the author as they specifically related to this study and to industrial education. This section poses some issues of concern for all those in education.

1. Some schools report positively when responding to the effectiveness of a particular instructional phase. Others report in a negative manner. Why does this discrepancy exist? This question could be asked for each curriculum area in the school.

2. Many teachers report that they prefer FMS to the traditional pattern, and that this is a better instructional system to follow. In it really better? Do the students actually acquire more skills either more effectively and/or more efficiently?

3. What are the decisionmaking rules that should determine how a particular course should be broken down into varied kinds of instruction? What-kinds of instruction are best conducted through which instructional phases?

4. What skills should a teacher possesses to function best in a school utilizing FMS? How many of these skills are currently being taught in formal teacher education institutions? Which ones are being neglected?

These are but a few of the questions that could be asked. In providing a guideline for the examination of future research topics, one might ask four basic questions about an educational system: 1) Where is it now? 2) Where is it going? 3) How shall it get there? and, 4) How will it know when it has arrived?

This study attempted to help answer the first question regarding the early implementation phases of the flexible modular system. It is hoped that subsequent research would attempt to build on this phase in an effort to answer all four of these questions.

VT 011 583
Wileman, Fred A., Ed.
Guidelines for Discretion. Five Models for Local Law Enforcement Agencies.

Wisconsin Univ., Madison. Inst. of Governmental Affairs.
MF AVAILABLE IN VT-ERIC SET.
University Extension Bookstore, 432 North Lake Street, Madison, Wisconsin 53706 ($1.00).
PUB DATE - 70 66p.

DESCRIPTORS - *LAW ENFORCEMENT; POLICE SEMINARS; *POLICY FORMATION; *GUIDELINES; POLICE ACTION; CIVIL DISOBEDIENCE

ABSTRACT - These five essays are meant to provide a basis for policy formulation by local law enforcement agencies. Resulting from a 1967 seminar on the problems of discretionary law enforcement, the papers cover: (1) "Shoplifting" by E.O. Wolff, (2) "Confinement" by G. Kosalos, (3) "Life Saving Devices" by H. Hettrick, (4) "Use of Force" by J. Mizerka and J. Wolff, and (5) "Crowds and Demonstrations" by J. Fandre and R. Foote. (BH)

VT 011 583

ED0 57254

GUIDELINES FOR DISCRETION

Five Models for Local Law Enforcement Agencies

Fred A. Wileman, editor

Institute of Governmental Affairs
University Extension
The University of Wisconsin

Published by funds in part from a grant
under Title I, Higher Education Act of 1965.
Material from this booklet may be reprinted,
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University Extension, The University of Wisconsin and
Title I, Higher Education Act

Madison, Wisconsin

948/949

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FOREWORD

The five policy guidelines in this book are presented as models for local law enforcement agencies. They are intended to serve as the bases upon which local law enforcement agencies can develop their own policies. They reflect the latest laws and decisions available to the authors at the time of writing (late 1969).

These guidelines are the work of seven law enforcement officers who were part of a seminar which met on sixteen occasions in 1969 to discuss the problems of discretionary law enforcement. Instructors for the seminar were drawn from among the leading authorities in criminal justice administration. Papers on specific discretionary problems were presented, discussed and evaluated, and became the bases for the guidelines here. The seminar and this book were financed in part by a grant under Title I of the Higher Education Act of 1965. The sponsoring agency was the Institute of Governmental Affairs, University of Wisconsin Extension.

The project was inspired by work done in 1967 by Frank J. Vandall, Senior Law Fellow, under the direction of Herman Goldstein, University of Wisconsin Law School. Mr. Vandall's work on a policy for handling domestic disturbances started us on an educational program of which this book is but the first product.

Seminar instructors in addition to project staff included Shirley Abrahamson, Arlen Christenson, Herman Goldstein, Michael Lipsky and Richard Stauber, all of The University of Wisconsin; Donald Dwyer, Minneapolis

Police Department; John Klotter, Southern Police Institute, University of Louisville; and Wayne LaFave, University of Illinois. Seminar papers were evaluated by seven law enforcement executives: Chiefs of Police John Howard, Wauwatosa, Wisconsin; Bernard Kakuske, Beloit; Ronald Wold, La Crosse; and Arvin Ziehlsdorff, Eau Claire; Sheriff Robert Baird, Waukesha County; Inspector Norman Ehle, Madison Police Department; and Lieutenant Joseph Maciejewski, Cudahy Police Department.

Albert D. Hamann, Institute of Governmental Affairs, was the original project director. His counsel and support were most helpful. Frank J. Crisafi, also of the Institute, served as an indispensible project assistant, helping to coordinate the project and preparing much of the manuscript. Editorial assistance was furnished by Charlotte Helstad, and the manuscript was typed by Angeline Miller, both of the Institute staff.

This book is dedicated to the seven officers who proved to be not only good students but good authors as well.

Fred A. Wileman
January 1970

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INTRODUCTION

> How a policeman handles day-to-day contacts with citizens will, to a large extent, shape the relationships between the police and the community. The contacts involve considerable discretion. Improper exercise of such discretion can needlessly create tension and contribute to community grievances.
>
> Report of the National Advisory Commission on Civil Disorders (Kerner Commission)

The law enforcement officer is faced with many complex problems ranging from marital disharmony to attempted suicide. The factor contributing the most toward the complexity of these problems is the wide latitude of choice available to the officer. This range of choice is called discretion, and it is the one area in which the officer needs the most guidance.

Sixty years ago, the Supreme Court of Michigan recognized the existence of discretion:

> The police commissioner is bound to use the discretion with which he is clothed....to enable him to perform the duties imposed upon him by law, he is supplied with certain limited means. It is entirely obvious that he must exercise a sound discretion as to how those means shall be applied for the good of the community.
>
> Gowan v Smith, 1909

The fact that the courts recognized the need for and existence of discretion did not guarantee that the rest of our society would agree:

> A strange philosophy of law enforcement has been expounded by Madison Police Chief Wilbur H. Emery. The Chief says his officers cannot enforce the letter of the law setting a curfew of 10 p.m. on city streets for children under 17 who are not accompanied by a parent. Chief Emery says he does not think the public would stand for strict enforcement of the letter of the law. The courts, too, he feels, would take a dim view of overly strict enforcement. Since when, we feel compelled to inquire, is it the function of the police chief to decide which laws can or cannot be enforced? By what authority does he claim the right to interpret what the "public" will or

will not stand for in law enforcement?
Madison, Wis. Capital Times, 1961

The myth of full enforcement is the most popular fabrication of law enforcement history. Yet at no time has there ever been full and complete enforcement of all laws; there has always existed the discretion to choose which laws to enforce.

Full enforcement is not the same as equal or impartial enforcement of the law. The former connotes enforcement of each and every law all of the time - a situation possible only in an advanced big brother police state. The latter means that all persons shall be treated equally in the eyes of the law. The type of enforcement currently practiced is usually called selective enforcement. In such a situation, law enforcement chooses which laws to enforce and then enforces them fairly and impartially.

Many police administrators have not bothered to correct the myth of full enforcement because of editorials such as that quoted above. Additionally, some administrators feel that the level of enforcement is the business of the agency, not of the public. But the trend now is a growing recognition on the part of both police and public of the need for discretion and a concern for how it is exercised.

Discretion - the ability to choose a course of action within prescribed limits - has many applications in police work. Perhaps the most important is the choice of laws to enforce and of the method of enforcing them. For example, section 945.02 Wis. Stats. 1967 would penalize with a fine of $500 and/or six months in jail anyone who "Makes a bet". This is clear - all betting is prohibited. Yet few of us would care to have our $1 wager on the Packers or the World Series put us in jeopardy of prosecution. Apparently, then, there is exempt betting, which could be called "social" gambling. We know the police generally agree with this, since the law normally is enforced

only against gambling which involves either substantial money or organized betting rings, or both.

In his book, Arrest: The Decision to Take a Suspect into Custody, Wayne LaFave identifies three reasons for the existence of discretion. First is the language problem, the fact that it is almost impossible to write a statute which will clearly include everything its authors intend to include and clearly exclude everything else. Said another way, reasonable men often differ over the meaning of words.

The second reason is the financial problem - the necessity of allocating scarce resources, which is the usual situation in local government. Even if we wanted that level of law enforcement, there is simply not enough money to pay for a police department able to apprehend every juvenile violator, cite every speeding motorist, catch every burglar, and still pacify every dissident element in the community. Someone has to make decisions on how law enforcement resources will be used, hopefully in a way which will give the community the best return on its investment.

The third reason is the nature of offenses, the fact that crimes are committed by individuals. Very few criminals are alike, and any effort to rehabilitate offenders, if it is to have a chance for success, must vary as the individual offenders vary. This is inherently the most dangerous part of discretion, because our natural human tendencies may cause us to judge another on factors not relevant to his case. Yet another part of this reason for discretion is the nature of the system: the formal remedies of the criminal law may not be at all appropriate to the problem. For example, a domestic disturbance may well involve a battery committed by the husband upon the wife. But an arrest and even a conviction on that charge will probably not do a thing toward saving that marriage.

The problem of discretion, complicated enough on paper, becomes much more complex for the officer faced with a particular situation. He is not allowed the luxury of doing nothing for he is faced with a citizen of his community who either has, or is, a problem. The solution to that problem is critical, and the officer needs guidance - assistance which will reflect the principles of society, the attitudes of the community, and the best practices of the department. This guidance should come in the form of a plan which is called a policy guideline - a statement of the basic rules and alternative methods for handling situations.

We advocate establishing policy guidelines so the officer will not have to balance all factors in the discretionary situation by himself. Fair enforcement is basically consistent enforcement. Whether or not all men can understand a statute, whether the department's budget has been cut, or in circumstances where individual factors should be considered, the agency which has an established policy can act consistently in similar situations.

No guideline can hope to cover every situation. Times, conditions, and people change, and what was excellent and effective practice in the 1960's may be backward or even dangerous in the 1970's. In many situations we will have to continue to rely upon the officer's common sense. A set of guidelines should attempt to establish a rationale for police actions. This philosophy, coupled with extensive pre-service training, a good general education, and continued in-service training, should give the officer a solid foundation upon which to base his decisions.

SHOPLIFTING
E. O. Wolff

Earl O. Wolff is Chief of Police of Appleton, Wisconsin, and a former captain with the Wisconsin State Patrol.

I. Training Policy

A. Definition

1. The dictionary calls shoplifting "larceny or theft of goods from a store".

2. The Wisconsin shiplifting law is section 943.50:

> 943.50 SHOPLIFTING. (1) Whoever intentionally alters indicia of price or value of merchandise or who takes and carries away, transfers, conceals or retains possession of merchandise held for resale by a merchant without his consent and with intent to deprive the merchant permanently of possession, or the full purchase price, of such merchandise may be penalized as provided in sub. (4).
>
> (2) The intentional concealment of unpurchased merchandise which continues from one floor to another or beyond the last station for receiving payments in a merchant's store is evidence of intent to deprive the merchant permanently of possession of such merchandise without paying the purchase price thereof. The discovery of unpurchased merchandise concealed upon the person or among the belongings of such person or concealed by a person upon the person or among the belongings of another is evidence of intentional concealment on the part of the person so concealing such goods.
>
> (3) A merchant or merchant's adult employe who has probable cause for believing that a person has violated this section in his presence may detain such person in a reasonable manner for a reasonable length of time to deliver him to a peace officer, or to his parent or guardian in the case of a minor. The detained person must be promptly informed of the purpose for the detention and be permitted to make phone calls, but he shall not be interrogated or searched against his will

before the arrival of a peace officer who may conduct a lawful interrogation of the accused person. Compliance with this subsection entitles the merchant or his employe effecting the detention to the same defense in any action as is available to a peace officer making an arrest in the line of duty.

(4) Penalties for violation of this section are:

(a) If the value of the merchandise does not exceed $100, a fine of not more than $200 or imprisonment for not more than 6 months or both.

(b) If the value of the merchandise exceeds $100 but not $2,500, a fine of not more than $5,000 or imprisonment for not more than 5 years or both.

(c) If the value of the merchandise exceeds $2,500, a fine of not more than $10,000 or imprisonment for not more than 15 years or both.

3. Important terms are defined in section 943.20 (2):

(a) "Property" means all forms of tangible property, whether real or personal, without limitation including electricity, gas and documents which represent or embody a chose in action or other intangible rights.

(b) "Moveable property" is property whose physical location can be changed, without limitation including electricity and gas, documents which represent or embody intangible rights, and things growing on, affixed to or found in land.

(c) "Value" means the market value at the time of the theft or the cost to the victim of replacing the property within a reasonable time after the theft, whichever is less, ...

4. The term "shoplifting" means the act of taking items from retail establishments and/or altering indicia of price or value. The act is performed by potential customers while the establishments are open for business.

5. Shoplifting does not include thefts from manufacturers, factories, wholesale distributors, or warehouses; nor does it include thefts by employees of their employer's property.

6. "Value" here means the wholesale value of the property, not the retail value. Items with a value up to $2,500 are included.

B. Elements of the offense

1. Intent: The word "intentionally" means the actor must have had purpose, that he must have known the property belonged to another and that he had no right to it.

a. The intent in a person's mind cannot be seen. Instead, it is implied by the person's acts and statements. The law presumes a person intends all natural, probable, and even unusual consequences of his deliberate acts, unless circumstances show otherwise.

b. It is not a crime for a person to walk out of an establishment, forgetting to pay for an item, since intent is absent. Intent can be demonstrated in any case involving special gimmicks, such as booster boxes, and certainly in the case of leaving the store with an item for which payment has not been made and the item is concealed.

2. Consent: The second element is the actor's possession of the property without the consent of the owner.

3. Knowledge: The third element is the actor's knowledge that he takes the property without the owner's consent.

4. Permanence: The fourth element is the actor's taking the property with the intent to deprive the owner permanently of the item.

5. Other elements: The case will be strengthened by knowing:

a. What were taken (the fruits of the crime);

b. Where the actor hid the item;

c. Whether the actor had a chance to pay for the item;

d. Whether the actor had the merchandise on his person and, if not, where he disposed of it. Witnesses to the disposal will be helpful.

It is not essential that the person be out of the store when apprehended; this, in itself, will not determine the existence of a violation. However

it does make a much better case because the actor's leaving tends to establish intent. It is necessary that the intentional concealment continue only from one floor to another or beyond the last station for payment.

C. Scope of the problem

1. National: The F. B. I.'s Crime Index showed a 77 percent increase in larcenies of $50 or more from 1960 to 1966. This reflects only a small portion of the problem since many cases involve less than $50, and many are not reported.

2. Economic: The legitimate customer subsidizes the shoplifter. Costs due to shiplifting are passed on to the customer, cause an increase in price of about 5 percent. Pinkertons, Inc., estimated that theft losses in 1968 would exceed $2,500,000,000, an increase of about 112 percent since 1960. Most stores would consider losses of 1 percent to 2 percent of gross profit acceptable, depending on their volume of business.

3. Frequency: Commercial Service Systems, Inc., Los Angeles, found supermarkets experience shoplifting throughout the year. This study showed 11 percent of the thefts occurred in January; February, March and May accounted for more than 9 percent each; August and October showed the least amount with 5 percent each. Supermarkets, unlike department and dry goods stores, have not experienced increased theft during the Christmas season.

4. Reluctance to prosecute: The reluctance of merchants to report cases is shown in a study made in a midwestern city of 50,000. In 1968, police records showed 158 cases involving a total value of $1,814.40. An informal survey of businesses by a civic organization showed estimated losses due to theft in the 20 larger stores in the central business district for that period to be about $500,000. The most common reasons given for reluctance to prosecute are:

a. Fear of losing a good family of customers because of the indiscreet act of one member (the chance of losing even one customer was of concern to management);

b. Showing leniency to the customer will make him grateful, which he will show by being a better customer;

c. Reluctance to release manager and/or clerks from work to testify in court;

d. Fear of humiliation and embarrassment during cross-examination by the defense attorney;

e. Fear of lawsuit for false arrest which would cost the store more in attorney's fees than the value of the item taken;

f. Hope that apprehension and reprimand of a juvenile will prevent repetition;

g. Hope that notification of juvenile's parents will result in corrective parental action, preventing repetition.

D. Reasons for shoplifting

1. Identifying the reasons for shoplifting poses a real challenge for the social psychologist. Few consider that when they shoplift they risk a criminal conviction which not only damages their reputation but may disqualify them for certain types of employment. This becomes especially perplexing when we hear that the average value of property shoplifted is $3.

2. Few thefts occur because of need. It is the exception when a person apprehended for shoplifting does not have the money to pay for what he took.

3. Some of the blame may be laid to current methods of merchandising which are designed to allow the customer to get his hands on an item. Once the customer has the item in his hands, he is likely to purchase it. Obvious-

ly, this assists the shoplifter. It is unlikely this technique of merchandising will be changed because of shoplifting. Better security methods will have to be devised.

E. Types of shoplifters

The shoplifter is not a member of any particular age, economic, ethnic, or social group. He represents generally a cross section with no identifying characteristic other than the desire and opportunity to steal. Shoplifters do not look the part. They can be angelic teenagers, grey-haired well-dressed men or matrons, housewives, or professional men. The vast majority of shoplifters apprehended have no criminal records. Generally, shoplifters fall into the categories discussed below.

1. The Professional: The professional shoplifter lives from the proceeds of the sale of goods stolen. Professionals generally steal expensive jewelry, furs, and the more expensive men's and women's clothes. For example, a department store in a midwestern city experienced a serious of clothing thefts. In 1963, 18 expensive men's suits were taken from the racks. In April, 1964, 22 suits were missing from the racks at the close of business. In June, 1964, 9 more suits were missing. On one December day that year, 4 mink stoles and 17 suits were taken. In January, 1965, 16 expensive sport coats were taken. In December, 1965, 30 suits were taken during normal business hours. Obviously, professionals were involved. Other examples of professionals are:

a. One female worked her "trade" 40 hours per week. She had stolen one million dollars worth of merchandise in 10 years. She received about $150,000 from the sale of the stolen goods, averaging $15,000 per year. She admitted to thefts of 1900 suits in one year with the aid of an accomplice. She stole as many as four suits at one time by folding them

and placing them between her legs under a full skirt - keeping them still on the hanger.

b. A group of professional shoplifters stole $9,000 worth of furs from a locked display case during normal business hours.

c. Two professionals stole $5,000 worth of merchandise from small stores in a suburban shopping center in the area in which they lived.

d. One professional felt the risk was small; he estimated his chances of being caught at about 1 in 100. More conservative estimates have been 1 in 20.

2. The Amateur: Amateurs make up the greatest number of thieves. By most standards, they are law-abiding people supposedly overcome with the urge to get something for nothing at a self-service store.

a. The amateur usually averages between $2 and $4 in merchandise. Many times he will regard this as nominal in light of the big profits made by the store. He believes the store won't miss it. The amateur does not understand that many stores have mark-ups amounting to as little as 1 percent and would have to sell $100 of merchandise to make up a $1 loss.

b. The amateur usually steals readily useable items, such as teen-age clothes, cosmetics, records, men's furnishings, sporting and leather goods, children's clothing and jewelry. These are taken most frequently from the self-service department stores. Smoke shop items, power tools, and women's intimate apparel are other items also taken frequently. In food stores the targets most frequently are cartons of cigarettes, health and beauty aids, gourmet foods, kitchen utensils, nylon hose, and baby clothing.

3. The Addict: The narcotics addict might be classed as a semi-professional. He shoplifts primarily to raise money to support his habit, not for profit or personal use of the items. He may be dangerous when

caught because of the compelling nature of his habit.

4. The Vagrant: The vagrant many times is an alcoholic. Often referred to as a "wino", he will steal and convert the item into cash to purchase a bottle of wine. Some vagrants may steal simply to survive.

5. The Kleptomaniac: The kleptomaniac is a mentally sick person who has a compulsion to steal items simply for the sake of stealing. This type accumulates large quantities of items but never uses them nor sells them. The kleptomaniac may try to give away the items.

6. Teen-Age Gangs: The teen-age gangs represent a new breed of shoplifter. These gangs will enter a store, take items, overpower by sheer force of numbers any employees trying to stop them, and flee with the merchandise. The problem is increasing but makes up only a small portion of the shoplifting problem.

F. Shoplifting techniques

1. The most common technique, particularly for males, is placing the item in his pocket. The female is more likely to place the item in her purse. The next most common technique, for male or female, is placing the item under the clothing.

2. Other less common techniques are:

a. Use of brief cases, knitting bags, empty sacks, lunch pails, hollowed-out books and magazines, umbrellas, large coats or sweaters;

b. Pushing baby carriages;

c. Browsing - pick up items and browse from one department to another, leaving without paying;

d. Fitting room - take clothes into fitting room to try on, and leave wearing the garments. For example: A teen-age girl in a trench coat selected an outfit, went into the dressing room to try it on, came out and

left the store. A check of the dressing room showed it was empty. The girl was wearing the complete outfit she had shoplifted; she had entered the store naked except for the coat.

e. Booster boxes - a box is made to look like a tied package, but a side of the box opens to allow quick placement of a stolen item;

f. The plant - the shoplifter picks up an item, walks around the area and drops the item at a place blocked from the view of everyone. He then walks around the department as if to shop further. When certain he is not being watched, he will pick up the planted item and leave, securing it under his clothing, in a bag, or in a box.

g. The sandwich - used for small flat items similar to men's shirts or women's blouses. The item is slipped between two wrapped bags of merchandise for which payment has been made. This technique allows the person to drop the item if he is detected.

h. The palmer simply holds small items in his glove or hand until out of the store.

3. Techniques employed with an accomplice:

a. The accomplice makes it very obvious he is attempting to shoplift an item. While all eyes watch him very closely, the principal makes off with an expensive item.

b. Other diversionary tactics include an accomplice who faints and attracts attention thereby, or an accomplice who gets into an argument with a clerk. Both serve to draw attention while the principal steals the target item.

G. <u>Enforcement: Arrest action</u>

1. Enforcement against shoplifting by full-time police officers is

minimal in most jurisdictions because the number of retail establishments precludes assigning full-time officers to patrol specifically to deter shoplifting or apprehend shoplifters. Few apprehensions are made by the regular police officer, except when he happens to be on the premises or when he has received an advance tip that professionals are working an area. If they can be identified, the police can keep them under surveillance and apprehend them when they commit a theft.

2. Practically all apprehensions are made by private security personnel employed by larger stores, floor walkers, clerks, or store managers. Until recent years, apprehensions by store personnel were handled solely by the manager unless he believed the case involved professionals. The manager would recover the merchandise and reprimand the violator, hoping to frighten the person into discontinuing his thievery.

3. In many cases, the store manager will call the police to play the role of mediator until the merchandise is returned. Once that is accomplished, the manager may try to impress upon the shoplifter the seriousness of his acts by having the law stand by, ready to take the person off to jail or before the court to suffer embarrassment as well as penalty for violation of the law. When it comes to actually signing a complaint against the shoplifter, the manager will often decline.

4. Store personnel should be encouraged to interrogate apprehended persons and obtain as much information as possible before the police arrive. Such persons apparently are not affected by the Miranda requirement of advising the defendant of his rights. Additionally, the violator is more likely to talk freely with a store manager than with a police officer.

5. Although he may feel court action is warranted and could sign a complaint on information and belief, the officer's actions are based primar-

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ily on the desires of the management. Witnesses could be summoned to testify even if they prefer not to appear. But this serves little purpose, because it is important to have the cooperation of management and its willingness to be more aggressive toward the problem of shoplifting, particularly against those persons involved in prior complaints which were disposed of with a release after warning.

6. Factors to consider before making an arrest if the management agrees to court action:

a. Has the item taken by the defendant been identified as property of the store?

b. Where on the defendant was the property found?

c. Did he have a reasonable chance to pay for the item?

d. Did the defendant have a chance to "ditch" the article before he was apprehended?

e. Can a witness testify he saw the defendant "ditch" the item before he was apprehended?

f. Is there reasonable ground to believe an offense was committed?

g. What acts led the store personnel to believe the defendant intended to steal the item?

h. How reliable are the witnesses?

i. How strong is the commitment of the manager to follow through on an intended court action?

j. What evidence exists to show an intent to deprive the store of the property?

k. If the suspect was detained by management, was there probable cause for detaining him?

l. Was the suspect searched or questioned against his will by store management?

m. Was the suspect informed of the purpose of his detention?

n. Was he permitted to make telephone calls?

H. Alternatives for the officer at the scene

Since the officer probably did not observe the violation or make the original apprehension, the wishes of management should prevail, if there are no extenuating circumstances known to the officer. If the store desires to prosecute, the officer should determine if there are present those elements of the offense necessary to make a sound case in court. The officer should then secure the evidence for a court hearing, take the defendant into custody, and have him booked, mugged, and printed.

Should the store personnel turn the matter over to the officer to handle as he deems best, the following guidelines will be followed in deciding on the course of action. The officer should seek to acquire the cooperation of the store personnel as witnesses should he decide to take court action.

In all cases, the officer should obtain all basic information, including identification of the person and evidence in the case, to be used to complete records of the case.

1. Alternative action when offender is an adult:

   a. First offender; regardless of record status, value or number of items taken - court action. (Managers and store owners should be strongly encouraged to sign complaints against alleged adult first offenders. It would probably be rare that this would be a first offense for an adult.)

   b. First offender with evidence of illness or irrationality - warn and release to spouse or guardian with suggestion that medical assistance be obtained. This applies to kleptomaniacs where no prior action has been taken but family is cognizant of the problem.

   c. Prior record of shoplifting or other crimes or misdemeanors - court action. (Offender should be printed and photographed.)

   d. Prior warning, evidence of illness or irrationality - court action so that the court, upon finding against defendant, can order medical assistance. This includes kleptomaniacs.

   e. Prior warnings or arrest records on shoplifting, or prior convictions for other misdemeanors or felonies - court action.

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Consideration should be given to charges under the repeater statute (s. 939.62 (2)) for those persons whose records meet the criteria in the statute.

2. Alternative action when offender is a juvenile:

   a. No prior record or complaints on file for shoplifting; items under $100 value taken from one store - warn and release to parent or guardian after discussing with offender and parents the seriousness of the offense. Complete referral card for Youth Aid Bureau for follow-up action if necessary.

   b. No prior record; items in excess of $100 OR taken from different stores - referral to Youth Aid Bureau for disposition through Juvenile Court.

   c. Prior warnings and complaints on file, or delinquency adjudicated by Juvenile Court - referral to Youth Aid Bureau for referral to Juvenile Court. Consideration should be given to waiver for 16-18 year old with extensive record.

   d. Evidence of illness, mental deficiencies, or irrationality - covered the same as adults in 1b and 1d above.

II. Field Policy on Shoplifting

A. General guidelines

1. The wishes of the store management should prevail if they decline to turn the offender over to the police, if the officer did not observe the violation or make the original apprehension.

2. In all cases, the officer will obtain all pertinent facts, information and identification so a disposition can be put in departmental records. If appropriate, note "management declined to prosecute".

3. If the store desires to prosecute, the officer will determine whether all elements of an offense are present, the evidence is accounted for, and a good case can be presented to court. This includes making sure the statute was complied with if the suspect was detained.

4. If the store turns the offender over to the officer for his decision on action, the officer will consider the best interest of the store, the community, and the offender in light of the magnitude of the shoplifting problem. If the officer decides to take court action, he should seek to secure the necessary cooperation of the store management.

B. Alternative guidelines to meet varying situations

1. Adults

a. First offender; regardless of record status, value or number of items taken - court action. (Managers and store owners should be strongly encouraged to sign complaints against adult first offenders. It would probably be rare that a first offense would be committed by an adult.)

b. First offender; evidence of illness or irrationality - warn and release to parent, guardian or spouse; suggest seeking medical assistance. (This includes kleptomaniacs.)

c. Prior record of shoplifting or other crimes - initiate court action. Consider repeater statute, s. 939.62 (2) where appropriate.

d. Prior warnings for shoplifting; evidence of mental illness - court action so that court can order medical assistance.

2. Juveniles

a. First offender; value under $100; items taken from one store - warn and release to parent or guardian. Discuss with offender and adult the seriousness of offense. Referral card to Youth Aid Bureau.

b. First offender; value over $100 or items from more than one store - same as 2a except recommend court action.

c. Prior record of shoplifting or other acts - same as 2a plus recommend court action. Recommend waiver if extensive record or two or more findings of delinquency by Juvenile Court, if appropriate.

d. Evidence of mental illness - proceed as in 1b or 1d.

CONFINEMENT
George Kosalos

George Kosalos is Captain, Milwaukee County Sheriff's Department. He is directly responsible for the operations of the jail.

I. Training Policy

A. Description of policy area

1. Confinement is not synonymous with arrest, nor is confinement always related to a criminal action. Included in this policy are:

a. Confinement after a summary arrest;

b. Confinement necessary to protect society and/or the individual involved;

c. Alternatives to confinement.

2. Not included in this policy is confinement resulting from lawful arrest on a warrant or criminal process.

B. Nature and importance of confinement

1. Few areas of law enforcement activity are more significant or more drastic than the decision to deprive a person of his liberty.

2. In Milwaukee county more than 12,000 adults were confined in the county jail in 1968. If one considers the overnight confinements by the 19 individual police departments in Milwaukee county, the mentally disturbed confined for observation (by police action) at the county hospital, and the juveniles confined as delinquents or otherwise, the high incidence of confinement action taken by the police is readily apparent.

3. Typical fact situations leading to confinement range from the belligerent husband who has manhandled his wife in a domestic argument and

who continues to threaten bodily harm, to the out-of-state driver involved in a serious accident, to the person reported as acting strangely in a public place and appearing to be emotionally disturbed.

C. Purpose of confinement; powers and duties of police

1. As a general statement, an arrested person is either released on certain conditions, or the arrest is continued until the case is adjudicated by other authority.

2. The power of the police is limited to the detention of the subject only until the matter has been heard by other authority with the power to adjudicate the case.

3. The police are charged with the duty of bringing the matter before those other authorities without delay so that the detained person's rights are not violated.

4. Formally, the police have the power to confine violators of the public order until the matter is formally disposed. Informally, the police are involved in many matters other than criminal, some of which may lead to confinement.

5. An arrest consists of taking another into custody for the purpose of bringing him before a court or magistrate. It involves restraint of the person. It deprives him of his liberty and freedom of movement, and binds him to the will and control of the person making the arrest.

6. An arrest signals the entry of the person into the criminal justice system. While a juvenile is not arrested (he is "taken into custody") and we do not think of arresting a mentally ill person (he is "apprehended"), the continuing restraint applied to both is identical to arrest and confinement.

7. The original intent to restrain usually originates in the mind of the officer, either as a result of his initial reading of the report or his witnessing the aberrant behavior. Where time permits and safety of subject and public allows, the officer should relate his observations to the proper authority, who will issue authorization to take the subject into custody and produce him before proper authority. In those cases where a threat exists to the person or property of the subject or others, or where serious crime is involved, the officer has little alternative other than to restrain and, if necessary, detain.

D. Behavior requiring confinement

1. The behavior calling for a judgment on restraint falls into four categories:

a. Felonies

b. Misdemeanors

c. Juvenile delinquency

d. Mental illness

2. Each category has its own options, although some of the options of one category may serve in another. Only two of the categories involve the formal processes of the criminal justice system.

3. *Example:* Family trouble calls continued from one particular home. Husband and wife were middle-aged with several grown children, two of whom were still at home. The first calls, three months ago, resulted from heated arguments until early in the morning when the wife would call for police assistance to quiet her husband so the family could get some sleep. There was some drinking involved. The arguments began to include force, and after one instance in which the husband struck his wife, the officers took him to court on his wife's complaint. The court fined the husband, put him

on probation, and sent him back home. A week later the wife again summoned the officers. The husband had come home and smashed several kitchen chairs, finally driving the wife out of the house. Observing the distraught condition of the husband, the officers conveyed him to the county hospital under the provisions of the mental health statute. There were no further calls to that home after the husband was released.

a. There are many approaches to the problems requiring police action. In this example, the matter might have been handled conventionally. The man was already on probation, and the trial judge probably would revoke probation and send him to the hospital for observation.

b. In this case, the officers anticipated the court, realized this could best be handled by the hospital, and saved several hours of court appearances.

E. Legal limitations

1. This country was founded on the proposition that governmental interference with the rights and privileges of the individual should be guided by rule of law.

a. The message of the 14th Amendment to the Constitution is clear. If the police find it necessary to detain, they must do so only for the purpose of referring the person to the proper authority, who will dispose of the case with due process of law. No other purpose is acceptable.

b. All actions must be made under proper legal authority.

c. All actions must be made in good faith. (See s. 270.58(1).)

2. The citizen is protected from unacceptable confinement by habeas corpus proceedings, statutes dealing with false arrest, and civil suit for damages. The most frequent civil actions brought against police are suits for damages caused by false imprisonment, sometimes called false arrest.

a. False imprisonment is the intentional, unprivileged confinement of another within boundaries, not necessarily physical in nature, established by the actor, to the knowledge or harm of the person confined.

b. Under this definition, it is clear that every arrest falls within this category unless the officer making the arrest is privileged to do so.

c. An officer making arrest for legal reasons is privileged, and cannot be held liable for damages for false imprisonment even if the person arrested is later found innocent of the charges.

d. An officer acting without legal authority is not privileged and may be held liable for damages for false imprisonment even if the person arrested is found guilty.

F. Operational rules

1. Officers are expected to know the law and act in good faith.

2. All confinements in jail must be channeled through the desk to protect the subject, the officer, and the department.

3. Officers handling a subject evidencing mental illness where no serious crime is involved shall convey the subject to the county hospital.

4. In all cases of confinement, a complete written report must be filed before the officer's tour of duty ends.

II. Field Policy on Confinement

A. Felonies (arrest without warrant)

1. Generally, all persons arrested on charges of having committed a felony should be confined.

2. Alternatives:

a. Subject may be turned over to probation department if appropriate;
b. Subject may be turned over to parole department if appropriate.

B. Misdemeanors (arrest without warrant)

1. Alternatives to confinement:

a. Summons under s. 954.02
b. Invitation to come to station

2. Factors determining alternatives:

a. Identification and residence
b. Family ties
c. Prior record
d. Employment
e. Length of time in city
f. Discretionary information (medical, school, welfare, etc.)
g. Previous default in appearance

C. Juveniles

1. Generally, use alternatives to confinement whenever possible.

2. Normal alternative: release to reliable adult - in order of priority:

a. Parent or legal guardian
b. Relative
c. Minister
d. Attorney
e. Doctor or teacher

3. Factors determining alternative:

a. Identification and residence (runaway would be confined)
b. Family ties (evidence of parents' responsibility)
c. Prior record
d. School record
e. Discretionary information (medical record, gang member, involvement with adults, nature of offense)

f. Previous default in appearance (If reasonable explanation is made, do not confine without reasons supplied by other factors.)

D. Mental illness

1. Controlling is s. 51.04.

2. Alternatives to confinement in hospital or temporary confinement:

   a. Voluntary admission to hospital;
   b. Release to responsible medical person;
   c. Alcoholics: release to responsible member of family.

3. Factors determining alternatives:

   a. Imminence of danger to the lives or well-being of all persons involved or who may become involved. Presence of danger should lead to confinement.
   b. Attempts at suicide and/or recognition by the officer of suicidal symptoms: subject should be confined.

LIFE SAVING DEVICES
Harold Hettrick

Harold Hettrick is Assistant Director, Bureau of Law Enforcement, Department of Natural Resources, State of Wisconsin.

I. Description of Policy Area

A. Purpose

1. This discussion is directed to the enforcement of the rather technical aspects of the Wisconsin Boat Safety Law, which requires certain types and numbers of lifesaving devices to be carried aboard boats. This guideline aims at the development of uniform standards of interpretation and enforcement, to achieve a high degree of public compliance.

2. Not included in this policy:

a. The merits of approved or unapproved equipment are not discussed because the decision on this rests with the Commodore of the U.S. Coast Guard. However, new advances in technology have created a number of more desirable types of lifesaving gear that have more public acceptance than those presently bearing the approval of the Coast Guard. Research is being conducted by the Coast Guard on those devices. It stands to reason that a device which is more easily worn will have greater acceptability.

b. The merits or disadvantages of multiple enforcement jurisdictions are not discussed even though several agencies having enforcement jurisdiction can create a problem for the mobile boater who is subjected to their many and varying enforcement attitudes. Obviously, varied enforcement attitudes do not assist in developing uniformity of enforcement or in achieving public compliance.

B. Description of policy area

1. The growth of recreational boating in Wisconsin has been great:

a. 180,000 boats were registered in 1960; 308,000 in 1968;

b. 250,000 resident boats (documented vessels and manually powered boats; sailboats under 12 feet in length) are exempt from registration;

c. 750,000 boats are using Wisconsin waters;

d. 40 percent of the boats on Wisconsin waters are nonresident;

e. 4,000,000 persons are occupying or operating boats, most of whom are novices and have varying degrees of skill and levels of understanding legal requirements;

f. 6,380 operators and owners have been processed through the courts of Wisconsin for violations of the lifesaving device requirement, accounting for $170,750 in fines in eight years;

g. U.S. Coast Guard Auxiliary voluntary inspections in Wisconsin show that a large percentage of boats fail to meet the requirements of the law.

2. These typical fact situations are a representative sample of variations with which an officer can be confronted:

a. Boat being occupied with more persons than lifesaving devices aboard;

b. Boat being operated with lifesaving devices aboard but not readily accessible;

c. Sailboat without auxiliary power operated in Lake Michigan without lifesaving devices aboard;

d. Canoe being operated by nonresident in boundary waters on the Wisconsin side of the thread of the river without lifesaving devices aboard;

e. Special purpose lifesaving equipment aboard but not the required equipment;

f. Boat operated with obsolete (no longer approved) devices aboard or not in acceptable condition;

g. Passenger-carrying vessel with improper type or inadequate numbers of devices aboard;

h. Boat being launched with deficient equipment, but not being operated;

i. Nonresident owner or operator in violation.

3. Situations come to the attention of the enforcement officer by:

a. Boarding patrol operation (seek and find missions);

b. After-the-fact investigations as result of accidents;

c. Public complaints.

C. Differences between Wisconsin, Federal, and boundary states' law

1. Wisconsin law

30.50 Definitions. In ss. 30.50 to 30.80:

(1) "Boat" means every description of watercraft, other than a seaplane on the water, used or capable of being used as a means of transportation on water.

....

(3) "Owner" means the person who has lawful possession of a boat by virtue of legal title or equitable interest therein which entitles him to such possession.

(4) "Waters of this state" means any waters within the territorial limits of this state, including the Wisconsin portion of boundary waters.

(5) "Operate" when used with reference to a motorboat or boat means to navigate, steer, sail, row or otherwise to move or exercise physical control over the movement of such motorboat or boat.

30.62 Other equipment

(1) WHEN EQUIPMENT REQUIRED. No person shall operate any boat on the waters of this state unless such boat is equipped as required by this section and the rules of the commission issued pursuant thereto. No owner of a boat shall rent such boat to any other person for use upon the waters of this state unless such boat is

equipped at the time of rental as required by this section and the rules of the commission issued pursuant thereto. If such boat is properly equipped at the time of rental for conditions then existing, the responsibility of the owner under this section is met, notwithstanding a subsequent change in the number of passengers or a change in time from daylight to dark.

....

(3) LIFE PRESERVERS. Every boat shall carry at least one life preserver, life belt, ring buoy, buoyant cushion or other device of the sort prescribed by the regulations of the commandant of the U.S. coast guard, for each person on board, so placed as to be readily accessible, except that the commission may make such rules as it deems desirable with respect to sailboats without motors.

30.77 (3) LOCAL REGULATIONS

(a) Any town, village or city may, in the interest of public health or safety, adopt local regulations not contrary to or inconsistent with this chapter, relative to the equipment, use or operation of boats or relative to any activity regulated by ss. 30.60 to 30.71, but no such local regulation which in any manner pertains to the equipment, use or operation of a boat on an inland lake is valid unless all towns, cities and villages having jurisdiction on the waters of the lake have enacted an identical local regulation.

2. Federal law - (Motorboat Act of 1940) Title 46 U.S. Code 526(e)

Every motorboat subject to any of the provisions of this subchapter and also all vessels propelled by machinery other than steam more than 65 feet in length shall carry at least one life preserver, or life belt, or ring buoy, or other device of the sort prescribed by the regulations of the Commandant of the Coast Guard, for each person on board, so placed as to be readily accessible: provided, that every such motorboat and every such vessel propelled by machinery other than by steam more than 65 feet in length carrying passengers for hire shall carry so placed as to be readily accessible at least one life preserver of the sort prescribed by the regulations of the Commandant of the Coast Guard for each person on board.

3. Iowa law - State Convervation Commission rule 106.9, Code of Iowa 1966 (Motorboat Act)

(6) Every vessel shall carry at least one life preserver, life belt, ring buoy or other device approved by the Coast Guard for each person on board, so placed as to be readily accessible.

4. Illinois law - Art. 4 Sec. 1 LIFE PRESERVERS (under Boat Equipment)

(a) it is unlawful to operate any watercraft unless there is one Coast Guard approved life preserver, ring buoy, buoyant vest, or buoyant cushion in good and serviceable condition and readily accessible for each person on board. Approved devices are identifiable by the laboratory slant bar USCG inspection label and numbers. Buoyant cushions and vests are not approved when carrying passengers for hire or on class 3 motorboats 40 feet or not more than 65 feet in length. When assisting a person on water skis, aqua plane or similar device, there must be one U.S. Coast Guard approved lifesaving device on board the boat for each person being towed.

5. Michigan law - Sec. 111, Act 303, Public Action 1967

All vessels when in operation shall be provided lifesaving devices as follows: one Coast Guard approved life preserver, vest, ring buoy or buoyant cushion for each person on board.

6. Minnesota law - No requirement, as of September 18, 1969

D. Jurisdictional problems on boundary waters and waters where the Federal Government has concurrent jurisdiction

1. Forty percent of Wisconsin's boaters are not residents. Where their home states have equipment requirements different from Wisconsin's, the boaters may find themselves in compliance with their home state law but not with Wisconsin's.

2. The U.S. Coast Guard has concurrent jurisdiction on certain waters in Wisconsin and may enforce federal boating law requirements there. As their regulation extends only to motorboats and does not include manually powered boats or sailboats, there is a further conflict for the boater. He can be in compliance with the federal law within certain waters of the state, the Great Lakes, the Mississippi River, St. Croix River, and certain other "navigable waters", but be in violation of state law by not having lifesaving devices on nonpowered boats.

3. State lines are not clearly defined on the boundary waters, making it possible for boaters from Minnesota, Iowa or Michigan to cross an imaginary line and be subject to Wisconsin law.

4. Reciprocity exists for boat registration.

5. Reciprocity does not exist for equipment regulation requirements.

E. Enforcement levels authorized to enforce Wisconsin boat law

1. State conservation wardens (ss. 29.05 and 30.74(3));

2. State park police in state parks and recreational areas (s. 28.01);

3. Ex officio conservation warden authority granted to sheriffs, deputy sheriffs, coroners, and other police officers (s. 29.07);

4. Water safety patrols (s. 30.79(b)):

> "Water safety patrol unit" means a unit within an existing municipal law enforcement agency or a separate municipal agency, created by a municipality or by a number of municipalities riparian to a single body of water for the purpose of enforcing ss. 30.50 to 30.80 and any rules and ordinances enacted pursuant thereto.

F. Approved lifesaving devices

1. This term "lifesaving device" encompasses life preservers, buoyant vests, buoyant cushions, ring life buoys and special purpose water safety buoyant devices. Any of these devices are acceptable on motorboats less than 40 feet in length not carrying passengers for hire. Vessels carrying passengers for hire must carry life preservers. Class three motorboats (40 to not more than 65 feet) not carrying passengers for hire must carry life preservers or ring life buoys.

2. Identification by name and Coast Guard approval number:

a. Life Preservers - 160.002 - kapok
*buoyancy (adult 25 lbs. - child 16 ½ lbs.)

160.003 - cork
*buoyancy (adult 16 ½ lbs. - child 11 lbs.)

160.004 - balsa wood
*buoyancy (same as cork)

160.005 - fibrous glass
*buoyancy (same as kapok)

*The minimum buoyancy required by detailed specifications is provided for information only - field units are not capable of conducting buoyancy tests.

160.055 - unicellular plastic foam
*buoyancy (adult 22 lbs. - child 11 lbs.)

Effective 1 November 1967, those vinyl dip coated unicellular plastic foam life preservers not slitted down the front are no longer approved and will not be acceptable on uninspected vessels to meet the requirements of the Motorboat Act of 1940. It was found that cold weather donning of these preservers was sometimes extremely difficult (USCG COMDTNOTE 5910, 8 June 1967).

b. Buoyant Vests - 160.047 - kapok or fibrous glass buoyancy (adult 16 lbs. - med. child 11 lbs. - sm. child 7 ½ lbs.)

160.052 - unicellular plastic foam buoyancy (adult 15 ½ lbs. - med. child 11 lbs. - sm. child 7 lbs.)

160.060 - unicellular polyethylene buoyancy (same as .052)

c. Buoyant Cushions - 160.048 - kapok or fibrous glass buoyancy (20 lbs.)

160.049 - unicellular plastic foam buoyancy (20 lbs.)

d. Ring Life Buoys - 160.009 - cork or balsa
160.050 - unicellular plastic

(16 ½ pounds buoyancy for 20" or 24" - 32 pounds buoyancy for 30")

e. Special Purpose Water Safety Devices - 160.064 - devices to be worn buoyancy (adult 15 ½ lbs. - med. child 11 lbs. - sm. child 7 lbs.)

- devices to be grasped buoyancy (20 lbs.)

3. Formerly approved devices which are not acceptable after 1 January 1965: (Unprotected devices - those using kapok or fibrous glass as flotation material which is not encased in sealed plastic bags - approval discontinued in 1955.)

a. Buoyant Cushions - kapok - approval numbers 160.007 and 160.008 do not have required plastic covered inserts.

b. Life Preservers - fibrous glass - only models 51 and 55 have the required plastic covered inserts which are acceptable - models 52 and 56 do not.

c. Life Preservers - kapok - models 3 and 5 kapok life preservers have the required plastic covered inserts, other models do not.

d. Buoyant Vests - the Coast Guard did not approve any buoyant vests which did not have flotation material, kapok or fibrous glass, encased in sealed plastic bags.

e. Ring Life Buoys - none are made of kapok or fibrous glass, only cork, balsa, or unicellular plastic.

4. In order to be acceptable for minimum standards, in addition to the above referred to list, lifesaving devices shall not have any rips, tears, punctures, or be compressed nor have straps missing or the Coast Guard approval label removed or illegible. Lifesaving devices must readily be accessible aboard boats. They are not readily accessible if in plastic bags, display or shipping containers that are sealed, or if locked or stored in compartments under the seat.

G. Handling persons not in compliance

1. Arrest

a. Nonresidents

b. When physical force is needed in apprehension

c. Residents who will not accept officer's control or provide positive identification

d. Employ s. 30.76 (deposit of money to obtain release from arrest) as soon as possible:

(1) HOW DEPOSIT IS MADE. A person arrested without a warrant for a violation of ss. 30.50 to 30.80 or any rule or local regulation enacted pursuant thereto, who is not released at the time of arrest or without unnecessary delay brought before a magistrate or a court, shall be allowed to make a deposit of

money by mailing the deposit as directed by the arresting officer, at the nearest mail box, to the office of the sheriff, area conservation headquarters, city or village police headquarters, or precinct stations or to the office of the clerk of court or minicipal justice before whom he is summoned to appear, or by going in the custody of the arresting officer to any of those places to make the deposit.

....

(4) RELEASE FROM CUSTODY. If the alleged violator is in custody he shall be released after he has made the deposit as specified in this section, except that if the charge is operating a boat while under the influence of an intoxicant or narcotic or dangerous drug, he shall not be released until in the opinion of the officer having his custody, he is in fit condition to care for his own safety or is accompanied by a person who is able to care for his safety and prevent further violations of the law.

2. Notice to appear

a. Resident who is identifiable

b. Juveniles - (follow procedure as directed by county juvenile referral agency)

3. Lesser action

a. Warning - written or oral

H. <u>Provide for boaters' safety after finding them in violation</u>

1. The officer's primary duty after apprehending a boat operator in violation is to provide for the safety of the passengers and boats in reaching shore. This action emphasizes the need for safety equipment on the boats in addition to providing further safety for the occupants.

2. This can be accomplished by:

a. Providing life vests or jackets to the individuals without the necessary equipment and permitting them to remain in their boat until they reach shore.

b. First placing life preservers on the ill-equipped passengers under arrest and conducting them in your boat.

c. In all cases, by escorting them to shore and ensuring their safety.

II. Available Alternatives for Action

Fact Situations:		Enforcement Action				Safety Action				
		Oral discussion or warning	Notice to appear	Arrest	30.76	Accompany to shore	Take to shore	Provide equipment	Let them continue w/o correction	Let them stay after correction
A^1 Boat being occupied by more persons than life-saving devices	a) Apprehend operator		X		X		X	X		
	b) Apprehend owner if he knew boat was going on waters w/o devices		X		X					
A^2 Above situation, but tied to pier or dock	a) Contact operator	X								X
	b) Contact owner	X								X
A^3 Same as A^1 except operator is nonresident	a) Apprehend operator and/or owner			X	X		X	X		
	b) Apprehend owner			X	X		X	X		
B^1 Boat being operated with lifesaving devices aboard but not readily accessible. Lifesaving devices in locked compartment	a) With key aboard	X								X
	b) Without key aboard		X		X		X	X		

B^2 Same as B^1 except that lifesaving devices stored in seat compartments	a)	X								X
	b)									
B^3 Same as B^1, but stored in sealed plastic	a)	X								X
	b)									
B^4 Same as B^2 and B^3 with boat containing young or old persons	a) Good boat and fair weather; Safe load	X								X
	b) Poor boat and/or poor weather and/or capacity load		X							X
C Sailboat without auxiliary power operated in Lake Michigan without lifesaving devices aboard	a)		X		X	X		X		
	b)		X		X	X		X		

Fact Situations:		Enforcement Action				Safety Action				
		Oral discussion or warning	Notice to appear	Arrest	30.76	Accompany to shore	Take to shore	Provide equipment	Let them continue w/o correction	Let them stay after correction
D^1 Canoe being operated by Minn. resident in boundary waters on Wis. side of thread without lifesaving devices aboard	a) If operator is reg. water user and knows where he is and is in slough or backwater		X		X		X	X		
	b) If operator does not know boundary line	X					X	X		
D^2 Same as D^1, but operated by Illinois resident	a)			X	X		X	X		
	b)									
E Special purpose approved lifesaving devices aboard but not required equipment	a) With no swimming ability	X					X	X		
	b) With swimming ability	X							X	
F^1 Boat operated with obsolete lifesaving devices	a) In good condition	X							X	
	b) In poor condition		X		X		X	X		

F^2 Boat operated with devices not in acceptable condition	a) Straps partly torn or preserver compressed; cover punctured but not compressed or water log.	X							X	
	b) Straps torn off and/ or compressed and/or cover ripped		X				X	X		
G^1 Passenger-carrying vessel with improper type of lifesaving devices aboard	a) Apprehend owner and/or		X		X	X		X		
	b) Apprehend operator		X		X	X		X		
G^2 Passenger-carrying vessel with inadequate number of lifesaving devices aboard	a) Apprehend owner if he permitted boat to be out		X		X	X		X		
	b) and/or Apprehend operator		X		X	X		X		
H Boat being launched with deficient number of equipment, but not being operated	a)	X								X
	b)									
I Nonresident owner or operator in violation. Covers situations in A^1, B^1, B^2, B^4, C, D^1, D^2, F^{1b}, F^{2b}, G^1, G^2	a)			X	X					
	b)									

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III. Relevant Factors To Be Considered before Choosing an Alternative

A. Legal factors

1. Law

a. Section 29.05 (1) directs Conservation Wardens to take positive action:

> ... serve warrants and processes issued under any law relating to wild animals and ss. 30.50 - 30.80 in the same manner as any constable may serve and execute such process, and to arrest, with or without warrant, any person detected in the actual violation, or whom such officer has reasonable cause to believe guilty of a violation under this chapter or ss. 30.50 - 30.80 and to take such person before any court in the county where the offense was committed and make proper complaint. For the purpose of enforcing ss. 30.50 - 30.80, any such officer may stop and board any boat, if he has reasonable cause to believe there is a violation of such sections.

b. Court experience - The Department of Natural Resources has demonstrated the leadership role as the state's boating safety law agency through its enforcement arm. It has been responsible for over 85 percent of the apprehensions for violations of the state boating law, with a 98.8 percent conviction record. The Department of Natural Resources conservation wardens have brought all types of cases to court to determine the scope and breadth of the law. No cases have yet been appealed above the circuit court level.

c. Legal opinion - The Wisconsin Attorney General's opinion (56-OAG-278) on boundary water enforcement jurisdiction advises, insofar as the Wisconsin boat law is involved, that ss. 30.50 to 30.80 of the statutes (which include the section under discussion, 30.62), may be enforced on the Minnesota side of the Mississippi River only if the act involved is malum in se, or is prohibited by Minnesota law.

30.62 (1) of the Wisconsin statutes is a mala prohibita violation; Minnesota does not have a like regulation. Therefore, 30.62 (1) is enforceable by Wisconsin only to the thread of the Mississippi River channel - where it (the channel) existed in 1948.

Iowa, Michigan and Illinois have similar laws; therefore, in boundary waters with these states, Wisconsin can take enforcement jurisdiction.

2. Liability of officer

a. The question of officer liability for failing to apprehend persons observed in violation of 30.62 (1) and (3) of the statutes has not been tried in Wisconsin.

b. What liability exists if an officer:

1) Does not take enforcement action where the law is violated?

2) Did not provide for the safety of the boat occupants by providing necessary equipment or safe conduct to shore, whether he did or did not take enforcement action?

c. Misconduct in public office under s. 946.12 has been charged and upheld against a sheriff for failing to perform his duties to apprehend mala prohibita violations (State v. Lombardi, 1960).

d. A further dimension should be considered in regard to the failure to enforce lifesaving devices requirements since the device provides for the safety of the boat occupant. Ignoring the violation, if the Lombardi rule stands, can be one thing; failing to act and provide for the safety of the boat occupant may open up a civil action case as well.

B. Community or local conditions

1. Recent history of local water catastrophes may demand or require stronger enforcement attitudes to educate boaters and create awareness of legal requirements.

2. The violence of the weather and water, or the temperature of the water can be justification for stronger enforcement attitudes.

3. A stronger, more positive enforcement attitude can be directed against a boat operator who has been in violation of this regulation before. (Penalty sec. 30.80 of the statutes established this policy by increased fines for repeat violations.)

C. Special conditions

1. Interim indoctrination period when laws are new

a. Officers will, prior to and during the major boat season, make a special effort to inform the public of the law's requirements.

b. Enforcement of new regulations will be increased gradually with the most flagrant violations being cited. The more technical requirements of the law may be applied in succeeding seasons.

2. The Department's method of handling juvenile offenders for lesser offenses is to warn/advise parents and report to juvenile court officials in those counties where the court requires such a report.

IV. Policy on Life Saving Devices

1. The Department of Natural Resources seeks to achieve and promote a high degree of public safety by obtaining compliance to the lifesaving device requirement for boaters.

2. Officers boarding boats or investigating complaints or boat accidents will establish all factual evidence. Discretion will be exercised as to which course of appropriate action is to be taken, using II above as a guide.

3. Officers will provide for the safe conduct to shore of all persons found in boats without lifesaving devices and will exercise judgment as to the ability to get to shore of those persons who have equipment not meeting the minimum requirements of the law, as set forth in II above.

USE OF FORCE

John Mizerka and Jerome Wolff

John Mizerka is Sergeant of Police, Beloit Police Department. He is responsible for that portion of this policy dealing with deadly force. Captain Jerome Wolff, Brookfield Police Department, wrote the portions of this policy dealing with use of force other than deadly.

I. Training Policy

A. Nature of policy area

1. Social safety rests upon enforcement of the criminal law and necessitates the submission of any citizen to lawful arrest. To legalize force in preventing flight is to notify the criminal that if he chooses to run or resist, he assumes the risk of injury.

2. The use of force is a privilege enjoyed by law enforcement officers in certain factual situations.

3. The police are often faced with situations requiring immediate decisions. When force is used, the police are often criticized.

4. The use of violent force can be limited. Control of force requires training in tactics and a recognition of the need for control.

B. Use of force to arrest

1. The arresting officer should inform the subject as soon as possible that he is under arrest and the nature of the charge for which he is arrested.

2. Force may be used to make an arrest only when necessary. If no resistance is offered, there is no need for force.

3. Sidearms, blackjacks, nightsticks, chemical agents, and other equipment will not be used unless it is absolutely necessary to subdue a person resisting arrest. Under no circumstances will this equipment be used after the subject ceases to resist.

4. The use of handcuffs depends on whether the officer reasonably believes the subject will

a. do harm to the officer, a third person, or himself;

b. attempt to escape

5. An officer making an arrest may use firearms only as a last resort, when it is necessary to protect himself or others against death or serious bodily harm.

6. *Situations:*

a. Officer Miller has a warrant for the arrest of Williams for murder. When he attempts to make the arrest, Williams draws a revolver and threatens to shoot the officer. Miller need not abandon his attempt to arrest Williams, but is privileged to use force to make the arrest.

b. Officer Campbell arrests Blake on a warrant charging battery. Campbell becomes angry at Blake's remarks, knocks him down and injures him. Officer Campbell is not privileged to use force.

c. Officer Adams comes upon Baldwin breaking into a building. Upon hearing Adams, Baldwin attempts to grab his crowbar. Adams hits Baldwin with his nightstick. The officer is privileged to use force if he reasonably believes Baldwin was in a position to do harm to Adams.

d. Police begin arresting peaceful demonstrators in front of a Naval Recruiting Station because the participants have gone limp and refuse to leave. As they are being carried away, an officer begins spraying chemical

mace on the demonstrators. This use of force is not privileged as the demonstrators offered no resistance and it was not necessary to effect a lawful arrest.

e. Officer Nelson is attempting to arrest Bill Ronson, for murder. The subject is brandishing a knife and threatening Nelson. Ronson's friend grabs Nelson from behind while Ronson lunges at him. Nelson succeeds in drawing his weapon and kills Ronson's friend. Nelson is justified in his act because in making a lawful arrest an officer may use whatever force is necessary for self defense. An officer attempting to arrest a felon has the privilege to use all necessary force to overcome resistance, even to taking the life of the party resisting or of one aiding or assisting him.

f. Officer Sampson has a warrant for Tom Brown for petty theft. He confronts him with the warrant, and Brown flees shoving Sampson as he leaves. Sampson draws his revolver and shoots Brown in the back. Sampson is NOT justified in shooting Brown. Deadly force may not be used in making arrests for crimes which do not normally cause or threaten death or serious bodily harm.

g. Officer Smith is summoned to a tavern brawl. While inside he is confronted by Ben Davis, a wanted felon, who is threatening the officer with a pipe. There are bystanders who could help the officer in subduing Davis. However, he orders them away and shoots and wounds Davis, who subsequently dies of his wounds. Smith is NOT justified in his actions. To justify the use of deadly force the crime must be a serious one and the officer must reasonably believe that the arrest cannot be otherwise made. An officer is not justified in killing a felon if it is possible to arrest him by calling on others for aid.

C. Use of force to prevent crime

1. The amount of force which may be used to prevent a crime is ordinarily similar to that permitted in making an arrest for such a crime. In the prevention of crimes which do not threaten death or serious bodily injury an officer should not use force which involves a risk of causing death or serious bodily harm.

2. The officer can use force reasonably believed necessary to prevent the suspect from participating in or committing a crime.

3. In preventing crime an officer not only may use force against individuals but likewise may enter the land and property of another. To prevent a felony from being committed, an officer may go onto the land of the person to be restrained.

4. *Situations:*

a. Officer Stevens receives a complaint that a man is prowling around a home. Upon investigation he finds a man in the garage. The officer reasonably believes the man is attempting arson. He orders him to stand up and the man complies. Stevens approaches the man and hits him with his nightstick. This force is excessive because the officer was in no apprehension of danger and the commission of the crime was prevented.

b. Officer Sane observes Jack Dirks beating a woman in the bushes. He believes Dirks is trying to kill the woman. He tries to subdue Dirks but cannot because of his size. Dirks continues to strike the woman and finally pulls out a knife and lunges for her. Sane shoots and kills the assailant. The officer is justified in killing Dirks to prevent a crime from being committed. The amount of force which may be used to prevent a crime is ordinarily similar to that permitted in making an arrest for such a crime. Deadly

force may be used to prevent a crime which threatens death or serious bodily harm or which involves the breaking and entry of a dwelling place.

D. Use of force to enter a building to make an arrest

1. The officer should knock on the door, announcing that he is a police officer. He should also announce that he is there to make an arrest and demand that the person inside open the door. Only after a normal period of time should the officer force the door. When he does enter on his own, the officer should try to do as little damage as possible.

2. In lawfully entering the land of another to make an arrest, an officer may use force reasonably believed necessary against persons on that land. An officer may use force to break and enter a fence or other enclosure or into a dwelling or other building.

3. In certain cases, police officers may enter without announcement and demand to make a lawful arrest:

a. When the arresting officer has reason to believe that making an announcement may help the suspect to escape;

b. Where the announcement may endanger persons or may permit the suspect to destroy evidence.

4. *Situations:*

a. Officer Haley hears screams coming from an apartment building. He investigates, finds the door locked, and continues to hear the screams. He breaks open the door and finds a man beating a woman. The entry made by the officer is authorized. He did no unreasonable damage and had a reasonable belief that a crime was being committed.

b. Officer Jones enters Robbins' land to arrest him for committing a felony. Jones necessarily breaks down the front door of Robbins' house. Thereafter, Jones unnecessarily does harm to Robbins' property and beats him

unreasonably. Jones is still privileged to arrest Robbins but is liable for the harm done to him and his property.

E. Use of force in self-defense

1. A person can use force against another to prevent an unlawful interference with his person. He should use only such force as he reasonably believes necessary to prevent the interference. He cannot use deadly force unless he reasonably believes that such force is necessary to prevent death or great bodily harm.

2. *Situations:*

a. Officer Reese is dispatched to an in-progress burglary. Upon arrival at the scene he sees John Brown emerge from the home with a crowbar in one hand and a revolver in the other. Brown begins firing at the officer. The officer, still in his vehicle, accelerates it toward the suspect and strikes him. Brown dies of his injuries. Officer Reese's acts are justified because he used deadly force in defense of his own life. This is permissible only where the officer reasonably believes such force is necessary to prevent imminent death or great bodily harm to himself.

b. Officer Jones is dispatched to a residence which reportedly had been forcibly entered. He begins to search the house. While searching, Jones is surprised from behind and knocked to the floor. Looking up, he sees his assailant swinging an axe toward him. Officer Jones shoots and kills the assailant. Jones is justified in killing his assailant because he was using deadly force in defense of his own life.

c. Officer Peters is sent to the scene of a murder in which an eight-year-old boy has knifed a playmate. Peters encounters the young boy who is brandishing the murder weapon and will not surrender it. The child advances on Peters threatening to kill him. Peters shoots the child and

cripples him seriously. It is possible that Peters had the legal right to use deadly force. There is a high probability that he would not have been seriously injured if he had tried to make the arrest in some other manner. Even though the officer has a legal obligation to protect the lives of others and a right to protect his own life, he must be careful not to use excessive force in making arrests. Generally, a knife in the hands of an eight-year-old boy would not seem to constitute any great threat of bodily harm or imminent death to a grown man.

F. Use of force to prevent flight

1. Generally, force may be used to stop a fleeing felon. It may not be used to stop a fleeing misdemeanant.

2. *Situations:*

a. Officer Riley comes upon an in-progress armed robbery. The felon sees Riley and attempts to flee. Riley orders him to stop but the felon continues to escape. After giving chase, Officer Riley fatally wounds the felon. Officer Riley is justified in using force against this fleeing felon.

b. Officer Wood is called to a tavern where a drunk is causing a disturbance. The drunk is reluctant to get into the squad car and tries to run away. Wood beats him severely with his nightstick. The drunk later dies of his injuries. Officer Wood is not justified in his use of force to stop a misdemeanant.

G. Available alternatives

1. After consideration of all pertinent factors, the officer should determine whether he is justified in using force. He then takes action because he feels it is justified and necessary to the performance of his duty. The decision to use deadly force is made only when there is no other way out; it is used as a last resort. In these situations an officer must draw on all

his experience in making his determination. If the crime is against property, the officer cannot use deadly force; see s. 939.49 Wis. Stats.:

> It is not reasonable to intentionally use force intended or likely to cause death or great bodily harm for the sole purpose of defense of one's property.

2. The officer, after weighing the factors in existence and determining that the use of force is justified, may choose not to use it for some extraordinary reason. A typical example of extraordinary circumstances would be the presence of innocent bystanders and a high probability of injury to third parties. Other examples would be the age of the offender, his mental condition, conditions existing in the neighborhood, the knowledge on the part of the officer that if he retreats the individual will be apprehended with less force, and the fact that morally the officer should not use force.

H. Legal considerations

1. The amount of force a Wisconsin law enforcement officer may use is governed by the common law rule: that force reasonably believed necessary to accomplish the arrest.

2. The Attorney General of Wisconsin, in Special Memorandum #68, 15 October 1968, lists five conditions which must be present before the officer employs deadly force to make an arrest:

a. The officer must believe that deadly force is immediately necessary to make the arrest; and

b. The officer must believe that the arrest is lawful; and

c. The officer must make known the purpose of the arrest unless he believes that it is otherwise known by the person to be arrested or that he cannot reasonably make the purpose known; and

d. The arrest is for a felony; and

e. The officer believes that the use of deadly force will not create a substantial risk of injury to innocent persons. Or there is a substantial risk that the person to be arrested

will cause death or serious bodily harm if he is not immediately apprehended.

3. The Attorney General also says deadly force should not be used to effect the arrest of a misdemeanant.

4. Generally, felonies in which deadly force is necessary to effect arrest are those of a serious nature, involving breaking and entering, or causing or threatening to cause severe bodily harm.

II. Field Policy on Use of Force

A. Use of force, in general

1. An officer shall use the minimum force that is reasonable and necessary to accomplish his objectives.

2. An officer is justified in using deadly force under the following conditions:

a. When the officer reasonably believes that he or others are threatened by death or great bodily harm;
b. To make a legal arrest, maintain custody or prevent a crime, if the charge is for a felony which normally threatens death, or great bodily harm, or involves burglary of a dwelling and the officer reasonably believes the arrest cannot be otherwise made.

B. Use of force to arrest

1. Force may be used to make an arrest only when it becomes necessary. If no resistance is offered, there is no need for the use of force. As soon as practicable, the arresting officer should tell the suspect that he is under arrest and for what offense.

2. Do NOT use sidearms, blackjacks, nightsticks, chemical agents, other come-a-longs or equipment unless it is absolutely necessary to subdue a person resisting arrest. Under no circumstances should this equipment be used after the suspect stops resisting.

3. The use of handcuffs depends on whether the officer reasonably believes the suspect will

a. do harm to the officer or a third person,
b. attempt to escape or to be rescued.

4. An officer in making a lawful arrest may use firearms as a last resort when it is necessary to protect himself or others against death or serious bodily harm.

C. Use of force to prevent crime

1. The amount of force which may be used to prevent a crime is ordinarily similar to that permitted in making an arrest for such a crime. In the prevention of crimes which do not threaten death or serious bodily injury, an officer should not use force which involves a risk of causing death or serious bodily harm.

2. In preventing a crime an officer not only may use force against individuals but likewise may enter the land and property of another. To prevent a felony from being committed, an officer may go onto the land of the person to be restrained.

D. Use of force to enter a building to make an arrest

1. In lawfully entering the land of another to make an arrest, an officer may use force reasonably believed necessary against persons on that land. An officer may use force to break and enter a fence or other enclosure or into a dwelling or other building.

2. The officer should knock on the door announcing that he is a police officer. He should also announce that he is there to make an arrest and demand that the person inside open the door. Only after a normal period of time should the officer enter the door without it being opened from the inside. When he does enter on his own, the officer should try to do as little damage as possible.

3. There are certain exceptions to the above rules where police officers may enter without announcement and demand to make a lawful arrest. When the arresting officer has good reason to believe that making an announcement may help the suspect to escape or where the announcement may endanger persons or permit the destruction of evidence, he may enter without an announcement and demand.

E. Use of force in self-defense

1. An officer can use force against another to prevent an unlawful interference with his person. He should use only such force as he reasonably believes necessary to prevent the interference.

2. An officer cannot use deadly force unless he reasonably believes that such force is necessary to prevent death or great bodily harm.

F. Warning shots

1. No warning shots should be fired.

2. The danger to innocent citizens of randomly fired bullets greatly outweighs any possible advantage of warning shots.

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CROWDS AND DEMONSTRATIONS
Joseph Fandre and Robert Foote

Joseph Fandre is Lieutenant of Police, Stevens Point Police Department. His research for this policy relates to crowds generally. Robert Foote, Captain of Police, Oshkosh Police Department, deals more specifically with the problems of the demonstration, particularly at a college.

A. Right of free expression

1. Freedom of speech and "the right of the people peaceably to assemble, and to petition the Government for a redress of grievances" are specifically protected by the First Amendment to the United States Constitution.

2. The protection of free speech and peaceable assembly often illustrate dramatically the sensitive and unique role of the police in our democratic society.

a. Police frequently find themselves in situations calling for protection of a speaker or demonstrating group trying to express opinions contrary to those of a hostile audience.

b. Mass demonstrations, however peacefully intended by their organizers, always involve a potential for violence. No city should be expected to submit to paralysis or widespread injury to persons and property occasioned by violation of law. But, although recent demonstrations have involved many complex factors, it is yet a fact that the manner in which police respond to demonstrations is the primary determinant as to whether violence will break out and, if it does, the degree to which it will spread.

3. There is no legal principle which protects students on campus from the consequences of activities commonly known as crimes.

a. Where the violation is nonviolent or technical (such as blocking entrance to a campus building, or even orderly occupancy of a campus facility) there may be sense in patient forbearance despite the wrong involved.

b. Violent activities should be regarded as intolerable.

c. The public character of a university does not grant a license to individuals to engage in activities disruptive of the intended use of the university facilities.

d. A university may choose not to complain to the police if students disrupt classes, destroy school property, or interfere with recruiters for the armed services or war industries. In such cases, the police are not likely to take the initiative. When a complaint is lodged, the governing legal principles are no different on campus than off campus.

B. <u>The problem of crowds</u>

1. Definition: A crowd is a group of people temporarily assembled for a specific purpose. Crowds may consist of onlookers at an accident scene or construction site, listeners at a soap box oration, witnesses at an arrest, spectators at an athletic event, or supporters at a political rally.

2. Characteristics: Crowds generally are orderly and leaderless. They are aware of law and willing to respect its principles. Members have no dependence on each other, except for a unity of purpose.

3. A crowd can become a serious problem. If outside factors interfere with the members' purpose or enjoyment, the crowd may become unruly and aggressive.

4. Handling crowds:

a. Most crowds will respond to orders such as "stand back," "move on," or "keep moving," because the crowd has no emotional unity.

b. An order to "move on" must include everyone. Exceptions will

cause the crowd to raise objections. Some members may demand an explanation. Such partiality can rapidly change the crowd's attitude and give the group an emotional unity. At the least, it will give a poor image of the police.

c. Impartiality and courtesy are the keys to handling crowds. Derogatory remarks and shoving cause resentment and are self-defeating.

C. Hostile crowds

1. Definition: A hostile crowd is a crowd which has become aroused about something that has happened since the crowd assembled. It has begun to have an emotional unity.

2. Characteristics: Hostile crowds generally are noisy and threatening. They hesitate to participate in lawlessness due to lack of organization and leadership. Aroused crowds often vent their hostility on those assigned to maintain order. Harassing, baiting and inciting the police, in the form of taunts, curses and other annoyances, are common.

3. A hostile crowd may become a violent mob, either when aroused by its leaders or inflamed by police actions. Verbal abuses, no matter how galling, must be ignored. However, no officer is expected to stand by and allow himself to be injured.

4. General rules of control:

a. Sufficient manpower is basic to control. Never hesitate to call for assistance.

b. Unnecessary force is never justified. Past experiences have shown that the injudicious use of force often incites a crowd and compounds the violence.

5. Methods of control:

a. In certain areas, the arrest of a member of a crowd may incite the crowd. To prevent the situation from deteriorating into a mob action, the

subject should be immediately removed from the area before the crowd can achieve emotional unity.

b. *Fragmenting the crowd* - The police may arrive after the crowd has assembled and achieved a certain degree of unity. The rule here is the show of force (not necessarily the use of force). When the excitement of the situation becomes collectively communicated to members of the crowd, something called the milling process occurs. Before the milling process causes individuals to completely lose their identities (and become a mob), the crowd must be divided into smaller isolated groups.

c. *Removing leaders* - The most excited and vocal members of a crowd establish themselves as the informal leaders. Removing or isolating them contributes to the dispersal of the less excited persons. Isolating these individuals should be attempted only if sufficient manpower is available. Inadequate manpower does not impress the crowd and violence may result. Individual heroics are not only foolhardy but dangerous. A lone officer entering a hostile crowd to subdue an individual places his safety in jeopardy and may precipitate violence.

d. *Diverting attention* - The use of a public address system to urge the crowd to "break up and go home" is a tactic which has been successful. Amplifying the authoritative tone of the command attracts the attention of individuals, breaking the spell cast by the more excited. A crowd growing in hostility also can be controlled by forcing individuals to focus attention upon themselves rather than the group. Instead of a direct assault on the crowd, individuals situated on its edge are arrested. The random selection of persons to be arrested draws the attention of individuals to the fact that a greater number of persons are being permitted to leave than are being arrested. The fact that arrests are made threatens their safety; they do not wish to be

the ones who are selected to go to jail. A spontaneous dispersal is the usual result.

e. *Use of recognized leader* - The developing leadership within the crowd may be counteracted by using someone with greater appeal or prestige. A trusted labor leader may appeal to workers to maintain order. Members of the clergy can blunt emotional tensions and plead for a legal handling of the matter. A well-known and respected civic leader may be able to exert a calming influence.

D. Demonstrations

1. Definition: A demonstration is an organized group of people assembled for a particular purpose, under recognized leadership which exercises discipline over the demonstrators.

2. Characteristics: Demonstrations are nonviolent and generally have an objective of dramatizing a grievance and asking for redress. Most demonstrations are concerned with political issues.

3. The college demonstration:

a. The demonstrators generally are young. Many of them are juveniles, inexperienced, immature, and idealistic. They are all intelligent.

b. Most of the group are students, but an appreciable number may be nonstudents and not subject to the school rules and disciplinary procedures.

c. Individual motivation will differ widely within the group. Some are idealistic and firmly believe in the group objective; some are pulled along by the group spirit; some are conforming; some are captivated by propaganda; some are outright revolutionaries, determined to overthrow the academic institution.

d. An effort will be made to justify the group's objectives on the basis of constitutional freedoms and rights.

e. School authorities abhor bad publicity and try to keep problems within academic circles. They exercise a protective attitude toward students and are not particularly sympathetic toward police problems. They approach student demonstrations through negotiation and compromise, and will go to great lengths to avoid confrontations.

f. A part of the faculty will be sympathetic toward the demonstrators, and some will actually participate in the demonstration. There will probably be a sharp difference of opinion between the administration and the faculty over the proper resolution of the conflict.

g. Students will have continuous support from attorneys who will be present at their demonstrations to provide legal advice and representation.

4. Protecting the right to protest:

a. Police will protect the right to peaceably protest, regardless of individual convictions on the matter being protested.

b. Spectators not in sympathy with the demonstration constitute a source of potential violence, made more dangerous by counter-demonstrations.

5. Protecting the rights of others:

a. Normally, sit-ins and lie-ins violate property rights.

b. Removal of demonstrators trespassing on others' property will usually involve shouts of brutality, faked injury, and cries of pain, especially when the demonstrators are within range of the news media. The officer will ignore these harassments.

E. Mobs

1. Definition: A mob is a group of people brought together by common attitudes and dissatisfactions, held together by aroused emotions.

2. Characteristics: Mobs are generally boisterous, exhibiting a high level of excitement. Members of a mob maintain their high emotional level

through an interdependence upon each other. Mobs usually have leaders, but the leaders tend to emerge spontaneously.

3. Mobs become most dangerous when an isolated incident triggers violence. For example, an attack on one member of the mob, or the arrival of the police may crystallize the mob's emotional unity and cause violent actions.

4. Controlling mobs:

a. Due to their emotional unity, mobs usually will not respect "stand back" or "move on" orders.

b. Any indication of a weakening of law enforcement attitude or strength will reinforce the mob's predisposition toward violence.

c. All arrested subjects should be moved quickly away from the area of the mob.

F. Factors to consider before acting

1. Officers shall act to preserve and protect life first and property second.

2. Disturbances can normally be anticipated, and certain planning is essential:

a. Jurisdictional problems should have been resolved.

b. Arrest procedures and bail schedules should have been established.

3. The most appropriate general statute is the law on disorderly conduct:

> 947.01 Disorderly conduct. Whoever does any of the following may be fined not more than $200 or imprisoned not more than 90 days or both:
> (1) In a public or private place, engages in violent, abusive, indecent, profane, boisterous, unreasonably loud, or otherwise disorderly conduct under circumstances in which such conduct tends to cause or provoke a disturbance;

The disturbance must annoy peaceable citizens or the travelling public. Annoyance to the public must not be confused with annoyance to the

individual officer. Not all loud and boisterous conduct is prohibited. The loudness and boisterousness must be unseemly under the circumstances, to fall within the prohibition.

4. To prevent demonstrations or mobs from forming initially, an unlawful assembly might be declared.

> 947.06 Unlawful assemblies and their suppression.
> (1) Sheriffs, their under-sheriffs and deputies, constables, marshals and policemen have a duty to suppress unlawful assemblies within their jurisdiction. For that reason they may order all persons who are part of an assembly to disperse. An "unlawful assembly" is an assembly which consists of 3 or more persons and which causes such a disturbance of public order that it is reasonable to believe that the assembly will cause injury to persons or damage to property unless it is immediately dispersed.
> (2) An "unlawful assembly" includes an assembly of persons who assemble for the purpose of blocking or obstructing the lawful use by any other person, or persons of any private or public thoroughfares, property or of any positions of access or exit to or from any private or public building, or dwelling place, or any portion thereof and which assembly does in fact so block or obstruct the lawful use by any other person, or persons of any such private or public thoroughfares, property or any position of access or exit to or from any private or public building, or dwelling place, or any portion thereof.
> (3) Whoever intentionally fails or refuses to withdraw from an unlawful assembly which he knows has been ordered to disperse shall be guilty of a misdemeanor and may be fined not more than $500 or imprisoned not more than one year in the county jail or both.

5. To handle a campus demonstration or disruption on public grounds, the statute prohibiting certain kinds of misconduct may be used.

> 946.80 Misconduct on public grounds. (1) No person shall commit any act in a public building or on public grounds which interferes with the peaceful conduct of activities normally carried on in such building or on such grounds.
> (2) Any person violating sub. (1) who refuses to leave such building or grounds upon request by the proper official or any person aiding, counseling or abetting another to violate sub. (1) may be fined not more than $500 or imprisoned not more than 6 months or both.
> (3) In this section "public building" means any building that is a part of the university of Wisconsin system or state universities system and used for any university purpose and any building owned by the state or any county,

city, school district or other political subdivision of the state and used for any public purpose.

(4) Nothing in this section shall be construed to prohibit peaceful picketing or distribution of handbills. [Effective Aug. 27, 1969]

6. In addition, the Wisconsin Criminal Code provides penalties for property damage or destruction.

943.01 Criminal damage to property. (1) Whoever intentionally causes damage to any physical property of another without his consent may be fined not more than $200 or imprisoned not more than 6 months or both.

(2) Any person violating sub. (1) may be fined not more than $1,000 or imprisoned not more than 3 years or both under the following circumstances:

(a) The property damaged is a vehicle or highway as defined in s. 941.03(2) and the damage is of a kind which is likely to cause injury to a person or further property damage; or

(b) The property damaged belongs to a public utility or common carrier and the damage is of a kind which is likely to impair the services of the public utility or common carrier.

(3) If the total property damaged in violation of this section is reduced in value by more than $1,000, the person may be fined not more than $1,000 or imprisoned not more than 5 years or both. For the purposes of this subsection, property is reduced in value by the amount which it would cost either to repair or replace it, whichever is less.

(4) Where more than one item of property is damaged pursuant to a single intent and design, the damage to all the property may be prosecuted as a single crime.

(5) In any case of criminal damage involving more than one act of criminal damage but prosecuted as a single crime, it is sufficient to allege generally criminal damage to property committed between certain dates. On the trial, evidence may be given of any such criminal damage committed on or between the dates alleged.

7. Open violations of law without damage to person or property (sometimes called civil disobedience) pose an additional problem. Persons may demonstrate in places prohibited by law, sit-in at restaurants, or block passageways. Law enforcement probably has no alternative but to enforce the applicable law, even though the officers may feel the disobedience is morally justified.

VT 011 731
Annual Report of COPE (3rd); The Cooperative Occupational Pre-Teaching Experience Program.

Rutgers, The State Univ., New Brunswick, N.J.
Ford Foundation, New York, N.Y.
MF AVAILABLE IN VT-ERIC SET.
Department of Vocational-Technical Education, Rutgers University, 10 Seminary Place, New Brunswick, New Jersey 08903 ($.18).

PUB DATE - May70 24p.

DESCRIPTORS - *TEACHER EDUCATION; *COOPERATIVE EDUCATION; *PROGRAM DESCRIPTIONS; EDUCATIONAL PROGRAMS; STUDENT CHARACTERISTICS; *TRADE AND INDUSTRIAL TEACHERS; *BEGINNING TEACHERS; ADVISORY COMMITTEES; TEACHER RECRUITMENT; WORK EXPERIENCE PROGRAMS
IDENTIFIERS - *COOPERATIVE OCCUPATIONAL PRE TEACHING EXPERIENCE PROGRAM; COPE

ABSTRACT - The Cooperative Occupational Pre-Teaching Experience Program (COPE) prepares vocational subject teachers through coupling cooperative work experience with a planned academic program. This third annual report of COPE presents descriptive data as well as current data on enrollment, student background information, supervised work experience, and credits earned. The current Ford Foundation budget is also presented along with specific recommendations for improving the program. (JS)

VT 011 731

THIRD ANNUAL REPORT

of

C O P E

The

COOPERATIVE
OCCUPATIONAL
PRE-TEACHING
EXPERIENCE
PROGRAM

A Cooperative Education Program
for
Vocational-Technical Education Teachers

Grant Number
67-290

Funded by

The Ford Foundation
320 East 43rd Street
New York, New York

May 1970

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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THE STAFF

Albert J. Pautler, Ed.D.
Project Director

Everett R. Warzecha, Ed.M.
Assistant Director

Carl A. Wade, B.S.
Coordinator

INTRODUCTION

Available Programs in Vocational-Technical Education

The Department offers courses and programs leading to certification as well as to degrees. Degrees granted include the Bachelor of Science, Master of Education, and the Doctor of Education.

The COPE program is unique, inasmuch as it provides an alternate route for preparing vocational subject teachers. Through the coupling of cooperative work experience with a planned academic program, the student can receive state certification in teaching and a Bachelor of Science degree.

Undergraduate programs are available in agricultural education, home economics, trade and industrial education, and technical education.

Programs on the master's level are available in agricultural education, business education, distributive education, home economics, technical education, vocational trade and industrial education, and vocational coordination and supervision.

The Vocational-Technical doctoral curriculum consists of four groups of courses and/or experiences as follow: Core, Selected Area Coursework, Internship, and Dissertation Study. The full details of the program are available in the Department bulletin, Doctorate in Vocational-Technical Education.

The Institution

Rutgers University - The State University of New Jersey, is a unique institution which combines some of the features of the principal types of institutions which have given American higher education its peculiar diversity -- the colonial college, the land-grant college, and the state university.

Founded in 1766 as Queen's College, Rutgers was the eighth college in the colonies. Its sponsorship by the Dutch Reformed Church, formally discontinued in 1864, was typical of the times when most colleges were established by religious groups. In 1945, the State Legislature extended the designation of "State University" to all units of Rutgers. In 1946, an urban complex, the University of Newark, was merged with Rutgers; and in 1950, the College of South Jersey at Camden became a part of the State University. With research units and experimental farms scattered from Sussex (northern) to Cape May (southern) counties, Rutgers extends its influence to all parts of the State.

COPE ADVISORY COMMITTEE

Mr. Frank Barrett	Executive Director, New Jersey Restaurant Association
Mr. Walter Billiet	Director, Trade and Industrial Education, Vocational Division, State Education Department
Mr. Kenneth Boehmer	President, General Conditioning Corporation
Mr. Neal Clemens	Manager, New Jersey State Employment Service
Dr. Norman Eiger	Extension Specialist, Labor Education Center
Mr. Joseph Freedman	Chief, Bureau of Employment Programs, Department of Labor Industry
Mr. Manny Germinsky	President, Germinsky Electric Company
Mr. Donald Hoagland	Superintendent, Monmouth County Vocational School District
Dr. Elaine House	Lecturer, Department of Vocational-Technical Education
Mr. J. Jowett	Manager, Industrial Engineering, General Dynamics Corp.
Dr. Gordon Law	Associate Professor, Department of Vocational-Technical Education
Dr. John Moullette	Lecturer, Department of Vocational-Technical Education
Mr. Ralph Muehlig	Manager, Industrial Relations, Westinghouse Corporation
Mr. John Nealon	Visiting Industrial Professor, Department of Vocational-Technical Education
Mr. George Rietz	Consultant, Educational Relations (Retired) General Electric Company
Dr. Richard Scheetz	Coordinator, School-Industry, State Department of Education
Mr. J.J. Schaughnessy	Director, Industrial Relations, Western Electric Company
Mr. William Sprinkle	Teacher, Ocean County Vocational School
Mr. Walter Van Hoesen, Jr.	President, West Machine Works, Incorporated

ADVISORY COMMITTEE

A Curriculum Advisory Committee for Trade and Industrial Education was established in the Department of Vocational Education prior to the beginning of the COPE program. The members of this committee serve as advisors to the COPE program in addition to other ongoing teacher training programs.

The membership of the committee consists of employers representing both large and small industries, State Department of Education representatives, a local superintendent of vocational education, vocational teachers, teacher educators, and a State Employment Service manager.

The purposes of this type of an advisory committee are two-fold in nature because the program administrators are able to discuss programs and problems with the recipients of the products of the educational process (the students enrolled in the program are temporarily found in jobs in industries much like those represented by the members of the advisory committee), committee members are able to offer advice, criticism, and suggestions concerning the direction of the program. Also, they can be most helpful in offering employment, within their organizations, to COPE students. This provides for an effective arrangement, since some of the advisory committee members can feed-back information concerning the work habits and problems of COPE students employed in their organizations.

A listing of the advisory committee members who have served in this capacity is presented on the opposite page.

OPERATIONAL ASPECTS

Academic Phase

In addition to acquiring an occupational "skill package," the COPE student must also meet the requirements of a rigorous academic program; a program designed to provide the breadth and depth of a liberal arts experience. Whereas the cooperative occupational phase is designed to culminate in a sophisticated, specialized, and highly developed skill, the academic phase is intended to broaden the scope of the individual's cognitive experiences. Thus, the combination of the two phases provides an experiential program with an interdisciplinary flavor aimed at creating a new breed of vocational educator.

Cooperative Occupational Pre-Teaching Experience

The Department of Vocational Education of Rutgers University - The State University of New Jersey, through University College, has developed a second track for a new source of teachers for vocational (trade and industrial) education. This particular program is designed to provide high school graduates, primarily from vocational and industrial arts education programs, as well as technical institute graduates, with an opportunity to combine cooperative work experience (COPE) in their chosen trade or occupation with an approved academic program. Upon satisfactory completion of the prescribed program, the individuals will receive appropriate teacher certification, and will have earned the Bachelor of Science degree.

University College is the evening degree-granting college of Rutgers. Because classes are conducted after the normal work day, a COPE student can work full-time during the day and attend classes in the evening. A student may register for nine credits per term. A nine-credit load would require the student to attend class two evenings per week.

COPE students are first required to be accepted by University College, and then must appear for a personal interview with the director or assistant director of the program. College board examinations are not required for admission, and students may be admitted to University College regardless of the particular program followed in high school. However, applicants must have been graduated from secondary school in the upper three-fourths of their class. Students who have not had college preparatory mathematics or a language in high school, may be admitted with entrance conditions. If these deficiencies exist in a COPE student's program, they may be made up by passing

one year of appropriate courses taken for non-credit.

Students who start the program without any transfer credit will require approximately six years to complete the B.S. degree requirements. It is possible, under present New Jersey certification requirements, that a COPE student would be able to begin vocational-technical teaching before he completes requirements for the B.S. degree. When a student has been employed in his specialization for the number of years required for state certification, he may choose to start teaching and continue with his degree program.

A student may pursue a specialization in any one of the recognized trade or industrial areas offered in the secondary or post-secondary programs of the State. Proper advising is important due to the length of time required to complete the program and to the requirements needed by teachers of the future. Consideration of new offerings and discontinuance of some present offerings are carefully considered when advising students. An attempt is made to be as accurate as facts and figures indicate concerning future trends in vocational education.

Recruitment

As with any new program, recruitment of students is a very important factor. Dissemination of information concerning the COPE program was one of the first steps undertaken to get the program under way.

A descriptive brochure was designed and printed. A mass mailing to all secondary and post-secondary schools in New Jersey was conducted. The brochure contained a tear-out reply card which interested students could complete and return requesting application procedures. The brochure has been modified and reprinted twice since the original was designed.

A letter was sent with the initial mailing of COPE brochures stating that a presentation could be made in the local schools, if this was desirable. As a result, 22 programs were presented in eleven counties of New Jersey. The presentations were made to approximately 1600 students.

The COPE director and assistant director took part in many other programs involving administrators, guidance personnel, and teachers.

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Rutgers University - The State University of New Jersey

The Department of Vocational-Technical Education

of

University College

Expresses its grateful appreciation to

for the contribution being made toward the objectives of the Cooperative Occupational Pre-Teaching Experience *program.*

IN WITNESS WHEREOF WE HAVE HEREUNTO SET OUR HANDS
THIS DAY OF , 19 .

DEAN OF THE COLLEGE

DEPARTMENT CHAIRMAN

DIRECTOR OF COPE

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Visual aids such as a desk-top illustrator, 35-mm. slides, and overhead projector transparencies were designed by the Department for use in recruiting and for public relations presentations. The quality of the visual materials was such that many favorable comments were received from people who viewed the presentations.

Public Relations

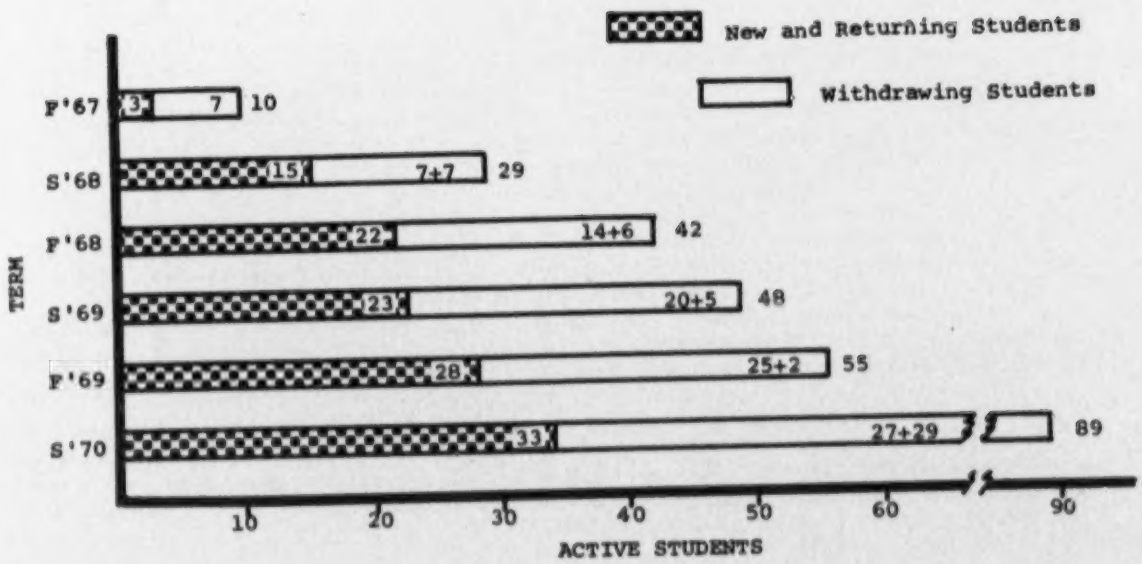
Dissemination of information at the start of any new project or program is essential for both recruitment and public relations. The public relations services of the University were called upon to assist with the dissemination of information. As a result of this combined effort, information concerning the COPE program appeared in many newspapers throughout the state and in various professional publications throughout the nation. Due to this widespread coverage, many requests for information were received from persons in New Jersey as well as from persons in other states and countries. The COPE brochure mentioned above was distributed widely both in and out of the state.

The COPE program, its operation, and progress reports were presented at numerous state and national professional and industrial meetings. The University received several visitors from educational institutions on the East Coast that are considering initiating similar types of cooperative training programs for vocational-technical teachers on post-secondary levels. In addition, many written requests for additional information about the COPE program have been received. These requests have come from universities, colleges, state education departments, and high schools.

Each year, cooperating employers are presented certificates of appreciation for the important role which they play in the program. These awards are usually presented at the annual COPE banquet. The awarding of recognition to the cooperating employers strengthens the bond between the industrial and educational communities, in addition to maintaining a positive public relations climate.

FIGURE 1

ENROLLMENT INCREASE PER TERM
OVER A 2½ YEAR PERIOD
(F'67 - S'70)



This graph reflects enrollments of groups starting each term. Transitional figures are affected by retention, incoming and withdrawing students. Students withdrew and dropped from program for various reasons. The most outstanding reasons for withdrawal are mentioned in the report text.

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THE STUDENTS

The COPE program was started with the first term of the 1967-1968 academic year. Ten students were accepted by University College and were screened into the program. At the beginning of the spring 1970 term, three of the original ten students were active in the program. A total of 28 active COPE students were enrolled for the spring 1970 term in January.

Figure 1 illustrates the progressive enrollment increase during each consecutive term over the past two and one-half years since the inception of the program. The data contained in Figure 1 applies to enrollment populations at the beginning of each consecutive term. At the time of the writing of this report, 33 students were actively enrolled in the program.

Definitions

For the purpose of clarification and future reference to terms of classification in this report, the following definitions are provided.

Active COPE Students: Students who are enrolled in University College and who are being supervised on-the-job by the COPE coordinator.

Inactive COPE Students: Students who were active for a period but were drafted into military service prior to completion of their program.

Incoming Students: Figures on students within this classification have been divided into the following two categories:

1. Students expecting to initiate course work in University College during the summer or fall term of 1970. These students have met the entrance requirements for both University College and the COPE program.

2. Students accepted in University College who, due to poor performance on the English pre-test, have been advised to complete remedial or preparatory work in English through the Extension Division or a local community college. These students will, upon successful completion of their remedial work, enroll in regular University College courses, and will be classified as active COPE students.

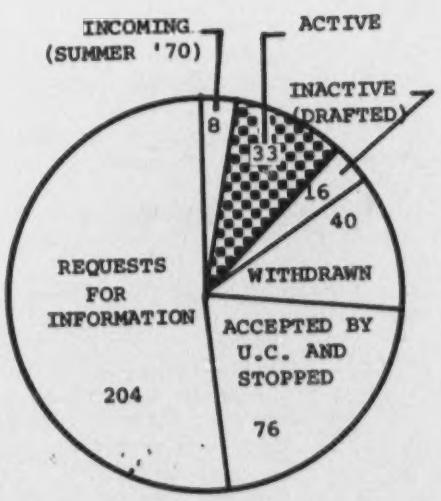
TABLE I

ACTIVE COPE STUDENTS

SPECIALIZATIONS		
Automotive	9.1%	N=3
Carpentry	9.1%	N=3
Computer Programming	3.0%	N=1
Cosmetology	3.0%	N=1
Drafting	18.2%	N=6
Electronics	9.1%	N=3
Electrical	3.0%	N=1
Food Service	3.0%	N=1
Furniture and Cabinet Making	3.0%	N=1
Machine Shop	30.3%	N=10
Printing	3.0%	N=1
Sheet Metal	3.0%	N=1
Tool and Die	3.0%	N=1
HIGH SCHOOL CURRICULUM PURSUED		
Vocational Technical	36.4%	N=12
College Preparatory	18.2%	N=6
General	18.2%	N=6
Comprehensive (college prep and vo. ed. combined)	27.3%	N=9
AGE		
Mean	21.6%	
Range	18-32	
MARITAL STATUS		
Married	24.0%	N=8
Single	76.0%	N=25

FIGURE 2

TOTAL NUMBER OF INDIVIDUALS INVOLVED IN COPE AND PRESENT ACCOUNTABILITY OF THE PROGRAM POPULATION OVER 2½ YEARS



Present Student Population

Data in Table 1 will give the reader an overview of the background of presently active COPE students in terms of age, marital status, type of high school attended, and previous high school work. The variety of vocational specializations pursued by the students is also presented in Table 1.

It is interesting to note that among the presently enrolled students are one female (in cosmetology) and a deaf student (in printing) and also the variety in types of high school curriculum followed. In other words, it appears that any high school graduate can pursue a career as a vocational teacher regardless of which curriculum was followed in high school. This variety of background indicates the workability and appropriateness of the concept of cooperative education for the preparation of vocational teachers.

The total number of persons involved in the program is more than 11 times the present active enrollment. Any person who applied for information about COPE was handled on a personal basis, and the effort expended was directly proportional to the degree of follow-through by the applicant.

Since the beginning of the COPE program in September 1967, this office has received 377 individual requests for information (see Figure 2 for accountability). These initial contacts have resulted in the active enrollment of 89 students. These students have been categorized into the classifications indicated above. The remaining number have been contacted and provided with the appropriate forms and procedures, but have not taken the necessary steps for admission into the program. In relation to this chart, the following explanations of the divisions are provided.

Incoming, Active, and Inactive: These categories were defined previously in this report.

Withdrew: This classification pertains to students who withdrew from active participation in the program for the following various reasons:

Academic failure (1)
Changed major area (4)
Conflict with apprenticeship (3)
Conflict with job (4)
Considered courses irrelevant (3)
Considered courses too difficult (3)

RUTGERS UNIVERSITY - THE STATE UNIVERSITY OF NEW JERSEY

UNIVERSITY COLLEGE

DEPARTMENT OF VOCATIONAL-TECHNICAL EDUCATION

MEMORANDUM OF AGREEMENT

COOPERATIVE OCCUPATIONAL PRE-TEACHING EXPERIENCE

COPE

This establishes an agreement between Rutgers University - The State University of New Jersey and ..... regarding the employment of
(Name of employing establishment)

..... in the vocational specialty of .....
(Name of COPE student)

University Commitment

University College of Rutgers University will provide a curriculum for preparing students as future teachers. The courses will be scheduled during the evening so as not to interfere with the work requirements of the student.

Through the COPE program, the University will supervise the work experience by means of visitations to the industry. These visitations will be scheduled from four to six times per year. They are intended to facilitate communication among the student, the University, and the industrial supervisor.

College credit is not awarded for industrial experience *per se*, but college credit is awarded for successful completion of the competency examination. This exam is administered when the student has completed the minimum required time in his supervised industrial employment.

Upon successful completion of University College requirements, the student shall be granted a Bachelor of Science degree and will qualify for appropriate certification as a teacher of vocational education.

Industry Commitment

The COPE student shall be treated as a regular employee. His responsibilities and wages shall be increased commensurate with ability and other contingencies prescribed by company policy.

The student shall be given the opportunity to progress through the various phases of work to obtain as much exposure and experience in his field of vocational specialty as possible.

The employing concern shall grant the COPE coordinator the opportunity to visit the COPE student and his industrial supervisor on the job. These visitations will be scheduled four to six times per year to comply with the philosophy of the program.

The industrial supervisor shall be requested to complete an evaluation form to report the work habits and attitudes of the COPE student. This evaluation form will be presented to the COPE coordinator semi-annually.

Student Commitment

The student shall accept employment as a regular employee, expect no special treatment, and abide by all company policies.

While on the job, the student shall seek, through appropriate channels, opportunities for experience and exposure to all facets of his vocational specialty.

The student is expected to conform to all appropriate University College requirements while enrolled as a matriculant in the COPE program.

The student shall keep the Director of COPE informed of any changes which might alter his status in the COPE program.

(Signed) ..... Date ..... (Signed) ..... Date .....
(Director of COPE) (For the employer)

(Signed) ..... Date .....
(COPE student)

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Personal reasons (6)
Program imposed hardship (2)
To enter service (6)
Wanted full-time school to avoid draft (5)

Accepted by University College and Stopped: Students categorized in this area are those who received information relative to application and pursued the initial stages of applying to University College. They were accepted by University College; however, at that point, they did not elect to arrange for an interview with one of the COPE administrators for screening into the program.

Those classified in the category of requests for information initiated such a request; however, they did not follow through with the next step, which was application to University.

A follow-up study was recently conducted on these last two groups in order to determine the reasons for their apparent loss of interest in the program.

The results of this study provided insights for modifying program procedures. Many of these individuals indicated a desire to continue their previous goal of becoming a vocational teacher. Of these, several were identified as having the necessary prerequisites (six years of occupational experience) for screening into the ongoing pre-service program. Of 90 such individuals, 15 were identified as having a minimum of 6 to a maximum of 30 years of occupational experience in a vocational specialty. These persons were presented with information regarding the opportunities in the pre-service program.

The reasons given by the respondents for non-pursuit provided information for modifying recruitment procedures and expedition of responses to information requests. Much of the lack of follow-through on the part of the students was attributed to misunderstanding regarding work experience and necessary requirements for entry into the program. Hopefully, this misunderstanding will be eliminated during future recruitment proceedings.

A continuing effort is being planned for contacting individuals who fall into this category for the purpose of reducing the amount of misunderstandings regarding the COPE program.

TABLE II

PROGRESS TOWARD OBJECTIVES

Student Number	Supervised Work Experience		Credits Completed		GPA	Total Carried at Rutgers
	Months	Hours	Transfer	Total		
704518	24	3984		18	2.0	18
705762	9	1500		6	4.0	6
704502	23	3810		15	4.7	18
734828	16	2656*		12	3.25	18
734268	19	3154		6	2.5	6
705354	9.5	1577		0	5.0	6
704163	9.6	1593		18	2.67	30
705648	4.8	797		0	5.0	6
705690	4.0	664		3	4.0	6
704629	3	500*		25	2.88	25
733547	33	5470**		27	3.0	30
762124	13	2158		18	3.5	18
704546	17.7	2938		4	4.23	13
762239	19.9	3303		15	3.0	21
762276	25	4150		15	3.4	18
733956	26	4316*	6	51	2.27	45
703531	36	5976**		24	3.63	33
705742	3	500		0	0	***
704638	12	2000*		17	2.97	20
705749	13	2158		3	4.0	6
705829	10	1660		3	4.5	6
704511	7	1162*		9	3.25	12
704102	18	2988*		6	4.0	15
705916	1	166	35	38	3.0	3
736607	9	1500		0	0	***
704409	3.3	540		0	0	***
737037	9	1500		0	0	***
736520	6	1000*	46	46	0	***
736465	9	1500*		3	4.5	6
704186	23	3818*	47	66	2.26	22
706552	9.1	1511		0	0	***
735359	6	1000		6	3.5	6
735817	18	2988*		6	2.5	6
N=33 $\bar{x}$ =	136.1	2258.7		17.7	3.46	15.5

*Has additional unsupervised work experience.
**Completed minimum requirements of 5,000 hours work experience.
***No credits officially taken. Incoming student S'70.

The discrepancy between credits carried and credits completed results from courses taken for non-credit, failures and withdrawal.

THE PROGRAM

Objectives

The objectives of the COPE program are designed to assist in meeting the future staffing needs of vocational education in New Jersey. The additional vocational teachers (in selected areas) needed by 1980[1] are as follow:

Occupational Preparation, grades 9-12	1,365
County Vocational-Technical schools, grades 10-12	1,682
Post-Secondary schools, grades 13-14	1,021
Adult Multi-Skilled	3,027
Adult Extension	5,800
	12,895*

*This figure represents the anticipated shortages only in the areas for which COPE students are being prepared.

The program culminates, at the end of approximately six years, in trade competency, certification, and receipt of a Bachelor of Science degree.

Progress Toward Objectives

To date, presently active students have earned 402 credits at Rutgers or 16.1 credits each for a grade point average of 3.50. In addition to these credits, 134 credits have been transferred from other institutions.

Table II shows the progress of each active student toward reaching the goals of the program. Figure 3 on the following page graphically illustrates the number of students actively enrolled for each of the terms indicated. Figure 4 shows total credits completed by that number, and Figure 5 indicates the over-all grade point average for each continuing term.

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[1]Teacher Needs and Preparation - Now Through 1980. Report of the Sub-Committee, State of New Jersey Master Plan for Vocational Education.

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ENROLLMENT STATISTICS
AT THE COMPLETION
OF THE INDICATED SEMESTERS

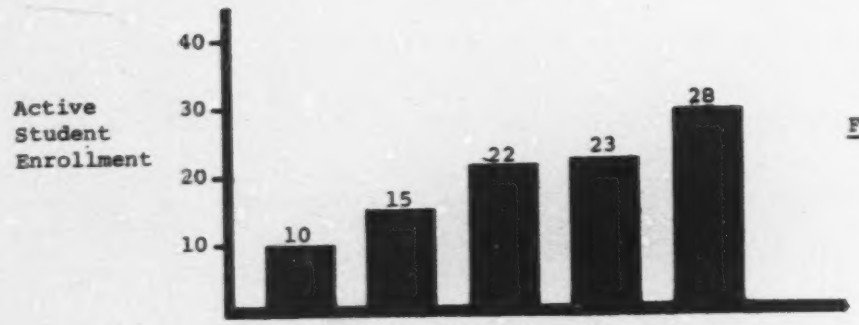

FIGURE 3

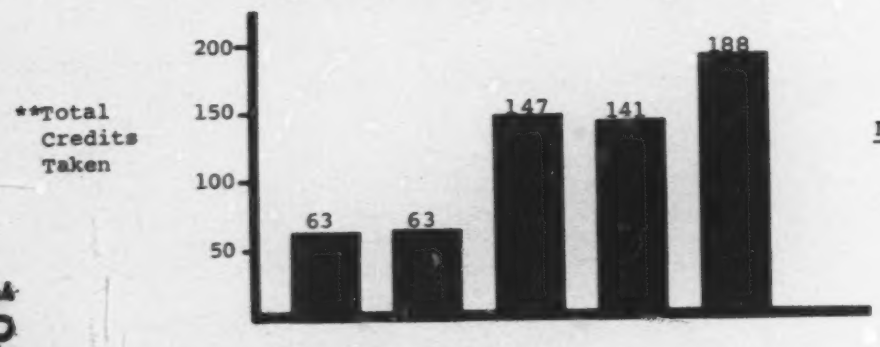

FIGURE 4

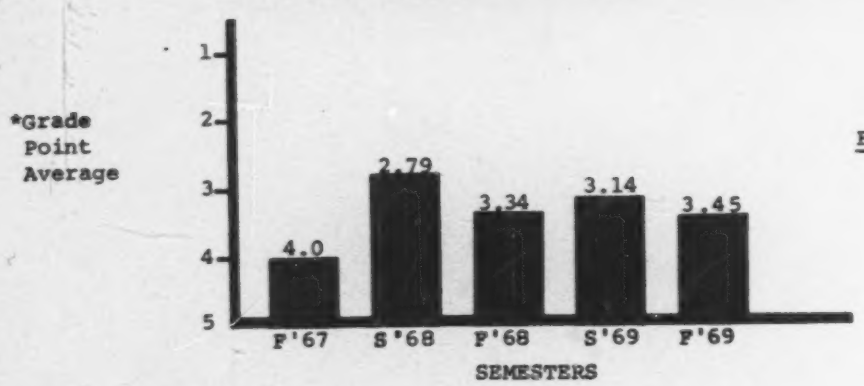

FIGURE 5

*GPA reflects grades of courses taken for credit only.
**Total credits taken includes courses for non-credit (conditional entrance requirement fulfillment) and courses withdrawn from by students.

Cooperative Phase

The major thrust of this phase of the program is designed to provide the individual with a fully developed, comprehensive "skill package." The development of this skill package begins with participation in supervised work experience in the area of specialization he has chosen to follow. Approximately two and one-half years later, the individual is provided the opportunity to satisfactorily display his skill prowess on a competency examination administered by the Department of Vocational Education of University College.

Once the student feels he is ready to have his skill competency tested and has met the prerequisites to the examination - 5,000 hours of supervised work experience - he may register for the occupational competency examination. Credit is not given for the 5,000 hours of supervised work experience per se. The supervised work experience allows the student to register for the occupational competency examination in his specialization. Twelve credits are granted for successful completion of the competency examination.

Several students have entered the program with prior experience in their field. With the additional supervised work experience gained through COPE, these students have been able to qualify for screening into the pre-service program. Being in this program places them in a position to be hired as teachers on emergency certification. To date, three COPE students have applied and were accepted into the pre-service program.

Throughout the cooperative phase of the program, the individual is supervised by the COPE coordinator who assesses, along with the student, the appropriateness of the work situation. This appraisal is achieved, in most cases, through a bi-monthly conference with the COPE student, his industrial supervisor, and the COPE coordinator. In addition to these conferences, the industrial supervisor is required to submit to the Director of COPE, an Employer Evaluation Form which provides an official record of the student's progress on-the-job.

Upon initial employment, a memorandum of agreement (shown on a previous page) is jointly signed by the student, employer, and the chief administrator of the COPE program. The memorandum specifically identifies each party's commitment to the cooperative aspects of the program.

Scholarship

In addition to providing the necessary funds for operating the COPE program, the Ford Foundation grant also made available $8000 for scholarship aid. This aid, in the form of forth $200 scholarships, has been awarded to 37 students. The scholarship aid was used to encourage minority-group individuals to enter the field of vocational-technical education as teachers.

The specific objective in providing this aid was to help the student defray the costs of tuition and books for the first two terms. This has proved to be an important aspect of the program since it is usually during the first year of employment that the rate of pay for new employees is such that college costs could present a financial burden. However, experience has shown that by the time the COPE student has completed his first year in the program, his skill level on the job has reached a point where additional costs of attending college can be covered by his increase in earnings. The second year student's average was $146 more a month than the first year student's.

COPE Banquets

An annual banquet was held during the spring of each year of the program. Three of these functions have been conducted to date. The purpose of the banquet is to bring together all persons connected with the program, i.e., students, employers, advisory committee members, University representatives, and COPE administrators, in order to give recognition to achievements of the students and to express appreciation to all participants for their support of the program.

At the last banquet, an informal discussion was held among COPE students to consider the future status of the program and to provide assistance to those students who had particular problems.

The annual banquets have proved to be an excellent device for further strengthening the cooperative bond. In each instance, the banquet proved to be an overwhelming success in this respect.

FORD FOUNDATION BUDGET
July 1, 1967 to June 30, 1970

67-290
Grant Number

CATEGORY	July 1, 1967 to June 30, 1968	July 1, 1968 to June 30, 1969	July 1, 1969 to June 30, 1970	Totals
Personnel				
Director	$ 1,036	$ 1,036	$ 1,057	$ 3,129
Assistant Director	8,841	9,209	4,789	22,839
Secretary to Program	3,597	3,750	3,884	11,231
Registration Clerk (½ time)	1,677	1,751	1,824	5,252
Employment Benefits				
Social Security	519	529	508	1,556
Retirement	1,076	1,118	818	3,012
Health	216	216	216	648
	16,962	17,609	13,096	47,667
Recruitment and Promotion				
Awards to Students				
1st year 20 @$200	4,000			
2nd year 10 @$200		2,000		
3rd year 10 @$200			2,000	8,000
Promotion - printed materials and student travel to campus	1,500	1,000	1,000	3,500
Others				
Supplies	150	150	150	450
Postage - Telephone	250	250	250	750
Travel - Staff	2,000	2,000	1,990	5,990
Reporting	500	500	500	1,500
TOTALS	25,362	23,509	18,986	67,857

Rounded to $67,800

University will contribute the following amount toward the director's salary

1st Year	$ 12,441
2nd Year	12,959
3rd Year	13,477

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CONCLUSIONS AND RECOMMENDATIONS

There is little doubt in the minds of those associated with COPE - students, faculty, and administrators - as to the success enjoyed by this program. It is meeting its objectives in all areas and has demonstrated that there are alternatives to the traditional methods of educating vocational teachers who, when properly organized and administered, can provide an additional resource of highly trained educators. As successful as the program has been, certain recommendations have been formulated out of the experience gained since the beginning of the program. These recommendations can be summarized as follows:

1. Teaching experience should be provided to every COPE student at an appropriate time during his academic program. A course should be designed which would place each student in a vocational classroom for one term with a qualified teacher.
2. All incoming students should have the opportunity for acquiring the essentials or prerequisites for success in the academic classroom. These essentials might be considered as the technical skills for maximizing learning.
3. Upon successful completion of the competency examination, the COPE student should have the option of continuing his program as before or of going to classes full-time. This would require a major change in the structure of the present academic phase.
4. It would seem most appropriate for the Department faculty to reassess the degree requirements of the COPE program in light of the type of education and training being sought by COPE students.
5. There is a distinct need for many of the COPE students to take courses in what might be identified as "support" or "theory" areas. The availability of such courses, however, is not always guaranteed.
6. The program administrators have assumed and should continue a more active role in the advising of students. This advising should, of course, continue to involve the directors of the various University College divisions.
7. The present curriculum advisory committee should be revised and a separate smaller advisory group composed of representatives of the State Departments of Labor and Education, a COPE student, a cooperating employer, and a vocational teacher.
8. Awarding of certificates of appreciation and the annual banquet should be continued, within limits of available funding.
9. Public relations functions and dissemination of information in the form of progress reports should also be continued.
10. A workable size of the program, given the proposed staff (director, two part-time coordinators, and secretary), appears to be approximately 40 students.

ADDITIONAL REFERENCES

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Pautler, Albert J. and Buzzell, Charles H. "Blazing a New Trail in the Training of T&I Teachers." School Shop. January 1969, Volume XXVII, Number 5, pp. 46-47.

Additional Information

For additional information regarding the Cooperative Occupational Pre-teaching Experience program, write or phone:

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University College
Rutgers University
The State University of New Jersey
10 Seminary Place
New Brunswick, New Jersey 08903
201-247-7636

RUTGERS UNIVERSITY - THE STATE UNIVERSITY OF NEW JERSEY
NEW BRUNSWICK, NEW JERSEY

1041

VT 011 744
Lasap, Sotero L., Jr.
The Professor of Agriculture: His Response to Questionnaire.

Maryland Univ., College Park. Dept. of Agricultural and Extension Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 12p.

DESCRIPTORS - *RESEARCH METHODOLOGY; *QUESTIONNAIRES; *EDUCATIONAL RESEARCH; RESEARCH DESIGN; *DATA COLLECTION
IDENTIFIERS - *QUESTIONNAIRE RETURN PROBLEMS

ABSTRACT - To determine the relationship of selected variables to time of response to questionnaires, this study encompassed 600 randomly selected agricultural professors representing all of the states. The length of time for questionnaires being returned was recorded to determine factors affecting responses. Conclusions show that followup letters are important as well as questionnaire color and design, the use of self-addressed envelopes, and the respondents' interest in the study results. (GB)

VT 011 744

ED0 57254

THE PROFESSOR OF AGRICULTURE: HIS RESPONSE TO QUESTIONNAIRE*

By

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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*Appreciation is due to Dr. V. R. Cardozier for his encouragement and valuable suggestions.

VT011744

THE PROFESSOR OF AGRICULTURE: HIS RESPONSE TO QUESTIONNAIRE

Statement of the Problem

Despite criticisms against the use of the questionnaire in securing data for researches in education, it still continues to be widely used.* Controversy over the comparative advantages and disadvantages of the questionnaire has been a fertile ground for debate among educators to the extent that the questionnaire itself has become the subject of research.

The present study concerns the question: Is there a pattern of characteristics identifiable with respondents as to their time of response to a questionnaire? Who responds early to the questionnnaire? Conversely, who responds late? More specifically, this study sought to determine the relationship of selected variables to time of response to questionnaire by professors of agriculture in land-grant colleges and universities in the United States.

Related Literature

The problem in questionnaire studies is the possible bias that low returns might bring. As a result, a number of studies have dealt with the problem of how to increase questionnaire returns. The use of self-addressed, stamped envelope results in high returns as borne out by results of studies conducted by

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*The NEA annually puts out an abstract of "Questionnaire Studies, 19 ."

Ferris,[1] Longworth,[4] Gullahon;[3] and Roeher.[10] Using stamps of various colors also increased returns.[4] The same is true with the use of regular stamps as compared with meter postage.[3]

Other factors that affected increase in returns were: personalizing cover letter; newspaper clippings relative to the study being sent to the respondents together with the questionnaire, and use of phone calls as follow-up. In the early 1920's Toops[12] was able to obtain a 100 percent returns by use of six follow-up letters. Other means of follow-up found effective in increasing questionnaire returns were: postcard[6] and phone calls.[4] Ferris[1] on the other hand, noted that the use of postcard in his study was "completely ineffective" in increasing returns. Instead, he found use of "Deadline" to be effective in stimulating an "immediate heavy response."

Other methods tried were class of mailing and color of questionnaire. Gullahon[3] found that first class mailing and stamped envelopes elicited more response. However, he found no difference in response as affected by the color of the questionnaire. The use of long and short form questionnaire, personalized and nonpersonalized letter yielded no significant differences in returns in Mason's study.[5]

Franzen and Lazarsfeld[2] thought that one disadvantage of the mail questionnaire is that it is answered by people who, due to their educational background, more easily expressed themselves in writing and by people who are interested in the topic of research. In their view, this could introduce a serious bias in the research.

Other findings of relevance to this study were that those most likely to answer the questionnaire were: younger, had college and professional training, former ministers, native of the place, those who rated themselves healthier and well-adjusted,[7] increased education[10] and those who were best known to the sender of the questionnaire.[12] A much later study involving teachers in the United States reached about the same conclusions. Robinson and Scott[9] reported that:

1) Men teachers tend to answer more rapidly than women teachers.

2) Teachers in secondary schools tend to answer more rapidly than those in the elementary schools.

3) Teachers with master's or higher degree tend to answer more rapidly than those with bachelor's degree or less.

4) Teachers with high salaries tend to answer more rapidly than those with low salaries.

5) Teachers with less than 20 years teaching experience tend to answer more rapidly than those with more experience.

Methodology

This report deals with a methodological study out of a larger study on "The Professor in Agriculture: A Profile."* Subjects consisted of college of agriculture professors with ranks of full professor, associate professor, and assistant professor in land-grant colleges and universities listed in the 1967-68

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*Major study being conducted by Dr. V. R. Cardozier, University of Maryland.

Professional Workers in State Agricultural Experiment Stations and Other Cooperating Institutions.

A random sampling was made for each state. There were 5,052 professors in the population and out of these 600 were drawn as a sample.*

Several steps were taken to increase returns. First the paper was carefully selected. A buff color was chosen after consultation with several individuals. Second, the questionnaire was typed so that it could be reduced and placed on one sheet of 11 x 17 inches in size which, when folded, resulted in an 8 1/2 x 11 inches form (Appendix A). It was feared that the necessary reduction to size of type would be a disadvantage, but this appears not to have been the case.

The title of the questionnaire was much larger, in boldface printing. Items were arranged with the more difficult and more controversial items last, or at least, not on the first page.

The questionnaires were sent on March 7, 1969. The first week after the questionnaires were sent was designated as "Week 0"; the second week was "Week 1," and so on up to the 10th week which was designated as "Week 9." Respondents were divided according to their time of response as Early (Week 0-1); Delayed (Week 2-3); Result of Follow-up (Week 4-7); and Late (Week 8-9).

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*Appropriate random sample size for population size 6,000 with 95 percent confidence level, granting proportion of .05, for permissible error of .05, is only 361. See Appendix to Sampling and Statistics Handbook, Preliminary Edition, Research Division of NEA, Washington, D.C., 1965, p. 132.

Those in "Week 4-7" were labeled such because it was during these weeks that the first and second follow-up letters were sent. The first follow-up was sent on April 2nd, while the second follow-up was sent on April 29th. With the two follow-up letters, returns reached 85 percent. The two follow-up letters accounted approximately 28 percent of the total returns. This clearly demonstrates the importance of follow-up letters in questionnaire research. If more follow-up letters had been sent, it would have been possible to obtain a higher return, even close to a hundred percent. A total of 512 (85 percent) returned questionnaires and out of these 477 or 80 percent were useable. A number of unuseable questionnaires were returned unfilled because the intended professor was no longer in the institution, was on sabbatical leave, or deceased. The breakdown of respondents according to time of response was Early, 64 percent; Delayed, 11 percent, Result of follow-up, 20 percent; and Late, 5 percent.

Data were analyzed using the chi-square test. Acceptable level of significance was set at .05. Where frequencies were less than 5, these frequencies were combined with adjacent cells resulting to a "collapsed" contingency table.

Hypotheses

The following null hypotheses were used as bases for analyses of data:

1) There is no significant difference between personalized and non-personalized cover letters in the proportion of returns.

2) There is no significant difference among professors in their time of response to the questionnaire as affected by:

personalization of cover letter; region; age; academic rank; degree of satisfaction in present institution; estimate of pay; self-rating in teaching; background where reared; number of years stayed in the same institution; number of publications; participation in determining policy; and interest in study results.

Results and Discussion

A. The Experimental Variable

Each questionnaire was accompanied by a cover letter and self-addressed envelope. Both outgoing and return envelopes were, in all cases, (initial mailing and follow-up letters) stamped with regular postage stamps.

The cover letter was typed and photographed without heading and salutation, except the word "Dear." Of the 600 sample, 100 were randomly selected to receive personalized cover letters. These 100 sample letters had their names, addresses, and salutation typed on the cover letter such that the entire letter appeared to have been personally typed. The control group consisted of the remaining 500 whose cover letters simply had written in ink following the salutation "Dear," "Dr. Jones," i.e., the recipient's title and name.

Further, in the 100 experimental sample, cover letters were personally signed while in the remaining 500, a rubber stamp facsimile was used instead.

The 100 sample was called Sample A and the 500 sample was called Sample B. It was hypothesized that more of those sent personalized cover letters would return questionnaires. It turned out, however, that there was no difference in proportion of returned questionnaires between the two samples (85 percent versus 85 percent).

B. Selected Variables and Time of Response

Twelve factors were analyzed in terms of their effect on time of response: Personalization of cover letter; Region where respondents came from; Age; Academic rank; Degree of satisfaction in present institution; Estimate of pay; Self-rating of teaching; Background where reared; Number of years stayed in present institution; Number of publications; Participation in determining policy; and Interest in study results (Table 1).

Present evidence does not support some of the findings in researches previously cited. No significant difference was observed between those sent personalized cover letters and nonpersonalized letters in their time of response to the questionnaire.

Questionnaires from regions near the place of study (University of Maryland) such as the South and East were expected to be received earlier than those from the Midwest and West. This, however, was not found to be so. Professors from far regions were as likely to return questionnaires rapidly or slowly as those from regions nearby.

It was thought that younger professors would tend to return questionnaires earlier. However, analysis of data revealed no significant difference in time of response as affected by age. Older professors were as equally quick (or slow) in returning the questionnaires.

No difference was observed among professors in their time of response as affected by estimate of their pay. It must be noted, however, that it was only the professor's estimate and not his actual salary that was used as the variable.

His estimate of his pay may approximate closely or vary widely from his actual pay. Even if this was so, the finding did not support the contention that those with high pay would tend to return the questionnaire rapidly.

Two hundred forty eight professors were reared on the farm or rural setting while 227 were reared in the town or city. Two professors did not indicate their home background. Evidence suggests no significant difference between respondents with farm or rural background and those with town or city background. Clearly, this finding does not support the contention that respondents with farm or rural background have the tendency to return questionnaires rapidly.

Those who stayed in the same institution for a longer period of time were thought to return the questionnaires earlier. But when data was analyzed, no significant difference was observed. Length of stay or tenure in an institution was therefore, not a factor affecting time of response to the questionnaire.

Other factors not found significantly related to time of response were self-rating of teaching, number of publications and extent of participation in determining policy in the department, college and university levels.

Of the twelve variables selected, only interest in study results and satisfaction in professorial role were found to have significantly affected time of response to questionnaire.

In the cover letter, respondents were asked to indicate whether or not they would like to receive a copy of study results. A little less than one third indicated interest. When compared with those who were not interested, analysis revealed significant differences large enough to reject the null hypothesis. Those

who indicated interest in study results tended to return the questionnaires earlier.

A 50 point scale was used to indicate the degree of satisfaction in present professorial role. There was a tendency for satisfied professors to return questionnaires earlier than those who were less satisfied. When data was further subjected to analyses of variance, the satisfaction index mean of those who tend to return the questionnaires earlier was 37.28 while for those who were late was 34.16. The F (1,475) ratio (7.4587) was found significant even up to the .01 level.

Conclusions

It was clear that even with just two follow-up letters, questionnaire return was high (85 percent). Personalizing cover letters was not found to be associated with increase in returns. It could be assumed that increased returns may have been the joint effect of use of follow-up letters, questionnaire color selection and questionnaire design, use of self-addressed stamped envelope and the respondents' interest in study results.

Ten out of twelve selected factors were not significantly associated with time of response to questionnaire. Interest in study results and satisfaction in present professorial role were the only two factors that made the difference in time of response. Those who were interested in study results tended to return the questionnaire earlier. Likewise, professors who were more satisfied in their present professorial role tended to return the questionnaire earlier than those who were less satisfied.

Table 1. Selected Factors and Time of Response to the Questionnaire

Factor	d.f.[1]	X^2 value
Personalization of cover letter	3	3.173
Region	6	1.341
Age	6	1.935
Academic Rank	6	5.730
Satisfaction in present institution	1	4.530*
Estimate of pay	4	4.822
Rating of teaching	4	0.288
Background where reared	3	3.120
Number of years in present institution	4	5.802
Number of publications	8	9.131
Extent of participation in determining policy in department, college and university levels	12	5.044
Interest in study results	3	37.440*

*Significant at .05 level

[1]Where applicable, the chi-square values are based on "collapsed" tables where adjacent cell frequencies of less than 5 were combined. Degrees of freedom conform to the collapsed table.

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VT 011 856
Miller, W.R.; Blankenbaker, E.K.
Annotated Bibliography of Publications and Reports of Research Dealing with the Interpretation of the "World of Work" to Elementary Children.

Missouri Univ., Columbia. Dept. of Practical Arts and Vocational-Technical Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 14p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *OCCUPATIONAL INFORMATION; *ELEMENTARY GRADES; *ORIENTATION MATERIALS; *ANNOTATED BIBLIOGRAPHIES; DEMONSTRATION PROJECTS; PILOT PROJECTS; RESEARCH PROJECTS; PERIODICALS

ABSTRACT - This annotated bibliography contains 50 journal articles, research reports, and related materials dealing with interpreting the world of work concept to elementary children. Entries are grouped according to: (1) Rationale, (2) Experimental Research, (3) Pilot and Demonstration Projects, and (4) Others. Arranged alphabetically by author, each entry includes, in addition to an annotation, the title, source of availability either through a journal, institution, Educational Resources Information Center (ERIC), or other source, ERIC accession number, date, and in some cases the pagination and cost. (SB)

VT 011 856

ED0 57254

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ANNOTATED BIBLIOGRAPHY OF PUBLICATIONS AND REPORTS OF RESEARCH DEALING WITH THE INTERPRETATION OF THE "WORLD OF WORK" TO ELEMENTARY CHILDREN

Prepared by

W. R. Miller, Chairman
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DEPARTMENT OF PRACTICAL ARTS AND VOCATIONAL-TECHNICAL EDUCATION

UNIVERSITY OF MISSOURI - COLUMBIA

1970

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I. Rationale

Altman, James W., "What kinds of Occupational Information Do Students Need?" ERIC ED 018 580, 1966.

A proposed comprehensive structure for needed occupational information is suggested as a continuum:
(1) Journeyman-knowledge about task and context
(2) Neophyte-needs practice on selected tasks
(3) General Vocational
(4) Career planning
(5) Vocational Awareness

Asbell, Bernard, "Education and the Real World of Jobs," National Committee for Support of the Public Schools, Washington, D.C., ERIC ED 029 990, 1968.

Five major topics discussed:
1. What's right and what's wrong with Vocational Education
2. Technology for elementary school children
3. Setting performance objectives for learning
4. A practical program for real learning
5. Vocational guidance: an unfulfilled challenge

Bailey, John A., "The Relevance of Occupational Information to Career Choice Theory and Decision Making," Speech given at American Personnel and Guidance Association, ERIC ED 029 345, March, 1969.

Presents an overview of career-choice theories, indicates decision making strategies that could be enlisted within each theory cluster and relates information dispensing processes appropriate to decision making.

Campbell, Robert E., Tiedeman, D.V., and A.M. Martin, "Systems Under Development for Vocational Guidance: A Report of a Research Exchange Conference," Center for Vocational and Technical Education, The Ohio State University, Columbus, Ohio, August, 1966.

A summary of the conference which includes emphasis upon meaningful analysis of the world of work and reports of several research projects is given.

Gysbers, Norman C., "Elements of a Model for Promoting Career Development in Elementary and Junior High School."

"The research and commentary on career development make it quite clear that activities designed to enhance one's development in this sphere should begin at the elementary level." "Writers and researchers also agree that these activities must go well beyond only developing job skills and simply providing occupational information, as valuable as these activities are."

Johnson, Benton (Editor), "The Conference on Unexplored Aspects of the Development of Occupational Goals of Youth," ERIC ED 036 605, 1965.

Six basic topics were covered in small group conferences:
(1) ... structure of the decision making process
(2) to what extent is occupational choice a rational, ordered, systematic process
(3) what contributions to occupational outcome does the social structure make
(4) to what extent are extrapersonal situations effective limitors or determinants of occupational outcome
(5) what is the developmental process leading to the first occupational commitment
(6) what is the continuing development of occupation or career after the initial commitment

Katz, Martha, "A Model of Guidance for Career Decision-Making," Vocational Guidance Quarterly, Vol. 15-1, pages 2-10, September, 1966.

A rough draft of a model which takes into account the individual's values, the options available to him at a particular choice point, and known predictive data to yield a probability of success and "expected value" for each of the options is presented.

Key, James Perry, "A Theoretical Framework for an Occupational Orientation Program," Available from University Microfilms ERIC Ed 037 547, 1969.

Occupational choice theory was synthesized by considering trait-factor, sociological, developmental, and personality occupational choice theories; the self-expression, childhood experience, psychoanalytic, need reduction, decision making, and social occupational determinants; and the developmental life stages of occupational choice.

McDaniels, Carl, "Youth: Too Young to Choose?", Vocational Guidance Quarterly, Vol. 16-4, pages 242-49, June, 1968.

This article refutes the belief that 14-18 year olds are too young to make realistic occupational choices. His position is that this belief grew out of the research of Ginzberg and Super, both of whom were reporting what happened when the student was left to natural development.

Osipow, Samuel H., "Theories of Career Development," Publisher: Appleton-Century-Crofts, 440 Park Ave. South, New York, $5.75, 1968.

Seven theories of career development are examined:
(1) Roe's personality theory
(2) Holland's career typology theory
(3) Ginzberg
(4) Psychoanalytic conceptions
(5) Super
(6) Other personality theories
(7) Social Systems theory
Osipow contrasts these with regard to Formal Adequacy and Understanding of Career Development.

"Vocational Technical and Practical Arts Education," Review of Educational Research, American Educational Research Association, Washington, D.C., Vol. 32-4, October, 1962.

A section is devoted to career planning, job placement, and follow-up including a general theory of vocational development.

Warner, Tom, "Needed Concepts in Elementary Guidance," ERIC ED 029 335, Report given at Annual All Ohio Elementary School Guidance Conference, November, 1968.

Developmental guidance is concerned with personalizing the educational experience, it should be available to each child to gain self-understanding.

Whitfield, Edwin A., "Vocational Guidance in the Elementary School: Integration or Fragmentation?", The School Counselor, American School Counselor Association, Vol. 16-2, pages 90-93, November, 1968.

"The vocational development goals of guidance in the elementary school must, if they are to be worthwhile, present pupils with a broad base for these developmental tasks. Effective elementary school guidance must provide a general foundation for respect for all human endeavor, and an understanding of the relationship of all learning, the interdependence of all work, and the relationship of abilities, interests, and other personal characteristics to the requirements needed in a variety of human activities of which work is one; in general, an understanding of the world of work."

II. Experimental Research

Bailey, John A., "Career Development Concepts-Significance and Utility," ERIC ED 017 942, October, 1967.

Trustees of four appropriate professional associations determined the relative value of significant career-development concepts. Suggestions for using these concepts in research and as an external criterion are provided and ideas for incorporating the concepts as topics for group guidance classes are given.

Jackson, James S. Jr., et. al., "Evaluation of the Career Development Laboratory, Sayre Junior High School," ERIC ED 035 942, October, 1969.

Findings: (1) No increase in knowledge of careers in which students were interested, (2) A significant increase in knowledge about certain aspects of the six major career areas, (3) No significant attitude change.

Johnson, "Simulated Occupational Problems in Encouraging Career Exploration," American Personnel and Guidance Association, ERIC ED 021 284, page 11, H.C. .52, MF . 25.

Simulated problems of an occupation produced more occupational interest than occupational information booklet and students enjoy working with these materials.

Stutz, Rowan C., "Educating Rural Youth For Success in the World of Work," ERIC ED 020 045.

Experimental program in 14 small high schools for the purpose of preparing rural youth more adequately for the world of work.

Wellington, John A., and Nan Olechowski, "Attitudes Toward the World Of Work in Elementary Schools," Vocational Guidance Quarterly, Vol. 14-3, pages 160-62, Spring, 1966.

Study was conducted to determine whether or not primary grade children could realistically gain awareness important to vocational attitude and value formation.

Yunker, John A., "Pre-High School Vocational Group Guidance for Potential Dropouts and Non-College Bound Students," Research at Tracy Elementary School District, California, ERIC ED 012 944, July 1967.

Purpose was to determine the effects of small group guidance sessions and individual tours on an experimental group of male 8th graders deemed lacking in academic interest and/or ability who were classified as potential dropouts and non-college-bound students.

III. Pilot and Developmental Projects

Abington School District, "Career Development Activities Grades 5, 6, 7," ERIC ED 022 219, Abington School District, Pennsylvania, 1968.

Curriculum materials for use in vocational guidance of students in grades 5, 6, and 7 are presented. These materials are based on several vocational development theories. The goal is the utilization of learning activities in the classroom to show students the processes through which career decisions can be made.
The procedure for developing activities is outlined -- then each of the activities is presented. Many techniques have been incorporated into this package.

Barbula, P.M. and Isaac, Stephen W., "Career Simulation For Adolescent Pupils Final Report," ERIC ED 016 268, November, 1967.

Purpose was to assess student acquisition of knowledge about vocations after participation in a career simulation game and to determine attitudinal change.

Bush, Donald O., "Between Education and the World of Work; the Image of the World of Work Occupational Education Program," Rocky Mountain Education Laboratory, Inc., Greeley, Colorado, ERIC ED 032 582.

The workshop designed to help teachers carry out the image of the world of work program is described.

Bush, Donald, et. al., "The World of Working and Learning," Rocky Mountain Education Laboratory, Inc., Greeley, Colorado, ERIC ED 034 881.

Position paper presents guidelines for an approach to career planning which integrates education experiences with the world of work and job requirements, based on models developed in 1968 for the purpose of planning the "Image of the World of Work" program.

Colorado State University, Fort Collins, "Occupational Education Program, Image of the World of Work: Description and Analysis of Orientation Activities," ERIC ED 029 993.

This document is the first of several which explain in detail the nature and success of the pilot study of the Image of the World of Work Activity. This activity is a part of the Occupational Education Program of the Rocky Mountain Education Laboratory. The activity is designed to influence and nuture positive work relevant attitudes of 7th grade pupils as well as increase pupils knowledge of occupational information and career alternatives.

Colorado State University, "Occupational Education Program Image of the World of Work: Volume I Description of Teacher Orientation Activities," Colorado State University, Fort Collins, August, 1969.

The modelsthat were used as a basis for the planning of teacher workshops are shown on the reverse side.

Department of Vocational Technical Education, Oklahoma State Department of Education, Oklahoma City, Oklahoma, "A Guide for Developmental Vocational Guidance: Grades K-12," ERIC ED 026 532.

The booklet is the product of a two week summer workshop. The booklet was developed on the concept that knowledge of the world of work is a developmental process which begins at a very early age. Objectives and activities are suggested for 4 groups of grades (K-3, 4-6, 7-9, 10-12).

Faust, Helen F., et. al., "Room to Grow: Career Guidance in the Elementary School," Philadelphia School District, Available from Division of Pupil Personnel and Counseling, School District of Philadelphia, Pennsylvania, ERIC ED 035 003, 1968.

Dealt with 9-12 year old children. Conditions given attention on the program were (1) family attitude and values, (2) socioeconomic conditions, (3) educational expectations, (4) development of self-concept. Fifteen projects for the teacher to use in carrying out her part of the program are given.

Forsberg, Ed, "Operational Gaming for Vocational Awareness: A Survey," Bartlesville Public School, Oklahoma, ERIC ED 030 894, MF 0.25, HC $1.25, 1969.

Operational gaming is a kind of decision simulation where the players make decisions within the framework of a simulated operating system. For the game to have value in developing vocational interests, the decision making exercise should be structured around a model of real life vocational decisions. The gaming experience works toward helping the player clarify his own value pertinent to the real world of work and to conceptualize kinds of decisions to be made.

Goff, William, et. al, "Project P.A.C.E. (Preparing, Aspiring, Career Orientation), ERIC ED 012 934, June, 1967.

Counselors were assigned to 2 elementary schools to develop, use, and test vocational and occupational materials. Methods of using occupational materials were tested.

Hoots, William R., "Occupational Education," Washington County School Board of Education, Plymouth, North Carolina.

This was an attempt to develop an educational program to orient youth to enter into the world of work. Includes curriculum for early childhood, lower-middle grades, upper middle grades, and high school.

Horyna, Larry L., "Working, Learning and Career Planning: A Cooperative Approach to Human Resource Planning," Rocky Mountain Education Laboratory, Inc., Greeley, Colorado, ERIC ED 034 874, August, 1969.

Cooperative Career Planning (CCP) stresses the role of the public school system in the coordination of available educational resources with potential job-training work stations in a given community.

Jefferies, Doris and Sally Spedding, "Career Guidance Manual for Teachers," Developmental Career Guidance Project, George E. Leonard, Director, Developmental Career Guidance Project, Wayne State University.

Introduction provides a rationale for career guidance in the elementary school. The needs of Inner City children for careers guidance and the developmental career guidance program in Detroit suggests that there may be a cause-effect relationship between level of aspiration and level of achievement.

Jones, G. Brian, "Using Project Talent to Improve Vocational Guidance," American Institute for Research, American Vocational Association, ERIC ED 034 242, December, 1968.

Twelve possible components of a comprehensive vocational guidance system are outlined. In order to be comprehensive the system must compliment the other activities of the educational program so that the total program attempts to meet all the needs of all the students.

Kaback, Goldie Ruth, "Occupational Information for Groups of Elementary School Children," Vocational Guidance Quarterly, Vol. 14-3, pages 163-16x, Spring, 1966.

Several interesting activities are suggested for the early elementary, 3rd and 4th grades and 5th and 6th grades. In addition, techniques useful in presentation are mentioned.

Krumboltz, John D., "Vocational Problem-Solving Experiences for Simulating Career Exploration and Interest: Final Report," ERIC ED 015 517, August, 1967.

Five sets of simulation materials were developed and tested for accounting, X-ray technician, medical technician, sales, and banking. Each "career-kit" presented problems representative of each occupation and the background information needed to guarantee that most students could solve them.

Leonard, George E., "The Developmental Career Guidance Project: An Interim Report," ERIC ED 035 031, December, 1968.

This article is a report of the Developmental Career Guidance Project which has the following objectives:

(1) aid a selected group of inner-city high school students to raise and broaden their educational and occupational goals.
(2) develop a pilot program designed to meet better the needs of inner-city youth.
(3) involve the staffs of the participating schools in the program.
(4) to systematically evaluate the program.

Michigan State Department of Education, "Elementary Guidance. A Descriptive Report of Michigan's NDEA Pilot Programs," ERIC ED 035 930, 1969.

Report describes 23 NDEA Title V-A pilot elementary guidance program trends noted: (1) positive attitude by parents, (2) greatest satisfaction by counselors in individual contact and small group work.

Oakland Unified School District, "Choice or Chance," Department of Counseling and Occupational Information, Oklahoma Unified School District, Oakland, California.

This publication is the result of a summer curriculum development workshop. It presents a career planning program for the junior high schools of Oakland, Calif.

Oak Ridge Associated University, "Training and Technology Project: Listing of Documents and Reports for Training and Technology - Phase I An Experimental Manpower Project," Oak Ridge Associated University, August, 1964.

Annotated bibliography of all major publications issued during Phase I of TAT. Copies of most publications can be made available.

Parnell, Dale, "Teacher's Guide to SUTOE (Self Understanding Through Occupational Exploration)," ERIC ED 034 227, June, 1964.

Ten units included in this were:
(1) Pupil involvement in SUTOE
(2) Self-appraisal and self-understanding
(3) Relating School to Occupational Planning
(4) The individual's role in the economic system
(5) Preparing students for indepth career study
(6) evaluating experiences and planning ahead
(7) Final course evaluation and recommendations

Platt, Allen H., "Room to Grow: Something Special for All Kids," Philadelphia School District, Pennsylvania, ERIC ED 033 403.

An elementary school guidance program which provides experiences that give more attention to the elementary school child's perception of himself and the image of the person he would like to become. Aspects taken into consideration are: (1) attitudes and values toward work, (2) socio-economic level, (3) educational expectation, (4) self-concept.

Price, William F., "Student Work Experience and Training Program, Final Report," Southern Illinois, Carbondale, ERIC ED 029 446.

Twenty high schools and college students aged 16-20 were trained as summer camp counselors in a project to provide experience leading to choosing a career with mentally retarded. Six indicated they would choose special education; five indicated they would not choose special education and nine indicated they would work as volunteers.

Tonkin, William J., "Vocational Guidance Through Videotaping and Television," ERIC ED 036 047, 1967.

Provided vocational guidance through student involvement in the videotaping of live occupational situations and later showing these in the classrooms. A major goal in the program was to identify the factors involved in student dropout situations.

Warren, Mary A., et. al., "Generalizations Related to Concepts Important for Youth Orientation to the World of Work," Oklahoma State Board of Vocational Education, Stillwater, ERIC ED 029 998, 1967.

"The concept and generalization framework was divided into three areas: (1) personal influences on youth orientation to employment; (2) environmental influences on youth orientation to employment; and (3) combined personal and environmental influences on youth orientation to employment.

Weals, Robert and Edward Johnson, "Doubled and Vulnerable: A Sociodrama on Vocational Decision Making," Vocational Guidance Quarterly, Vol. 17-3, pages 198-205, March, 1969.

A sociodrama which is intended to be presented at a PTA meeting with a discussion period to follow where parents react to the attitudes of various characters.

Wilson, Eugene H., "A Task Oriented Course in Decision-Making Information System For Vocational Decisions, Project Report #7," Harvard University, ERIC ED 014 119, April, 1967.

A course in decision making built around the Tiedeman-O'Hara Paradigm taught at the Junior High School.

Winefordner, David W., "Orienting Students to the World of Work Using the DATA-PEOPLE-THINGS CONCEPTUAL FRAMEWORK," The Ohio Vocational Interest Survey, ERIC ED 029 343.

"The basic elements of work (data, people, things) which provide the three dimensional structures for the Cubistic Model of Vocational Interests, can also be used as a framework for providing a program of career exploration in grades K-12.

IV. Others

D'Costa, Ayres G., "The Development of a Vocational Interest Survey Using the "Data, People, Things" Model of Work," American Personnel and Guidance Association, Washington, D.C., ERIC ED 033 385.

Describes the development of the Ohio Vocational Interest Survey.

Sloan, Nancy, "Orientation Approaches to Increase Student Awareness of Occupational Options," ERIC Clearing House for Counseling and Personnel Services, November, 1969.

Annotated bibliography of research and innovative programs of vocational orientation.

Tyson, Kenneth L., "Resource Guide to Selected Materials for the Vocational Guidance of Slow Learners," ERIC ED 030 291.

Bibliography of materials selected for use with slow learners:
(1) A-V
(2) Bibliographies
(3) Classroom materials
(4) Curricular materials
(5) Periodicals
(6) Professional materials
(7) Research and Demonstration projects

VT 011 902
A Concerned Texas. A Report of the Governor's Conference on Technical-Vocational Education. (Austin, Tex., Mar. 23-24, 1970).

Texas State Advisory Council for Technical-Vocational Education, Austin.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Jul70 104p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *MANPOWER NEEDS; *CONFERENCE REPORTS; *PROGRAM DEVELOPMENT; EDUCATIONAL NEEDS; *PROGRAM IMPROVEMENT; EDUCATIONAL OBJECTIVES

ABSTRACT - These proceedings contain an abundance of evidence of the concern for the further expansion of vocational and technical education and for the updating and improving of existing programs. Also, there is strong evidence of an increase in public awareness of technical-vocational education and its role in the life of citizens. Business firms, associations, educational institutions, state and federal agencies, and others joined forces at this conference to give a visual presentation through exhibits of the needs for trained manpower and the resources within the state to meet the needs. (JS)

VT 011 902

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PROCEEDINGS OF THE GOVERNOR'S CONFERENCE ON TECHNICAL-VOCATIONAL EDUCATION IN TEXAS

March 1970

Austin, Texas

1070

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"A CONCERNED TEXAS"

A Report

of the

Governor's Conference on

TECHNICAL-VOCATIONAL EDUCATION.

The Advisory Council

for

Technical-Vocational Education in Texas

March 23-24, 1970

Austin Municipal Auditorium and Convention Center

Austin, Texas

July 1970

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INTRODUCTION

Governor Preston Smith's enthusiastic commitment to expand and improve technical-vocational education in Texas was manifested in the attitude of all Conference participants. There was a broad representation of the social and economic life of the State assembled in the Capital City.

Formal registration for the Conference numbered 780 -- in addition, there were several groups and individuals that attended part of the Conference or visited the excellent exhibits without registering, pushing the total to 1,000. Analysis of the 780 registered participants show that 48% represented private classifications; 10.6% were state and local government participants; 37% were educators from both public and private sectors, representing every level of education within the State; 4.4% included participants from federal agencies, out of state and otherwise unclassified.

Business firms, associations, educational institutions, state and federal agencies, and others, joined forces to give a visual presentation through exhibits of the NEEDS for trained Manpower and the RESOURCES within the State to meet the needs.

A number of firms and organizations became Associate Sponsors of the Conference making possible the financial resources needed to support many of the expenses of the Conference.

The proceedings of the Conference contain an abundance of evidence of the Concerns on the part of citizens for the further expansion of technical-vocational education, and for the continuing need for updating and improving present programs. The Advisory Council has received through the Conference, the input of citizens as to the direction and priorities to be assigned technical-vocational education in the State. Lines of communication have been established between educators and those they seek to serve resulting in concerted efforts at the local level for new avenues of cooperation.

The Conference provided a forum for exchange of ideas on the subject. There is strong evidence of stimulation of the public awareness of technical-vocational education and its role in the life of citizens. Specific examples of Conference benefits were reported to the Council.

Every effort was made to express the principal points made by Conference participants in the hearing sessions. No doubt some were missed and others misrepresented in the manuscript. Even though the hearing sessions were assigned different topics from Council Concerns, many threads of commonality persisted through all five of the sessions.

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WELCOME AND INTRODUCTIONS

E. D. Redding*

Ladies and gentlemen, it is my privilege to call to order this Governor's Conference on Technical-Vocational Education. Before I introduce some of our honored guests, and our Advisory Council who planned this Conference, along with the help of many others, may I take this opportunity to thank the leader of our fine state The Honorable Preston Smith, Governor of Texas. We do so very much appreciate your leadership and support of technical-vocational education, Governor Smith. We at this time do pledge to you our diligence in fulfilling the responsibilities of the Council. We are today presenting to you a formal report of the Concerns of the Council. May we point out that we are not attempting at this time to make recommendations, but just to express concerns, and when we have the contributions of this fine group of Texas citizens present today, we then expect to move to definite recommendations.

This Council was created under Senate Bill 261, Acts of the 61st Legislature, 1969, Regular Session, sponsored by the Honorable Chet Brooks of Pasadena to whom we are so grateful. The co-author in the House of Representatives of such legislation, was the Honorable George Hinson of Mineola. We regret that illness prevented Representative Hinson from participating today. These men gave great leadership and guidance in technical-vocational education to come up with this bill and we will pledge our fulfillment of its responsibilities.

At this time, may I say that we do appreciate the help and guidance of the many agencies and organizations within the State, but three agencies are listed in Senate Bill 261, and we are glad to recognize and publicly thank Mr. Ben Howell, Chairman of the State Board of Education from El Paso, and whom you will hear speak to the Conference this afternoon; Mr. Manuel DeBusk, Chairman of the Coordinating Board of the Texas College and University System, from Dallas; and Mr. Ed Lyles, Chairman of the Texas Employment Commission in Austin.

*Mr. Redding, the Chairman of the Advisory Council for Technical-Vocational Education is Assistant to the President of Brown & Root, Inc., in Houston — a position he has held since 1959. He is a member of the Vocational Advisory Committee, Houston Independent School District, and has served on several statewide committees on education.

I wish it were possible to present each and every person here and have he or she say a few words, but we will just say here and now, we appreciate your support and the fact that you are so interested, which is evidenced by your presence here today.

Some fifteen Associate Sponsors are shown in the Program Booklet, and represent Business and Industry all over the State, and since this printing, we have added three more names to the list: Hughes Tools of Houston; Mechanical Contractors Association of Houston; and San Antonio Plumbing and Pipe Fitting Industry. We are indeed grateful to all of you and appreciate your fine support and interest.

I will now present to you the members of the Advisory Council and I want to thank the Council and the Staff, headed by Mr. Alton D. Ice, the Executive Director, for planning and following through on this Conference. I want to give a special thanks to Dr. J. W. Edgar, our Commissioner of Education, for his loyal support and contribution in the way of his fine personnel – John Guemple, for one, who is also on our Council. There are many more we would like to acknowledge and certainly should, but time will not permit. So we are just glad you are here – glad to see our fine out-of-state friends and associates, Dr. Calvin Dellefield of Washington, D. C., Executive Director of the National Advisory Council; Bill Nagel, Executive Director of the Advisory Council of the State of Illinois; Frank Troutman, Executive Director of the Advisory Council of the State of Arkansas; Leon P. Minear, of the U. S. Department of Education, Washington, D. C. , we say WELCOME TO THE CAPITAL CITY OF TEXAS AND WELCOME TO THIS GOVERNOR'S CONFERENCE. We hope this conference will be meaningful to all of you, and now we will turn the proceedings over to our fine speakers of today.

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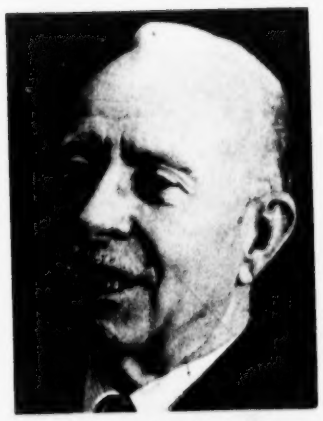
CHARGE TO THE CONFERENCE



Ben R. Howell*

When Ed Redding and Alton Ice asked me to give a charge to this meeting, immediately I thought of the electric scoreboard in the Astrodome which flashes a rapidly moving horseman while sounding a bugle call, after which the crowd joins in shouting "CHARGE." Actually that just about describes my function here today. The scoreboard call to "Charge" comes only when a rally has started and the home team is moving. Today, in the field of Vocational-Technical Education, the people of Texas have rallied and educational institutions are moving. Again to borrow words from the sportscasters, "We have momentum now."

Many people deserve credit for this momentum. We all recognize that Governor Smith has consistently called for action to provide more and better opportunities in Vocational-Technical Education. In the Senate, Senator Chet Brooks and his committee, after thorough study of needs and solutions, drafted Senate Bill 261 which was enacted in 1969. Representative George Hinson's House Education Committee made detailed studies and contributed greatly to S. B. 261 and other legislation aiding Vocational-Technical Education.

The State Advisory Council for Vocational-Technical Education, under the leadership of Chairman Ed Redding and Director Alton Ice, have accomplished much in gathering data, evaluating it, and making recommendations to the State Board. The Vocational staff of Texas Education Agency, headed by Associate Commissioner John Guemple, with constant support from Commissioner J. W. Edgar, has moved with speed and effectiveness to lead Texas schools in broadening and improving an early high quality state program. In numbers of students and program offerings this state is among the top.

The 1969 legislation did many things: It provided more state funds for Vocational-Technical Education; it assured the continuity of state support by bringing additional programs under the Foundation School Program; it gave more flexibility to local schools to propose, and Texas Education Agency to approve, new areas of training; it provided for more vocational supervisors and counselors; it gave statutory authority for the State Advisory Council – to name only a few provisions.

*Chairman of the State Board of Education – El Paso

At the risk of rehashing information you already know, let me add some details about the results of bringing more programs under the Foundation School funding. The Foundation School Program provides state aid to local school districts for 80% of basic costs of instruction – salaries, pupil transportation and materials. The numbers of children actually attending a school are converted by formulas into authorization for employment of teachers, administrators and supporting personnel. The costs of paying their salaries at the state minimum scale, plus allowances for materials, are allocated 80% to the state and 20% to local districts. This method of funding assures local districts of a continued level of state support. It removes support of schools from competition with other activities. Once the formulas have translated numbers of children into numbers of dollars required to pay instructional costs, that amount of money becomes preference charge on state revenues. State aid for approved Foundation programs is removed from partisan political controversy.

Prior to 1969, no provision existed for state aid to school districts offering Vocational Office Education. Local school districts had to look elsewhere for funding of this important program. By broadening the extent of Foundation funding, continued state support is assured and expansion of Vocational programs is encouraged.

Don't get the impression that prior to 1969, Texas school people were blind to the need for increasing opportunities in Vocational-Technical education, or were making no effort to provide it. I see many people here today who have given generously of their time and energy in efforts to put Texas in the front rank of states providing Vocational-Technical training. There simply have not been as many people participating, or as many dollars available, as were needed to do all that could be done. Our thanks are due industry for its support. Local advisory committees review and help build every high school vocational program and every college technical program. Men and women from both management and labor have helped improve the quality of training. In addition, industry has given the schools much of the equipment and materials used in training.

In some states there seems to be friction between the established educational system and the advocates of Vocational-Technical expansion. I have seen no friction between the Advisory Council and the state agency here. Federal legislation in 1968 required each state to create a State Advisory Council to advise the State Board. Two years before the 1968 legislation, we in Texas saw the need for help and appointed a State Advisory Committee for Vocational Education. That committee went to work and has done much to identify the needs of the state and

to recommend priorities. Some of the members of that informal committee are here today. My thanks go to them for a job well done. Particular credit must go to the Council Chairman, Ed Redding, who for more than 3 years brought clear vision, outstanding leadership and tireless devotion to the task and is making an outstanding contribution.

There are enough unsolved problems for all of us. May I suggest a few areas that need improvement? I hope both solutions and alternate methods will come from you. Can't we use our school buildings more effectively? All too many school buildings are closed for three months of the year and for seventeen hours of the day. There must be methods to use this huge capital investment more effectively. Where are we to find competent vocational counselors? How can they be trained to know the constantly changing industry patterns? How can existing programs be kept current? Whose responsibility is the retraining of people whose skills become obsolete?

While looking at these questions, we must not forget that parts of traditional academic training cannot be omitted. The ability to read and understand instructions and the capacity to communicate accurately are becoming ever more essential in today's complex technology. Basic mathematics and basic science are needed in every occupation. Hopefully, the addition of meaningful Vocational-Technical programs may stimulate student interest in these basics.

Finally, what can be done to make the public realize that Vocational-Technical Education is not inferior to academic education? In the minds of many parents of school-age children there is the mistaken belief that vocational courses are second-class, designed for the underachiever, the misfit, the dropout. These parents want their offspring to unwillingly pursue the academic route.

Governor Rhodes of Ohio, in his book *Alternative to a Decadent Society* belabors the educational world for this conception and uses the term "educational snobbery." I don't accept this criticism as applicable to our Texas educators. While there have been teachers and administrators in past years who looked down upon the vocational studies, I believe this viewpoint is as rare in Texas today as the whooping crane. But there are hosts of parents who retain the idea that vocational training is second rate, at least, as far as their own offspring are concerned. Just recently a militant self-appointed spokesman for a minority group was urging that group to resist any effort to channel their children into Vocational-Technical Education. That fallacy must be exploded. Perhaps the new term "Occupational Training" may help all to realize that training for honorable work in an occupation is one of education's goals.

After all, what does the Medical School offer but occupational training? Isn't every profession just a vocation? Whether the training be called "Vocational," "Technical" or "Professional" is immaterial. If this meeting can make crystal clear the fact that Vocational-Technical Education is designed for first class students and offers first class rewards to first class people it will be a success. I am sure you can do this and do more. The rally is here. We have the momentum. CHARGE!

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CHALLENGE TO THE CONFERENCE

H. S. "Hank" Brown*

I was told that the title of my remarks today would be "A Challenge To The Conference," an appropriate one I suppose. There is very little that I can say that would be more challenging than what we see and hear going on about us.

If we are to wait until the closing of this conference to realize there is a challenge, not only for those of us present but the entire nation, we are in a sad state.

We are failing miserably in getting to the core of our social and economic inequities. We are taking a band-aid approach when it will take major surgery.

As leaders concerned with vocational education, we must make a total commitment--a commitment that will find influential forces arrayed against us. Sad but true, there are such forces in powerful positions who want to offer only a pittance of what the job will take. There are those that mouth the good words, but from their actions their positions are evident.

Who can you find that does not say "I am for vocational-technical training." But, yet we struggle constantly to get leaders totally committed to an all-out war for a decent, comprehensive vocational-technical program.

As a member of the National Advisory Council on Vocational Education, we made two reports in 1969 to Robert Finch, Secretary, Department of Health, Education and Welfare.

The first report, made in July, was brief because of the short time the Council had been established. Someone once said, "What's true is not new and what's new is not true" and that about sums up the first report.

It's true but not new that the unrest in our cities has its roots in unemployment and unequal opportunity. Those without jobs in our affluent society are angry and frustrated.

It's true but not new that the unemployment and underemployment of our youth have their roots in inadequate education.

It's true but not new that there is an increase of three-quarters of a million young men and women each year filling the sea of school dropouts.

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It's true but not new that nearly 25% of the young men and women turning 18 each year have been educated to a level of unemployability.

Yes, it's true but not new. . . The three big reasons for our shortcomings in this area are. . . Attitude. . . Program. . . Money.

It's been said before and I dare to repeat it again. . . There is an attitude that vocational education is designed for somebody else's children. No particular segment of our population has the "market cornered" on this attitude. It runs the gamut of our society. There is something about vocational education that rings of overalls and second class citizenship to the adults and students as well. Attitude toward vocational-technical education is as infectious as the plague. Our Federal Government is sickened by it, spending $14 in the nation's universities for every $1 that is spent on the nation's vocational education. State Governments are equally as infected. Again, the colleges and universities are receiving far more than what is expended preparing young people for the world of work. The disease spreads to the school districts who are shackled to the idea of college preparatory and general programs, blindly ignoring the fact that 60% of our young people will never go further than high school. And in the end, the final victim struck by the malady is the student. He too has been caught up in the phony educational process.

The National Advisory Council simply recommended that the federal government exercise its leadership and allocate more of its funds to cure our country of our national sin of intellectual snobbery.

Programs must be amended and new ones established. We seemingly have the idea that exposure to the world of work must come only if the student has failed in the quest for a college education. Some exploratory work must be done in the elementary grades. Direct job-related instruction should be made available to the students, and continued through junior high, high school, and beyond, so long as the need exists for the student to fulfill his highest potential.

There has to be a comprehensive "work out" program with students acquiring work experience. Students should be able to go to school the year around. It is ridiculous for us to continue the absurd tradition of letting millions of dollars of school plants lie idle for three months.

The Advisory Council recommended "That substantial federal funds be allocated to support curriculum development, teacher training, and pilot programs in vocational education. No federal investment will bring a higher return. We challenge state and local governments to throw off the old habits and take a hard, fresh look at what they are doing in vocational education. We urge the public to watch carefully, and to demand and support the innovations that work."

And then we come to money. Until the federal government sees the

folly in spending $4 in remedial manpower programs for each $1 it invests in preventive vocational programs, the much needed reform is doomed to failure. We understand that under present programs, it costs more to prepare a student for a job than it does to prepare him for college. But, here again, is it a cost or is it really an investment? Those who wind up unemployed or underemployed will be a drag on the taxpayers for life. Quite frankly, school administrators use the added cost of vocational education as an excuse, rather than a valid reason. The Council recommended to the Secretary that the federal government substantially support the additional initial cost of educating youth for employment. We believe that the financial, personal and social costs of unemployment can be dramatically reduced.

In November of 1969, our National Council filed its second report with the secretary. In this report we concentrated on our four basic concerns:

Number 1 -- An equal concern for those who will soon join the ranks of the unemployed as for those already among the unemployed and underemployed. The federal government must give as much attention to reducing the flow into this great pool of unemployed as reducing the pool.

Number 2 -- The need for directing the disadvantaged into the mainstream of vocational and technical education as career preparation, rather than into separate programs. By the very kind of separatist programs developed, we are saying to youngsters: "You are a different kind of citizen. You will never make the mainstream." Students must have access to vocational-technical programs, not stop-gap measures but honest preparation for careers.

Number 3 -- A concern that federal funds be used primarily to cover the additional costs of vocational-technical education. The efficient way to use federal dollars to encourage vocational-technical education as career preparation is for the federal government to pay all or a substantial part of the extra costs.

Number 4 -- Last is the concern for the lack of coordination of both the vocational education and manpower programs. If a halt to the present inefficient, uncoordinated methods being used in manpower and vocational programs is not made, very little positive effect will be realized. We will find dual systems of public education in many of our communities.

This report then laid before the Secretary the major problems, as we saw them. However, it was our feeling that we also make positive recommendations to solve the problems.

We said that the federal government should take the following three steps now:

Number 1 -- Require that communities develop coordinated plans for reducing both the flow of untrained youths and the pool of unemployed adults.

Number 2 -- Obtain federal financial support for community colleges and other two-year post secondary institutions on vocational-technical education. The federal government should pick up the tab for the extra cost in post-secondary as well as secondary schools.

Number 3 -- Overhaul the federal adminstrative organization to permit the federal government to exercise leadership in vocational education as well as in manpower training.

In addition, we also recommended the establishment of a separate Department of Education.

Until this is done, we recommend that the position responsible for vocational education in the Office of Education have the same status as the position responsible for manpower training in the Department of Labor.

In conclusion, let me say to those of you that have read both reports, you have recognized that what I have said is "true, but not new."

Nevertheless, the National Council has defined the problem, and has, in my judgment, made some realistic recommendations on how to begin solving these problems. Let me say again, in the end, to realize the kind of results we are working for, it will take total commitment. I'm willing, are you?

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A CONCERNED TEXAS

Phil Miller*

Governor Smith, Members of the Council, distinguished ladies and gentlemen . . . This is the first year for the Texas Advisory Council on Technical-Vocational Education, and the Council is required by law to report annually to the Governor. In so doing, we have identified several problem areas which we would like to outline for you at this time. We call our report "A CONCERNED TEXAS", which summarizes the present findings of the Council. In this connection, we'd like to quote from a letter to Governor Smith from the chairman of the Council , Mr. E. D. Redding.

"This Council has been studying technical-vocational education in our State, and we are impressed with what we have learned and what we have seen. However, we must share with you and those attending this conference some of our concerns. We use the word "Concern" in a duel meaning; that of a social significance, and a meaning of anxiety on the part of the Council concerning public support, appreciation, leadership management structures and other matters". The letter concludes:

"We believe the Conference will help focus thoughtful attention on the subject, and more importantly, the information and reactions obtained at this Conference will help us all analyze and understand the recommendations that this Council will be making later this year. We are all aware that one of the most obvious, as well as the most important characteristics of today's society is 'change'. We see it all about us, mirrored in behavior patterns and life-styles. There is an old axiom that says, 'The more things change, the more they stay the same,' however, that would seem to be only a fairy tale today."

We have watched our nation move from an agricultural-rural oriented society to sprawling metropolitan-urban life. And with the shift of our population, the many programs that urbanization involves. We have witnessed the great leap forward in communication capabilities. In about 300 years, our nation has developed the most modern useful communications system in the world.

Technological advancement and innovation has spearheaded this rapid change. Ways of doing things are quicker, easier, and more economical, and this technological revolution continues day to day. Methods

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of acquiring and using our country's natural resources has kept pace with the time. Industrial ingenuity has made those resources more accessible to all of us. Tranportation has made all of our lives significantly different. We are a mobile nation, a country on wheels and wings and there are very few places we cannot reach in a relatively short period of time.

Concepts concerning education have changed too. We have had to re-evaluate some of our ideas about education. . . asking questions such as, "What is it supposed to be . . . What should it do . . . What paths should education follow for the future?" Technical-Vocational education is particularly involved in this re-evaluation which led to the formation of the Advisory Council by the 61st Texas Legislature. The purpose of the Council is to establish ". . . a climate conducive to the development of technical, vocational, and manpower training in educational institutions in the State of Texas to meet the needs of industrial and economic development of the State." Over the past year, the Council has formed various committees to undertake investigations and studies, and hearings have been held on the Texas Plan for Vocational Education. In 1917 vocational education had its national legislative beginning. There have been several subsequent acts. . .the most recent coming in 1963 followed by amendments in 1968. All of these acts have required states to match federal funds on a 50-50 basis. Over the years, Texas has consistently contributed more than its 50-percent share of the funding.

Here in Texas, the 61st Legislature, besides establishing the Advisory Council, also enacted several other pieces of legislation placing particular emphasis on Texas vocational-technical education. This includes a legal method for counting the average daily attendance of pupils attending part-time occupational classes in vocational schools; broadening the Foundation School Program to provide for improved vocational education, supportive personnel, administrators, supervisors and counselors. The salary act provides funds for maintenance and supplies vocational units; and the legislature also increased appropriations by approximately 10 million dollars for the 1969 – 71 biennium appropriations period from 1948-49 to 1968-69, high school enrollment in this state has increased by 178 percent to an enrollment of 738,700. Vocational enrollments are up too . . from 89,000 to 245,000 representing a rise of 175 percent. Special Needs areas which includes placement in ungraded programs, or provides particular physical or mental supplemental teaching consists of 3.3 percent of our vocational enrollments.

The various vocational programs have shown a marked increase in this state in the past 20 years. Agriculture, which includes two, three

and four year programs has 51,220 students. . .up 185 percent. Distribution and marketing, which started with just under 3,000, now has more than 12,000. The homemaking program has the largest number of enrollments in its two, three and four year program. . .141,000. . . an increase of 165 percent. The Industrial programs which also includes the technical and health occupations, has risen 493 percent, while the Office Occupations show the sharpest increase in enrollment. Since it was included within the vocational curriculum in 1964-65 with 616 students, the office occupation program has grown 1,307 percent with 8,667 students.

In this current 1969-70 school year we have approximately 5,500 vocational teachers in 950 Texas high schools. This compares to a total of 46,684 junior high and high school teachers in all of the state's junior and senior high schools. In this present school year we have 245,000 students in the Texas public secondary schools. In order to give you an idea of what goes on in the secondary vocational training programs, we'd like to show you a one-minute public service television spot prepared by the Texas Education Agency. This was developed three years ago, but we plan to re-release it this summer.

This may give you some idea of the activities and philosophy encompassed within the State's secondary vocational education program. Now, the Advisory Council has compiled some useful preliminary data on the number of people prepared last year for employment in the various vocational areas. Almost 17,000 are products of the public secondary or high school vocational education programs; public post secondary or community colleges have prepared 4,618 people; and the Vocational Rehabilitation Commission has prepared 10,253 people. The Job Crops has made 3,432 people available for employment; the Manpower Development Training programs have provided 8,231 people; and on-the-job training has provided 17,880 people. Additional statistics show that 8,710 people have been made available for employment through State Apprenticeship Training programs; 10,407 by private vocational and business schools; and 11,282 through the State Board of Examiners. This does not include the very important contributions made by employers in training . . . their own personnel, many adult programs involving retaining and upgrading job skills – the Department of Defense and other organizations.

Within the community or junior college structure, excellent facilities have already been made available and others are now under construction. These 2 year post-secondary institutions have been teaching vocational-technical students for many years. However, with the passage of the

Vocational Education Act of 1963, new physical plants and equipment were made possible, creating much greater emphasis on occupational education. Our own State Legislature has also appropriated additional funds to assist in the development of post-secondary vocational education programs. There are now forty community or junior colleges, as well as the Texas State Technical Institute System, offering 2 year Associate Degree or special Certificate Programs in over ninety different occupational areas. These learning centers are located in all parts of the State and more are in the planning stages. The purpose of the community colleges is to have them available to relate directly to their own particular areas and help fulfill the needs of the immediate local community. The Texas Industrial Commission reports that during that the last five years, our State has experienced a 34 percent rise in manufacturing employment through the location and expansion of approximately 3,600 plants.

Employment in other areas of Texas economy, besides manufacturing has been equally spectacular. There are many factors underlying the economy of Texas and other states, but never in our history have skills, or the lack of skills, been as critical as they are now. Technological advancements constantly change our skill-needs, and the Advisory Council views with alarm and deep concern the number of people without jobs when so many employers are seeking qualified workers. These skills and abilities are needed to cover the complete spectrum of Texas employment. There is practically no area of work that has all the people it can use: the expanding transportation fields, from traffic managers to truck drivers; communications with audio-visual personnel, advertising people, radio-television technicians; cooks, restaurant managers; electricians, pipe-fitters, welders; automobile, diesel and aircraft mechanics; draftsmen; various science technicians; and all the health occupations. The list of qualified people needed to fill lucrative, satisfying career jobs is virtually endless, but the preparation of people for work has kept pace with the needs.

The key word is "qualified". Texas needs skilled, trained, qualified people. . . and if any proof of that is needed, the want-ads in any paper should supply it. The Texas Employment Commission reports a civilian labor force in December 1969 of 4,650,800, however, there were last year 627,800 people underemployed or under-utilized. The Texas Employment Commission lists 42,700 as people who are not now in the labor force but should be and need assistance in finding work. There are 115,800 people who can find only part-time employment and they still have a family income below the poverty level.

The National Advisory Council on Vocational Education, in its first report to the Secretary of the Health, Education and Welfare made the following statement:

> "The violence that wracks our cities has its roots in unemployment and unequal opportunity. Those who have jobs in an affluent community lash out in anger and frustration. Young men and women who cannot qualify for decent jobs distrust the society which reared them. Dissidents speak with the voice of rebellion; campus and inner-city revolt reaches into our schools.
>
> Racial unrest, violence and the unemployment of youth have their roots in inadequate education. Each year the ranks of the school dropouts increase by three-quarters of a million young men and women. They enter the job market without the skills and attitudes employers require. They, and the millions of others who are underemployed . . . (and among these are students who are graduates of our high schools but who are inadequately prepared for anything) . . they are tragic evidence of the present inadequacy of our educational system. The costs, the blighted lives, the discontent, the violence and the threat of revolution are needless. Schools can prepare young people to realize their potential. Each city in the country succeeds every year with some of its students, in even the most depressed parts of the city. Why is success not universal . . . Why is the failure rate so high?"

These are also the concerns of the Texas State Advisory Council for Technical-Vocational Education . . . and these are the concerns we would like to share with you in more detail in the next few moments.

ATTITUDE

Our first major concern is "attitude". What is the attitude . . .the position . . . the emotional feeling about technical-vocational education? People in all walks of life are saying, "Vocational education is designed for somebody else's children" In other words, my boy is not going to get his hands dirty greasing somebody else's car. This is regardless of the fact that here is something the boy may really like to do . . . and wants to do.

Another attitude: "The only good education is capped by four years of college." This kind of thinking is common despite the facts that tell us that only about 20 percent of the job opportunities in this country in the 1980's will require a four year college degree. Many of us are familiar with the college boy or girl who, when asked what he wants to do or what he's majoring in, says he hasn't made up his mind. There are thousands of boys and girls who get four year college degrees in various

subjects but are not equipped to do anything.

Along the same line is the attitude that says: "Employment requiring less than a college degree must be less rewarding." We hear this even though in many cases the actual earning power of skilled workers and technicians is more than that of college graduates. We continue to function under the misapprehension that knowledge is a pre-requisite to high priced employment.

That simply is not the case. Figures show skilled workers and technicians, on the average, command as good or better paying jobs than the so-called white collar employees. The larger number of opportunities occur in those occupations which depend upon technical-vocational education preparation.

Work is a fundamental principal which has made this country develop and grow. It has been done as a necessity and an obligation. Because of this, "work" . . . a four letter word . . . has been given a positive place in the American society. We speak of the dignity of work, for that is what it is. And we must remember as all of us strive toward personal achievement and satisfaction that "work" . . . the ability to use the hands as well as the head . . . should be a co-traveler and not left in an unappreciative wake along the road of academia.

RELEVANCE OF EDUCATION

Our second concern deals with the problem of relevance in education. It is obvious to the Council that much of the education within our public school system is irrelevant to almost 80 percent of our students. Statistics show that approximately 20 percent of our students acquire four year college degrees, which means that all along the educational route a majority of students are stopping their academic education to join the labor force. However, only about 25 percent of the entire student body ever receives any vocational or technical training. What can be done to alleviate this problem? Here is another one-minute public service television spot from the Texas Education Agency which will also be re-released this summer.

Here in Texas 45 percent of those children entering the first grade do not finish high school. This fact leads the Advisory Council to ask these questions:

Can we, the citizens of Texas, working with the educational community, commit ourselves to "zero rejects" in serving the educational needs of our youth? Is it possible to have no dropouts without some kind of training to equip them for occupational employment?

Can we identify with each individual a "career objective" and focus

the total resources of the educational system to achieve those objectives through design rather than by default? Can we purposefully educate instead of allowing so many of our young people to stumble around career fields until . . . more or less by accident . . . they fall into something they like?

In light of this, can we honestly say that "career objectives" of students are best served by subject-centered curricula oriented toward college entrance?

Can occupational concepts be a part of the early and continuing experience of the student in school? In other words, can we give a student, early in his educational life, such things as proper work attitudes, applied knowledge, orientation to occupations, skill development, and give him a chance to prove his occupation-ability by job performance?

Can Texas provide an adequate . . . and equally as important . . . an accessible post-high school program for youth and adults . . . programs designed to train, update, and upgrade skills so that each person has an opportunity to develop his highest potential for employment and for the benefit of the Texas economy? Along the same line, can our educational system have sufficient flexibility to accommodate "open endness" . . . that is, can we have an education system that can bend and change to conform with, and anticipate the progress of technology, as well as change as the interests and abilities of the indiviual change?

These are relevant questions posed by the Advisory Council concerning relevance in education. They call for positive answers and positive action as well.

EDUCATIONAL SNOBBERY

One problem that deeply concerns the Council is the position we'll call "educational snobbery". This refers to those people who have an aptitude and a desire for work in a skilled vocational or technical field, and yet do not have a chance to realize their ambitions because of a social system that seems dedicated to the concept of "college or disgrace". To support this contention we cite the curricula of the subject-centered high schools that are geared almost completely to college entrance requirements rather than offering curricula that are more "student-oriented". This is a continuing situation despite the fact that 6 out of 10 young people enter the work force either as school dropouts or as high school graduates who never go on to college.

Much of this is perpetrated through the various local Boards of Education which are composed mostly of professional people. They are generally uninformed of the interests and needs of a majority of our young people, nor do they know the necessities for adult education within their communities.

It is true there have been great strides in the occupational education opportunities afforded by the State's community colleges and technical institutes over the past five years. None the less, only 30 percent of the community college enrollment in the State is in the occupational programs.

Remember that only 77.8 percent of our young people complete the 8th grade . . . 44.6 percent have dropped out of school before high school graduation . . . 55.4 percent graduate from high school . . . but 59.9 percent of all those beginning the first grade enter the labor market without completing a secondary or post-secondary vocational education program, or baccalaureate degree.

With all the emphasis on the under-graduate degree, Masters Degree and the Ph. D., it may surprise you to know that national projections for five years in the future show requirements for a skilled work force of 20 percent college educated . . . 25 percent with technical education . . . and 55 percent will need vocational training. This is only five years away . . . in 1975 . . . and right now, the Texas secondary schools have about 75 percent of their students in college preparatory programs.

MANAGEMENT STRUCTURE

We are also concerned with the management structure which has the responsibility of planning and administering technical-vocational education. On any level of management, national, state or local, does the person or group responsible for technical-vocational education have a seat at the same table with the overall educational policy makers and planners? In many school systems, the most responsible vocational person is placed relatively low in the administrative structure. This can lead to a lack of direct communication with the planning and policy making group.

It appears that the method for determining the needs of the economy, particularly on the state and local level, is not interfaced with adequate technical-vocational education planning. Another problem is that the technical and vocational training provided by our public institutions is only part of the State's total resources for preparing a person for occupational employment. Knowledge of what the private schools are do-

ing . . . and what is being done through direct employer training practices, is not available for local and statewide evaluation and planning.

There also needs to be much more coordination of funds for technical-vocational education . . . funds which are administered at the National, State and local levels . . . resulting in proliferation of programs and responsibilities. This is due in large part to the lack of a commitment by public education to serve the total educational needs of all the citizens in the community.

EVALUATION

Perhaps part of our problems in education today is that until recently very little emphasis has been placed on evaluation procedures. Programs, plans, curricula . . . all have been proposed, approved, funded and completed . . . and to what end? What have we accomplished? Have we succeeded? If so, what is the measure of our success?

We do not say our American educational system has failed, for obviously that is not the case. But the concern of the Advisory Council is "How much better can we be . . . how much more relevant can we make the system . . . what improvements and changes have to be undertaken? At this point, the Advisory Council has found little evidence of a serious and consistent commitment by public secondary schools in reference to the placement of students in occupations . . . nor has there been much follow-up to determine the success or failure of students. And since this has not been done there can be very little redirection of school programs to correct curricula deficiencies. Right now there is no requirement either from the State Government or Texas Education Agency for local schools to collect and report data on all non-occupational students who graduate or leave school for other reasons.

A majority of our secondary schools do not place . . . do not fit . . . do not involve . . . do not arrange . . . do not locate their students in post-secondary occupations. Most students, whether they leave school or graduate are simply "turned loose".

In order to meet this problem, the following points may be considered:

Advisory Committees could be formed on the local level to assist in planning vocational programs, determining needs, placing students and performing other vital services . . . functions which now are not seriously performed in many school districts.

Assistance needs to be extended to individuals entering the labor force. Adjusting to new environment has been found to be an important

supplement to actual skill development.

Because skills become obsolete so rapidly, a strong relationship should be developed between employers and educators to anticipate changes and to retrain individuals for new job requirements.

A very pertinent question needs to be answered. Does our educational system give equal attention to "education for living" and to "education for earning a living"?

Here is an example of what can be done within a school system to equip young people with occupational ability:

The Irving Public Schools established a Building Trades class within their vocational program. The School Board set aside money for the boys to build a house that would sell for $20,000 to $25,000. Plans were selected, ground broken, and the foundation poured.

The next step was for the class to frame-up the house. But while this was going on, the girls homemaking class got into the act . . . speaking with resource people from the community, learning about decorating, interior design and lighting. They spent time in the house, watching the plumbing installation . . . checking where the electrical outlets were placed. As the exterior of the house was completed, the girls in Homemaking chose wall colors and floor covering. They also had the say-so in counter tops, bathroom tile, kitchen appliances and the selection of the lighting fixtures. . . .

The girls and boys in the vocational program did virtually all of the work with the exception of the plumbing, wiring, masonry work, tile setting, and the laying of the floor coverings.

The house was sold even before it was completed . . . the final appraisal of the house was $27,500 and that does not take into consideration the value of the experience to the 85 students that took part in this initial experiment. Its now an on-going program . . . a new house every year . . . more and more students involved.

This is only one example of what some imagination and creativity . . . coupled with realistic objectives and goals . . . can accomplish.

NEEDS OF TEXAS

We have talked about the "Needs of Texas" from an education standpoint, but there are other areas involving the private employer and State organizations where "needs" can be ascertained that would facilitate more adequate job distribution, training, and placement.

We do not have an adequate labor-market-information-system which could provide data to help in educational planning to ultimately

meet the needs of employers. Any educational planning always requires "lead-time" of several years if it is to reach long range goals. We know that employers face many variables that will influence possibilities for long range planning. But at the same time, employers are reluctant to share information that would be valuable in planning because such information is considered "industrial intelligence".

The Texas Employment Commission offers a variety of relevant services, and yet many employers, as well as citizens in general, are unaware of those services. And too, there are some employers who do not choose to use the Employment Commission for a variety of personal reasons.

The overall subject of manpower-needs is a critical problem. First there are inadequate resources to fund the techniques for manpower projections. Second there is a large pool of unskilled and unemployed or underemployed individuals because of misdirection of education and training efforts. In this respect, there is a lack of involvement on the part of employers themselves in the local education systems. Their knowledge and advice could produce trained people in keeping with the employment needs of our State.

Perhaps one of the most important aspects of manpower in relation to the needs of Texas are the qualifications set by the employers for the personnel they need. Many of our state's employers establish unrealistic educational qualifications for their job requirements. This may be a throw-back to academic over-emphasis, but numerous job requirements could be restructured along actual educational needs as opposed to inflated educational needs. This does not mean a restructuring of wage guidelines simply because of a re-definition of education qualifications. It is important to note that academic accomplishment is not necessarily a prerequisite to job achievement.

RESOURCES

Another Concern of the Advisory Council deals with resources. When we think in these terms it is normal to look at money, buildings, institutions . . . or natural things like oil, water and land. These are, indeed, resources. But our greatest resource is people. However, people cannot be a resource unless they are adequately involved. They need to use, and be used . . . they need to do . . . to imagine . . . to create . . . and they need to achieve.

Texas, like the rest of our nation, has many unfilled jobs, coupled with an ever-increasing pool of unskilled, unemployed, underemployed.

unhappy, wasted people. This combination may potentially form one of our country's greatest threats. The Council has observed deficiencies in terms of people utilization.

> Remedial programs are focused on isolated and immediate needs, while there are inadequate provisions for occupational preparation to meet the larger or total needs.
>
> National priorities spend $4 on remedial programs compared to $1 for preventive programs. There is not enough money or facilities to provide vocational training or retraining for adults.
>
> In the larger cities where most of our people and our jobs are located, only 15 percent of the high school students are prepared with specific employable skills. In Texas today, there are approximately 584,000 under-utilized people, and 127,000 unemployed.

These people represent an untapped resource . . . a wasted resource . . . wasted people.

COSTS AND FUNDING

As we have indicated in this report, costs and funding procedures are a major concern of the Advisory Council. Funds are provided for schools and educational institutions on a per-student basis, yet there is little regard to the benefit of individuals or the economy. This practice accounts, in large measure, for the general inadequacy of present technical-vocational facilities, equipment, and programs. We need an answer to the question . . . what is the best use for the total funds available?

Here is an example of the tremendous amount of money being apportioned to the various technical-vocational programs. This will give you an indication of how many agencies and individuals have some administrative authority or responsibility in the management of these funds.

There should be financial formulas for program development in keeping with the realistic needs of the localities served by the community educational institutions. We know facilities and equipment for technical-vocational education programs are costly, and to compound the problem, the rate of obsolescene is a critical factor. The cost of special equipment, supplies, up-to-date instructional materials and personnel raise the expense of technical-vocational programs from $200 to $1,000 per student per year above the regular academic programs. Greater cooperation between schools and various community resources can be expanded to

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enhance comprehensive offerings and aid in the solution of funding problems.

In order to continue the state's industrial development, it is becoming increasingly apparent that complete educational resources should be available in local and regional localities to add inducement for industrial settlement. And there needs to be criteria and guidelines established for funding priorities for construction of new technical-vocational school facilities on a statewide basis.

PERSONNEL

As we mentioned a moment ago, people are our greatest resource . . . but people not just to be trained, employed, or adequately utilized. What about the people to do the training, instructing and the teaching? A principal concern of the Council is the source and supply for qualified technical-vocational teachers, counselors, supervisors, and administrators. These personnel are obviously critically essential ingredients for a realistic program focused on education for earning a living. We already have some encouraging examples of industry-education cooperation providing qualified teachers to keep the present instructors updated in their skills. But this cooperation should be the rule rather than the exception.

Most of our academic teachers are prepared through the collegiate degree programs, but the instructors in the vocational and technical fields must come from the various vocational areas themselves. And they must have occupational experience in the skill they are to teach. Today, technical-vocational education is in dire need of assistance from business, industry, and commerce to identify and recruit those people who are qualified, and to also assist them in their development as teachers.

Obviously, the employment of well-qualified vocational instructors, counselors, and supervisors is essential if we are to have meaningful technical-vocational programs in our secondary and post-secondary schools. However, on the administrative level . . . for every 140 superintendents, principals and supervisors in our public schools, there is only one vocational administrator or supervisor.

There are several relevant questions to be asked concerning personnel: Should the institutions of higher learning with vocational teacher preparation programs involve employers in actual laboratory and internship programs? And, should teachers in all of the instructional disciplines be able to relate their own course content to a total occupational objective for the student . . . and include supervision and in-service education for the teacher oriented to the student's goal?

CONCLUSION

These then are the problems . . . the Concerns of the Texas Advisory Council.

Attitude toward Vocational-Technical Education.

The relevance of the objectives of the present educational system.

Educational snobbery . . . that college education is everything.

Management structure . . . its fragmentation and the need for vocational-technical people on the planning and policy making levels.

Evaluation . . . the lack of follow-up by most of our secondary schools.

The Needs of Texas . . . and the role of the employer in furnishing data for planning, and involvement in local education systems.

Resources . . . the correct utilization of people as our state's greatest resource.

Costs and Funding . . . the lack of coordination and redefinition of the best use of the money available.

Personnel . . . the identifying and recruiting of qualified technical-vocational teachers and instructors.

These are concerns, but not just of the Council. They are the concerns of all of us. We have given you an over-view of the entire technical-vocational education situation . . . problems that are complex and made even more involved because they are inter-related and inter-dependent.

Governor Smith has been presented with a copy of this report which has, as its cover picture, a chain and the State of Texas. The chain represents education, but we acknowledge that the chain has a broken link . . . and that is occupational preparation. It is said, "a chain is only as strong as its weakest link". We have an opportunity to make our educational chain equally strong in all its parts by forging a realistic and functional technical-vocational education program.

Our new decade holds as much promise and hope as it does problems and uncertainties. If there is, in this modern world, a "New Frontier", where is it better exemplified than here in Texas? We are old in history and young in development. We have new dynamic cities rich in opportunity . . . a spaceport that serves as our gateway to the stars. We have expanding industry, agricultural wealth, great natural resources, and most of all . . . tremendous human resources. We have the people with energy, imagination and ambition.

To Governor Smith and to all of you, we ask that you not just be concerned. We ask for your help . . . your suggestions, your advice, and your positive action. In Texas, we have the advantage . . . let's make the most of it.

Thank you very much.

THE KEYNOTE ADDRESS

The Honorable Preston Smith Governor of Texas

Mr. Redding . . . Members of the Advisory Council . . . Mr. Howell . . . Mr. Brown . . . Mr. DeBusk . . . Distinguished Texans . . . Guests . . .

As Governor of Texas and one who is deeply concerned – both personally and officially – with the course and the effectiveness of technical-vocational education in Texas, I welcome you to this conference.

Your willingness to contribute unselfishly of your time and your ideas to this conference is, of course, no small sacrifice. Your enthusiastic response to our invitation . . . your very presence here . . . is proof enough for me that you share my abiding concern for this very important segment of our educational system.

We have sponsored many conferences since the people of Texas honored us with the highest state office more than a year ago. These conferences, I believe, have gone beyond idle words and incomplete ideas. These conferences have inspired action and inventive new approaches towards Traffic Safety, Housing, Urban and Community Affairs and other matters of interest to us all.

The others have been valuable to us, and I believe to those who attended them. This Conference on Technical-Vocational Education has perhaps even more potential.

Mr. Redding, I would like to commend you and the diligent, devoted members of your council for this First Annual Report of the Advisory Council for Technical-Vocational Education.

"A Concerned Texas" we are. We are gathered here with but one object . . . to help develop, by every possible means, vocational programs in Texas that will permit our people to earn a decent life and a decent living. This conference can – and I am confident that it will . . . help to guide the council in providing more meaningful technical-vocational education programs for the benefit of our citizens.

Just a few minutes ago we saw vivid evidence of the technological development and innovation that has occurred in Texas. Most of what we observed has come about within our own lifetimes – yours and mine.

Clearly, the skills of our people can become very quickly obsolete.

We are now beginning our 20th year of public service with the people of Texas. We have – during those 20 years – probably visited

as many areas of this state and talked with as many of our citizens as anyone.

We have first-hand knowledge of the need for attention to the matter of Technical-Vocational Education.

In Texas, we have recently experienced one of the lowest unemployment rates in history. We should take pride in this fact. But our pride should never overshadow our concern for the other side of the statistics.

Attractive figures in record books are meager consolation to the person who cannot get a job. Statistics do not grant him human dignity that comes with making his own way in the world. And spectacular employment percentages do not feed or clothe or house his family.

More often than not, the man who is unable to find a job merely lacks a marketable skill. Our Texas Employment Commission estimates that 627,800 of our workers are under-employed. In other words, they are capable of holding better jobs – of making more money with which to provide for their families – *if they had adequate training.*

My personal commitment to the expansion and the improvement of quality Technical-Vocational Education in Texas is no secret. The fulfillment of our dreams and the dreams of many of our people, as well as the greatest possible development of our economy, depend largely on our success with Technical-Vocational training. This too much and too needlessly neglected area of education holds perhaps the greatest possibilities for reducing crime, mounting welfare rosters, technological displacement of workers and erosion of the family unit.

Representative George Hinson and Senator Chet Brooks chaired investigating committees two years ago that, although meeting and acting independently, reached basically the same conclusions.

The decisive action of the 61st Legislature in the field of Technical-Vocational Education will serve as a solid foundation for progress. Funding of Technical-Vocational Education in our public junior colleges was greatly increased – to a total of $16.2 million.

New and improved schools were provided. The Texas State Technical Institute was established with campuses at Waco, Harlingen, and Amarillo. The Foundation School program was broadened to provide for improved vocational education and additional supportive personnel.

And the Advisory Council for Technical-Vocational Education was created to coordinate and develop our programs in this vital area and to guide future progress.

In fact, education generally and Technical-Vocational Education specifically has received more attention and more dollars in this administration than ever before in the history of our state.

If this is so – some might ask – what is the problem?

Many call it "attitude." The same thing plagues our efforts to "Drive Friendly," to eliminate the pollution and the destruction of our environment, and to live as law abiding citizens.

The council puts it this way: "Vocational Education is designed for somebody else's children." Through educational snobbery we often wrongly limit the desire of people to work in the skilled and the technical fields.

By our "college or disgrace" concept, we constrain their abilities. It has been a long time since I was fully a part of a campus. But, if I remember correctly, there were only three points in the total spectrum of the educational process at which a student's honorable withdrawal was possible.

One point was at graduation from a high school when he was given a diploma. If he didn't get it, he was a drop-out. The stigma of failure has become attached to the term.

Another point was graduation from college with a baccalaureate degree. Here, too, a certain inadequacy marked the student who didn't get it. The third point of honorable withdrawal was upon the award of some higher, graduate degree.

For a fast-changing society in which half our working force must be retrained three times in their working lives because of technological innovations . . . that system of education is ill-fitting. The primary goal of education, I think, should be to enable people to live effectively at the limits of their abilities.

Ignoring our opportunities to attain that goal is merely another way of becoming a drop-out.

Our challenge is to educate for living, as well as for making a living. All the parts and all the efforts at both must be equally valued and respected.

We have too long encouraged – if only by our apathy – separatism in education through special programs and special emphasis for this and that. Many of our people have special needs. These should be met.

But we shouldn't have to wait for a special solution from Washington or Austin. It might not fit when and if it arrives.

There is nothing more stimulating than to be challenged by the needs of those we seek to serve. In our schools, in our businesses, and in our communities . . . we have the expertise to meet *this* challenge.

You here today represent more than 100 cities, towns and communities. You represent virtually all the segments of our economy. Our educators are capable and cooperative people – people wanting to

prepare our youth and our adults for productive places in our society. As employers, you have those jobs.

We must join together and mesh our needs, our problems and our solutions.

How seriously have any of us regarded the situation we face in Texas – and throughout the nation – concerning those who leave the educational system without the preparation for making a living?

We may have observed one drop-out this year . . . Two or three the next year. But the total picture is amazing. In September 1954, we had 226,959 students entering the first grade.

In September 1961 for ev· 100 that had entered the first grade, only 78 entered the eighth grade. In May 1967 only 56 out of each original 100 graduated from high school.

Thirty-six out of each 100 entered college. A year from now, it is unlikely that more than 18 out of 100 will have earned a college degree.

Our projections and statistics tell us that only about 20 percent of our work force will need a degree.

But what about the 18 who started college and did not finish? What about the 19 who graduated from high school, but never made it to college? And of greatest concern . . . What about the 45 who left school between the first grade and high school graduation?

Of course, we had some in vocational programs. We had some in junior colleges and technical institutes, private schools and other programs.

But many of these ex-students – and we all know this – are now without skills and without jobs.

Enrollment at all levels of our educational system are increasing. The percentages are increasing, too. We are aware, as you are, however, that there is room and need for improvement.

We have to run pretty fast to merely stand still . . . and faster still to plan for tomorrow. We must realize that today is yesterday's tomorrow.

How much do you – as an employer – know about what is happening in your community schools? How much do educators know about jobs available in the community . . . about employers' expansion plans . . . about new equipment and new techniques, and the new skills these advances will demand?

What kinds of needs are there in the hospitals, in the police departments, in the courts, in local governments?

If there is one place we cannot afford a communication gap . . . it is in preparing and training people for living and making a living . . .

It is in training them for jobs that really exist and for real life.

We must realize the goal which our council speaks of as "Zero Rejects" – that no person who is capable of any type of work again be considered unemployable.

There must be and there is a worthwhile job waiting for everyone.

In its first annual report, the Advisory Council has outlined some concerns for technical-vocational education. I expect many of you brought with you to this conference other concerns.

Through the hearing sessions and through personal exchanges . . . make your ideas and your wishes known to the council.

Together . . . let us set our goals high . . . And together . . . let us work for a better Texas and a better life for all Texans.

BANQUET ADDRESS

William F. McCurdy*

We're together here tonight not just because we're all from Texas, but because we have other things in common. We share a common concern, some common knowledge, and we also realize that there are many things we don't know or fully understand. We're like the little boy whose exasperated teacher said to him, "Why do you bother to come to school when you can't answer any of my questions?" The boy replied, "If I could answer them, why should I come?"

Or perhaps we bear a resemblance to the old man who lived in a remote mountain cabin with his wife. One night, over in a corner by the fireplace, he was working industriously with a stub of a pencil and a piece of paper. Suddenly he looked up and smiled. "Doggone!" he exclaimed. "Durned if I ain't learned to write." Maw got up and looked over his shoulder at the lines scrawled across the paper. "What do it say?" she asked. "I don't know," he said. "I ain't learned to read yet."

One thing we *do* know is that America in 1970 is beset by profound problems. Now, let me make it clear right now that I'm not going to mention the word ecology, nor am I going to complain about the air I have to breathe in Chicago. I haven't got enough breath left to do it.

Instead, I want to mention what are often called socioeconomic problems, except I'm looking for some way to turn those words around. Maybe "eco-social" is what I want. That's because most of our social problems--notably in the slums--are rooted in the economic problems.

In fact, even the *cure* for some older economic problems, those of the depression, has produced social conflict today. Forty years ago we had to get to work. We rolled our own anti-poverty program. We kept our noses close to the grindstone, so close I'm afraid we lost sight of some important human concerns and human values. So when a belligerent college student points his finger at me--as one did recently--and says, "I charge you and your generation with materialism," I have to admit that there's a grain of truth to it. In a strange way, curing severe economic illness has created what we might call social seasickness.

Of course, we're striving to deal with our eco-social problems, but it's like trying to catch a greased pig. Every time we make a grab, our quarry has gone. The government tried to give deprived youngsters a

*President. Sears-Roebuck Foundation, Chicago

head start into school with special programs, but found the benefits didn't last. Now the Administration is talking about programs for the first five years of life. The Office of Economic Opportunity thought summer recreation programs would help kids get on the right track, but now they've been scrapped in favor of year-round economic development programs. President Nixon talked hopefully during his 1968 campaign about black capitalism, but it's become pretty obvious that the key ingredient in capitalism isn't black or white, it's green. Money to invest, money to make, money to pay out in wages. That's the name of the game.

Perhaps because of wasteful government experiments, the Harris Poll found last month that six out of 10 Americans still put their faith in free enterprise, viewing it as the system "best suited for bringing about a change in America."

Apparently Mr. Harris didn't talk to the fellow who recently filled out an application for a government job. When he came to the question, "Do you favor the overthrow of the United States government by revolution, force or violence?", he thought a moment, then wrote down, "violence."

Business has been trying, too, to cope with our eco-social problems, and we think we've done some good. A new book called "The American Corporation" notes that "business is now tackling some of the toughest problems facing the country, problems once thought to be the exclusive province of government concern."

Well, it sounds good anyway. But to be frank, I have to admit that business, like government, has stubbed its toe on the eco-social rock. One of the most balleyhooed corporate projects, rehabilitating housing in the slums, simply hasn't worked. Chrysler which once plunged enthusiastically into training the hard-core unemployed, has just revoked a 13-million-dollar government contract to hire and train 4,450 workers. The auto industry is slumping. A recent survey of 247 corporations found widespread disillusionment with their own urban affairs programs, and funds are being cut back.

I regret that this is happening, but I'm not suprised. Corporations simply aren't designed or equipped to function as social welfare agencies.

However, I think we have learned something from the mistakes made by both government and business. We've certainly determined that progress on our eco-social problems can't be made with mirrors or gimmicks. For such basic problems we've got to develop basic solutions, and the most fundamental of these are good jobs and good education. As one black entrepreneur said, "The worst things that have happened to minority people have happened because we're broke. We need business and economic development." He's absolutely right.

Now, I don't need to convince *you* that education is a key ingredient in economic development, but education itself has immense problems these days. Costs are going out of sight, and we have so little to show for what we're spending. It seems we don't really know how to teach, at least, not how to teach those who have the greatest difficulty learning. President Nixon has proposed a new National Institute of Education to help unlock "the mystery of the learning process," and he's also created a Commission on School Finance to figure how we can "get more education for the dollar." The U.S. Commissioner of Education, James E. Allen, Jr., says we must strengthen "the concept of accountability in our educational system," demanding performance instead of promises.

Too many of our children are learning too little. In Chicago the average learning levels are one to two years behind national averages, despite vigorous programs of compensatory education and heroic efforts by devoted teachers.

At the same time, other young people are learning too much. You remember Mark Twain's comment, "I never let my schooling interfere with my education." It reminds me of the two college students who roomed together, one very bright, the other not so bright. They went their separate ways after graduation and didn't see each other again until their twenty-fifth reunion, when the not-so-bright student pulled up in front of the local inn, driving a long, shiny limousine, jumped out with a 200-dollar suit on his back and cigar in his mouth, and bumped smack into his old roommate, a college professor with leather pads at the elbows of his tweed jacket. The professor, dying of curiosity asked, "what have you been doing all these years?" His friend replied, "well, I built this little factory, and we make this little gadget for a dollar and sell it for three dollars--but you'd be amazed how fast that three per cent mounts up."

Now, that's not to imply that college isn't beneficial in some ways. When a father was asked whether his son's education had been of any value, he said , "Definitely. It cured his mother of bragging about him."

Sometimes it's the teacher who is at fault. At one university a coed accidentally dropped her camera into the swimming pool. She looked past several boys standing there and asked an elderly professor, in his bathing suit, to dive down. "Why do you ask me?" he said, puzzled. "Professor," she said, "I'm in your statistics class, and I've found that you can go down deeper--stay down longer--and come up drier--than anyone I know."

One courageous educator has just published a devastating attack on education and the high esteem we assign to it. Dr. Ivar Berg of Columbia University says that although education is considered by business a re-

quirement for getting a job, most companies don't even try to assess the benefits of education in terms of productivity or efficiency on the job. In fact, says Dr. Berg, blue-collar, white-collar, and gray-collar employees with more education do *not* perform better than their colleagues with less. He quotes one executive who deliberately hires better-educated clerical workers because of their known higher turnover, thus avoiding pressure for better wages and benefits from long-term employees.

Dr. Berg studied air controllers, because this is one of the few demanding, decision-making professions admitting both college graduates and non-graduates. He concluded there's no difference in the performance of the groups. Even in teaching, contends Dr. Berg, although a bachelor's degree is a good idea, graduate education is no help. It used to be said that "education pays, unless you're an educator." But now teachers stream back to college in the summer because a master's degree will elevate them to a higher pay bracket. However, says Dr. Berg, advanced education is also likely to make them less interested in regular teaching, and more interested in some special assignment.

There's a traffic sign near a school in my neighborhood that reads, "Slow down. Don't kill a child." Underneath someone has scrawled, "Wait for a teacher." I can't help wondering whether the teacher who provoked that had a master's degree.

Dr. Berg, in his book, not only criticizes our love affair with degrees, but also worries that college graduates are getting too numerous, and not all of them will be able to find jobs and careers that are sufficiently satisfying and rewarding. This could lead to severe political unrest, in his opinion.

Now, this may seem farfetched in our land of unlimited opportunity, but just a few days ago the College Placement Council, which provides job information to 1,300 colleges and universties, reported a sharp drop in business job offers to this year's college graduates. Openings in industry for holders of bachelor's degrees are down 16 percent from last year, according to the Council. And it's not just that companies want master's degrees now, for openings at that level are off even more, 26 per cent. Even at the doctoral level there's a decline of 14 per cent, and technical jobs are hardest hit, at all levels.

There's no way of telling whether this is evidence of merely temporary economic stagnation, or recession, or whether it's the beginning of the lasting, educated unemployment Dr. Berg refers to. Either way, just looking at this year's problem alone, what are those unemployed young people going to do? They've been brought up believing a college degree is the key to success. Now it's not. In the great revolutions of modern history--in France, in Russia, and in our own country--the leaders were

not the poor. They were intelligent, educated people who were also restless and dissatisfied.

The extent of our national misunderstanding about college education was illustrated again not long ago when Robert Finch, secretary of Health, Education and Welfare, talked publicly of "approaching universal higher education in the United States". And he made the statement in a speech about--of all things--community colleges. To me it's obvious that the rise of the community college proves instead what vocational educators and businessmen have known for a long time: we need a variety of both academic and vocational educational programs, and we must encourage each student to select the one best suited to his own interests, abilities and needs.

Here's what the distinguished Carnegie Commission on Higher Education recently reported: "We should avoid pressures from family and society which impose college attendance on young people who would not voluntarily choose to attend. We therefore oppose universal attendance as a goal of American higher education and believe that noncollege alternatives should be made more available and more attractive to young people".

Encouraging young people to attend college who have no interest and no purpose in being there is criminal and compounding this criminality by lowering entrance requirements to get them and academic requirements to keep them is like mixing castor oil with ice cream.

But our national priorities are confused. For every dollar the federal government spends on vocational education, it spends four dollars on *remedial* vocational programs trying to reach the unemployed who were never taught anything useful in school. An ounce of prevention *is* worth a pound of cure, and that's just about the extent of the federal government's effort -- an ounce.

What's to be done? Lots, I hope. I'm sure that this important meeting will come up with ideas for improvement. A similar conference in Ohio last year made sound recommendations: better communication between business and schools, public relations program, career days, parents' tours public displays, and many other useful projects and programs.

We also need to support the development of community colleges, and to make sure they're not just feeders for four-year colleges, which some academically-oriented administrators would like. Junior colleges can teach technical and vocational skills that neither high schools nor four -year colleges are equipped to provide. They can give us well-trained young men and women ready after two years to perform important tasks in technical fields, in health professions, in agriculture, and even in less obvious areas, such as commercial drawing and design.

The Sears-Roebuck Foundation is lending a hand. We have produced a film dramatizing the vocational aspects of community colleges, and have enabled the American Vocational Association to employ a specialist who helps state and local educators from junior college vocational programs.

But I must admit that I'm frustrated by all these plans and programs, even our own, in that they take time and money to produce results. We need results now. Sears Roebuck needs top-grade employees now. So does every company. Youngsters need jobs, good jobs with career opportunities. Unemployment is now up to 4.2 per cent and going higher.

We don't have to wait for the federal government or somebody else to bail us out. We don't have to content ourselves with drawing up reports and recommendations for further study and review. I know of a company, one of the largest manufacturers in the nation, that was unhappy with the welders they were hiring out of the local high school in their headquarters city. Many of the boys, after graduating from school, had to be retrained. Well, whose fault was that? The school's? Nonsense. It was the company's fault. They knew they were going to be hiring welders, and they new the requirements of the work. The school was five minutes away from company headquarters. But did anyone ever think to look in on the school's welding program, to recommend changes or improvements? How simple it would have been, and how inexpensive! It didn't require a master plan, or approval by the board of directors. All it required was a little initiative.

Chicago has been struggling for years with air pollution and getting nowhere. Now the city has a bold new weapon. It's called a telephone. When air pollution gets too bad, they're going to call up the 100 biggest polluters and ask them to cut it out. Remarkable, isn't it?

An article in the current Harper's magazine caught my eye. It's by Robert Townsend, the man who made Avis famous, and he sets forth a whole raft of iconoclastic rules for running a corporation. I noticed because he recommends firing the whole public relations department--and that's *my* department. Lest you businessmen who work in other areas get too smug, he also recommends firing the advertising, personnel and purchasing departments, and all your private secretaries.

Mr .Townsend goes on to say this: when you want to reach someone important you don't know, call him up." "Tell him who you are and why you want to talk to him." Don't go through an intermediary.

Now *this* idea of Townsend's makes sense, even if some of his others don't. Why can't we businessmen and educators do this? Of course we *can*. When you have a problem, call me. When I have a need. I'll call you. After all, a businessman is judged by the company he keeps solvent,

and we must know something about putting people to work. Why, we've even got more employees than the federal government--twenty times more--and that makes us the experts. Let's use our expertise.

One of our Sears people did pick up the telephone a while ago in Miami. We needed 15 young men to start full-time training in air conditioning on April 1. Unfortunately, the 15 we had selected were seniors in high school, not finishing until June. We took our problem to the Dade County high school vocational director, and he said that if we could get our training done in four days a week, he'd compress their school work into one day, plus one full week for final exams in June. It was perfect. We've hired the boys to begin work the first of next month, yet they'll still complete their academic work and graduate on schedule.

In the Maryland suburbs of Washington, D. C., it worked the other way around. A teacher took the initiative there. The coordinator of distributive education in the Bethesda-Chevy Chase High School had been teaching for ten years. He felt out of touch with current retailing, so he called our local store. Would we bring him up to date? We did. We brought him in without pay for just one week in the summer of 1968, in a sort of specialized management trainee category. We ran him through the catalog department, display, personnel, the manager, merchandise manager, comptroller, everything.

The man was ecstatic. He feels that week was one of his greatest experiences since becoming a teacher. He said, "I couldn't get that out of a textbook." As a result of what he learned, he made significant changes in his courses, dropping outdated material. Furthermore, he came back to Sears. Last month one of his classes assisted that same Sears store in taking inventory, and he described the students' experience as "tremendous."

Now he wants to establish similar programs in other stores, which is fine with us. Also, that one week he spent with Sears sparked a concerted effort by that school to get its vocational teachers out into business and industry every summer. A number of teachers did it last year, and more will this year.

The same fellow has now come up with two more good ideas we're discussing, and knowing him, I expect there will be more after these. It all started with a phone call. No master plan, no federal financing. Efforts like these are making his courses livelier and more interesting, helping to attract that better student we're always looking for in vocational education.

Just one more thing. Let's remember we not only want to find and employ people, we want to keep them. It's not unusual to hear a busi-

nessman complain that the youngsters he hired on a co-op basis during school didn't stay with him after graduation. Let's offer a career, not just a job, and make sure the young people understand that. Get them into the president's office for a personal chat. Describe the opportunities available. Sell a little. We're all salemen. And care about the young people as individuals. If we don't, they surely won't care about us.

Several New York City government agencies have waived requirements for college degrees in a number of starting jobs, and many of the people hired have done well. But now they're frustrated because the agencies won't promote them. The next jobs up the ladder still have that college degree requirement, and it's not being changed.

We can avoid that. Every starting job, at whatever level, has got to offer a future, and we must make sure that future is related to the present reality. As we try to improve access to the first rung of the ladder, we may have to alter the ladder itself.

Now ladies and gentlemen, there is one more thing - I notice some of you looking at your watches. I even saw one fellow back there shake his to see if it was still running. Its only fair to say that I am circling the field and coming in for a landing. So I will say that the world of work is an exciting world. Until computers figure out how to do everything for us, it is also a necessary world. You and I have found the excitement. Let's help others do it, too.

I had something in mind that I was to tell you tonight -- but it has left me for the moment and I can't think of anything else. I do want to say that I am fully aware that my youth has been spent, that my get-up-and-go has got-up-and-went. But I really don't mind when I think with a grin, of all the fine places my get-up has been. THANK YOU!

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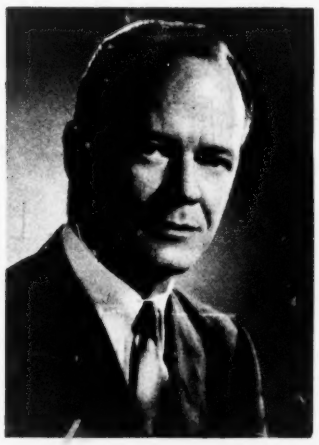
THE ECONOMY SPEAKS TO TEXAS



Robert R. Herring*

Thank you very much. Mr. Howell, ladies and gentlemen. I can't help but comment in noticing that three Aggie graduates are on the stage here, whether you really went out and picked some outstanding people as mentioned, or whether they are just trying to compensate for the way we have been treated on the football field for the last few years. Maybe I had better take the first course.

Over the last 25 years since World War II, which, after all is a very brief period, Texas Gulf Coast has experienced an amazing economic growth from the Sabine to the Rio Grande each year and has brought exciting developments. In the early stages of this period, this growth was primarily based upon natural resources, oil and natural gas and sulphur and on the agricultural and ranching developments in the Valley and along the Coast. From Port Arthur to Corpus Christi, many other developments took place, and to meet this growth we saw the further development of lumber from East Texas, and later, major pulp mills for the production of paper began to grow.

These things develop because of low cost energy, natural resources, the encouragement and help of our local and state governmental agencies, but even more so, a stable and dedicated manpower supply. Management and labor must be eager to meet the challenge of such growth. There must be city governments and communities of citizens ready to meet the requirements of growing cities and yet maintaining an atmosphere for living which appeals to all of us. As products became available from the refineries and liquid was stripped from natural gas, we found building blocks for the petro chemical industry. The by-product of one plant would become the feedstock of another plant. The movement of products by pipelines between plants from Beaumont to Corpus created flow systems which have been termed "the spaghetti bowl". Today 40% of every basic petro chemical produced in the United States is produced on your Texas Coast. And 80% of the synthetic rubber produced in the United States is produced on your soil, and last year, despite the amazing growth in our energy requirements in this country, natural gas supply percentage increased to more than 30%.

*President, Houston Chamber of Commerce and President Houston Natural Gas Corporation

Oil and gas revenues for the State of Texas alone last year exceeded four and one-half billion dollars. Houston has become the world's largest producer of oil field equipment. The Gulf Coast is now a major producer of aluminum with three plants based upon imported ores. One of our metal fabricators in Houston manufactures his own metals and electric furnaces is now making over 200 parts for our Space Program. And now the United States Steel Corporation is building a major plant near Baytown. Armco has a great steel facility on the Houston Ship Channel and now National Steel Corporation has bought a major tract of land near Corpus Christi, for future development.

Two other significant programs must be mentioned in this capsule presentation of the past 25 years on the Gulf Coast. One is the Texas Medical Center, which today, through 22 participating institutions, has invested more than two-hundred and forty million dollars in Houston. We now have over 15,000 employees, 2,700 doctors and faculty members, a total of over 3,000 students of various categories are now in the Center. The Center has gained world renown in Cancer and Cardio-vascular work. An Institution in which I have the honor of serving as President, the Texas Heart Institute, Dr. Cooley performed last year alone, 891 open heart procedures with amazing success. The majority of these were valve replacements. To indicate the fame and the tremendous work going on. I was out at the Hospital the other day, an older man was waiting. So I sat down and began to visit, he had his son with him who was also a doctor. It turned out that he was one of the top Orthopaedic men in New York City, and the son was there for open heart surgery by Denton Cooley. I asked the doctor why he came to Houston since New York has outstanding medical facilities and outstanding doctors, and his answer was - "in this field, there is no equal to Denton Cooley in the world". Denton has developed his own materials that go into the valve itself, and the success has been truly amazing. Of course we have had more publicity in connection with the transplant and we are disappointed with some of the things that occurred, but let me give you two examples of what it is leading to . . . the cancer cell is a foreign body which becomes implanted in a person as is the heart that we have been implanting; it on the other hand does not reject so often . . . what is that quality in a cancer cell which causes it not to be rejected which might be implanted in this heart? A whole research program is now being developed along this line and the very opposite is leading to another research program. If this heart rejects, what is that quality that might be injected into a cancer cell? It leads to many exciting things, and the fact that we in Texas are fortunate enough to have this amazing facility and the tremendous doctors that go with it. This is truly just great.

One more indication in connection with the Medical Center -- we announced in Houston only last week that the Government of Spain is granting some three million dollars over the next ten years, to our Texas Heart Institute and it will work jointly with the Chest Disease Center of Madrid for the training of people and for research in cardio-vascular work--another indication of the International reputation which this Center is now gaining.

The other major addition which I must mention, is of course the NASA and Manned Space Craft Center in Houston. The three major space programs of this agency which lead to the landing of men on the moon, is probably the greatest example of government and industry working hand in hand to an amazing common objective - one of the great performances of any time. This success of the operation and the inspirational performances of the Astronauts has given America renewed faith in herself, which we needed.

The next phase of a space station and a shuttle buggy to visit this station and return, will lead to still greater developments. While in our daily world, of communications, the weather and fuel have gained for most of our space program respect from abroad. In the future, earth sciences will develop water resources, mineral developments, agricultural planning, which will all be a part of the gain from our space program. It is interesting to note that of the 400,000 men and women who work on the Apollo Program, about 50% had college degrees, and the others were self or company-trained, or came from vocational programs. The City of Houston grew 33% in population in the 1960's, an increase of 500,000 people. We have recently announced the transfer of headquarters of a large company from New York City to Houston, with some 1700 employees. We expect to announce two others in the very near future. Our commercial building construction has been exceeding 300 million dollars per year and the next two years appears to be above that figure. Our industrial construction will exceed 500 million dollars for the 5th year in a row this current year. Our city administration in Houston under the able leadership of Mayor Louie Welch, has done a fine job in staying ahead of these problems. Such growth of course creates very serious problems. It also creates some very serious needs. I think the four main problem areas with which we are faced today, I would entitle *our energy supply; our natural resources; our manpower supply; governmental regulations and existence* and the *environmental problem.* Let's take each of these individually and very briefly.

You have read recently that the natural gas supply in the United States is finding it difficult in keeping up with demand. Texas, however, for many, many years into the future, is fortunate in its gas supply.

My company is currently building an 80 million dollar pipeline project 3 feet in diameter from Houston to the Delaware base in West Texas near Pecos. Obviously, we must see the gas reserves there to fill this pipeline and to replace and add to the supplies on the Gulf Coast. The very stringent federal regulatory policy in regard to pricing in a sense, may have helped us in Texas in keeping much of the new gas at home. Currently in the Delaware basin of West Texas, there are 46 of these 20 to 22,000 foot wells being drilled at a cost of a million and a half dollars each. The unrealistic regulatory aspect that I mentioned . . . .an idea in Washington that a man who spends a million and a half dollars on a well even though it may produce a little more gas, should receive the same price we were getting when we were drilling fifty thousand wells. Accordingly, however, much of this gas is solely dedicated to the future of Texas. Our oil production of course is suffering the need for greater technology and greater dollars in reaching greater depths. We expect to see a continuation of the program with great success. There will be, however, fewer wells, as we go deeper and if our technology is not up fully to the development of the deeper reserves. But Texas is most fortunate with its present supply. Long range, however, obviously there will be a development of synthetic fuels in this country, fuels that will undoubtedly be compatible with, for example, natural gas. In our judgment this will primarily come from the gassification of coal which Texas abounds in, it will also begin to develop an age of liquid natural gas, flowing by tanker across the oceans. But Texas will be one of the last of the states to seriously depend upon the synthetic fuel era.

In the manpower situation, Houston today has some 600,000 industrial workers and only 90,000 of these are employers who employ more than 500 people. If we use this as a standard where a company can effectively go into job training programs, obviously the great majority of our workers are not in a position to be exposed to on-the-job training to any major extent. And as we begin to reach the point where all of these raw materials I mention, all of these building blocks that we are now producing, can begin to go into the home or consumer market, fabrication begins to take place like metal work begins to take place, obviously we need a tremendous reservoir of manpower to meet what lies immediately ahead of us.

Three years ago we had a need in Houston Natural Gas for some 100 employees for plant operations . . . we found no one available in the market and we set up a training program for our own people and were able to fill all but four of the positions. There is a great deal of this going on in the industries in the Houston area but there is still a great

need for the kind of programs you are considering here today.

In the area of the environment - I will take just one more short period on this. Houston is making tremendous progress, but of course with the kind of growth we have experienced, we do have serious problems. Two of our major chemical plants on the Ship Channel now have water treatment receivers, before the water goes on into the Ship Channel, in which fish are growing. Both of them are major oil companies and one of them - their fish jump higher than the other company and the other company claims they have a little electric charge in the water out there for them. But it is the type of work that is going on. Expenditures for environmental control in Houston this year would exceed some 8 million dollars that we have records of. We still have serious problems, we will still have to work hard in this area. But of course as we do it offers a need for additional people, trained in this new and demanding field. Our own company, for example, and I didn't mention this because of our excitement in connection with this development, is working on an incinerator which we have been running now for about 9 months, that burns rubber tires, tin cans, glass bottles, garbage of all kinds, with no visible emission. We just hope it keeps working. I think, however, any Nation which can put its resources to work, call upon its great people, and land a man on the moon, can solve this problem as well.

In this future, we become - and it becomes more necessary to deal abroad economically, the demand for close cooperation between government and industry is greater than it has ever been. In my judgment the reason for the great success of Japan and Germany following World War II, was the hand-in-hand movement of government and business, or industry, and we have had some difficulties in this area in the past, which I feel must be corrected.

In closing I would like to re-emphasize our need for technically or vocationally oriented people who will take pride in their role in society. I believe our failure to place skills in the hands of so many young people is a major cause of our social problem, but as we succeed in our training efforts I charge our Union leadership not only with the responsibility of the welfare of their membership, but with the welfare of this country. We must renew our pride in our work and in our nation. This competitive world demands the kind of Americans that we have always known.
Thank you very much . . . . . .

Dr. Marvin H. Berkeley*

Ladies and gentlemen, I am delighted to be with you today but I am sorry that immediately after this address I have to run back. With that election coming up a week from Saturday, people say "Who is minding the store?" and I have to say "No one is minding it. They are trying to take it over".

It is an impossible task to please everyone in the fields we are talking about here today. It is like the married couple with the wife forever trying to please the husband. And the husband trying to please the wife. So at Christmas time she bought him two ties. The first chance he had to put one on, he did, came down to breakfast, she took a look at him and said, "You don't like the other one, do you?"

Mr. Redding did give us this choice to talk from a sectional or parochial view and frankly, he gave us up to 20 minutes to deal with the total subject. It is like the historian who made that whirlwind trip through India; in a few days time. So he wrote a treatise on the country and it was entitled "India---yesterday, today, and tomorrow".

You know I am going to be talking to you from a purely north Texas point of view, I have even taken the choice and expanded it to the country. Because I would like to focus on the environment for vocational-technical education and then talk about the subject more specifically and this environment being our total economy.

Perhaps each generation in looking at its society, feels as I do today, but it is hard to imagine a time of greater contrast, contradiction and opportunity. Please think of the needs of vocational-technical application. In our country as I portray some contrasts of the present day - 30 years ago the average level of education completed in the United States was about eight grades. Today it is roughly 12 grades and it is increasing each year and yet the Commissioner of Education recently reported that in large school systems up to half of the students read at least 2 grades below their age levels. In the military, graduates actually read at the 6th grade level or below. Through improvements in Construction Technology, we are able to erect in just a few months time, a hotel, a school or even a suburb of apartments, and yet the 1970 economic re-

*President, Dallas School Board; Director of Public Affairs and Assistant Vice President, Texas Instruments Incorporated – Dallas

port of the President notes that our new housing requirements substantially exceeded the total housing starts in 1969 and the gap is likely to increase this year.

We have air travel that can allow a passenger's arrival at almost any destination in the world, even though each year sees a new high in air miles travel. And yet we squeeze our belongings into bags barely small enough to carry on a plane and accept such inconvenience, to avoid a loss of time, and sometimes the bag itself, at our destination. Our radar and computers continue to improve to provide an accurate picture of an ever increasing, constantly changing air traffic pattern. Even though we may travel from city to city even faster with comparative safety, much of our inner city travel ranges from freeway frenzy to street corner compression.

We at Texas Instruments manufacture integrated circuits in rooms where the environment is fully controlled around the clock. A positive air pressure and infinitely small dust, temperature plus or minus one degree, humidity plus or minus 5%. Contrast such precise environmental control with the fact that air and water pollution has been declared the number one domestic problem. It will require billions to comprehend, let alone solve. Think of the recent technological advances in our country in restoring health, when it is in danger, and as Mr. Herring has already described, in transplanting organs, hearts, kidneys, and other parts of the body.

How does life expectancy for American males and females compare with those countries in which records are maintained? During 1959 to 1965 we in the United States actually dropped in rank position from 13th to 22nd for males and 7th to 10th for females. These then are but a few characteristics of the present environment as we seek to prepare the next generation more effectively to meet tomorrow's technical challenge - let me quickly say I am not suggesting gloomy trends I have described will happen or continue to happen or more broadly that we are failing as a society . . . notwithstanding some considerable exceptions we still enjoy the greatest standard of living in the history of man. Further, I am deeply optimistic about our future but optimism in a technological world is just wishful thinking unless we prepare the next generation to discover and develop their hidden aptitudes and here is where we come in - here is where we can reverse these trends. You know I am sure it has occurred to you as it has to me now and then, that every person could develop skills and the "know-how" which could qualify him for a very successful career in a variety of both related and unrelated areas. Have you ever thought how many different kinds of careers you can build for yourself? I have. Each of us has the opportunity to build many successful careers. These vary strangely enough and all too often bear no resemblance to the

actual job history of many persons. We prepare most students for college but a relative few will graduate of those we prepare. The message comes through loud and clear that we must make radical changes in the secondary level of education as youth approaches the career choice and prepares for responsible citizenship.

This of course has significant and specific bearing on the entire field of technical-vocational education. Although substantial improvements have been made in recent years in this field, necessary changes made to date are still for the most part, subcritical - barely visible.

We are letting ourselves dawdle when we should be daring - we are letting the *myth* dominate the *must* of the field. I briefly will suggest in sequence a myth which needs to be reversed into a must before vocational-technical education will meet the needs of our students and our society. I will cover each of these very briefly.

Myth No. 1: Vocational education is different from technical education which is different from professional or scientific education, and must be handled distinctly and differently from one to the next. We must change this thinking in our educational approaches. The skills and know-how of most vocational fields extend into technical fields which extend into the most complex scientific fields. One is a stepping stone for the other and the blending into an increasingly more complex level is fairly smooth and fairly continuous. For some reason we who are concerned with the stigma of vocational-technical education are often the worst offenders in promulgating the attitude. We do it by dealing with the field separate and distinct ways instead of fully integrating the courses, teaching methods, schedules into the total educational program.

When we at Texas Instruments train an apprentice-draftsman, which incidentally we did in the case of 248 students last year because the schools didn't do their jobs, we are actually starting such individuals into a career ladder, which extends at least to the design draftsman level at 3 times the income and many times the skilled complexity. Furthermore, with supplementary theoretical courses as one progresses up the career ladder, he can qualify for a variety of engineer-type assignments. And in addition to this, we seem to let the statutory distinction of the exempt and non-exempt status and professional and non-professional classification reinforce the difference from one vocational-technical field to the next. This only preserves whatever stigma there is with each distinct job, so we must eliminate the artificial boundaries within the spectrum of all career areas beginning with the simple skills and progressing to the most complex.

Myth No. 2: Vocational-technical education leads to lower pay and career status, than liberal arts and the pure humanities . . . it was sug-

gested earlier that there were some misconceptions about the range of earning potential and status in vocational-technical education areas. Since one can qualify for the more complex engineering and scientific jobs, it is difficult to set an upper limit. In our industrial plants, design draftsmen, tool and instrument makers, or engineering technicians, have the present potential to earn at least $15,000 a year and that is respectable salary for any engineer with a number of years of experience. As we know when we build a house or an office building or a plant, the income of draftsmen and journeymen in construction trades has increased faster than any occupational area of this country, so we must do a better job of communicating the earning potential of vocational-technical careers to potential students in this field.

Job status is more elusive thing to communicate but there is no question that often as not, successful achievement of the most demanding technical contracts is just as dependent on skilled methods and tooling setups, efficient automated circuit design, appropriate maintenance of terribly complicated test equipment and so on. In other words, technical skills are just as vital as engineering design, administrative or managerial skills.

Myth No. 3: Vocational-technical education can be scheduled into a standard day. Someone once said we plan our systems and therefore we are governed by the rise and fall of the sun, the faces of the moon and the four seasons of the year. Throughout all secondary education the standard course curriculum in a 7-period day are quickly breaking into a schedule which is functional and based into skills that need to be taught. You can't train effectively in one fifty minute period or a double period, for that matter, if set up - and clean up - requires 30 minutes or more. The skills required in a modern school laboratory or shop are no different than the skills employed in an industrial shop or laboratory.

One-half and whole day sessions are routine. The two and three shift operations are also routine for efficient utilization of extremely expensive capital equipment such as heavy power equipment, complex simulators, computers and the like. So I believe the more enlightened school districts are waking up to this and I predict the next five years will see much more effective equipment utilization with great changes in scheduling periods within a day, the length of a total school day and indeed the length of the course of study.

Myth No. 4: Vocational education can and should be taught in school. Here I define 'school' as a comprehensive high school with a technical institute. The fact that this is a myth is already implied by the foregoing comments. This next September in Dallas will open an

academic portion of a 20-million dollar educational park, the vocational technical portion will open a year later in 1971. This career development center, as we call it, will include 22 clusters of virtually every technical-vocational skill.

In the center we will have a student body of many thousands, most of whom will be enrolled for part time highly specialized training and education. Even with the use of some of the most expensive equipment in this center it is still not practical or necessary for us to try to give instruction in all the varieties of up to date equipment for which trained graduates are badly needed. How much more effective it is to farm out students to the diverse businesses and plants for the progressive use of such students to learn these grades. They can learn and earn in short order, and will relieve much of the skilled labor shortage in the most critically needed area. Moreover, the students in the field have that benefit of application in the leading edge of technology - this one like the other myth is going to require considerable adjustment on your part and mine - adjustment in educational business philosophy bearing in mind, scheduling, assignment, on teaching methods on our legal restrictions. We should be looking very critically at those and a host of other sacred cows and I predict that in 5 years some cows won't be as sacred.

Myth No. 5: Vocational technical education can and should be taught only by teachers certified by the Texas Education Agency under its current standards. If you accept the other myths as real, then you will also accept this one. In my view we have to look at priorities for teacher certification very, very closely. Number one in my book is the practical ability to instruct the skills we need now. This may or may not include a college degree, Texas history, or indeed the employment of more than a few hours a week. We are starting to see for example a number of performance contracts arranged by school systems and profit oriented companies. Such companies are paid on the basis of their efficiencies in training basic and specialized skills, the better the job, the more money they are paid. I believe this is a most healthy trend so long as the achievement standards are well defined and appropriate incentives are well defined, well prescribed. We both in business and in public education and private education must move along with those skills that are rare but most vitally needed in our society. Many companies are eager to compliment the public school system, both the companies and the school systems will benefit but the student will be the chief beneficiary.

To sum up I have presented a few myths of technical-vocational education, whether you accept them or not, I do believe they are active, but sometimes very subtle, but I believe these are the prime deterrents in this rapidly changing and growing field. Let's explode these myths.

Let's start conceiving vocational-technical education as a smooth, continum of skills and know-how with professional scientific fields, not something totally apart or distinct from others. Second, let's communicate the great needs and the opportunities for rewards in the vocational-technical fields on which our society and standard of living depends, but become practical and flexible in the way in which these skills are taught. Where appropriate let's eliminate the school walls which are barriers rather than shelters and take the students to the school of the community where education can be most effectively given. And last, let's recruit the most able teachers for leadership - whatever paper credentials might be.

John Gardner has said 'we need a common allegiance to the goals and values of our national community.' He said if we could bring to bear on our toughest problems the talents and resources of this nation, we could accomplish some things that would leave an indelibile mark on the history books and as another philosopher said, 'today is the first day for the rest of our lives.' I suggest to you . there is no time like today to begin, to plan to leave an indelible mark on technical-vocational education. Thank you . . . .

H. B. Zachry*

I am to bring you a view of Southwest Texas Economy - tell you its needs, probable jobs and classification to become available over the years and how Technical-Vocational Education can provide takers. I have not done this. (I refer to April 6, 1964 report of Sub-Committee #2, Final Report to Governor's Committee on Education Beyond High School, for an example in detail.) I will not discuss our great military installations, the emerging fine Medical Center, the many small industries - rather, I will present that which has hurt us most.

Within a Del Rio, San Antonio, Corpus Christi line, thence along Texas' south border back to Del Rio by last census plus 20% there are 1,500,000 people, 874,000 in San Antonio. Here are 46.5% or 230,000 of the State's functional illiterates. Here vigorously continues the world-wide rural to urban movement with San Antonio the big recipient adding to our population those who *take* from our schools, our hospitals, treatment centers, fire, police, sanitary, welfare agencies, etc. and *give* nothing in return - may even lastingly harm us by eventual political take-over; note activities in Crystal City, Laredo, San Antonio. It is said 80% of their children are "drop-outs", and their cost to the State is enormous.

The reasons may not be too germain to the subject but briefly -- they came from Mexico, worked on farms and ranches, did common labor jobs where found in industry and in services, lived peaceably and I am sure as happily as most of us. From Laredo-South into the Lower Valley irrigated farming became a big industry. Webb County once had the biggest cattle population in the State. Allied businesses grew and prospered - thousands of jobs were provided.

Without much effort to prevent, our State acquiesced in the $1.30 per hour minimum wage - imagine $13 per day for men and women in the field while just across the Rio Grande they drew the equivalent of $3 and their farm products moved easily across the border. On top of this came union organizers demanding $2 and more per hour, picketing fighting, sabotaging, etc. No firm hand said: "Stop, you are killing an industry, its little cities and towns, the people you claim to help you will hurt, they will lose their jobs." So they lose their jobs - they have been eliminated, rubbed-out - lose their self respect, they move to the

*Chairman of the Board, H. B. Zachry Co., San Antonio; Member, Coordinating Board Texas College and University System.

city, go on relief, double their population every 20 years - cost all U. S. Citizens through our City, County, State and Federal Governments.

Further, our industry minimum wage rate was moved to $1.60 per hour with time and half after 8 hours and after 40. Imagine our San Antonio office building paying a little girl $17.60 per day to run an elevator or an older women $16 per day to mop and dust. We put in automatic elevators, we bought sophisticated cleaning machinery, hired bright young men. Our old employees have gone on welfare with the farm hands, to live out their lives at public expense - convinced welfare is a right, not a charity. Now we must train their young or also continue them on relief "even unto the 3rd and 4th generation".

So Southwest Texas Economy speaks, loudly proclaims jobs are decreasing as Agribusiness withers on the vine - farming, processing, marketing, machinery - as machines replace an uneconomic minimum wage in services and in small businesses, they fall apart - the march to welfare moves at double time. The movement of U. S. manufacturing concerns into Mexico employing tens of thousands of their citizens, essentially on handwork such as electronic units, escape high wage rate in the U. S. and make themselves more competitive with Japan and others in the world market. This business all could have been brought to our Southwest Texas area, almost eliminated the relief rolls, had we used proper foresight and directive effort.

Producing useful citizens *is* our concern - it *is* our duty. It is also our duty to cut government spending. To develop a plan for employment, which must mean creating new industries, and surely Technical-Vocational Education is a cornerstone but far more important, to implement that plan, must become a *purpose for our lives.* I am sure Dr. Kerr this afternoon will tell us how best to proceed. May I point out only a few road blocks, offer a suggestion.

It became the political thinking and the acting this past decade that money could cure all difficulties, so we shoveled it out over our lands and over the world. We have "drunk" to their health until we have nearly ruined our own. There is no substitute for management in any field of human endeavor, here we must use it at its best. We must consolidate State and Federal Programs for Vocational Education and Training, seek to make them economical and efficient, quickly rise to new programs as outlined by the President on March 17, when he stated: "By 1978 almost two million new jobs will be created in the construction industry" and ordered new training programs. And as we seek State funds we look long at projected State needs for public schools, for universities and colleges and try to find a place for Technical-Vocational to slip in. Then we must push with all our strength.

Public schools' 1970 budget is $788,000,000 and for 1980 is projected $1,700,000 and this accompanied by a 10% enrollment reduction. Our State General Revenue requirements for all agencies of Higher Education was $70,000,000 in 1960, $300,000,000 in 1970 and projected $890,000,000 in 1980. This brings the total for all education in 1980 to $2,600,000,000 - a 120% increase over 1970.

Studying Texas Economics and referring to "Texas 90, An Economic Profile of Texas to 1990" published by the Texas University Bureau of Business Research, we find only a 44% increase in Personal Income during these 10 years. When you consider increased government operation cost, welfare, the 100 new bills requiring new money that will be introduced and some passed in the Legislature next year. the problem ahead looms clear and big. Let's get after it. Let's make our Educational Programs fit our needs.

Let's use 25% of the students above the sixth grade as an estimate of the percentage of students who would take vocational courses if offered. Ask Dr. Edgar to then allocate that same part of our State General Fund appropriation to the public school system for this next biennium. Considering 60% of our $788,000,000 budget as applied to sixth grade and lower, leaving 40% for some $300,000,000 for the grades above, 25% of that would be $75,000,000. Averaging the 10 year projection at the same ratio, we would have $125,000,000. Then as we divide this newly created department into sections, we can easily get industries in each to contribute additional equipment required. Get all candidates for Texas House and Senate to adopt platforms tieing them to this program now and maintain the pressure until May elections. If we are not careful, another two years will be lost.

Let's talk to Dr. Edgar now, get his Board to take action - Senator Brooks to visit his fellow Senators, seek out certain key members of the House - we know that the Governor is on our side. We can then hit a campaign trail and win!

While we are doing this, let's change requirement for a high school diploma. Give an H.S.A. for academic, an H.S.T. and H.S.V. for technical and vocational. Our Junior Colleges now graduate them as such, even permits those failing academic work to switch to vocational and move on without loss of time or pride. And I will bet one of our enterprising Senior Colleges or University Presidents will offer a B.S. to the Junior College graduate after two more years of planned work. It is certain that all industries will be standing in line to hire this graduate.

Thus with two simple acts, the high school and Senior College or University diploma, all so-called "snobbery" will vanish forever. I say again - let's get moving.

HEARING SESSION NUMBER ONE

Chairman:
Mr. Vernon A. McGee, Assistant to the Governor for Program Development, Austin

Those involved in the formalized aspects of this discussion were:

Recorder: Mr. J.A. Marshall, Director, Agriculture Education, Texas Education Agency, Austin

Summarizer: Mr. S.P. Cowan, Superintendent, Rio Grande City Public Schools, Rio Grande City

Presenters: Mr. Harry Hubbard, Legislative Director, Texas AFL-CIO, Austin

Mr. C. F. Smith, Electrical Contractor, Houston

Dr. June Hyer, Professor, Education and Geography, University of Houston

The Honorable Chet Brooks, State Senator, Pasadena

Resource Panel: Mr. Don Halsell, Director of Training, Clay Products Association of the Southwest, Austin

Dr. F. Ray Marshall, Head, Business Economics Department, University of Texas at Austin

Mr. Jack Collum, Dean Technical-Vocational Education, Lee College, Baytown

Mr. Wallace Dockall, Center Director, Gary Job Corps Center, San Marcos, Texas

54/55 1126

This hearing session addressed itself to the following concerns:

Attitude

Attitude, at the very heart of our problem is especially acute in the area of vocational-technical education.

Relevance of Education

The rapid change in technology has left much of our education system unprepared to train youth and adults for work.

Educational Snobbery

The principal emphasis in schools is college prepatory even through six out of ten of our youth enter work from high school.

PRESENTERS:

- Most union members want our children to go to college and get academic educations the same as anyone else. This attitude is possibly intensified by the general attitude I have noticed among union members toward vocational-technical education -- that of distrust of school administrators in general and vocational education specialists in particular.

- Many union members feel that school administrators orient the vocational education programs too much toward business and industry.

- We often feel that too much emphasis is placed on producing the type of worker that managers want instead of the type of worker that can think for himself. This is why we find a deep seated opposition to almost all types of vocational-technical education within the ranks of the union members.

- Because the overwhelming majority of the union members have learned our skills on the job, and we earned good wages and working conditions by our willingness to organize and work together, we don't like to think of an employer getting youngsters trained by vocational education programs at no charge to the employer, and hiring them to replace the union worker.

- Some unions feel that vocational education competes with their system of training youngsters in vocational skills, while others cooperate with and participate in vocational programs. During the past Legislative

session the Texas AFL-CIO was one of the strongest supporters of increased emphasis on vocational education in the state, and at the national level the AFL-CIO convention delegates asked for expansion of federal participation in vocational programs.

- We feel that vocational education programs cannot be complete without the union--and that the school administrators should consult with us and give us a part of the planning.
- Educators should consult with us as union officers and members about the manpower needs and training techniques at the same time they are consulting with businessmen. We should be invited to participate in vocational education programs at the advisory and program levels.

- I cannot help but express my concern as to how we might change the attitudes of minority individuals so they may be receptive to whatever is being offered. We should do this with less talk and more action concerning the problems of the minority groups, because unless existing patterns are changed, we are just kidding ourselves about possible solutions to employment problems.

- There is an acute need for us to develop programs with the intent to get minority groups involved.

- It is a natural fact that the Negro should be suspicious since he has consistently been the recipient of limited opportunities and exploited so many times with peaceful smiles. Throughout childhood, children are taught, not necessarily by words, but by deeds and examples that they are superior individuals while other children are taught in the same manner, by deeds and examples that they are inferior. The indoctrination is so thorough that any attempt to change is difficult, and in some cases impossible. These are the children you and I are planning to educate and from the very first they are off to the wrong start.

- I think that until there is complete reversal of attitudes in the hearts of men that the money being spent on these programs without sincere depth to help minorities, is really in vain. The psychological effect of the past and the inequalities that still exist will be a stumbling block in the way of the programs discussed here.

- If we are to meet the occupational education challenge, we must obtain the full cooperation of leaders in industry and education. These people must work with government leaders to urge that we reorient our

educational priorities. We must direct our educational programs to coincide with the jobs ~~of our~~ economy. To do this, it is vital that we destroy the tragic and mistaken impression that vocational-technical education is in some way "second-class".

• Although we have taken some very important steps toward expanding our programs of vocational-technical education, we have just begun to develop the potential of occupational education in the state. For instance, the average counselor in Texas public schools has little concept of the new career opportunities available because of our changing technology. Unfortunately, they are still thinking basically of future farmers and future homemakers at the mention of the words "vocational-technical education". Homemaking and agriculture are important, but we still are expending most of our resourses on these two programs which do not constitute the majority of our 1970 needs. The time has come when we must start training programs to better inform counselors of the many new career opportunities available.

• It is time we realized that the average person has very little idea of the variety of technological skills needed in today's economy. Even the State Legislature is still operating on what is primarily a rural mentality, often failing to recognize the needs of most Texans, who are urban residents. It is a tragedy when you have people with this kind of thought sitting on the Education and Appropriations Committees of the Legislature.

• We are far beyond the stage where young people should be thinking just that they want to be doctors, or firemen or merchants. Courses should be given at the junior high school level specifically to acquaint youngsters with choices available and to let them know what training they need for a job in the future. I know of many youngsters who want to be auto mechanics and see little use for English or math. Yet, if they realize a good mechanic must be able to communicate effectively and to keep records, English and math take on a new meaning. Too often we are losing people at the high school and junior high levels because they believe their education simply isn't relevant. They drop out and go to the military or take a construction job that requires a strong back, but very little skill. For the moment, it meets their purposes, but is isn't going to sustain them when they have families. Instigating vocational-technical education information at the junior high level might reverse this trend.

• To enable the remainder of the students who do not get high school degrees to get jobs, it is essential that they get knowledgeable vocational counseling and then vocational training. Parents, too, need to realize what opportunities are available to their children in technological fields so that they may better guide their children into a rewarding career.

• Educational snobbery has been developed by society because of several different things. One reason is that we have not developed in this country the attitude that a job well done is a meritorious act. We do not measure the effectiveness of a job by anything other than the standards of wage compensation paid for that job. It is time for the public to recognize that if we expect people to take pride in the tasks they perform, we will have to do likewise, and respect them for a job well done.

• Another reason for educational snobbery is the inability to communicate. It has been well established and accepted recently that we must have some kind of vocational and technical education for the hard core unemployed and the economically disadvantaged but we have been negligent in realizing all these people are represented by ethnic minorities. For example, 42% of the Anglos in the State of Texas are among the dropouts we have--of those children entering the seventh grade, less than 62% of them finish high school.

• Often the system of technical-vocational education has been inflexible and has not responded to the needs of society. It continues to emphasize too much the needs of agriculture and homemaking. Our vocational system should be expanded more into other areas.

• There is a need for a combined effort of the college, ethnic groups, union and the entire society to develop marketable skills with relevance to our economy. If we have an abundance of skilled people and not enough jobs, it is the fault of management and planning--there is no need to train people in schools and have them go out and search for jobs that do not exist.

• Parents must realize that there is no disgrace involved when a child does not choose to earn a college degree. Because many parents urge college upon their children as an unconscious desire to increase their own status, many children do not find the joy that is possible in their jobs because of parental attitudes. Parents must be educated that a job well done is better than a job unhappily done.

PARTICIPANTS:

- Because we vocational educators have been told for so long that what we are doing is inferior, whether we want to believe it or not, we subconsciously do. We must try to correct this attitude immediately.

- As vocational educators we must have the concept that vocational education of the hands and the head is not inferior to, is not equal to, but actually is superior to academic education.

- We must believe this and act on it by establishing a strong, intensive and continuing campaign based on the concept of superiority, which would accomplish at least two things: one, it could convince people that head and hands education is in fact superior to a simple, academic education; second, it could convince a number of people that although vocational education might not be superior to academic education, it is in fact equal.

- I think everyone needs to have an awareness of the fact that vocational choice is developmental, that it does not develop full-grown or even half-grown when a student enters the seventh, eighth or ninth grades. The knowledge and feelings that students must develop about the world of work, the dignity of labor, and other concepts cannot wait until the junior high school years. They will not be developed with the present counseling staff and absence of clerical workers that now exist in Texas.

- Unfortunately, the average counselor in the Texas public schools has little awareness of the new career opportunities available because of our ever changing technology--many still are thinking basically of Future Farmers and Future Homemakers at the mention of the words "Vocational-Technical Education".

- To help alleviate this problem we must start training programs to better inform counselors of the many new career opportunities available. We must also encourage the State policymakers to provide money to reduce pupil-counselor ratios, and increase the number of counselors--particularly at the elementary level, and provide adequate clerical staff.

- Guidance counseling in the teaching of vocational education must equal, preferably exceed, the requirement for guidance counseling in the academic area.

• We must initiate effective follow-up programs of students to help parents, counselors, and the public at large become aware of the need for vocational education for students from every socio-economic level.

• Another problem that affects the attitude toward technical-vocational education concerns responsible educators greatly. When "schools" of vocational education sell students on their programs, and the students arrive to find that things are not what they were purported to be, the experience causes them to loose their interest in vocational education, and it is doubtful that any of them will ever participate in vocational education again. I would suggest that you give your strong support to the effort that will be made in the next Legislature to establish state regulation of private trade, technical and business schools.

• Emphasis should be placed on the total education concept. We should not separate students into two groups--they should be kept together and be taught to work within one society for the benefit of all involved.

• We must direct educational programs to coincide with the jobs of the economy to insure an equilibrium between job openings and those qualified.

• We have to assume responsibility that in business, industry, education and government the lines of communication remain open to keep these agencies on an inter-related basis because of our constantly changing needs--there is no need for us to train people in schools to go out and look for jobs that are non-existant.

• We need to realize that a marketable skill involves all the education and all the training a person has--whether it takes a few years or a lifetime. We should develop the "marketable skill' to participate in society--this development should not be ignored in technical-vocational education.

• I feel that the vocational-technical system should be expanded more--into more or other areas, because of the 50% ratio of vocational students being involved in agriculture and homemaking, this figure is too high. Much greater attention should be going to the training of students for skilled jobs.

• Too often vocational courses are dead ended and there is no upgrading.

- There is not adequate technical-vocational education given to minority young people. Because the technological gap between whites and minority groups is growing and is recognized, this country cannot efficiently develop and expand technologically unless this is abolished.

- Once we get vocational teachers who are good and get these youngsters interested in vocational-technical education, we will have good products, and the students themselves will sell by word of mouth vocational education.

- We should point out to young people those who have been a success without a college education.

- There is no need for a division between academic and vocational education--there should be a program to meet all needs of our system--an enriched educational system. As we add technical and vocational education to the academic system, we should not allow sharp divisions to become apparent. If a sharp division does become apparent, neither the parents nor the students will cooperate.

- Many people have the attitudes they do because of society--with its strong, middle class bias.

- Our educational system is one hundred years outdated. We have answered the challenge of education by making it more difficult, not more relevant. We hear a lot of talk about the importance of the individual but the educational system is locked into the teaching of subjects. Ours is a system which has bowed to the snobbery of a limited group.

- There is no real security in this world outside one's own skills--there is no way to produce less and get more. Thus, if our society is to survive we must incorporate education with the needs of society.

- How we apply the questions and answers discussed in this session is the important factor. The time for discussion is long past; the time for action is now.

HEARING SESSION NUMBER TWO

Chairman:
Mr. John L. Cockrill, President LTV Ling Altec, Inc., Dallas

Those involved in the formalized aspects of this discussion were:

Recorder: Mrs. Elizabeth Smith, Director Homemaking Education, Texas Education Agency, Austin

Summarizer: Howard Duhon, Asst. Dean, Technical-Vocational Education, Lee College, Baytown

Presenters: Mr. Oscar Castillon, Manager Area Development Division Texas Electric Service Company, Fort Worth

Dr. Earl Williams, Director Human Resources Center, University of Houston, Houston

Mr. Ted Boaz, Dean, Technical-Vocational Education, Del Mar College, Corpus Christi

Resource Panel: Mr. Robert McAbee, Director Technical-Vocational Education, Fort Worth Public Schools

Mr. Bill Eastman, Assistant Director, College Entrance Examination Board, Austin

Mr. George Telge, Vocational Counselor, Jack Yates Senior High School, Houston

64/65 1134

This hearing session addressed itself to the following concerns:

Management Structure

Does Technical-Vocational Education occupy a position within the management structure to influence policy and planning decisions in public schools and junior colleges?

Evaluation

What measures can be taken to update and redirect technical-vocational education programs to meet the needs of the employers?

PRESENTERS:

- So many of us are faced today with the competitive aspects of economic development and are painfully aware of the needs for technical-vocational training. As I look at the problem, I find it to be many sided -- attitude, image, facilities, programs, legislation, funding--funding--and more funding.

- We are in competition for economic development with other states and often we are painfully aware of how important industrial training is when we lose an industry to adjoining states. Labor is one of the most serious important locational factors in economic development and industry -- we must create an effective labor force to serve the needs of industry.

- There are no jobs left for the unskilled. We must find skilled people to fill the needed jobs, and we must train most of them in vocational education classes. Everybody is seeking the industrial payroll -- and it is going to be salvation to some communities --we must promote technical-vocational training in our state -- it is a *must* for future economic development.

- Because vocational education is a part of the vast field of manpower training and planning, we must attack the problem related to the special needs of target groups in manpower. It seems that the job that lies ahead of us is one of management.

- With the varied programs that emerged after the passage of the Manpower Development Training Act of 1962, so many programs

emerged affecting our manpower supply, that there evolved the problem of so many coordinators of manpower training that it became a concern as to *who* was going to coordinate the coordinators. (Coordination now comes through the Governor's Office and goes down the channels of Government). On top of all the present problems we are now faced with the possibility of another manpower act, creating de-centralization all the way down to the local level. The problem now is who is going to do the coordinating in the future -- the Coordinating Board of the Texas Education Agency, or a 'middle ground' agency. We must solve this problem before we proceed.

- There are some questions I would like for us to consider in terms of management:

(1) Are we really prepared today to develop expertise for coordination on the state and local levels?

(2) Do we have enough information to really manage the programs we have had, to do the proper planning job?

(3) Are we ready to eliminate some of our jurisdictional disputes to talk about coordination?

(4)What about Advisory Committees -- in some states we have several, and if we are to coordinate effectively we cannot have three or four kinds of advisory committees competing with each other.

- Unless we are ready to start talking seriously about this, I don't think there will be any coordination any time soon.

- What we have to sell and do is good for the economy of our state and of our nation.

- Education begins, and ends in my opinion, at the local level.

- In business and industrial organizations, good management is essential -- we must develop and maintain quality technical-vocational education people on our staffs to achieve a high quality of management. My suggestions are that we establish professional qualifications for personnel that are in charge of management positions; we should provide adequate resources to employ supervisory and administrative personnel who are professionally qualified -- that such personnel have teaching experience in either technical or vocational education, and that they have experience in industry.

• I think that since the cost of technical-vocational education is so much more than academic education, our administrative people must have the urge to perform and get the most out of the education dollar. Each administrator must be a specialist in his field and possess leadership qualities and have a good philosophy and history in occupational education, and be aware of its role and scope in our society.

• We do have jurisdictional hangups; we do have several institutionalized organizations in the manpower field one way or another, and many of them perform all services all the way from recruitment to placement so that organizations like TEC are unhappy -- if other people do recruiting or placing, and the vocational educators are unhappy if someone else is doing vocational training, so there have been attempts made to establish one program.

PARTICIPANTS:

• I feel that if administrators are to know their jobs in vocational education at the local level, they will need: academic and professional achievements, teaching experience, and business or industrial work experience. Also, the administrators must do all they can to get the most out of every educational dollar -- possibly by developing a structure that will facilitate all levels of technical-vocational education.

• Vocational Administrators and faculty members should be on the same level as academic administrators and should be paid the same salary.

• Personnel should be on a twelve month basis to provide an effective educational system.

• I feel that financial resources must be adequate to provide the needs of technical-vocational education. We must do everything we can to encourage the people in charge of funding to give us adequate amounts, and we must let them know how effectively we are using these funds.

• There should be established an effective evaluation program on technical success and failure of students as they are placed on the job. An adequate system of evaluation is difficult if not impossible, at the state level -- it must be done at local levels and must have the help of industry on feedback.

• We must find out what products are necessary and we must follow up to see if the product is relevant to the needs. This involves the attitudes of students, administrators, educators and industry.

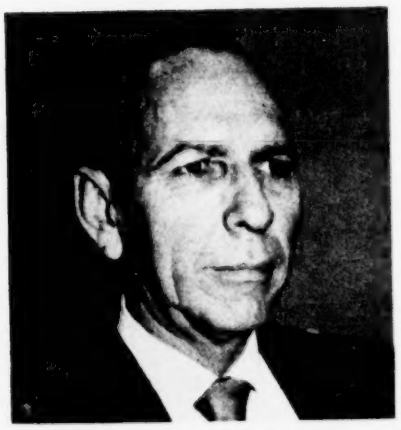
• We tend to isolate vocational education locally. To my way of thinking, all education is vocational. I think our school system tends to become an empire. They buy their own facilities - their own equipment - and put up their own buildings . . . . and that seems to be the most ridiculous thing when we have industry with facilities, and the people with which to do this, if somebody will just understand our problem and let us do this.

• Something is going to have to give -- we are going to have to come across with some changes whereby schools are going to have to fulfill their conscience and until that time arrives, I see little hope of the high schools being able to meet the demand that industry has placed upon the secondary school. Let's face facts -- something has to change. Education is changing -- and so is everything else. We must decide who is going to change before we can make any progress. If vocational education people and industry people can get together, and use school facilities and school people to teach young people to use the facilities and manpower of industry, we can come a long way toward realizing our goals.

• I think we should have some kind of a rating system or certification--somewhat like colleges and universities are certified by teams that evaluate the whole setup and give it a rating. They could look for the quality of teachers, the kind of equipment used, the attitude of students, the dropout rate, and the kind of performance on the job. If this rating system was not done entirely by educators, and could utilize government people, industry people and business people, it would enable the school to know where it stood and help alleviate the vocational education systems lack of prestige.

• It is necessary for us to have effective coordination between management and education at the state level, and we need a common ground upon which efforts should be coordinated to the benefit of all involved.

HEARING SESSION NUMBER THREE



Chairman:
Mr. W.H. Townsend, Chief of Special Programs, Texas Employment Commission Austin

Those involved in the formalized aspects of this disccussion were:

Recorder: Mr. T. R. Jones, Chief Consultant Coordinated Vocational -Academic Education, Texas Education Agency, Austin

Summarizer: Mr. Marcos A. Vann, Director Urban Affairs Development, San Antonio Chamber of Commerce, San Antonio

Presenters: Dr. George Fleming, Administrator, Santa Rose Medical Center, San Antonio
Mr. R. H. Huggins, Chief of Education Services General Dynamics Co., Fort Worth
Mr. Bob Allen, Director, Texas Office of Economic Opportunity, Austin

Resource Panel: Dr. Joseph Champagne, Human Resources Center University of Houston, Houston
Mr. Jim Harwell, Executive Director Texas Industrial Commission, Austin
Mr. Volma Overton, NAACP, Austin
Mr. Travis Tullos, Director Comprehensive Manpower Planning Staff, Office of the Governor, Austin
Mr. Jim Reeves, Director, Placement Services Gary Job Corps Center, San Marcos
Mr. E. L. Tiner, Director, Manpower Training, Texas Education Agency, Austin
Mr. Marvin Brown, Executive Secretary, Mechanical Contractors Association of Texas, Austin
Mr. Bill L. Ditto, Assistant Dean, Technical-Vocational Education, Del Mar College, Corpus Christi

This hearing session addressed itself to the following concern:

Needs of Texas

How does Texas develop a labor market information system to effectively direct the labor force and provide data long range education in planning?

PRESENTERS:

- Many of the problems that are confronted now by technical-vocational education came about because of tremendous advancement and technological achievements. For example, we are now called upon to deliver more and the challenge is monumental. We need the best possible to fill these positions that have opened so rapidly.

- With all the advances in technology --(we need the best people possible to fill these positions that have opened so rapidly) in vocational knowledge and scientific knowledge, we must have better prepared people, they must be more knowledgeable. This of course brings upon more pay -- these facts are necessary to know if we are going to provide these people for the jobs that need to be filled.

- The difference between vocational, technical and professional people is artificial. We all want to forge ahead -- there is a necessity for the planners to serve as catalists to coordinate the efforts for advancement. Only when we all get together will we be able to achieve our goals.

- There are so many planners with the attitude of 'know it all' that hinder our progress. The attitude of having a problem and putting the blame elsewhere causes many solutions to our problems to be hidden in the contest between professional planners. We should abandon this contest to work readily to get more involved in creating a state of readiness for today's world. We should make progress as we go ahead in solving our problems, but we should be careful not to tear down what has already been built.

- As we change priorities to keep up with the advances in technology, we must make sure that business will buy the product we produce. Industry must evaluate it's own effort, and realize that the no educational system can produce the type of individual each company needs, and there must always be an upgrading and increasing of knowledge.

• After twelve years in the public schools, we should expect the graduates to leave school with a saleable skill. Unfortunately, those that do are in the minority. This forces many industries to spend tax dollars in government contracts to train people at company expense and at the expense of taxpayers. We must have a better school system if it is to meet the needs of industry and business. The realization that five out of six jobs in this country available for young people are found in industry and business intensifies the urgent need of saleable skills.

• Here in Texas we must be responsive to needs through the educational system. We must get information in sufficient time to be responsive. Sometimes I get a bit disgusted over the fact that we talk the problem to death.

• I am very critical of the American Education System. It has been adequate to a degree for many, but inadequate for many more. Instead of destructive criticism -- it is hard to criticize an educational system that is responsible for keeping the standard of living so high in this country-- we need to channel our criticism constructively. We need to implement, modify and change, but we cannot change so drastically that we over do, or compensate too much.

• We need more information--better and more useable information. If we cannot develop accurate data, I seriously doubt that any projection we make for long range planning purposes will receive any consideration from state legislators. We need to develop this data in such a fashion that the data will be relevent to the people who instigate the decisions made on the basis of data collection and analysis. If we have the ability to coordinate the collection of data and put it together, we will be more able to take advantage of the opportunities available, and point out the opportunities to others.

• We must have a direction, and some way to identify positions to coordinate this overall data collection and analysis to make the educational process fully responsive to the needs of the individual and industry and the type of data the educator needs to plan his program, so we can have a central director and find someway to bring order out of chaos.

PARTICIPANTS:

• I feel that if we are waiting for the federal government to equip the shops and build the buildings, we must prepare to wait for a long

time. We should be concerned with accomplishing our goals at the local level, because we are more aware of our needs than the federal government. We are ones that need to get busy and get the work done.

- I would like to see business education recognized in our vocational programs. We are the backups on the VOE programs in Business Education. We are the only vocational area that is not funded. All of our subjects are considered electives--we are not what you would call 'required courses' -- we should be classed in vocational education, even though we have courses that are considered academic --business law, etc. I think it is only fair that we get funded and that we get help we need.

- I think Governor Smith has set a direction here for all of you from government and industry as you come together to get involved. Involvement does not mean anything at the state level unless it takes place back at the local level. It is one of my concerns how involvement can implement education. When we get back home we tend to go back into our own area. It looks to some as if we are not concerned. We must be committed to improvements in technical-vocational education, to the hiring process, to employment, to delivery of services, to the hard core, to students presently in schools, and to adults. There must be joint cooperation at the state and local levels, and the needs should be determined at the local level.

- The Governor's Office on Planning and Coordination is conducting a state-wide projection on exports and imports, and on future manpower needs. As this information is fed into the educational process it creates an awareness of the manpower needs of the future. The educational process must then keep pace with what needs are to be met--we must look at the potential of advancing technology to make sure we don't overtrain people who will not be needed in the work force.

- We have a problem in transportation and I would like for us to appoint a Transportation Committee and see if we can facilitate ways to get people to their jobs. This is a serious problem--much more serious than the sophisticated and educated people realize. There are so many factors that go into the overall manpower picture that don't get enough consideration.

- The basic need we have in vocational education and education in general is to be honest with the youngsters as they move through the

grades, and tell them what is and what isn't available. I think today we are reaching some of the problems of our unrealistic approach of meeting educational needs of our people. If we can get people who can read, write and do basic multiplication, we can train them for almost any job there is, but if they lack these general areas the real problem is right there.

- I think in Texas the problem is that we don't have "a change in priorities by keeping with the proper spirit." We have to change our priorities by keeping with the spirit of 1970's and this is a big problem for us to face. We need to recognize the needs of all the people.

- I would like to say that the problem of parental attitude must be overcome. For instance, there is a colored boy in my community that I have known all his life. This boy has unusual amount of ability to set records in everything he did in high school -- he is such a fine athlete, but he won't go to college. This boy could get a college education and I think he would certainly get a fine chance to go, but his mother says that it is not important whether the boy goes to school or not. There is no way to help this boy unless his parents help him and change their attitude.

- I am sure you do not want to make this an issue. Listen to your problem--if he goes to school, he can play football. Many of you know that a black has gone to school--without passing an entrance exam--because he was a good athlete. You are responsible for letting this happen. You want a winner on a team--a good football player. You ought to also want a good man when he gets out. This is not just happening in black schools -- it is happening in the big, good integrated schools. We should want a boy to have a chance to go to college and make good grades and play football too. I believe there should be no football if he does not perform well in school -- black or white.

- I think we can generally recognize that up to now the emphasis on technical-vocational education has been in the post-secondary schools and I would like to recommend that this Committee take back to the Governor a request to examine as far as they can in improving the sitiuation in our high schools. We have to educate these youngsters and as the principals know, or anyone connected with schools, high schools are bound by the dictates of the Texas Education Agency. On the local level, we attempt to teach in our schools, but it has to be subject to approval.

I think the real problem is re-direction of what they are now doing in cost in funding in vocational technical education -- I don't think we need to ask for more money. We need to redirect what we are using now.

- Before we (the Texas Education Agency) can develop any kind of training programs, we must have a piece of paper certified by the TEC that a survey was made by local people, certifying that there are people available to be trained. The various schools have a responsibility to train these people to find a job when they have finished their training. We need community involvement.

- Teachers should be dedicated. They should not teach a colored boy, a Pollack, a Mexican or a white child. They need to teach Franklin, Henri, and Pablo or Joe--not the color of the child, but the child himself. I think we need to do this. I find when we talk about people we talk their race, not as individuals, and this is what is wrong in public schools today. We need professional people that will treat our students as individuals human beings. Then in industry you can take them and train them like you want to.

HEARING SESSION NUMBER FOUR

Chairman:
Mr. W. L. Jones, Jr., President A-1 Construction and Engineering Co., Odessa

Those involved in the formalized aspects of this discussion were:

Recorder: Miss Sue Alder, Chief Consultant, Health Occupations, Texas Education Agency, Austin

Summarizer: Mrs. Dorothy Robinson, Palestine Public Schools, Palestine

Presenters: Mr. Alan Barnes, Research Associate, Texas Research League, Austin

Mr. J. B. Whiteley, Assistant Superintendent Vocational-Technical Education, Houston ISD

The Honorable Bob Salter, State Representative, Gatesville

Resource Panel: Mr. John Vaclavik, Budget Analyst, Governor's Office, Austin

Mr. Tom Keel, Director Legislative Budget Board, Austin

Mr. Robert McPherson, Manpower Economist, Comprehensive Manpower Planning Staff, Office of the Govenor, Austin

Mrs. G. R. Hartshorn, Counselor, Jack Yates High School, Houston

This hearing session addressed itself to the following concerns:

Resources

How can Texas most effectively develop and utilize its resources?

Costs and Funding

Initial costs of quality technical-vocational education are high. Are we willing to provide adequate levels of funding for development of programs to meet needs of tomorrow's labor market?

PRESENTERS:

- If we can get the appropriations we need in the future, we can enlarge our systems so that one day the State of Texas will have a complete system of interrelated, interworking, vocational-technical education that meets our needs. Right now we don't quite have that. We need some other things -- one of the basic things we need is a system for teaching technical teachers. We don't have an institution in the State of Texas getting into that business right now, but we do expect one soon.

- We need to look at ourselves in the era of developing the type of program we need -- and then evaluate the programs we have, and use such organizations as the Advisory Council, Legislature, and Governor's representatives to help us.

- We need more money for construction and equipment at the junior college level. Then we need more contingency money for new programs and the existing programs.

- I would say that the secondary level funding of the program fared better than anyone else in the last year's legislation. Great strides have been made in the Governor's Office and the Legislature along these lines.

- We have taken steps to bring our supervisory staff under the minimum program which will assist the local school districts in hiring additional supervisory people to work with each vocational program.

- We don't need money as much as we think we do -- we just need to utilize the resources we have. Industry should take a more active role in terms of these secondary programs.

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• We need to coordinate efforts between industry and public schools -- we need to become involved, find out how much training is needed and decide what role post-secondary and secondary education must play. We must become involved and tie these two programs together.

• Each step in education is a step-by-step procedure and youngsters can pursue it as far as he can go pertaining to his abilities and desires if he begins in a secondary school. The elementary level in Texas is lacking in any effort whatsoever to do anything to bring about occupational information orientation beginning in the elementary grades.

• There are some public school levels of which we are not taking advantage -- such as our Industrial Arts Programs. One of the objectives of Industrial Arts is guidance, vocational and exploratory. We should be attempting in our schools to start developing youngsters in the concepts of the world of work.

• We need to operate our shops with their up-to-date equipment around the clock. If we do this we can train several groups of people in vocational education more effectively.

• We do not have junior colleges located all over the state -- this causes a severe problem. The reason we don't is lack of funding. Four major urban centers in the State -- Houston, Austin, Beaumont-Port Arthur-Orange area, and El Paso, have asked for junior colleges but the local electorate has turned them down, because of the inequities of the situation. We are asking these local people to levy taxes on themselves to pay for the services which are provided to some extent by state supported senior colleges in those areas. They want a new college but they don't want to pay for it. A solution to this problem, the Coordinating Board is proposing to limit the enrollment of state senior colleges to provide statewide systems of junior colleges for these students to attend.

PARTICIPANTS:

• I see a trend of increasing suport for vocational education in all fields. Where there are shortages, there are some good programs under way at the same time. There is an unmet demand for additional programs which I am sure will be funded to some extent in the near future. In about four years of state support, financial support has increased by about

a factor of four which is very rapid increase in a short period of time -- this indicates that the government is aware of these problems and intends to do something about them.

• Although many categories of employers are unwilling to lower the standard of training of auxiliary workers in their fields, there is a necessity of speed in training new people because of a lack of qualified personnel. We have to rush four years of school into a two-year program to fill our needs.

• I think there is an intense need to modify the child labor laws. A teenager who is allowed to work when he is 14 or 15 years of age will be learning something useful for the future. This will help the young people learn, will keep them busy in the summertime and perhaps give them some ideas about what they want to do in the future.

• I think the development of human resources cannot be a responsibility delegated to a central government, a state government, or a federal government. If we all get together in this effort, we still have the potential for success, not only with this program, but also with many others in the state.

• My main concern is manpower development in the state. We are concerned that after we provide these people with these skills, we must be sure there is a demand for these skills. We don't want to put people in a job just as a job, but we want a job in which an individual can perform and make some contribution and in some way feel that he is worthwhile.

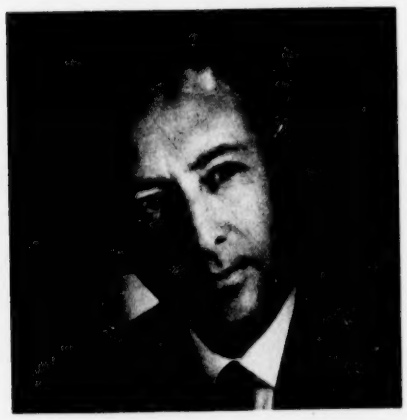
• I feel one of our greatest resources in the state is women, but we waste them because we don't give them the status they need or provide child care facilities and transportation facilities.

• The Texas Advisory Council should be regarded as a medium through which requests and recommendations may be channeled to the Governor and his staff. Local advisory councils should be organized and utilized.

• We should try to set up guards against duplication of programs in junior colleges and senior colleges.

• We need to have effective guidance of students that enter technical-vocational education programs to help avoid failures and dissatisfaction.

HEARING SESSION NUMBER FIVE



Chairman:
Dr. Luis M. Morton, Jr., President, Central Texas College, Killeen

Those involved in the formalized aspects of this discussion were:

Recorder: Mr. David Thompson, Director, Distributive Education, Texas Education Agency, Austin

Summarizer: Dr. Roy W. Dugger, President, Texas State Technical Institute, Waco

Presenters: Mr. H. D. Bearden, Director, Texas Engineering Extension Service, College Station

Mr. Harold Tate, Director of Education, Texas AFL-CIO, Austin

Mr. Len L. Clardy, Director of Training, Champion Paper Company, Pasadena

Resource Panel: Dr. Maurice W. Roney, Executive Vice President, Texas State Technical Institute, Waco

Dr. Earl Knebel, Head, Agricultural Education Department, Texas A & M University, College Station

Mr. Henry Chitsey, Director, Technical-Vocational Programs, Tarrant County Junior College, Fort Worth

Mr. Bill Lovelace, Program Director, Vocational Education Program Development, Texas Education Agency, Austin

Dr. John Ballard, Professor, Industrial Arts Education, SWTSU, San Marcos

This hearing session addressed itself to the following concern:

Personnel

What are the most effective means of Employer-Educator cooperation to provide an adequate supply of well trained personnel?

PRESENTERS:

• The available supply of qualified personnel is becoming an in creasing problem and we must come up with a plan of action to secure and develop personnel needed to carry forward not only an expanded program, but a quality program.

• There is a real need for close cooperative planning and action between educators and employers in program development and operation and particularly in supplying needed qualified personnel.

• I think we should define the type of personnel needed for a quality program. I would give first consideration to the teacher because he is the very heart and brains of the instructional program. If we don't have qualified teachers, we don't have anything to start with. If a teacher is really qualified and can perform his job well, the program will be strong with desirable results. If the teacher is weak, the program is weak and the student learns little. It is a waste of time, money and everybody's effort.

• Successful teachers have three essential ingredients in their qualifications and this is what I want to stress emphatically. They must know the content and skills they are to teach. The person who doesn't have this qualification to start with cannot do the job of teaching in vocational-technical education. They must know how to organize and use good teaching materials and aides for effective teaching and learning. They must know effective teaching methods and use these methods. A teacher who hasn't had professional training usually doesn't have the teaching methods they should have.

• We need to strengthen our local leadership. Our people must exercise vision, good planning and organizing abilities, practical understanding of the real objectives of vocational-technical education. Our leaders should effectively carry information to the public and particularly keep the employer groups informed and actively engaged in program

planning, operation and evaluation. Our leaders must encourage, coordinate, and supervise teachers in carrying out their assignments.

• We must increase efforts to develop leaders who can plan and implement quality programs. We need more qualified counselors. Many counselors in our public education program are not well informed about vocational preparation and opportunities. Here we need individuals who can intelligently advise young people about vocations, employment requirements and opportunities, educational and training programs that will equip them for entrance into their selected fields of work.

• Such qualified personnel are not just born into this world, they must be developed. We must have a more effective plan of recruiting and developing new teachers and we must also have a constructive and workable plan for updating present teachers.

• If vocational education is to really serve the needs of great segments of our society, we must make sure that quality is built into the expanding programs, with our efforts to extend more and more courses for units of instruction to more and more people.

• The vital question is how do the educators coordinate their work with employers or their representatives in developing the needed personnel for quality expanding programs? The educators must take the lead in developing the necessary cooperation. We feel that employers are willing to assist if the educators present constructive proposals of the work we need to do together to accomplish what we need to do in personnel development.

• The most important cooperative efforts are at the local level. Meetings at the national and state levels are good only to the extent that they reflect into the local level because that is where the action is. If we are going to have the togetherness between employers and educators that we need, we must do it at the local level.

• Let us pretend for just a moment by some miracle we wake one morning and find that the nation's attitude toward vocational education has changed. The importance of such education is recognized. The proposal has been amended toward a realistic and positive approach to the benefits of students in vocational education. And the miracle of its all has

come to pass -- there is enough money! We could go on with the job of preparing our young people for real opportunities and not just the stop-gap measures we use now. Here the big question comes --where do the instructors come from? The two concerns arise again. Attitude: There are few vocationally oriented administrators or counselors. This tells me that there must be something wrong within our framework that puts vocationally trained instructors on the same level as students --something less than first class. Money: certainly the present wage structure provides very little incentive for a man with six to ten years of on-the-job experience to enter teaching.

• I doubt very seriously that employers can give any more than nominal assistance in the selection process. Even in the public schools and college levels of professional employment, there are few people competent to judge the qualifications of applicants in very highly successful manner.

• It is thought that employers do have a primary functions in the academic study; there is a need to express opinions about course objectives as the reports relate to the general functions of the skills being taught.

• With skilled craftsmen, but unskilled teachers, we begin with problems. Most likely it will be easier to teach the craftsmen to teach than to teach the teachers to be craftsmen. The new vocational teacher, likely, has a desperate need for guidance in classroom techniques and progressive teaching methods. Teachers need performance appraisals just as urgently as do supervisors. The new vocational teacher is most likely to need guidance in planning lessons, preparing examinations, organizing his work as a teacher, motivating students to the presentation of stimulating class material, and in auditing his work to be assured that he is accomplishing what is expected.

• We must return to the instructors as conveyors of wisdom and guidance for student abilities and needs. Ways must be found to integrate the input of student needs from faculty members to give logical and meaningful direction to the students. The teacher who communicates and makes relevant the need of the course material, and motivates the student to seek pride in his work is worth his weight in gold.

• The concept of personnel is broad and yet specialized. It is both skill and motivation oriented for the student, the teacher, the administrator, employers and for society. This team effort can then reinforce

not only the quality of making a living but also the much more significant and meaningful attribute of quality of life.

PARTICIPANTS:

- I feel that the independent school districts do need to know what their five year requirements will be and their manpower needs. With the trends of industry generally unknown by the small employer, trends could possibly be predicted by universities or surveys.

- It appears to me that one of the big stumbling blocks we are finding is that we are training a great number of people for jobs that do not exist -- in ten years even fewer of these jobs will exist. We need to help get young people oriented so they will choose something that will be meaningful to them in the future.

- I would like to ask that some attention be given to preparation for vocational or academic programs. We hear a lot about the young people that do not know what they want to do; we have all seen courses that will prepare a person for what he wants to do, and if he doesn't get ideas at this level, he is not going to be able to be prepared for his work. If a high school student can learn chemistry, math, science, then he is equipped to learn these programs on vocational training to become a chemist or whatever course he chooses to take.

- I would like to know how we are going to get qualified people to bridge the communication gap between education and industry. In other words, are the educators prepared to relinquish the concept of training on campus only, and is the industrialist prepared to cooperate so the educational setting can be moved into his plant; or can there be proper coordination and cooperation. Are we prepared to pay the type of compensation necessary to bring this about? Will we be able to coordinate this effectively and who is going to do the coordinating?

- We need to make students aware of some of the positions they can take -- they can live a very successful life and be successful persons and make a contribution to the economic welfare of our society without a college education.

- I have heard youngsters say they make more money at a part-time job than their teachers do, yet some of these children cannot pass a required geometry course. We need to do something about this.

- I think the union should have a program to take a look at *our* programs. We need to teach through work experience and responsibility -- if you don't do this, the person will not stay employed for very long.

WHAT WE HAVE SAID

John R. Guemple*

I feel like that man that swallowed the door knob--I don't know which way to turn. When we started planning this Conference, Mr. Redding started talking about what kind of people to invite and the number that would attend, and he mentioned a figure that was relatively safe at the time--a large figure. I just kind of smiled and said, "If you triple that, it will be about right." We ended up with just about the number I told him we would probably have. We have had five hearing sessions. We had people sitting in there recording and taking notes copiously, and we are going over and eventually will publish this material and make it available to you. Before this general session, I met with them. Of course, in twenty minutes you can't get down all of the answers. Two hours in each session and a total of five sessions is ten hours--statements, discussions, questions and answers. So I asked them to do something for me: to screen what they had written and give me just the points that stuck out in their minds as being what impressed them most. I wanted what they heard most in the discussions and the recommendations they came up with.

HEARING SESSION NO. 1

Attitudes--Relevance of Education and Educational Snobbery

A. Someone said, "Texas is 100 years behind in thinking and philosophies concerning education." I was tempted to ask, "100 years behind whom?" As state workers, I don't think we are behind--maybe in society.

B. Organized labor should not be a constraint for programs. Now that means quite a number of things. First it means organized labor in planning programs. It involves the youngsters' understanding of the role of organized labor in industry and business today. The constraint is on the young person or on his parent or parents who do not understand or do not believe in what organized labor is doing. I think a better understanding of historical developments of employer-employee relations and organized labor and its place in our society would at least remove some of the doubt or question that could be asked about this, such as equal partnership, education planning, and financing for vocational education,

*Associate Commissioner for Occupational Education and Technology, Texas Education Agency, Austin

along with all of the other parts or pieces of education. Equal partnership means in effect that a school or an institution of higher education (junior college, technical institute) is planning and plans the financing for its total program, that this program should be just as important as any other.

C. These programs should not be considered as programs necessary only for disadvantaged or certain ethnic groups who have their own problems. We all understand all of the latest developments in this area, but this program really should be available to any student who is interested, who has an aptitude toward it, and who can't succeed in any kind of educational endeavor for a career.

D. I believe it was Senator Brooks that made the statement that we need to repair the image of vocational education. I kind of like that word "repair" because this does not assume that it never has been a reputable program nor is irreputable now. It simply says that at least in some areas there are some questions about vocational education, and these probably are the results of adult attitudes or adult ideas about what the school program is. I think all of us have had experience in public school programs. At least I have been a beneficiary of public education publicly financed. Thinking back to the time I was in school and thinking of vocational and technical education, if the same content that was relevant then is relevant now, then I should have a bad idea too. So an information program might be the answer here. I don't know, but there is a concern that the image of vocational education may need updating--may need repairing, may need more information--for the adults, for those who really make the decisions or frequently influence the decisions about what your children are going to do in our school system. I am not against parental evalution as to what their youngsters are going to do.

E. All of the counselors in our public school programs and the other counselors who work for people looking for jobs, who are going through the educational programs, should be re-educated. Re-educated how? They need more information about the kinds of jobs, kinds of choices that are available to young people or should be available, the kinds of decisions that need to be made. Frequently the only person who is the focal point for that kind of information is the school counselor. I can feel a lot of other questions that these generate in my mind, and I am sure you do too.

F. There ought to be enough information for young people who are going through an educational program to make the appropriate decisions at the appropriate time. That does not mean in the first grade, but as the time comes to narrow your educational program and bring into focus what you really want to do and can do and do well. That information is

available so that you can discuss it with your parents and other people to whom you go for advice.

HEARING SESSION NO. 2

Structure and Management and Evaluation

A. There are so many laws affecting public educational programs. When I say "public educational programs," I mean those that are financed by public funds whether they are local or state appropriated or federally appropriated dollars. There are so many laws that directly affect these programs. It is very difficult for anyone to come up with a plan for Texas. There are many questions involved. Who will coordinate the coordinators? It has many programs--the distribution of the management function, the decision making function, focusing decisions on what you are going to do, how it can be accompished, how many dollars will be spent, how many people will be in the education program. These are really not focused in any one place, but someone somewhere in state government should be a type of coordinating influence on all of these so we might come out with an overall master plan. Doctors in technical-vocational education may very well be impractical if not improbable, unless this problem is solved because the funds that flow into local schools for these programs flow from other sources. Other people make decisions.

B. A Program to be meaningful--an educational program--really involves local people. The design or control is essential at the local level because that program is concerned with local labor market needs. I said local control, that local control plans for it, designs it. Local involvement includes educators, industrial and business people, teachers, and parents. If that local text is lost, then we do not have a program designed for local means, and there is no describably national means that is specific enough to design an educational program for every child in the United States. It loses its focus when it is removed from the local school level. Now I think that this presupposes some description of commonality among industry. We have state, United States, and region, and they should all be focused into this program. But there so many diversities among industry that, if you lose that local waiver, you don't really have a program that meets the needs of the students in your school.

C. Local administrators of vocational programs need teaching experience, business or industrial work experience, and academic achievement. They are trying to relate education to an industry or to a business or that kind of describable thing. Perhaps academic achievement should be labeled academic acceptability. If you are the local administrator, you want to be accepted by your peers in that

administration and have your words carry as much weight as other decision makers. I don't want to disregard academic achievement--I think that is something we ought to work in. I think that is fine; but as far as that is concerned as a prerequisite for administration of a vocational program, I think there are a lot of other important things to be concerned with. Local administrators should have the same status, same kind of title, as all other faculty members or administrators or counselors within that school district or institution.

D. Evaluational programs in technical-vocational education should be based on the ability of the student to perform when he gets on the job. That is called "product evaluation." My own personal standpoint is that I think it is just as meaningful to look at the process of the program, the credentials of the teacher, etc., so there are a lot of things involved. Industry in the local community--the consumer offering the product, if he will--must be involved in the evaluation process in order for it to have meaning, in order for it to be able to redirect change in the educational program that is being evaluated. If the people hire the product of their education programs, they are not uncertain about the evaluation process. We cannot know from these educators how well a student does unless we talk to the people who employ him.

HEARING SESSION NO. 3

The Needs of Texas

A. At least in the paramedical fields, and they are called "fields", great emphasis needs to be placed on an educational-institutional program because all these presuppose a much deeper or sharper understanding of biology and chemistry which are basic sciences than do many of the other programs. The prediction was that after 54% increase within 10 years, the paramedical profession, or the health care industry as it is getting to be called, would be the largest single employer in the United States. Plans then become one of the absolute essential ingredients in this program: plan beforehand, not after. Let's look back 10 years and see what happened and what some of the problems were. They could have been prevented if we sat down and planned a course of action as we must do now. Let's not focus just on paramedical education but on any of these things we are talking about for career development jobs in the future.

B. Suggestions were made in the hearing sessions on the needs of Texas. The training programs or educational programs need to be more consumer-oriented. The employers need to be able to describe to the educators what the performance expected will be with these youngsters who come out and knock on doors for their jobs. One presenter said,

"Why does industry train for entry level skills. That's the schools' job." Given the current level of inplant management and given a better entrance level, a great deal more could be done with inplant training programs, if the entry levels were up. So this is the school's responsibility, according to the presenter, and this is a matter of concern to him.

C. Schools are just as responsible to work on parental attitudes as they are on student attitudes toward these programs. Here again the school has the responsibility for better information for the youngster and parents in order to talk about the decision that is going to affect not just his education but his whole life

D. Both education and industry need better and more current data on which to base decisions in educational planning. How many jobs are there in the State of Texas? What are they? These are kinds of data that need to be available for local school districts to plan adequately not just for the state.

HEARING SESSION NO. 4

Resources, Costs, and Funding

A. Funds really are a resource, without which most of the things we are talking about cannot occur. Personnel are directed to your ability to recruit. If the salaries are not quite where they should be, put in a program that will get them up there if they have the ability.

B. There are prejudices in companies in their hiring practices against women even if the women are well trained and skilled. This ought to be changed. You are looking at a potential employee--judged on skill, availability, qualifications, whether he can do the job or not. This should determine the employment. It should not make too much difference if the employee is white, black, brown, yellow or green--male or female. If this person can do the job, he or she should have the job without prejudice.

C. The local advisory councils are a "must". If you don't have an advisory council in your community, then your school does not have the benefit of your information about what is occuring in your sector of the economy. Better planning assumes better information; better local planning assumes better local information. Frequently we encounter the absence of a large, current, updated daily basis. The only way you can get that is by direct contact or conversation with the industry and business of the community. The needs and wishes of this group, the local advisory council, state advisory council, and educators must be communicated to the legislature. Any state agency works under certain legislative grants. If you have any that your legislator should know about, he ought to know about it from you. He should not wait until he actually hears it from a state agency or advisory council; for in many

cases, your local educational situation is unknown to him. And a state agency takes a look at these things from about 30,000 feet; they can't see all of the details of the landscape.

D. Technical-vocational education should be introduced in the early grades--as early as the sixth grade. Perhaps some decisions about education programs are made by children and by their parents earlier than that, so at least get them acquainted with what is available. What jobs are, the working conditions, and so on ought to be brought into earlier grades in school. Now, whether this is done through a guidance program or some other technique is up to the people working at this program.

Personnel

HEARING SESSION NO. 5

A. The legislature should take the lead, by assurance, and there are five things they ought to assure:

(1) Quality and quantity of teachers should be assured by providing teaching apprenticeship and industrial business internships. This is one of the places where we can employ people while still in the learning process learning to be a teacher. They have already decided that is what they want to make their career. Why not make it profitable for them to learn about skills, learn about teaching, and learn while still in school. They can become teachers of technical-vocational programs during a period out of school. They are back in the skilled area so that they can keep their skills up to date. Or they might update skills in the summer. This would involve a longer period of time to brush up on skills.

(2) The legislature should take the lead in assuring that counselors and administrators have a thorough knowledge of the needs of the economy, job opportunities, and what they can do with sound educational planning to fill these needs and satisfy the job requirements.

(3) The legislature should take the lead by assuring technical-vocational salary structure that will attract and retain the kind of people with appropriate skills that are needed for high-quality programs.

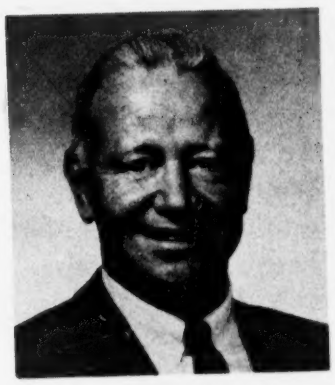
(4) The legislature should take the lead in assuring that technical-vocational personnel be included in policy-making positions in elementary, secondary and post-secondary institutions.

(5) The legislature should take the lead by assuring that quality is requested in social environment and economic freedom through sound technical-vocational education programs. This is one of the vehicles that realizes and provides a real opportunity for people for

contributing to society while contributing to the quality of their own lives and the expectations of their families.

B. Recently, the new Commissioner of Education in New York State drew a parallel between two people--both of whom he evidently knew personally or professionally. One was a relatively indifferent teacher of philosophy and one of those fellows who will always be an instructor. He is really not that good a teacher and is buried more or less at the lowest rung of the faculty ladder, even though he had a Ph.D. The other was an extremely successful fellow. Early in life he had decided what he wanted to do; he wanted to be a plumber. The Commissioner said. "Our education system is too much academically oriented. We must give increased emphasis and prestige to vocational and semi-professional careers, to the worthiness of occupations in trades and crafts."

WHAT ARE WE GOING TO DO ABOUT IT?



Dr. Walter Kerr*

The only thing about you people is that you are ALL trained to work and you 'hang that fodder mighty high' and you have to JUMP to get it, and I want to come back down a bit, folks, and tell you that I am here to learn, and we got to learn together! The hardest job has already been done by our most capable commissioner, director and the staff of the Advisory Council. We have had some fine things going on here the past two days, some fine Presenters, fine Resource people, now I hope though - that you don't think we are going to take *everything* everybody said and try to come out with a practical answer to fit it all, but I got one that is pretty close to it.

It goes back to one of the causes I work with - I was a Methodist minister for many years, and one of these fine young men had studied 8 years, prepared 4 years, and finally got his own church. Now, it was not a fancy church with high steeples; it was just a church that had been around a long time, so the first Sunday he was sitting up there by the pulpit, watching everybody as they came in. Now folks, you may think *you* watch the preacher, but he keeps a close eye on you and he is watching *you,* so he was a watchin' and a waitin' and in SHE came, and sat down on the front row. There is one in every congregation, my friends, and bless their hearts, we could not do without them. It is the lady that is for the preacher - WIN, LOSE OR DRAW. He looked at her and smiled, and she smiled right back and when it was time to get up and preach, he got up - first, though, let me remind you this boy was a tall, thin boy and the pulpit was a bit low, and he wanted to preach a good, outstanding sermon. One of world-wide sophistication behind it, which we know is not necessary, for the most important things are close in and happen right here, but nevertheless he had this grand idea, so he took a step forward, dramatically, looked at the lady and said as if to her "I . . . come forward" . . . and looked right down into her eyes and forgot his sermon. All those years of work forgotten, just like that. Well, he smiled a bit and stepped back and thought "I will do it right this time". So again, he lunged forward and looked right at this woman, and called out "I come forward", and again he forgot what he was supposed to say

*Executive Vice President of the Construction Industry Council for Education, Manpower, and Research — Tyler

next. Well, now this woman's gaze never wandered. She just sat and smiled. He got back, straightened himself - and I should mention right here the carpet was a bit worn in spots, where he stood, and as I said before, this was not a new church - and the carpet had seen better days, and remember, the boy was tall and skinny and the pulpit was low. So, he took a gaint step forward, and in a loud voice declared "I come forward", and his foot hit that hole or spot in the carpet and he fell right over the pulpit into this woman's lap. Well, he was just *so* embarrassed, to say the least. She never lost her composure, though. She just smiled, he got up, stood straight and said, "Lady, I am SO sorry". She smiled and said "That's alright. It was my fault. I HEARD you. I should have BELIEVED you" . . . . . .

Now, what are we going to do about it? We have heard it . . . . . we should believe it . . . We have the best authority around here that is possible. I honestly believe that. So, let's get on with it. I can say this clearly. I believe by this time we are probably the best group of authorities, the best group that knows what should be done in this great area of vocational-technical education and manpower needs, which are the concerns of us here today, Let's believe it - we have heard it . . . . . and let's do it pretty quick.

There were boys that came back from the Service. They got back and decided to get together and form some sort of business to earn a living. They said "what we really do best is something that somebody really needs". That is always a good way to start. One of them asked if the other two had noticed that there were a lot of people around here that need pianos moved so perhaps they should go into the piano moving business. So - they hung out their sign and came up with their first piano moving job. The man that gave them the job led the boys to his house and showed them a long, winding stairway. They walked and walked and when they got to the top, there in the room was the biggest grand piano you ever saw . . . a grand piano mind you. So, the boys looked at this room and the very small door space, and the big piano and said "I think they must have built the house AROUND this piano" . . . but they were not going to give up, and they just knew they could get the piano out some way, so they got together and had a committee meeting which is the great American way of doing business - you get three people together and elect a Vice President and a Secretary, but the best Committee in the world is a Committee of three with one sick and one out of town - that is the right way for a fact to do business - - anyway - they said "How do we get this piano out of this room?" and they all looked and looked and came up with an idea. They said: "It really is quite simple. We will take off the window sash and the piano will then slip right out

of the window", and they were delighted that they had the problem solved - or so they thought. So, they got busy, sawed off the window sash, slipped it off and put the pulley through the window, wrapped a heavy rope around the piano and one of the bigger boys said to the one small boy - "We are stronger possibly than you, so you go down and stand at the bottom and hold the rope", so the smaller boy ran down stairs, stood under the window, looked up and said "I am ready", but believe me, he did not know just what he was ready FOR. So, they called out "Here we come", and began moving the piano to the window, pushed it out the window so it would drop and called out "Here goes," and the piano went right out that window and down, and the boy went up with the rope - the piano would go down, the boy up - down up - up and down. Finally, the boy fell and the piano fell, and the boy lay on the ground, with the wind pretty well knocked out of him. The other two hurried down and stood over him and worriedly called to him "Hey, are you all right? Are you hurt?" The young man got up, brushed himself off and indignantly replied "Little do you care how I feel. I went by you twice, and you didn't even wave to me" . . . So, these youngsters of today are going by twice, and we are watching America go by, and we have to do more than just wave.

I have had the pleasure of working with youngsters all over the United States - all over the world. One thing that has to be done NOW at this particular time. In working with these great athletes, let me tell you about the most outstanding event or what is considered the most outstanding event, in the Olympics. It is the MARATHON. Why? Because if you can jump a little, throw a weight, that is good, but can you RUN 22 miles in the competitive situation this calls for? It calls for training from the very beginning; it calls for heart like no other event has ever called for. There have been men and women, who have actually DIED during the race rather than give it up. It takes training, perseverance and HEART. So, the marathon has become the symbol of the Olympics. It so happens in the Rome Olympics a very interesting thing occurred. The boys are supposed to climb up and just trot over the course, so they will know what it is like. So, during the Rome Olympics the boys lined up there was one man, one very young man, that stood at the side, he was a Temple Guard in Ethiopia. They looked at him and saw a most interesting thing about his appearance. HE WAS BAREFOOTED! So they said "Young man, it might be alright to go barefooted in the mud flats of your country, but you must realize this course has jagged pieces of rock, glass, the terrain is hard, uneven and you cannot go 2 miles, much less 22 miles, over this course barefooted, so

just go to the dressing room and select a pair of running shoes, and come on back"

The young man was very polite but shook his head no, and said "Thank you, very much, but this IS the way I run" . . . . So, the officials let him start, thinking he would drop in a few minutes. Now, those of you that have seen these marathon races, or may have watched the one from Mexico City on TV recently, know that they start inside the stadium and then run outside and around and then back in for the finish. The announcers must keep the people posted on the race. In this particular race they reported to the spectators "The barefooted boy is running still and has pulled out front". Then in a short while they would report that the barefooted boy was ahead and finally, at the finish, the barefooted boy ran in first, with NO ONE else in sight - he had won by the longest distance in the history of the Olympics. The applause was deafening. He became the toast of the Olympics.

Later, when the Olympics was in Tokyo I had the honor of attending. As I came into the stadium I noticed the young men and saw two young men circling the track, still in their sweatsuits - just warming up, so to say. I discovered that one of the fine young men was the boy that had won the Olympics in Rome, but there was one difference. HE HAD ON SHOES . . . . Also, he was NOT the Temple Guard at the Palace of Ethiopia, he was now Minister of Public Education and so I say here, if we have to have one little theme for us to think about here today, our responsibilities, what we must do, how we can come to a greater understanding, let's point out that this Conference is not only significant to these young people out there, but also the economy of the state, significant to the young people of this nation - the one single theme that is happening is the RISING CRESCENDO OF BARE FEET. This is the theme we are interested in learning about. This is the reason there are boys at this very minute giving their lives for our country and let's not forget it, these are FACTS NOT STATISTICS; and there are lives being given - not numbers. As Mr. Guemple has summed up rather clearly - we are not just interested in the underprivileged, we are interested in the people who are the 'have notters' in the world . . . . . I don't think you can play a football game without going by the rules; I don t think you can serve our nation unless you play by the rules of the law; some of us are organizers, some are followers - and we must put our shoulders to the wheel and do a day's work and we all have to have each other's help and that of GOD . . . . This is the way it can done. Listening and doing together. One reason you are here today is because you do care and want to share the problem of the crescendo of bare feet!

Our distinguished Governor, when he was introduced yesterday, told

us about when he was a young man he put his belongings in a shoe box and walked 17 miles. Many of you knew him when he did this. So we do know that the people up there in the big house on the hill, that house is filled with many distinguished men and women who have attempted to build and they have begun to realize they can talk and bring tools together, like it has never been done before, and to bring tools together you have to have capital to do it in the great capitalistic concept of life.

Now what about the recipients of the great concept? By finding such concepts of capitalism a person does not have to spend his life with his nose to the grindstone, we begin to see the first emerging culture, literature, pop art, many things that make life significant . . . when life is built on a sound economic basis on which it must be built there are no other grounds for it. This particular way of life cannot disappear from the face of the earth. Neither can it be greatly diminished. You cannot tell me that the intelligent approach no matter who adopted it, whether the Communists, the Socialists, or anybody else - that the way to move forward and solve some of the problems of the barefooted is to simply move in and say "everything is alright, because everybody is NEARLY BAREFOOTED" . . . This is no answer to the problem. The question is "How are things to be done?" You and I cannot ignore - we cannot sit back here and enjoy a good meal as we had today, and go home and say "Yes, it was a good Conference", and then not do one thing about making the suggestions and recommendations work, and put to use what you heard here.

The people in the big house on the hill must start planning - here is the greatest opportunity I think they ever had. Here are people that are consumers, here are the great people that are production, here are great people with many potential talents, ready to be taught - ready to go. It is not only my challenge that I state these opportunities, last night in one of the finest speeches I ever heard, Mr. Bill McCurdy said to us - "Have you looked into this population explosion yet?" Well, when a person is properly trained, he builds and works or works and builds the same amount of what he uses, and receives that back because he worked to build it, then we can handle a population explosion for a long, long time, and that is the only way to talk. So again I ask what you are going to do about it? You have the details - you have the same as I do from these great industrialists, these fine educators, these people here today - we all share in one significant thing. We must tell you to go back home and be opinion forming individuals. This is something that had better be sounded again - everything begins to fall into its position when this is done.

Let me give you one rule of thumb. Sociologists, historians, all have one little rule of thumb. A sort of intangible thing but all tangible things

first start with the intangible, even a heart throb is the beginning of an idea. It is the ATTITUDE of the people not just toward work but toward DIGNITY OF WORK! You can test it out. Their attitude is one of amazing ability, coordination, for instance there were never more legal people in the world than American Indian, but he had the idea work was not dignified. The first people that ever came to this country - call them Pilgrims - call them Americans - they were not people with capital - they were not people with a lot of management 'know how', they were men and women that were willing to WORK and knew the meaning of the words DIGNITY OF WORK . . . So, you people here today must go back home with your opinions that work is dignified, no matter what it is and that preparation for that work is dignified - and preparation for all types of work must be done. We are a team and remember this. Everybody cannot be the President of the Company. Who makes the product? Who sells it? Who advertises it? Who sweeps the floor? We must not dwell on 'who does what' - we must give the opportunities to those to learn the total sweep of it and let these places fall in line.

There is one thing - many of the people who have conquered the most have been so indoctrinated there is resistance between vocational and technical training by them more than anybody else, we will have to change this.

Another thing now - this is for the fine educators here today. You are concerned with building a great America. You continue to do so because you watch the need and move with it, you educate, you do this for a living and that is why you are here now. Let's not think of our great teachers in our great education system as having a particular failure - this is only to mean that all of us are behind in what we ought to be doing and what we ought to know. Now comes the time of total education. I was interested in what Mr. McGee said at a luncheon meeting with Mr. Redding yesterday. He looked around and said that Ohio and Carolina were upgrading vocational education and soon would have Texas right up there with them, he said he looked at what they did, and they were greatest in vocational education and also greatest in per capita per area - the two things go together - but after looking it over he asked the question 'why' . . . . Then Mr. McGee said he would trade their Commissioner of Education, I would not trade two of them for ONE J. W. Edgar or ONE John Guemple. I think we do have the most outstanding educators in the world today in the form of our Dr. J. W. Edgar. He works *with* us and this is quite a big hurdle in some states. To have the Commissioner work WITH you. He is on the asset side in Texas. He selects the right people. He did it in John Guemple, now John Guemple has done the same thing in selecting his fine staff . . . . . and Mr.

McGee coordinates the activities of the Governor's Office, and I would not forget to mention our fine Advisory Council. Mr. McGee said he did notice one thing in the state of Ohio, he said Texas had the same type of association; the same people, those who plan and advise; but there is ONE thing that is different. He found that every person in education in Ohio is dedicated to the total task of the total education of the person and that to be able to train them for job occupation is just as important as it is to train them in other academic pursuits. So, give this statement your appraisal. You people working in adminisitration -education - let's go back and make it very clear. The task of vocational-technical education becomes extremely significant. It is simply an expansion of the education system. It is the total education of the person. You can teach him how to think in order that this person can have a life but first and foremost, he has to have a living! Some of us have been able to accept this and we have gone far. I am a lifetime honorary member of the National Future Homemakers of America, one of the greatest vocational things I ever heard of but you know what concerns me? I see these fine young ladies learning and working and making a wonderful home for husbands with NO JOBS . . . . that becomes extremely significant.

If you are in the area where your influence will help, certainly this is a dual system, the outmoded antiquated thing of whether it is vocational or academic, this is just snobbery and everything else. Let's face it my friends. Look at your college graduates and look at anything and everything and see what kind of jobs they are doing. If they are working and making a life for themselves. That is what we want. But we DO have a problem. I will name three of the key basics that are guideposts in the society. UNEMPLOYMENT, INCREASING WELFARE AND LACK OF SKILLS! You let this thing go far enough, and we have had it! Now, to these very fine industrialists, this is one thing our distinguished Chairman is very interested in. He asked today for a show of hands to get an idea of how many were here from industry. Let me say a thing or two to you people in industry. One reason why we have NOT moved forward was because BUSINESS AND INDUSTRY somehow felt like education was NONE of their business! They sat off to one side. It happened up to this time the people's real needs finally came in and we almost STARVED TO DEATH one of the most important professions in the world today and we are still attempting to do it but you are now changing your mind. We must begin to complement industry by working with it. I think the only reason I am here is because the Construction Industry, as our distinguished President explained to you, began some time ago to talk about the lack of 'manpower', in order to talk about it, just talking of course was not enough. Finally, they decided that we have to run a re-

search program, and we just have to have such a program because nobody would turn money loose on guesswork. So, we went to A & M College and to the University of Texas (I never mention one without the other) and found the best research people we could find. The particular research had to be coordinated with the great projection of the plans of the United States Chamber of Commerce and everyone else, and they found a very interesting thing in Texas - we have to build another Texas in less than 25 years, not only in Texas, but we have to build a whole United States in 25 years. So they asked the question "Do we have the people to do it?" By asking this question they found they guessed wrong. In 5 years some of them would be out of business; if business continued the way it was and so the plan came up - of the Construction Industry Council. This made some sense because there were about 75 different associations to be involved. You never heard of so many. Air conditioning; plumbing; machine workers; metal workers; there were so many that had never been close together, so in the Construction Industry Council they found just what they wanted - and did not know that so many nice people existed in one organization. We got together all we had to do and went to see Dr. Edgar. I have worked with Dr. Edgar for a number of years, when I was Chairman of the Youth Development Council, and I have the greatest respect for him. He knows what is going on. You can talk to Dr. Edgar for 5 minutes and he knows just what you want and what you are talking about. He said to us "We have been waiting for some significant industry to come all along. Construction Industry is the second largest private employer in the world". John Guemple was also present at the meeting, and we sat and talked and the first thing you know - we were under way. Then we began more research. We needed research for the curriculm and we brought people from ASHRAE and from APHTC, who came down and sat down and said - THESE ARE THE SPECIFICS WE NEED.

We said - HERE IS WHAT WE NEED TO KNOW. For instance, if a youngster knows he can be hired and paid so much money, and can learn a job and be kept there and make a good future - THAT IS DIGNITY IN WORK. So, we began to devise one of the most realistic curriculums deep into education, knowing what was necessary and needed to get the job done and it became highly significant and highly important that this program get under way.

We first called it "Environmental Technology" . . Many of the skills are in the group of mechanical contractors, the person in junior high school enters into the introduction of the world of work; he does not learn much about construction but he learns the dignity of work if he never does anything else . . . that is what is important. The DIGNITY

of work. He moves on to the next year into far more advanced ideas of mechanical contractors - plumbers - air conditioning - and the senior year he spends half of his time with possibly his future employer. Advisory Committees in each area will take to the families and say to the young people - "Come with me and you don't have to guess what your work is." Tell him it is a great industry. Tell him he is doing a job that is good and that he is a credit to the community. Tell him he has potential and keep him encouraged. If the boy goes through high school and 60% of our people only go that far, he still has a good way to be an air conditioning man? A plumber? There is no stigma on this but many parents make a child feel he has to be President of a Bank. A bank has only ONE president - and I know young men behind teller's cages that do not make half the yearly salary of a plumber. In fact you can go to Philadelphia as a plumber and work 35 hours a week and make $19,000 a year.

Now, Mr. Guemple has just handed me a letter. We thank you, Mr. Guemple. This letter is at this time saying they are fulfilling the second mile of their contract and we are going to fulfill ours. If you will go to the Construction Industry Council and help pilot this program, we will share it with other people in the entire state. What they are doing with this particular grant at this standpoint, now where they are not asking us to spend money to do it; they are working on a basis of for $40,000 a year of trying to help implement it among other districts. So we are glad to do it. You get in touch WITH US, first, we have to get families of skills together, then we need to research how many people you will need. Let's don't hire any that we really don't have a job for. Then lets bring the family of skills, the Advisory Committee in the Texas Education Agency, tell the agency let's begin to expand the total vocational program - and let's get behind it and work the same way. It becomes no longer a generation gap. It is NOT a generation gap. It is a gap between industry, business and the educational system. A generation gap is the difference between young and old people - a gap you cannot close but this is one gap that CAN BE CLOSED. This is the gap we are now today beginning to close. We are ready. We know what must be done in the overall picture. Your role is to see that this way of life works. Under the will of God and the consideration for fellow man. This is a destiny that few people have but we do. Because WE ARE HERE. We are greatly encouraged because of this Conference and we are encouraged because we have confidence in each other. I am sure we will all keep our date with destiny . . . .

THANK YOU!

APPENDIX

LIST OF EXHIBITORS

McKinney Job Corps Center for Girls

Gary Job Corps Center

Instructional Media Services
- Texas A & M University
- Texas University

Texas Rehabilitation Commission

Manpower Development and Training
- Texas Education Agency

Department of Defense – U. S. Navy

Texas Department of Corrections

Texas Youth Council

Training in Private Industry
- Braniff International
- Brown & Root

Post Secondary Training Programs
- Kilgore College
- El Centro College
- Tarrant Co. Jr. College
- Del Mar College
- Odessa College
- Lee College
- San Jacinto College

Texas State Technical Institute

Texas Association of Commercial Colleges

Department of Mental Health and Mental Retardation

Bureau of Apprenticeship and Training

Secondary School Training Programs
- Texas Education Agency Divisions of:
  - Agriculture
  - Distributive Education
  - Homemaking
  - Vocational Industrial
  - Health
  - Coordinated Vocational-Academic Education
  - Vocational Office Education

Texas Department of Agriculture

Texas Nurserymen's Association

Texas Municipal League

U. S. Bureau of Labor Statistics

Distribution
- Texas Retail Federation
- Texas Oil Jobbers Association

Texas Employment Commission

Manpower Inc.

Construction Industry
- Texas Building Trades
- Mechanical Contractors Association
- Associated Masonry Contractors
- Texas Ready Mixed Concrete Association

Health Occupations
- Texas Hospital Association
- Texas Nurses Association

Texas Manufacturing Association

Texas Independent Garagemen's Association

Texas Industrial Commission

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San Antonio Plumbing and Pipe Fitting Industry, San Antonio

Texas Eastman Company, Longview

Texas Electric Service Company, Fort Worth

Texas Industrial Development Council, Fort Worth

Texas Power & Light Company, Dallas

Texas Vocational Association, Austin

Trunkline Gas Company, Houston

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VT 011 915
Nish, Dale L.
Developing and Testing of an Instructional System in Plastics. Program Report: Improving Instruction in Small Schools.

Northwest Regional Educational Lab., Portland, Oreg.
Office of Education (DHEW), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Mar69 34p.

DESCRIPTORS - INSTRUCTIONAL MEDIA; *MULTIMEDIA INSTRUCTION; PROGRAMED INSTRUCTION; *SINGLE CONCEPT FILMS; INSTRUCTIONAL INNOVATION; *PLASTICS; *INSTRUCTIONAL IMPROVEMENT; RESEARCH; *INDUSTRIAL ARTS

ABSTRACT - The purpose of this study was to develop and test usable instructional materials in plastics as a means of improving and expanding curricular programs for rural children in isolated areas. The population consisted of 30 students selected from Grades 6 through 12 in two Washington Public Schools. Designed to study the effect of varying mental abilities, the subjects were divided into three groups which were classified as high, average, and low. The Differential Aptitude Test (Form L), Numerical and Verbal Section C, was used to assess the general mental ability for each student. A multimedia instructional system developed for this study included four instructional units consisting of single concept films with sound, programed instruction books and laboratory experience. Findings indicated that the multimedia instructional system could be effectively used to teach knowledges and skills associated with the use of expandable polystyrene plastics. (Not recommended for hard copy reproduction due to marginal print size.) (GR)

VT 011 915

ED0 57254

DEVELOPMENT AND TESTING OF AN INSTRUCTIONAL SYSTEM IN PLASTICS.

Dale L. Nish

Program Report:
Improving Instruction in Small Schools
Northwest Regional Educational Laboratory

VT 011 915

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PREFACE

The development and testing of usable instructional materials designed specifically for isolated areas is imperative to the improvement and expansion of curricular programs for rural children.

One phase of this improvement process is the invention and initial testing of prototype models. Dale L. Nish started this process in the fall of 1966 at Washington State University. After identifying an area of need, he designed a system, produced the prototype and began the initial field testing. This document describes the inventive and initial testing stage of an instructional system on plastics.

Development of other systems in electricity-electronics, Spanish, mathematics and welding have continued since the original work began. Reality testing is underway now in each of the five states of the region: Alaska, Washington, Oregon, Montana and Idaho. Further documentation on the use of these systems is progressing and will be published as it becomes available.

Chester A. Hausken
Director
Improving Instruction in Small Schools

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March 1969

Published by the Northwest Regional Educational Laboratory, a private nonprofit corporation supported in part as a regional educational laboratory by funds from the United States Office of Education, Department of Health, Education, and Welfare. The opinions expressed in this publication do not necessarily reflect the position or policy of the Office of Education, and no official endorsement by the Office of Education should be inferred.

Northwest Regional Educational Laboratory, 400 Lindsay Building, 710 S. W. Second Avenue, Portland, Oregon 97204

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ACKNOWLEDGMENTS

The author acknowledges the support of the College of Education, Washington State University, in the completion of this study. The faculty was most helpful in offering suggestions for improvement, as well as acting on juries for establishing evaluative criteria and acceptable performance levels. Particular thanks is extended to Dr. William A. Bakamis, Dr. Gordon E. McCloskey and Mr. David M. Scott for their patience, guidance, able assistance and valuable criticism throughout the study.

DLN
March 1969

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ABSTRACT

The purpose of this study was to answer the question:

> To what degree and in what amount of time does a multimedia instructional system enable pupils with varying abilities to acquire knowledges and skills associated with the use of expandable polystyrene plastics?

Answers also were sought to the following questions:

> How much student time is needed to complete a multimedia system of instruction?
>
> How much repetition is necessary for successful construction of the expandable polystyrene object?
>
> In what respects do students experience difficulty in use of the system?

The population of this study consisted of thirty students selected from the Anatone and Pullman, Washington, Public Schools. The subjects included students enrolled in grades six through twelve. To study the effect of varying mental abilities, the subjects were divided into three groups which were classified as "high," "average" and "low." The Differential Aptitude Test (Form L), Numerical and Verbal Section C, was used to assess the general mental ability for each student.

The multimedia instructional system developed for this study included four instructional units consisting of single concept films with sound, programed instruction books and laboratory experience. The system was supervised as follows:

> All students were administered pretests to determine existing knowledges and proficiencies necessary for performing the operations contained in the four instructional units.

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As a group, students received an orientation to the plastics industry. Students then were directed to continue with the system on an individual basis.

Individualized instruction consisted of viewing a single concept film, completing the appropriate programed instruction book and performing the laboratory work. This sequence was repeated for each of the four instructional units of the system.

Adequacy of the instructional system was evaluated by studying results of the following variables: performance pretest, knowledge pretest, frequency of the film viewing, errors made in the programed instruction books, evaluation of laboratory work and student evaluation of the foamed object. These results were recorded on frequency tables. The tables were studied to determine observable differences within the three ability groups. The results were compared, when appropriate, to minimum acceptable criteria as determined by a jury of educational experts.

Findings

The findings of the study indicated:

Students possessed few or no performance capabilities or knowledges regarding expandable polystyrene plastics before using the system.

Performance scores on laboratory work exceeded the minimum acceptable performance scores.

Total performance scores indicated the variation within groups was as great as that between groups.

Performance time varied as much within ability groups as between groups. Some students needed approximately two and one-half times the minimum required.

Frequency of film viewing varied between groups; the high ability groups viewed the films most often.

Evaluation of the foamed objects indicated all students performed at a level exceeding minimum acceptable performance criteria.

This data indicates the multimedia instructional system could be effectively used to teach knowledges and skills associated with the use of expandable polystyrene plastics.

RATIONALE AND RELATED STUDIES

Educational technology has become a subject of national interest and concern to the general public as well as to professional educators. The forces affecting this interest in education have included sharp increases in enrollments; increased demand on teacher supply and educational facilities; the knowledge explosion; technological change; dropout and other youth problems; unemployment and a concern with national defense.

Pressure to improve schools and colleges has also come from the increased number of children, youth and adults seeking further education. The literature in the field indicates the modernization of vocational-technical curricula and the increased number of vocational-technical students will necessitate the development of educational technology to provide efficient methods of teaching these students in large numbers.

According to Slaughter, educational technology seems likely to grow with the development of instructional systems.[1] An example of these might be the multimedia approach to learning programs. This method may increase emphasis on a broader base for course development and application of technological advances in communications.

Numerous studies have demonstrated that sound film may be employed successfully to facilitate learning the performance of a perceptual-motor task.[2-5]

One of the most promising of the film media in education is the single concept film. Single concept films are being used in many areas of education, industry and the armed forces. Indications, however, are that only a small amount of research has been done on their effectiveness in teaching concepts and procedures. Several writers have expressed the need for a combination of single concept films and audio to further the application of these media for educational purposes. It would seem that single concept films, when combined with audio commentary, would fit well into the multimedia system of education.

Selected laboratory experiences have long been a part of educational methods, but these have been mainly demonstrated by the instructor, then imitated by the student. Sound films may be used successfully to teach laboratory skills, but the films have not been combined with actual student participation in the selected laboratory experiences. This combination of sound films with laboratory experiences would actually employ the five senses to promote learning.

Lefkowitz, as the result of an experiment with teaching personnel, concluded there is an important interaction between teaching and testing methods.[6] He suggested that if the testing situation included the operation of real equipment, the teaching method also should involve the study and manipulation of the actual equipment or an accurate representation. This is inherent in the varied combination of educational media found in a multimedia instructional system.

Media Selection

The media were selected for use in this instructional system on the basis of their contributions to learning by involving one or more of the five senses. According to Silvern, learning involves the visual, aural, technical, olfactory and gustatory senses. His percentages breakdown follows:

85% of learning is through the visual sense
10% of learning is through the aural sense
3% of learning is through the tactual sense
1% of learning is through the olfactory sense
1% of learning is through the gustatory sense[7]

This system design focused on those media primarily concerned with the combination of aural, visual and tactual senses.

Much research has dealt with self-instructional programs. Various media have been utilized for experimental presentation of the learning materials. Some research has compared the effects of various media in teaching mechanical skills and has sought to identify specific training problems in industry and the armed services. Many of these studies were related to the operation of one piece of equipment. Demonstration devices were presented in which the student was expected to respond by performing the demonstrated task. In most cases, task performance began immediately after the presentation of the instruction.

Significance of the Study

Research has been conducted which shows that student learning is facilitated when several senses are involved in the learning process.

Thus, the multimedia system has been designed to utilize several senses through a combination of educational media. This study attempted to provide additional evidence concerning the potential of a multimedia system to enlarge the performance capabilities of pupils possessing three levels of ability (low, average, high). Inherent in this type of system are several other factors with a potential impact on the educational process.

Increased teacher time for individual instruction

Consistency in methodology for imparting information to students

Provision for individual differences in learning rates and assimilation of information

Self-instructional system for continuous student progress

Immediate student participation in laboratory or work experiences to reinforce manipulative information

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PROGRAM AND PROCEDURES

This research was designed to answer the question:

> To what degree and in what amount of time does a multimedia instructional system enable pupils with varying abilities to acquire knowledge and skills associated with the use of expandable polystyrene plastics?

Answers to the following questions were also sought:

> How much student time is needed to complete a multimedia system of instruction?
>
> How much repetition is necessary for successful construction of the expandable polystyrene object?
>
> In what respects do students experience difficulty in the use of the system?

All students received the same large group instruction and used the same materials and equipment. The teaching procedure was the same for all students. Each was instructed in the use of the projector and any questions were answered prior to proceeding with the individual instruction in the system.

The instructor was available only to observe and record student performance. He never intervened unless such performance became hazardous to the student or detrimental to the equipment.

Program Design

The program was designed as follows:

> Major instructional need identified in expandable polystyrene plastics
>
> Target population selected
>
> Behavioral objectives identified and outlined

Experimental instructional material developed: teacher's guide, student's guide, single concept sound loop films, programed instruction books, comparison chart and laboratory experiences and equipment

Evaluation instruments and procedures developed: performance pretest, knowledge pretest and performance checklists

Multimedia instructional system tested

Test results reported and analyzed

The Multimedia Instructional System

The multimedia instructional system involved the following components:

Programed instruction books

Single concept loop films

Laboratory experience (shop)

Comparative example boards

The system was designed to facilitate instruction by providing the necessary equipment, materials and procedures for efficient and effective learning experiences for each student. It was developed in the following manner.

The behavioral objectives were outlined and arranged in logical sequence based on product development.

Types of learning involved in reaching the objectives were identified.

Stimuli evoking each type of learning were identified

Stimuli served as the criteria for selection of media options.

General Conditions

Each student was given access to equipment and materials necessary to construct the ice bucket as his polystyrene object.

The student was responsible for selecting the equipment and materials necessary to complete the unit.

Students worked individually except when they viewed two films. These films were shown to groups of students.

The student was not allowed to proceed in an unsafe manner or in ways detrimental to the equipment.

Acceptable performance required the student to produce a foamed polystyrene object (ice bucket) of good quality.

As use of this system was experimental, it was necessary for the researcher to be present at all times to observe and record student performance. At times, the researcher also served as the instructor.

Statistical Procedures

The numerical and verbal sections of the Differential Aptitude Test were administered to the population of this study. The results of these tests were used to place the students into three categories. "High Ability" included those from the 75-100 percentile, "Average Ability" included those from the 26-74 percentile and "Low Ability" referred to those from 0-25 percentile.

The variables were recorded on frequency tables with the frequencies of occurrence recorded in the appropriate spaces. The tables then were studied to determine observable differences within the three ability groups.

When appropriate, the variables also were compared with minimum acceptable criteria as determined by the jury of educational experts.

Population

Thirty students selected from two industrial arts classes in Washington constituted the population of this study. Fourteen students from the Anatone, Washington, school composed one class. Sixteen students from the Pullman, Washington, high school composed the other class. The total group ranged from the sixth through the twelfth grades. Five were seniors; ten, juniors; three, sophomores; eight, freshmen; and two each from the sixth and eighth grade levels.

This selection procedure limited potential students to the two industrial arts classes. It did not provide an equal number of students in the high, average and low ability groups nor an equal amount in each grade level.

EVALUATION

Two pretests were developed for use with the system. The knowledge pretest was to determine what the student knew about the construction of an expandable polystyrene ice bucket. The performance pretest consisted of four parts. Part I required the student to choose the necessary equipment and materials to prepare the raw polystyrene beads for construction of an ice bucket. Part II consisted of using the selected materials and equipment to pre-expand the raw polystyrene beads. Part III consisted of selecting the materials and equipment for preparing the mold. Part IV required the student to prepare the mold for making the ice bucket.

Students who successfully passed the knowledge pretest and the performance pretest were not used to test the system.

The system was accompanied by objective and performance tests for evaluation purposes. The objective tests were used to evaluate the student's knowledge of information contained in the films. These tests were incorporated into the programed books and formed a part of the programed instruction.

The performance tests for each instructional unit were used to evaluate the student's proficiency in completing tasks presented by the films. Performance of laboratory work and results were evaluated by the use of a performance checklist. A separate checklist was provided for each of the four instructional units. Each checklist was accompanied by instructions for its use.

Total variables studied were knowledge pretest scores, performance pretest scores, performance scores on each of the four laboratory experiences, time needed to perform each of the four laboratory experiences, total performance scores for laboratory experiences, total time needed for laboratory experiments, number of times the films were viewed, mistakes made in use of the programed instruction books and student evaluation of performance.

Findings

Fifteen variables were studied to determine observable differences in the performance of high, average and low ability students in response to their use of a multimedia instructional system. The system was designed to help them acquire knowledge and skills associated with the use of expandable polystyrene plastics.

The variables showed student performance exceeded expectations as determined by minimum acceptable performance criteria established prior to testing the system. All students were successful in the instructional system.

Observed scores on the Performance Pretest (Table 1) indicated the students did not possess the capability to produce the foamed polystyrene object. During the administration of the pretest, several students selected some correct items; however the selection of incorrect items suggested the students were unable to discriminate between necessary and irrelevant items.

TABLE 1
PERFORMANCE PRETEST SCORES ON PLASTICS
Thirty Industrial Arts Students From Grades 6
Through 12, Fall 1967

Ability	Performance Test Score					Total
	0-2	3-5	6-8	9-11	12	
High	5	..	..	..	..	5
Average	16	..	..	..	..	16
Low	9	..	..	..	..	9
Total	30	..	..	..	..	30

Observed scores indicated the students did possess some knowledge (Table 2) of the expandable polystyrene plastics process. Examination of the responses, however, showed only a slight knowledge of either the materials or isolated pieces of equipment and their operation.

TABLE 2
KNOWLEDGE PRETEST SCORES ON PLASTICS
Thirty Industrial Arts Students From Grades 6
Through 12, Fall 1967

Ability	Knowledge of Pretest Scores													Total
	2	3	4	5	6	7	8	9	10	11	12	13	14	
High	..	..	..	..	..	..	..	1	1	2	1	..	..	5
Average	..	..	..	..	1	2	3	2	4	2	..	1	1	16
Low	1	..	..	2	..	1	3	1	..	..	1	..	..	9
Total	1	..	..	2	1	3	6	4	5	4	2	1	1	30

There was no indication the correct responses were due to a proper knowledge of the expandable polystyrene process. This was supported further by student performance on the performance pretest.

The results of the knowledge pretest seem to indicate that there was little prior knowledge regarding the expandable polystyrene process.

TABLE 3
TOTAL PERFORMANCE SCORES OF STUDENT
LABORATORY WORK ON PLASTICS
Thirty Industrial Arts Students From Grades 6
Through 12, Fall 1967

Ability	Total Performance Scores													Total
	125	124	123	122	121	120	119	118	117	116	115	114	108	
High	..	..	1	1	1	..	..	1	..	1	..	..	..	5
Average	4	1	3	..	2	..	2	1	1	1	1	..	..	16
Low	..	1	..	1	1	..	..	..	2	1	1	1	1	9
Total	4	2	4	2	4	..	2	2	3	3	2	1	1	30

The average total score (Table 3) for laboratory performance was 120. The total scores varied from a low of 108 to a high of 125. Minimum acceptable performance was determined as a total score of 100. All students exceeded this score. Total performance scores indicated variation within groups was as great as that between groups.

TABLE 4
TOTAL TIME USED TO PERFORM THE LABORATORY WORK ON PLASTICS
Thirty Industrial Arts Students From Grades 6 Through 12, Fall 1967

Ability	Total Time Used*											Total
	60	65	70	75	80	85	90	95	100	105	115	
High	..	..	1	2	..	1	..	..	..	1	..	5
Average	1	1	1	2	2	3	..	4	..	2	..	16
Low	..	..	..	1	3	1	1	1	1	..	1	9
Total	1	1	2	5	5	5	1	5	1	3	1	30

*to the nearest five minutes

The average total time (Table 4) necessary to perform the laboratory work was 85 minutes. The average ability students were the least consistent in time used. They varied from 60 minutes to 105 minutes. Performance time varied as much within ability groups as between groups. Some students needed a maximum time approximately two and one-half times the minimum required for performance.

There was a large variation in the frequency of film viewing by the students (Table 5); the average total was seven times for all four films. Students of high ability viewed the films more often than those of low or average ability. Low ability students viewed the films less than the average for all the students.

As the students proceeded through the system, it was noted the younger students viewed the films more often than the older students.

TABLE 5
FREQUENCY OF FILM VIEWING ON PLASTICS
Thirty Industrial Arts Students From Grades 6
Through 12, Fall 1967

Ability	Frequency*								Total
	4	5	6	7	8	9	10	11	
High	..	1	..	..	2	..	1	1	5
Average	2	2	4	1	4	2	..	1	16
Low	2	1	2	1	3	..	..	..	9
Total	4	4	6	2	9	2	1	2	30

*numbers show total viewing of all single concept films

All of the students completed an ice bucket. The student evaluation (Table 6) of their work varied from "well made" to "poor."

TABLE 6
STUDENT EVALUATION OF THE
FOAMED PLASTIC OBJECT
Thirty Industrial Arts Students
From Grades 6 Through 12,
Fall 1967

Ability	Evaluation			Total
	Well Made	Average	Poor	
High	3	2	..	5
Average	4	9	3	16
Low	2	5	2	9
Total	9	16	5	30

Results indicated the high ability students produced a better object than the others; however variability within ability groups seemed to be as great as between groups.

Five students produced objects rated as "poor"; however these five students immediately repeated the laboratory work and produced foamed objects evaluated as "average" or "well made." In this sense, the system was still successful as the students recognized their errors, made the necessary corrections and satisfactorily completed the laboratory work.

CONCLUSIONS AND IMPLICATIONS

The data from this study signified this method of instruction was successful in teaching concepts and procedures necessary for performing the expandable polystyrene process. Each group of students exceeded the minimum acceptable performance criteria. Performance exceeded expectations.

The difference in general mental ability of the group did not appear to be a major factor in performance, as it varied as much within groups as between them. Total performance scores of all students were above the minimum acceptable level.

Evidence showed student performance time did not appear to be affected by ability. By use of this system, all students acquired these particular knowledges and skills at varying rates of speed and performed at variable rates. The fact that variation of time needed was as great within ability groups as between them indicated a value for flexibility in such instruction at various levels of student ability.

Frequency of film-viewing varied within groups. The fact that high ability students viewed the films most often might be attributed to the higher anxiety levels of this group and their desire to succeed. It might also be that these students recognized problem situations in the films and felt a need for clarification. Or they might have developed repetitive habits as a result of previous educational and instructional experiences.

All students considered the programmed instruction books to be valuable. Some used the review pages as bases for performing laboratory work. Others did not. This would seem to support more general evidence that few students learn in identical fashion. It would also tend to support the use of a variety of instructional media.

Data revealed, to a substantial degree, students can evaluate their own work of this type if they are familiar with measures of expected proficiency. They can also diagnose difficulty and take appropriate measures to improve performance of this type. The fact that five students evaluated their projects as poor, determined the probable causes, then independently improved their performance, shows the feasibility of this type of self-evaluation.

Implications

The results of this study indicated the feasibility of utilizing multimedia instructional systems in Industrial Arts programs. Using such systems, students progress at their own rate with little presentation of information or procedures by the instructor. The enthusiasm with which students utilized the systems pointed out the probability of a presently "untapped" readiness to accept individual responsibility for learning.

The role of the instructor could also change if the systems approach was more fully implemented. The instructor's role could be conceived more as an instructional manager. Less time would be spent

on preparation and presentation of instructional materials. The system itself would provide more of the materials and procedures necessary for learning.

Under such situations, more of the instructor's time could be spent on other activities:

Leading discussion groups or such activities as creativity, problem solving or group dynamic

Overcoming the deficiencies in the instructional material

Organizing or producing supplementary instructional materials

Guiding the students into situations facilitating enlargement of concepts, procedures or skills taught by the system

The adoption of the systems approach also has implications for planning industrial education facilities. Instructional areas would need to be provided for individuals and for small groups. An Instructional Resource Center would be necessary to provide the student easy access to equipment and materials. Facilities would be designed to promote flexibility and change.

Use of systems such as those tested by this study also has implications for curriculum development, class scheduling, instructional personnel, student grouping and teacher training.

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VT 011 916
Lewis, Wiley B.; Woodin, Ralph J.
Agricultural Mechanics as Performed on Ohio Farms in Comparison with Offerings in Vocational Agriculture. Research Series in Agricultural Education.

Ohio State Univ., Columbus. Dept. of Agricultural Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Aug70 35p.

DESCRIPTORS - *EDUCATIONAL RESEARCH; *VOCATIONAL AGRICULTURE; *AGRICULTURAL ENGINEERING; *COURSE OBJECTIVES; *CURRICULUM RESEARCH; TEACHER EDUCATION; INSTRUCTIONAL IMPROVEMENT

ABSTRACT - To determine whether agricultural mechanics curriculums in Ohio were appropriate for preparing students enrolled in high school vocational agriculture classes to perform agricultural mechanics activities in production agriculture occupations, this study was conducted by dividing the State into three agricultural administrative regions and surveying these regions with questionnaires. These forms were distributed to a representative number of students, teachers, and farmer groups. Conclusions show that agricultural mechanics instruction was appropriate for preparing the students for production agriculture occupations. It was recommended that teachers and teacher educators should provide for individualized instruction, determine instruction by surveying for needs, and include results of study in teacher preparation programs. (GB)

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RESEARCH SERIES IN AGRICULTURAL EDUCATION.

A Research Report

of a

Graduate Study

AGRICULTURAL MECHANICS AS PERFORMED ON OHIO FARMS IN COMPARISON WITH OFFERINGS IN VOCATIONAL AGRICULTURE.

Wiley B. Lewis and Ralph J. Woodin

Issued by

The Department of Agricultural Education

College of Agriculture and Home Economics

The Ohio State University

Columbus, Ohio 43210

August, 1970

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VT 011 916

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CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

The major problem considered in this study was to determine whether agricultural mechanics curriculums in Ohio were appropriate for preparing students enrolled in high school vocational agriculture classes to perform agricultural mechanics activities in production agriculture occupations. The specific objectives associated with this problem were to identify the areas and units of agricultural mechanics which were taught by teachers of vocational agriculture and the conditions under which they were taught, the agricultural mechanics operations or jobs performed by production agriculture students and when they were first performed, and the agricultural mechanics operations or jobs performed on farms associated with selected farmers and who performed them; and to determine the relationship between the areas or units of agricultural mechanics which were taught, the operations or jobs performed by students, and those performed on farms associated with selected farmers.

Conclusions

The following comprehensive conclusions were reached after considering the data and findings of the study:

1. Agricultural mechanics instruction offered as part of the curriculum for high school vocational agriculture students enrolled in production agriculture classes was appropriate for preparing students to perform those mechanical activities found in production agriculture occupations.

2. The five areas of agricultural mechanics--farm power and machinery, farm buildings and conveniences, soil and water management, rural electrification and processing, and agricultural construction and maintenance--were important in mechanics instruction at school and in farming activities.
3. Agricultural mechanics instruction often included mechanical tasks not usually performed on farms, especially in the area of agricultural construction and maintenance.
4. A rather wide variation in grade levels at which students began their initial performance of agricultural mechanics activities was observed.
5. Adult and young farmers placed similar importance on mechanical activities and tended to perform a major portion of these activities.
6. Specialists in agricultural mechanics, mechanics or other agricultural technicians, were generally utilized by both young and adult farmers to perform specific mechanical activities.
7. Students enrolled in production agriculture classes generally began performing the several agricultural mechanics activities--operation, construction, maintenance, or repair--before they entered the eleventh grade with many beginning such activities before they entered the ninth grade.
8. Teachers provided basic mechanical instruction such as that in the agricultural construction and maintenance area over a period of several years while specific instruction, for example, repairing a baler, was provided during a single year.

9. The primary locations in which agricultural mechanics instruction was provided were the laboratory and the classroom.

10. When ranked according to the amount of instructional time devoted to the areas of agricultural mechanics, farm power and machinery would rank number one as it had the largest number of hours, and would be followed by agricultural construction and maintenance, rural electrification and processing, farm buildings and conveniences, and soil and water management, in order.

11. Varying percentages of departmental curriculums included instruction related to the various areas and units of agricultural mechanics.

Recommendations

Based upon the findings and conclusions of the study, the following recommendations were proposed:

1. Because of the wide variation in grade levels at which students begin their initial performance of agricultural mechanics activities, teachers should attempt to provide individualized instruction, to include the student as an active and contributing part of the educational process, and to gear their instruction to the student's level of achievement.

2. Teachers of vocational agriculture should determine the agricultural mechanics areas and units in which instruction should be provided by surveying local farmers to determine the mechanical activities performed on the farms.

3. A committee of teachers and other persons interested in or associated with agricultural mechanics curriculums should be

formed to review the data, findings, and conclusions of the study and make further specific instructional recommendations.

4. Because of the close relationship between the mechanical activities performed by high school students, young farmers, and adult farmers, any attempt to alter the performance of an activity or add or delete activities should involve members of each of the three groups.

5. Efforts should be exerted to move instruction in many of the units listed under agricultural construction and maintenance to grade levels below the ninth grade.

6. The material presented in the report should be utilized as the basis for developing behavioral objectives for the agricultural mechanics program.

7. Teacher educators and others associated with the agricultural mechanics portion of the teacher preparation curriculum should review the report in an effort to identify possible methods of improving this phase of the teacher preparation program.

8. Teachers should retain enough latitude in their departmental curriculums to permit the inclusion of instruction related to new developments and specialty items, especially those important locally.

Recommendations for Further Study

It was believed that several additional studies might result in contributions which would aid in improving the State's agricultural mechanics curriculums. These were:

1. To determine if the young and adult farmer data collected as part of the study were representative of all commercial farmers in Ohio.
2. To secure qualitative data concerning the performance of agricultural mechanics activities by students and selected farmers and establish behavioral objectives suitable for use in the high school production agriculture program.
3. To further improve and validate the questionnaire used in the student portion of this study as a means of determining what specific activities are performed and when they are first performed.
4. To determine the best procedure for incorporating agricultural mechanics instruction into the supervised occupational experience program.
5. To develop a set of criteria which may be used by teachers in evaluating mechanical activities to determine if related instruction should be included as part of the departmental agricultural mechanics program.

Implications

Consideration of the findings, conclusions, and recommendations of the study indicated that certain implications were important. It was anticipated that these implications would be of value to teachers of vocational agriculture, teacher educators, supervisory staff members, and agricultural engineering staff members associated with the vocational agriculture program. The implications discussed below should be considered in planning and conducting programs related to agricultural mechanics.

Obtaining congruity between related instruction and initial performance

An effort should be made to bring two events, related instruction and initial performance, into congruity. It was shown that teachers tend to provide instruction related to agricultural mechanics units in specific years of the vocational agriculture program and that high school students tend to begin the performance of such activities at specific grade levels.

A major step toward attaining this relationship would be the elimination of some of the basic mechanical skills now taught as part of the regular vocational agriculture program. Under this concept, instruction related to the use, maintenance, and repair of such items as portable electric drills, power bench grinders, portable electric circular saws, hand hacksaws, cold chisels, propane torches, handsaws, framing squares, and bit braces would be provided before the student enters the ninth grade.

Another method of improving the relevance of these events would be to alter their time of occurrence. Since it would generally be more difficult to change the grade level in which the student begins the performance of certain mechanical activities than to change the year of vocational agriculture

in which related instruction is offered, the latter change should be made. For example, basic instruction concerning the operation and maintenance of electric motors, materials handling equipment, farm structures, and farm and power and machinery items such as balers, row crop cultivators, moldboard plows, portable elevators, and gasoline tractors would be introduced near the beginning of the vocational agriculture program.

However, it must be realized that various levels of congruency exist and an appropriate level should be sought on the departmental level. To obtain the best relationship between the agricultural mechanics instruction being offered and the students' abilities, the teachers must identify the units to be taught based upon the local farming situation and the time the students initially perform the mechanical activities, and then determine when such instruction should be provided. During this planning stage, it is important that the teacher retain enough latitude in his departmental curriculum to permit the inclusion of instruction related to new developments and specialty items.

Since teachers tend to group instruction related to specific units in one year levels for each of the agricultural mechanics areas except agricultural construction and maintenance, the above suggestions would require major curriculum changes. Such changes would aid in making the instruction and performance congruent, but would destroy the present convenient practice of providing all instruction related to an item during one year.

The results of the study showed that teachers normally provide instruction related to tractor operation, maintenance, and repair during one year. Under the above concept, this practice would be eliminated

and the related instruction would be provided over a series of years. Tractor operation, including safety, would be taught the first year, maintenance the second year, and repair the third and fourth years.

Improving the viability of field trips and supervised occupational experience programs

If field trips and supervised occupational experience programs are to be viable in agricultural mechanics instruction, actions must be taken to promote their use and improve their effectiveness. The data reported showed that regardless of the subject under consideration, most instruction took place in the classroom or the laboratory. For the typical production agriculture program, approximately 42 per cent of the instructional time devoted to agricultural mechanics was utilized in the classroom, 51 per cent in the laboratory, and only 7 per cent for field trips and supervised occupational experience programs.

Teachers can make field trips and supervised occupational experience programs important parts of such instruction by carefully planning and supervising each of these educational activities, relating them to classroom and laboratory instruction, and informing the student of what is to be accomplished. By using check sheets and observing and/or measuring student participation and performance, these items can be made to contribute much to the total agricultural mechanics instructional program.

Obtaining balance in instructional time

Improvement can be made in the balance between the instructional time devoted to the several areas of agricultural mechanics. While it is recognized that departmental and agricultural circumstances will affect such a

balance, a typical department devoted about 46 per cent of its agricultural mechanics instructional time to farm power and machinery units, about 33 per cent to agricultural construction and maintenance, 8 per cent to rural electrification and processing, 8 per cent to farm buildings and conveniences, and 5 per cent to soil and water management. A suitable balance must be attained if students are to be prepared to meet future challenges associated with agricultural mechanics.

Data collected during the conduct of the study indicated that the percentage of time devoted to agricultural construction and maintenance could be reduced if some of the units were taught before the students entered the vocational agriculture program or if instruction related to some questionable items such as table circular saws, jointers, and thickness planers was eliminated as part of the curriculum. In addition, teachers may find that all or part of the soil and water units should be eliminated from the curriculum as students and farmers seldom perform activities in this area.

A true balance between the time devoted to the several areas of agricultural mechanics can be achieved by determining the mechanical activities in which instruction must be provided and applying some type of ranking criteria to the items. Teachers may achieve this by first conducting local surveys to identify the mechanical activities performed on local farms and then ranking these activities according to the number of farms on which they were performed. In this manner, their relative importance can be determined and instruction related to those activities which are not really important can be eliminated. The proper balance will be achieved when the instruction provided is meeting the students' agricultural mechanics needs as determined by his occupational objective.

Establishing a student's individual curriculum

A student's individual curriculum should be established within the confines of the departmental curriculum and based upon the student's abilities and the agricultural mechanics activities involved in his proposed occupational area. Such a curriculum, if properly planned and supervised, will ensure that the student receives instruction related to his occupational objective.

This individual curriculum is an even more important consideration than the departmental curriculum. With the great variation which was shown among the activities performed by high school students and often the lack of items on which to perform such activities, greater efforts must be exerted to individualize instruction. To bring this about, behavioral objectives must be formulated and used as the basis for agricultural mechanics instruction.

In addition, individual work plans which are written and planned for specific occupational objectives will play an important role. Individual study units will help to truly individualize instruction. Increased use of the supervised occupational experience program would also help in this matter by permitting the student to concentrate on those areas or units in which a true need exists. This latter type of instruction would require that teachers identify the agricultural mechanics items necessary and available for use with the program conducted by the student and that they ensure the student is familiar with and capable of performing appropriate mechanical tasks associated with the items.

Preparing teachers for planning and conducting agricultural mechanics programs

The teacher is and will continue to be a key factor in planning and conducting an agricultural mechanics program. Decisions affecting the

program which have been discussed heretofore rely heavily upon the teacher's judgment. The relationships shown in this study generally suggest that teachers are performing these tasks in a satisfactory manner. The only cause for concern appears in the importance ratings of the various units as supplied by teachers. Such ratings were probably based heavily upon monetary investment and the relative complexity of the equipment instead of the number of farms on which the items were found or the number of students who performed specific agricultural mechanics activities. Because of this, departmental curriculums based upon the teacher's purported importance ratings will not be as appropriate as one developed by using other measures. For example, if departmental curriculums were developed on the basis of the number of items found on the farm, the activities performed on the farm, and the students' abilities when they entered the program, instructional units related to rope work, disk harrows, manure spreaders, and portable elevators would appear in a greater number of curriculums. Less instructional time would be devoted to units such as woodworking and acetylene welding. However, some disparity between those units taught and activities performed on the farm should always exist because of efforts to improve or expand the program and because of the transfer of learning which often occurs. Because of these decisions which must be made, the teacher exercises a great deal of control over the curriculum. Thus teacher preparation plays an important role in curriculum development.

To ensure that the teacher is ready to make these decisions, he should be acquainted with teaching principles, student needs, and local farming operations. In addition, he should be familiar with the value of basic agricultural mechanics activities and capable of performing those activities which are generally performed on the farm. Finally, he should

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use the Agricultural Production: Curriculum Guide[1] as a reference while planning both departmental and individual curriculums.

Continuing education in agricultural mechanics

Continuing education related to agricultural mechanics is and will continue to be important. Such instruction should receive a position of importance in young and adult farmer programs. When one notes the percentage of high school students, young farmers, and adult farmers who performed various agricultural mechanics activities, it is apparent that as the individuals become older and better established in farming, the percentage performing a specific activity increases. Because of this, agricultural mechanics instruction must be provided for other than the high school students. In those instances where a need exists, special classes should be organized and conducted in an effort to improve the farmers' abilities in this area.

These six implications should be considered when planning or supervising the operation of programs related to agricultural mechanics. Their consideration and implementation can help to strengthen the agricultural mechanics instruction in the production phase of Ohio's vocational agriculture program.

[1] Agricultural Production: Curriculum Guide (Columbus, Ohio: Agricultural Education Service, State Department of Education and Department of Agricultural Education, The Ohio State University, 1967.)

THE STUDY AND ITS FINDINGS

Though it has been predicted that the overall need for farm labor will be less in the years ahead, it was believed that workers with higher skills would be needed. Such jobs as the operation and maintenance of increasingly complex farm machines will require additional technical knowledge and judgment.[2] With the increasing mechanization of work, a person employed or self-employed in agriculture cannot be a success unless he possesses considerable mechanical knowledge and skill. The importance of such knowledge and skill was emphasized by a recent agricultural engineering estimate that 85 per cent of the machinery in operation on farms was out of adjustment.[3]

Because of this, it was believed that Ohio would continue to have a relatively high farm employment rate. This along with the emphasis on mechanization made the provision of adequate educational opportunities in agricultural mechanics mandatory. In an effort to aid secondary students in developing those abilities which would enable them to perform the agricultural tasks necessary for success in farming, it was recommended that Ohio curriculums for production agriculture include subject matter and learning activities concerned with the principles, concepts, and processes dealing with agricultural mechanics.[4]

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[2]United States Department of Labor, Manpower Report of the President and a Report on Manpower Requirements, Resources, Utilization, and Training (Washington, D. C.: Government Printing Office, 1967), p. 106.

[3]Lloyd J. Phipps, Mechanics in Agriculture (Danville, Illinois: The Interstate Printers and Publishers, Inc., 1967), p. 4.

[4]Agricultural Production: Curriculum Guide, loc. cit.

As an instructional area, agricultural mechanics has usually been allotted a rather large investment of finances, space, and instructional time when compared to other areas such as animal science, plant science, farm business management, occupational experience programs, and leadership training. Because of this investment and because of the continuing need for such instruction, it was considered imperative that this portion of the curriculum make a maximum contribution to the total program by concerning itself with the mechanical knowledge and skills required for success in farming.

The Study

Purpose of the study

The purpose of the study was to determine whether Ohio agricultural mechanics curriculums were appropriate for preparing students enrolled in high school vocational agriculture classes to perform the agricultural mechanics activities found in production agriculture occupations as indicated by the instruction provided by teachers of vocational agriculture, the activities of such students, and the jobs or operations performed on selected farms.

Objectives

The following specific objectives were identified to provide direction to the study:

1. To determine which areas and units of agricultural mechanics were taught; how important these areas or units were according to teacher ratings; when, during the normal four year period of vocational agriculture instruction, these areas or units were taught; the amount of instructional time devoted to each area

or unit; where the areas or units were taught; and the areas of emphasis included in the units.

2. To identify the agricultural mechanics operations or jobs performed by production agriculture students and when they were first performed, based upon grade in school.
3. To determine which agricultural mechanics operations or jobs were performed on farms associated with selected farmers and who performed these operations or jobs.
4. To determine the relationship between the areas or units of agricultural mechanics which were taught, the agricultural mechanics operations or jobs performed by the students, and the agricultural mechanics operations or jobs performed on farms associated with selected farmers.

Need for the study

The study was considered necessary as it was believed a contribution might be made to agricultural education in Ohio by attempting to strengthen agricultural mechanics instruction in the secondary school. Such instruction could be strengthened by confirming the value of present curriculums, through the preparation of a reoriented curriculum guide, or through a combination of these methods. This belief was developed for several reasons, but the following were considered most important.

1. The rapid technological advances being made in all areas of agriculture created change throughout the entire agricultural economy. It was deemed important that the instructional situation be examined periodically to ensure that the programs were keeping pace with these changes.

2. Programs of production agriculture had as their major purpose to meet the needs of persons over fourteen years of age who had entered or were preparing to enter upon the work of the farm or farm home. Thus the program in agricultural production should equip the student with the competencies required for entry into and advancement in farming.

3. Because of the small amount of instruction devoted to agricultural mechanics in the curriculum recommended for the preparation of teachers of vocational agriculture, it was considered necessary to identify the specific needs so that emphasis in teacher preparation could be directed to the most important areas.

Methodology

As an aid in conducting this study, the State was divided into three agricultural-administrative regions. This was necessary as one of the assumptions upon which the study was based indicated that the areas or units of agricultural mechanics in which training was needed would vary according to the type of farming and nature of the enterprises in the regions. These regions were identified as the Western Region, the Northeastern Region, and the Southern Region.

To achieve the objectives of this study, it was necessary to survey three groups of individuals--teachers of vocational agriculture, secondary students enrolled in production agriculture classes, and selected farmers. This latter group actually consisted of two sub-groups, young farmers and adult farmers, with the latter having a gross annual farm income of $20,000 or more.

After the mail questionnaires for each of the groups to be surveyed were finalized, selected individuals from each of the agricultural-

administrative regions were asked to complete the forms. For the teacher survey, teachers representing 130 of the 285 Ohio vocational agriculture departments offering production agriculture classes were selected on the basis of a stratified random sample and mailed the forms during the latter part of the 1967-1968 school year. Of this group, 82 per cent completed and returned the forms. The teachers' responses were then keypunched into data cards and tabulated through the facilities of The Ohio State University Computer Center.

Forms were then distributed to 1,157 of the State's 13,065 production agriculture students who were selected by using a stratified cluster sampling technique. Teachers in thirty-four of the vocational agriculture departments were asked to give the forms to specific groups of students. Eighty-five per cent of these forms were completed and returned to the researchers. The data obtained through these questionnaires were punched into data cards and tabulated through the use of electronic data processing equipment.

The third form developed was submitted to both young and adult farmers. The participants in this part of the study were identified by teachers of vocational agriculture on the basis of specific criteria developed by the writers. Of the 146 young farmers who were mailed questionnaires, 111 completed and returned the forms for a response percentage of 76.2 per cent. The adult farmer group had a similar response percentage, 76.9 per cent, with 140 of the 182 individuals receiving the forms responding. However, the usuable number of forms was reduced to eighty for the young farmers and 110 for the adult farmers after the established criteria were enforced.

Data from the questionnaires completed by these individuals were coded and keypunched into data cards. The data were then tabulated through the facilities of the Computer Center.

Analysis of data

After the data collected during each phase of this study were tabulated, the agricultural mechanics units were ranked according to selected frequency counts for each of the applicable responding groups. Spearman rank correlation coefficient (rho) and Kendall's coefficient of concordance (W) were used to determine the degree of association among the rankings. The results of these statistical tests were then used to draw conclusions concerning the relationship between rankings based upon teacher responses, student responses, young farmer responses, and adult farmer responses.

Major Findings

The findings were summarized in terms of data provided by each of the responding groups--teachers of vocational agriculture, students enrolled in production agriculture classes, and selected farmers--and of a comparison of some of their responses. Because of the nature of the study and the data involved, the findings were formulated as rather broad statements of relationships instead of specific declarations.

Findings regarding teachers of vocational agriculture

1. Most vocational agriculture departments offered instruction related to each of the five areas of agricultural mechanics--farm power and machinery, agricultural construction and maintenance, rural electrification and processing, farm buildings and conveniences, and soil and water management--as shown in Table 1.

2. Also as reflected in Table 1, instruction in four areas of agricultural mechanics--farm power and machinery, rural electrification and processing, farm buildings and conveniences, and soil and water management--was generally provided during the third and fourth years of vocational agriculture while the primary instruction in agricultural construction and maintenance was usually offered in the first year with a rather large proportion also occurring during the second year of the program.
3. Instruction related to agricultural mechanics units, except those in agricultural construction and maintenance, was most frequently provided during one year of the program, not divided among several years. On the other hand, agricultural construction and maintenance units generally involved instruction in two or more years of the program.
4. As shown in Table 1, the average department of vocational agriculture devoted approximately 272 hours of instructional time to agricultural mechanics instruction. Of this total, about 124 hours were devoted to farm power and machinery, ninety to agricultural construction and maintenance, twenty-three to rural electrification and processing, twenty-two to farm buildings and conveniences, and thirteen to soil and water management.
5. Teachers tended to teach those areas and units which they considered to be important.
6. Agricultural mechanics units having the highest average number of instructional hours devoted to them were generally taught in a greater percentage of departments.

TABLE 1

CHARACTERISTICS OF THE AREAS OF AGRICULTURAL MECHANICS IN PRODUCTION AGRICULTURE CURRICULUMS AS INDICATED BY TEACHERS IN 106 OHIO VOCATIONAL AGRICULTURE DEPARTMENTS

N = 106

Areas	Departmental Curriculums Including Area %	Year(s) of Vo-Ag In Which Unit Was Offered in Most Departments	Average Number of Hours Per Department Used For Presenting Instruction
Farm Power and Machinery	100.0	III/IV	124.4
Agricultural Construction and Maintenance	100.0	I	89.5
Rural Electrification and Processing	97.2	III/IV	22.7
Farm Buildings and Conveniences	96.2	III/IV	22.0
Soil and Water Management	89.6	III/IV	12.9

7. Based upon the percentage of time spent in each of the four places of instruction identified in the study, the laboratory, classroom, field trip, and supervised occupational experience program would rank in that order with the place listed first having the highest percentage. The percentages for each of the places are shown in Table 2.
8. According to the figures shown in Table 2, the supervised occupational experience program did not play an important role in most agricultural mechanics programs.
9. Agricultural mechanics units included in a large number of departmental curriculums tended to have relatively high percentages of departments offering instruction related to each of its areas of emphasis--economics, selection, operation, maintenance and repair.
10. Though the type of agricultural production occurring in a region of the State influenced the mechanics units taught as part of the departmental program, it was always a matter of degree not of acceptance or rejection of the unit.

Findings regarding high school students enrolled in production agriculture classes

1. Agricultural mechanics activities performed on the farm and by high school students represented each of the five areas of agricultural mechanics.
2. Of the 67 per cent of the students conducting their supervised occupational experience programs on the home farm or place on which they lived, 52 per cent reported this location involved less than 100 acres of land.

TABLE 2

PERCENTAGE OF TIME PER DEPARTMENT USED FOR PROVIDING INSTRUCTION RELATED TO THE VARIOUS AREAS OF AGRICULTURAL MECHANICS IN SPECIFIC INSTRUCTIONAL LOCATIONS

Areas	Number of Hours Per Department	Instructional Location			
		Classroom %	Laboratory %	Field Trip %	Supervised Experience Program %
Farm Power and Machinery	124.4	48.3	41.8	7.9	2.0
Agricultural Construction and Maintenance	89.5	23.7	75.2	0.55	0.55
Rural Electrification and Processing	22.7	51.9	41.9	5.0	1.2
Farm Buildings and Conveniences	22.0	58.9	26.8	10.6	3.7
Soil and Water Management	12.9	56.7	24.0	17.2	2.1
Total Hours Per Department	271.5	41.8	50.8	5.8	1.6

3. While Table 3 shows that 41.5 per cent of the students reported they expected to enter an agricultural occupation after completing their formal education and serving in the armed forces, only 33.5 per cent identified a production agriculture occupation.
4. Agricultural mechanics items found on the greatest number of farms were likely to be operated or constructed, maintained, and repaired by a greater percentage of the students than those found on fewer farms.
5. Students reported they generally began operating, constructing, maintaining, or repairing the items listed during grades seven through ten. Though the period six and below was important in some instances, few students indicated that they began performing these activities during the eleventh and twelfth grades.

TABLE 3

PERCENTAGE OF VOCATIONAL AGRICULTURE STUDENTS WHO REPORTED THE FULL-TIME OCCUPATIONAL CATEGORY IN WHICH THEY EXPECTED TO ENGAGE

Type	State	Agricultural-administrative Regions		
	N=983	Western N=310	Northeastern N=376	Southern N=297
Agricultural Occupations	41.5	42.3	46.6	33.9
Non-agricultural Occupations	36.9	34.9	36.2	39.9
Undecided and No Response	21.6	22.8	17.2	26.2

Findings regarding selected farmers

1. Agricultural mechanics activities performed on farms associated with young and adult farmers represented each of the five areas of agricultural mechanics.
2. Persons identified as performing the farm's mechanical tasks generally fell within three categories--the young or adult farmer, other full-time workers, and specialists.
3. Part-time workers did not play a major role in the performance of agricultural mechanics activities.
4. Operation of the various mechanical items was usually performed by the farmers or their full-time workers.
5. Mechanical items listed under each of the areas of agricultural mechanics could generally be divided into three categories--most likely to be found on the farm, may be found on the farm, and least likely to be found on the farm. Young and adult farmers generally exhibited agreement as to the relative ranking of the several items.
6. If the mechanical activity was performed on farms associated with one group of farmers, the other group generally performed it to a similar extent.
7. While both young and adult farmers tended to utilize the services of specialists for specific tasks, a greater percentage of adult farmers reported using such services than did the young farmers.

Findings regarding comparison of responses from the various groups

1. The two groups of respondents who provided data that resulted in the rankings of agricultural mechanics items or operations which

showed the greatest positive statistical association were the young and adult farmers.

2. Rankings of agricultural mechanics items or operation by high school students enrolled in production agriculture classes, by young farmers, and by adult farmers generally exhibited a high degree of positive association.

3. A greater percentage of teachers of vocational agriculture included agricultural mechanics instructional units in their departmental curriculums which were related to the farm power and machinery items reported as being found on farm associated with a greater percentage of students and farmers.

4. The instructional importance rating provided by teachers of vocational agriculture was found to have no significant association with the percentage of students and farmers reporting the various farm power and machinery items found on the farm.

5. Teachers of vocational agriculture tended to provide instruction related to the operation, maintenance, and repair of those farm power and machinery items which the greatest percentage of students and farmers reported they operated, maintained, or repaired.

6. The only agricultural mechanics area in which item rankings did not result in a significant value on the statistical tests used to measure the degree of association was rural electrification and processing.

7. A greater percentage of teachers of vocational agriculture tended to provide agricultural mechanics instruction as part of their

departmental curriculums related to the agricultural construction and maintenance, farm buildings and conveniences, soil and water management, and rural electrification and processing items and operations reported as being found or performed on farms associated with a greater percentage of students and farmers.

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VT 012 007
Implementation of Vocational Education in Distribution.

Wisconsin Univ., Madison. Distributive Education Office.
Office of Education (DHEW), Washington, D.C. Div. of Vocational and Technical Education
MF AVAILABLE IN VT-ERIC SET.
Wisconsin Board of Vocational, Technical and Adult Education, 137 East Wilson Street, Madison, Wisconsin 53703 ($1.25).
PUB DATE - 67 120p.Report of a Clinic (Oct. 14-18, 1963).

DESCRIPTORS - *DISTRIBUTIVE EDUCATION; GUIDELINES; VOCATIONAL EDUCATION; *CONFERENCE REPORTS; ADULT PROGRAMS; *CURRICULUM DEVELOPMENT; YOUTH CLUBS; ORGANIZATION; *PROGRAM DEVELOPMENT; SECONDARY EDUCATION; HIGH SCHOOL STUDENTS; RESEARCH NEEDS; EDUCATIONAL PROBLEMS

ABSTRACT - To provide distributive education supervisors and teachers the opportunity to discuss implications in the report of the Panel of Consultants on Vocational Education and to restate the role of distributive education in light of the anticipated Vocational Education Act of 1963, a national clinic was organized around these papers: (1) "Vocational Education and the National Welfare" by Arthur Harris, (2) "New Dimensions for Distributive Education" by Lane Ash, (3) "The Emerging Program of Distributive Education" by John Beaumont, (4) "The Basis of Occupational Goals" by George Sanders, (5) "Bases for Curriculum Development in Distribution" by Edwin Nelson, (6) "The Vocational Approach in Education for Distribution" by Mary Marks, (7) "Organizational Patterns in Distributive Education" by Sanders and Beaumont, (8) "Staffing the Distributive Education Program" by Mary Marks, (9) "Research as a Means of Attaining Emerging Objectives of Programs of Education in Distribution" by Armstrong, (10) "High School Age Youth" by Samson and Thompson, (11) "Post High School Programs" by Toothman and Haines, (12) "Adult Programs" by Dorr and DeMond, and (13) "Youth with Special Needs" by Gradoni and Runge. Additional information from a post-session meeting is included in the appendixes. (JS)

VT 012 007

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IMPLEMENTATION OF VOCATIONAL EDUCATION IN DISTRIBUTION

Report of National Clinic 1963

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IMPLEMENTATION OF

VOCATIONAL EDUCATION IN DISTRIBUTION

Report of a Clinic
arranged by the
Division of Vocational and Technical Education
U. S. Office of Education
October 14-18, 1963

Distributive Education Office
Department of Curriculum and Instruction
School of Education
University of Wisconsin

1967

1247

F O R E W O R D

The Vocational Education Act of 1963 amends provisions for the distributive education program under the George-Barden Act to permit pre-employment training in distribution and marketing. Rapidly growing employment opportunities in this field present increasing responsibilities to school administrators and distributive educators for the implementation of preparatory training, and the maintenance, extension, and improvement of existing cooperative and supplementary programs.

To provide State supervisors and teachers of distributive education the opportunity to discuss implications for distributive education in the report of the Panel of Consultants on Vocational Education and to restate the role of distributive education in the light of the anticipated Vocational Education Act of 1963, the Division of Vocational and Technical Education conducted a clinic in Washington, D.C., October 14-18, 1963. Primary objectives of the clinic were:

1. To clarify national concern for preparatory programs in distributive education

2. To redirect the current program to meet more effectively the needs of individuals preparing for or advancing in marketing and distribution careers

3. To identify and suggest solutions to operating problems that confront the States and communities

4. To develop a consensus of guidelines for vocational education for distribution

The program was organized around papers presented by members of the Distributive Education Branch. The key clinic activity was in four task force groups who studied program implementation in relation to high school age youth and adults available for full-time study, adults needing training and retraining, and youth with special needs.

This report has been prepared from materials presented at the clinic. The appendix includes an account of a post-session meeting devoted to the implementation of vocational education in distribution through the Distributive Education Clubs of America and a paper exploring relationships between economic education and distributive education.

Harland E. Samson
Distributive Educator
University of Wisconsin

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THE PAPERS

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I. THE ROLE OF DISTRIBUTIVE EDUCATION

Vocational Education and the National Welfare

Arthur L. Harris
Associate Commissioner
Bureau of Educational Assistance Programs*
U. S. Office of Education

In the ebb and flow of vocational education, several high water marks have been reached: The Smith-Hughes Act, the George-Barden Act, the National Defense Education Act, and the more recent Area Redevelopment and Manpower Development and Training Acts. There is little doubt that another high tide in the history of vocational education is about to be reached.

Once again Congress is commissioning educators to launch a rescue mission upon the Nation's troubled economic and social seas. I share the general feeling of optimism--and incidentally of trepidation--prevailing among those concerned with the destiny of vocational education. You here must fee' the weight of impending responsibilities as vocational leaders resolved to chart a course that will meet the challenges forthrightly.

What will be the guiding principles in planning during the next few days, weeks, and months? Allow me to suggest that we still plot our course with a fix on the American ideal that man must be master of his fate and that his emancipation from the tyranny of ignorance will come through free access to education. As surely as our forefathers believed that "Satan could be deluded through the common school," Americans and Congress today seem convinced that "Marx can be deluded" and the threats of rapid economic change can be blunted through free public education for all our citizens.

But there is a corollary principle that is being reasserted and emphasized and it is this: Education for the great masses must be a vital education, responsive to the harsh realities of life. Reduced to the barest essentials: a boy or girl must gain a skill and thus a job, before, after, or concurrent with all other considerations. Today, with millions unemployed and with thousands dropping out of schools, we know that something is wrong and we also know a free and affluent nation cannot for long let millions stand idle, neglected, and impoverished. Something is not right in school and society when tens of thousands reject the educational fare of their time. Perhaps the quantity and quality of the three R's have not been sufficient for their world.

But this corollary principle also says those who do not, cannot, or will not master the academics must not be relegated to the rubbish heap. We know all too well that such a rubbish heap contaminates a community, saps its vitality, robs it of its dignity, and in the end turns its citizens into

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* At present Arthur L. Harris is Associate Commissioner, Bureau of Elementary and Secondary Education.

calloused nonparticipants in the great march of men for dignity and freedom. This generation of Americans will not be a party to such a betrayal of our heritage.

This Nation, then, in the Vocational Education Act of 1963, is making another great commitment to the proposition that a man has a right to discover and develop his talent through free access to a broad education and that, through such self-fulfillment, he has a right to make a contribution to the welfare of his country. The exact form of that commitment to vocational education requires considerable study as a basis for discussion and decision. However, we need not be restricted in our planning for the tremendous impact this program will have on American education. We can be fairly certain that many thousands of additional pupils will be accommodated in vocational classes throughout the United States.

In quantitative terms, this bill falls short of the recommendations of the report of the President's Panel on vocational education; nevertheless its passage constitutes a significant breakthrough. Educational opportunities which it provides make possible another giant stride to keep pace with technological change during this decade. These opportunities can salvage many already on the road to dropout and unemployment.

Permit me a side note on the dropout problem. Many of you are familiar with the President's August program to pay school counselors to visit dropouts in some of our major cities. This program accomplished its major objectives by demonstrating what the personal appeal of a counselor can do to bring youth back to school. It also pointed out that boys and girls leave school because they don't like or understand what's there for them, and even more tragically, that all too often there <u>is nothing</u> there for them.

The President's program has demonstrated once again that the education of youth in the country is a total effort. When we pass laws requiring children to attend schools, we must also give them what they need to learn. Learning requires variety in building equipment, curriculum, and methodology. Vocational education programs can go a long way toward giving all children the different kinds of school programs they need and should have.

But before these improved programs become a reality, leaders in vocational education must address themselves to hard administrative problems that demand solution. The staff of the Distributive Education Branch have already isolated the most important of these problems. They are:

- Locating, selecting, and training teachers and other personnel needed to implement the new distributive education program
- Making distributive education available wherever opportunity for employment and individual interest exists
- Examining current practices in terms of the charge, <u>to fit for gainful employment</u>
- Developing instructional techniques and materials suitable to the vocational needs of the age groups, the ability groups, and the socio-economic groups.

- Maintaining vocational emphases in instructional programs when enrollment is not limited to those already employed

- Extending training opportunities in urban areas to individuals handicapped in their search for employment

- Strengthening relationships with retailing, wholesaling, and service businesses so that there will be greater opportunities for trained personnel

One thing impresses me about these topics. With slight alteration they could be the focus for meetings of any of the educational groups affected by the legislation. This possibility serves to emphasize one other point. The legislation calls for cooperation on a scale never before envisioned by vocational legislation. To some degree the proposals enlarge our vision and transcend existing lines of division. We are challenged as never before to sit down at conference tables, cross agency lines, cross specializations, and plan vocational programs with one goal in mind--the educational welfare and salvation of the child and his elders.

Finally, it should be pointed out that the Congress is calling for innovations--new ideas for solutions to old and new problems.

May I make one final allusion to the nautical. Our guiding stars--equality of opportunity and the maximum development of individual talents--must continue to be the stars by which we chart our course. Columbus used the old stars to find new trade routes and he discovered a new world. That's what the Congress, the people, and fellow educators expect of us.

And there is one other challenge--that a vocational education program be built in terms of those to be served, not only in terms of job skills to be developed. The limitations on what can be offered, under what conditions it can be offered, to whom it can be made available, are removed.

Training must be available to youth in high schools, out of school youth--whether dropouts or graduates--who need further schooling to find employment. Training should be available to adults who need training or retraining to be returned to employment, employed workers who need upgrading in knowledge and skills to maintain themselves in jobs, and to the mentally and educationally retarded and the culturally deprived. We must know each of these groups--their needs, potential, and attitudes. We must find and create opportunities for which they can be fitted. Only then can we know what vocational education can be.

New Dimensions for Distributive Education

Lane C. Ash

Economic and social changes taking place in our communities impose upon us new responsibilities. In the field of distributive education, breadth of vision and breadth of working relationships with people outside our own immediate province are essential. Distribution, in today's economy, occupies more workers than production does. Production depends upon distribution services. Jobs for sales workers, managers, and proprietors will rise about 20 per cent in the 1970's. Therefore, it behooves all distributive educators to think of themselves as part of a great economic complex and an important segment of the education complex.

We must, first of all, consider the relationship between education and the economy of the Nation, the State, and the community. We must develop interrelationships within the vocational education field if our programs are to make significant contributions to the American people. Many facts give evidence to the need for education shaped to fit economic realities: unemployment when job vacancies exist; 26 million young adults without baccalaureate degrees, who will enter the labor force between 1960 and 1970; new competition from nations emerging into world markets; and the demands of all mankind for opportunity to live not only in political freedom but also in financial security.

The grave implications of what is happening in the world of work today force on vocational educators the responsibility of developing far-reaching plans to meet the needs of a changing society. We must give renewed attention to the admonitions of the founders of vocational education--the National Society for Industrial Education, the 1914 Congressional Commission, and the valiant proponents of vocational education in Congress during that period. We must study again the fundamental concepts which led to the passage of the first Federal aid measure for vocational education, the Smith-Hughes Act of 1917.

The report of the 1914 National Commission on Vocational Education included this pertinent comment:

> It would be of little use to have Federal aid for good roads or other material benefits making for our physical well-being if, at the same time, this country has an uncounted army of untrained workmen and workwomen to carry on life. If we can get our great human force trained and operating along education lines, all other things will come in normal manner . . .

It has taken the present Administration, the present Congress, and indeed, the present day critics of vocational education to restore the idealistic and realistic view of vocational education. Lack of funds and lack of staff have hindered the growth of programs over the years, and vocational education has been overshadowed by other developments in the broad area of education. However, the Vocational Education Act of 1963 contains these main features:

1. Greatly expanded Federal aid with upward-sliding increases each succeeding year until a plateau is reached in the fifth year.

2. Greater leeway to the States in spending the funds (Categorical restrictions are not imposed on the new monies, and the States are permitted to transfer from one category to another the funds available under the Smith-Hughes and George-Barden Acts.)

3. Provision for funds to be used for construction and operation of area schools.

4. Special allotments for efforts to prevent dropouts--with emphasis on work-study programs.

5. Provisions for the establishment of resident vocational schools in large urban centers.

6. Funds reserved for the Commissioner of Education to use in making grants for special research and demonstration projects (especially for the socioeconomically handicapped).

7. Provision for establishment of a national advisory committee to advise the U. S. Commissioner of Education, and in 1966 an advisory council to review accomplishments under new programs and to make recommendations to Congress by January 1, 1968.

Of particular interest to distributive education teachers and administrators is the provision that funds may be used for preparatory as well as cooperative programs. But funds and staff alone do not make a good program. More money and more staff without more vision and courage and flexibility of ideas could become a noose around our necks. These provisions carry within themselves the implications that vocational education will henceforward be for all kinds of people who need it.

The Panel of Consultants on Vocational Education sees vocational education providing a full range of vocational opportunities for youth in high school; for youth who have left high school but who lack specific training for a gainful occupation; for youth with socioeconomic or academic handicaps that interfere with their ability to benefit appreciably from present schooling or to obtain employment; and for adults of all ages who increasingly require refresher and upgrading training to keep abreast of changes in their job fields. For distributive education, in particular, this concept implies that the development of new programs is carefully tailored to meet the needs of specific groups of people.

Teamwork within the Community

Teamwork is probably the most effective way to stretch vocational education into new dimensions for new times and new mandates. The team approach should draw together educators; social scientists, such as economists, sociologists; specialists in remedial education; specialists in problems of urban renewal; and specialists in business management.

As vocational educators, we must enter the main stream of American educational thought and ask ourselves a few searching questions: Are we shaping programs that will train people for realistic jobs in a very competitive and very real world of work? Are we reaching out to the many different age and ability groups who have nowhere to turn but to us? Are we planning for the kinds of jobs which will exist tomorrow?

In the development of high school programs, we pay dogged attention to the number of hours of related instruction and nature of related instruction, but should we not also give some students an opportunity to broaden their horizons beyond the entry goal, possibly, to a job leading to retail department managership? Shouldn't we include foreign language study which might lead to opportunities for careers in distribution in foreign trade and overseas development?

At the other end of the scale, distributive education contains the potential, almost unexploited, to train people for service jobs of a less ambitious nature. The field of distribution is so vast that there are employment opportunities for people with lesser abilities as well as for people with greater. No field of vocational education should exclude from consideration the development of special programs for persons who have handicaps--academic, socioeconomic, or other.

In shaping our programs, we should seek help from specialists who know and understand the problems inherent in preparing the unready for work. We should establish ties with public welfare services and employment services as well as with specialists in adult literacy education and training of the handicapped. Teamwork of this sort should involve us with the whole community to such an extent that we might contribute to the solution of fundamental problems which vex the community.

Teamwork within Vocational Services

Avenues of teamwork within vocational education also need to be explored. It is urgent that we lift our sights and employ every resource and skill we have in vocational education. Since the very nature of work is changing, occupations which were once well-defined are now blurred into functions that combine a cluster of skills. Within each of the categories of vocational education, there is opportunity to make use of the specialized know how of teachers and administrators in order to create new categories and define new occupational fields in which there is demand for manpower.

Various methods of team approach are already being tested. Several States have reported progress in developing new programs which cut across traditional occupational categories. In Pennsylvania, for example, distributive and agricultural educators are working together to develop a new series of programs in distribution of agricultural products and services. Similarly, distributive education personnel in Colorado have cooperated with personnel in home economics education on programs which promise far-reaching significance.

Team activities take other directions also: agriculture-business, mechanical service and sales, electrical appliance service and sales training, and

an increasing cross-fertilization of specialty skills in the rapidly expanding field of electronic data processing. These illustrations touch only the perimeter of possibilities for developing a whole new vista of vocational programs through the team approach. The more cross breeding of services, the more numerous and effective will be the programs.

There is no good reason why we should not include in an appropriate distributive education program instruction by a vocational agriculture specialist; there is no good reason why we cannot mingle a trade and industrial course with instruction in selling or in the technical aspects of transportation. What has impeded this kind of teamwork in the past has been a reluctance upon the part of each of the specialized services to surrender its traditional notions of what "agricultural education" is, or what "distributive education" is, or what must be included or excluded in trade or technical education. There is little doubt that vocational education will become a major part of most school systems and that skillful teamwork is the formula for survival and progress.

Teamwork within the Vocational Division

The general policy of the Division of Vocational and Technical Education is to make certain that people's training needs are met in the light of present and future job requirements. Teamwork has facilitated the process. Within the division, the team approach has developed over a period of several years--first in the technical education programs under Title VIII of the National Defense Education Act of 1958, and more recently in connection with training programs under the Manpower Development and Training Act. Funds available through this latter Act have contributed to the making of curriculum guides, prepared under direction of teams representative of the various branches--Distributive Education, Agricultural Education, Trade and Industrial Education, Home Economics Education, and Technical Education.

Specialists in these various fields have helped to initiate training programs in new and emerging occupational fields, without regard to a particular occupational category. In addition, the division will have the assistance of a team of social science specialists--in sociology, economics, and psychology--to identify serious economic and social problems and to relate vocational education goals to the broader community goals for social stabilization and economic development.

Teamwork in vocational education involves such considerations as these:

1. Full orientation of existing and potential opportunities in the labor market.

2. New attention to and emphasis upon teacher education--the education of teachers for different kinds of occupational training programs.

3. Concentration on the development of new teaching aids and teaching materials and development of skill in appraisal and

use of new techniques, programmed instruction and teaching devices.

4. Research conducted as a series of coordinated State studies--the encouragement of policies and plans with regional and national implications being the major end product.

5. Continual evaluation to insure patterns compatible with the shifting trends of modern-day society and economy.

6. Utilization in vocational education planning of other public school educators and administrators, of business and industry in the area, of representatives of labor and agriculture, and of civic groups who speak for the general public.

These steps are similar to those already taken in some States. They indicate present trends. Their implementation in the traditional structure will help to rectify inadequacies which incurred criticisms of vocational education.

The Emerging Program of Distributive Education

John A. Beaumont

It is appropriate to review the accomplishments which have been made in distributive education since the occasion of the last national conference in September, 1957. The primary goal of the 1957 conference was to broaden and improve the concept of distributive education. Major progress in program development has resulted from the following concepts:

1. THE GOALS OF DISTRIBUTIVE EDUCATION

   - To offer instruction in marketing, merchandising, and management
   - To aid in the improvement of techniques of distribution
   - To develop an understanding of the social and economic responsibilities which accompany the right to engage in distribution in a free, competitive society

2. A DEFINITION OF DISTRIBUTIVE EDUCATION

   - A program of instruction in marketing, merchandising, and management with emphasis on training required for career development and operational management

3. A COMPREHENSIVE DEFINITION OF DISTRIBUTIVE OCCUPATIONS

   - Occupations followed by proprietors, managers, or employees engaged primarily in marketing or merchandising goods or services and found in various business establishments, such as retailing, wholesaling, manufacturing, storing, transporting, financing, and risk bearing

Accomplishments of distributive education are reflected in the following areas:

1. ENROLLMENT AND FINANCES. Overall there has been a 15 per cent increase in enrollment, a 30 per cent increase in cooperative programs, and a 40 per cent increase in funds invested in distributive education. It is at this latter point that State leaders deserve credit; for out of this 40 per cent increase, totaling $3,233,000, only $126,000 is accounted for by Federal funds; the remainder is State and local funds.

Following are comparative figures for the years 1957 and 1962:*

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* U. S. Department of Health, Education, and Welfare. Digest of Annual Reports of State Boards for Vocational Education. Washington: U. S. Government Printing Office: 1963, 58 p., (OE-80008-62)

1957		1962	
Total enrollment	279,903	Total enrollment	321,065
Adult	245,354	Adult	276,948
Cooperative	34,549	Cooperative	44,117
Total Expenditures	$8,172,519	Total Expenditures	$11,405,837
Federal	2,438,561	Federal	2,564,754
State and local	5,733,958	State and local	8,841,083

2. SUPERVISION IN STATES. In 1957, 17 States had no directly assigned State supervisor for distributive education. In 1963, the supervision of distributive education in only five States still remained the responsibility of the State director. Thus, 12 additional States had named State supervisors for distributive education.

3. TEACHER EDUCATION. The Distributive Education Branch published in 1959 a bulletin entitled "The Role of Teacher Education in Distributive Education." A national conference on institutional teacher education sponsored by the Branch in Chicago in June, 1961, resulted in the report called "Guidelines for Teacher Education Programs in Distributive Education." Since 1957, ten new institutions have been added to the list of those conducting full-time distributive teacher education programs. This figure does not include the many extension programs conducted by supervisors and consultants. Two States have added specialists in teacher education to their State staffs.

4. RESEARCH. This office conducted a conference in June, 1960, and issued the report, "Patterns of Research in Distributive Education." In 1963, it published a bulletin, "A Guide to Practical Research in Distributive Education." Research committees have been organized in each of the regions. Representatives from the field of distributive education participated in the First National Vocational Education Research Conference at Purdue University conducted jointly by the Office of Education and the American Vocational Association. A comprehensive advance has been the great volume of research accomplished in the several States during the past six years.

5. POST HIGH SCHOOL PROGRAMS. The Distributive Education Branch published in 1960 a bulletin, "Post High School Cooperative Programs." In addition, it conducted a survey in 1963 which revealed that in fiscal year 1959, six States reported post high school cooperative programs. Four years later, 20 states reported similar programs. And during fiscal year 1964, four more States added such programs to their distributive education offering.

6. ADULT PROGRAMS. The Distributive Education Branch called two national conferences for leaders in adult education, one in 1959 in cooperation with the University of Texas and the other in 1962 with Indiana University. The latter conference emphasized the program approach in adult education. Enrollments in adult education have increased substantially, particularly in programs of considerable substance and depth.

7. HIGH SCHOOL COOPERATIVE PROGRAMS. This office has issued a number of bulletins which deal specifically with various aspects of the high school cooperative program. A major portion of teacher education and curriculum development carried on by the States has been directed to this program. The National Study of Secondary School Evaluation included it in the "Evaluative Criteria."* Enrollments have increased consistently. Scattered reports from several States indicate that in the 1964 school year. 250 more high schools initiated cooperative programs in distributive education.

8. DISTRIBUTIVE EDUCATION CLUBS OF AMERICA. This youth group has attained considerable growth in membership and program development. Thousands of young men and women throughout the nation proclaim their affiliation with the dynamic organization and substantial increases in membership are recorded each year. An improved program of activities is apparent at local, State and national meetings. The national organization has added a second professional member to its staff. Increased support of the DECA Foundation has made scholarship loans possible. A bulletin, "Educational Values of the Club Program," issued by this office in 1962 has attracted considerable attention.

9. PROFESSIONAL ORGANIZATIONS. Professional organizations, the Council for Distributive Teacher Education, the National Association of Distributive Education Teachers, the DE Section, American Vocational Association, and the National Association of State Supervisors of Distributive Education are making important professional contributions to the growth of the distributive education program.

10. RELATIONSHIP WITH REPRESENTATIVE GROUPS. Relationships within the field of vocational education at local, State, and national levels are evidenced by the increasing number of demonstration programs conducted cooperatively by distributive educators and teachers from other fields of vocational education. Relationships with numerous Federal agencies are developing. Under the sponsorship of AVA, an advisory group has been established which includes representatives of the Small Business Administration and distributive educators. Professional and trade groups, through their relationships with distributive educators, are finding in distributive education an educational force which contributes to the competencies of personnel in their own fields of activities.

The Fundamental Challenge

What is the fundamental challenge at the moment in the field of distributive education? Let us look to two recent reports and to new vocational education legislation for answers to this question:

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* Evaluative Criteria, National Study of Secondary School Evaluation, 1960 edition. Washington, D.C.

1. The report of the Panel of Consultants for Vocational Education places emphasis on people and their needs rather than occupational categories. Vocational education might be described as "people business." The Panel recommends pre-employment training for the distributive occupations.

2. A report entitled "The Federal Government and Education," (issued in June, 1963, by the Committee on Education and Labor, House of Representatives, 88th Congress, First Session) says that distributive education is "handicapped by the legislative limitation which restricts training to persons over 16 years old who are already employed in distributive work."

3. New vocational education legislation includes a provision that "any amounts allotted (or apportioned) under such titles, Act, or Acts for distributive occupations may be used for vocational education for any person over 14 years of age who has entered upon, or is preparing to enter upon, such an occupation, and such education need not be provided in part-time or evening schools."

These reports and the legislation call on distributive educators to think first of people and their peculiar needs in organizing programs for the distributive occupations and to develop such effective programs that these people will be enabled to enter successfully into the wide range of distributive occupations which are available.

Heretofore, distributive education has been concerned with an extension program; instruction has been limited to persons already employed. Though the extension program will continue as a major part of the adult and cooperative phases of distributive education, there is the emerging opportunity to prepare individuals for initial employment in a distributive occupation or one in an occupational mix. Employment would follow education rather than accompany or precede it.

Procedures will be required to implement these important challenges. Leaders in distributive education--head State supervisors, teacher educators, representative local supervisors, and chief officers of the various professional organizations--must exert their best efforts to find solutions to the questions before us:

1. What new directions are needed to place the emphasis of distributive education on people, as pointed out by the Panel of Consultants?

2. What are the fundamental problems involved in education and business in establishing programs in the distributive occupations that place education before employment?

3. Since evaluation of a program is gainful employment in the occupation or in a related occupation for which the student has been trained, should the occupational goal of students entering distributive education high school courses be based?

4. How specific a goal should the student be required to identify?

5. What appropriate subject matter should be included in a curriculum, and in courses, based upon the discipline of distribution? What are the tool subjects, technologies, and social skills needed to implement the discipline?

6. How can the practical approach associated with vocational education be retained in the instructional program?

7. What adjustments must be made to provide a competent instructional staff for the groups to be served in the program?

8. How can research activities be developed and their findings incorporated in solving emerging problems in education for distribution?

What do these Challenges Mean to Distributive Education

In the parlance of the retail trade, distributive educators have successfully operated a specialty shop. Staffing has been geared to the specialty shop concept; promotions and operations have been organized to fit a selected clientele. An opportunity now arises to enter the department store field in its broadest concept. There will probably be discount operations, basement store operations, fashion operations, and a wide range of products and services. There may be four different shoe departments, each serving a special clientele. The present homogeneity of staffing will disappear to a great extent. Promotion will be directed to a wide range of selected markets. Policies must be formulated that apply to the entire operation as well as to different phases of the total operation. There will be different and new competitive forces to be encountered, new problems, and new decisions to be made.

What is the market for distributive education in relation to these challenges? The Panel of Consultants, indicated the market when it identified four major groups to be served: high school, post high school, adult, and youth with special needs. The Panel further indicated this market and its extent when it urged that occupational preparation should be available for all American youth in high school and post high school institutions for youth or adults, unemployed or at work, needing special training or retraining to achieve employment stability or updating and upgrading.

In "Future Opportunities for Distributive Education" Harry W. Ketchum points out growth of the distributive education field when he states that in a period of 100 years, employment in the broad field of sales and services has increased from less than 25 per cent of the labor force to more than 50 per cent. In the four-year period, 1956-1960, total employment in wholesale and retail trade increased six per cent; and in finance, insurance, real estate, and the service trades, more than 12 per cent.

To be more specific, let us review briefly the potential in this market for distributive education as outlined in the publication, "Vocational Education in the Next Decade." These potentials for distributive education were calculated after considerable study of population trends, school enrollments, and employment opportunities--in relation to the groups mentioned by the Panel:

		Totals
High School Youth		
1. Preparatory programs in rural communities	112,000	
2. Preparatory programs in urban communities	200,000	
3. Cooperative programs	150,000	
Post High School Youth		
1. Preparatory and Cooperative Programs	130,000	592,000
Adults		
1. Preparatory programs	345,000	
2. Extension programs	900,000	
3. Management programs including export trade	150,000	1,395,000
		1,987,000

In these projections no reference was made to youth with special needs or to potential enrollments which would develop as a result of the inter-relationships with other services, or what I prefer to call the occupational mix. The total of the figures presented indicates that the current program might increase over sevenfold. Even if the figure is cut in half, making the increase four-fold, what does such an increase mean in your future plans?

What Does This Mean to Each Leader in Distributive Education?

In a 1959 publication of this Branch entitled "Supervision to Improve Instruction," many suggestions are found for personal development. The second chapter, "The Supervisor Organizes His Work," presents practical suggestions as to how an individual might organize himself for the tasks that lie ahead.

Leaders in this field will face major administrative responsibilities. They will need to determine an area of operations, plan for implementing and budgeting for forecasted growth and development, and recruit and organize the staff required.

Supervision will continue to be a major element in program growth and development. It is doubtful, however, that distributive educators in many States and communities will be able to engage in supervisory activities associated with program development in the early stages of program development. Regional and local personnel will have to undertake this important activity.

Staffing undoubtedly will be a major concern. It is obvious that personnel of varied abilities and many competencies will be needed in the emerging programs. Currently, there is a great deal of homogeneity among teacher coordinator groups. In the future many different kinds of personnel will be involved in the distributive education program to serve in different areas, such as preparatory training, training youth with special needs, and working in interrelated programs with the other services. Even at this time where high school and post high school teacher-coordinators exist side by side, there are recognizable differences in their qualifications. In time, growth in membership in the National Association of Distributive Education Teachers may allow for sub-groups of teachers representing these different specializations.

More ways will be needed to provide inservice teacher education. State-wide groups of teacher coordinators (totaling in some cases hundreds of teachers) will require changes in inservice teacher education. Widespread pre-service teacher education will have a major effect on inservice teacher education. Well prepared and experienced distributive educators, currently found in local school systems, will require a continuous program of upgrading in this field. The pre-service program will change to accommodate the different kinds of specializations and competencies needed to serve diverse groups of individuals.

Working with many different groups in organizing and promoting programs will become a common experience. The Manpower Development and Training Act caused vocational educators to review their relationships with the employment service. Welfare agencies and similar groups will be concerned with training for distributive occupations particularly for youth with special needs. In vocational education itself there will be relationships among services that have not previously existed. The tendency has been to take care of specialized, immediate problems without exploring more general needs. The challenges of the future will require working together to meet emerging opportunities for improvement and expansion of vocational and technical education.

This will be a job for many full-time, well-qualified people, who are devoted to one field of service. Meeting daily with new and different groups, some of them competitive, will require a high quality of administrative ability.

II. NEW DIRECTIONS FOR DISTRIBUTIVE EDUCATION

The Basis of Occupational Goals

George Sanders

The controlling purpose of vocational education is preparation for gainful employment. Gainful employment in the field or a related field for which an individual is trained is the basis for evaluation of vocational programs. A national and well-defined basis for identifying occupational goals in distribution should be established so that compatible data may be obtained for this evaluation of placement.

The goals of distributive education adequately identify aims to be accomplished through the program. Now, however, setting up a standard basis by which an individual student may designate his occupational choice in the field of distribution is necessary.

Characteristics of Employment in Distribution

In a background statement concerning training programs for personnel suited to job opportunities in distribution, the Distributive Education Branch has said that decisions about curriculum and organization should be based on certain understandings about the field.

1. Distribution is that segment of the economy which serves both production and consumption. Distributive occupations are found in retailing, wholesaling, and service establishments and in production industries where the marketing function appears. Today distribution represents a major factor in the attainment of the Nation's goals of expanded domestic and world markets and full employment. Vigorous and imaginative marketing practices mark a fundamental step towards the growth rate needed in our consumer-dominated economy.

2. Employability for successful performance in a distributive occupation depends upon the individual's ability to relate himself to people, to the profit motive, and to products and services offered for sale by his employer. Manual skill requirements are negligible. Judgment skills are developed by an individual out of attitudes of service to others, appreciations of customer needs, knowledge of product performance, and acceptance of the social and economic responsibility of free competitive enterprise.

3. In distribution the wage payment plan generally allows an individual to enjoy the security of a base pay while providing him the opportunity to earn according to his initiative and ability to produce dollar volume for the business. Jobs bearing similar titles provide a range of incomes to their holders. Variables, such as human relationships, pricing under a profit-system economy, personal motivation, the extent of customer services, product sophistication, the working of supply and demand, provide challenges and satisfactions enjoyed by those employed in marketing, merchandising, and management.

4. The level of entry jobs in the field of distribution differs according to the degree of individual responsibility and decision-making required of the applicant. There are many starting points. Some are satisfying in themselves as career jobs; others are necessary stepping stones to the job objective to which preparatory training has been directed. Career development is inherent in each entry job. However, this does not mean an orderly progression through a specific sequence of steps in a procedure or operation. Movement within an organization may be horizontal or vertical since there is an interdependence of distributive activities within every business organization. The qualifications of an individual are measured in terms of his total occupational experiences; his social maturity; the breadth of his marketing techniques; his specialization by product field, such as building materials; by service sold, such as insurance; or by function, such as export trade.

It is evident that these characteristics of employment in distribution create diversity in the description of jobs bearing the same payroll title. Statements of occupational goals are affected similarly. These conditions then point to a need for a job classification system that will identify the field of distribution and also permit the selection of an occupational goal appropriate to the nature of distributive employment.

Standard Industrial Classification Manual

The "Standard Industrial Classification Manual" is well suited to needs in distributive education. This manual prepared by the Technical Committee on Industrial Classification, Office of Standards, U. S. Bureau of the Budget, covers the entire field of economic activity. Developed for use in classifying establishments by type of activity in which they are engaged, the manual facilitates the collection, tabulation, presentation, and analysis of data relating to these establishments, and promotes uniformity and comparability in the presentation of statistical data.

The use of the standard industrial classifications system to identify occupational goals of distributive education students has many advantages because it:

1. Provides nationally recognized classifications which are compatible with the "Census of Business."

2. Safeguards employment purposes by

   a. Identifying students enrolled with a specific occupational goal in one of the classification groups
   b. Discouraging administrators from assigning students to the program because certain elements of it are good for everyone
   c. Encouraging low attrition rate since students committed to an occupational goal in a classification group will be less likely to drop out
   d. Contributing to sound vocational organization with a schedule which would prevent the enrollment of 150 students in the first year and only 20 in the second year

3. Furnishes a convenient check list of businesses being served

4. Provides a research base

5. Indicates the wide scope of the program

6. Identifies occupational goals by area, the usual procedure in distributive occupations

7. Standardizes reporting of enrollment and occupational areas served

High School Program

It is generally recognized that occupational choice is a development process, made up of a series of decisions over a period of years. Decisions on specific goals are usually the result of compromise due to various complex internal and external factors. Therefore, it is anticipated that by the time students reach the eleventh or twelfth year of school they have generally made a number of occupational goal decisions.

In order to explain how standard industrial classifications as a basis of occupational goals could operate, let us use the two-year high school program as a point of reference. Each student in the program should have an occupational goal of which his current classroom instruction is an integral part. This occupational choice should be identified by a standard industrial classification group and should also be a matter of record. The occupational goal for some students may be limited in scope, while others may select a long-range goal in which the high school program provides only the first necessary level of competency. A student's own initiative and ability are the limiting factors as to the level of his occupational goal and its ultimate achievement. Participation in the program also may awaken certain students to opportunities they had not foreseen and result in an adjustment of the occupational goal.

Under these circumstances then it is desirable that the program allow the student flexibility in the selection of his occupational goal. A student in the first year of the program would select with the teacher coordinator's guidance an occupational goal in one of the standard industrial classification groups. This occupational choice would be reviewed in the late spring of the year in conference with the coordinator, and the student would decide whether to continue toward this specific area in the second year of the program or to redirect his training toward another standard industrial classification group.

A chart of the Classification of Occupational Goals in Education for Distribution (See Appendix III-A) illustrates well the potential for selection of occupational goals within the standard industrial classification system. Let us examine some possibilities and see what flexibility exists for students.

In the first year a student might select an occupational goal in the area of 53-General Merchandise and be placed in the retail marketing course. In the spring, coordinator-student occupational goal conference, however, it becomes apparent that the student wants to change his occupational goal to 54-Food Stores. (See Appendix III-B). We see that he can do this without materially affecting his educational program. Another student might make a selection in 504 - Wholesale Groceries in the first year. He could very easily

change to 54 - Retail Food Stores in his second year. In fact a student can change from any first year occupational choice to a new goal in the second year. However, it would seem more desirable if the change was to a closely related standard industrial classification as, for example, 53 - General Merchandise to 56 - Apparel; or 54 - Retail Food Stores to 504 - Wholesale Groceries. Such flexibility, of course, would be confined to distributive occupations within the standard industrial classification.

Students who have reservations about selecting a specific occupational goal or just feel they are interested in retailing could be encouraged to select 53 - General Merchandise and take Retail Marketing the first year. This allows for development of a more specific choice based on additional information or the decision to remain in 53 - General Merchandise.

Some students may wish to select a market function such as buying or sales promotion as their occupational goal. If this is the case, they would be helped to identify a standard industrial classification group in which they would be interested in doing buying or sales promotion. Those unready to settle on a more specific classification could relate their functional goal to 53 - General Merchandise, as for example, 53 - General Merchandise--Buying.

It is anticipated that the selection of occupational goals by students in large schools will lead to specialized programs in, for example, Display. In this case, too, students would have the option of choosing a specific standard industrial classification such as 56 - Apparel--Display or if uncertain of a choice, they would designate 53 - General Merchandise--Display as their occupational goal.

Post High School Program

In the post high school, selection of occupational goals by students who have not completed a high school distributive education program will follow somewhat the same procedure as that for high school students. It is expected, however, that the number of students continuing into post high school programs will increase substantially in the future. For students in such advanced programs, highly specific occupational goals are to be expected. The combination of a more mature student plus basic knowledge of marketing has already produced post high school programs for students with common goals in such areas as mid-management, export trade, finance, wholesale management, petroleum marketing, retail floristry, and food store merchandising.

It is equally possible that programs will be developed in specialized areas of industrial sales such as: 502 - Drugs, Chemicals or 507 - Hardware or around some industrial product such as paper, tools, or shoes. Expansion of the program to serve those who have completed high school or dropped out to enter the labor market--and are available for full-time training--will be limited only by the identification of distributive occupational goals realistic in terms of employment opportunities and the vision and drive of those in leadership roles in vocational distributive education.

Adult Program

In the adult program, for those employed and not available for full-time training, it is anticipated that market functions, courses, and programs will be offered to groups holding functional goals in distribution. These groups may have a common functional goal within a variety of standard industrial classifications or a common functional goal within the same classification. When enrollment is sufficient, specialized programs should be identified for goals such as: 54 - Food Stores--Management; 57 - Furniture Stores--Sales Promotion; 63.64 - Insurance--Sales; 53 - General Merchandise--Operations.

Program for Youth with Special Needs

Occupational goals for youth with special needs will range from very low to higher levels. Many youths will have deficiencies in tool subjects and/or social skills which must be removed in preparation for courses in the marketing area. Achieving employability through upgrading training in tool subjects and social skills will be a major qualifying factor for the selection of an occupational goal in distribution. The main responsibility of distributive educators will be with people who are already at an employable level in these areas and have identified an occupational goal in distribution.

Program Evaluation

The President's Panel of Consultants on Vocational Education strongly emphasized the need for continuing programs of evaluation. It had found itself hampered by a lack of data, particularly of national scope, by which to appraise or substantiate achievements in vocational training. It is not surprising then that the Vocational Education Act of 1963 makes provision for mandatory periodic review of vocational education programs and laws. A Council will be appointed at least every five years to evaluate programs and make recommendations for changes. The first review and report is scheduled for January 1, 1968.

Placement of students who complete a distributive education curriculum in the field for which they were trained, or a related field, becomes the basic measurement of the program's success.

Placement must be recognized as a major influence in the selection of a system by which occupational goals may be identified realistically and accurately in the field of distribution. The standard industrial classification groups meet this test and allow the flexibility necessary to fit the developmental nature of careers in distribution.

Current annual reports to the Division of Vocational and Technical Education of the U. S. Office of Education are concerned with placement. In addition, States are asked to conduct a follow-up study of graduates of all high school and post high school vocational programs and report the nature of their employment. Accounting for graduates of in-school programs by means of standard industrial classifications is consistent with practice in business and coincides with concepts of occupational goals. For example, a high school student who selected 53 - General Merchandise as his occupational goal would be considered in the field for which he was trained if he became employed in any of the wide range of distributive jobs found in this group. If he had

selected 54 - Food Stores as an occupational goal and became employed in 504 - Wholesale Groceries, this job would be considered related to his goal.

The Challenge

We in Distributive Education must prepare for a future marked by new program developments. We will be adding quality programs designed for various levels of ability. Many programs will be organized on a completely different basis from anything we now know. We must develop ways of recording adequate statistical data upon which to base evaluations and program improvements. Lacking current research, we will be expected to make accurate predictions based on the best information available and create opportunities for training that will meet the needs of people and distributive businesses.

The major challenge to all distributive education leaders will be to develop quality programs and evaluate them in terms of the achievement of individual occupational goals.

Bases for Curriculum Development in Distribution

Edwin L. Nelson

In contemplating the impact of the Vocational Education Act of 1963 upon curriculum development in distributive education, a renewed assessment of the scope and content of instruction in distribution must be undertaken. Distributive education has as its mission to provide instruction in marketing, merchandising, and management to meet employment objectives. With the new emphasis promulgated in the Act, this instructional program will now be made available to a larger audience having diverse needs and objectives.

One of the purposes of this clinic is to reach general agreement on considerations, concepts, and principles which will influence the development of curriculums throughout the country.

Background Considerations

As a preface to the discussion, one significant principle should be recognized: curriculums and courses centering upon employment and career goals in distribution must be conceived as achieving their objectives. With the advent of preparatory training, there is need for discretion and focus in content selection. Precautions should be taken to prevent the designation of subject matter as distributive that really does not satisfy the goal of employment in distributive occupations.

Special consideration should be given to the differences and relationships between existing extension curriculums and preparatory curriculums. The current program is designed for persons who have already achieved a measure of employability. Instruction centers on maintenance of employability and development of competencies needed for job performance and career development. Will the new emphasis on training make subsequent employment experience more rewarding? Will enrollees function more efficiently on the job as a result of their training? What are the essential aspects of instruction that contribute to the development of employment qualifications?

In considering these questions, one major concern must be faced. There is little evidence to support the designation of specific skills which may be acquired prior to employment in distribution; many employers hire without regard to specialized training.

Skill requirements for distributive occupations are not comparable to those demanded for office or trade occupations where specific skills acquired in advance of employment are accepted by employers. The degree of skill may be questioned but the specific skill itself is not.

The nature of employment in distributive occupations precludes the identification of one basic skill as the qualifying factor for employment. This should not prevent, however, the quest for knowledges and skills which, once acquired by those enrolled in a preparatory program, will be accepted by employers as fulfilling employment requirements. This is the time to determine employment standards for distributive occupations by instituting a well-defined preparatory program for the field of distribution.

Occupational Competencies

Occupational acquisition, adjustment, and advancement in the field of distribution are accompanied by a set of specific competencies exercised in the form of judgments and decisions. If people are to be qualified for employment opportunities in distribution, the nature of competencies possessed to one degree or another by those engaged in distribution should be examined. Standards for employment in distribution are found in four distinct areas:

THERE IS A SOCIAL COMPETENCY. One engaged in distribution has a set of personal characteristics which are occupationally relevant. Since distribution is characterized as being people-oriented, not machine-oriented, personal appearance, traits, and attitudes add up to a social competency which is a qualifying factor for employment.

THERE IS A BASIC SKILL COMPETENCY. One engaged in distribution makes constant application of the basic skills of communications and mathematics to his employment situation. Distribution revolves around communications and computations. This fact places a premium on facility with the tool subjects as a basis for employment in distribution.

THERE IS A TECHNOLOGY COMPETENCY. One engaged in distribution is intimately associated with a specialty--typically a product or service. His degree of success is dependent upon knowledge of a specialty which, in view of the growing complexity of products and services, may be referred to as the technology. A functioning knowledge of a technology, whether it be furniture, insurance, fabrics, automobiles, petroleum, or data processing equipment becomes the focal point upon which other knowledges and skills are applied and exercised.

THERE IS A MARKETING COMPETENCY. One engaged in distribution performs one or more of the functions of distribution: selling, sales promotion, buying, operations, market research, and management. Immediate job responsibility is generally centered in one of these functions, but the accomplished worker has understandings and appreciations of all distributive functions operating within a business enterprise. These functions are the means by which the distributive process is achieved in the economy.

These four competency areas are delineated to demonstrate the presence of employment activities that can be translated into meaningful content for a variety of curriculums. These competencies must, however, be considered in light of the economic environment in which they are carried out. While it may be observed that employment is not necessarily conditioned by an understanding of the economic structure prevailing for distributive practices and opportunities, education for distribution would be remiss in its mission to exclude this aspect of instruction. The development of the social, basic skill, technology and marketing competencies can be best achieved when they are taught in reference to the components of the free, competitive enterprise system.

These competency areas, then, represent the standards for employment in distribution. The substance of the marketing competency, the discipline of distribution, is the primary instructional responsibility of distributive education. The other three competencies are essential to the implementation of this discipline and are interwoven and utilized in each curriculum. All qualifications needed for gainful employment must be achieved if instruction is to result in occupational acquisition, adjustment, and advancement.

The Discipline of Distribution

In the U. S. Office of Education publication, "A Study of Curriculum Development," the principle is established that a discipline exists for the field of distribution. The discipline is described broadly as including a study of marketing, factors affecting marketing, various financial aspects of distribution, organizations performing distributive functions, and the place of the consumer in the marketing process. This earlier attempt to define subject matter for distributive education provided the foundation for a school-centered instructional program.

While the employed status of distributive education students has continued to serve as a significant base from which instruction is derived, the concept of preparing for career development in distribution has gained momentum during recent years and has redirected content selection. Students study, for example, sales promotion even though their current job assignments are not centered in this area of activity. Their training stations become true laboratory settings in which instruction, encompassing a greater variety of units, is applied and tested.

Preparatory programs, which do not include regularly scheduled employment, need to be associated more clearly with identified segments of the discipline of distribution. Enrollees must determine occupational goals that reflect a wider range of occupational achievement than one initial or entry occupation. Some of the occupational goals will be more extensive than others. All enrollees, however, must be taught all the functions of distribution if they are to be adequately prepared for the range of jobs within an occupational goal and for employment opportunities that will exist upon completion of training. They must be prepared for any eventuality that may appear in their careers in distribution.

All enrollees, regardless of the level of their distributive occupational goal, should be confronted in some way with the total discipline. Areas of instruction which involve a technology, the tool subjects, or personality development would not fall within the confines of the discipline. Instruction in these areas would be supplemental to or integrated with the discipline to the degree needed by individual enrollees.

Arthur W. Foshay points out "that behind every subject matter we teach in school a discipline lies, or should lie. It is the discipline behind the subject matter that contains whatever life is there." A discipline is characterized by a body of knowledge with which it intends to deal. Foshay refers to such a body of knowledge as the discipline's domain. The domain for distribution contains the functions of marketing as they exist and relate to a free, competitive economy.

These functions are defined as follows:

1. Selling--communicating with businesses and individuals through acceptable techniques, presenting facts needed for a decision to buy, giving assistance to buy, and following through with required service.

2. Sales promotion--stimulating sales of available goods and services through appropriate advertising, display, and other promotional means.

3. Buying--securing products for resale or raw materials for transformation into products for resale or further transformation.

4. Operations--facilitating the buying and selling functions through such activities as stockkeeping, traffic, credit, protection, customer services, and purchasing.

5. Market research--investigating the marketing climate for the sale of goods and services.

6. Management--formulating and implementing policies regarding men, money, and markets available for the merchandising of goods and services.

Presentation of this discipline determines the effectiveness of developing judgment and decision-making skills. While the act of making judgments is a personal experience, it is within the framework of a structured discipline that the ability to make decisions is enhanced and developed. The judgment skill is a key to employability as well as to career development. Greater job responsibilities are given to those who evidence use of judgment skills over a period of time.

The Development of a Technology

The central instructional concern of distributive education is with a body of knowledge described as the discipline. Of concern also are knowledges and skills required to perform specific jobs as well as to develop performance qualifications relating to a career objective. Engaged in distribution, one must apply concepts of distribution as well as perform distributive functions in relation to a product or service. For purposes of employment, technical knowledge ranging from setting a table service to completing an export transaction may be required for specific distributive occupations and should be treated as an appendage to the discipline of distribution.

In many instances these knowledges and skills form the basis of other disciplines. Involvement with other vocational services brings recognition of segments of vocational disciplines which make a contribution to employability in distribution. There exists a precedent for this interrelationship in revised Plan C. (See Appendix III-C)

Background notes supporting the revised Plan C state that "many job opportunities exist in the field of distribution which require a substantial knowledge of a product or service which is acquired by persons trained for occupations other than distribution. A student who is preparing for an electrical trade and decides he wants to sell electrical equipment instead of installing it may be cited as an example."

Plan C recognizes the contribution of trade and industrial education (e.g. auto mechanics as a facilitating knowledge to the marketing of petroleum); of home economics education (e.g. textiles as a facilitating knowledge to the marketing of ready-to-wear); of agricultural education (e.g. plant production as a facilitating knowledge to the marketing of ornamental flowers); of office education (e.g. accounting as a facilitating skill to the management function). Plan C also recognizes competencies which are developed within other instructional areas of the school. For example, a person whose artistic talent is developed through lettering or other courses in the art program might have a career objective in sales promotion.

These examples suggest possible avenues of interrelationships with other subject matter fields for the purpose of developing a technology competency among those having career goals in distribution.

Where a technology competency is not developed adequately or appropriately in the manner described, then distributive education must assume this responsibility. This would typify a phase of present operations where high school cooperative students develop merchandise manuals or adult groups study the specialized knowledge of furniture or insurance.

The development of technologies closely akin to distribution may be identified wholly with distributive education. Cashiering, as a specific skill unique to certain kinds of job responsibility, fits this designation. Such instruction, however, would not be regarded as part of the discipline since not all persons engaged in distribution would need this skill.

Curriculums and courses leading to gainful employment in distribution must provide for the development of a technological competency related to each student's occupational goal. Regardless of where, how, or when this technology is acquired, the application of a technology to vocational instruction in distribution must be evident.

The Application of Tool Subjects

Tool subjects include mathematics and the communication skills of listening, writing, speaking, and reading. Responsibility for the development of these competencies permeates the entire educational spectrum. Instruction in distribution has minimal value to the student if he fails to show adequate prior achievement in tool subjects.

Special remedial classes could be established for students having occupational goals in distribution to qualify them for enrollment in the regular distributive education program. Teachers and coordinators of distributive education should work closely with those in charge of remedial classes to see

that students develop an incentive for mastering the tool subjects. These students should be encouraged to recognize that communication skills are necessary to all occupations and especially so to occupations in distribution.

Tool subjects, outside of being taught directly, are applied extensively in all subject areas of the school. The subject field of distribution is no exception. Application ranges from an elementary situation, such as adding a sales check, to one of higher order, such as presenting a proposal for an advertising campaign to a board of directors.

Competencies gained through tool subjects have a proper place in the distributive education curriculum; that place, however, does not include correcting an inadequacy through remedial instruction.

The Development of Personal Qualities Needed in Distribution

The third goal of distributive education stresses the social responsibilities of those engaged in distribution in our society. This social responsibility is reflected in company policies and ethical practices in business which influence consumer acceptance. The proper conduct of a profit motivated business enterprise stems from the personal attributes of those connected with the enterprise.

Since distribution is basically people-oriented, it is viewed as a service industry; and service to the public constitutes a major responsibility. The nature of this service is shown by the individual--whether he is an employee, a supervisor, or a member of management--through his appearance, attitudes, character traits, and his concept of fair play. Success of a business and of the individual within that business is affected by the personal quality factor which exists at all levels of job responsibility in distribution--from the parking lot attendant who is considerate of elderly people to the advertising manager who strikes out misleading copy.

Social competency is a basic standard for employment. Unless some social skill is evident among enrollees, there is little value to move them farther into the instructional program. A refinement of personal attributes can take place through vocational application of instruction; but the potential should be there, particularly in the preparatory program, to bring students to a level of understanding and achievement of the social skills required for occupations in distribution, generally, and for their career objectives, specifically.

Curriculum Development

The foregoing identification of instructional responsibility in preparing individuals for gainful employment in distribution should provide a basis for curriculum development--a model to be accepted and adapted in designing programs of instruction for the major groupings of persons to be served.

There should be many variations of curriculums within each category of persons to be served expressed in the Vocational Education Act of 1963. No longer will it be desirable to offer one kind of curriculum at the high school

or the post high school levels. Certainly there will be different patterns of curriculums for the adult group and that most challenging group of all--youth with special needs.

Albeit, within such diversification, order must exist in terms of what is to be taught. New curriculums should be built and shaped according to performance requirements with the discipline, technology development, tool subject application, and social behavior adjustment. The degree of emphasis needed will determine what a particular curriculum should be for a particular group. (See Appendix III-D)

Curriculum decisions should be based upon four concepts:

1. The discipline of distribution represents the central responsibility of distributive education and exists in every curriculum in distribution.

2. While the technology exists outside of the discipline, it may be taught within an organized distribution curriculum. When it is brought into a particular curriculum, the technology of an occupational goal is taught always in relation to the functions of distribution. If the technology is taught without reference to a distributive occupational goal, such instruction is the central concern of some other discipline.

3. Basic factors of employability are represented in the social and tool subject skill areas. Where it is necessary to concentrate on the development of these competencies, such instruction must be related to its use in identified occupational goals in distribution.

4. Interrelationships with other vocational services are a natural development. When an enrollee within another discipline finds a competency in one or more of the functions of distribution necessary for employment purposes, he would enroll in an appropriate offering in distributive education. Conversely, an enrollee in the distributive education program who finds the technology of another discipline desirable for employment purposes should enroll in a subject offering of that discipline.

In a changing world of work, curriculum development will be a large and complicated task. New instructional programs must provide an effective balance between what is significant for career development in distribution and what is immediate and practical for initial employment. Distributive education is called upon to strike this new balance in distributive curriculum development.

The Vocational Approach in Education for Distribution

Mary V. Marks

Distributive education has had a built-in guarantee that vocational experiences have a controlling influence on the instructional program. Youth and adults had to be employed in order to enter the training program. As participants in distributive employment they had already passed the test of acceptability as employees. The satisfactions of this achievement plus awareness of occupational experiences were readily transferable to classroom learningactivities. Even if instructors and administrators failed consciously to recognize and enhance the effect of occupational experiences on the learners, each would provide for himself, out of his employment environment, his own vocational approach to instruction.

Vocational teachers have utilized employment experiences in planning and coordinating learning activities of both cooperative and extension training provided by distributive education. But the purview of distributive education is becoming more far-reaching. No longer is the program to have a common denominator of employment. No longer will conditions for admission into the program automatically provide learning experiences upon which students and instructors may rely for vocational applications.

Participation activities emerge as a technique essential to vocational instruction in distribution. They must be utilized by the instructor as a proving ground of the discipline when individually applied, for example, to SIC 57, Furniture, Home Furnishings, and Equipment, or to SIC 504, the Wholesaling of Groceries and Related Products. Participation activities must be available to test the qualifications of individuals as they prepare themselves for performance in and with the discipline. Participation activities, in short, centered on the individual at his level of motivation, maturity, and prior educational achievement now are needed to ensure the vocational approach to instruction.

This paper considers three instructional problem areas suggested by the extension of distributive education into the area of noncooperative training:

1. Achievement of desirable learning outcomes

2. Nature and scope of participation activities

3. Principles for quality control

Achievement of Desirable Learning Outcomes

Distributive education succeeds or fails on the basis of what individual trainees are able to do with the substance of the curriculum. While the transmission of what needs to be known is an important teaching objective, unless the learner is able to make this knowledge a part of his performance pattern, the instructional program will have failed. Unless the learner is able to recognize his own achievement and capacity for self-direction in the subject matter, distributive education will have lost its vocational direction.

Regardless of geographic location, cultural differences, unique aptitudes, individual limitations, and socioeconomic experiences of those entering the distributive education program, the justification for curriculum, course, or unit learning activities remains constant--the preparation of ~~individuals~~ for success in the area of their employment choice.

Students in distributive education will now have a wider range of individual differences. Distributive education will be concerned with learners who are preparing for employment requiring only routine and uniform performance. Distributive education will also be concerned with learners capable of more complex performance. For the former, the vocational approach to instruction may be centered on simple rote training in the skills and technology of their occupational capability. For the latter, the vocational approach will require methodology that encourages creativity, problem-solving in a nonuniform way, interpretation, analysis, and control of job behavior.

At whatever level of sophistication occupational goals lie, however, the instructor must provide opportunity for each individual to meet demands characteristic of distributive employment--the capacity to observe, listen, and interpret intelligently, and the capacity to make judgments about products and services. When the training program has been completed, the instructor must be confident that each individual can be resourceful in the performance requirements of his chosen employment situation.

Research has demonstrated that certain techniques of instruction help students learn to make discriminations and apply their knowledge under a variety of conditions. The cooperative plan as it has been developed in distributive education has its roots in such research. Participation activities as essential ingredients in vocational education find justification also in research.

Perhaps it is appropriate to recall briefly some premises about learning.

. . . Practice and review are necessary in the process of acquiring and maintaining previous learning. Delay or interference in the application of learning causes frustration and difficulties in achieving satisfactory levels of proficiency.

. . . Practice in applying a principle to the solution of problems increases the probability of transfer of learning to new problems which require the use of the same principle for solution.

. . . Learning by observation is effective if the learner knows what to look for and how to relate what he observes to his own needs.

. . . Reinforcement of learning by means of responses to a variety of stimuli provides control over subsequent behavior. Simulation and on-the-job learning capture and transform into performance skills knowledge which otherwise becomes lost to later occupational situations.

. . . Actual performance permits the learner to measure his own competency in certain aspects of his learning. His motivation towards new achievements is strengthened. His self-concept is enlarged.

Nature and Scope of Participation Activities

Mounting evidence that learning, assessed by performance, is best achieved through participation activities provides a sound basis for continuing this requirement in the methodology of distributive education. But these activities should not be limited to cooperative training on a school-work schedule as they are now. Other ways should be found to set up experiences that will develop and consolidate employment qualifications at entry and career levels.

Participation activities involve individuals either in cooperative training experiences or occupationally-oriented group and individual projects. Their purpose is to stimulate the transfer of subject matter to specific conditions of distributive employment. Regardless of home community, intellectual or social ability, cultural attributes, or employment maturity, participation activities provide each trainee the opportunity to practice with the discipline of distribution and the technology of his occupational goal and to measure his facility in tool subjects and personal readiness for self-direction in an employment situation.

Participation activities will be used to reinforce learning. They will be limited only by the standard set forth in the State plan, the resourcefulness of instructors and trainees, and the learning climate made available in local schools and business communities.

Cooperative Training

Supervised occupational experience under a cooperative plan should remain the dominant technique of participation. It has proved itself for over a quarter of a century. Follow-up studies almost without exception have revealed trainee appreciation and satisfaction in this technique. The problem now is to find ways to extend the benefits of this instructional technique to the many types of preparatory sequences which will become a part of the distributive education program.

Certain specific conditions always exist when cooperative training is a participation activity in distributive education. These are:

. . . School approval of on-the-job training activities

. . . Clearly defined instructional goals

. . . Credit recognition for proficiency in on-the-job assignments

. . . Regularly scheduled employment

. . . Pay for work performed

These controls certify the reliability of the method. They provide for flexibility in operational patterns. They show consideration for problems in local school administration and allow for adjustments to environmental conditions in distributive employment locally and in the State.

Supervised occupational experience under a cooperative plan should be required as the culminating participation activity in distributive education. This requirement might be met within the framework of systematic instruction provided on a school-work basis, or through an organized tutorial-consultant service--designed as a follow-through performance crutch for trainees who have completed a curriculum without regularly scheduled, on-the-job training. This latter might be in the nature of an internship where strengths and weaknesses are evaluated, and ability to apply prior instruction is intensified.

Project Training

In addition to cooperative training, participation activities include group or individual projects which may be used by the instructor to encourage vocationally centered learning. These may take place in a specially equipped classroom, in a field assignment of narrow scope, in situations simulating experiences of varying degrees of sophistication related to employment opportunities. They may be directed toward first employment goals or toward the development of qualifications required at new levels of job performance.

The project plan is introduced wherever instruction through the distributive education program begins so that learning has vocational meaning from the start. This is especially important in a field of wide consumer interest, a field closely related to general economic literacy. Participation activities developed under the project plan stimulate and maintain motivation toward employment goals by providing an environment for application of the discipline and technology by trainees.

Group Projects - Students should find in the project plan opportunities for working as members of a team as well as opportunities for self-directed achievement. Instructional techniques and devices should be selected on the basis of individual differences and individual goals. Nevertheless, situation analyses, case problems, discussion exercises, games, directed observations, and role playing in the total group or in sub-groups will help individuals learn from each other.

Individual learning objectives should also be recorded for trainees in such team projects as:

. . . Creative marketing activities developed around criteria set up by Sales and Marketing Executives, Inc.

. . . Product promotion based on products chosen to demonstrate application of instruction

. . . Service activities designed to support sports or forensic programs at the school

. . . Simulated exercises based upon equipment, products, and supplies available in the classroom

. . . Management activities related to snacks, souvenirs, and products of other students

. . . Competitive activities drawn from the awards program of the Distributive Education Clubs of America

The project plan should encourage each student to be adaptable within his career field since this quality will be required in workers in the years ahead. Learning activities which provide opportunities to discover, explore, experiment, and perform with the subject matter of the employment goal should be available in the classroom and in supervised employment experiences. The instructor may make to all members of a class for individual completion or plan specialized individual study and directed independent study at the level of interest and capacity of individual trainees.

Individual Study - Individualized instruction should focus on the technology of the occupational goal. It may be as simple as the preparation of a manual to demonstrate ability to recognize and use specialized equipment and record forms in an employment field or it may require judgment skills of a high order such as those essential in the analysis of an inventory statement. Reading assignments in trade journals, observations, interviews, part-time employment, and DECA competitions should help each student identify himself with work activities and rating standards used by adults with whom he will be later associated.

Directed Independent Study - Projects planned as independent study should reflect individual differences in learning capacity and rate, maturity, previous achievement, and strength of occupational motivation. Such study would permit flexibility by providing selected learning activities to strengthen, enrich, or accelerate performance proficiency. For some, this would be an opportunity to explore a specialized interest in more depth or experiment with ideas and procedures suggested by new processes or products. In other cases, directed independent study would allow a student to bring himself to the minimum satisfactory level of achievement or to fill in gaps in previous learning by means of such devices as tapes, films, exercises, or programmed materials.

Principles for Quality Control

Quality controls to assure adequate standards for participation activities under the cooperative plan or the project plan of preparatory instruction are essential. These should include:

1. Training plans showing participation activities for individual enrollees

2. Adequate time for individual involvement in participation activities

3. Adequate time for coordination activities

Training Plans - Training plans now used in distributive education outline a series of on-the-job experiences agreed to between employer and teacher-coordinator as practice areas available for the development of job competencies. These agreements center on employment. It is now proposed that an instruction-centered training plan also be prepared.

Individual training plans should be required as evidence that participation activities under project and cooperative plans will be used by the teacher coordinator to direct and control each enrollee's acquisition of acceptable job performance qualifications. Based on desirable learning outcomes and the needs of each individual at his present level of employability, plans should include a variety of selected learning experiences representative of a series of achievement levels related to an occupational goal. Supervised occupational experience either on a part-time school and work basis or on an internship arrangement following completion of classwork should be incorporated.

Time for Participation - Inherent in individually-developed training plans is the need to arrange adequate time for participation activities. From the moment of initial enrollment, the trainee's schedule should reflect this requirement, perhaps by means of a laboratory period. Time might be allowed, as now, during each school day; or an equally suitable arrangement might be reservation of a block of time.

The best arrangement will recognize (1) the timeliness of participation activities related to local conditions in the technology area and in the discipline and (2) the educational values to be gained by scheduling participation time in the credit load of individuals enrolled for distributive education.

Time for Coordination - Coordination of instruction with current practices and trends affecting employment qualifications is essential in vocational cooperative training. When individual training plans are school-centered, such activities increase in importance and the instructor must have time to develop and utilize community and school resources for occupationally directed learning experience. More time, rather than less, may need to be provided. The entire community becomes the business laboratory for distributive education as close relations are maintained with distributive businesses operating in and around the community. Coordination as a concomitant to all participation activities should begin with the first project plan assignment and continue as long as participation activities are added to individual training plans.

The Vocational Approach

At this time of redirection for distributive education, thoughtful attention is given to curriculum and instructional techniques desirable in developing individual qualifications for employment and career achievement. Ideas have been presented to provide the basis for discussion here and careful consideration later.

It is well to summarize major points presented in relation to the vocational approach to instruction in the distributive education program.

1. Distributive education succeeds or fails on the basis of what individual trainees are able to do with the substance of the curriculum.

2. Participation activities are the essential ingredient of vocational instruction.

3. Supervised occupational experience is the culminating participation activitiy in distributive education.

4. Training plans, showing participation activities for individual enrollees, are needed to control and direct the development of performance qualifications.

5. Participation activities require a commitment of time in the credit load scheduled for students enrolled in a distributive education curriculum.

6. Coordination of instruction with current practices and trends affecting employment qualifications takes on increased significance when distributive education includes preparatory instruction without cooperative training.

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Organizational Patterns in Distributive Education

George Sanders and John A. Beaumont

PART I - Mr. Sanders: How a program is organized plays a major role in the effectiveness and quality of the program. The potential for a vastly expanded program is a challenge to leaders in Distributive Education. They must develop organizational patterns that:

1. Meet the needs of people

2. Harmonize with educational institutions in which they are located--comprehensive high schools, regular high schools, vocational schools, technical institutes, all types of area schools, and a variety of post high school institutions

3. Provide types of programs accepted by business for preparing students for distributive occupations

4. Make available short and long-range programs to meet the needs of adults preparing for distributive occupations or for upgraded positions at all levels from employee through management

Educational methods, programs, and research should be scrutinized for ideas to help develop training opportunities for people already employed or preparing for employment in distributive occupations.

Current Organizational Patterns in the High School and Post High School

Current cooperative programs have produced desirable outcomes. Graduates generally have continued to be employed in the field or in a related field for which they are trained. Even when they have not continued to be so employed, several studies show they have an employment rate several times higher than that of other high school graduates. Other studies indicate graduates of the high school program progress faster on the job owing to competencies developed through distributive education.

In establishing this record of accomplishments in the cooperative program, the States have developed various patterns of operation within the flexibility provided in regulations for distributive education under the George-Barden Act. Some have been unique because of special local conditions affecting people and businesses. The organization of all programs has been responsive to the administrative policies of the educational institutions offering them.

Problems in program organization are similar everywhere and differ only in degree. Effective ideas developed in a few places could be adapted to other States and communities. In some States, one organizational pattern has been used successfully for many years; no thought has been given to exploring other patterns of operation. It is urgent that distributive education leaders keep an open mind, explore new ideas in such areas as scheduling or course sequence, and conducting experimental and demonstration programs. They must not be handicapped, as in the past, by the scarcity of research and pilot projects

or the lack of channels for the dissemination of the findings from studies completed. The distributive education program faces the imminent prospect of extending and developing new organizational patterns to meet the training needs of more people, in more places.

The cooperative program has operated within the framework of three basic plans, all designated as supplementary rather than preparatory since enrollees must work for an average of 15 hours per week during the school year to meet the legal requirement for employment. Most states, however, have been convinced that the classroom is the center of instruction for the distributive occupations, not the part-time employment situation. Cooperative training has been utilized because it is an effective instructional technique in the sound preparation of enrollees for full-time employment and career development. School districts have been encouraged to introduce a two-year sequence of training. Enrollees may thus acquire some depth in the subject matter which is common to all distributive occupations and may also participate in cooperative learning activities which require the application of marketing concepts to the product or service representative of each student's occupational goal.

The following organizational patterns now in use show the two-year program framework using cooperative training:

Plan A (2 years, 1 D. E. class period)

Grade 11	Grade 12
--- 1 class period 2 cooperative periods	1 class period 2 cooperative periods
--- 2 class periods 2 cooperative periods	2 class periods 2 cooperative periods
--- 2 class periods 2 cooperative periods	alternate weeks 2 class periods 2 cooperative periods

Plan B (1 year, 2 D. E. class periods)

Grade 11	Grade 12
--- 1 class period	2 class periods 2 cooperative periods
--- no specific prerequisites	1 class period 3 class periods (January, February, March) 2 cooperative periods

Plan C (1 year, 1 D. E. class period, prerequisites)

Grade 11	Grade 12
--- 1 class period	1 class period 2 cooperative periods
--- 1 class period	alternate weeks 2 class periods 2 cooperative periods
--- 2 class periods	alternate weeks 10 class periods 10 cooperative periods
--- 1 class period	2 class periods cooperative training (full-time in December; job training 10 hours per week for 8 months)

These patterns obtain in the regular schedule for the 11th and 12th grades so that students may enroll also in such required courses as English, U. S. history, and physical education.

The Teacher Coordinator's Schedule

The schedules followed by teacher coordinators for the current program show a variety of vocational assignments. They may:

1. Teach block of three or four periods and coordinate students two or three periods (12-25 students all receiving cooperative training)

2. Teach a double period and coordinate for two periods (12-25 students all receiving cooperative training)

3. Teach one class of juniors and one of seniors and coordinate two periods (40-50 students all receiving cooperative training)

4. Teach two separate class periods and coordinate four periods (40-55 students all receiving cooperative training)

5. Teach one period in distributive education and two periods of prerequisite subjects and coordinate two periods (12-25 students in prerequisite classes)

6. Teach any of above and coordinate one period

New Approaches in Distributive Education

Practical learning experiences should be planned on the basis of occupational objectives, community and school resources, and curriculum offerings.

For example, in order to coordinate on-the-job training with in-school vocational instruction a cooperative program might be conducted on a school and employment schedule providing blocks of concentrated work experiences. These blocks could be organized for periods of a week, of a quarter, or a semester, or of a special time period such as summers. If flexibility in timing of practical experiences on the job could be achieved, States might require development of local plans for distributive education, showing how the time for these experiences is to be scheduled in a cooperative program.

Some communities might be best served by a program incorporating simulated experiences. This plan would require appropriate equipment and physical facilities. Moreover, each student would need an allocation of enough time for laboratory demonstrations, experimentation, and role playing to make him occupationally competent.

Other training programs might provide a variety of directed experiences arranged for individual students in facilities of the business community. For example, selected students would receive short term laboratory assignments such as an inventory count in a hardware store or a promotional display in an apparel store as learning activities.

Special vocational marketing courses should be provided for students enrolled in other vocational programs but with career objectives requiring competencies derived from distributive education. To insure realistic application of principles, these courses might utilize regularly scheduled practical experiences comparable to those in cooperative or simulated programs, or a variety of directed activities.

In organizing vocational instruction courses, separate classes should be provided for cooperative students. All classes, however, should enroll only those students whose distributive occupational objectives are documented.

A Department of Education for Distribution

Programs should be developed for people with similar occupational goals. In large schools a variety of courses may be designed according to occupational specializations. The occupational goal chart shows a wide selection of occupations available to students. (See Appendix III-A). It is questionable if any school should offer courses in each of these areas. However, it is apparent that, if first consideration in program development is people, many courses and patterns of organization should be provided. Eventually a Department of Distribution Education might emerge, depending on such factors, as size and type of school, facilities, and over-all climate for vocational programs.

Basic Concepts

The Evaluative Criteria, 1960 Edition, Section D-5*, identifies the high school cooperative program with any of the three plans of organization now being used. In addition to these nationally accepted standards, the following

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* Op. cit., p. 11.

basic concepts should be reviewed in preparation for extending and improving training available at the high school level.

1. The program is based on employment opportunities in distribution and marketing.

2. An advisory committee is active in program planning and development. The term, cooperative training, implies that this program is instituted through mutual understanding.

3. Unless a student has an occupational goal in distribution, there is no defense for his acceptance in a distributive education curriculum.

4. Classroom instruction and cooperative on-the-job training contribute to each student's career objective.

5. Each student is employed as a trainee in a distributive occupation. Since instruction occurs in the classroom and the training station, provision is made for correlation and coordination. Students receive credit toward graduation for achievement in both environments.

6. Participation in co-curricular activities of the Distributive Education Clubs of America is arranged.

Organizational Patterns for the Future

Leaders should also evaluate new ideas with the following in mind:

1. Reasons for the success of the current cooperative program and its organizational patterns

2. Factors which insure a vocational approach to learning

3. The key vocational concept of practical experience--learning by doing

4. Students as the most important element in the program

5. Effects of new developments on the positive image of cooperative distributive education

It is unlikely that any State will restrict its organizational patterns for the future to those currently provided. Hence they might explore the following possibilities for students with appropriately identified occupational objectives. The student's schedule is built on choices available in a two-year organizational pattern.

	First Year	Second Year
Student A	Retail Marketing I	1. Retail Marketing II or 2. Food Store (Supermarket) or 3. Wholesale Groceries or 4. Service Station or 5. Hotel-Motel
Student B	Wholesale Marketing	Wholesale Marketing or Same as Student A
Student C	Marketing I	Marketing II or Same as Student A

Full-time Teachers in Distributive Education

The full-time teacher of distributive subjects in a department of distributive education should have a program which includes group instruction and coordination of learning experiences necessary under the cooperative plan and the project plan of teaching. Coordination of classroom instruction with conditions and practices of employment in appropriate distributive occupations is essential in realistic and practical vocational instruction. Under the cooperative plan the instructor develops on-the-job training assignments with employers of students and makes regular evaluations of individual progress and on-the-job training effectiveness. Under the project plan the instructor develops training experiences for students according to a schedule recorded in individual training plans. These experiences include supervised work experience or simulated practice and a variety of suitable activities, (directed observations, marketing projects, product investigations, interviews, situation analyses) all designed to direct and measure the achievement of performance qualifications in areas of occupational choice.

Based on a six-period school day, the following schedules show the teacher working with 11th and 12th grade students, although in distributive education students may enroll at age 14--probably at the 10th grade level.

Teacher Load

Supermarket (Cooperative Plan)	Grade 12
Retailing II (Cooperative Plan)	Grade 12
Retailing I (Project Plan)	Grade 11
Coordination	
Coordination	
Coordination	
Retailing I (Project Plan)	Grade 11
Retailing II (Project Plan)	Grade 12

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Supermarket (Project Plan)	Grade 12
Marketing I (Project Plan)	Grade 11
Coordination	
Coordination	
Retail Marketing (Project Plan)	Grade 11
Supermarket (Cooperative Plan)	Grade 12
Marketing I (Project Plan)	Grade 11
Wholesale Marketing (Cooperative Plan)	Grade 12
Coordination	
Coordination	
Coordination	
Marketing I (Project Plan)	Grades 11-12
Retailing I (Cooperative Plan)	Grade 11
Retailing II (Cooperative Plan)	Grade 12
Coordination	
Coordination	
Display (Project Plan)	Grade 12
Display (Project Plan)	Grade 12
Display (Project Plan)	Grade 12
Marketing I (Project Plan)	Grade 11
Coordination	
Coordination	

Programs of instruction should be suited to the needs of youth preparing for careers in the field of distribution whatever the teacher's schedule, the number of teachers in the distributive education department, or the variety in course offerings. States must assume responsibility for developing organizational patterns that allow the program to fit into its educational institutions and local communities.

Organizational Patterns in Adult Programs

Similar consideration must be given to organizational patterns planned to meet the needs of adults already employed or unavailable for full-time study. Short courses designed to update and upgrade employed people have been the rule in most States although there is an emerging trend towards long range programs leading to proficiency in specific areas.

The task force concerned with adult training should be alert to the development of organizational patterns for long range and preparatory programs suitable to employment opportunities and adult schools in the States and communities.

Criteria for Evaluation

Evaluation of how well a State is doing in vocational education is determined by how well that State meets the needs of people. Policies and procedures must "insure that due consideration will be given to the results of

periodic evaluation of State and local vocational educational programs and services in light of information regarding current and projected manpower needs and job opportunities, and to the relative vocational education needs of all groups in all communities in the State."*

Criteria used to maintain, extend and improve existing programs of vocational education and to develop new programs of vocational education should reveal that "persons of all ages in all communities of the State--those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market, those who have already entered the labor market but need to upgrade their skills or learn new ones, and those with special educational handicaps--will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training."*

PART II: Mr. Beamont:

Occupational education of a new nature is now indicated. An occupational mix--the tendency for a specific occupation to require competencies which overlap normally accepted areas of vocational education--is rapidly developing in the current employment pattern. The service station employee may require competencies in selling, in business operations, and in automobile mechanics. The cosmetologist may have similar varying requirements. The farm machinery salesman may need competence in marketing, agriculture, and machine design and operation.

The general educator has organized a program which includes a combination of such diverse areas as English, mathematics, science, history, and foreign languages. Administrators and teachers of these various disciplines, though they have maintained a separate identity, are developing many interrelationships. Vocational educators could take a leaf from the book of the general educator in meeting the demands of the occupational mix.

Educators, employers, and employees might well deliberate together concerning training requirements in occupational mix spheres and develop suggestions as to how different fields of vocational education could cooperate to meet these training requirements. Initial studies have reflected a definite need for cooperative efforts between vocational agriculture and distributive education in many States where vocational agriculture specialists have analyzed occupations in rural districts.

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* U. S. 88th Congress. H. R. 4955: A Bill to Strengthen and Improve the Quality of Vocational Education and To Expand Vocational Education Opportunities in the Nation, Part A--Vocational Education, Section 5 (a) (2). Washington, D.C.: House Committee on Education and Labor, 1963.

* Ibid.

The vocational or technical school, or the vocational or technical division within a school, might be organized into departments representing the various substantive areas in vocational education. Curriculums could be developed cooperatively by these departments for occupations which require competencies involving two or more of these areas. For example, the service station employee might take courses offered by the trade and industrial department and by the distributive education department. If the program were established in a rural area, courses offered by the agriculture department might be appropriate. The feeding and housing industries represent another opportunity for cooperative activities which might overlap trade and industry, distributive education, and home economics. Home management courses might be included for all women who prepare to enter the labor market.

The curriculums in the distributive education department would be centered around merchandising, marketing, and management. The service station employee merchandises a wide variety of products and services; he may have supervisory or management responsibilities or ambitions for self-employment. The need for new business starts to create additional employment opportunities is adequate reason to provide educational programs in establishing and operating various kinds of businesses. Statistics regarding new business starts reveal that many of these ventures are in the service trades and the construction industry.

Staffing distributive education departments which cooperate with other vocational services will require a new look at sources of teachers and procedures for training teachers. These teachers will need some understanding of various trades and agricultural occupations if they are to serve effectively as teachers of merchandising and management in occupational mix programs. Certainly, one assumes that the teachers will be well qualified to teach the functions of marketing and management. They will have to be able to apply these functions to occupational areas in which the distributive educator has not usually operated.

There are reports of varied cooperative activities. However, new operational patterns--reflecting an adjustment among services cooperating in planning the program--will need to be established in each State and community. The distributive educator should be prepared with suggestions and proposals for these programs.

Staffing the Distributive Education Program

Mary V. Marks

Today, probably no aspect of the distributive education program has a greater urgency than that of teacher education. The Report of the Panel of Consultants on Vocational Education underscored five areas of service "vital to the success of the vocational education program because of the impact of each upon teaching and learning." Teacher education was one of these. Administrators, supervisors, and teacher educators would agree that teacher education is an area for immediate critical concern on at least two counts:

. . . The job to be done for individuals who face unemployment proper preparation for a vocation in distribution, and

. . . The inability of current programs of teacher education to provide an adequate supply of qualified instructional personnel

This paper will explore three major points: 1) the need for a crash approach to staffing, 2) the need for flexibility, and 3) implications for teacher preparation that may be drawn from considerations of occupational goals, curriculum development and materials, and the vocational approach to teaching.

Need for a Crash Program

Staffing to provide instructional services for high school age youth, youth with special needs, post high school youth and adults, and out-of-school youth and adults can be achieved only through a crash program in distributive teacher education.

To supervisors and teacher educators already pressed for time and money, this program means the postponement of some cherished operational objectives, turning over to others activities that have brought personal prestige and satisfaction; it means the opportunity to give undivided leadership to the life source of the distributive education program, and, through delegation and coordination, to gain new appreciations for teamwork, people, and their contributions to a worthwhile task.

Goals for the Campaign

A crash program to staff distributive education must be organized with calendar deadlines, committed staff time, money, and materials. The campaign should be based on clearly defined program goals expressed in terms of such factors as supervisory, development, number of teacher openings, types of teaching opportunities, and the competency status of current personnel.

Leadership is needed to augment State and teacher education staffs and to give direction to local departments of distributive education. The number and types of openings for teachers in preparatory curriculums must be appraised and

the current register of distributive education teachers studied to determine special suitability for work with certain groups. Finally, consideration must be given to the extension and upgrading of professional competencies in line with new program directions and emphases so as to safeguard the motivation and dedication of distributive education teachers already on the job.

Pre-Planning the Campaign

State supervisors will need to schedule pre-planning activities in the timetable to the campaign, acquire the support and advice of a special committee, and appoint team captains to organize and stimulate achievement. Such activities as visitations, conversations, analyses, and projections may be needed.

VISITS made to areas of the State not now served will create better understanding of school and community needs and interests. Facilities now providing teacher education may be able to expand their services. Equipment may be available to simulate an occupational situation. Media such as educational television may provide a means of making teacher education available in communities remote from the State university.

CONVERSATIONS with government agencies will provide information about shifts in population or specialized personnel interested in teaching. Spokesmen for trade groups and school administrators may suggest shortcuts which would be acceptable under expansion conditions. Interviews with representatives from special education, guidance, vocational rehabilitation, and vocational education itself can open up new sources of teachers and ways of sharing facilities for the preparation of teachers.

ANALYSES to ferret out stumbling blocks to change and expansion may reveal that a revision in policies for evaluating teacher qualifications is needed. Findings about recruitment sources used in the present program may indicate a misdirection of effort. A study of retention or attrition rates in teaching may support current personnel procedures.

PROJECTIONS of staffing needed should be based on optimum availability of instruction in urban, suburban, and rural areas of a State. Short-range personnel utilization, however, will need more precise planning so as to parallel the anticipated growth rate in program requests and openings.

Need for Flexibility

Staffing problems are magnified or minimized according to the degree of flexibility in the teacher education program. States, teacher education institutions, and local districts must come to grips with prerogatives reserved for each other and find ways in spite of and because of to achieve flexibility while maintaining quality controls desirable for provisional or standard certification.

Planned purposefully, flexibility should be of special concern in at least the following four areas:

1. FINDING A PLACE FOR PEOPLE WITH UNEVEN QUALIFICATIONS. In the expanded distributive education program new teaching situations will develop. There may be situations where minimal

levels of teaching competency will suffice. In some instances prior experience or level of specialization will be especially valuable in the background of a teacher. States should be able to take advantage of these qualifications, perhaps, by setting a minimum of additional pre-service preparation with inservice training scheduled to help the individual develop professionally.

2. AUGMENTING THE TEACHER-EDUCATION STAFF. The special competencies of teacher educators can become available in areas of greatest professional need by applying the principle of division of labor. Some division of labor may be achieved through the use of master teachers, subject matter specialists, special resource people, or graduate students. A plan for directed study may release the teacher educator from a more time-consuming class schedule. Experimental work in educational media-programing, television, tapes, classrooms on film--hold promise also for distributive teacher education.

3. INCREASING THE RETENTION RATE OF QUALIFIED PERSONNEL. Inservice assistance and creation of a promising environment for beginning teachers has been recommended by many professional educators. This concept should be extended in distributive education to include encouragement for personnel at whatever level of their experience. Men and women should be able to find within the distributive education program an avenue for advancement in line with their professional motivation. Opportunities to train for such positions should be outlined for them in the teacher education program.

4. ENCOURAGING POSITIVE ATTITUDES TOWARD CONTINUING EDUCATION. Drawing up individual plans for teacher education is in the best tradition of vocational education. This technique enables a teacher to progress according to his own capability. He may elect to accelerate, or to undertake study at a more leisurely pace. In any event the plan will be of the teacher's making and will identify those who anticipate promotion within the distributive education program.

Implications for Teacher Education

Discussions of occupational goals, curriculum development and materials, and the vocational approach to instruction imply that distributive education personnel will be challenged philosophically; many will be intimidated by the responsibilities thrust upon them; and some will find themselves unequal to the task. Retraining and reassuring on a grand scale will be one major assignment for teacher education. The other major task will be to make adjustments that will allow the teacher education program to support new concepts efficiently.

Occupational Goals

Implications for new content and changing emphases in the teacher education curriculum may be found in the more specific definition of occupational goals and standards for program evaluation. Within programs of teacher preparation and development, for example, achievement of the following requirements should be possible.

1. USING THE STANDARD INDUSTRIAL CLASSIFICATIONS. All personnel must be able to identify vocational objectives in distribution according to the appropriate S. I. C. group. They must understand how they are recorded and used in follow-up studies of instructional effectiveness.

2. ESTABLISHING RELATIONSHIPS IN THE COMMUNITY. All personnel must be skilled in working with advisory committees and achieving satisfactory communications with agencies such as the Department of Labor, the Bureau of Employment Security, and organizations representative of such groups as union, management, cultural minorities, and special interests.

3. WORKING IN VOCATIONAL GUIDANCE. Occupational goals are set at the time of enrollment for distributive education and perhaps refined later as a result of training. This requirement delegates to pre-service and inservice teacher educators responsibility for instruction in the utilization of school and community resources related to the distributive occupational choice. Teacher-coordinators must be able to recognize when a choice is realistic and to encourage appropriate change in counseling interviews with youth and adults.

4. MAKING EVALUATIVE STUDIES. The emergence of a national pattern for yearly estimates and evaluations, and the stimulation of demonstration projects and practical research underscore the importance of skills in the techniques of evaluation as part of the qualifications of teachers.

Curriculum and Materials

Since there is a framework for curriculum organization and materials in distributive education the following implications seem pertinent to a discussion of teacher education.

1. RECOGNIZING THE NEED FOR COMPETENCY IN THE DISCIPLINE. Distributive educators need to be proficient in the discipline common to all curriculums in the distributive education program. Subject matter of such depth and breadth must be acquired through organized study.

2. MAKING THE SUBJECT MATTER OF DISTRIBUTION AVAILABLE. The teacher education program should provide pre-service and inservice opportunity for instructional personnel to become knowledgeable in the subject matter of distribution. This may be accomplished by expanding and extending relationships with marketing faculty and curriculum committees, organizing subject matter courses and institutes, inaugurating a program of directed reading and examination, arranging extension services with business leaders, university field services, or specialists already employed in the program.

3. RECOGNIZING THE SPECIAL CONTRIBUTION OF OCCUPATIONAL EXPERIENCE. The feel and the substance of a technology acquired through occupational experience comprise an essential element in the qualifications of distributive educators. Occupational experiences appropriate to the teaching situation for which qualifications are being evaluated, contribute understandings necessary in the application of tool and social skills to work in distribution.

4. EVALUATING THE ACHIEVEMENT OF DESIRED COMPETENCIES. Formal and informal factors contribute to the development of qualifications in the discipline and in the technology. Procedures should be established that allow flexibility in evaluating the degree of competency needed by teachers assigned to handle groups with different requirements in the subject matter of technology specialization.

5. ADJUSTING TEACHER CERTIFICATION FOR DISTRIBUTION. Credentializing for vocational distribution should not depend on any other teaching area. Recognition of vocational distribution as a complete teaching field is necessary if teachers are to have that degree of subject matter proficiency which assures intellectual resourcefulness. Standards for the renewal or updating of certificates should encourage achievement in the discipline and the technology at the appropriate level of instruction in distributive education.

6. RECOGNIZING THE TOTALITY OF VOCATIONAL EDUCATION. Every distributive educator should understand the larger goals as well as instructional emphases required for occupations in agriculture, industry, homemaking, office, and health. For teaching situations involving the technology of another field, the preparation of teachers may become a joint endeavor.

The Vocational Approach

The specialized professional preparation of distributive education personnel should be the responsibility of distributive education supervisors and teacher educators. Their leadership will be needed to retain and strengthen those aspects of the vocational approach to teaching specifically applicable to education for distribution.

Those concerned with teacher education programs should give their immediate attention to such problems such as the following:

1. ADJUSTMENTS FOR THE NEW TYPE OF PREPARATORY INSTRUCTION. Instructional questions arising out of preparatory program responsibilities will need to be clarified. Primarily this will be a matter of reorienting concepts about the cooperative plan and introducing the project plan as a partner in methodology. However, adjustments will extend also into needed revisions and additions in syllabuses and the application of other subject matter areas, both vocational and academic, in distributive career preparation.

2. NATURE AND SCOPE OF PARTICIPATION ACTIVITIES. Instructors will need to develop skills in planning, directing, and evaluating outcomes of participation activities. Supervised practice under actual and simulated conditions in distributive education should be required course work. Teacher education departments will require equipment typical of a distributive education classroom laboratory to demonstrate the vocational approach in the preparation of teachers of vocational distribution.

3. NEED FOR INSTRUCTIONAL MATERIALS. The need for instructional materials, library acquisitions and bibliographies to support the teaching staff calls for establishment of inter-State libraries and materials centers. Teachers must gain familiarity with resources offered by technology areas as well as those in learning theory whether by means of pre-service work under specialists on the teacher education staff or by inservice consultation or newsletter.

The Charge in Teacher Education

The urgency of staffing a program of the dimensions envisioned by the President's Panel of Consultants and both houses of Congress carries with it a danger of dissipating energies. A concentrated attack on this problem is required to locate and qualify instructional staff for immediate needs in program expansion and to initiate the framework for continuing achievements in teacher education.

Research as a Means of Attaining Emerging Objectives of Programs of Education in Distribution

Donovan R. Armstrong

Need for Research

Throughout the report of the Panel of Consultants, reference is made to research that has been conducted in vocational education, its successes and its shortcomings. The topic includes: reference to the historical mandate for research in the Vocational Education Act of 1917, continued support in later legislation and in policy bulletins, and proposals for developing research in the future commensurate with needs.

The Vocational Education Act of 1963 re-emphasizes the importance of research and the part it must play in planning education and training, and in evaluating the resulting programs of vocational education. Three per cent of a State's allotment must be spent for ancillary services, including research. The U. S. Commissioner of Education is given 10 per cent of the annual appropriation to make grants for research, training, and experimental, developmental, or pilot programs. This latter provision is the first time that research is required to be a part of program development.

Major emerging program objectives make research imperative. Programs must be designed to meet the needs of the several groups specified by the Panel. Research must be conducted to test effectiveness of curriculums and methods, and to determine needs for vocational education for various age groups and occupational fields.

Trend studies, pilot programs, and experimental research under controlled conditions, will be increasingly important. The use of social, economic, or political data, population estimates, and employment surveys to predict some of the needs of the future, should be a part of every State's operation. Highly sophisticated experimental research will require trained researchers and more time than perhaps is available in many States. Pilot programs, using the best available data, should be constructed to try out selected methods, organizational procedures, team teaching techniques, instructional materials, and other educational theories to be investigated.

While much master's level research is important to local communities, independent research carried on by institutions and supervisory personnel is often more specific and of greater depth and penetration. Statewide, regional and nation-wide research studies are needed to carry out the recommendations of the Panel and mandate of the new legislation.

Studies Completed or in Progress

It is said that a 25-year lag between research findings and their application is commonplace in education. Some delay is to be expected in putting new discoveries into practice but the lag can be reduced through better communications concerning research which has been conducted or is in progress.

The "Review of Educational Research" devoted its October 1962 issue to vocational, technical, and practical arts education. In the chapter concerned with research in distributive education, Harland E. Samson reported that the amount of material to be reviewed for the past six years appeared to exceed the total of all prior years. Much of this research has been applied for descriptive research, local in scope. One reason for this may be that most distributive educators are usually concerned with building programs, leaving to others research to solve problems that confront vocational education.

A review of more than 300 studies produced the following points:

1. Fifty-five percent were independent research by State departments of education, institutions, and local coordinators.

2. Forty percent were master's level papers, mostly normative survey and local in scope.

3. Five percent were doctoral dissertations, some of which used sophisticated statistical techniques.

4. Areas of investigation could be grouped as: Objectives and Philosophy; Organization and Administration; Curriculum and Instruction; Evaluation and Follow-Up.

5. Comprehensive studies of total curriculum needs at the secondary level have not been carried out.

6. Missing was research specifically pointed toward distributive teacher education.

In addition, lists of distributive education studies completed or underway have been available only from a limited number of sources. The research committee of the Central Region has published summaries of selected research studies conducted primarily in that region. The Council for Distributive Teacher Education has inaugurated a professional bulletin series for the reporting of research studies. The National Association of State Supervisors of Distributive Education has published summaries of studies relating to program development and conducted surveys of national scope. The spring issue of the "National Business Education Quarterly" annually includes a list of research in distributive education.

Analyzing and Reporting

These efforts have been valuable, since advancement in programs occurs when reliable findings are widely disseminated to teacher educators, supervisors, and teachers for critical examination and appropriate application. Results must be analyzed and evaluated to screen out faulty work and interpreted for likely application. Most texts on education research suggest evaluation procedures and measurements, which, when used in conjunction with needs and interests of the moment, assist in determining the findings appropriate for try-out in programs. Such analysis frequently provides guidelines for developments to meet new and emerging needs.

Research in the basic sciences and disciplines that contribute to vocational education must be analyzed and so must research conducted in distribution and education for distribution. Findings as to how people learn provide bases for the modification and improvement of curriculums and instructional materials. Insights gained in problems of youth and adults with cultural and socioeconomic handicaps through research in sociology should influence the design of programs and curriculums for these individuals.

Use should be made of research conducted by private research groups such as the American Institute for Research. This organization is conducting a two-year study of the "Process and Product of Vocational Education in the United States."

Research in areas of communications and audiovisual materials of instruction should be reviewed and evaluated for its implication in education for distribution. How can concepts best be structured in programming materials? What are the most effective methods of motivation? How should programmed materials, teaching machines, TV, or other devices of instruction be used most effectively? These are kinds of questions which need answers.

Research on grouping may provide needed help in the development of new programs involving other traditional vocational education services. Some research has been conducted on the merits of using multiple teachers as a means of providing a better education environment for students. Evidence may be found to support the contention that a single teacher can become a counselor and stimulator of learning, responsible for doing most of the planning and teaching of one class, but able and willing to draw on special teaching personnel and others for help in their special areas. Some evidence is claimed that learning is facilitated through the use of TV, programmed materials, audiovisual aids, and carefully written student guides by sub-groups with common occupational goals.

Research on occupations will continue to be important. There is probably no better source of current references to theoretical constructs for occupations research in classified form than the April, 1963, issue of the "Review of Educational Research" which is devoted entirely to guidance, counseling, and personnel services. This and similar reference material should aid in conducting occupational studies required by the Vocational Education Act of 1963.

More analyses of research studies and reporting of interpretations need to be done. Many examples of inferences which can be drawn statistically may be cited. One of special interest was noted recently. As part of a continuing evaluation of vocational education in Michigan, a project was undertaken to measure how well cooperative students fare in the labor market after graduation. The project was conducted by a staff directed by Peter G. Haines, at Michigan State University, with the aid of the State Board of Vocational Education. The preliminary report indicates that--for the sample used, which involved office, distributive, and trade and industrial trainees--cooperative training:

1. Aids young people in finding employment within three months after graduation

2. Does not prevent students from attending college (about 20 percent are enrolled in educational instructions)

3. Draws trainees from all quarters of their graduating classes (about 43 percent are among the top 25 percent and only 10 percent are in the bottom quarter)

4. Aids the employer in securing competent full-time personnel (approximately 51 percent of trainees currently employed work for their cooperative employer.

In reporting, care must be used to present clearly and accurately the aims of the distributive education program. Survey instruments, brochures, speeches, research proposals, and research reports should be worded carefully so that the true nature of the field is emphasized, and confusion with other areas of training kept to a minimum. Precisely stated conclusions should reflect continuous re-evaluation of the hypotheses and indicate problems which require further research.

Getting Research Underway

The new legislation which makes research in vocational education mandatory will probably increase State research staffs. In the meantime, some States are providing research services by employing institutions not directly engaged in education and local school personnel.

Research is carried on in the following ways:

1. RESEARCH AS PART OF ADVANCED DEGREE PROGRAMS. Master's research studies and doctoral research extend knowledge with data obtained through the application of the scientific method. As more and more teacher-coordinators work toward advanced degrees, the quantity of research increases. The quality of such research is likewise improved as graduate schools raise their requirements and standards.

2. A RESEARCH SECTION FOR VOCATIONAL EDUCATION. Many States have research sections in State departments of education, and some have special sections for vocational education. As funds are made available, additional States are planning such services. Where such facilities are at hand, it is incumbent upon distributive education leadership to present timely and significant problems for research by the appropriate groups.

3. RESEARCH CONDUCTED BY INSTITUTIONS IN COLLABORATION WITH OR UNDER CONTRACT WITH STATE DEPARTMENTS OF EDUCATION. Examples are Michigan State University and Temple University. The latter conducted under contract the research that led to the

preparation of the bulletins, Effective DE Practices* and Seafood Merchandising.**

4. RESEARCH CONDUCTED IN COLLABORATION WITH OTHER DISCIPLINES. Vocational education is confronted with the task of developing new programs to serve people for whom, in the past responsibility has been disclaimed: (a) those whose problems of vocation cut across several occupational lines; (b) and people in transition from rural to urban environments. A limited amount of research in vocational education has made use of competencies of research personnel from other disciplines. Many answers to problems sought through research can be found through the resources of the disciplines that have a bearing upon education for distribution, such as sociology, economics, and psychology.

5. THE PURCHASE OF RESEARCH SERVICES. When funds are available to do so, the services of research specialists such as statistician, psychologists, and experimenters may be purchased for work on problems of concern to vocational education.

6. RESEARCH CONDUCTED WITH OTHER VOCATIONAL SERVICES. The team approach to vocational education research has been encouraged in several States where pilot programs involving agriculture and distributive education are in progress. More States are planning joint ventures, several involving all services.

7. RESEARCH INVOLVING SEVERAL STATES. A notable example of this kind of cooperative research in distributive education is seen in the Central Region where an active regional research group has pooled resources to conduct multi-State studies. Similar examples are found in vocational agriculture and home economics, and to some extent in trade and industrial education, especially in the follow-up studies in the North Atlantic Region.

Other suggestions for getting research underway are offered in two bulletins prepared in the Branch: "Patterns of Research in Distributive Education," OE-82009, and "A Guide to Practical Research," OE-82011.

Distributive education leadership should make it a point to be identified with State studies of employment opportunities and needed competencies in

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*The Education Service Bureau, Department of Education Administration, Teachers College, Effective DE Practices, Temple University, Philadelphia, Pennsylvania, 1960.

**Office of Education, U. S. Department of Health, Education, and Welfare, Seafood Merchandising, OE-82014. Washington: U. S. Government Printing Office, 1964.

off-farm agricultural occupations. Based on the major emerging program objectives of vocational education in agriculture, expected outcomes include:

1. Job descriptions
2. Job clusters by training categories
3. Course outlines and curriculums
4. Experimental programs
5. Adjustments in current programs

As stated in the report of the "Research Coordination Conference on Agricultural Occupations" held in May, 1963, at the National Center for Advanced Study and Research in Agricultural Education at the Ohio State University, "They (the outcomes) should be the product of a cooperative effort involving appropriate segments of vocational education, other educators, and the agricultural industry." Currently the plan is that, after the data are available, distributive education supervisors and teacher educators will be invited to join other vocational educators in making judgments relative to the development of new programs or combinations of programs of various types and levels to meet the identified needs.

Opportunities should be sought to participate in planning research studies involving distributive education--including the preparation of survey instruments and the defining of distributive occupations--conducted by other groups. Some of the instruments used are inadequate in identifying distributive occupations, marketing and distribution functions and curriculums, and in incorporating current and emerging concepts of the program.

Cooperative Research Program, U. S. Office of Education

The first contracts under the Cooperative Research Program established in 1954 by the Congress were awarded in 1957. Since then six major programs have been included:

1. Basic and applied research
2. Demonstration
3. Curriculum improvement
4. Small contract
5. Research and development centers
6. Developmental activities

Relatively few proposals for research in vocational education have been approved, principally because few proposals have been submitted.

One proposal involving distributive education was submitted by Wayne State University. Data will be collected pertaining to employment opportunities for high school graduates (with or without vocational training, including distributive education); requirements for entry jobs; and success of graduates and dropouts. A determination will be made of the optimum interval between surveys necessary to estimate changing entry job opportunities. While not a part of the proposal, the second phase of the study will use the data in making

revisions of the high school curriculums. The project is limited to the Detroit area but it should be valuable in providing a pattern for similar studies in urban centers which will be increasingly important under the new legislation.

Title VII of the National Defense Education Act of 1958, as amended, provides for research, experimentation, and dissemination of information for more effective utilization of various media for education purposes. Grants are made to universities and State departments of education for research and demonstration. A News and Reports Bulletin which summarizes the grants is sent to audiovisual departments of universities and State departments of education. The summaries provide a good source of information on research being conducted on media for educational purposes.

Research Personnel

The lack of significant research in vocational education is attributed in part to the relatively few trained researchers. This lack of trained researchers is even more acute in distributive education where efforts must be focused on the recruitment and preparation of teachers to staff the rapidly expanding program.

An understanding of education research, particularly research in education for distribution, should be regarded as an essential part of the education of a teacher-coordinator. The role which scientific investigations play in social progress and the methods of research should be included in teacher preparation programs to create interest in research. Teacher-coordinators should be involved in investigations and encouraged to attack practical problems encountered in their work.

Three kinds of research specialists are needed, according to Dr. Rupert Evans, chairman of the American Vocational Association Research Committee. One kind might be called "social bookkeepers," concerned with counting jobs, populations, workers, and other similar groups. Another might be "analyzers and reporters" to make available the findings of research in a form that would suggest appropriate application. The third would be sophisticated "experimenters" to conduct carefully controlled scientific investigations.

The American Vocational Association and the Vocational and Technical Division of the U. S. Office of Education jointly provide some training for researchers. Research seminars on experimental research design and technique are held for select groups of participants. An advanced seminar concerned with research methods which are used in the social sciences and which may be used in vocational education and a third seminar concerned with the administration of research are part of the training program.

Concerns of Discussion Groups and Task Forces

Assessment should be made of the place, importance, and use of research--with respect to planning and conducting programs of education for distribution--for the several groups of people named in the Panel Report and in the Vocational Education Act of 1963. Each task force should consider how research may contribute to effective programs of education for the persons involved in its assignment.

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Distributive educators have been challenged to build new programs requiring new curriculums, establish organizations for preparatory instruction, conduct investigations of new occupational areas, and develop a closer working relationship with other vocational services. Research should point the way to answers to questions which arise. A determination must be made of the kinds of studies and research needed most, as well as priorities for the research to be conducted.

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TASK FORCE REPORTS

Task Force groups represented a key activity in the clinic. Each group addressed itself to operating problems confronting States and localities providing education for distribution for specific groups of people - high school youth, post-high school youth, adults, and youth with special needs. Task Force reports reflect a consensus of directions for the implementation of the distributive education program.

TASK FORCE I

High School Age Youth

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High school age youth are defined as those of typical age for placement in the ninth, tenth, eleventh, and twelfth grades. Though high school graduation is a goal sought, the program of distributive education cannot assume that all will graduate.

Interrelationships

The tendency for a specific occupation to require competencies which overlap normally accepted areas of vocational education has implications for interrelationships that need to be developed among the vocational education services.

1. The State director of vocational education should require that programs involving two or more occupational fields should be planned cooperatively among the services affected.

2. The supervision of programs which are interrelated must be determined by the services affected, according to the major competencies needed by students.

3. Guidelines for implementing occupational mix programs should be prepared by the U. S. Office of Education.

Vocational Approach

It is essential that employment experience be retained as fundamental to distributive education. Length and type of employment may vary. Projects pertinent to the student's career objectives should be reinforced by employment experiences.

Preparatory programs require that blocks of time be set aside for coordination of student participation activities and that training outlines of school and supervised occupational experiences be prepared for each pupil.

In communities where satisfactory cooperative arrangements cannot be provided, schools may, upon approval of their request, offer training through project activities in line with each student's occupational objective. Employers should be informed of any modifications in existing programs so that their business interests will be safeguarded and an honest return for their investment in the program assured.

Occupational Goals

All approved and reimbursed programs should attain a high ratio of graduates gainfully employed in the distributive occupations for which they were trained, or in related occupations. Selection of occupational objectives should be

preceded by guidance to help insure opportunities for students to enter suitable employment when they complete their training program. Provision of effective counseling and supervision should be required before programs of instruction are approved.

The Standard Industrial Classification (SIC) is recognized as the base for identification of the occupational goals of students. The individual States determine the age level at which occupational goals are to be selected by the student. Changes in occupational goals are expected in view of the several types of programs and the opportunity to become more specialized within the local training program.

Curriculum and Materials

Basic assumptions are made that (1) each student has selected a career goal--an occupational objective in distribution, and (2) the vocational approach to instruction--participation projects and/or coordinated on-the-job training will be used.

Underlying Considerations

1. The needs of high school students enrolled are to be met.

2. The program fits the type high school - comprehensive, technical, or area.

3. Types of instruction and content are acceptable to employers of high school graduates.

4. The distributive education curriculum is broad and sufficiently flexible to meet community needs.

Examples of Variations and Flexibility in the Curriculum

While some high schools may have only one or two basic courses in distribution and marketing, the larger schools should have, in addition, specialized courses such as display, grocery merchandising, or appliance sales and service. Schools should make the best use of community resources and school facilities including the team approach or the cooperative efforts of persons in two or more subject matter areas. Small schools could offer two courses--one each year on alternate years.

What Shall We Teach?

1. The distributive education curriculum must include effective teaching of basic concepts in distribution, marketing, merchandising, and management.

2. Opportunity should be offered students to acquire needed technical competencies in a specialty--typically a product or serivce--in relation to merchandising, marketing, and management.

3. Development of social competencies and basic communication skills should be based on their application to gainful employment in distributive occupations.

Program Organization

Basic Concepts

1. The program in the secondary schools must be based on employment opportunities for high school graduates. It should be kept sufficiently broad to prepare for employment and advancement in distributive occupations under conditions of rapid change.

2. An advisory committee should be active in program planning and development with good use made of the job analysis technique.

3. When new or modified organizational patterns are considered, the following should be kept in mind:

   - Reasons for the success of the current cooperative program and its organizational patterns
   - Factors which have insured a vocational approach to learning
   - Ways to keep the vocational concept of practical experience, learning by doing in the program structure
   - Students as the most important consideration
   - Assurance that preparatory courses have a positive effect on the current cooperative program and the image of distributive education

Specific Programs

1. Plans A, B, and C should be maintained with emphasis on qualified teachers, vocational approach, and content treatment at greater depth.

2. Development of new plans, such as a two-year program taught by a vocationally qualified teacher using simulated work experience and business resources, should be encouraged. Adequate physical facilities and time to stimulate occupational experiences will be needed by students in order to become occupationally competent.

3. For instructional purposes, cooperative students should be separated from other preparatory students whenever possible.

Appropriate instructional units should be developed for use in orienting students to distributive education prior to enrollment in the training program. Units for exploratory courses and information for vocational guidance services are needed. A broad introductory look at vocational education might be made in exploratory courses on a group guidance basis with distributive education personnel assisting in this course.

Teacher Education

It is the responsibility of distributive teacher education to create programs of professional specialization, content, and occupational experience for those wishing to enter this field; to assist in the professional experiences of distributive education interns; to carry out inservice education; and to act as a consultative and research source for distributive education.

The following factors are important in teacher education for the high school program:

1. A percentage of funds must be allocated to teacher education.

2. Current certification standards must be maintained. Temporary or provisional certification should be provided in order to make it possible for persons to become fully qualified after being employed. Requirements for certification in distributive education should be met through formal, institutional distributive teacher education programs.

3. Although competency in the discipline of distribution should be a major consideration in the selection of teachers for the preparatory program, also essential are (a) the ability to use the vocational approach and (b) to personal characteristics necessary for success in this field.

4. The immediate program of teacher education should focus on recruiting. Extended contracts and other means of financial rewards should be used in order to attract suitable teachers. Credit on salary schedules should be given for occupational experiences. The high school distributive education graduate should be regarded as a potential teacher candidate.

5. Inservice education should become an integral part of the teacher's working year. The teacher education institution must be staffed to provide inservice programs including planned observations, evaluation, and school visitations.

6. Provision must be made for all distributive education personnel to gain an understanding of the total field of vocational education.

7. Distributive education must be identified as a specialization and not as an appendage to some other discipline.

8. Provisions in teacher preparation programs must insure understanding of the educational values of DECA, skills in working with advisory committees, competency in vocational counseling guidance, and ability to record and report, including SIC groupings, follow-up reports, State statistical and descriptive reports, and estimates.

9. Student teaching should be in cooperative and/or other preparatory distributive education programs.

10. Occupational competency should continue to be required for employment in the distributive education program.

Research

The research responsibility in distributive education should include the following activities:

1. The U. S. Office of Education should serve as a clearinghouse and resource center for research, providing tools for research, research design, and research instruments. Staffing in the Office should include needed research personnel.

2. Each State should allocate a definite portion of its funds to research.

3. A national follow-up instrument should be developed to judge the effectiveness of the instructional program.

4. The most effective ways to evaluate high school programs should be determined by distributive education research, thereby providing leadership to evaluative agencies. Evaluative research is imperative in all phases of the high school program.

5. Informal research should be stimulated, and all D.E. personnel should use appropriate research.

TASK FORCE II

Post High School Programs

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Frame of Reference

The Post High School Age Group consists of those who are past the usual high school age. The upper age limit is indefinite, but the majority of the students probably are 25 or under. Some individuals may be older, such as housewives who wish to enter the labor market after children are grown, retired military personnel, older persons with considerable occupational experience who wish to improve their status. Members of the group are high school graduates who have completed one level of occupational training and now want specialized training, retraining, or advanced training; graduates who have had no occupational training; and those who have dropped out of high school or had their education otherwise interrupted.

Requisites for enrollment in training programs include availability for full-time schooling and ability to profit from instruction in distribution. Enrollees may have a variety of academic abilities, and their occupational goals may range from rank and file to supervisory and mid-management levels in distribution.

Post High School Institutions include junior colleges, community colleges, technical institutes, vocational schools, area vocational schools, vocational and adult schools, and lower divisions of 4-year colleges. Each type of institution tends to have distinguishing characteristics which affect the type and quality of educational program which it offers. Program planners need to scrutinize institutions to determine how their policies and practices will affect the programs proposed.

Goals and Evaluation

1. The primary goal of post high school distributive education is to offer occupationally-oriented instruction in distribution to meet the needs of persons who are preparing to enter the labor market. Goals of a program are best determined by an advisory committee of employers, employees, and educators.

2. Programs should be organized for occupations in which there is an anticipated demand and where there are sufficient numbers of persons whose occupational objectives are compatible. When distribution becomes a part of a student's occupational mix preparation, the student's goal should involve the functions of distribution.

3. The people-centered nature of vocational education mandates the vocational approach to instruction.

4. Persons entering the post high school program should have social competency and basic skill facility before enrollment or they should have reasonable promise of developing their competencies during the instructional program.

5. Distributive education personnel should furnish information on careers in distribution to agencies which counsel individuals on vocational choices. Teachers and teacher-coordinators should work individually with prospective enrollees. Determination of employment opportunities should be made in cooperation with the advisory committee and governmental agencies. Employment studies and specific job surveys should not be restricted to the local area.

6. Employment of trainees in the specific or related field for which they are trained marks the success of the program. To keep goals of the program in line with competencies needed for employment, reports of employers of graduates should be used in evaluation.

7. Evaluation criteria need not include transferability of vocational credits to a bachelor's degree program.

Curriculum and Instructional Problems

Curriculums in the post high school program should have as their core the discipline of distribution. Both the cooperative and project methods should be used to insure the vocational approach in instruction and the achievement of occupational competencies by enrollees.

Principles affecting the development of post high school curriculums include the following:

1. Plans should be based on needs of the business community, competencies needed to achieve occupational goals in a particular area of business, vocational interests and educational backgrounds of students, and available instructional staff.

2. Post high school programs usually serve students in a wide geographical area. A broad curriculum requires a smaller geographical area than a highly specialized curriculum. As the proportion of State and federal funds increases, so should the responsibility for serving larger geographical areas.

3. Since post high school preparatory curriculums may lead to high-skill non-managerial positions, or to supervisory and mid-management positions, the curriculum should articulate with the high school curriculum and relate to social and basic skill achievement levels and motivational experiences of students.

4. Curriculums should be structured to include breadth in general subjects and depth in the specialized discipline needed to satisfy requirements for success in specified occupations.

5. Supervised and coordinated occupational experiences for trainees are recommended. Arrangements may include semester-in, semester-out, regular part-time, or summer schedules for work. Experiences having values recognized by teacher coordinators, employers, and trainees, relate to (a) application of theory, (b) exploration of the field, and (c) work requirements of the student's occupational goal.

6. Physical facilities should be specialized, containing equipment and materials representative of current practices in the distributive field being taught. Facilities for seminars, laboratories, individual study areas, and library resources are necessary when the project plan of vocational instruction is used to provide the vocational approach in learning.

7. DECA activities contribute to leadership and social development, create awareness of the role of research, and provide decision-making experiences.

Program Organization and Administration

State supervisors should develop and carry out workmanlike plans to:

1. Determine what jobs are available for post high school students

2. Develop curriculum patterns for available jobs

3. Win endorsement from State and community business leaders so that they will accept students during training and for placement

4. Establish standards of achievement for teaching personnel, student personnel, and State staff, and set qualifications for instructors

5. Organize a teacher-education program, and plan its direction and contribution to post high school programs

6. Stimulate research contracts with State universities and colleges, post high schools, State and local agencies, and local coordinators

7. Develop leadership in administrative relationships with other vocational services

8. Develop guidelines for activities of post high school students in the State's association of DECA

Plans should be made to assist post high school administrators to develop and finance their distributive occupational curriculums. Administrators may be invited to attend regional or city-wide meetings set up to explain the terms of the Vocational Educational Act of 1963. A State advisory committee for post high school programs may provide them with guidelines for program standards.

State officials may hold meetings with key businessmen, school district officials, counselors, college deans, and parents in order to secure endorsement of distributive training curriculums available in the State's post secondary institutions.

Provisions for the special needs in post high school distributive education should be set forth in the State plan or an operational document. These should include the following:

1. Qualifications of teachers
2. Research
3. Specialists in post high school education
4. Standards for evaluation
5. Standards for supervision
6. Local supervision and coordination
7. Use of advisory committees
8. Expenditures for physical facilities, audiovisual aids and teaching supplies
9. Pre-service and inservice teacher education for post high school teachers and administrators

It is recommended that the State staff include four types of specialists or that the State contract for the services needed:

1. Occupational specialists (those who make job analyses and develop training programs)
2. Inservice teacher educator (one who supplements the work of the university teacher educator)
3. Research director (this may be a dual responsibility with the inservice teacher education)
4. Field supervisors

Teacher Education and Research

Qualifications of post-secondary personnel should be comparable to those of other faculty members. The level of preparation will vary according to the nature of the institution--area vocational school, junior college, four-year college.

1. The post secondary teacher coordinator should hold a baccalaureate degree from an accredited institution. Preferably, he should have engaged in graduate study or attained a Master's Degree. He should be certified by the State to teach in the distributive education program.

2. Preparatory curriculums should include general education; technical courses including areas of marketing, merchandising, and management; professional courses in methods and materials of distributive education and the organization and administration of the program; and courses in human growth and development, and guidance and counseling.

3. Recent distributive work experience, including both employee and supervisory levels of responsibility and a specialization is necessary in the qualifications of the post secondary teacher coordinator.

However knowledgeable instructors may be about the post secondary program, they should have an understanding of the high school curriculum, in order to appreciate the distinctions between the high school and post high school program and to build, when necessary, on the high school foundation. When openings for post high school teacher-coordinators occur, preference should be given to those who have had experience in the high school program.

The education of post secondary instructors may be similar to that of high school teacher-coordinators, but the post secondary teacher-coordinator should complete additional courses, preferably pre-service, to make him more effective in his special role. State supervisors of distributive education should give special attention to the evaluation of his professional competencies in the following areas:

1. Ability to motivate and train post secondary students of different age levels, capabilities, educational and cultural backgrounds, and occupational goals

2. Ability to recognize the needs of individual students and guide them toward the realization of their potentiality in distribution

3. Ability to use effectively both the project and cooperative plans and a variety of teaching techniques

Other Staff

In many community or junior colleges, staff in addition to the individual with primary responsibilities for the distributive education program will be necessary. These teachers should be knowledgeable in the content and have occupational experience in their field of specialization; yet they should be able to apply the discipline of distribution to many different career objectives. For example, a teacher with experience in a specific firm should be able to teach the total concept of his industry--he should not be bound by

his limited occupational background. Of overall importance is his ability to apply and accept suggestions concerning teaching techniques which will communicate technical knowledge to post secondary students.

Sources of Personnel

Staffing distributive education programs will be urgent and will require some compromise with standards in the immediate years ahead. The following are some suggested sources for post secondary teachers and leadership personnel:

1. High school teacher-coordinators who meet qualifications for post high school teaching.

2. Qualified personnel currently employed in distribution

3. Graduates of accredited institutions offering programs which include technical preparation and/or professional distributive education courses

4. Partially qualified persons who can be trained for post secondary teaching--other teachers with suitable occupational experience, retired persons who have recent experiences applicable to qualifications desired, vocational teachers who wish to add distributive education to their competencies.

Emphasis should be placed on the development of personnel with experience in distribution and/or distributive education to assume administrative or supervisory responsibilities in the post secondary program.

Research

Research related to the post high school program should be developed as part of overall research activity in distributive education. Plans should be made at State and local levels for the following activities:

1. Establishment of the position of research consultant (a position also needed at the national level)

2. Use of grants, contracts and/or projects to carry out State and local research

3. Establishment of a research center for the collection and exchange of information among States

4. Implementation of a continuous program to identify occupational areas for which education is needed

5. Development of curriculums to meet the occupational goals of the areas identified

6. Follow-up and evaluation of curriculums developed for specific occupational classifications

7. Continuous follow-up of graduates

8. Analysis of existing curriculums in post secondary programs

9. Centralized listing of needed research areas suitable for theses and dissertations

10. Study of the personnel needs in distributive occupations in large industries and the specialized competencies required for these positions

Among the immediate benefits to be derived from a planned program of research are:

1. Flexibility of operation and broadening of the scope of post secondary education for distribution

2. Refinement of goals and guidelines for the distributive education post secondary program

3. Refinement of the organizational structure within a post secondary institution and among different institutions to meet the post secondary needs of the particular area, State, or region

4. Development of multiple curriculums designed for the post secondary program in specific occupational classifications

5. Centralization of materials

6. Cooperation between States

TASK FORCE III

Adult Programs

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Adult programs are designed for youth and adults, usually 25 to 65, who are unemployed or at work but whose circumstances preclude full-time school attendance. This group includes those who can profit from the regular distributive education program and those whose academic, socioeconomic, or other handicaps prevent them from succeeding in the regular program.

Goals and Evaluation

The Committee recognizes the "Standard Industrial Classification" as a method of setting up categories and collecting data about occupations in which the distributive function predominates. Each adult seeking or engaged in distributive employment must decide upon his occupational goal from among distributive occupations in the standard industrial classifications. Administrators and supervisors then provide the means by which progress toward occupational goals may be achieved.

Program evaluation is made on the basis of achievements in six operational areas.

1. INSTRUCTION

The following objectives should be evident in the scope of instruction:

a. To provide educational opportunities in marketing, management, and merchandising for the unemployed and employed out-of-school youth and adults, including those desiring to enter the field, change jobs, or open a business

b. To provide a complete range of training opportunities, from basic courses for urgent needs to comprehensive career-oriented programs which may extend over several years

c. To develop and improve an understanding of distribution and distributive functions represented in many kinds of enterprises

2. STANDARDS OF COMPETENCY

Distributive educators must encourage employers and leaders in marketing and distribution to establish standards of competency for entry employment, and for other levels of responsibility. Such standards of competency must recognize the value of training as a condition for employment and for an advanced standing in pre-determined positions.

3. CONSULTATIVE SERVICE

Time and opportunity must be provided instructors in adult programs to extend consultative services to individual class members. Some individuals will need assistance in determining occupational goals within range of their capabilities; others will need help in modifying or changing previously determined goals; and still others may need encouragement to choose occupational goals beyond those previously dictated by family or ethnic tradition or by the social and economic environment in which they live. The adult instructor is in a strategic position to supplement the work of guidance counselors in providing information about conditions in the occupations for which instruction is offered.

4. INTERRELATIONSHIPS WITH OTHER SERVICES AND AGENCIES

Cooperative relationships should be sought and fostered in order to define and locate new occupations, to develop new standards for initial employment and to uncover demands and opportunities for advancement. Objectives to be achieved are:

a. Acceptance and understanding of leaders in marketing and distribution for all aspects of the adult program

b. Acceptance and understanding of adult distributive education by guidance personnel and educators

c. Coordination of efforts with other government services in defining new types of occupational programs, and strengthening preparatory and supplementary offerings

d. Cooperation with other vocational education services by providing instruction in marketing, merchandising and management techniques for occupations not primarily distributive

5. ADVISORY COMMITTEES

The adult program requires the counsel of competent and representative advisory committees. Assistance of such committees should be sought in determining occupational goals, setting standards of competency within distributive occupations, broadly defining curriculum needs, testing the pragmatic quality of instruction, and evaluating programs.

6. FACILITIES

Suitable facilities to support adult instruction range from single classrooms to area and regional adult distributive education centers and schools of distribution.

<u>Curriculum and Teaching Materials</u>

Curriculum development and the creation and collection of useful materials are never ending tasks.

There is a need for the long-term program approach in adult training. Although short-term courses, workshops, seminars, and clinics will continue to be useful, renewed effort will be made to develop long-range programs requiring a curriculum of sequential short-unit courses.

Preparatory training for the field of marketing and distribution, as provided in the Vocational Education Act of 1963, brings into the distributive education program youth and adults who differ widely in educational attainment and ability. Some will need to develop social and basic skill competencies. Programs will have to be tailored to specific groups, and specialists will be called upon to provide the fundamental education needed by some in order to profit from vocational instruction in distribution.

The preparatory curriculum for the adult program should be flexible and continuous since the same course will not necessarily be taught the same way to different groups. Provision should be made for the curriculum to lead into a continuous extension program.

Sound curriculums are based on analyses of distributive occupations or clusters of occupations. Such analyses when integrated with the study of individuals who seek training in distribution, answer these questions:

1. What functions in distribution are to be emphasized in teaching?

2. What basic skills are needed? To what degree should one skill be emphasized? How much time should be allocated this year?

3. What social competencies are expected of the student in a preparatory program?

4. What technological competencies should be developed and reinforced?

Only subject matter that contributes toward achieving the goal of gainful employment in distributive occupations should be selected. Careful study of individuals in a class and an analysis of their abilities determine the emphasis to be placed in developing each of the four competencies: social competency, basic skill competency, technology competency, and marketing competency.

The manner of approach to new opportunities will vary with requirements of State plans. Conceivably, departments of distribution within area schools may be started that could operate day and evening, serving both preparatory and extension students. These institutions could offer training for complex jobs as well as for those requiring less complex occupation.

When feasible, the cooperative method of instruction should be part of the adult preparatory program. If such training is not feasible, activity projects should be used to take the place of on-job training. But where educational attainment levels vary, so should teaching methods vary. Homogeneous grouping should be attempted in some cases in preparatory training.

Attention should be given to newer educational media such as television, programmed instruction, and business games. State plans should include provisions for securing modern audiovisual devices--over-head projectors, tape recorders, record players, and projection equipment. Materials which can be adopted for teaching purposes should be sought from cooperating trade association groups, such as hotel and restaurant associations, the American Petroleum Institute, and the National Association of Direct Selling Companies.

A national center should be established for curriculum development, to serve as a clearinghouse for the collection, classification, and dissemination of information, instructional materials, and curriculum development procedures. This could operate under the direction of a research staff of the U. S. Office of Education.

Teaching Competencies Needed

Practical work experience affects an adult instructor's ability to coordinate classroom activities and job performance. The instructor must be able to demonstrate his capability as a practitioner in the occupational area in which he will teach. In addition, he should have the special training in concepts underlying the skills and practices to be taught.

The adult teacher, working with a broad program of educational services, must meet acceptable standards of teaching competency. He must be a person of good character and one who has enriched his own life by his enthusiasm for learning.

Ideally, the teacher in the adult program holds a degree in distributive education or in the marketing or management fields of business administration. His pre-service or inservice college work includes professional courses in the curriculum and methods of adult distributive training and in the philosophy and organization of the distributive education program. His training has included supervised experiences in coordination and in identifying training needs of youth and adults engaged in marketing.

Teachers in the adult program should have the ability to:

1. Perform vocationally in a particular teaching area
2. Communicate well
3. Manage a class effectively
4. Use conference techniques skillfully
5. Handle audiovisual aids
6. Plan and organize instructional materials
7. Draw out principles from specifics
8. Recognize individual differences and gear instruction to individual needs

9. Maintain productive student-teacher relationships

10. Inspire confidence and establish rapport

Research in Adult Distributive Education

Distributive educators and general school administrators must assess the place, importance, and use of research with respect to planning and conducting programs of education for distribution. In addition to maintaining programs found to be successful, completely new programs must be built which will require new curriculums, organization of preparatory programs, investigation of new occupational areas and a close working relationship with other vocational services. Research should point the way. The kinds of studies and research needed most, as well as priorities for conducting research, must be determined.

Research in adult education for distribution will be for the purpose of:

1. Giving direction to the program

2. Determining proper use of instructional materials and instructional methods

3. Locating program needs and evaluating programs, materials, methods, and instructional techniques

4. Determining the kind of training needed to develop qualified teachers of adult classes

5. Determining the job clusters which define a common instructional core

6. Pointing up the need and ways to improve programs which have been successful in the past

Examples of research activities appropriate in a framework involving employers, employees, associations, and administrators are (1) surveys to determine needs, (2) demonstration programs, (3) experimental programs to determine quality control, (4) studies on media being utilized, (5) follow-up studies of students enrolled in short-term and long-term programs, (6) pilot programs involving an occupational mix, and (7) development of plans for a research center.

The program can advance best when reliable findings are widely disseminated to teacher educators, supervisors, and teachers. Results must be analyzed and evaluated to screen out faulty work, and interpreted for likely application in adult programs.

The Vocational Approach

In the adult program conducted under the George-Barden Act, instruction was vocational if the student was employed. Enrollees were motivated by needs for further education and training to help solve their problems of vocation.

The Vocational Education Act of 1963 amends the George-Barden Act and removes the requirement that adult enrollees must be employed. The amendment does not remove the requirement that instruction must be vocational. On the contrary, the Act stresses that vocational education must be of high quality and must be practical in the light of actual or anticipated opportunities for gainful employment. Supplementary programs under both acts have employment experiences to insure that instruction is vocational. Preparatory programs on the other hand will require participation activities of cooperative or project nature to insure that instruction is vocational.

The State should set forth the ways in which it insures sound vocational instruction. The following are suggestions:

1. Identify jobs and clusters of jobs, including occupational mixes, and design instruction to lead to gainful employment

2. Establish objectives of courses

3. Require occupational goals to meet the short-range needs of each adult student (Occupational counseling and further training should be available to those with ability and desire to advance)

4. Have an advisory committee recommend subject matter which is organized and presented by qualified instructors, using job placement or projects suitable to the needs and abilities of the students

   a. Classroom equipment and facilities should reflect current conditions in the occupations

   b. Projects and other participation activities must be used to give practical application of subject matter

5. Gear instruction to career goals and continually evaluate effectiveness of the instruction

6. Institute a retraining program for present teaching staff to meet the needs of new groups or new content areas and keep certification requirements flexible

7. Provide for research in order that trends, directions, accomplishments, and problems may be properly identified, recorded, and interpreted--including plans for dissemination of findings.

8. Develop experimental and pilot programs

Certification Requirements for Instructors of Adults

To provide an adequate reservoir of competent, trained instructors of adults, requirements for certification should allow specialists in marketing and distribution to become eligible. The following minimum considerations are recommended:

1. Acceptable vocational and professional competency in the area for which instruction is to be given

2. A scale of required clock-hours of formal teacher-training for various levels of instruction

3. High school graduation

It is assumed that certified distributive education teacher-coordinators, the distributive teacher education staff, and university faculty in business administration, are already certifiable as adult instructors in distribution.

Evaluation

For those who have just entered the labor market, successful training means a satisfying, first-time employment experience; for those already employed, training may mean upgrading skills, or advancement to a better position. Evaluation then becomes a matter of maintaining contact with enrollees and measuring progress in relation to the training provided.

Such evaluation may include:

1. Analysis of gainful employment in relation to a classification system based on the categories suggested by the Standard Industrial Classification

2. Follow-up studies conducted on a State and regional basis

3. Studies measuring specific aspects of the program

4. Annual and periodic reports by all local school districts to determine how well programs are meeting the needs of their communities (Similar reports by all States would provide the basis for regional and national evaluations.)

5. Analyses of operating programs to identify improvements needed

6. Utilization of data processing to provide current data on enrollments, completions, placements, expenditures, age and sex of enrollees, types of school, types and levels of training, occupational goals, length of training, and similar statistical facts

TASK FORCE IV

Youth With Special Needs

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Youth with special needs are young people whose needs have not been met by existing education programs. These young people are often called discards from the regular education process. Disinterested, reluctant, disadvantaged, or culturally deprived young people are found in nonurban as well as urban areas, in small towns as well as in large industrial communities.

Youth with special needs are undeniably of particular concern to distributive education, yet the immensity of their problems demands the concerted effort of all individuals and agencies with an interest in the reclamation of this vital segment of our human resources. The following principles, concepts and considerations are conjectural. Techniques of implementation are yet to be developed.

Occupational Goals

Identification of occupational goals for youth with special needs presents numerous problems. As a group they tend to aspire to jobs beyond their capabilities or, equally significant, they have no aspiration. Their deficiencies in tool subjects and social skills are usually painfully evident. Though many have rejected the idea of compulsory school attendance, a meaningful preparatory training program may be the only way they can overcome the deficiencies which make them unemployable.

Determining Occupational Goals

Leading youth with special needs toward appropriate occupational goals is a difficult matter. Extensive orientation to the world of work may be necessary in the beginning, with emphasis on employment opportunities and requirements in distribution. Some purposes of orientation would be to develop:

1. Understanding of and respect for the dignity of work
2. Acceptable work habits, attitudes, and skills
3. Self-confidence and self-reliance
4. Understandings about the roles of employers, civic and community organizations
5. Awareness of the relationship of education to employment

Although enrollees may make frequent changes in occupational goals, each youth should reach an occupational decision as soon as possible. A commitment, regardless of how firm or tentative, provides the direction that these youth can understand and appreciate. In some cases it will be possible to identify goals with a standard industrial classification; in others, it may be more appropriate to identify with specific occupations, usually of a more limited nature, listing in the "Dictionary of Occupational Titles."

Curriculum and Instructional Materials

The curriculum must concentrate on those elements of instruction that contribute directly to occupational proficiency needed for initial and sustained employment. While remedial instruction and social skill development may be dominant in programs for many of these youth, such instruction must be coordinated with the major concern of distributive education--the development of competencies in marketing functions and in a technology. The primary goal will be to qualify these youth for entry occupations in distribution at levels commensurate with their capabilities and limitations. A secondary goal will be to qualify as many of them as possible for the regular distributive education program.

Curriculum Objectives

Programs for youth with special needs must be as diverse as their specific interests and capabilities and the opportunities which will open to them for gainful employment. The level of training and the degree of skill required will range according to individual ability, motivation, and time available for preparatory training. It will be important for instruction to improve the personality, social competencies, basic general education, and the drive to reach a chosen attainable occupational goal.

Objectives of curriculums enrolling youth with special needs must be to:

1. Develop marketable skills which make gainful employment possible

2. Overcome deficiencies that usually exclude them from cooperative classes

3. Provide adequate diversity in choice of occupational goals and level of training

Organizational Problems

Individuals responsible for curriculum planning will meet problems not previously encountered in distributive education. The difficulties will probably stem from:

1. Diversity within the group--dropouts or potential leavers socially or economically deprived, underachievers or mentally handicapped, actively agressive or sullenly silent

2. Uncertainty as to appropriate age or grade level

a. Instruction will be available for some at 14 or grade nine; for others at age 16 or grade 12 after they have pursued the regular high school general education program

b. For over-age youth in lower grades, special consideration will be necessary

3. Range in numbers of youth to be served

a. Specialized training for a narrow range of limited job competencies--store housekeeping, for example--may be provided if numbers are large

b. Individualized, tutorial type instruction may be desirable if varied interests and aptitudes prevent homogeneous groupings

Selection of Instructional Content

The following action guidelines are suggested in the selection of instructional content:

1. Provide unlimited flexibility since no single program or curriculum can serve as a blueprint. Experimentation and departure from traditional procedures should rule. Suggested deviations may include: (a) dropping the Carnegie credit unit, (b) changing the length and the organization of the school day, (c) substituting subject matter specialists with core teachers, (d) providing simulated work experience where actual part-time employment opportunities are not available

2. Appoint and utilize functional advisory committees in order to identify employment opportunities for these youth, develop job descriptions as the basis for instructional content, and determine competencies required if existing jobs are filled

3. Identify specific entry jobs available for these youth and increase and sustain motivation by providing: (a) expert vocational counseling based on cumulative records, (b) occupational information of practical significance, (c) reasonable assurance of opportunities to enter the labor market, (d) highly individualized instruction, (e) informal classroom atmosphere, (f) opportunities for developing latent abilities and expressing creative impulses

4. Use marketing functions as the instructional discipline--centering content on the functions of selling, operations and aspects of sales promotion, and de-emphasizing buying, market research and management

5. Stress the development of four basic occupational competencies: (a) social skills--personality traits, good grooming, proper work attitudes, etiquette, employer-employee relations; (b) basic skills--listening, written and oral communication and mathematics;

(c) technical competency--knowledge of products and services related to the occupational goal; (d) marketing competency--knowledge of the functions of marketing

Related Considerations and Suggestions

1. A long-range planning group should be established to compile existing curriculum patterns having some promise of success and widespread application.

2. Extensive efforts should be devoted to the location, preparation, distribution, and evaluation of instructional materials appropriate for this group.

3. While alternate programs should be developed on a nationwide basis, duplication of effort should be avoided.

4. Program activities for youth with special needs must serve to strengthen, not weaken, existing cooperative distributive education programs in the secondary schools of the country.

Vocational Approaches

Teachers must find ways to make occupational competency a goal desired by youth with special needs. Many such youth have interests and aptitudes more directly related to motor skills and "practical" aspects of learning. Their intelligence is non-verbal with little interest in symbolic or abstract learning. They may master this basic deficiency through strong interest and motivation, occasional success, recognition, and practical application.

Vocational approaches to learning include the following concepts:

1. Participation activities should be part of the methodology

2. Participation activities should be suited to individual levels of motivation, maturity, and prior achievement

3. Employment should be the goal of instruction

4. Content must be alive and meaningful

5. Simple rote training may work for learners preparing for entry jobs of repetitive and uniform nature

6. Students should learn to observe, listen and interpret, make judgments about products and services, and be resourceful

7. Participation activities, including supervised occupational experiences and project training, should be used to reinforce learning

8. Cooperative training where appropriate should include a variety of occupation experiences; selected projects should make maximum use of work experience opportunities available within the school and the community

9. All instructional activities should be directed toward improvement of the student's self-image and restoration of his self-confidence

10. Patience, praise, reward, drill, review, dramatization, simplicity, involvement, are word symbols indicating the teacher's approach in teaching these youth and recognizing their individual differences.

Teacher Education and Research

Knowledges and techniques developed through teacher education and research in distributive education can be used to assist youth with special needs, yet specialists in this field should look for help also from leaders such as those in special education, vocational rehabilitation, and guidance.

Areas of Interest

Considerations important to the training of teachers for this area and development of research are expressed in the following questions:

1. What different kinds of students will be enrolled in the program?

2. What relationships should be established between distributive education personnel, employment agencies, and welfare groups?

3. What can be done about training in creativity, attitudes, initiative, human relations, economic understandings?

4. Can decision making be taught?

5. What should be done about occupational images and self-appraisal?

6. What should be known about specifications for entry occupations of a limited nature?

7. What can be done for persons with special needs at the post high school and adult level?

8. What should distributive education personnel do about remedial instruction in fundamentals?

9. What should teachers do about social skills? How far should they go in this area?

10. What should coordinators know about career patterns for youth with special needs?

11. What are the special problems involved in career development activities for disadvantaged students?

12. How can disadvantaged students be "sold" to employers?

13. What level of performance must be attained in arithmetic, grammar, social adaptabilities--before a disadvantaged student may be personally employable?

14. How do the four kinds of competencies needed in distribution relate to various kinds of disadvantaged students?

15. How much of the discipline of distribution should be taught to various occupational groups?

16. What teaching methods are particularly effective with disadvantaged youth?

17. How can these youth be motivated?

18. What can be done to help these youth appraise their assets?

19. What level of economic understanding should youth with special needs attain?

20. How can work with disadvantaged youth be given recognition and a dignity which will result in its increased acceptance by all educators?

Present Contributions

Teacher education courses already include many procedures relative to the problems of training youth with special needs. Courses in the philosophy and organization of distributive education programs plan for discussions of the value of home visitations, the types of programs possible for special purposes, and the role of vocational guidance. Student teaching assignments, generally require actual visits to students' homes. Methods courses provide for study of individual differences and units on personality improvement, good grooming, proper dress, and correct behavior. A course in guidance procedures given in the psychology or guidance department is frequently included in a teacher candidate's program of studies.

Teacher education and research programs should be expanded to include the following activities:

1. A study of pupil readiness, especially in relation to guidance and placement activities and referral to and help from other courses

2. Analysis of occupational relations--including relationships with co-workers, employers, employment agencies and the general public

3. A survey course that would explore the field of distribution and services

4. Organization of workshops to identify course content and teaching methods for youth with special needs

5. Inservice training in special education courses that survey exceptional or emotionally disturbed children and in guidance courses in career development or occupational information

6. Participation by distributive education personnel in special education and guidance workshops

Recruiting Teachers

Teachers for youth with special needs may be found among distributive teacher-coordinators who desire to gain experience or help this special group. Ideally, prospects should be individuals with distributive occupational experience and training in guidance and counseling. Other teacher candidates may be located through employment and welfare services or among Armed Forces retirees, Peace Corps volunteers, and occupational therapists.

Preservice and Inservice Training

Specialized courses may be needed to train instructional personnel for assignment to these programs. Teachers should be knowledgeable about special problems of these youth, principles of vocational education, and occupational relations, especially in areas of job adjustment. They should be skilled in instructional methods and materials. Course work in appropriate functions of distribution and marketing would be essential. It may be feasible to conduct workshops for teacher-coordinators in conjunction with related field specialists, already experienced in work with these youth.

Underlying all pre-service and inservice teacher education must be the understanding that individuals who plan to enter this comparatively new area of service should receive training in the vocational approach to instruction. This would be in addition to training in distribution and marketing.

Basic and experimental research will be necessary. Suggested research projects include the following:

1. Identification of competencies needed for satisfactory performance in the field of distribution

2. Study of correlation between attitudes, abilities, and socio-economic status of youth with special needs and study of the fields where disadvantaged youth appear to succeed

3. Compilation of traits that identify potentially acceptable workers in the field of distribution

4. Study of a controlled group of youth with special needs

5. Study of existing programs for these youth that are related to education for distribution

6. Analysis of assistance available through other agencies (labor, education, government, foundations) in solving the numerous problems of disadvantaged youth

7. Survey of types of jobs that can be performed by persons handicapped culturally, mentally, or physically

8. Study of local needs

9. Identification of course content common to limited entry jobs

Program Organization

The expanded distributive education program may include: (1) the regular program, serving the needs of a majority of students with career objectives in distribution, (2) specialized accelerated programs for students with exceptional abilities, and (3) programs for youth with special needs. Every individual program must be adapted to the specific needs of the youth group involved. Many organizational patterns will be both possible and desirable. Modified programs must not be mistaken for the regular program and they should have distinctive titles.

Youth with special needs should not be enrolled in classes designed to prepare students who are already personally acceptable for employment in distribution. Special classes should be provided. These may vary in length and type but their purpose will be to prepare for immediate employment or readmission or entry into the regular vocational program. The majority of these special programs will be designed for out-of-school youth and students still in secondary schools, but provision should be made also for overage students.

Curriculum Patterns

Courses may form a curriculum pattern that deviates only slightly or departs dramatically from traditional practices. Some examples are:

1. A single semester course in employment guidance or job counseling

2. Division of six-hour school day in two equal parts to provide basic remedial instruction and specific pre-employment training with a team teaching approach

3. Reduction of the school day to four hours of classroom instruction, combining remedial work and specific occupational training

4. A combination of not more than three hours of class work daily with a series of simulated job experiences or in-school work projects

5. Curtailment of formal classroom instruction to only four or five hours a week supplemented by a combination of simulated and actual occupational experiences

Operational Considerations

A many faceted, united approach should be used in working with youth with special needs. The distributive education specialist should give leadership to special needs programs and involve individuals with specialized skills in the following assignments: (1) service or planning groups; (2) advisory committees; (3) resource personnel; (4) instructional staffs; (5) coordination or liaison personnel to work with agencies representing unions, welfare groups, government, civic groups, and businessmen.

The following considerations might be observed:

1. Base the programs on the specific needs of readily identifiable groups of disadvantaged youth

2. Organize staffs to function as teaching teams

3. Provide vocational guidance to students who still are enrolled in elementary school

4. Make placement, follow-up, and evaluation integral phases of approvable programs

5. Establish programs as demonstration or experimental projects in education for distributive occupations

6. Encourage local communities to formulate and submit for approval documented proposals for each pilot program in order to facilitate funding and evaluation

Appendixes

1339

Appendix I

Implications for the Distributive Education Clubs of America*

Harry A. Applegate
Executive Secretary
Distributive Education Clubs of America, Inc.

The National Clinic on Distributive Education was held to clarify developments in the preparatory program of distributive education and to redirect current programs to meet the needs of individuals.

The purposes have tremendous implications for improvement of existing practices in distributive education and in the Distributive Education Clubs of America. This paper will give attention to some of the areas which may be affected immediately: organization, operations, and future development.

Youth groups in vocational education are no longer considered something separate and apart from instructional programs. At the national level, youth groups in agriculture, distributive education, and home economics are considered essential in furthering the purposes of their respective services.

Any attempt to consider the purposes of the clinic as they relate to DECA should be preceded by a review of distributive education's youth program and the philosophy of the Distributive Education Clubs of America.

Goals of DECA

As the club movement began specific goals were set up for national DECA. During the formative years, these goals served the State associations as guidelines. As the number of State associations grew, however, it became apparent that broader goals would enable DECA to serve the program it represented more effectively and establish a firmer relationship with emerging goals of the distributive education program.

Consequently, in the period between 1959 and 1961, three goals of DECA were adoped: to assist State associations in the growth and development of DECA; to further develop a respect for education in marketing and distribution which will contribute to vocational competence; and to promote understanding and appreciation for the responsibilities of citizenship in our free, competitive enterprise system. The third goal is similar to the third goal of the distributive education instructional program.

After these goals were adopted other changes took place:

1. Assisting State associations rather than individuals became the primary responsibility of national DECA

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*Presented to members of the Clinic in a post-session, October 18, 1963.

2. Each State was allowed to develop a program of DECA activitiy which suited its own specific needs.

3. National DECA expanded awards and recognition for vocational competencies.

4. The development of citizenship responsibilities needed for success in distribution was emphasized.

5. It became possible for national DECA to provide broadened services and support for the instructional program.

6. The three adopted goals became the same for the national sponsoring agency (DECA, Incorporated) and the national youth program (DECA).

The scope of these three goals enables each State to expand its association as fast as it desires.

Philosophy

In addition to using goals as guidelines for DECA development, it is helpful to spell out a specific philosophy. Program expansion whether on a local, State, or national basis involves consideration of the following points:

1. THE GOALS OF ANY DECA UNIT MUST BE IDENTIFIED WITH THE EDUCATIONAL PROGRAM. Each State association of DECA and each local chapter should verify this identification. A growing number of States are specifying DECA responsibilities in their State plans in order to make the youth organization an intrinsic part of the program.

2. DECA ACTIVITIES MUST BE CONDUCTED AS COCURRICULAR. This maintains identity with education and with educational institutions.

3. DECA MUST BE UTILIZED AS A TEACHING TOOL. As creative marketing projects and the individual studies-in-marketing project have shown, DECA can be used as a motivating force for both individual and group accomplishment.

4. THE TAIL MUST NOT WAG THE DOG. DECA activities should never become so paramount that the goals and purposes of the instructional program seem secondary.

These are two other points involving philosophy that should be emphasized. Business interests which support the total program want some activities retained which require competition for both individuals and groups. This concept is important in a program vocationally oriented to the distributive occupations. The second reiterates the philosophy of those farsighted persons who shared in the founding of DECA: The operation of the National DECA Headquarters should be kept separate from the Federal government.

Organization

The youth organization includes three groups:

1. DECA, Incorporated, the legal, sponsoring agency of the youth group;

2. DECA, the youth group; and

3. DECA Foundation, a non-stock, non-profit educational corporation which was established for the purpose of receiving and disbursing funds for educational and charitable activities which will stimulate and promote the best interests of DECA on a local, State, and national basis.

DECA INCORPORATED'S membership consists of affiliated State associations. Each State supervisor of Distributive Education acts as the ranking State DECA adviser for his own State association of DECA. He helps formulate and direct the policies of DECA, Incorporated, and the national DECA program. He should be free to promote and utilize the portions of the total program that best meet his State's needs. The national organization should continue its assistance to the States in program development; and its national staff should continue serving its member State associations in a liaison role wherever national interests are involved. The present form of national structure should continue.

The only major change foreseeable for DECA, Inc., may be in its elected governing body, the Board of Trustees; the Board is composed of ten members; nine are elected by and from the membership of DECA, Inc. and one from the United States Office of Education, the director of the distributive education branch.

Many DECA advisers feel that representatives of the National Association of State Supervisors of Distributive Education, the National Association of Distributive Education Teachers, and the Council for Distributive Teacher Education should be on the Board of Trustees since all are vitally interested in DECA developments and all are working partners in the promotion of the total DE program. This change could be accomplished within the 10-member trustee limit by dropping the elected number of trustees from nine to six, and allowing the four organizations (USOE, NASSDE, NADET, and CDTE) to name their own representative as a trustee for DECA, as the USOE presently does. However, any change from present practice would need approval of DECA, Inc. membership.

DECA is the youth group itself. In April, 1961, the State Associations approved a greatly expanded plan for individual memberships. These <u>expansions</u> included:

1. Students in noncooperative programs at the high school age level, enrolled in preparatory classes of DE. (They are identified as associate members of DECA, but their participation in national events was greatly limited).

2. Students--no age limit--in post high school programs of DE, including both cooperative and noncooperative programs. (They form a separate Division of DECA, with their own national officers, competitive events, awards program, and facilities for self-government of their division. These students are known as Post Secondary Members of DECA, with full membership privileges in DECA through their Post Secondary Division).

3. Students in adult classes, advisory committee members, training station sponsors, teacher-coordinators, coordinators in training, and other interested adults (As professional members of DECA, their active status or participation in DECA matters was greatly limited. In some cases, alumni groups were claimed in this catagory.)

This expansion of the membership created a major organizational problem. Currently there are two national presidents of the youth group. In the immediate future, some agreement must be reached among the States so that there will be only one national president, with a vice-president as the working head of the divisions.

Another organizational problem created by this action was an increase in the number of national voting delegates. Those who have experienced national election sessions are aware of this problem. As the number of DECA chapters continue to grow in each State and the present system of voting delegate allotment continues, the problem will increase to the point of having the system dominate the purposes. The Future Farmers of America, with membership almost twenty times DECA, solved this problem by alloting two votes per State. This may be the ultimate answer as growth continues.

The Constitution and By-Laws Committee is currently giving attention to both of these matters.

Still another organizational problem in DECA is the lack of specific identity for individual members. For example, the sister vocational youth groups--the Future Farmers of American and the Future Homemakers of America--have the following respective degrees of individual membership: Greenland, Chapter Farmer, State Farmer, American Farmer; and Junior Homemaker, Chapter Homemaker, and State Homemaker. The top FFA Award is the Star Farmer, one per region. A farmer or a homemaker has clear identity in the name of his youth group. Attention should be given this problem by those who desire to identify the youth group with people rather with program.

THE DECA FOUNDATION was created for the purposes of giving specific identity to that portion of DECA to be supported by donor contributions. Six areas of activity were identified:

1. Awards and Recognition

2. National Leadership Conference

3. Leadership Development

4. Scholarship Loan Awards

5. Program Development

6. Public Information Activity

Competition for contributions, regardless of purpose, is great. Three things limit DECA's success in this area: (1) DECA is small in numbers in comparison

to many other youth groups; (2) DECA is just now developing effective visibility among organizations representing "who's who" in national marketing; (3) most contributions are given to encourage consumer acceptability.

Even though the Foundation has been operated legally since February 13, 1960, a tax-exempt ruling has not been forthcoming from the Internal Revenue Service. DECA, Inc., has been exempt since 1953 and all of its State associations are automatically exempt by that ruling. A perplexing problem is whether to gain the exempt ruling in order to continue the Foundation or to discontinue the Foundation while keeping its activities.

Operation

One of the Clinic implications for DECA is the possibility of a tremendous growth in the number of individual members of local chapters. Growth has been experienced annually over the years. (See Appendix I-A) During the 1962-63 school year, individual membership reached 29,885--a 20 per cent increase over the previous year.

	DECA Membership
High School Division	28,490
Post High School Division	522
Professional Members	873
Total	29,885

The number of local chapters increased from 986 in 1961-62 to 1,107 in 1962-63, a gain of 12 per cent, with 24 post secondary chapters being reported in 12 States. Membership in 1963-64 is predicted to reach 36,000 members in more than 1,250 chapters.

This growth record is a tribute to each DECA adviser. The majority of States operate only a one-year DE program. The largest numbers of students accordingly have the opportunity to be active for only a one-year period.

Earlier this week, reference was made to the potential for distributive education (See Appendix I-B) according to *Vocational Education in the Next Decade, which gives these estimates:

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*U.S. Department of Health, Education and Welfare, Office of Education, Vocational Education in the Next Decade, Washington: U. S. Government Printing Office: 1961, 197 p.

High School Age Youth:	
Preparatory programs - rural communities	112,000
Preparatory programs - urban communities	200,000
Cooperative programs	150,000
Post High School Age Youth:	
Preparatory and cooperative programs	130,000
Total	592,000

Since the above total represents potential instructional enrollment in the program, it also represents DECA potential. It is also evident, by these predictions, that the group now called associate members in DECA, will become the largest. Therefore, the challenge is to give encouragement, guidance, and direction to their participation, and make for them a more active role than they would enjoy in the present structure.

More important, however, in program growth is the fact that tenure of DECA memberships will be extended. For example, a student can at present belong to the high school group only one or two years (depending on the State), or one or two years in the post secondary division. In the future, it may be possible to have three or even four years of membership while in the high school program.

As potential is increased, it is reasonable to assume that membership in DECA will increase, thus introducing changes in the operation of the National DECA Program. In the interest of efficiency, the following examples of areas for evaluation should be studied:

1. FINANCING DECA ACTIVITIES. This is an annual problem of national DECA. The current operation depends on external income--primarily donor contributions--to finance the Program of Activity; and on internal income--dues, royalties, publication sales, etc.--to sustain national headquarters and its staff. The National Advisory Board and the Board of Trustees are studying this problem. Recommendations will be made known to all States.

2. SUPPLY SERVICES. Royalties from the sale of all items handled through the existing supply services constitute substantial internal income. During 1962-63, sale of DECA items totaled approximately $57,000. A close tab is kept on every item sold and the total amounts sold in an effort to discover that point in sales volume at which it would be profitable for DECA to establish its own supply service operation.

3. EXPANSION OF AWARDS. Attention is given by the Trustees and the DECA staff to ways and means of expanding and extending additional awards and recognitions to individuals in the program. Provisions

should be found for recognizing both competency and achievement by student members as the merit badge approach is used in scouting.

4. NATIONAL LEADERSHIP CONFERENCES. Close evaluation and changes in operational patterns including time, location, facilities, and procedures will need constant up-dating and improvement as both attendance and activities increase with growth.

5. INTERESTED LAYMEN IN DECA. Operations can be made much easier by use of advisory groups, giving laymen an opportunity to participate in DECA activities. Additional ways for attracting lay people are needed. Many educational interests have active alumni groups who contribute greatly to the continued success of their program. DECA should be able to capitalize on the activities of students who wish to continue using their energies in its behalf. Such groups would give a tremendous boost to chapter efforts and as professional members they could take part more actively in State and national events. Parents of students should be drawn into chapter activities. A youth program has active Mom and Dad Clubs meeting regularly throughout the year; their primary purpose is to see that a chapter has adequate finances and that all activities are properly chaperoned. Close associations should be developed with both men's and women's civic and social groups.

6. STAFFING. National DECA is well staffed with an executive secretary to finance and administer the program, and a director of member services to coordinate club activities. As membership increases, any additional staff would be primarily secretarial. As the work load at DECA increases at State levels, and as State staffing includes more persons with DECA responsibilities, national staff persons should be able to give greater services to each State. State staffing for DECA should be considered when new State plans are written.

Summary

It is evident that DECA has a sound basic structure which can cope with anticipated program development. Goals and philosophy are sound. The youth organization's structure needs relatively few alterations. Operational adjustments accompanying major growth changes will be made as necessary to render efficiency.

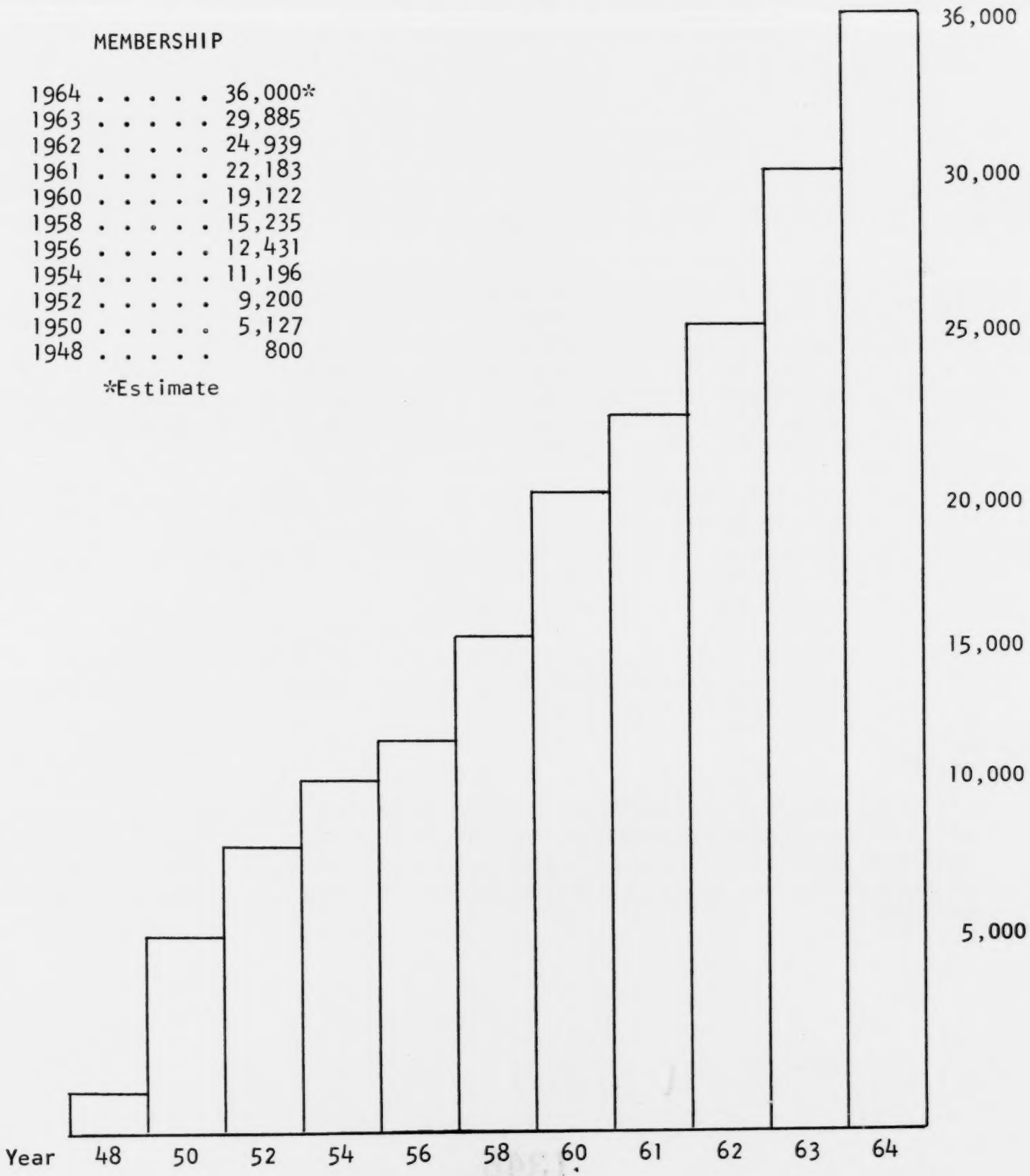
Appendix I-A

Membership in Distributive Education Clubs of America

MEMBERSHIP

1964	36,000*
1963	29,885
1962	24,939
1961	22,183
1960	19,122
1958	15,235
1956	12,431
1954	11,196
1952	9,200
1950	5,127
1948	800

*Estimate



Appendix I-B

DE-DECA Potential *

Present enrollment in Distributive Education is more than 306,000. Approximately 42,000 are students in grades 11 through 14. The remainder are extension student enrollees.

The DE enrollment is expected to be more than six times this large by 1970, according to estimates for distributive education contained in Vocational Education in the Next Decade, which gives the following estimates for the program:

Type of DE Program Enrollment	Estimated Enrollment
Preparatory, noncooperative, high school	312,000
Cooperative, high school	150,000
Cooperative, post secondary	130,000
Pre-employment, adult extension	345,000
Employed adults, general extension	900,000
Management training, adult education	150,000
Estimated grand total (by 1970)	1,987,000

DECA membership can be expected to include at least 80 percent of the first three categories above, according to present growth trends of DECA and according to the experience of two sister vocational education youth groups. Thus, 475,000 to 500,000 student members annually can be anticipated by 1970, according to this source.

Additional potential could be encouraged through professional memberships already provided for in the Constitution. These include college-enrolled coordinator trainees, teacher-coordinators, alumni of the program, advisory committee members, training station sponsors, and other adults interested in supporting DECA.

With such potential, DECA will continue to grow. Its stature, however, will be in direct proportion to the stature of the instructional program it represents.

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*Harry A. Applegate. "Implications for DECA," paper presented at a post session of the National Clinic on Distributive Education, Washington, D. C., October, 1963.

Appendix I-C

Distributive Education Clubs of America

Discussion Summaries

On Friday, October 18, 1963, a post session of the National Clinic on Distributive Education was held for the purpose of studying implications for the Distributive Education Clubs of America in the emerging program of distributive education. The participants in this special session were divided into four groups, each led by a chairman, recorder, and a consultant. Following are the discussion summaries and suggestions submitted by the recorders of each group.

GROUP I: High School Age Youth (Chairman - Mildred Jackson, Recorder - John Mattingly, Consultant - George Sanders)

1. Continue to use Associate, Active, and Professional as the membership classifications of DECA.

2. Maintain the high school group organization and activities separate from the post high school group.

3. In addition to the current contest program, study should be given to increasing and expanding activities which lead to vocational competencies, such as creative marketing, and individual marketing studies. Study should also be given to the use of merit awards for varying achievement levels.

4. Provide opportunities for successful alumni to take part in State and national DECA programs. Individual chapters should conduct follow-up studies in order to locate their former members.

GROUP II: Post High School Youth (Chairman - Vernon Swenson, Recorder - Dorothy Simmonds, Consultant - Mary V. Marks)

1. Because of the maturity of the post high school group and its length of time with DECA, promising leadership should emerge to lead developments at the mid-management study level.

2. Opportunities will arise for the post high school division of DECA to include in its activities representatives from business areas outside of the field of retailing, such as direct selling, import-export, and finance.

3. Post high school youth should encourage students at the high school level to continue on to post high school study.

4. Business executives, anxious to associate themselves with post high school operations, may be induced to lend further support.

GROUP III: Out-of-School Youth and Adults (Chairman - T. R. Petty, Recorder - Margaret McEvoy, Consultant - Donovan Armstrong)

1. The philosophy of DECA as a national youth group, designed to develop future leaders representing the field of education for distribution, was accepted.

2. Through the DECA Constitution, the structure already exists for adult participation at State and local levels.

3. National DECA should not be encouraged to carry on any specific national campaign to increase adult membership in the organization.

GROUP IV: Youth with Special Needs (Chairman - O. M. Hager, Recorder - Blanche Curran, Consultant - Edwin L. Nelson)

1. Youth with special needs should be entitled to membership in DECA and encouraged to join DECA and participate freely with their peers.

2. DECA chapters, involving youth with special needs, should make necessary adjustments to local situations through their local chapters and State associations.

3. New contests and activities should be adopted to develop and promote the interest of students in this special group. They should be induced to participate in projects and activities according to their own ability.

4. DECA units should cooperate with other service clubs or agencies, working with students who have special needs.

5. Leadership should be encouraged within this special group.

6. Students in preparatory programs should be a part of DECA.

7. Students without a vocational goal should be permitted to enter the club program; and, through the chapter, occupational information should be given to these young people.

BEST

Appendix II

The Relationship of Economic Education to Distributive Education*

Dr. Roman F. Warmke
Director
Economic Education
University of Minnesota
Executive Director
Minnesota State Council on
Economic Education

Beaumont** suggests that distributive educators must maintain a professional identity and at the same time develop interdisciplinary relationships. Interdisciplinary programs are increasing in importance because (1) knowledge is accumulating at an accelerated rate and (2) there is a good deal of overlap in the competencies needed for gainful employment in different occupations.

An interdisciplinary approach assumes that an attempt has been made to establish the boundaries and interrelationships of the disciplines involved. The packaging of knowledge into clearly defined and distinct disciplines is by no means simple. The task is similar to sorting out bits of mercury from a central pool. Nevertheless, knowledge is learned in segments so interrelationships and priorities must be established.

The purpose of this paper is to indicate how economic education relates to:

(1) The content and intent of distribution

(2) The goals of distributive education and

(3) The competencies needed for gainful employment in distribution

By Content and Intent

The content of distributive education is distribution; the intent is to provide viable subject matter designed to fit persons for gainful employment. The content of economic education is economics, and the intent is to provide viable subject matter designed to assist persons to make rational decisions about economic problems. Economic education, like distributive education, is people business. Both programs stress the content most urgently needed by people rather than a random sampling germane to the respective disciplines. Both emphasize improving the judgmental skills needed for intelligent participation in a market-oriented economy. The intent and content of subject matter of these two emerging disciplines are akin and intertwined.

Both programs represent extensions of established disciplines. Marketing has been a collegiate subject matter concentration for a number of years. Distributive education extends instruction in marketing from the college classroom

*Paper prepared following the Clinic at the request of the Distributive Education Branch.

**John A. Beaumont, "Program Organization," paper presented at the National Clinic on Distributive Education, Washington, D.C., October, 1963.

to other curriculum areas. Economic education extends instruction in economics in a similar manner. Distributive education has not translated the entire discipline of distribution. In like manner, economic education has not translated the entire content of economics. In each case, the intent of the instruction is more clearly defined than the content.

By Goals

Instructional Function

The first goal of distributive education is "to offer instruction in marketing, merchandising, and management." This goal identifies the instructional area. Before one can establish the relationship of economic education to this goal, one needs to determine the subject matter of marketing, merchandising, and management. Nelson* states that "the domain for distribution is the functions of marketing as they exist and relate to a free, competitive economy." Presumably, Nelson's use of words, "functions of marketing," includes merchandising and management since he lists the functions as selling, sales promotion, buying, operations, market research, and management. If these functions comprise the discipline of distribution, one dimension of the relationship of economic education to distributive education can be established by analyzing the economic content included in the functions. Cursory observation of our market-oriented economy indicates that economic education and distributive education are related. To know economics, one must understand the role of distribution; to know distribution, one must understand economics.

Leadership Function

The second goal of distributive education is "to aid in improving the techniques of distribution." This goal implies a leadership role. By accepting this goal, distributive educators have committed themselves to advancing the frontiers of knowledge in distribution. The three major segments of society involved in improving the techniques of distribution include business itself, government, and education. Since business is guided by the profit motive, businessmen tend to think in terms of individual business efficiency rather than aggregate economic effectiveness which creates market potential. Most government actions must be modified by political implications. This leaves, then, a vital role for distributive education in improving the techniques of distribution. Economic understanding is necessary fortification for determining effective distribution practices.

Social and Economic Functions

The third goal of distributive education is "to develop an understanding of the social and economic responsibilities which accompany the right to engage in distribution in a free, competitive society." By accepting this goal, distributive educators have committed themselves to maintaining and enhancing the American heritage. This goal suggests a direct and strong tie to economic education.

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*Edwin L. Nelson, "Bases for Curriculum Development in Distribution," paper presented at the National Clinic on Distributive Education, Washington, D.C., October, 1963.

This goal is especially important because of the importance Americans attach to freedom of economic action. Basically freedom involves (1) unhampered action to identify the problem and the various alternative courses of action, (2) the right to choose among the alternatives, and (3) the means to implement the choice. In short, a person has individual freedom when he is permitted to get the facts, determine possible solutions, take action, and evaluate results. If a person is restricted from any of these courses of action, his freedom is restrained. Interference with thought restricts freedom in the same manner that interference with action does.

Obviously, a man cannot simply think and act as he pleases. Man is allowed to pursue self-interest only when such pursuit does not harm society. For example, highway laws restrict certain actions in an attempt to "free" the roads. Distributors are restricted from certain practices to "free" competition. Americans realize that certain restrictions are needed but they want to determine the kind and the extent of the restrictions. Americans want a government that serves people rather than a people who serve the government.

In a market economy like ours, price is determined in the market place. The market mechanism serves a vehicle for economic activity. In fact, the market mechanism might be likened to an automobile which can be used by a thief fleeing from a crime or by a doctor for an errand of mercy. The automobile is neither good nor bad, its use depends upon the driver. Since the American economy depends upon the effectiveness of those decisions. A further complication arises from conflicts in goals. When conflicts occur, priorities must be established. Besides individual freedom, major goals include economic growth, economic stability, economic security, and economic justice.

Definitions of goals and their priorities have changed constantly in the past, and there is every indication that there will be further changes. The history of constant change suggests a need to concentrate more on how to analyze business and economic affairs than to study isolated facts. Economic fortification is a necessary ingredient for this analysis. In a market-oriented economy, the economic future of the system rests heavily upon those engaged in distribution.

By Competencies

Nelson has given the domain of the discipline of distribution more specificity by enumerating the competencies needed for occupational acquisition, adjustment, and advancement. He lists the following set of specific competencies as those needed for gainful employment in distribution: (1) social, (2) basic skill, (3) technology, and (4) marketing. It is significant to note that the marketing competency encompasses his list of functions of distribution (i.e. selling, sales promotion, buying, operations, market research, and management). The social basic skill, and technology competencies supplement and complement the discipline of distribution, are interwoven, with it, but are not a part of it.

Since economic decision making is involved to a major or minor degree in each of the competencies listed by Nelson, economic education is included in each area. The degree of economic decision making in the social and technology competencies would appear to be relatively minor as compared to those involved in the basic skill and marketing competencies.

A case could be made for placing economic education primarily within the basic skill competency. Certainly economic understanding is a necessary tool subject for distribution in a manner similar to basic communications and mathematics. Each citizen-voter needs a degree of economic sophistication to effectively exercise his citizenship responsibilities regardless of his field of gainful employment. In this sense economic education is a basic tool. Analysis would, however, be incomplete if we stopped at this juncture.

A discipline includes more than an identified body of knowledge. It involves a mode for gaining knowledge, a method of approach, or a systematic way of thinking. Economic education is concerned with rational choice making under conditions of economic constraint. The method of approach, in capsule form, includes (1) a succinct definition of the problem, (2) an identification and priority rating of goals, (3) a recognition of the principal alternative ways of approaching a solution to the problem, and (4) an analysis of the consequences of pursuing each of the alternative courses of action.

The approach is part and parcel of economic analysis. This same approach is used in the study of distribution. Distributive education is marbled with economic analysis. The most significant economic analysis appears to be within the marketing competency since this area stresses judgmental skills needed for gainful employment in distribution in a market-oriented economy. To use a homey analogy, economic education and distributive education resemble a marble cake more closely than a layer cake.

Summary

Distributive educators must maintain a professional identity, and at the same time develop interdisciplinary relationships.

Distributive education is designed to fit persons for gainful employment in distribution. The purpose of economic education is to provide viable subject matter designed to assist persons to make rational decisions about economic problems. The two disciplines are akin and intertwined in both content and intent.

Economic education is related to the goals of distributive education in that:

1. One must understand the role of distribution to know economics, and one must understand economics to know distribution.

2. Economic understanding is necessary fortification for determining effective distribution practices.

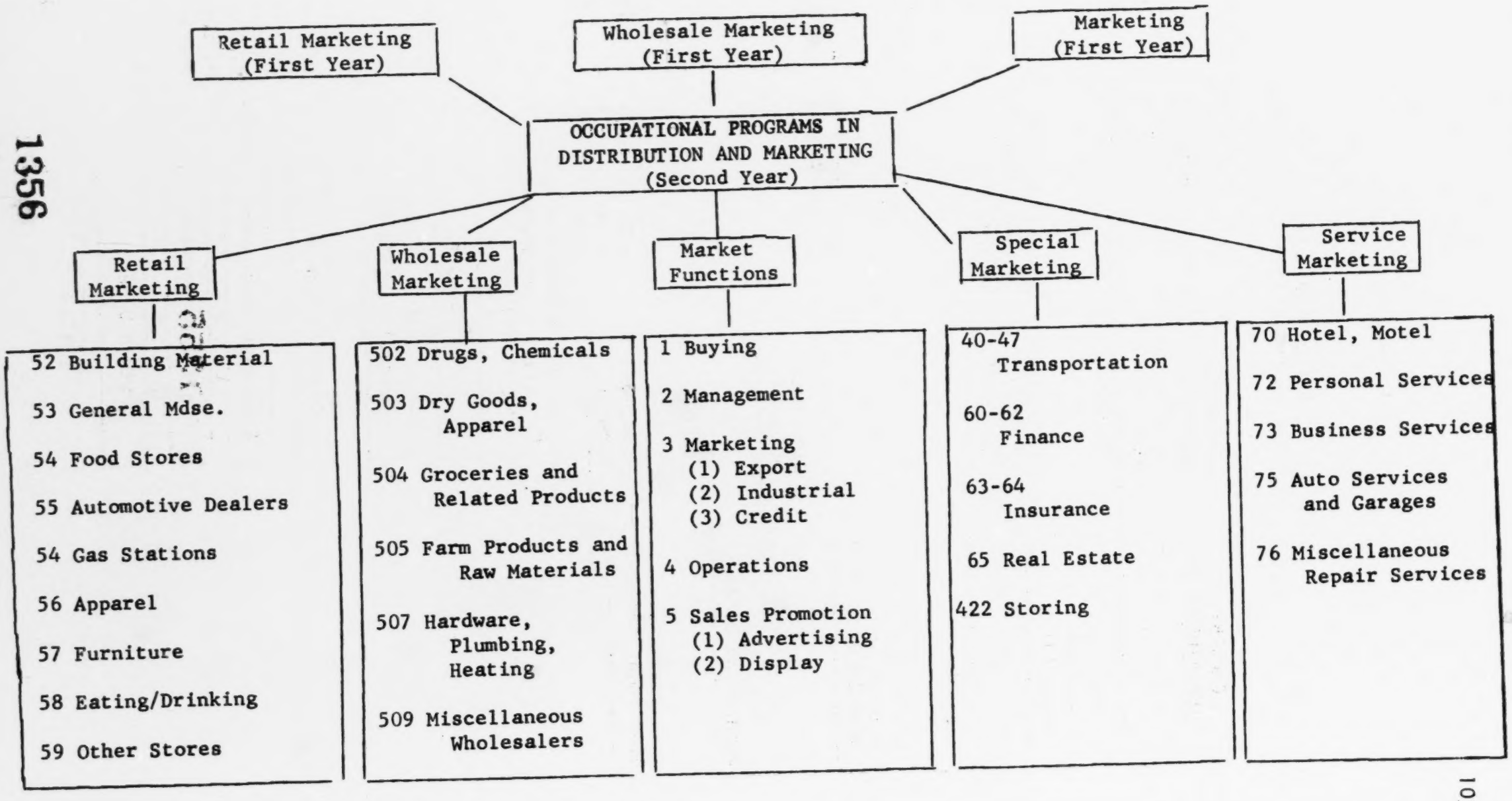
3. Economic analysis is a necessary ingredient of distributive education if distributive educators are to meet their accepted social and economic responsibilities.

Since economic decision making is involved to some extent in each of the distribution competencies, economic education is included in each area. Economic reasoning is relatively minor in the social and technology competencies as compared to the involvement in the basic skill and marketing competencies. While economic education can be regarded as a basic skill similar to communications or mathematics, the economic method is especially significant in developing marketing competency since distribution is marbled with economics. Interdisciplinary programs involving similar concerns and content would seem more difficult for economic educators and distributive educators to avoid than to implement.

A I D S T O T H E P A P E R S

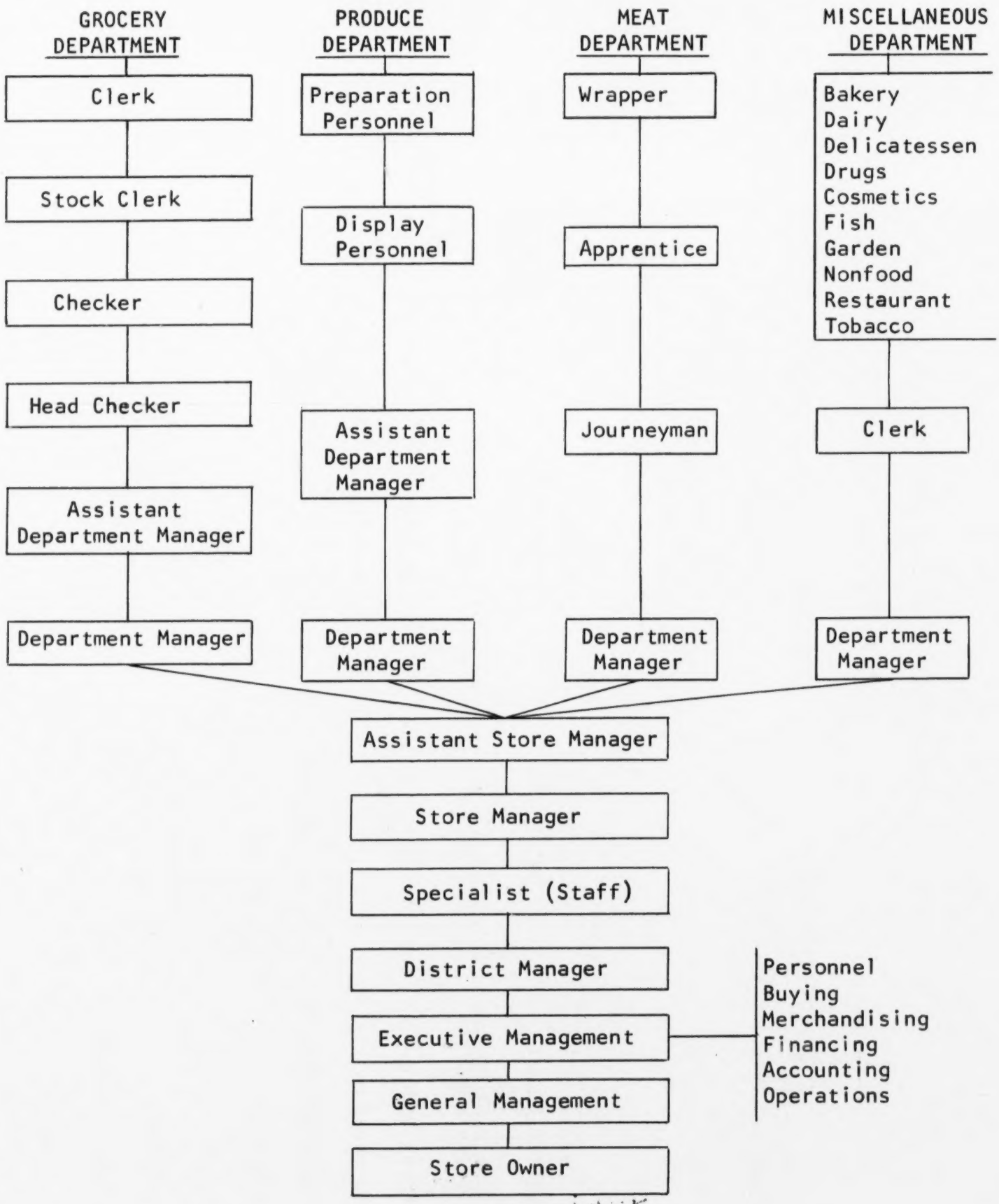
Appendix III-A

The Classification of Occupational Goals in Education for Distribution



Appendix III-B

SIC 54 - Food Stores
(A Group of Recognized Occupations)



Appendix III-C

Excerpt from
FEDERAL REGISTER--Wednesday, June 19, 1963

TITLE 45--PUBLIC WELFARE

Chapter 1--Office of Education, Dept. of Health, Education, and Welfare

Part 102--Vocational Education in Agriculture, Distributive Occupations, Home Economics, and Trades and Industries, including the Fishery Trades and Industry, and in Area Vocational Education Programs

Part-Time Cooperative Classes in Distributive Education

Subparagraph (3) of paragraph (d) of Sec. 102.60 of Part 102, 45 CFR (23 F.R. 1031, Feb. 18, 1958, as amended) issued pursuant to the Act of Feb. 23, 1917, as amended (39 Stat. 929) and Titles I and III of the Vocational Education Act of 1946, as amended (60 Stat. 775) U.S.C. 11 et seq., dealing with eligibility of persons for enrollment in part-time cooperative classes in distributive education is hereby amended to broaden the opportunity for enrollment in such courses by establishing two additional categories of eligibility for enrollment. As so amended, Sec. 102.60 (d) (3) reads as follows:

Sec. 102.60 Part-time classes

* * * * * * *

(d) Cooperative classes are to conform to one of the following plans:

* * * * * * *

(3) Plan C. A program covering one school year providing an average of at least one regular class period a day of vocational instruction in distribution taught by a qualified teacher coordinator. Instruction in these classes shall be conducted on a cooperative basis enrolling: (i) Those who have completed one year preparatory instruction in distributive subjects taught by a qualified teacher coordinator, (ii) those who have completed at least two years of instruction in a vocational program approved under the State plan, or (iii) those who have completed at least two years of occupationally oriented subjects which have a direct application to a distributive occupation, provided the State plan sets forth the qualifications of the teacher and the nature and sequence of the subjects. Distributive funds may be used only for the year in which the vocational instruction in distribution is on a cooperative basis.

(39 Stat. 929, as amended, 60 Stat. 775; 20 U.S.C.11-15, 151-15q, 16-28)

Dated: May 27, 1963.

(Seal)

FRANCIS KEPPEL,
U.S. Commissioner of Education.

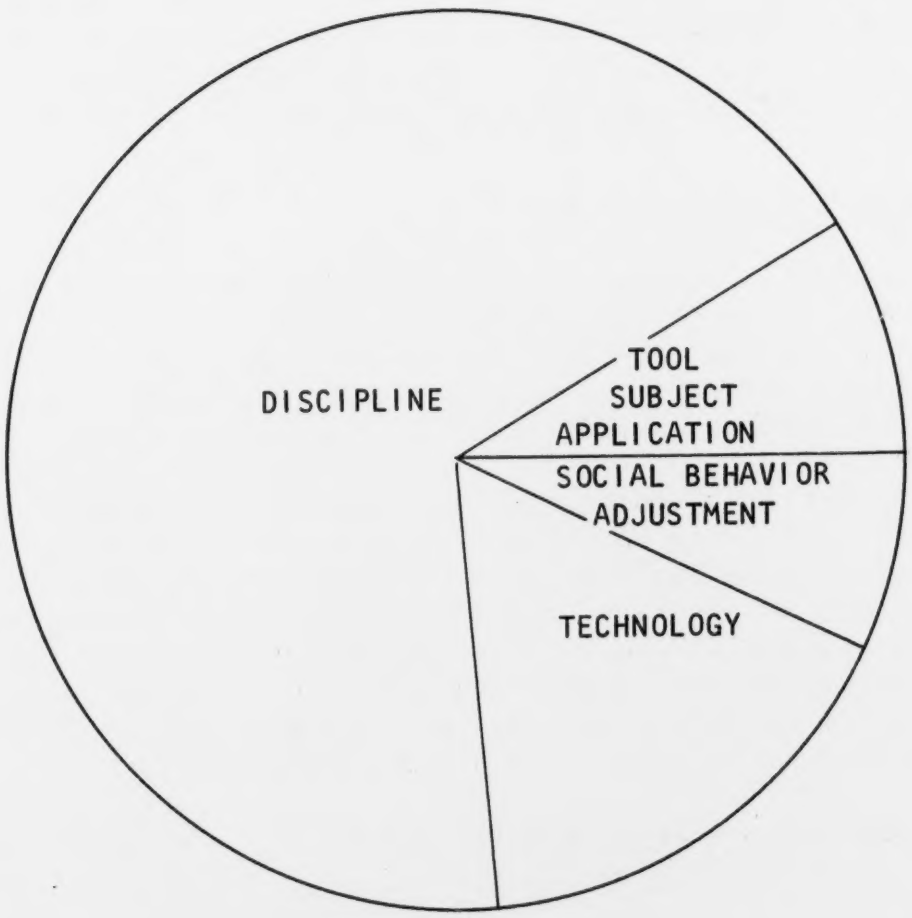
Approved: June 11, 1963.

ANTHONY J. CELEBREZZE,
Secretary of Health, Education,
and Welfare.

Appendix 111-D-1

INSTRUCTIONAL OBJECTIVES RELATED TO INDIVIDUAL NEEDS

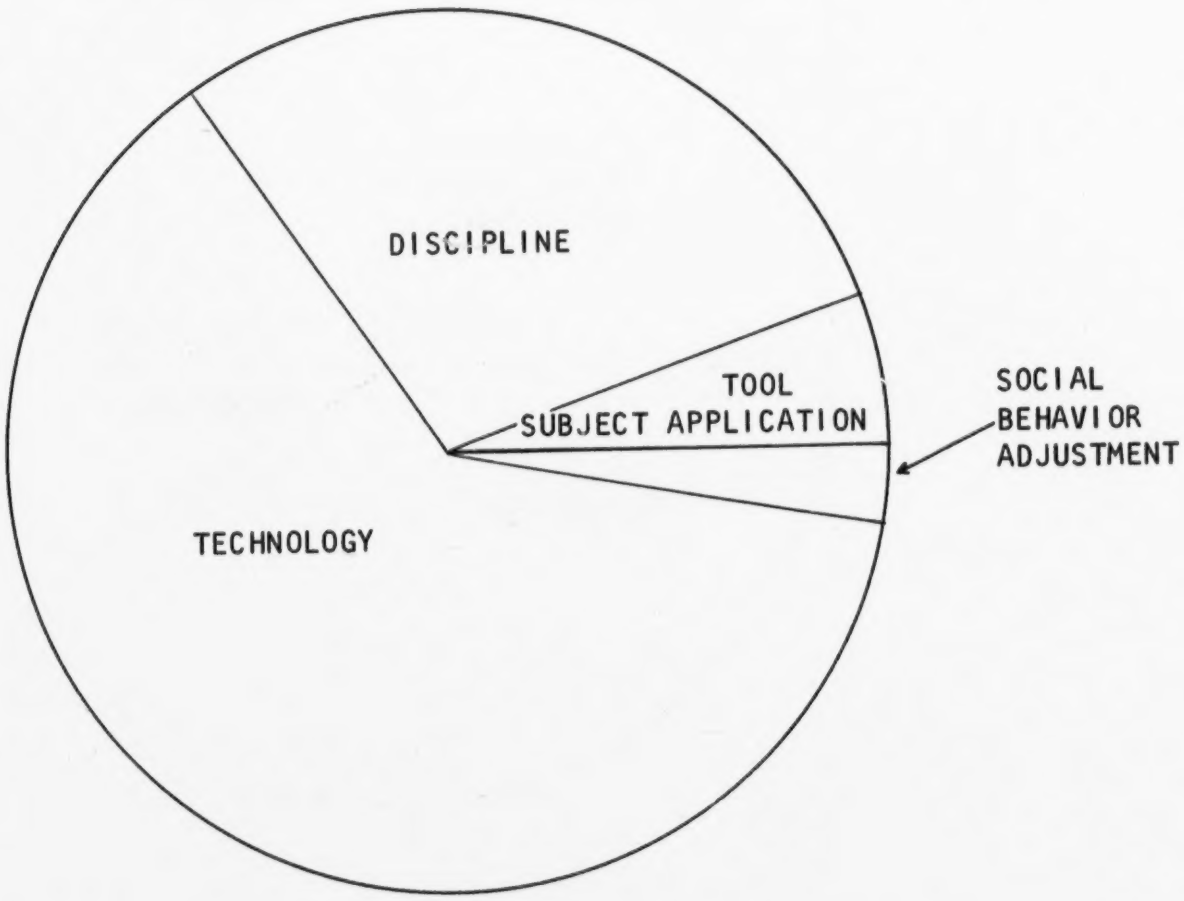
Emphasis on achievement of competency in the discipline



Appendix III-D-2

INSTRUCTIONAL OBJECTIVES RELATED TO INDIVIDUAL NEEDS

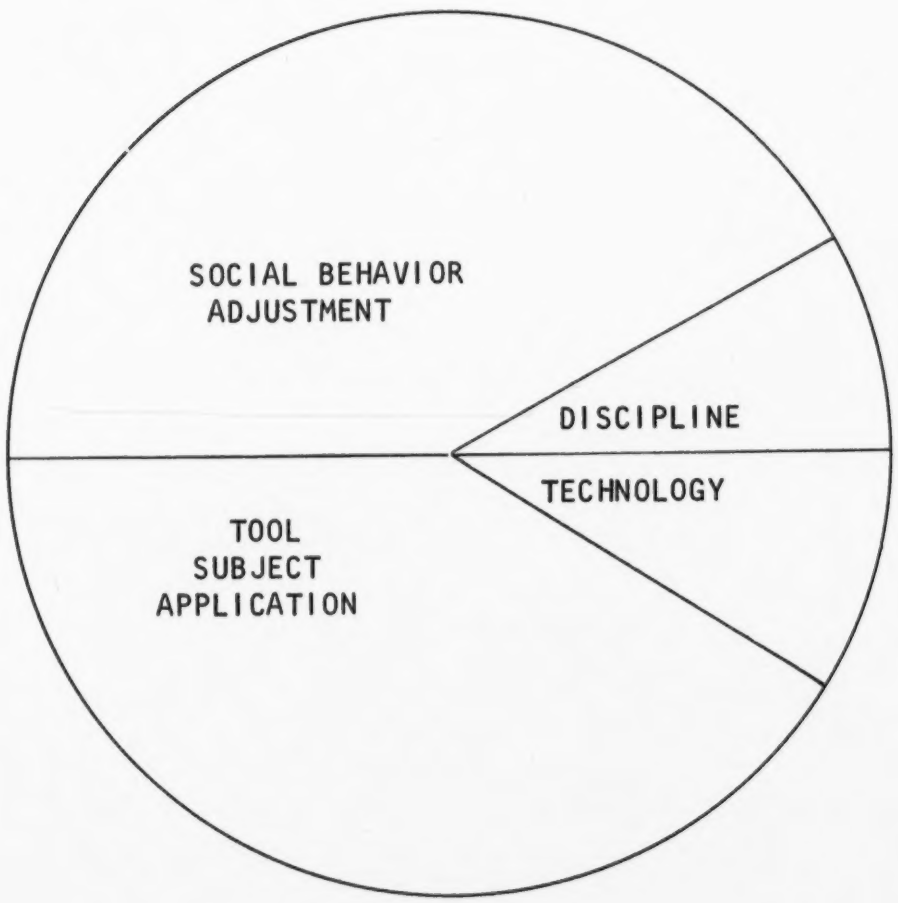
Emphasis on achievement of competency in a technology



Appendix III-D-3

INSTRUCTIONAL OBJECTIVES RELATED TO INDIVIDUAL NEEDS

Emphasis on achievement of competency
in social skills and tool subjects



Appendix 111-D-4

INSTRUCTIONAL OBJECTIVES RELATED TO INDIVIDUAL NEEDS

Emphasis on achievement of competency
in the discipline of distribution

Appendix IV

Roster of Participants

Oliver Anderson
Iowa

Marion Andrews
Colorado

Harry Applegate
Washington, D.C.

Louise Bernard
Virginia

Ted Best
Oklahoma

Lyle V. Brenna
Idaho

John C. Brickner
Michigan

Mrs. Kay B. Brown
Virginia

Mrs. Jewel E. Burgess
Mississippi

Edward Burke
Washington, D.C.

Samuel W. Caplan
Pennsylvania

Fairchild H. Carter
Indiana

John M. Chrismer
Colorado

Eugene Corenthal
New York

Mrs. Lucy Crawford
Virginia

Blanche Curran
Pennsylvania

Albert DeMond
Washington, D.C.

Earl J. Dodrill
Delaware

Mrs. Etta M. Dorn
South Carolina

Eugene L. Dorr
Arizona

James A. Dorsey
Connecticut

Mrs. Beth C. Durr
Washington

John E. Elias
Nebraska

James Fallace
Indiana

Maria L. Ferrer
Puerto Rico

Mrs. Dorothy Ford
California

C. N. Gingerich
Ohio

E. John Gradoni
New York

Henry Gram
Colorado

Oswald M. Hager
North Dakota

Peter G. Haines
Michigan

Findley Hartzler
Kansas

Raymond W. Heley
Nevada

Thomas G. Hollimon
Louisiana

John Hudson
Washington, D.C.

Mrs. Maude A. Hudson
Virginia

Irwin Iwler
Pennsylvania

John Jackson
Tennessee

Mildred Jackson
Georgia

Dwight P. Jacobus
Maryland

Don Jaeschke
Florida

Robert D. Joy
New Jersey

Jacob Kafin
Pennsylvania

Lester B. Kesterson
Missouri

Reno S. Knouse
New York

Robert F. Kozelka
Illinois

Ann Lind
Michigan

K. Otto Logan
Washington

William B. Logan
Ohio

Calvin Lowe
Utah

Ralph E. Mason
Illinois

John D. Mattingly
West Virginia

Margaret M. McEvoy
Illinois

Mary I. McKay
Massachusetts

Warren G. Meyer
Minnesota

Perry Mock
Arkansas

G. Dean Palmer
Montana

Allan L. Peterson
Utah

T. R. Petty
Tennessee

Kenneth M. Pfeiffer
Pennsylvania

Mrs. Lucille Polk
Washington, D.C.

Mrs. Jane Preston
Minnesota

Mrs. Patricia M. Rath
Illinois

Roy Roberts
Arkansas

Howard C. Rosenwinkel
Minnesota

Kenneth L. Rowe
Arizona

William B. Runge
New Mexico

Harland Samson
Wisconsin

Chester Sheaffer
Arizona

H. D. Shotwell
Kansas

Dorothy Simmonds
Louisiana

W. G. Slattery
North Carolina

John E. Snyder
Iowa

Charles W. Steadman
Pennsylvania

Vernon Swenson
Wisconsin

Robert Talbott
Kentucky

David A. Thompson
Texas

Rex C. Toothman
Florida

Adrian Trimpe
Michigan

R. C. Van Wagenen
California

Neal E. Vivian
Indiana

John R. Waldeck
Colorado

Roman F. Warmke
Minnesota

J. W. Weatherford
Georgia

Carl D. Whitehurst
North Carolina

Vernon C. Whiting
Wyoming

U. S. Office of Education Personnel*

Bureau of Educational Assistance Programs - Arthur L. Harris
Division of Vocational and Technical Education - Walter M. Arnold, Lane C. Ash
Distributive Education - John A. Beaumont, Donovan R. Armstrong, Mary V. Marks, Edwin L. Nelson, George Sanders
Manpower Development and Training - Albert DeMond

*Organization as of October, 1963

VT 012 033
Pollmann, James C.; Gadda, H.W.
A Study of High School Seniors from Two South Dakota Area Vocational-Technical School Areas Who Are Interested in Non-Farm Agricultural Occupations.

South Dakota Agricultural Experiment Station, Brookings.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Sep70 9p.

DESCRIPTORS - *VOCATIONAL AGRICULTURE; SENIORS; *OCCUPATIONAL CHOICE; *OCCUPATIONAL GUIDANCE; SURVEYS; AREA VOCATIONAL SCHOOLS; OCCUPATIONAL INFORMATION; POST SECONDARY EDUCATION; *OFF FARM AGRICULTURAL OCCUPATIONS; OCCUPATIONAL ASPIRATION; PROGRAM

ABSTRACT - High school seniors from two South Dakota vocational-technical school areas were surveyed to identify those interested in off-farm agricultural occupations. Of the 779 questionnaires sent out to 70 schools, only 245 were usable for compiling the results. The findings indicate that at least 158 seniors are interested in these occupations, with the majority of the boys indicating an interest in farm machinery sales and service and a majority of the girls interested in occupations in ornamental horticulture. Seventy-three percent of the boys, and 40 percent of the girls expressed a desire to enroll in a vocational-technical school. (GEB)

VT 012 033

ED057254

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A Study of High School Seniors from Two
South Dakota Area Vocational-Technical School Areas
Who Are Interested in Non-Farm Agricultural Occupations

By
James C. Pollmann, Instructor,
and
H. W. Gadda, Professor
Agricultural Education

Published by
Agricultural Experiment Station
South Dakota State University
Brookings, S.D.
September 1970

1366

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VT012033

A STUDY OF HIGH SCHOOL SENIORS FROM TWO SOUTH DAKOTA AREA VOCATIONAL-TECHNICAL SCHOOL AREAS WHO ARE INTERESTED IN NON-FARM AGRICULTURAL OCCUPATIONS

By
James C. Pollmann and Hilding W. Gadda
Agricultural Education
South Dakota State University

Occupational training in agriculture has been provided in South Dakota high schools for many years, but this training has basically been in the field of production agriculture. The vocational education amendments of 1968 have opened the way for providing occupational experience training in the areas of agricultural (1) production, (2) marketing or distribution, (3) processing, and (4) services. The last three of the foregoing areas were the concern of this study.

In an earlier study conducted by Dr. H. W. Gadda and James C. Pollmann, professor and instructor in agricultural education at South Dakota State University respectively, entitled "South Dakota Agricultural Off-Farm Occupational Opportunities and Training Needs," it was determined that more than 2,485 off-farm agricultural workers will be needed in South Dakota in the five-year period, 1968-1972.

Purpose

It was the intent of the latest study to: (1) Identify senior high school students who are interested in specific off-farm agricultural occupations; (2) alert individuals to the opportunities in off-farm agricultural occupations; and (3) secure answers to questions concerning off-farm agricultural occupations which are needed in adjusting present programs and developing new programs of vocational education.

Procedure

The guidance counselor in each high school in the two geographic areas served by the Watertown and Mitchell area Vocational-Technical Schools was sent a letter requesting cooperation in identifying those seniors interested in off-farm agricultural occupations. An order blank with a return envelope was enclosed so the questionnaires that would be needed by the respective schools could be ordered. In response to the requests, a total of 779 questionnaires were sent to 70 of the 114 schools located in the two areas. There were 248 questionnaires that were returned, of these 245 were useable. The questionnaires were returned from 35 of the 70 high schools that had requested them.

Findings

Of those responding, 148 boys and 44 girls indicated they lived on the farm while 32 boys and 21 girls lived in town.

The number and percent of individuals reporting that vocational education training was available in their high school is shown in Table 1. Business and Office programs were indicated as being available to more respondents than home-making or agriculture which were second and third in frequency, respectively.

Table 1. Number and Percent of Individuals Reporting Vocational Training Available in Their High Schools. (N=245)

Vocational Education Program	Number of Individuals*	Percent*
Agriculture	105	42.9
Homemaking	157	64.1
Distributive Education	29	11.8
Trades and Industry	30	12.2
Business and Office	180	72.8
Health Occupations	18	7.3

*Some students reported more than one vocational program available in their high school.

Business and Office programs had the highest enrollment, as shown in Table II. Agriculture was second and homemaking was third in enrollment. It should also be noted that 22 individuals responding to the questionnaire were not enrolled in any vocational training program. The Educational Directory of South Dakota Schools for 1969-70 does not list twelve of the responding schools as being approved for federal aid in any of the 6 vocational areas listed on the questionnaire as shown in Table V. This does not say that vocational training is not offered. Training is either on a limited scale or reimbursement is so small that federal aid is not applied for by the school.

Table II. Number and Proportion of Respondents Indicating They were Enrolled in High School Vocational Training Programs For at Least One Year. (N=245)

Vocational Training Program	Number Enrolled*	Percent*
Agriculture	88	35.9
Homemaking	46	18.8
Distributive Education	4	1.6
Trades and Industry	20	8.2
Business and Office	133	54.3
Health Occupations	10	4.1
None	22	9.0

*Some students indicated they were enrolled in more than one vocational program.

Availability of Occupational Information

Off-farm agricultural occupations are any economic pursuit in which a worker assumes responsibilities and renders service in which practical agricultural competencies are required.[1] It was evident that a sizeable group did not have access to occupational information, as shown in Table III. Sixty eight percent indicated the information was available, 25.7 percent indicated it was not available, and six percent did not reply.

---

[1]H.W. Gadda, and James Pollmann, South Dakota Agricultural Off-Farm Occupational Opportunities and Training Needs. South Dakota State University, Bulletin 553, April 1969, p. 7.

In comparing the above with the fact that 91.8 percent of the individuals reported that counseling services were available as compared with 8.2 percent (Table III) not having counseling services, it would indicate that the availability of occupational materials in agricultural occupations was lacking.

Table III. Number of Students Reporting That Agricultural Occupations Information and Counseling Services Were Available.

	Agricultural Occupations Information	Percent	Counseling Services	Percent
Available	167	68.2	225	91.8
Not Available	63	25.7	20	8.2
No Response	15	6.1		
Total	245	100.0	245	100.0

Educational Plans

Regarding students educational plans, 40 percent of the boys and 47.7 percent of the girls indicated they desired to attend a vocational school, trade school or a business school following high school graduation (Table IV). Attention should be focused on the uncertain area with 25.6 percent of the boys and 24.6 percent of the girls indicating their uncertainty. These students are potential students in the area vocational-technical schools. Since requirements for job placement are increasing it would appear that with proper guidance some of these individuals could be shown the possible opportunities resulting from post high school technical training programs.

Table IV. Students' Educational Plans

	Boys	Percent	Girls	Percent
Complete High School & terminate with high school graduation	18	10.0	3	4.6
Obtain a college degree B.S., M.S., or Ph.D.	28	15.6	8	12.3
Attend vocational school, trade school or business school	72	40.0	31	47.7
Drop out of school	1	.5	0	00.0
Uncertain	46	25.6	16	24.6
Other	15	8.3	7	10.8
Total	180	100.0	65	100.0

A comparison was made between the schools participating in vocational programs approved for federal aid and the Educational Directory for South Dakota. It was found that a total of twelve schools or 34.3 percent of the schools responding were not approved for federal aid in any of the six vocational programs offered. Nine schools were approved for only one vocational program and a similar number were approved for two vocational programs (Table V). It is apparent that vocational education is lacking in our schools and does not meet the needs of all the individual students. All interested students should have the right to be served by a vocational program to meet their needs.

Table V. Schools Participating in Vocational Programs Approved for Federal Aid.

Number of Schools Reporting	Number of Approved Vocational Programs Per School
12	0
9	1
9	2
1	3
3	4
1	5
0	6
Total 35	

Interest Area of Students

In selecting an interest area in non-farm agricultural occupations, the respondents were asked to mark their first and second choices in not more than three of the five occupational clusters.

The main occupational areas of interest preferred by the boys were occupations in farm machinery, farm equipment, livestock buying and ornamental horticulture. Little interest in any occupational cluster was shown by the girls except in ornamental horticulture. In this area the girls expressed the greatest interest in the florist category. Many of the girls neglected to fill out their interest areas, although they listed other plans such as art school, nursing school, secretarial school and licensed practical nursing as their occupational choices.

There were 34 boys showing a preference for areas other than those listed. The occupational title most often mentioned in the other category was auto mechanics, accountant, veterinarian, wildlife employee, forester, and park ranger. A sizeable number of returns had no response indicated. It is apparent from the large number of returns with no response, consisting of 17.2 percent of the boys and 58.5 percent of the girls, that there were individuals who did not fully understand the occupational clusters or they did not have an interest in non-farm agricultural occupations and should not have filled out the questionnaire.

Post high school technical training or some college work is required by 40.3 percent of the firms in South Dakota who expressed a desire to hire off-farm agricultural occupations workers.[2] The majority of the boys expressed a desire for two years of post high school training, whereas the girls preferred one year. A large number of both boys and girls did not respond to this question as indicated in Table VI.

[2] Ibid., p. 11

Table VI. Number of Students Desiring One or Two Years of Post High School Training.

Number of Years Desired	Boys	Percent	Girls	Percent
One Year	48	26.7	21	32.3
Two Years	80	44.4	6	9.2
No Response	52	28.9	38	58.5
TOTAL	180	100.0	65	100.0

Level of Employment Desired

The boys desired managerial, skilled and technical levels of employment whereas the girls desired skilled and technical levels (Table VII). The levels of employment desired by the majority of both boys and girls are available through training in South Dakota's area vocational-technical schools.

Table VII. Level of Employment Desired by Students

Position Desired	Boys	Percent	Girls	Percent
Managerial	34	18.9	2	3.1
Technical	25	13.9	4	6.2
Skilled	84	46.7	17	26.1
Clerical	6	3.3	17	26.1
Sales	8	4.4	2	3.1
Semi-Skilled	19	10.6	2	3.1
Unskilled	4	2.2	1	1.5
No Reply	0	0.0	20	30.8
TOTAL	180	100.0	65	100.0

The students were asked to indicate first, second and third choices in giving their reason for making this occupational choice. The rank order of importance in making an occupational choice in Table VIII shows that both boys and girls selected interest in this work as their first choice.

Although there was very little similarity in selecting the remaining reasons, the boys ranked "salary and or wages" and "personal satisfaction that I can receive" second and fourth respectively while the girls ranked them third and second. There was a large difference between the boys and girls in ranking their importance of "work experience in this occupation or similar agricultural background" with boys placing this third in importance and the girls fourteenth. Very little importance was given to "fringe benefits" and "influence of parents or relatives" by both the boys and girls. "Influence of teachers" was placed fifteenth by the boys, and girls ranked it tenth.

As Table IX reveals, 73.3 percent of the boys indicated their desire to enroll in a vocational-technical school. Only 40 percent of the girls expressed a similar desire.

Table VIII. Rank Order of Importance of Reasons Reported in Making Occupational Choices.

	BOYS		GIRLS	
	Rank Order	Number Reporting	Rank Order	Number Reporting
Interest in this work	1	144	1	46
Salary and or wages	2	73	3	19
Work experience in this occupation or similar agricultural background	3	48	14	1
Personal satisfaction I can receive	4	41	2	21
Desirable working conditions	5	40	4	9
Availability of Employment	6	38	10	3
Length of time for training	7	20	7	6
Special talent or ability	8	18	5	7
Contribution to society	9	12	5	7
Inheritance of an Agricultural business	9	12	16	0
As a "Stepping Stone" to further training & future advancement	11	11	14	1
Social standing of the occupation	11	11	9	4
Financial backing is available for this occupation	13	10	8	5
Geographical location	14	9	12	2
Cost requirement to prepare for the occupation	15	8	12	2
Fringe Benefits	16	7	16	0
Influence of teacher	17	4	10	3
Insistence of parents or relatives	17	4	16	0

Table IX. Students Indicating Their Desire to Enroll in a Vocational-Technical School

	Boys	Percent	Girls	Percent
Yes	132	73.3	26	40.0
No	43	23.9	29	44.6
No Reply	5	2.8	10	15.4
TOTAL	180	100.0	65	100.0

Table X shows that 39.4 percent of the boys and 38.4 percent of the girls expressed their desire to enroll in a vocational school in the Fall of 1970. There were a number of boys expressing a desire to enroll after military service. It is evident that a large number of high school students are not certain of their future, since 61.6 percent of the girls and 37.1 percent of the boys were undecided as to when they would enroll, even though they had indicated they would enroll in a vocational-technical school (Table IX).

Table X. Students Indicating When They Plan on Enrolling.

Time of Enrollment	Boys	Percent	Girls	Percent
Next year (Fall 1970)	52	39.4	10	38.4
After Military Service	28	21.2	0	
Undecided	49	37.1	16	61.6
Other	3	2.2	0	
TOTAL	132	100.0	26	100.0

It is very evident that there are boys and girls interested in off-farm agricultural occupations in South Dakota. It has been established by prior research that the need for workers trained in agricultural competencies far exceeds the supply. If we are to attempt to fill this need with qualified individuals, training opportunities will need to be provided. Information and guidance will be needed to direct the interests of these individuals. There is recognition that preparation for the world of work must be in at an early age and that the school has the responsibility of bridging the gap between school and employment.[3]

With the majority of our high schools being mainly college oriented and only 20 percent of our graduating high school students actually graduating from college nationally, we need to be concerned with the 80% who are potential job seekers upon graduation from high school. These individuals need a marketable skill when they go into the world of work.

Summary

The State of South Dakota has four operating area vocational-technical schools. Only one of these schools offers a program in off-farm agricultural occupations training. It was found in this study that at least 158 high school seniors are interested in these occupations. In extending these figures to a statewide basis 1069 high school seniors would be interested in off-farm agricultural occupations training.

The main occupational areas of interest for the boys are occupations in farm machinery sales and service while the girls expressed the greatest desire for occupations in ornamental horticulture.

Managerial, technical, and skilled levels of employment were desired by 79.5 percent of the boys while 52.2 percent of the girls desired skilled or clerical levels.

[3]Shilt, Bernard A., "The Changing Image of Vocational-Technical Education," AVA Journal, Vol. 45, No. 2, Feb. 1970, p. 14.

There were 73.3 percent of the boys answering the questionnaire who indicated they would enroll in a vocational-technical school whereas 40 percent of the girls expressed a similar desire.

Agricultural occupations information was lacking in that 25.7 percent of those responding indicated it was not available in their high schools.

A total of twelve schools in the study were not approved for federal aid in any vocational program. Nine schools were approved for federal aid in one vocational program and a similar number of schools were approved for federal aid in two vocational programs. There were no schools represented by any respondents that were approved for federal aid in all of the six vocational programs. It would appear that vocational training at the high school level is lacking in our high schools.

A majority of the boys expressed a desire for two years of post high school training whereas the girls perferred one year.

Recommendations

Agricultural occupations information needs to be made available to students in all high schools in the state. In a state where the largest proportion of the income is derived from agriculture, and where there is a demand for trained personnel, it would seem apparent that all individuals in agricultural businesses, vocational agriculture teachers, guidance counselors and others interested in students' vocational development should assist in disseminating this kind of information.

With the possibility of 1069 students expressing a desire to enroll in off-farm instruction in area vocational-technical schools it is apparent that other courses in off-farm agricultural occupations will need to be added to the existing program in the state. The other area vocational-technical schools should consider adding new programs in the off-farm agricultural occupations area to meet the needs of those students desiring post high school training.

VT 012 035
Bailey, Ann
Apprenticeship Survey. Final Report.

Utah Research Coordinating Unit for Vocational and Technical Education, Salt Lake City.
Office of Education (DHEW), Washington, D.C. Bureau of Research
MF AVAILABLE IN VT-ERIC SET.
OEG-4-7-063046-1612 08
BR-6-3046
PUB DATE - Apr70 21p.

DESCRIPTORS - *APPRENTICESHIPS; *STATE SURVEYS; QUESTIONNAIRES; OCCUPATIONAL SURVEYS; *EMPLOYER ATTITUDES
IDENTIFIERS - *UTAH

ABSTRACT - Private non-union contractors were surveyed to determine their interest in a state program designed to provide training and promotion for their employees. A second objective was to determine what an approved apprenticeship program would be, particularly who would approve it and who would establish program requirements. Findings, based on 28 (41 percent) response to a short five-item questionnaire, were: (1) A majority of the non-union contractors do not utilize an apprenticeship type training program, (2) Some felt such a training program was necessary, (3) A majority indicated a willingness to participate in an apprenticeship type training program, (4) There is no general set of requirements for apprenticeship and promotion, (5) Each occupational skill has a set of apprenticeship standards, with negotiable and non-negotiable sections, and (6) Standards for apprenticeship vary little from occupation to occupation; the set-up is generally uniform for all skills. (GR)

VT 012 035

ED0 57254

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FINAL REPORT

Project No. 603046
Grant No. OEG-4-7-063046-1612

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APPRENTICESHIP SURVEY

April 1970

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VT012035

Project No. 6-3046
Grant No. OEG-4-7-063046-1612

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APPRENTICESHIP SURVEY

Principal Investigator: Ann Bailey
Project Director: John F. Stephens
Research Coordinating Unit
For Vocational and Technical Education
Utah StateBoard of Education
1670 University Club Building
Salt Lake City, Utah 84111

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

INTRODUCTION

Problem

The Federal Government has set up new requirements which are apparently intended to insure the employment, training and promotion of unskilled workers who are hired to work on federal aid construction projects. Apparently, non-union contractors have not had the resources to provide this necessary training; therefore, a state sponsored training program has been suggested in order to provide employment, training and promotion for unskilled workers, so contractors can meet the requirements of Federal contract provisions.

Background of Study

On August 20, 1969 representatives from the Utah State Board for Vocational Education met with Mr. Andy Unamuno, the Equal Employment Opportunity Coordinator for the Utah State Highway Department, to discuss the possibilities of state provided training for those construction workers whose employers do not unite with the Associated General Contractors or any other organization which provides this training.

Mr. Unamuno pointed out that, under the new Federal requirements regarding contracting agencies doing work for the State Road Commission wherein federal funds are used, contractors must meet certain specifications for the training and promotion of their unskilled employees. This specific training is now being provided for the employees of contractors who are union members. Pay ($.02 to $.03 per hour) withheld from the employee's paycheck is matched by the employer, thereby covering the cost of apprenticeship training. The independent contractors who do not hire union workers do not have this sort of arrangement to provide training. Therefore, Mr. Unamuno urged that a study be conducted by the Utah State Board for Vocational Education for the purpose of ascertaining the interest of the non-union contractors in such a program. Also the study attempted to determine just what an approved non-union apprenticeship or on-the-job improvement program would entail.

Objectives

1. Conduct a survey among private non-union contractors in order to determine their interest in a State program providing training and promotion for their employees.

2. Determine what an approved apprenticeship program would be, ascertaining:

   (a) who approves such a program, and
   (b) who establishes program requirements.

Methods and Procedures

1. A list of non-union contractors who had been awarded jobs in 1968 in the State of Utah was obtained from Mr. Bob Frome of the Associated General Contractors. From this list the investigator acquired 172 names of those non-union contractors who had been awarded projects entailing amounts over $200,000. Of the 172 non-signators, 69 (40 percent) were chosen to participate in the survey.

A short questionnaire was prepared (see Appendix A) with five questions pertinent to determing whether or not the contractors felt a need for such a training program, and if so, what sort of training would be desired.

The questionnaire was mailed February 11, 1970, along with a letter (see Appendix B) of explanation and instruction. Due to a response smaller than anticipated, a follow-up letter (see Appendix C) was sent on February 26, 1970 along with a duplicate questionnaire.

2. In order to fulfill the second objective of determining the components of an approved non-union apprenticeship program, interviews were held with both Conrad B. Morgan, State Supervisor, Bureau of Apprenticeship and Training, U.S. Department of Labor, and Grant Tuckett, Director of Apprenticeship, Utah Apprenticeship Council.

FINDINGS

Results of Survey

Although 37 of the 69 questionnaires mailed were returned (54 percent), nine of those were completed by union contractors and are, therefore, not applicable to the survey. Thus the findings of this study are based on a return of 28 non-union responses or 41 percent of the initial list.

However, it seems evident that a portion of those questionnaires which were not returned could have been sent to union contractors just as some of the returned ones were. In making the adjustment it was found that the nine union responses were 13 percent of the initial 69 questionnaires. In readjusting the field with this 13 percent, the percentage of applicable returned questionnaires is brought up to 54 percent.

The following tabulations detail the returns of the questionnaire:

	Responses			
	YES	PERCENTAGE	NO	PERCENTAGE
1. Are you utilizing apprenticeship-type training programs for non-union entry-level skilled workers at this time?	6	22%	22	78%
2. Do you feel these types of programs are necessary to meet the federal requirements and qualify your company for bidding on federal highway and heavy construction jobs?	8	28%	16	56%
3. Have any of your contracts or bids been placed in jeopardy because of non-compliance with apprenticeship training standards?	2	7%	26	93%
4. Are you willing to participate in apprenticeship-type training programs and bear a portion of the expense? (At present, Union contractors contribute about two cents per man hour for training purposes. This is considered a fringe benefit.)	18	64%	10	36%
5. If you do see a need for this type of training, what kind of training would it be?	Carpenters Concrete Workers Masons Superintendents Heavy Equipment Operators Truck Drivers Drill Operators and Grade Workers			

Discussion of Results

In analyzing the results of the survey the following points were observed:

1. The response to Question 1 indicates that a majority of those questioned do not utilize an apprenticeship type training program.

2. There were those who definitely felt such a training program to be necessary, as indicated in Question 2. Perhaps those replying negatively or undecidedly do not bid on federal projects. It could also be true that these firms have not been apprised of the new federal requirements.

3. A majority of those questioned responded positively to Question 4, indicating a willingness to participate in an apprenticeship type training program. Of those responding "no," two contractors felt their firms to be

too small to warrant such a program. Also, two firms had their own training techniques. Four of those responding qualified their positive responses with a statement that they would not participate unless all of their non-union competitors were involved also.

In an attempt to determine the components of an approved apprenticeship program, it was found that there is no general set of requirements for apprenticeship and promotion. Each occupational skill has a set of apprenticeship standards, with negotiable and non-negotiable sections. The individual contractor fills in the requirements he feels necessary for the particular skill and submits this to the Utah Apprenticeship Council which in turn reviews the requested requirements and gives its approval or non-approval. The standards for apprenticeship vary little from occupation to occupation; the set-up is generally uniform for all skills. Grant Tuckett rendered to this office a sample copy of the standards for Apprenticeship for Plumber Apprentice which he feels to be an adequate guide for that body which is to determine the standards for a State apprenticeship-type training program. This sample is found in Appendix D of this study.

CONCLUSIONS AND RECOMMENDATIONS

It is recommended that steps be taken to initiate an apprentice-type training program for participation by employees of non-union contracting firms.

In initiating such a program, the following questions should be adequately answered:

1. How is the cooperation of all non-union contractors to be achieved?

2. Since these contracting firms are located throughout the State, how will employees be assembled for instruction?

3. What time/times of day or week will employees be available for instruction?

4. Although some respondents listed specific occupational areas of study needed, are there other skills which would warrent training?

5. How will such a program be financed?

A P P E N D I C E S

1382

APPENDIX A

PLEASE FILL OUT AS INDICATED IN EACH QUESTION

1. Are you utilizing apprenticeship-type training programs for non-union entry-level skilled workers at this time? Yes /___/ No /___/

2. Do you feel these types of programs are necessary to meet the federal requirements and qualify your company for bidding on federal highway and heavy construction jobs? Yes /___/ No /___/

3. Have any of your contracts or bids been placed in jeopardy because of non-compliance with apprenticeship training standards? Yes /___/ No /___/

4. Are you willing to participate in apprenticeship-type training programs and bear a portion of the expense (at present Union contractors contribute about 2¢/man-hour for training purposes--this is considered a fring benefit)? Yes /___/ No /___/

5. If you do see a need for this type of training, what kind of training would it be? (Please list specific areas.)

_____

_____

_____

_____

_____

6. Would you please submit below information pertinent to future contact:

Name_____ Position in Firm_____

Address_____

_____

Telephone No. _____

APPENDIX B

UTAH STATE BOARD OF EDUCATION

1400 UNIVERSITY CLUB BUILDING • 136 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

Office of the
STATE SUPERINTENDENT
OF PUBLIC INSTRUCTION

T. H. BELL
Superintendent

February 11, 1970

Dear Sir:

Great emphasis is being placed by the federal government on the matter of equal employment opportunity for employees of contractors of all types and at all levels. One of the very important items is that of training which is to provide a means to develop needed skills especially for those of minority groups in order that they may be employed in construction.

Contractors under labor agreements generally have means through union apprenticeship programs to conduct appropriate training courses. It is believed that there should be some means also provided for the employees of those contractors not signed to labor agreements to participate in an organized training program.

The Utah State Board of Education has been requested to determine the need for such training for the employees of the non-union contractors. As a participating employer you would be asked to help in financing the program.

We are therefore requesting you to provide us information in order to assist in establishing the need for such a program. Please fill out the enclosed questionnaire and return it to us by Friday, 20 February 1970.

Thank you for your cooperation.

Sincerely,

Ann E. Bailey

Ann E. Bailey (Miss)
Research Assistant
Utah Research Coordinating Unit for
Vocational and Technical Education

ag

LERUE WINGET, Deputy Superintendent, Office of Instruction Services • JAY J. CAMPBELL, Deputy Superintendent, Office of Institutional and Personnel Services
BERNARR S. FURSE, Administrator, Administrative Services

APPENDIX C

UTAH STATE BOARD OF EDUCATION

1400 UNIVERSITY CLUB BUILDING • 136 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

T. H. BELL
Superintendent

DIVISION OF
RESEARCH AND INNOVATION

ROWAN C. STUTZ
Administrator

February 26, 1970

Dear Sir:

Recently you received a letter from our office requesting your help in filling out a questionnaire designed to be an aid in a study being conducted to ascertain the need for apprenticeship-type training courses.

In order that we might have a legitimate response from which to work, your participation will be greatly appreciated.

Enclosed please find another questionnaire, identical to the one enclosed in our original letter. If you have not as yet done so, please complete it and use the enclosed envelope to return it to our office at your earliest convenience.

Thank you for your cooperation.

Sincerely,

Ann E. Bailey

ANN E. BAILEY (Miss)
Research Assistant
Utah Research Coordinating Unit for
Vocational and Technical Education

AEB:ag
Enc.

LERUE WINGET, Deputy Superintendent, Office of Instruction Services • JAY J. CAMPBELL, Deputy Superintendent, Office of Institutional and Personnel Services
BERNARR S. FURSE, Administrator, Administrative Services

FOREWORD

Without an adequate supply of competently trained craftsmen, industry would be unable to exist. The best source of such craftsmen is through apprenticeship where training is conducted in connection with actual work experience on the job, coupled with classroom instruction in related technical subjects.

To insure that such training is conducted within the according to proper standards of quality and to make such training opportunities available to young people of the State to properly equip them for a career, these standards have been developed.

APPENDIX D

SAMPLE

STANDARDS OF APPRENTICESHIP
FOR
PLUMBER APPRENTICE

APPRENTICE SELECTION PROCEDURES

Apprentices will be carefully selected from applicants whose background, education, personal character and physical condition indicate that they are likely candidates. Initial hire or entry into this apprenticeship program shall be as stipulated in Section V - Nondiscrimination Provision of the Apprenticeship Standards.

All apprentice openings will be posted on the company bulletin board. Employees desiring consideration will make written application to the company.

The Utah Apprenticeship Council will be notified in writing of all apprenticeship openings.

Any employee of the company who applies for apprenticeship must meet the following minimum basic qualifications to be considered for apprenticeship:

1. Age - Must be between the ages of 20 and 30 years of age.

2. Education - Must have completed at least 10 years of school.

3. Citizenship - Must be a United States Citizen or in the process of naturalization.

4. Physical Ability - Physically fit for the work of the trade as determined by a visual examination by the interviewer for obvious physical defects that would effect satisfactory work performance, their personal safety, or the safety of their fellow workers.

5. Applicants may be required to take a General Ability and Mechanical Aptitude Test.

6. Applicant will be interviewed by a representative of the company for personal impression of interest, sincerity, and questioned on other qualifications for test scores.

7. Before entering into an apprenticeship agreement, apprentice applicants will be given the opportunity to read the Standards of Apprenticeship.

Qualified applicants will be rated numerically on the basis of the following factors. The minimum number of points required by an applicant for apprenticeship eligibility shall be seventy (70).

SAMPLE

Section I - Definitions

1. Employer is the
having entered into a written agreement with the apprentice by signature of a responsible company official.

2. Apprentice shall mean a person at least eighteen years of age and preferably not more than twenty-five years who has entered into a written agreement with his employer for his participation in a schedule of on-the-job training through reasonably continuous employment.

3. Registration agency shall be the Utah Apprenticeship Council recognized by the Federal Committee on Apprenticeship.

4. Agreement shall mean a written agreement entered into by the employer and the apprentice and his parents or guardian if he is a minor. The agreement shall be signed by the apprentice and responsible company official and shall meet the requirements of the Utah Apprenticeship Council and shall be registered with the same. These standards shall be a part of the agreement as though expressly written therein.

NEGOTIABLE

Section II - Qualification of Apprentice

1. Citizen of the United States or in process of such.

2. High school graduate or equivalent.

3. Physically able to perform the trade.

4. Good moral character, pleasing appearance and agreeable personality.

5. Exceptions to the maximum age limit, Section I, 2, may be made in the case of applicants who have had previous experience in the trade, unusual educational training or have other special qualifications.

6. Following selection by the employer, the apprentice shall appear before the designated joint committee for initial instruction and appraisal of background and experience.

7. In order to provide equal opportunity for all qualified applicants for apprenticeship, selection of apprentices shall be made without regard to race, color of skin, creed or national origin.

NEGOTIABLE

Section III - Term of Apprenticeship

1. The term of apprenticeship in the trade of plumber shall be five (5) years, during which time the apprentice shall participate in an approved schedule of work experince for approximately 10,000 hours and shall be required to attend related classroom instruc-

tion for at least 720 hours, or a minimum of 144 hours during each year of the term of apprenticeship.

2. The term shall be divided into ten 1,000 hour periods, and any time lost during a period must be made up before an apprentice may be advanced to the next period.

3. The employer, with approval of the designated joint committee, has the authority to increase the term of apprenticeship by 1,000 hours or six months where an apprentice fails to show proficiency required to be recommended for a certificate of completion. Similarly, the apprenticeship term may be decreased by 1,000 hours or six months where outstanding proficiency is shown.

Section IV - Changes in Apprentice Status

The registration agency will receive one copy of the agreement and will promptly be advised of any cancellations of agreements, or/and suspensions or completions of the apprentice.

Section V - Probationary Period

1. The apprentice shall be subject to a tryout or probationary period not exceeding the first 1,000 hours or six months. During this period the apprenticeship agreement may be terminated by either the apprentice or employer upon request.

2. After the probationary period, the agreement shall not be terminated except for cause, such as lack of proper application by the apprentice or insufficiency of work. The registration agency is to be advised in writing of such terminations, giving full particulars and reasons thereof.

Section VI - Ratio of Apprentices to Journeymen

One apprentice shall be allowed for each journeyman in continuous employment up to two, thereafter additional apprentices shall be added on the basis of one for each three additional journeymen.

Section VII - Credit for Previous Experience

1. Apprentices who have had previous, applicable experience in the trade may be given credit for such experience toward the completion of their apprenticeship.

2. Such credit will only be given upon the submission of positive proof of such experience and only after careful scrutiny as to its applicability to the present program.

3. When credit is given, the apprentice shall be advanced to the period and paid the wage for which such credit advances him.

Section VII - Apprentice Wages

1. Periods of advancement will be spaced 1,000 hours or six months apart. At each period the apprentice will appear before the designated joint apprenticeship committee for a determination of his worthiness to be advanced. If satisfactory, he will be approved for advancement and the employer will then pay his wages according to the next step of the scale. Lack of interest and progress by the apprentice can be cause for cancellation of his apprenticeship. The instructor in related and supplemental study will assist the committee in these appraisals. The employer is expected to attend and provide the committee with a report on the apprentice's progress in his work.

2. Apprentices shall be paid not less than the following rates of wages based on a percentage of the established journeyman rate of the employer:

First six months 45% of the journeyman wage rate
Second six months 50% of the journeyman wage rate
Third six months 55% of the journeyman wage rate
Fourth six months 60% of the journeyman wage rate
Fifth six months 65% of the journeyman wage rate
Sixth six months 70% of the journeyman wage rate
Seventh six months 75% of the journeyman wage rate
Eighth six months 80% of the journeyman wage rate
Ninth six months 85% of the journeyman wage rate
Tenth six months 90% of the journeyman wage rate
JOURNEYMAN WAGE RATE $_____

Section IX - Hours of Employment

The work day and work week for apprentices shall be the same as for journeymen and shall be subject to the same conditions. At no time shall an apprentice be permitted to work without being accompanied by a journeyman. Overtime work or out-of-town work of the apprentice will not be allowed to interfere with his attendance at related technical instruction classes.

Section X - Work Experience

The apprentice shall receive instruction and experience in all branches of the plumbing trade as is necessary to develop a practical, all-around skilled artisan versed in the theory and practice of the trade, in accordance with the following schedule. He will also be given on-the-job experience on all new and substitute material that may be installed on the job during his term of appretniceship.

1.	Use of hand tools and equipment	350
2.	Operation and care of pipe machinery	350
3.	Installation of piping for waste, soil, sewage, vent, and leader lines	2,200
4.	Installation of hot and cold water for domestic purposes	1,800
5.	Installation of lead pipe, tin pipe, wiped joints, sheet lead and solder work	300*
6.	Installation and setting of plumbing appliances and fixtures	1,500
7.	Welding as it applies to the trade	400*
8.	Maintenance and repair of plumbing	700
9.	Gas piping and installation of gas appliances	600
10.	Operation and maintenance of complete repair service kits and trucks	1,000
11.	Services and maintenance of gas controls and equipment	800
		10,000

*If work experience is insufficient, apprentice will take compensatory class instruction.

Section XI - Related and Supplemental Instruction

1. All apprentices shall be required to take related and supplemental instruction for a minimum of four hours per week, 144 hours per year, for each year of apprenticeship. Attendance is mandatory and failure to do so will result in cancellation of the agreement. It is even urged that hourly attendance exceed this figure when classes are available. Any lessons missed shall be made up before the apprentice may be advanced to his next period.

2. Time spent in related supplemental instruction shall be in addition to the term of apprenticeship and shall not be considered as hours of work.

3. The employer shall see that the apprentice's attendance at related instruction classes is good. He shall take appropriate discipline for poor performance.

Section XII - Records

1. The apprentice will be required to keep a record of his work experience and his school attendance. This record will be brought with him when he appears before the designated joint apprenticeship committee for consideration of advancement to his next period of progression.

2. The employer shall check to see that the apprentice is keeping his record of apprenticeship on a current basis. He will also certify on the record as to the accuracy of the record and whether or not the apprentice's progress is satisfactory.

Section XIII - Certificate of Completion

1. Upon verification by the employer and the designated joint apprenticeship committee that the apprentice has satisfactorily completed his apprenticeship, the registration agency will furnish a certificate of completion.

2. Any apprentice, taking the journeyman's examination or applying for a state journeyman license before the approval of the employer and the designated joint committee be given, shall be suspended from the program until such time as he may be approved for readmission.

Section XIV - Adjusting Differences

Any differences arising out of the apprenticeship agreement that cannot be adjusted locally or in accordance with established trade procedure may be referred to the Utah Apprenticeship Council.

Section XV - Modification of Standards

These standards may be amended at any time by the employer, subject to the approval of the registration agency. Such amendments shall not alter apprenticeship agreements in effect at the time of such change without the express consent of all parties to such agreement.

Section XVI - Accident Prevention

The apprentices shall be given coordinated instruction on the job and in the classroom regarding safe working habits. The employer and the apprentice shall both be responsible to see that all work is conducted in such a manner as to insure the safety of the apprentice and that of his fellow workers.

Section XVII - Responsibilities

1. The apprentice shall diligently and faithfully perform the work of the trade and duties assigned by the employer in accordance with the provisions of these standards. He will discuss problems relating to his work openly and frankly with his employer. He will regularly attend and satisfactorily complete the required hours of classroom instruction in subjects related to the trade. He will maintain records of his work experience and schooling. He will develop safe working habits and conduct himself in a creditable, ethical and moral manner, realizing that much time, money and effort will be spent in affording him the opportunity to become a journeyman. He will maintain his personal appearance in a manner that will

be a credit to the industry as well as to himself. He will meet his responsibility for tuition and registration fees at the school he attends for his related instruction and pay such deposits as may be required for the loan of books and to insure their return in good condition.

2. The employer shall see that every apprentice is placed under a written agreement as outlined in these standards. He will supervise the training for apprentices on the job and make certain that they are receiving a variety of work experience. He will see that the apprentices attend related instruction classes. He will notify appropriate parties and agencies when the apprentice is deficient in his work, interest, attitude or attendance at related instruction. He will be responsible for the administration of such discipline and counsel as the apprentice may need. In general, he will be responsible for fully carrying out the intent and purposes of these standards.

APPROVED BY:

_____
OWNER

Registered With
Utah Apprenticeship Council

_____
Director, Grant H. Tuckett

Date_____

Number_____

	Maximum
a. Aptitude test results (If actual scores are used, rank in relation to minimum qualifying score)	25
b. Educational background (10 years of school. Subjects studied pertinent to the trade or grades attained)	15
c. Reference and conduct record	15
d. Interview (Personal impression of interest, sincerity, and adaptability to the trade)	25
e. Previous working experience	15
f. Veterans points	5

When an opening for apprentice becomes available, the applicant with the highest total score will be given first preference, then the second highest, and so forth. When two applicants have the same score, the applicant with the oldest application on file will be considered first.

All applications for apprenticeship, including record of selection process, interview ratings, and other pertinent application information will be maintained for a period of two years.

VT 012 087
Guidelines for Personnel and Program Approval.

Decatur Public School District 61, Ill. Dept. of Vocational Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 16p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *STANDARDS; *COMPREHENSIVE PROGRAMS; *PROGRAM ADMINISTRATION; ELEMENTARY GRADES; INTERMEDIATE GRADES; SECONDARY GRADES; AREA VOCATIONAL SCHOOLS; ADMINISTRATOR QUALIFICATIONS; SUPERVISOR QUALIFICATIONS; TEACHER QUALIFICATIONS; HEALTH SERVICES

ABSTRACT - Developed for the Decatur, Illinois, school system, this publication contains recommendations, guidelines, and regulations for creating an approvable comprehensive vocational program for grades K-12 and the area vocational center. Qualifications for approval are provided for: (1) local director, (2) assistant local director, (3) local supervisors, (4) local guidance coordinator, (5) teacher of industrial oriented vocational subjects, (6) teacher-coordinator of industrial oriented subjects, business and office occupations, and distributive education, (7) health services supervision, (8) health services approval of teachers, (9) duties, responsibilities, and training requirements for vocational teachers, and (10) approvable programs, services, and activities for vocational education. (SB)

VT 012 087

ED0 57254

DECATUR PUBLIC SCHOOL DISTRICT #61
DEPARTMENT OF VOCATIONAL EDUCATION
GUIDELINES
FOR
PERSONNEL & PROGRAM
APPROVAL

1398

VT012087

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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DECATUR PUBLIC SCHOOL DISTRICT #61
DEPARTMENT OF VOCATIONAL EDUCATION

FOREWORD:

The Vocational Amendments of 1968 and the State Department of Vocational Education and Rehabilitation reorganization shifted much of the responsibility for approvable Vocational Programs from the State Department of Vocational Education and Rehabilitation to the local school districts.

The following recommendations, guidelines, regulations etc. are for use in creating an approvable comprehensive Vocational Program for Decatur Public Schools K - 12, and the Decatur Area Vocational Center.

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DECATUR PUBLIC SCHOOL DISTRICT #61
DEPARTMENT OF VOCATIONAL EDUCATION

QUALIFICATIONS AND APPROVAL
OF
VOCATIONAL PERSONNEL

I. LOCAL DIRECTOR OF VOCATIONAL AND INDUSTRIAL EDUCATION

1. Administrative Competency

Competencies shall include administrative leadership, budgeting, curriculum development and evaluation.

2. Professional Experience

Two (2) years experience in a vocational and/or technical education program as a teacher, supervisor, administrator or comparable experience in education, business and/or industry.

3. Professional Education

An appropriate valid State Supervisory Certificate (Secondary only).

4. Employment Experience

One year (2000 hours) employment experience in an occupational field.

5. In-Service Education

Administrative personnel shall participate in relevant workshops and seminars sponsored by the State Board in order to reinforce their administrative competencies.

6. Alternate Qualifications

An applicant for the position of Local Director who possesses a deficiency in any of the above qualifications except 3, may be granted annual approval on the basis of a recommendation by the local chief school administrator and shall be justified as a part of the local education agency's application for program approval.

II. ASSISTANT LOCAL DIRECTOR

1. Administrative Competency

Competencies shall include administrative leadership, budgeting, curriculum development and evaluation.

2. Professional Experience

Two (2) years experience in a vocational and/or technical education program as a teacher, supervisor, administrator or comparable experience in education, business and/or industry.

3. Professional Education

An appropriate valid State Supervisory Certificate (Secondary only).

4. Employment Experience

One year (2000 hours) employment experience in an occupational field.

5. In-Service Education

Administrative personnel shall participate in relevant workshops and seminars sponsored by the State Board in order to reinforce their administrative competencies.

6. Alternate Qualifications

An applicant for the position of Local Assistant Director who possesses a deficiency in any of the above qualifications except 3, may be granted annual approval on the basis of a recommendation by the local chief school administrator and shall be justified as a part of the local education agency's application for program approval.

III. LOCAL SUPERVISOR

1. Supervisory Competency

Competency shall include educational leadership, successful classroom teaching experience, and methods and techniques of occupational instruction.

2. Professional Experience

Two (2) years teaching experience in vocational and technical education programs or comparable experience in education, business and/or industry.

3. Professional Education

An appropriate valid State Teaching Certificate (Secondary or Vocational).

4. Employment Experience

One year (2000 hours) employment experience in an occupational speciality or related subject matter areas.

5. In-Service Education

Supervisory personnel shall participate in relevant workshops and seminars sponsored by the State Board in order to reinforce their supervisory competencies.

6. Alternate Qualifications

An applicant for the position of Local Supervisor who possesses a deficiency in any of the above qualifications except 3, may be granted annual approval on the basis of a recommendation by the local chief school administrator and shall be justified as a part of the local education agency's application for program approval.

IV. LOCAL VOCATIONAL GUIDANCE COORDINATOR

1. Professional Competency

Competencies shall include educational leadership in programs of vocational guidance relative to current occupational information, employment opportunities, and training educational opportunities for persons entering and involved in the world of work.

2. Professional Education

An appropriate valid certificate (Secondary only).

3. Employment Experience

One year (2000 hours) employment experience other than teaching or counseling.

4. In-Service Education

Guidance coordinators shall participate in relevant workshops and seminars sponsored by the State Board in order to reinforce their vocational guidance competencies.

5. Alternate Qualifications

An applicant for the position of Vocational Guidance Coordinator who possesses a deficiency in any of the above qualifications except 2, may be granted annual approval on the basis of the recommendation by the local chief school administrator and shall be justified as a part of the local education agency's application for program approval.

V. TEACHER-INDUSTRIAL ORIENTED VOCATIONAL SUBJECTS

General Statement

The teacher must be competent and skilled in the trade for which he is giving instruction. He must be trained as a teacher before full approval as a vocational teacher can be granted.

1. Professional Education

The teacher must have an appropriate valid teacher certificate (Secondary or Vocational).

2. Professional Experience

The teacher must have 12,000 hours of full-time trade experience in the field he plans to teach.

Option:

Each full year of study in a recognized college, university, engineering school, or technical school above the high school level may be substituted for 2,000 hours of trade experience. The maximum allowable under this option is 8,000 hours.

3. Employment Verification

The teacher will supply a statement pertaining to his employment record that includes names and addresses of establishments, businesses, managers, or owners that can verify by letter the duties, responsibilities and dates of employment.

4. Professional Competency

The teacher must complete a minimum of eight (8) semester hours of approved vocational courses in the general areas of:

a. Trade Analysis and Course Organization
b. Preparation of Vocational Education Teaching Materials
c. Principles and Practices of Vocational Education
d. Supervision of Instruction in Vocational Education
e. Special Methods of Teaching Trade & Industrial Subjects
f. Administration and Supervision of Vocational Education

5. In-Service Education

The teacher is expected to take active part in local and state sponsored In-Service Teacher Training Workshops and conferences.

6. Provisional Approval

Provisional approval may be granted for teaching purposes for persons lacking in 2, 3, and 4, providing a definite plan is agreed upon for compliance with the requirements for full approval.

The maximum time limit for provisional approval shall be three (3) years.

VI. COOPERATIVE-COORDINATOR-TEACHER APPROVAL INDUSTRIAL ORIENTED AND SUPPORTIVE HEALTH

1. Professional Education

The teacher must have an appropriate valid teaching certificate (Secondary Level).

2. Employment Experience

One year (2000 hours) of full-time employment experience in the occupational field area to be taught.

The teacher will supply a statement pertaining to his employment record that includes names and addresses of establishments, businesses, managers, or owners that can verify by letter the duties, responsibilities and dates of employment.

3. Compliance with Legal, Governmental, and Professional Requirements

For those occupations in which employment or training is governed by law or licenser, such laws and licensing shall take precedence.

4. Professional Competency

The teacher must complete a minimum of eight (8) semester hours of approved vocational courses in the general areas of:

a. Development, Organization, and Principles of Vocational Education
b. Cooperative Education Methods
c. Preparation of Instructional Materials
d. History and Concepts of Vocational Education or Cooperative Education
e. Administration and Supervision of Vocational Education

5. Provisional Approval

Provisional approval may be granted for teaching purposes for persons lacking in 2 and 4 providing a definite plan is agreed upon for compliance with the requirements for approval.

The maximum time limit for such an agreement shall be three (3) years.

The teacher is expected to take active part in local and state sponsored In-Service Teacher Training Workshops and conferences.

VII. COORDINATOR-TEACHER APPROVAL BUSINESS AND OFFICE OCCUPATIONS

1. Professional Education

The teacher must have an appropriate valid teaching certificate (Secondary Level).

2. Subject Matter-Courses In Business and Office Occupations

The teacher shall have twenty (20) semester hours of college credit in technical courses in the field of Office Education.

Group #1 - Secretarial
- Typing
- Business Machines
- Shorthand
- Data Processing

Group #2 - Clerical
- Accounting
- Business Law
- Personnel Relations

A minimum of eight (8) semester hours is required from each of group 1 and 2. Total semester hours is twenty (20).

3. Employment Experience In Office Occupations

The teacher shall have had 4000 hours of accumulative experience in one or more office occupations

OR

He shall have one year (2000 hours) of accumulative experience in one or more office occupations and one course of college level in Office Education taken in conjunction with a directed occupational program.

4. Professional Competency

The teacher shall complete a minimum of eight (8) semester hours in approved educational courses in the general field of:

a. Development, Organization, and Principles of Vocational Education
b. Cooperative Education Methods
c. Preparation of Instructional Materials
d. History and Concepts of Vocational Education or Cooperative Education
e. Administration and Supervision of Vocational Education

5. Employment Verification

The teacher will supply a statement pertaining to his employment record that includes names, addresses of establishments, businesses, manufactures or owners that can verify by letter the duties, responsibilities, and dates of employment.

6. Provisional Approval

Provisional approval may be granted for teaching purposes for those persons lacking in 2, 3, and 4 above, providing a definite plan is agreed upon for compliance with the requirements for approval.

The maximum time limit for such an agreement shall be three (3) years.

The teacher is expected to take active part in local and state sponsored In-Service Teacher Training Workshops and conferences.

VIII. COORDINATOR-TEACHER DISTRIBUTIVE EDUCATION

1. Professional Education

The teacher must have an appropriate valid teaching certificate (Secondary Level).

2. Subject Matter Courses In Distributive Education

The teacher shall have twenty (20) semester hours college credit in technical courses in the field of Distributive Education.

Group #1	Group #2
Marketing	Accounting
Salesmanship	Business Law
Retailing	Personnel Relations

A minimum of eight (8) semester hours is required from each group 1 and 2. Total semester hours is twenty (20).

3. Professional Competency

The teacher shall have completed a minimum of eight (8) semester hours in the general areas of:

a. Cooperative Distributive Education Methods
b. Preparation of Instructional Materials for Distributive Education
c. Methods and Techniques of Instruction for Distributive Education.

4. Employment Experience In Distributive Education

The teacher shall have had 4000 hours of accumulative experience in one or more distributive educations

OR

He shall have one year (2000 hours) of accumulative experience in one or more distributive educations and one course of college level in Distributive Education taken in conjunction with a directed occupational program.

5. Employment Verification

The teacher will supply a statement pertaining to his employment record that includes names, addresses of establishments, businesses, manufacturers or owners that can verify by letter the duties, responsibilities, and dates of employment.

6. Provisional Approval

Provisional approval may be granted for teaching purposes for those persons lacking in 2, 3, and 4 above, providing a definite plan is agreed upon for compliance with the requirements for approval.

The maximum time limit for such an agreement shall be three (3) years.

The teacher is expected to take active part in local and state sponsored In-Service Teacher Training Workshops and conferences.

IX. SUPERVISOR OF VOCATIONAL HEALTH SERVICES

General Statement

Instruct, supervise, assist, encourage and conduct the activities of the Licensed Practical Nursing and Nurse Aide Programs.

1. Professional Education

The Supervisor must have a valid teacher certificate (Secondary or Vocational).

The Supervisor must have a Nursing Degree from a State approved School of Professional Nursing (RN Certificate). She shall currently be registered in the State of Illinois as a professional nurse.

The Supervisor must have a B.S. or B.E. degree with courses in Nursing Education.

2. Professional Experiences

Three years of practical experience in nursing, including one year of teaching or supervising nursing practices.

3. Employment Verification

The Supervisor will supply a statement pertaining to her employment record that includes the names and addresses of establishments, businesses, managers, or supervisors that can verify by letter the duties, responsibilities, and dates of employment.

4. Professional Competency

The Supervisor must complete a minimum of eight (8) semester hours of approved vocational courses in the general areas of:

a. Trade Analysis and Course Organization
b. Preparation of Vocational Teaching Materials
c. Principles and Practices of Vocational Education
d. Supervision of Instruction in Vocational Education

5. Provisional Approval

Provisional approval can be granted for Supervisory purposes for a person lacking 2, 3, and 4, providing a definite plan is agreed upon for compliance with the requirements for approval.

The maximum time allowable for this provision is three (3) years.

6. In-Service Teacher Training

The Supervisor is expected to take an active part in local and state sponsored In-Service Teacher Training Workshops and conferences.

X. TEACHER APPROVAL - VOCATIONAL HEALTH SERVICES

1. Professional Education

The teacher must have a valid teachers certificate (Secondary or Vocational).

The teacher must have a Nursing Certificate from a State approved School of Professional Nursing (R.N.).

The teacher shall currently be registered in the State of Illinois as a professional nurse.

2. Professional Experience

The teacher shall have had a minimum three (3) years of experience in nursing, above basic nursing education. One year of which should be in teaching or supervisory capacity.

She shall have a knowledge, understanding and sympathy for the Practical Nurse and Practical Nurse Education.

3. Employment Verification

The teacher shall supply a statement pertaining to her employment record that includes names, addresses of establishments, businesses, managers, or supervisors that can verify by letter the duties, responsibilities, and dates of employment.

4. Professional Competency

The teacher must complete a minimum of eight (8) semester hours of approved vocational courses in the general areas of:

a. Trade Analysis and Course Organization
b. Preparation of Vocational Teaching Materials
c. Principles and Practices of Vocational Education
d. Supervision of Instruction in Vocational Education

5. Provisional Approval

Provisional approval can be granted for teaching purposes for persons lacking 2, 3, and 4, providing a definite plan for compliance with the requirements for approval is agreed upon.

The maximum time allowable for this provision is three (3) years.

6. In-Service Teacher Training

The teacher is expected to take an active part in local and state sponsored In-Service Teacher Training Workshops and conferences.

XI. DUTIES, RESPONSIBILITIES, AND TRAINING REQUIREMENTS FOR VOCATIONAL TEACHERS

1. All Vocational teachers must have a valid teachers certificate at the Secondary or Vocational level.

2. All Vocational teachers must be competent and skilled in the trade for which he is giving instruction.

3. The Vocational teacher must be trained as a teacher before full vocational approval can be granted.

4. The Vocational teacher must have 12,000 hours of full-time trade experience in the field he plans to teach.

   Option:
   Each full year of study in a recognized college, university, engineering school or technical school above the high school level may be substituted for 2,000 hours of trade experience. The maximum allowable under this option is 8,000 hours.

5. The teacher will supply a statement that includes: names and addresses of establishments, manufacturers or owners who can verify by letter the duties, responsibilities and dates of employment.

6. The Vocational teacher is responsible to maintain a level of instruction that is compatible with current procedures and practices in the trade he is teaching.

7. The Vocational teacher should return to his trade for employment at regular intervals (one summer in four) to maintain his personal skills and familiarize himself with changes in his trade.

8. The Vocational teacher must secure a minimum of eight (8) semester hours in approved Trade and Vocational professional educational subjects in the general areas of:
   a. Trade Analysis and Course Organization
   b. Preparation of Trade and Industrial Instructional Materials
   c. Special Methods of Teaching Trade and Industrial Subjects
   d. Principles and Practices of Vocational Education
   e. Administration and Supervision of Vocational Education
   f. Organization and Administration of Industrial Cooperative Education

9. The Vocational teacher shall organize and maintain active communication with an Advisory Committee composed of not less than three persons who are actively engaged in the Trade being taught. The committee membership may be made up of both management and employee in the trade area.

10. The Vocational Instructor in cooperation with his Advisory Committee shall submit curriculum outlines and course of study that will prepare the trainee to enter the trade or occupation as an entry level worker. The curriculum to be reviewed and updated on an annual basis.

11. The Vocational teacher in cooperation with the Advisory Committee shall submit to the Vocational Education Administrative staff the capitol outlay requirements for the operation of the program and maintenance of trade level instruction.

12. The Vocational teacher shall be responsible for machines, tools, and other items of equipment that are used in teaching his trade or occupation - Specific responsibilities would include:
    a. General day-to-day maintenance.
    b. Long range upkeep, repair, and replacement.
    c. Safety and safe operational procedures for trainees.
    d. Review equipment inventory annually and update as necessary.

13. The Vocational teacher shall keep progress and training records for all students. From these records the teacher will furnish Vocational Placement Personnel, Employers, and others with information related to the employability of the trainee.

XII. APPROVABLE PROGRAMS, SERVICES, AND ACTIVITIES FOR VOCATIONAL EDUCATION K - 12

1. <u>Approved Occupational Informational Programs</u>

    a. K-8 Grade Level
        Provide Occupational Information
        Group Guidance
        Field Trips
        Video Tapes
        Library Materials
        Other similar activities

    b. Reimbursement Base
        Enrollment (11th day of class) of students served at low student rate.

2. <u>Approved Occupational Orientation and Preparation Programs</u>

    a. Typically 9th and 10th grade (14 and 15 year olds)

        Provide:
        Background preparation to gainful employment
        Industrial Arts, Home Economics and Business subjects designed to prepare for Occupational training

        1. Business and Marketing
        2. Management
        3. Health Occupation Preparation
        4. Applied Bio. & Agriculture
        5. Industrial Oriented Occupations
            a. Drafting
            b. Machine Shop
            c. General Metals
            d. Woodworking
            e. Electricity
            f. Electronics
            g. Graphic Arts
            h. Welding
            i. Power Mechanics

6. Personal and Public Service
   a. Food Service
   b. Supportative Health

All programs must have related vocational opportunities available at Decatur Area Vocational Center to be eligible for reimbursement.

b. Reimbursement Base

Per credit (Carnegie Unit) for students enrolled.
Enrollment count taken on 11th day of class.
Funded at a lower rate per Carnegie Unit.

3. Approved Occupational Training Programs (classroom, laboratory, and on job experience.)

a. 11th and 12th grade (16, 17, and 18 year olds) and Special Students.

Provide:
Programs designed to train students for entry level employment.

1. Business and Marketing (12th year only)
2. Cooperative Education (11th and 12th year)
3. Health Services (11th and 12th year)
4. Industrial Oriented (11th and 12th year)
5. Personal and Public Service (11th and 12th year)
6. Applied Bio. & Agriculture (11th and 12th year)

b. Reimbursement Base

Per Carnegie Unit earned per student.
Count taken on 11th day of class.
Funded at full secondary rate.

4. Adult and Post High Programs

a. Typically those persons out of school who need supplemental training or retraining. These persons are not in any full-time educational program.

Students enrolled in a Secondary Day Program may enroll in Evening High School Credit courses by permission from parents and school administration.

b. Typical Programs included in Adult and Post High Division

1. Vocational & Technical Programs
2. Supplemental Training
3. Business Subjects
4. Home Management and Planning Programs
5. Apprentice Training
6. High School Credit Programs (including Extension Courses)
7. Foreign Languages
8. Special Interest Programs
9. G.E.D. Review

c. Reimbursement Base

Per contact hour, per student. Based on enrollment as of 3rd class period.

d. Teaching Staff - Adult Education

All persons teaching in the Adult & Post High School programs must have a valid teaching certificate.

a. General Certificate (limit - 8 hours per week)
b. Provisional Vocational
c. Limited Vocational
d. Full-time teaching certificate (Elementary or Secondary)

Persons teaching in Adult Programs must be thoroughly competent in their field. Letters verifying experience and training may be requested.

In-Service teacher training participation is required of all teachers holding either a General Certificate or Provisional Certificate as a part of their approval as a part-time instructor.

The minimum requirements for the In-Service training is: Nine (9) clock hours of instruction in the general areas of:

1. Trade Analysis
2. Organization of Course Material
3. Teaching Methods
4. Special Techniques for Teaching Vocational Subjects.

These training sessions are conducted in Decatur by local personnel.

Maximum time allowed for fulfilling the In-Service requirements - 2 years.

VT 012 099
Technicians in Non-Electrical Plant and Machinery Manufacture; Employment and Technology No. 5.

Australian Dept. of Labour and National Service, Melbourne.
MF AVAILABLE IN VT-ERIC SET.
Commonwealth of Australia, Department of Labour and National Service, P.O. Box 2817AA, Melbourne, Victoria 3001, Australia ($.70).
PUB DATE - 69 39p.

DESCRIPTORS - *MANPOWER UTILIZATION; *SUBPROFESSIONALS; TECHNICAL OCCUPATIONS; TECHNOLOGICAL ADVANCEMENT; *MANPOWER NEEDS; *MACHINERY INDUSTRY; INPLANT PROGRAMS; EDUCATIONAL BACKGROUND; NATIONAL SURVEYS; PRODUCTION TECHNICIANS; INDUSTRIAL PERSONNEL; *EMPLOYMENT TRENDS
IDENTIFIERS - *AUSTRALIA

ABSTRACT - The purpose of this 1968 survey was to learn more about the employment of technicians in Australia, including employment trends, type of work, training, and qualifications. Questionnaires completed by 141 representative firms in the machinery industry were supplemented by interviews with officials of 62 of the firms. Although firms had difficulty associating recent technological changes with changed manpower needs, many felt that technology accounted for their increased demand for technicians. Technician shortages experienced by most of the firms over the past 5 years were being met by overtime, upgrading, and by employing technologists as technicians when possible. The shortages projected through 1973 probably understate actual needs, since many firms create new skilled positions if the manpower were made available. (BH)

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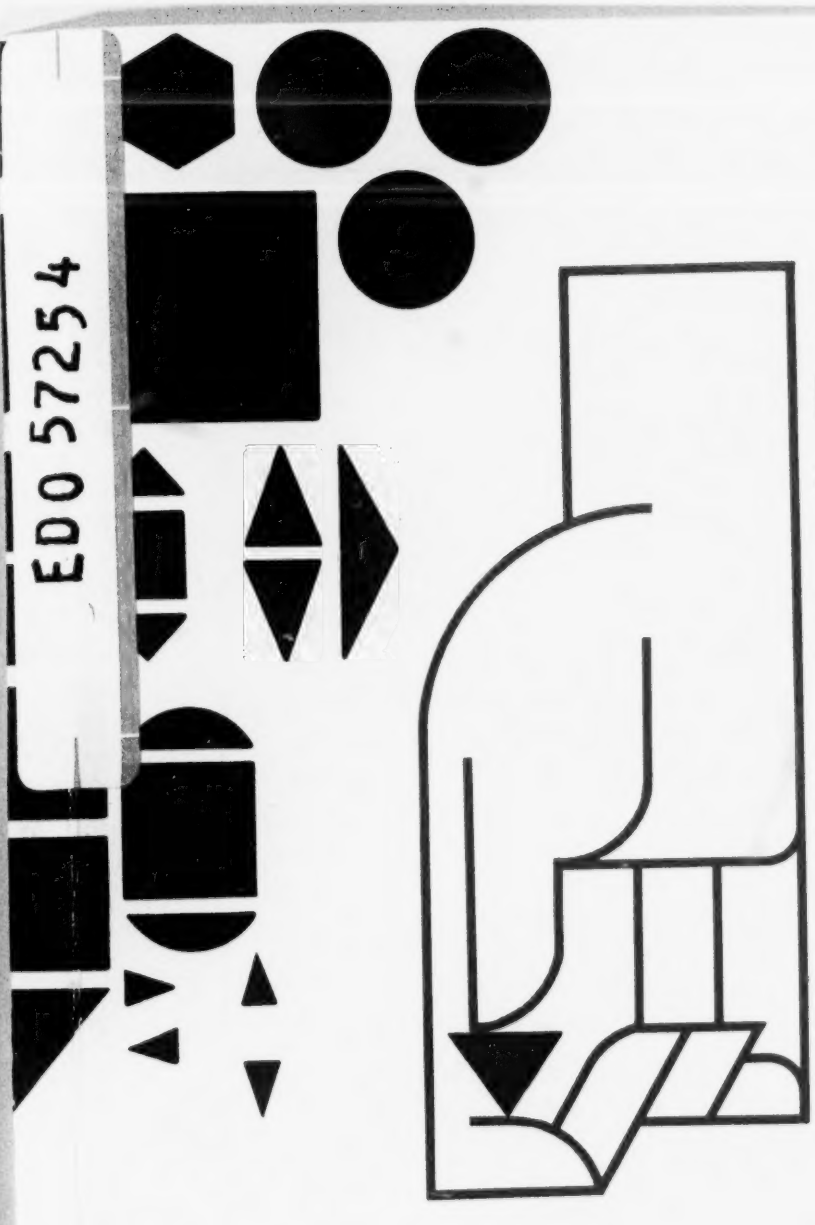

AUSTRALIA

Employment
and
Technology
No.5

TECHNICIANS IN NON-ELECTRICAL PLANT AND MACHINERY MANUFACTURE

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EMPLOYMENT AND TECHNOLOGY

This series of reports presents the results of research into employment patterns and trends and the effects of technological change.

The Department of Labour and National Service conducts research as part of a programme to meet the growing demand by industry and the community at large for information on the effects of industrial, social and technical change on people and their jobs. The results are expected to interest particularly those involved in personnel management or careers guidance, trade unions and employer organisations, education and training authorities, research workers, and other organisations and individuals concerned with the issues posed by industrial change.

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Employment
and
Technology
No.5

TECHNICIANS IN NON-ELECTRICAL PLANT AND MACHINERY MANUFACTURE

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DEPARTMENT OF LABOUR AND NATIONAL SERVICE, MELBOURNE
1969

ACKNOWLEDGMENTS

The Department expresses its appreciation of the willing co-operation extended by the firms which participated in the survey reported here. Their assistance in completing the survey questionnaire and providing information during interview is gratefully acknowledged.

Thanks are also due to the Royal Melbourne Institute of Technology and to Engineering Testing and Research Services Pty Ltd who provided photographs for inclusion in this Report.

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INTRODUCTION

This report presents the findings of a survey conducted by the Department of Labour and National Service in July 1968 into technical manpower in the non-electrical plant and machinery manufacturing industry, with particular reference to technicians.

The survey represents part of the Department's programme of research into workforce trends in Australia, including the employment and occupational changes resulting from technological innovations. Similar surveys of technicians and other technical manpower were made by the Department in 1961 in the chemical and allied industries, and in 1964 in the electrical engineering, electronics and telecommunications industries.*

Both in Australia and overseas, the last 20 years have seen rapid scientific and technical advances, many of which had considerable impact on firms' occupational structures. One such impact of these advances has been the emergence of technician occupations as new areas of skill required in science-based industries.

The technician workforce has expanded, mainly as a result of new materials, new products and increased complexity in production techniques, requiring technical competence different from that of the tradesman or the professionally qualified technologist. Typically their work has included production planning and supervision, quality control, testing, inspection and analysis, and such work as designing, installing and maintaining new equipment usually under professional guidance.

An additional factor accounting for the growth of technician manpower has been the realisation by industry that the employment of technicians enables it to make more effective use of its professional manpower by employing its technologists on work more suited to their qualifications.

The objectives of the survey by the Department were primarily to obtain more information about trends in the employment of technicians; the type of work they do and their qualifications; the various forms of training they receive; and the current and future demand for their employment. The survey also sought information on the employment of professionally qualified personnel.

* Hudson, I. 'Technical Manpower in the Chemical and Allied Industries', *Personnel Practice Bulletin*, Vol. XVIII, No. 4, December 1962.

Bell, D. G. 'Technicians in the Chemical and Allied Industries', *Personnel Practice Bulletin*, Vol. XIX, No. 2, June 1963.

Bell, D. G. 'Technical Manpower in the Electrical Engineering, Electronics and Telecommunications Industries', *Personnel Practice Bulletin*, Vol. XXI, No. 2, June 1965.

Bell, D. G. 'Technicians in the Electrical Engineering, Electronics and Telecommunications Industries', *Personnel Practice Bulletin*, Vol. XXI, No. 4, December 1965.

A number of firms in private industry, selected from all States, participated in the survey. These were asked to complete a questionnaire (a copy is included in the Appendix) and in some instances further information was collected during personal visits by the research team.

As in the previous surveys, definitions of the terms used were included in the questionnaire as follows:

Technologist: A professionally qualified scientist or engineer—that is, one who has a university degree or technical college diploma or other qualification admitting to membership of the recognised professional association.

Trainee technologist: An employee who is undergoing training designed to lead to technologist status, for example a cadet.

Technician: A technical employee, who need not necessarily be called a technician, whose work requires the application of technical knowledge and skill higher than that of a tradesman but below that of a technologist, whether or not he possesses a recognised technician qualification, such as a technical college certificate. (The questionnaire indicated that in accordance with this definition such technical workers as draftsman, tool design engineer, toolroom foreman, heat treatment foreman, production supervisor, safety officer, laboratory technician, maintenance supervisor, estimator, quality control inspector, time study officer, and research assistant may be regarded as technicians.)

Trainee technician: An employee not yet engaged in technician work but undergoing appropriate training at a technical institution or off-the-job training, specifically intended to qualify him for a technician position.

Tradesman: A worker employed as a tradesmen, whether or not he served an apprenticeship.

The definition above of ' technician ', relating to work performed rather than educational qualifications, was derived initially from a definition adopted by the U.K. Ministry of Labour in 1960 for a survey of technical manpower in the chemical and engineering industries. A Committee set up by the Royal Australian Chemical Institute to investigate the training of chemical technicians used the Department's definition in its subsequent report.* A somewhat similar definition has been used in a published statement† approved by the Council of the Institution of Engineers, Australia, regarding engineering technicans.

It needs to be emphasised that the figures and other details included in the report are based on participating firms' interpretation of the above broad definitions as applying to their own activities. This could have resulted in the inclusion of some categories of employees as technicians who might not necessarily be regarded as such outside the particular firms.

* The Training of Chemical Technicians, Report and Recommendations of the Committee on Sub-Professional Technicians, Proceedings of the R.A.C.I., August 1964.

† The Journal of the Institution of Engineers, Australia, July-August 1965.

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SUMMARY

- A survey was conducted in 1968 by the Department of Labour and National Service into technical manpower, especially technicians, in the non-electrical plant and machinery manufacturing industry.
- The survey covered 141 selected firms, each of which completed a questionnaire about its technical manpower; 62 of them provided further information about their technicians at interviews. The firms selected were considered to be broadly representative of the industry.
- The firms employed 30,326 persons at the time of the survey.
- Details were obtained of the technical personnel employed including the work and qualifications of technicians and technologists. Particular enquiries were made about technician training and recruitment.
- There were 2,495 technicians employed (as determined by firms in accordance with the questionnaire definition) and these represented 8 percent of all personnel. There were also 270 trainee technicians.
- The largest group of technicians in the study was employed in production areas (48 percent) followed by design and drawing (25 percent), sales and service (12 percent), and quality control (7 percent). Research and development accounted for 4 percent, and plant installation and maintenance for 3 percent.
- Most of the survey firms had introduced technological changes in recent years, involving mainly use of newly developed materials, product modification, and installation of automatic and semi-automatic machinery. Reasons given for these changes related to the need to increase production, reduce costs, improve quality and overcome shortages of skilled manpower.
- Firms had difficulty in identifying the effects of technology on occupational categories. However, a number of firms which had engaged additional technicians (and some which had added to their technologists) associated these increases with technological changes.
- Information was also sought about the firms' technologists, of whom there were 451 employed (1½ percent of all personnel).
- Excluding professional personnel in management and administration, there were almost 8 technicians employed to every one technologist. The proportion was highest in production functions (nearly 28 to 1) and lowest in research and development (slightly less than 2 to 1).
- Over the five years preceding the survey, the proportion of technicians to technologists rose in just over one-third of the survey firms supplying information on this point; in over half of them little or no change had occurred, and the proportion had dropped in the remaining firms.

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- Other technical personnel included 8,385 tradesmen (28 percent of the total), and 2,325 apprentices and other trainee tradesmen. There were 3 tradesmen employed to every one technician.
- More than half the firms interviewed reported difficulties in obtaining technicians in sufficient numbers over the past five years. For this reason, technicians were recruited by most firms from among their own employees by upgrading tradesmen; 57 percent of technicians had been recruited in this way. Shortages of technicians had also been met by overtime, and in some cases, by employing technologists on technicians' work for at least part of their time.
- Technicians with overseas qualifications were also employed in most of the firms interviewed. The performance of these technicians was considered satisfactory although some firms had experienced difficulties in assessing technicians with overseas qualifications before employment.
- The training background of the technicians was of various forms. Thirty-five per cent had attended technician level courses, and 5 percent had partly completed a degree or diploma course; while 57 percent (the highest proportion) had done no more than trade training. The technicians had also received various forms of in-plant training. Forty-five percent had some training on the job, and 9 percent had been trained off the job.
- Sixty-one percent of trainee technicians were undertaking technician-level courses at a technical institution. The survey firms were also providing training to the extent that 60 percent of trainees were receiving on-the-job training and 38 percent received off-the-job training.
- Information was obtained about vacancies current at the date of the survey. Of the 141 firms in the survey, 39 had vacancies for technicians totalling 70 in all, and 16 firms had vacancies for technologists (33). The 70 technician vacancies represented less than 3 percent of all technicians employed. Technologist vacancies represented 7 percent of all technologists employed. However, the vacancy figures do not necessarily reflect the capacity of firms to engage either technicians or technologists since many firms would be likely to create positions for such skilled personnel if they became available.
- Technician vacancies were mainly in the areas of drafting, design, research and production planning. Technicians in these areas were generally required to have a technical institution qualification. Difficulties were being experienced in filling these positions.
- Most vacancies for technologists were in the areas of design, research and development. These positions were also hard to fill.
- Firms seldom planned projects more than two years ahead. However, 117 firms were prepared to estimate their needs for technicians five years ahead to 1973, their expected additional requirements being 380. These firms employed 2,054 or 82 percent of the technicians.
- There were 107 firms prepared to estimate their needs for technologists to 1973, the total expected requirements being 152. These firms employed 402 or 89 percent of the technologists.

CHAPTER 1

THE INDUSTRY SURVEYED

The survey was conducted by mailed questionnaires, followed by interviews at selected firms. Questionnaires were completed by 141 firms, and visits were made to 62 of them in order to obtain further information about the work and training of the technicians they employed.

The 141 firms, selected from all States, employed 30,326 persons. Details are shown in Table 1.

TABLE 1—FIRMS PARTICIPATING IN THE SURVEY

State	Firms completing questionnaires	Numbers employed	Firms interviewed
New South Wales	52	7,742	22
Victoria	31	6,613	11
Queensland	26	4,958	12
South Australia	20	9,318	10
Western Australia	6	1,168	2
Tasmania	6	527	5
TOTAL	141	30,326	62

The firms were chosen largely from those within the non-electrical plant and machinery manufacturing industry that had 100 or more employees, supplemented by a smaller number that had between 50 and 100 employees. Attention was given in this way to the larger firms on the understanding that their experience was more relevant in a study of the employment of technicians. However, to provide for some representation of the smaller firms in the industry, a sample of firms with less than 50 employees each was also included in the survey. In detail, the 141 firms included 17 with 300 or more employees; 22 with employment ranging between 200-299; 42 employing between 100-199; and 60 with less than 100 employees.

The total employment figure (30,326) amounted to almost 30 percent of average employment in the industry at the time*, and the firms selected are believed to have been broadly representative of the industry.

The structure of employment in the sample of firms is indicated in Table 2; it is based on the firms' own interpretation of the definitions of employment categories given in the questionnaire.

* Commonwealth Bureau of Census and Statistics: A Summary of Principal Statistics of Factories, 1967-68.

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TABLE 2—EMPLOYMENT IN FIRMS IN THE SURVEY

Employment category	Males	Females	Persons	
			Number	%
Management, administration and clerical	3,173	1,685	4,858*	16.0
Technologists	319	....	319	1.1
Trainee technologists	126	1	127	0.4
Technicians	2,484	11	2,495	8.2
Trainee technicians	270	6	276	0.9
Tradesmen	8,380	5	8,385	27.6
Apprentices and other trainee tradesmen	2,325	....	2,325	7.7
Other employees	8,980	2,561	11,541	38.1
TOTAL	26,057	4,269	30,326	100.0

Of the technical personnel employed, tradesmen comprised the largest category. There were 8,385 tradesmen, representing almost 28 percent of all employees, while apprentices and other trainee tradesmen numbered 2,325.

Eight percent of the employees (2,495) were classified as technicians and, in addition, there were 276 trainees.

There were 319 technologists employed in work relating to their scientific or engineering qualifications. Adding a further 132 technologists engaged in management and administration, 451 in all (1½ percent) had professional qualifications.

Trends in the industry

Factory census statistics for the years 1964-65 to 1967-68 show a moderate rate of expansion in this industry over the period, and this generally was the experience of firms in the survey. There had been some expansion in both production output and range of products over the previous five years to meet a growing demand for industrial machinery and equipment, such as conveyors, hoists, cranes, lubrication equipment and pneumatic tools. There was also some increase in demand for such consumer goods as refrigeration and air-conditioning units, washing machines and lawn mowers.

Of the 62 firms interviewed, nearly all (57) indicated that production had increased during the five-year period preceding the survey, estimates of increases ranging widely from 10 percent to 250 percent. The main reasons given related to generally healthy home market conditions, but there were some instances of expanded production to meet export needs.

A majority of firms interviewed reported the introduction of changes in plant and equipment, materials and production processes. Expansion in the range of products was also reported by well over half of the firms.

These developments over the period 1964-1968 had resulted in an increased demand for technical manpower in the industry.

* Including 132 technologists employed in management or administration.

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CHAPTER 2

THE WORK OF THE TECHNICIANS

Of 30,326 employees in the 141 firms surveyed, 2,495 were classified by the firms as technicians in accordance with the survey definition. There were also 276 trainee technicians. The technicians and trainees were employed in 127 of the firms. Fourteen of the smaller firms did not employ any technicians.

Almost half of the technicians (49 percent) were employed in production departments and 25 percent were in design and drawing departments. Most trainee technicians were in design and drawing (42 percent).

Table 3 provides a classification of technicians and trainees according to the functional area in which they were engaged.

TABLE 3—TECHNICIANS AND TRAINEE TECHNICIANS: FUNCTIONAL AREAS

Functional area	Technicians		Trainee technicians	
Research and development	102	(4%)	10	(4%)
Design and drawing	623	(25%)	115	(42%)
Production:—				
planning and estimating	298	(12%)	19	(7%)
organisation, methods, and work study	164	(6%)	20	(7%)
supervision	646	(26%)	71	(26%)
plant engineering, operations and maintenance	93	(4%)	11	(4%)
Plant installation and maintenance	63	(3%)	1	*
Quality control, testing, inspection and analysis	183	(7%)	12	(4%)
Sales and service	287	(12%)	11	(4%)
Other	36	(1%)	6	(2%)
TOTAL	2,495	(100%)	276	(100%)

* Less than 0.5 percent

The branches of engineering or science with which their work was associated are shown in Table 4.

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TABLE 4—TECHNICIANS: BRANCH OF ENGINEERING OR SCIENCE

Branch	Persons	
	Number	%
Mechanical engineering	1,883	75
Electrical engineering	94	4
Electronics and communications engineering	14	1
Chemical engineering	7	*
Industrial engineering	192	8
Other engineering	227	9
Chemistry	14	1
Metallurgy	49	2
Physics	....	...
Mathematics and statistics	1	*
Other science	14	1
TOTAL	2,495	100†

* Less than 0.5 percent.
† The percentages do not add exactly to 100 due to rounding.

As to be expected, the great majority (96 percent) were employed on engineering work, principally mechanical engineering (75 percent). Seventy-eight were engaged in work asociated with one or other of the various branches of science, and most of these were engaged in metallurgy.

Information was also obtained at interviews about the type of work performed by technicians and the job titles applied to their work. The wide variety of job titles and the varying views about which jobs were of technician level highlighted the difficulties entailed in trying to define technicians in universally acceptable terms, or even of drawing clear-cut lines separating technicians from other technical personnel. Some of these job titles are indicated below, as examples of those in use in some of the firms surveyed.

The largest group of technicians was in production (see Table 3) where they were responsible, for example, for scheduling production lines, allocating and controlling work flow and estimating costs in response to customers' enquiries or for tenders. In this area of work their firms gave them such titles as schedule superintendent, production controller, methods engineer and estimating engineer.*

Other technicians in this group were engaged in developing production methods—settling standard methods of production and timing manufactured goods through the stages of production. These, for example, were the work study analysts and methods technicians.

Design and drawing functions accounted for the second largest group. Technicians in this field prepared drawings from data supplied by technologists, and in some instances engaged directly in design (e.g., in tool

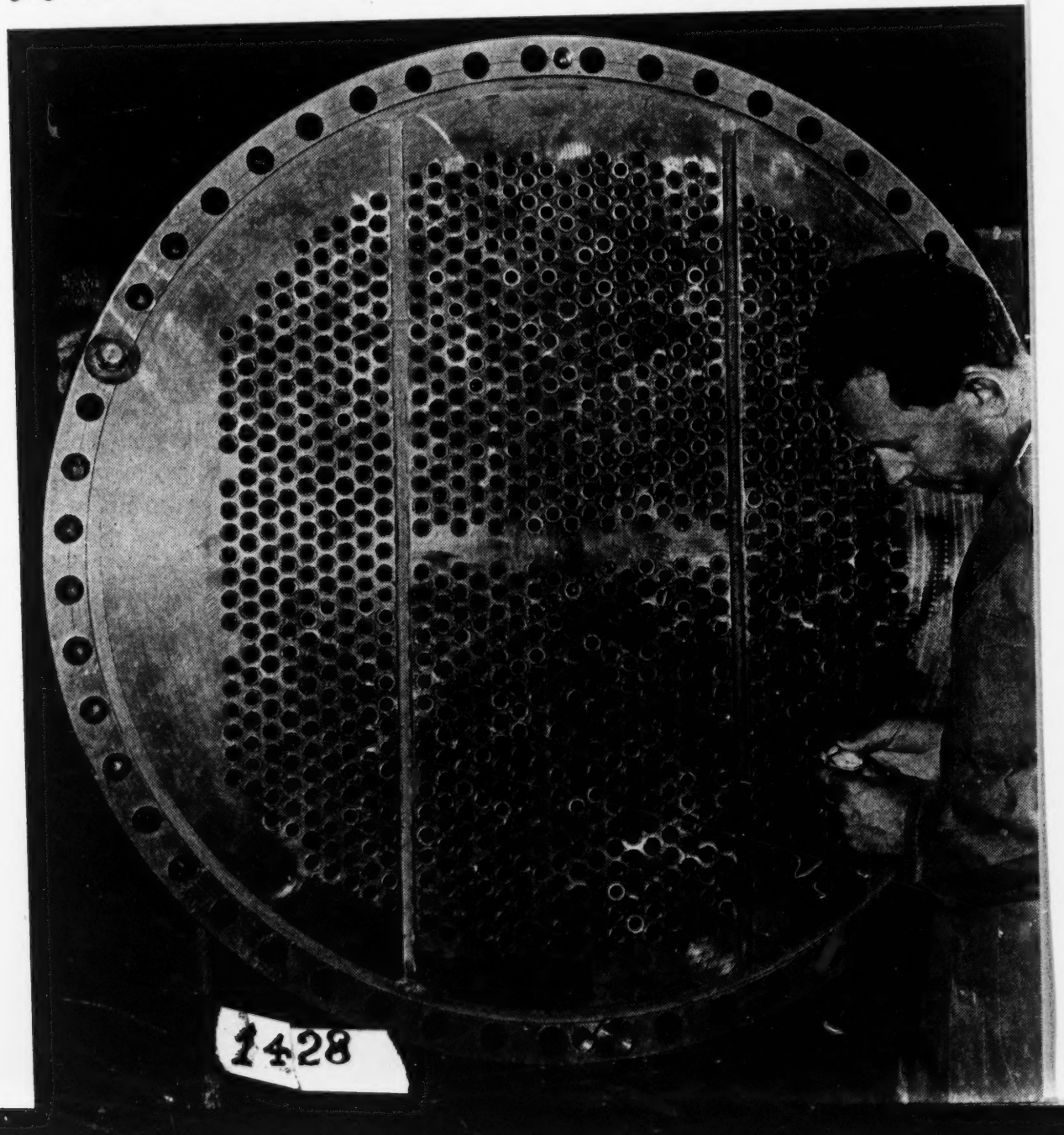
* In the English speaking world, the term 'engineer' has been used somewhat widely. In recent years the various professional engineering institutions have sought to persuade industry and the public at large to restrict its usage to persons professionally qualified in engineering (technologists in the terminology of this report). Although many employers including virtually all Government agencies and most large private employers have adopted this usage, there are still many employers who use the term 'engineer' in the titles of jobs which do not involve professional training and/or skills.

and product design). They were listed by their firms as design engineers, product designers, detail draftsmen and the like.

There were also considerable numbers of technicians engaged in sales and service activities. This was work involving close contact with customers—discussing design requirements and providing after-sales advice on equipment installation and maintenance. Technicians in this field were known by such titles as sales engineer, technical sales representative and liaison officer.

A comparatively small group of technicians was employed in quality control. Their duties were to ensure that high standards of production were maintained, both by submitting final products to fault analysis and performance investigation, and by carefully inspecting the quality of raw materials used in manufacture.

Testing and inspection are areas in which many technicians work. Often technicians in these areas are former tradesmen who have obtained additional in-plant or technical college training. Here a heat exchanger tube bundle manufactured for the oil industry is being inspected by a boilermaker inspector who is using a hole-gauge to check dimensional accuracy.



Another group, again comparatively small, was engaged in research and development. These technicians had such job titles as product development technician and experimental officer. They were employed almost entirely in laboratory and experimental work, sometimes independently and sometimes assisting technologists to develop, build and test prototypes for new products and to re-design existing products.

Plant installation and maintenance required fewer technicians than other functions. Those employed in this field were responsible for planning and installing the company's own plant and for its maintenance and repair. They were usually called maintenance engineers or plant maintenance officers.

It was not the purpose of the survey to enquire about technician pay rates, but information supplied by a number of firms indicated a trend for technicians in research, design and sales areas to be paid more than those in production. There was insufficient evidence, however, on which to conclude that this was the general practice. Levels of responsibility, technical skill and training required, and individual performance, varied even within each functional area and firms took all such matters into account in determining individual pay rates.

The highest paid technician in one firm was an estimator and in another a work study technician, while in several firms production supervisors were among the highest paid technicians because of their responsibility for costly production processes.

Very few women were employed as technicians. They represented less than 1 percent of the total and were engaged in drafting, inspection and laboratory work. In these types of work they were regarded by their employers as efficient workers, but they had not been considered for other technical functions. Other work was thought to be too dirty or too heavy. None of the firms had provided female technicians with training opportunities similar to those provided for men, and their prospects of advancement apparently were limited.

Technological change

Firms interviewed in the survey were asked about major technological changes* in the previous five years and about proposed changes in the next five years. Reasons were sought also for the introduction of such changes, and information about their effects on the composition of the technical personnel employed.

Practically all the firms stated that they had made some technical changes in recent years. Most of the changes reported were not major but many had considerable effect on production or personnel.

They included, for example, modification of products, use of newly-developed materials, installation of larger and more efficient automatic or semi-automatic machinery, and product rationalisation consisting of discontinuance of some products and expansion of others.

* A broad definition of technological change was chosen in accordance with suggestions of the 1964 International Labour Office Committee of Experts on Automation, namely 'any change in materials, equipment, methods, organisation or product which alters the quantity or quality of labour per unit of physical output'.

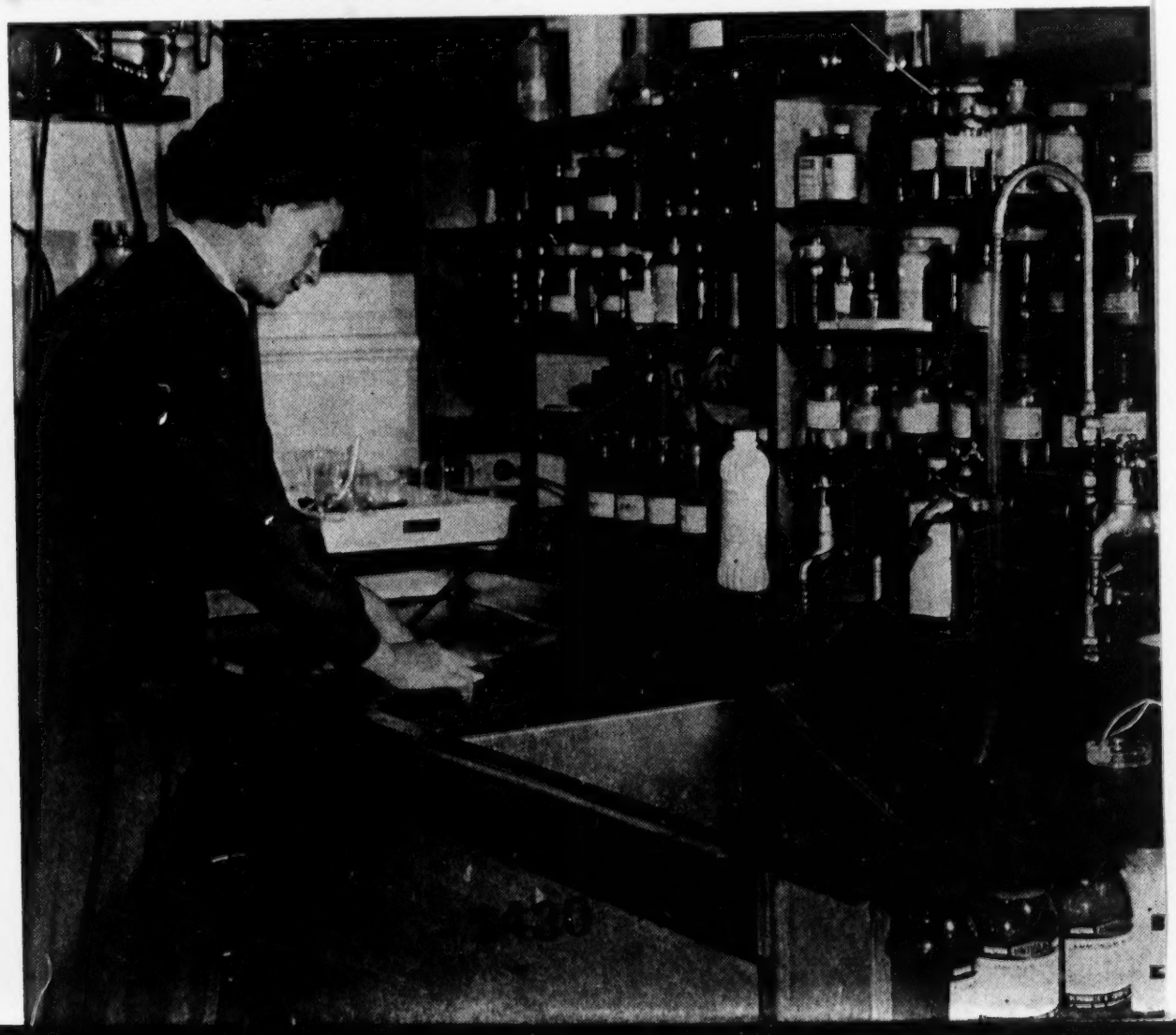
There were instances of the manufacture of components previously obtained from elsewhere, of the establishment of a new factory with automatic machinery to meet expanded operations, of changes in production methods and the introduction of machinery to eliminate various types of manual work.

There had also been changes in production and employment policy on the occasion of a merger, and the introduction of new plant in order to lower costs with a view to establishing export markets.

The main reasons stated for the introduction of technological changes were the need to meet increased production requirements and the desirability of reducing costs. Changes were also introduced in order to effect improvement in products, add to the range of products and overcome a shortage of skilled manpower.

In general, firms found it difficult to separate out changes in employment which were due to technical innovations from those resulting from other causes. In most cases firms were prepared to offer only generalised opinions on the subject. Some felt that technicians were being increasingly used as a result of technological change and several of these expected that this trend might continue with further changes. (As was expected firms associated part of the increased number of technologists involved in the greater volume of research and development work, with technological change.)

There were few women technicians employed in the survey firms. They were mainly engaged in drafting or inspection work, or in laboratory work like the laboratory assistant below who is preparing metal samples for metallographic examination.



Other firms thought that technological change had not increased their use of technicians; others again considered that relatively fewer were employed, since changes had been introduced primarily to reduce the need for technical skills at technician and trade levels.

Nevertheless, despite difficulties in identifying the results of technological change with any degree of confidence, 26 of the firms did provide reasonably precise information about the employment effects of changes introduced in recent years. Most of these reported an increase in the number of technicians, as a consequence, for such functional areas as production planning, estimating, work study, drafting and quality control.

It is not clear whether in the overall situation greater use of technicians is being made as a result of technological change. However, it does appear that at least in the functional areas referred to above, technicians may be used in increasing numbers in the years to come and that, as in the past, technological change will be at least partly responsible for this trend.

CHAPTER 3

OTHER TECHNICAL PERSONNEL

While the main purpose of the survey was to obtain information about the employment of technicians and trainee technicians, information was also sought about related technical personnel, in particular, the technologists and trainee technologists and their various work functions.

Technologists were employed in 74 of the 141 firms and trainee technologists in 37. Sixty-seven of the firms, including many of the smaller firms, did not employ any technologists.

A large proportion of the technologists were employed in management and administrative positions (see Table 5). Apart from these, most were engaged in design and drafting work (27 percent), research and development (12 percent), or sales and service (11 percent).

TABLE 5—TECHNOLOGISTS AND TRAINEE TECHNOLOGISTS: FUNCTIONAL AREA

Functional area	Technologists		Trainee technologists	
Management and administration	132	(29%)	9	(7%)
Research and development	53	(12%)	13	(10%)
Design and drawing	121	(27%)	52	(41%)
Production	43	(10%)	22	(17%)
Plant installation and maintenance	13	(3%)	5	(4%)
Quality control, testing, inspection and analysis	33	(7%)	21	(17%)
Sales and service	51	(11%)	5	(4%)
Other	5	(1%)	....	....
TOTAL	451	(100%)	127	(100%)

Design and drawing was also the function in which most trainee technologists were engaged (41 percent), followed by production (17 percent) and quality control (17 percent).

An analysis of technologists, according to their branch of engineering or science is shown in Table 6.

TABLE 6—TECHNOLOGISTS: BY BRANCH OF ENGINEERING OR SCIENCE* WITH WHICH THEIR WORK IS ASSOCIATED

Branch	Persons	
	Number	%
Mechanical engineering	352	78
Electrical engineering	18	4
Electronics and communications engineering	3	1
Chemical engineering	6	1
Industrial engineering	12	3
Other engineering	25	6
Chemistry	10	2
Metallurgy	19	4
Physics	....	....
Mathematics and statistics	4	1
Other science	2	†
TOTAL	451	100

* Including 132 technologists in management and administration.
† Less than 0.5 percent.

As expected in a survey of this industry, engineers comprised 92 percent of all the technologists. The number with qualifications other than engineering was very small—35 or 8 percent of the total. They were employed mainly in research and development, design and quality control. For comparison, a similar survey in 1964 of technical manpower in the electrical engineering, electronics and telecommunications industries* revealed that 90 percent of the technologists employed were engineers; 69 percent being electrical engineers or electronics and communications engineers, and 10 percent being in possession of science qualifications.

A particular enquiry was made as to whether any of the technologists were engaged, even partly, in work which could be satisfactorily handled by suitable technicians. Of the 74 firms employing technologists, 71 answered this question and 24 stated that they were employing some technologists on technician-level work. The number involved was small—approximately 35, or less than 8 percent of the total.

Most of the instances cited were of technologists spending part of their time on related activities at the technician level. The most often quoted example was of research or design technologists doing their own drafting.

Other technician-level activities on which some technologists were reported to be spending part of their time were sales, the supervision of production, testing of products and supervision of sub-contracts.

Three firms reported employing technologists wholly on what they considered to be technician-level work—production planning, estimating and factory supervision. In all cases they were so employed because they were considered the best men available for the particular jobs, and no changes were proposed.

The most common reason given for employing technologists at below professional level (14 firms) was that the undertaking was too small to

* Bell, D. G. 'Technical Manpower in the Electrical Engineering, Electronics and Telecommunications Industries', *Personnel Practice Bulletin*, Vol. XXI, No. 2, June 1965.
Bell, D. G. 'Technicians in the Electrical Engineering, Electronics and Telecommunications Industries', *Personnel Practice Bulletin*, Vol. XXI, No. 4, December 1965.

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A comparatively small group of technicians was employed in quality control. Their work included such duties as submitting final products to fault analysis and performance investigation. Here a technician (detection operator) is calibrating the probe of an ultra-sonic flow detection unit used to locate flaws in metal structures and measure the thickness of metal walls.

keep technologists fully occupied. Most of these organisations felt, however, that future expansion would lead to the full employment of their professional staff and the recruitment of supporting technicians.

Six firms gave as their reasons the unavailability of suitable technicians, and it appeared that technicians would be engaged by these undertakings if they became available. A further two firms reported that they had not yet undertaken the organisational changes which would be necessary before technicians could be employed in association with their technologists.

Ratio of technicians to technologists employed

To provide a measure of the proportions and changing use of employees at the technician and professional levels, the ratios of technicians to technologists in related work were obtained and firms were asked about changes that had occurred in these ratios prior to the survey.

Overall, at the time of the survey, there were almost 8 technicians employed to every one technologist (7.82:1). The corresponding ratio of tradesmen to technicians was 3.4:1.

The ratios of technicians employed, relative to technologists in the same functional areas are shown in Table 7. The table also includes the comparable ratios found in the 1964 survey of electrical engineering, electronics and telecommunications industries.

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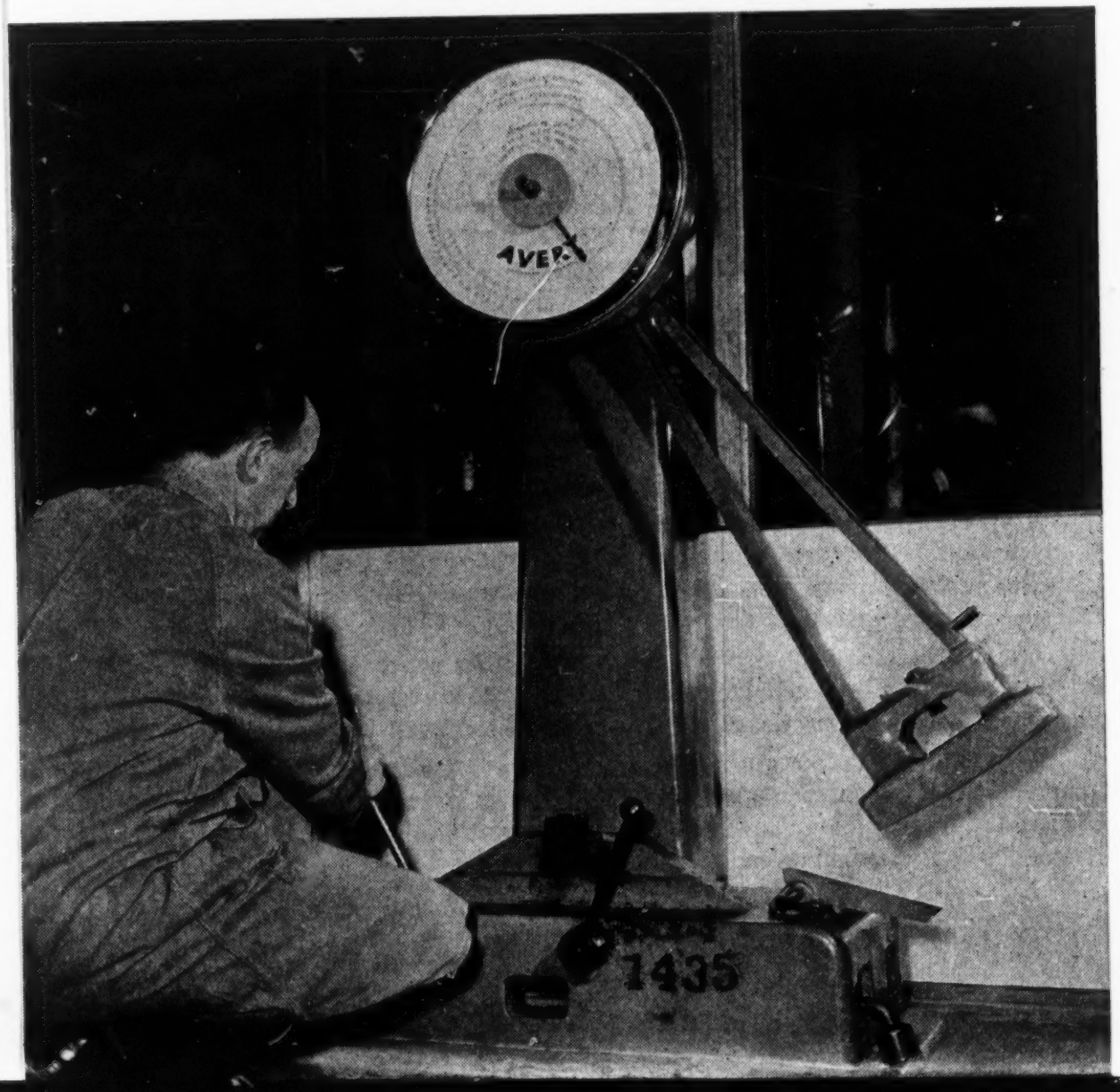
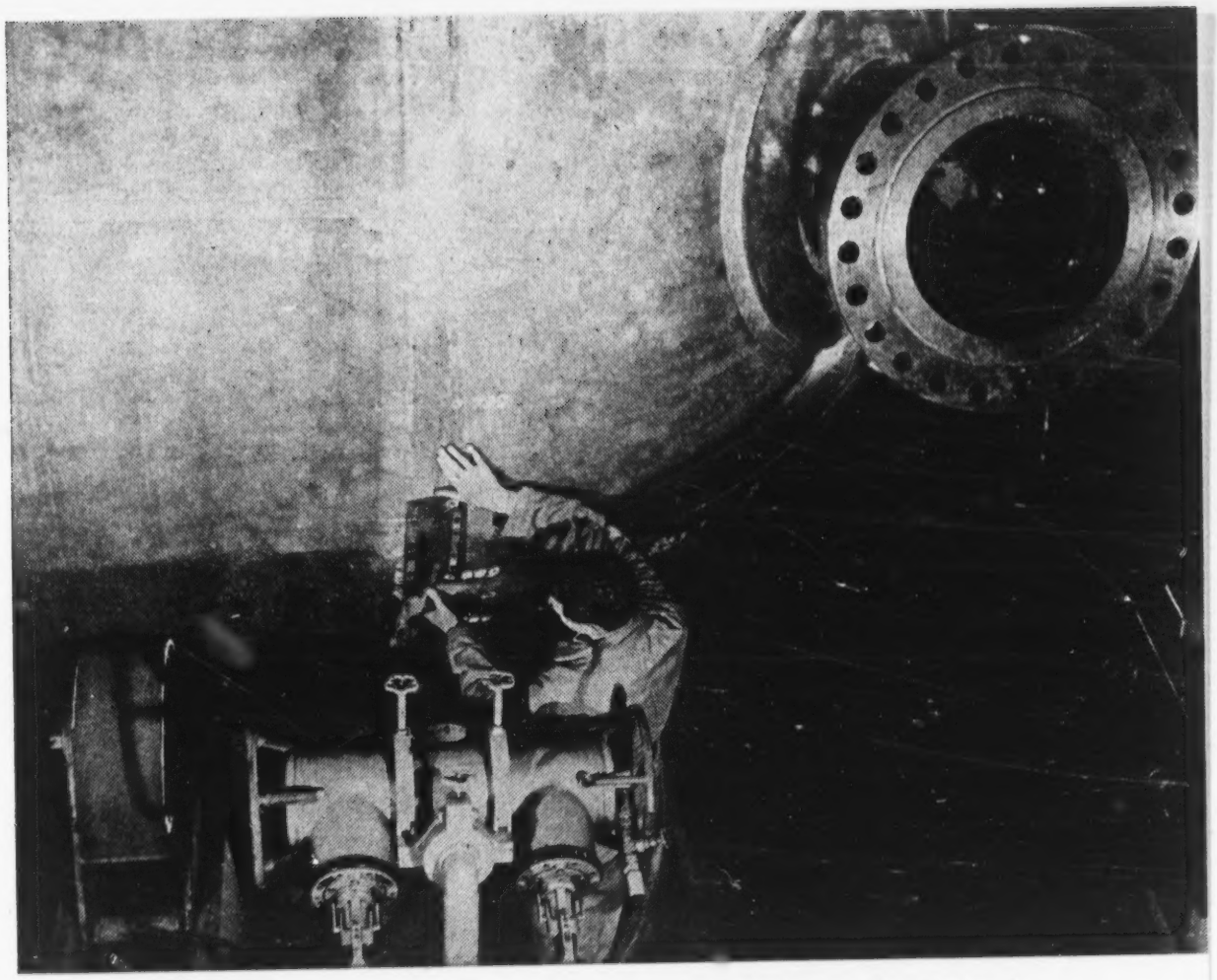
TABLE 7—NUMBER OF TECHNICIANS EMPLOYED TO EACH TECHNOLOGIST BY FUNCTIONAL AREA

Functional area	Non-electrical plant and machinery manufacturing industry (1968 survey)	Electrical engineering, electronics and telecommunications industries (1964 survey)
Research and development	1.9	1.3
Design and drawing	5.2	3.4
Production	27.9	8.7
Plant installation and maintenance	4.9	3.5
Quality control, testing, inspection and analysis	5.6	4.0
Sales and service	5.6	1.7
ALL FUNCTIONS	7.82	3.47

Below, a technician is testing the impact strength of a mild steel specimen on a Charpy impact testing machine. Technicians engaged in testing and allied work represented 7 percent of all technicians in the industry surveyed.





Another technician engaged in testing: in this case, adjusting a film holder in preparation for radiographing a weld in a pressure vessel.

Information about changes in the proportions of technicians and technologists over the previous five years was obtained from 116 firms. In about half the firms (59) it was thought that there had been little or no change during this period. This appeared to be mainly because increases in the technician component had occurred prior to the five-year period, and during the past five years emphasis had been upon consolidation of the employment structure along the lines already achieved.

In 16 firms it was felt that relatively fewer technicians were now employed; relatively more technologists than technicians had been recruited over the last five years to fill a growing need for increased technical sophistication of plant, or because of expanded activities in design engineering.

An increase in the proportion of technicians to technologists was reported by 41 firms, just over 35 percent of those commenting on this point. Reasons given included a growing need for technicians in production supervision and quality control, following more complex plant installation; a trend towards employing technicians rather than technologists for technical sales work; and the employment of more technicians (mainly research assistants, draftsmen and production supervisors) in work associated with expansion of production, extension of product range and changes in production methods.

CHAPTER 4

TECHNICIAN RECRUITMENT

Firms recruited their technicians in various ways but the majority obtained most of their technicians by upgrading tradesmen after appropriate in-plant training. Some firms, in fact, considered that upgrading was in some ways preferable since the nature of the work in particular firms required personnel with considerable experience in those firms. The desirability of being able to offer promotion prospects to their best tradesmen was also a consideration.

Qualifications usually required by firms recruiting technicians from other firms included a trade background and appropriate experience. Otherwise firms tended to require them to have at least partially completed a technician course at a technical institution. Formal technician qualifications were regarded as particularly desirable for appointment to positions as draftsmen, work study officers, estimators, quality controllers, production planners and technical sales representatives.

Of the 62 firms interviewed, 33 referred specifically to difficulties experienced in obtaining qualified technicians especially for work in such areas as drafting, design, research and production planning. Some firms had also had difficulty in recruiting, for example, production planners, cost estimators, and installation and maintenance technicians when introducing new equipment.

Where shortages could not be met by recourse to upgrading and in-plant training, firms had resorted to overtime and sometimes to using technologists on technicians' work.

In seeking to ensure a supply of technicians, 45 of the firms interviewed were encouraging their apprentices and tradesmen to undertake technician courses at technical institutions. To this end, there were firms paying or reimbursing fees and sometimes granting daytime release to employees to attend classes. One firm was also sponsoring selected employees for full-time study; another offered bonuses to employees who had gained high marks during their technician courses. There were also firms offering promotion to apprentices and tradesmen as specific rewards for successful completion of technician courses.

There were, nevertheless, complaints from some firms that too few apprentices and tradesmen were willing to undertake the study required for their advancement.

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Technicians with overseas qualifications were found to be employed in most of the firms interviewed. The proportion varied greatly between firms, but was as high as a third of all the technicians in one firm. Those with overseas qualifications were usually highly regarded, especially in drafting and work study positions. Firms as a rule did not express a preference for technicians with Australian qualifications, but some indicated that in interviewing applicants they often had difficulty in assessing the suitability of overseas qualifications for the particular jobs offering. This was sometimes overcome by testing applicants on the job.

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CHAPTER 5

TECHNICIAN TRAINING

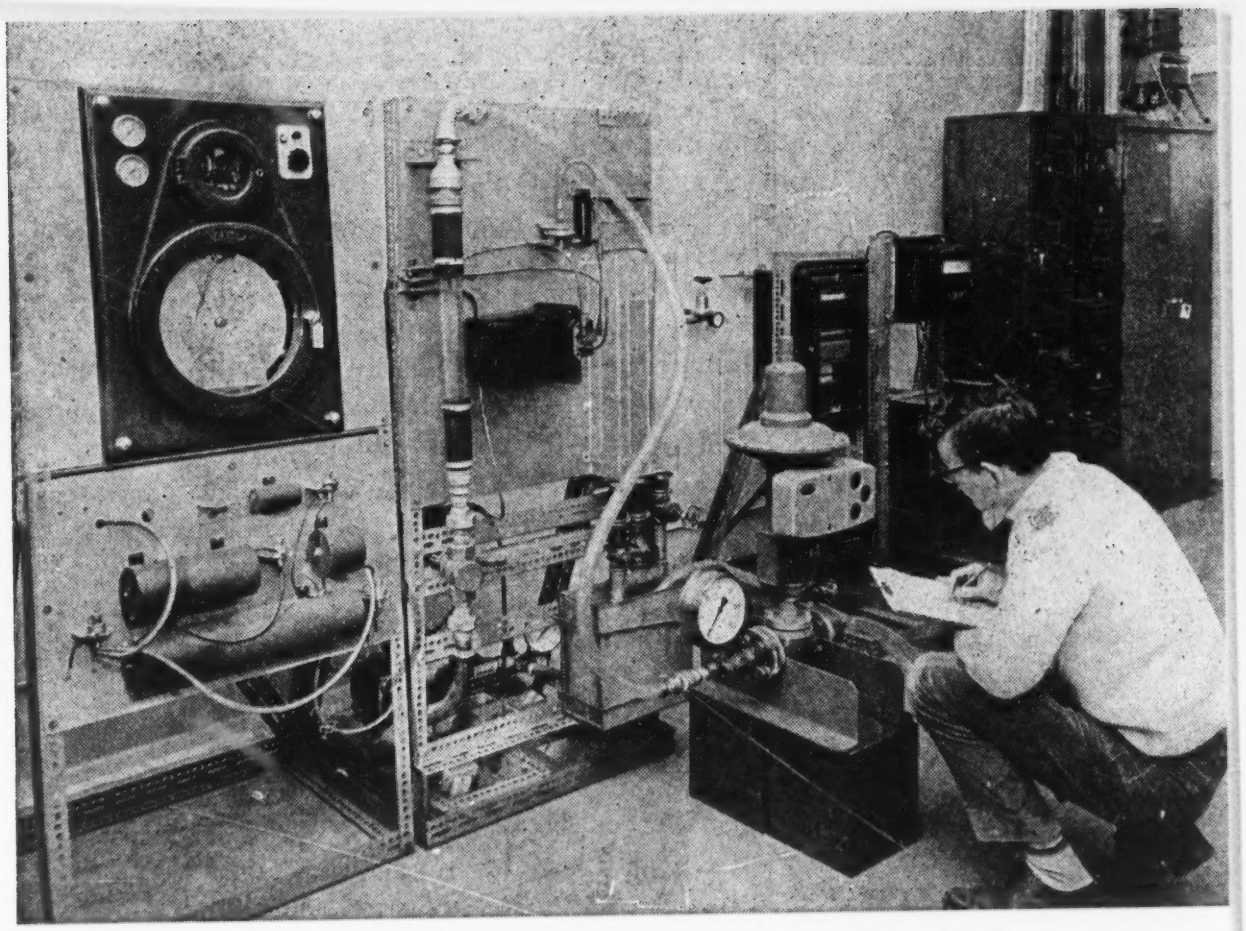
Training at educational institutions

Firms were asked to provide details of the number of technicians who had attended various types of training courses at technical colleges and other tertiary educational institutions. For convenience courses were classified as being at one of three main educational levels—below technician level, technician level, and above technician level—including both part-time and full-time studies. The results are shown in Table 8.

TABLE 8—TECHNICIANS: TYPE OF COURSE ATTENDED AT EDUCATIONAL INSTITUTIONS* BY FUNCTIONAL AREA

Functional area	Below technician level, e.g., trade courses	Technician level, e.g., certificate course		Above technician level, e.g., partly completed diploma or degree
		Completed	Part-completed	
Research and development	35 (34%)	27 (27%)	18 (18%)	17 (17%)
Design and drawing	149 (24%)	254 (41%)	142 (23%)	48 (8%)
Production:—				
planning and estimating	158 (53%)	63 (21%)	50 (17%)	12 (4%)
organisation, methods, work study	94 (57%)	40 (24%)	13 (8%)	6 (4%)
supervision	467 (72%)	72 (11%)	19 (3%)	10 (2%)
plant engineering, operation and maintenance	52 (56%)	21 (23%)	9 (10%)	8 (9%)
Plant installation and maintenance	40 (64%)	4 (6%)	8 (13%)	....
Quality control, testing, inspection and analysis	130 (71%)	19 (10%)	19 (10%)	6 (3%)
Sales and service	168 (59%)	72 (25%)	19 (7%)	7 (2%)
Other	20 (56%)	7 (19%)	1 (3%)	1 (3%)
TOTAL	1,313 (53%)	579 (23%)	298 (12%)	115 (5%)

* Percentages shown in this table relate to the total number of technicians employed in each functional area. The numbers and percentages cannot be added since some technicians attended more than one type of course.



At the time of the survey, 61 percent of trainee technicians were undertaking technician courses at technical colleges. This trainee is observing the flow characteristics and adjustments of a typical pneumatic control valve as part of his technical college training.

Table 8 shows that 1,313 technicians (57 percent) had attended courses classified as being below technician level—that is, trade courses of various kinds; 877 (35 percent) had attended courses at technician level; 579 of them (23 percent) had successfully completed their training, while a further 298 had either failed to complete the course or were still attending classes. One hundred and fifteen (or 5 percent) had attended above-technician level courses—courses at technical colleges or universities leading to a diploma or degree—but had not completed them. The categories of training shown in the table are not mutually exclusive and some technicians are included under more than one type of institutional training.

Over 70 percent of technicians working in production supervision and a similar proportion of those engaged in quality control activities had attended trade-level courses. In addition, many technicians with trade training were employed in such functional areas as plant installation and maintenance, sales and services, production and organisation, methods study, plant engineering, maintenance, planning and estimating. However, a substantial proportion of technicians engaged in these same functional areas were attending certificate-level courses.

Of those who had completed or partly completed technician-level education, just over 50 percent were found to be working in such functional areas as research and development or design and drawing. The majority (56 percent) of those who had attended technologist-level courses were also employed in these two functional areas.

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Among trainee technicians, a high proportion (61 percent) were found to be attending technician-level courses. Table 9 shows that, in contrast to the types of educational courses attended by technicians, only 56 trainees (20 percent) were undertaking courses at below the technician level. With the exception of those engaged in production supervision, the majority in all functional areas were attending technician-level courses. Drawing and design trainee technicians made up almost three-quarters of those undertaking these courses. This represented almost 83 percent of the total number of trainee technicians engaged in design and drawing.

Trainees attending technical college courses were mainly doing so on a part-time basis. In most cases time-off to attend lectures during the day was granted where suitable courses were available.

The number of trainee technicians taking part of a diploma or degree course was small (less than 4 percent).

TABLE 9—TRAINEE TECHNICIANS: TYPE OF COURSES ATTENDED AT EDUCATIONAL INSTITUTIONS* BY FUNCTIONAL AREA

Functional area	Below technician level, e.g., trade course	Technician level, e.g., certificate course	Above technician level, e.g., part of degree or diploma course
Research and development	3 (30%)	4 (40%)	3 (30%)
Design and drawing	15 (13%)	95 (83%)	2 (2%)
Production:—			
planning and estimating	4 (21%)	12 (63%)	1 (5%)
organisation, methods, work study	3 (15%)	16 (80%)	1 (5%)
supervision	21 (30%)	18 (25%)	1 (1%)
plant engineering, operation and maintenance	1 (9%)	7 (64%)	....
Plant installation and maintenance	....	1 (100%)	....
Quality control, testing, inspection and analysis	3 (25%)	5 (42%)	....
Sales and service	4 (36%)	6 (55%)	1 (9%)
Other	2 (33%)	3 (50%)	1 (17%)
TOTAL	56 (20%)	167 (61%)	10 (4%)

* Percentages shown in this table relate to the total number of trainee technicians employed in each functional area. The numbers and percentages cannot be added since some trainees attended more than one type of course.

In-plant training

Firms were asked to indicate the types of in-plant training which technicians had received. Table 10 shows that 45 percent of technicians had received some training on the job. This form of training predominated in each of the functional areas covered. Off-the-job technician training (training in a firm's training school or annex) was less common and only 232 (9 percent) had been trained in this way.

TABLE 10—TECHNICIANS: TYPE OF IN-PLANT TRAINING RECEIVED* BY FUNCTIONAL AREA

Functional area	Off-the-job technician training	On-the-job technician training	Trade training but no additional technician training	Training with previous employers
Research and development	14 (14%)	46 (45%)	22 (22%)	15 (15%)
Design and drawing	74 (12%)	292 (47%)	67 (11%)	140 (23%)
Production:—				
planning and estimating	38 (13%)	161 (54%)	51 (17%)	44 (15%)
organisation, methods, work study	11 (7%)	87 (53%)	29 (18%)	28 (17%)
supervision	67 (10%)	266 (41%)	208 (32%)	44 (7%)
plant engineering, operation and maintenance	12 (13%)	30 (32%)	23 (25%)	12 (13%)
Plant installation and maintenance	3 (5%)	27 (43%)	12 (19%)	12 (19%)
Quality control, testing, inspection and analysis	6 (3%)	89 (49%)	49 (27%)	28 (15%)
Sales and service	3 (1%)	111 (39%)	89 (31%)	59 (21%)
Other	4 (11%)	8 (22%)	2 (6%)	5 (14%)
TOTAL	232 (9%)	1,117 (45%)	552 (22%)	387 (16%)

* Percentages shown in this table relate to the total number of technicians employed in each functional area. The numbers and percentages cannot be added since some technicians received more than one type of training.

A considerable number of technicians (552) had received no specific technician training but had been upgraded without additional training after having completed an apprenticeship or other trade training.

A further group (387) had received their training with previous employers. Over one-third of them were employed in the design and drawing area, where the recruitment of ready-trained technicians was apparently a common practice.

As shown in Table 11, 38 percent of trainee technicians were receiving in-plant training off the job as compared with 9 percent of technicians (Table 10). However, on-the-job training was still the more common method.

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TABLE 11—TRAINEE TECHNICIANS: TYPE OF IN-PLANT TRAINING* BY FUNCTIONAL AREA

Functional area	Off-the-job training	On-the-job training
Research and development	4 (40%)	4 (40%)
Design and drawing	25 (22%)	84 (73%)
Production:—		
planning and estimating	4 (21%)	14 (74%)
organisation, methods, work study	7 (35%)	14 (70%)
supervision	53 (75%)	22 (31%)
plant engineering, operation and maintenance	3 (27%)	6 (55%)
Plant installation and maintenance	1 (100%)	1 (100%)
Quality control, testing, inspection and analysis	4 (33%)	9 (75%)
Sales and service	1 (9%)	8 (82%)
Other	3 (50%)	2 (33%)
TOTAL	105 (38%)	164 (60%)

* Percentages shown in this table relate to the total number of trainee technicians employed in each functional area. The numbers and percentages cannot be added since some trainees received more than one type of training.

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CHAPTER 6

CURRENT AND FUTURE REQUIREMENTS

At the time of the survey (July 1968) the 141 firms had vacancies for an additional 70 technicians and 33 technologists. Details are shown in Table 12.

TABLE 12—VACANCIES FOR TECHNICIANS AND TECHNOLOGISTS BY BRANCH OF ENGINEERING OR SCIENCE WITH WHICH THE VACANCIES ARE ASSOCIATED

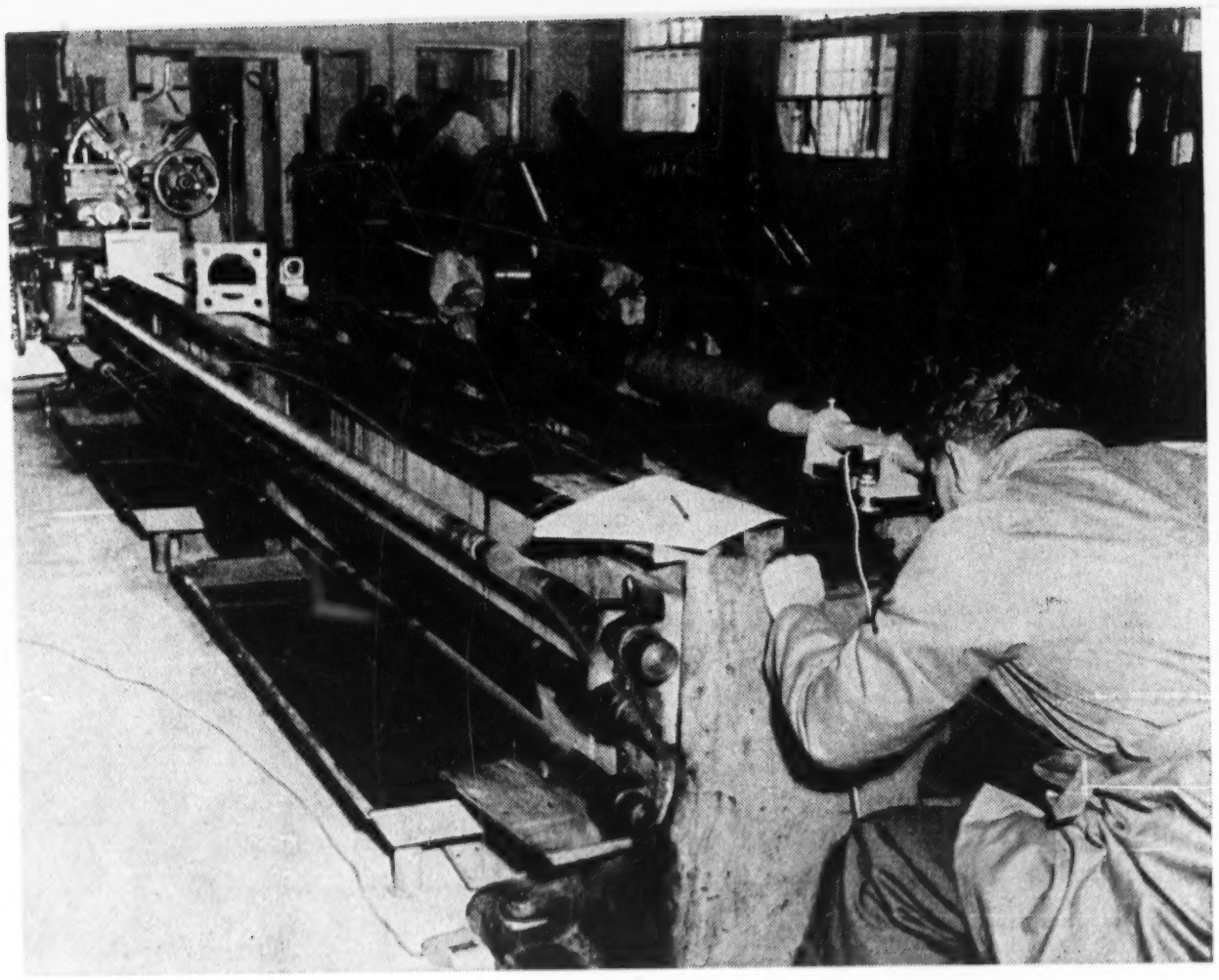
Branch of engineering or science	Current vacancies for—	
	Technicians	Technologists
Mechanical engineering	53	23
Electrical engineering	3	2
Electronics and communications engineering	....	1
Chemical engineering	1	....
Industrial engineering	7	2
Other engineering	6	....
Chemistry	....	2
Metallurgy	....	3
Physics	....	....
Mathematics and statistics	....	....
Other science	....	....
TOTAL	70	33

Vacancies for technicians were mainly in the functional areas of drafting, design, research and production planning for which technical institution qualifications were usually required. As mentioned earlier, there were difficulties reported in recruiting suitably qualified technicians in these areas and in some instances the shortages had caused problems in meeting contract schedules.

Most of the vacancies for technologists had occurred as a result of expansion programmes and subsequent research activities and so were in design or research and development. Difficulties in obtaining suitable technologists were due mainly to a shortage of professionally qualified persons with previous research and development experience.

The 70 technician vacancies were in 39 of the 141 firms. They represented less than 3 percent of all technicians employed.

The 33 vacancies for technologists—in 16 of the firms—were equivalent to 7 percent of the total number of technologists employed.



A production engineering technician setting a precision height gauge.

In considering these vacancies, it should be kept in mind that they do not adequately reflect the capacity of the firms to engage additional technicians or technologists. Many firms without vacancies would possibly have engaged qualified technicians had they been forthcoming. As it was, most of them were having to upgrade tradesmen to meet their needs.

Requirements for technologists were probably even less well defined and it is likely that more firms than the 16 with identified vacancies would have been prepared to employ additional technologists with appropriate experience, if they had been available.

Firms were asked to estimate the number of technicians and technologists they would need by 1973—five years ahead (see Table 13). Since this involved assumptions about the possible future state of the economy and the likely effects of economic conditions on their own plans for development, firms considered such forecasting difficult. In fact, most firms indicated that they seldom planned more than 18 months to two years ahead. Nevertheless, 117 firms were prepared to estimate their future requirements for technicians. These firms employed 2,054 or 82 percent of all the technicians in the survey.

In addition, future needs for technologists were estimated by 107 firms employing 402 technologists (89 percent).

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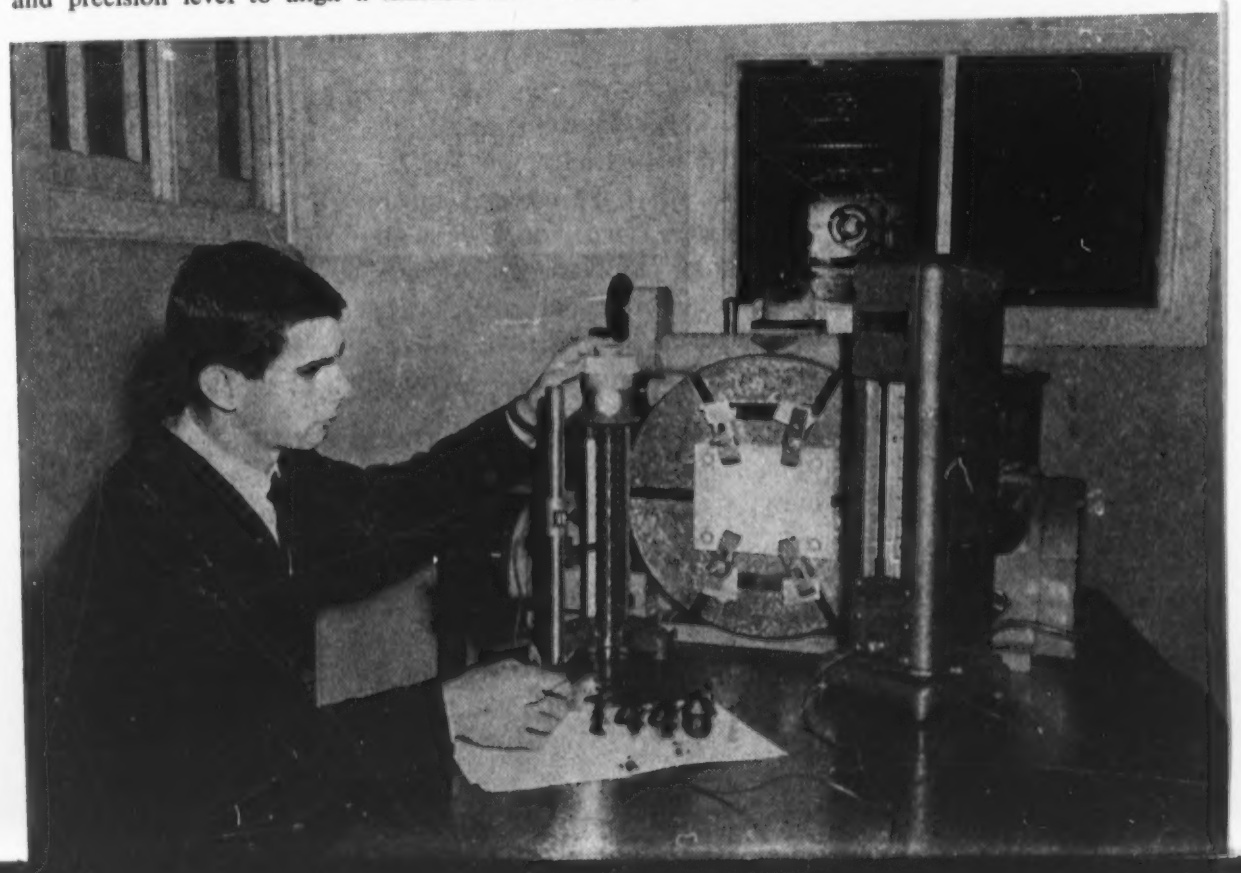
TABLE 13—FIRMS' ESTIMATES OF THE INCREASE IN THE NUMBER OF TECHNICIANS AND TECHNOLOGISTS NEEDED BY 1973* BY BRANCH OF ENGINEERING OR SCIENCE WITH WHICH THEIR WORK IS TO BE ASSOCIATED

Branch of engineering or science	Technicians (117 firms)	Technologists (107 firms)
Mechanical engineering	261	117
Electrical engineering	16	6
Electronics and communications engineering	6	3
Chemical engineering	5	2
Industrial engineering	37	20
Other engineering	45	4
Chemistry	3	3
Metallurgy	4	6
Physics	....	....
Mathematics and statistics	....	1
Other science	3	....
TOTAL	380	162

* Over and above those needed to replace wastage.

The bulk of the demand for technicians five years ahead was expected to be in these functional areas: research, drafting, production supervision and quality control. Future requirements for technologists were thought likely to be mainly in research and development, and design work.

A production engineering technician using an auto-collimator, precision reflector and precision level to align a machine tool slideway.



APPENDIX CONFIDENTIAL

QUESTIONNAIRE

SURVEY OF TECHNICIANS IN THE NON-ELECTRICAL PLANT AND MACHINERY MANUFACTURING INDUSTRIES CONDUCTED BY DEPARTMENT OF LABOUR AND NATIONAL SERVICE

Name of Organisation .....

Major Products .....

Contact Officer ..... Designation .....

This is a study of technicians in relation to other classes of technical manpower. Terms used in the study are explained below:—

Technologist: A professionally qualified scientist or engineer, that is, one who has a university degree or technical college diploma or other qualification admitting to membership of the recognised professional association. For the purpose of this study he must be predominantly engaged in work which requires such professional qualifications and not in administrative work of a non-technical nature.

Trainee Technologist: An employee who is undergoing training designed to lead to technologist status, e.g., a cadet. (An employee who has completed professional training should for the purpose of the survey be regarded as a technologist, although he may be regarded by the organisation—because he lacks experience or for other reasons—as still a trainee technologist.)

Technician: A technical employee, who need not necessarily be called a technician, whose work requires the application of technical knowledge and skill higher than that of a tradesmen but below that of a technologist, whether or not he possesses a recognised technician qualification, e.g., a technical college certificate. (In accordance with this definition such technical workers as draftsman, tool design engineer, toolroom foreman, heat treatment foreman, production supervisor, safety officer, laboratory technician, maintenance supervisor, estimator, quality control inspector, time study officer, research assistant, etc., may be regarded as technicians.)

Trainee Technician: An employee not yet engaged in technician work but undergoing appropriate training at a technical institution, or off-the-job or on-the-job training, specifically intended to qualify him for a technician position.

Tradesman: A worker employed as a tradesman, whether or not he served an apprenticeship.

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Please supply the following information:—

1. **Total employment**

	Male	Female	Total
(*a*) Management, administration and clerical*			
(*b*) Technologists, employed as such			
(*c*) Trainee technologists			
(*d*) Technicians			
(*e*) Trainee technicians			
(*f*) Tradesmen			
(*g*) Apprentice and other trainee tradesmen			
(*h*) Other employees*			
TOTAL			

* Technically qualified employees whose work is of a non-technical nature, e.g., administrative, should be included under 1 (*a*) or 1 (*h*), as appropriate.

2. Numbers of **technologists* and trainee technologists** at present employed according to **main function.**

Function	Technologists	Trainees
Management and administration		
Research and development		
Design and drawing		
Production		
Plant installation and maintenance		
Quality control, testing, inspection and analysis		
Sales and service		
Other		
TOTAL		

* Including qualified technologists in 1 (*a*) or 1 (*h*) in Table 1.

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3. Numbers of **technologists*** at present employed, according to the branch of **engineering or science** in which they are mainly engaged, present **vacancies** and estimated **changed needs in the next five years.**

Branch of engineering or science	Currently employed	Current vacancies	Expected employment in 1973 on the basis of your present planning
Mechanical engineering			
Electrical engineering			
Electronics and communications engineering			
Chemical engineering			
Industrial engineering			
Other engineering			
Chemistry			
Metallurgy			
Physics			
Mathematics and statistics			
Other science			
TOTAL			

* Including qualified technologists in 1 (*a*) or 1 (*h*) in Table 1.

4. **Technician job titles** used, with brief descriptions of jobs.

Job title	Number employed	Brief description of job

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5. Numbers of **technicians** at present employed according to the **branch** of engineering or science in which they are mainly engaged, present **vacancies** and estimated **changed needs in the next five years.**

Branch of engineering or science	Currently employed	Current vacancies	Expected employment by 1973 on the basis of your present planning
Mechanical engineering			
Electrical engineering			
Electronics and communications engineering			
Chemical engineering			
Industrial engineering			
Other engineering			
Chemistry			
Metallurgy			
Physics			
Mathematics and statistics			
Other science			
TOTAL			

6. Numbers of **technicians and trainee technicians** at present employed, according to **main function.**

Function	Technicians	Trainees
Research and development		
Design and drawing		
Production:—		
(1) Planning and estimating		
(2) Organisation, methods, work study		
(3) Supervision		
(4) Plant engineering, operation and maintenance		
Plant installation and maintenance		
Quality control, testing, inspection, analysis		
Sales and service		
Other		
TOTAL		

7450

7. Numbers of **technicians and trainee technicians** by function and education received or being undertaken.

Courses Attended at Educational Institutions

Function	Technicians				Trainee technicians		
	Below technician level, e.g., trade course	Technician level, e.g., certificate course		Above technician level, e.g., partly completed diploma or degree	Below technician level, e.g., trade course	Technician level, e.g., certificate course	Above technician level, e.g., part of diploma or degree course
		Completed	Part completed				
Research and development							
Design and drawing							
Production:—							
(1) Planning and estimating							
(2) Organisation, methods, work study							
(3) Supervision							
(4) Plant engineering, operation and maintenance ..							
Plant installation and maintenance							
Quality control, testing, inspection, analysis							
Sales and service							
Other							
TOTAL							

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8. Numbers of **technicians and trainee technicians** by function and education received or being undertaken.

Industrial Training

Function	Technicians				Trainee technicians	
	Off-the-job technician training	On-the-job technician training	Completed trade training without additional technician training	Training with previous employers	Off-the-job	On-the-job
Research and development						
Design and drawing						
Production:—						
(1) Planning and estimating						
(2) Organisation, methods, work study						
(3) Supervision						
(4) Plant engineering, operation and maintenance ..						
Plant installation and maintenance						
Quality control, testing, inspection, analysis						
Sales and service						
Other						
TOTAL						

1452

9. (i) Has the ratio of technicians to technologists employed in your firm changed in the last 5 years? If so, what was the direction and extent of the change?

9. (ii) In which functions was the change in ratio most evident, and why?

9. (iii) What have been the main reasons for the change in ratio, for example, expanded operations, more research activity, technological changes introduced, a shortage of technologists, and Professional Engineers' Awards? (Please indicate why these did result in a change in the ratio.)

9. (iv) Is the change in ratio likely to continue, and if so, please indicate why?

10. (i) Are some technologists engaged wholly or in part in work which could be satisfactorily handled by suitable technicians if available? (Give details.)

10. (ii) If the work of any technologists includes any technician-type activities (i.e., work which might be done by suitable technicians—Question 10 (i) above), what is the reason for this, and is the situation likely to change?

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VT 012 114
Report of Sixth Vocational Guidance Systems Conference (Villa Park, Illinois, December 19-20, 1969).

Willowbrook High School, Villa Park, Ill.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 69 39p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *CONFERENCE REPORTS; *OCCUPATIONAL GUIDANCE; EDUCATIONAL GUIDANCE; GUIDANCE FACILITIES; *COMPUTER ORIENTED PROGRAMS; *SYSTEMS APPROACH; PROGRAM DESCRIPTIONS; PROGRAM EVALUATION

ABSTRACT - For the past 4 years, 20 to 30 professionals who are interested and involved in the development and implication of computer-based guidance systems have met once or twice per year to share philosophies, issues, and findings, and to view systems as they became operational. Thus, this document is a summary of presentations given at this 2-day conference. Individual progress reports were presented for such projects as the Educational and Career Exploration System and the Computer-Assisted Manpower Matching Systems. Panel discussions were organized around (1) the feasibility of integrating various computerized vocational guidance systems, (2) new hardware and/or software developments, and (3) the assessment of the effectiveness of vocational guidance systems. The conference closed with a demonstration and a discussion of implementation problems concerning a computerized vocational information system. (JS)

VT 012 114

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Report

of

Sixth Vocational Guidance Systems Conference

Hosted by Project CVIS

Willowbrook High School

Villa Park, Illinois

December 19-20, 1969

1456

VT012114

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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INTRODUCTION

For the past four years, twenty to thirty professionals who are interested and involved in the development and implementation of computer-based guidance systems have met once or twice per year. The purpose of these meetings has been to share philosophies, issues, and findings, and to view systems as they become operational. Following is a listing of the first five conferences:

1. The Center for Vocational and Technical Education, Ohio State University, Columbus, Ohio. August 18 and 19, 1966. David V. Tiedeman, Program Chairman. Conference report published by The Center. Out of print but available through ERIC.

2. Systems Development Corporation, Santa Monica, California. February 27 and 28, 1967. John F. Cogswell, Program Chairman. No report was published.

3. International Business Machines Corporation, Advanced Systems Development Division, Yorktown Heights, New York. September 14 and 15, 1967. Frank J. Minor, Program Chairman. Report published and available from IBM.

4. American Institutes for Research. Palo Alto, California. March 8 and 9, 1968. John C. Flanagan, Program Chairman. Report has been published by the U.S. Office of Education through Government Printing Office. Contact Dr. Alice Scates, USOE.

5. Harvard University. Information System for Vocational Decisions, Cambridge, Massachusetts. October 11 and 12, 1968. David V. Tiedeman, Program Chairman. Harvard Project Annual Report available through ERIC.

Willowbrook High School, because of its development of Project CVIS, (Computerized Vocational Information System) was asked to host the Sixth Invitational Vocational Guidance Systems Conference on December 19 and 20, 1969. The report which follows is a summary of presentations given on those two days. We have prepared it with the hope that it will serve as a review for those who were able to attend and as useful information to those who watch the work of this group with keen interest.

The next scheduled meeting of the Computer-Assisted Vocational Guidance Invitational Conference will be on October 12 and 13, 1970, at Educational Testing Service, Princeton, New Jersey. Martin Katz, of SIGI (Systems of Interactive Guidance and Information), will be chairman.

THE SIXTH VOCATIONAL GUIDANCE SYSTEMS CONFERENCE

Willowbrook High School, Villa Park, Illinois

Agenda

Program Chairmen:

Jo Ann Harris, Willowbrook High School
Robert E. Campbell, Ohio State University

Friday, December 19 (Stouffers Oakbrook Inn)

9:00 a.m. - 11:00 a.m. - Individual Progress Reports of Systems Projects.

Robert E. Campbell, moderator.

11:00 a.m. - 12:00 noon - Panel discussion: Merging Systems. (A discussion of the feasibility of integrating various computerized vocational guidance systems).

Judith Weinstein, U.S. Office of Education, moderator.
David V. Tiedeman, Harvard University, discussant.
Tommy L. Roberts, Southern Methodist University, discussant.

12:00 noon - 1:30 p.m. - Lunch

1:30 p.m. - 3:00 p.m. - Panel discussion: New Technology. (New hardware and/or software developments)

Eugene Wilson, Interactive Learning Systems Corporation, moderator.
Keith E. Whitmore, Eastman Kodak Company, discussant.
Richard F. Carle, Sanders Associates, Inc., discussant.

3:00 p.m. - 5:00 p.m. - Panel discussion: Project Evaluation. (The assessment of the effectiveness of vocational guidance systems)

Robert E. Campbell, moderator
Martin J. Bohn, Jr., Teachers College, discussant.
Jo Ann Harris, Willowbrook High School, discussant.

Saturday, December 20 (Willowbrook High School) Jo Ann Harris and staff.

9:00 a.m. - 12:00 noon - Demonstration of Computerized Vocational Information System

12:00 noon - 1:00 p.m. - Lunch

1:00 p.m. - 2:00 p.m. - Student panel: User Reactions

2:00 p.m. - 3:00 p.m. - System Implementation Problems

Mr. James Boyd, Systems Analyst

ADJOURN

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C. System of Interactive Guidance and Information (SIGI)	9
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F. Rochester Career Guidance Project	13 - 15
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NOTE: For summaries of projects not presented at this conferences, see COMPUTER-BASED VOCATIONAL GUIDANCE SYSTEMS, a summary of the fourth invitational conference, published in 1969 by the United States Office of Education. This booklet is available from the Superintendent of Documents for $1.25.

E.C.E.S.
(Educational and Career Exploration System)

Title of Project: Educational and Career Exploration System

Principal Investigators:

Development
Frank J. Minor, IBM Project Manager
Donald E. Super, Teachers College, Columbia University, Consultant
Roger A. Myers, Teachers College, Columbia University, Consultant

Evaluation Project Personnel
Donald E. Super, Teachers College, Columbia University, Consultant
Albert S. Thompson, Teachers College, Columbia University, Consultant
Richard H. Lindeman, Teachers College, Columbia University, Consultant
Martin J. Bohn, Jr., Teachers College, Columbia University, Consultant

Cooperating School Systems
Montclair, New Jersey 1969-1970
Genesee Intermediate School District, Flint, Michigan 1970-

Source of Financial Support: IBM Advanced Systems Development Division and supporting grants.

Goals of Project: ECES was directed toward the development of a computer-based educational and career exploration system which could reduce the problems of information processing in guidance. The system was to be largely under the control of the student, to be used in an interactive mode, and appropriate for a wide range of students. The system should enhance vocational development by helping the individual understand better his own characteristics and those of occupations, the implications of his educational decisions, and be of assistance in post-high school planning. Counselors would benefit from working with better informed and motivated students.

Amount of Progress Toward Stated Goals: For this system, the theoretical framework and the decision-logic flow chart have been developed. The components and the programs have been put together and the system itself has been debugged in the laboratory and in a school system. ECES has

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been field-tested for a period of three months and a longer-term field test is now being planned.

Target Date for Completion or Implementation: In March through May 1969, a brief field test was conducted in Montclair, New Jersey: the report appeared early in 1970. A long-term trial with a large sample of students is planned to begin in November, 1970.

Results of Evaluation to Date: The field trial demonstrated that ECES is operational, if experimental. The equipment required only minor maintenance and the students were able to use the system with minimum supervision. Usage patterns showed ECES to be appropriate for students of all high school grades, of both sexes, both black and white races, and college as well as non-college bound. Students' reactions were positive, expressing a preference for a guidance program which included a system like ECES in addition to a counselor. Parents were similarly positive in their reactions. The brief field trial did not seem to change the counselors' interactions with students, and the effects of ECES on students' vocational development will be the focus of the next evaluation study.

THE BARTLESVILLE SYSTEM

Title: (TGISS) Total Guidance Information Support System

Location: College High School - Bartlesville, Oklahoma

Oklahoma State University - Stillwater, Oklahoma

Principal Investigators:
Tommy L. Roberts, Southern Methodist University
Wayne Richardson, Bartlesville Public Schools

Goals: Project goals include providing computer support to ten student decision areas. These include: (1) Academic Course Selection, (2) Vocational Course Selection, (3) Learning Committment, (4) Extra-curricular Activities, (5) Noncurricular Activities, (6) Continuation of School, (7) College Selection, (8) Job Selection, (9) Military Obligations, and (10) Marriage. The system is designed to facilitate the counselor function in the student decision-making process through the application of instant information retrieval, gaming, diagnostic, and conversational dialog techniques.

Progress to Date: Initial design is complete. Prototype hardware is installed and operating daily between 8:00 A.M. and 3:00 P.M. at College High School. The hardware configuration includes four IBM 2260 Remote Stations located in the counseling suite at College High. The remote stations are linked to an IBM System 360/50 mainframe located 115 miles away at Oklahoma State University. This necessitates the use of an IBM 2848 and 2701 control unit, two Western Electric Data Sets, and a Southwestern Bell lease line.

The data base is complete and the basic retrieval system is being utilized by the counselors daily. Initial software is under development which will provide the diagnostic capability. The gaming and conversational software is still in design.

Completion Target Date:

Originally projected for February, 1971. Funding cutbacks have made reassessment of completion dates mandatory.

Evaluation:

Begins April, 1970.

Documentation:

Available from ERIC.

S.I.G.I.
(System of Interactive Guidance and Information)

Title of Project: System of Interactive Guidance and Information (SIGI)

Principal Investigators: Martin R. Katz, William Godwin, Frederick Kling

Source of Financial Support: Carnegie Corporation

Goals of the Project: To help junior college students make more rational and better informed career decisions. Students will interact, through multiple terminals, with a small on-site computer programmed to help them explore and examine values, acquire and interpret relevant information, obtain predictions of success, and formulate plans.

Amount of Progress Toward Stated Goals: A prototype system is now being developed. A demonstration is expected to be ready by Summer 1970.

Target Date for Completion or Implementation: Field testing scheduled to be completed and system ready for full-scale use by 1973.

Results of Evaluation to Date: Not at that point yet.

COMPUTER-ASSISTED MANPOWER MATCHING SYSTEMS

Title of Project: Computer-Assisted Manpower Matching Systems

Principal Investigators: Division of Manpower Matching Systems, Manpower Administration, U.S. Department of Labor

J.M. Levine is chief of the Division. There are in addition thirteen professionals on staff.

Source of Financial Support: U.S. Department of Labor

Goals of the Project: The establishment of a nationwide network of computer-assisted state manpower systems within five years is a major goal of the Manpower Administration. The development of an effective matching system, however, is not primarily a question of computers, but one of innovation in Employment Service operations. In addition to allowing faster and more broad-ranged placement service to all types of job applicants and employers, the computer-assisted national matching system will also permit greater flexibility of service. The program also involves applications beyond the establishment of a nationwide computerized placement system. The matching system will have great importance in counseling and employability development, in employability exploration and self-directed job information services, and in overall restructuring of the delivery of manpower services based on individual needs.

Amount of Progress Toward Stated Goals: Under this long range program to bring computer assistance to manpower services, experimental systems are now being tested in four states - Utah, Wisconsin, California, and New York. In addition, the conversion of the Maryland system of metropolitan job banks to a statewide matching system is contemplated as a guide to the conversion problem nationally.

Target Date for Completion or Implementation: It is planned to establish the nationwide network in five years. In 1971, based upon evaluation of the state models, a basic design package will be developed to assist all states in establishing compatible matching systems. All state models being tested are experimental in nature. There is no standard approach to design configuration. The testing of differing designs and methods has been encouraged. As these designs become operational or other approaches develop, attention will turn to evaluation and determination of which systems or combination of system features can best be exported to other states. Thus each of these experimental models may make a significant contribution to the ultimate design of the nationwide matching system.

Results of Evaluation to Date: Although intensive evaluation is taking place at this time, I think it is too early to include this item.

EUGENIA MARIA DE HOSTOS COMMUNITY COLLEGE INFORMATION SYSTEM

Title of Project: Eugenia Maria de Hostos Community College Information System

Principal Investigators: Dr. Carl Helm and Miss Elaine Kirsh

Source of Financial Support:

Hostos' development budget 1969-70
Hostos' operating budget 1970-71

Goals of the Project: To develop a counseling-oriented information system to serve prospective students. The system will provide information on admissions, costs, financial aid, help in choosing a CUNY program, CUNY programs and occupations. The system will be implemented at Hostos and at various locations in the surrounding community.

Amount of Progress Toward Stated Goals: The preliminary system has been developed. During the spring, the system will be made time-shared, data will be collected, and error handling procedures will be developed.

Target Date for Completion or Implementation: Implementation of version I is scheduled for July 1970.

Results of Evaluation to Date: Hostos Community College of the City University of New York will begin operation in September, 1970. The emphasis will be on programs in the health sciences, but the college will offer programs in other career areas as well as in the liberal arts. The college will be located in the predominately Puerto Rican South Bronx area of New York City.

ROCHESTER CAREER GUIDANCE PROJECT

Title of Project: Rochester Career Guidance Project

Principal Investigators: David B. Youst, Ph.D.
Project Director

Sources of Financial Support:

Rochester City Schools, Eastman Kodak Company, New York State Employment Service, New York State Education Department, and Vocational Education funds.

Goals of the Project: This report is organized in five sections according to major project activities. They are: 1. Microfilm, 2. Computer Applications, 3. Life-Career Studies, 4. Activities in the High School Occupational Annex and the Junior High School, and 5. Funding and Planning.

1. Microfilm

More than 30 pages of information from nine primary sources on each of 600 job titles has been assembled in microfiche and micro-strip format. The entire file was updated and rephotographed in February, 1970. Microfilm files and the necessary reader-printer equipment is in operation in two locations - the Multi-Occupations Laboratory in the High School Annex and in the Junior High School. Before June, 1970, the file will be further augmented with data on local employment situations and educational program planning.

2. Computer Applications

An "Cccu-search" program has been written but is not now available at the computer terminals located at the guidance sites. Operational difficulty with the computer system will probably prohibit extensive use of the program between now and June.

3. Life-Career Studies

A second life-career study was undertaken in order to demonstrate the cost effectiveness of such procedures and to add problem-solving experiences. Interviews were held with four X-ray technicians as role models, and the audio-visual programs are now being assembled.

Present estimates of the cost of producing each unit (within the framework of the existing program) show that materials could be produced for about $1200. for the first version and about $15. for each duplicate made from the original. With one hundred copies produced, the cost per unit would be $27. for a 20-minute audio-visual production. The addition of problem-solving units would increase this price slightly.

4. Activities in the High School Annex and the Junior High School

Duplicate files of microfilm material, career life studies, and job interviews (prepared by junior high students) are being used. Usage patterns are being studied and file formats are being compared. Preparation of materials by students is continuing.

5. Funding and Planning

June, 1970, is viewed as a decision-making date for the project. By that time programs will have been carried to the point where some objective appraisal will be possible.

The project has been supported by: personnel from The New York State Employment Agency, loan of equipment and personnel from Eastman Kodak, access to many persons in local businesses and industries, Vocational Education funds, and New York State Education Department funds.

Additional funding has just come from The New York State Education Department, Bureau of Guidance. These funds will permit:

- completion of a comprehensive microfilm file of occupational information
- production of materials evaluating student use of such information

- provision of paraprofessional support for student use of career information at Frederick Douglass Junior High School

- production of multi-media materials which describe Project innovations during the past three years. Such presentations should serve as stimuli for professionals in in-service settings.

Target Date for Completion or Implementation:

Decision time for project's future is June, 1970.

PROJECT CVIS (COMPUTERIZED VOCATIONAL INFORMATION SYSTEM)

Title of Project: Computerized Vocational Information System (CVIS)

Principal Investigators: JoAnn Harris, Project Director, Director of Guidance, Willowbrook High School
James Boyd, Systems Analyst, Project CVIS
Alfred Cocks, Vocational Counselor, Willowbrook High School
Willis Farnham, Counselor, Willowbrook High School
Lorraine Foster, Counselor, Willowbrook High School
James Godshalk, Director of Guidance, College of DuPage

Sources of Financial Support:

Illinois State Board of Vocational Education
High School District 88
Community College District 502

Goals of the Project:

1) To provide for students a computerized interactive exploration of career and educational alternatives.
2) To assist students to relate data about themselves to data about educational and vocational opportunities.
3) To make the process of career exploration considerably more innovative and more attractive to students than traditional methods.
4) To teach a decision-making process.
5) To make better use of counselor time by assigning to computers those tasks which they can do best and redeeming counselor time for those tasks which require human sensitivity and judgment.

Amount of Progress Toward Goal:

Project CVIS began in January, 1967, at Willowbrook High School. The first two stages of development (January - August, 1967) were devoted to becoming acquainted with other existing systems, brainstorming, and laying a theoretical framework for the total system. Phase III (school year 1967-68) was devoted to script writing and testing, collection of data about occupations and students, designing of a computerized student record, selection of computer hardware and display devices, and programming.

In November, 1968, students at Willowbrook began to explore 450 occupations in relationship to their own student records by use of two IBM-2260 cathode ray tubes connected to an IBM 360-30 computer housed at College of DuPage, now sharing in the development of the project. In January, 1969, counselor terminals were installed at Willowbrook for use in recall of computerized student records, information about occupations and educational institutions, and other uses to be developed later.

In fall, 1969, terminals were installed at College of DuPage for student and counselor use. In addition, six new programs and scripts were added for student use: on-line college information and selection; information about College of DuPage curricula; information about and selection of local trade & technical schools; information about local jobs; apprenticeship instruction; and military information. Additional counselor functions were added, including on-line registration and on-line schedule changes. During the spring of 1970, a design and script were developed for junior high self-exploration and vocational exploration, making heavy use of visuals. This new program will be implemented in the fall of 1970 in a nearby junior high.

Target Date for Completion:

Such a date has not been set since the project is continuously developing and evolving. Financial support is assured through June, 1971.

Results of Evaluation:

1) Students respond very favorably to computerized, interactive systems.

2) Students learn quickly to operate such systems and to "use" them for gaining of facts. 3) Student response is much more favorable toward programs (scripts) which incorporate data about themselves and allow inter-relationships of such data than to programs which give facts in a "page-turning" fashion. 4) Three times as many CVIS users as non-users state that they know how to reach a vocational decision and how to find the first job. 5) Students value computerized systems because they view them as quick, efficient, impartial, accurate sources of information.

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Panel: Merging Computer Systems

Dr. Tommy Roberts, Southern Methodist University
Dr. David Tiedeman, Harvard University

Dr. Tommy Roberts, Southern Methodist University and Project TGISS, was the first speaker to the question of merging systems. His talk was built around a number of problems that must be faced when considering the problem of merging the various systems, if indeed, we are or want to merge them, and some recommendations for some first steps.

The problems presented involved:

1. Hardware

   Each state, university, public school, etc. chooses its own hardware.

2. Programming Languages

   Incompatibility of different languages used on each different hardware configuration.

3. Software Constraints

   Problems of documentation and inadequate support from manufacturers.

4. Upgrading

   Both programs and finances.

5. User Requirements

   Local, state, regional differences in philosophies and objectives.

6. Information Exchange

   Geographic remoteness and competition for funds.

7. Public Support

   Desire of the public to know per pupil cost and value returned; is it worth it?

8. Interstate Cooperation

   Funding procedures vary from state to state; inadequate opportunity to share planning.

9. Conventionalism and Bias

   Jealousies and competition within and between institutions.

10. Technical Training

Level of counselor education in regard to such systems, lack of well-trained software personnel, awareness and understanding of shortage of administration.

His three recommendations for the merging of systems suggested actions to be taken or directed by the Office of Health Education and Welfare. These were:

1. To create an Advisory Board to screen and evaluate all projects.

2. To appropriate funds to develop a special purpose computer for educational applications.

3. To develop a center merging and making the various systems compatible with the Health, Education and Welfare application to education.

The second speaker on the panel concerned with Merging Computer Systems, Dr. David Tiedeman of Harvard University, agreed with Dr. Roberts' list of problems and recommendations for merging systems, and then provided his audience with a number of considerations, suggestions, urgings, and warnings. Some of these were:

1. There are parts of each of the projects that can be handled systematically with or without a computer. These are the areas that give us much room for merging and cooperation.

2. Since the primary initiative for funding is with private companies, we should be careful not to contradict the necessity for competition. We should be sure to stop short of merging to the extent that we prevent private competition in the manufacture and sale of esoteric systems.

3. The problem is not ours alone, but that of the Office of Education. They should put together a plan that would include an investment policy and a review policy that would, if not merge, at least coordinate, our activities.

4. Some effort should be made to take advantage of the programs developed by the "think tanks", to see if it is possible to make an educational application of these programs. The people involved in these projects should be present in our problem.

5. The importance of these conferences is that we can exchange information and listen to and make contact with the commercial companies that "want to be seduced".

6. It is important to file documentation of the projects at the Ohio State Center and then to use these documents as much as possible in the development of new projects or in the expansion of old.

7. Taking a close look at where the various projects overlap may help us to come up with a more integrating document of what a career development system can be.

8. Much progress has been made and much new technology developed. Now it is up to us to organize and integrate this knowledge and technology to the extent that we can advise school administrators, people in the U.S. Department of Labor and others of ways of conceiving career development programs systematically.

9. We should be warned that we do not have unlimited time. The younger generation has a right to expect that we produce. Are we reaching them effectively? Are we really changing education or merely reporting and rigidifying it? Are we getting the "goodies" to the people?

Panel: New Technology

Dr. Richard Carle, Sanders Associates, Inc.
Mr. Keith Whitmore, Eastman Kodak Company

While acknowledging many rapid gains and advances in technology, Dr. Carle's remarks focused on the recent developments in display terminals. In the past, cathode ray tubes have rarely been used because of the high cost. New developments in display terminals, such as the plasma display or the electro-luminesence display, are relatively inexpensive and offer greater flexibility and ease of use.

Dr. Carle predicted that central processors and terminals will become passe. While in the past program developments have been hampered by lack of equipment to do the job, he foresees that in the near future hardware will be available before programs are developed to use them.

Programming languages are being developed that will make use of the systems more meaningful to the users.

Bulk storage at reasonable cost, if less than instantaneous recall is possible, is yet another coming feature.

Keith Whitmore discussed developing technology other than computers. He placed emphasis on the learner-centered equipment being developed in audio tapes and loop films. He demonstrated through film how the camera has been used as a tool for learning with student film productions becoming part of the educational process. The ever-increasing simplification of equipment today enables young children to use film and camera with ease. In summarizing the ideas in technological advances, Eugene Wilson stressed that most developers must become aware of the cost factors. He felt that guidance use of computers may not yet be economically feasible. However, the computer as a learning tool will, he felt, revolutionize education and curriculum. Students in using the computer as a tool can test out their

own hypothesis against more information than they have ever had available before.

Panel: Project Evaluation

Dr. Martin Bohn, ECES Project
Miss JoAnn Harris, Project CVIS

ECES adopted a pragmatic approach to evaluation of use of the computer in guidance. The evaluation was set up in Montclair, New Jersey, with an experimental group and a control group, and a controlled ratio of male and female, college and non-college, black and white, and grade level users.

There were four terminals and eight periods in the day, and it was decided that once a week was a reasonable amount of time to be on the system. This allowed enough time for 160 users in one week, and this was the size of the experimental group. For each experimental subject there was a control subject matched on all of the variables.

The program ran from March through May. Some wanted the system to run longer, but it was felt the end of the school year was not the usual school experience for experimental purposes.

The primary issue to be evaluated was what kind of reactions would be seen in the students. Reactions evaluated were: decision making, what information students could use in decision making, information users had about themselves compared to standarized information, what kinds of information the student had before he used the system and what information he had after using the system, what sources of information the student thought were really important.

The evaluation also included issues about student attitudes toward the guidance program and how students reacted to the system itself. Evaluators wanted to know whether the system made sense to students, whether it helped them, and if they learned anything by use of it.

Some overall conclusions showed that grades nine and ten were more likely to use the system more often, and for longer periods of time, than eleventh and twelth graders. It was felt that upperclassmen had made decisions by the end of their respective school years, which meant that they no longer had the loose, wide open, set of alternatives needed to be attracted to extended use of the system.

There were no significant differences in respect to race, with one exception. The black, female, non-college group did not respond to the system at all. Otherwise, the system generated a great deal of interest on the part of the students and parents of students.

There was not as much response from counselors as had been anticipated. They were given privy to everything that was going on, but somehow there was a breakdown in communication. Counselors interpreted the field test to mean that they should not attempt to sway the students one way or another. Parents, more often than not, felt ECES was worthwhile for their children, although a small number of parents thought the system was too pushy or tended to prescribe options.

For the teachers the system had an amazingly low profile in the school system. They attended meetings and were introduced to the program, but there was a minimal effect as far as their involvement with the students and teachers.

The responses from individuals visiting the system, school officials, and parents were so favorable that ECES was able to go ahead with plans for a more complete evaluation study which will take place in Flint, Michigan, next year.

Data were gathered mostly by questionnaire which was administered to both groups before and after use of the system. There was also one form that only the experimental group responded to after using the system. Results of the pre-test were used to determine the comparability of the experimental and control groups. The most supportive post-test results were that the experimentals felt they knew more about what was going on in terms of their abilities and interests than did the control groups.

Conclusions of significance were:

1. The placement of a computer-based exploratory system within the framework of the present school system seemed to make sense.

2. ECES is useful for a wide range of students, although in its present form it is more appropriate for some groups than others. A second-semester high school senior is not so likely to profit from it as the freshman and sophomore students.

3. There were some positive results in regard to measuring vocational maturity by the questionnaire method.

4. Evidence for the impact of the system that came from the students, parents, counselors, and to a limited extent from the teachers, was supportive of the system.

5. The students were able to manage the system and felt it was helpful.

Jo Ann Harris opened her discussion of Project CVIS evaluation by stating three major issues which must be faced and resolved before evaluation can be planned and carried out. These are:

1. Should evaluation be based on long-term or short-term goals?

2. What must be accomplished in order to consider ourselves successful? Will we measure the consumption of information, the degree of understanding of information, the amount of system usage, the reactions of users to the system, and/or the making of "better" vocational decisions?

3. Whom shall we ask to rate our success - the user himself, guidance professionals, parents, employers?

The CVIS team, after long discussion, agreed upon the questions which it felt must be answered in order to provide a yardstick for success. Those which can be answered through relatively short-term evaluation were isolated and are being and will be answered in the 1969-70 school year in the following ways:

1. Comparison of responses to pre and post-use questionnaire items. Examples of significant ones are:

   a. Do you feel that you know how to make a vocational decision?

   b. What things do you think people should consider when they make a vocational choice?

   c. What is the present status of your vocational planning?

2. A doctoral study being done by George Melhus from Illinois Institute of Technology. This study involves the analysis of progress in vocational planning by four selected groups:

   a. High ability students with high level of emotional maturity, using CVIS but not receiving vocational guidance from their counselors.

   b. High ability students with high level of emotional maturity, not using CVIS but receiving traditional vocational guidance attention from their counselors.

   c. Low ability students with low level of emotional maturity, using CVIS.

   d. Low ability students with low level of emotional maturity, receiving traditional guidance counseling.

3. A comparison of general knowledge about occupations of CVIS users and non-users as measured by a questionnaire administered in October, 1969, and in June, 1970, to 1,000 randomly selected Willowbrook students.

4. A counselor questionnaire administered in October, 1969, and June, 1970.

5. Analysis of computer-stored data:

   a. Characteristics of users (sex, year in school, ability, academic achievement)

b. Pattern of individual vocational exploration through Roe lattice.

c. Result of receiving "discrepancy" messages.

d. Progress of vocational planning from 7th grade through 14th.

e. Amount of usage of material about each of the 450 occupations and by Roe level and field.

JoAnn Harris concluded her presentation with the following tentative conclusions based on one year of operation with approximately 2,000 users:

1. Students and parents accept computer-based systems with enthusiasm. Students state that they like:

   a. The wealth of information stored and the speed with which the computer can recall it.

   b. The opportunity to learn about themselves (grades, ability, interests).

   c. The interest of the scripts and the personalization of the experience of information-giving.

   d. The innovativeness of the approach.

   e. The impartiality of the computer about what information the student accesses.

2. The capabilities and limitations of computers must be adequately explained to students, counselors, parents, faculty, and general public.

3. On a voluntary basis, as many lower-quartile students (by tested ability and grades) use the computer system as top quartile students.

4. Three times as many CVIS users as non-users say that they know how to make a vocational choice and to get their first job.

5. Students feel that computer-based systems are much more interesting and helpful when the system allows the student to relate data about occupations and educational opportunities to data about himself.

6. Counselors on the whole do not feel threatened by computer-based systems.

7. In general, faculty members do not become involved or highly interested in computer-based systems.

III. Problems of Implementation

A Speech By

JAMES W. BOYD

CVIS Systems Analyst

PROBLEMS OF IMPLEMENTATION

James W. Boyd, CVIS Systems Analyst
College of DuPage
Willowbrook High School

I would like to express my personal appreciation for the opportunity to participate in this conference. In speaking on the problems of implementation, I would like to classify this presentation as a TYPE III program. To those who may not be IBM oriented, let me explain what I mean by reading the disclaimer which accompanies IBM documentation for TYPE III programs.

DISCLAIMER

> "The programs in this documentation have been contributed to the program information department by the IBM employees and are provided by the IBM Corporation as a part of service to customers . . . . . IBM makes no warranty, stated or implied, as to the performance of the program . . . ."

This is another way of saying that they do not take the responsibility for any problems found in the execution of the program. In classifying this presentation of a TYPE III document, perhaps I am just asking for a modern American right ..... that is, the right to sound off without assuming responsibility for the implications of what is said. Having stated this disclaimer, I should now have the added freedom to say things I feel without being held responsible for having said them. I will invoke this disclaimer several times during my presentation.

What I am about to say should not be taken to mean that I am discouraged or pessimistic nor that I am casting reflection upon anyone. Furthermore, it should not impose upon me the responsibility of presenting solutions to all the problems of implementation. It is, of course, much easier to identify the problems than it is to solve them.

DEFINITION OF IMPLEMENTATION

Let me begin by referring to a typical data processing definition of implementation. It is typically defined to be the recourse step of a five step process.

1. Systems design
2. Implementation
3. Testing and debugging
4. Operation
5. Modification

From this definition it is seen that implementation is the process of putting design into operation. It includes all the procedures of installing equipment, training personnel to support a system, and developing the software to make the system function.

However, I would like to propose a slightly different definition. Implementation is the third step of a four-step procedure identified as follows:

1. Inspiration - conception of an idea
2. Aspiration - birth or initial development of the idea
3. Perspiration - struggle and strain of growth toward security
4. Operation - first level of successful application

Implementation to me is the perspiration stage. The stage of work, sweat, loss of sleep and sacrifice of some of the other activities we might otherwise enjoy. One thing involved in implementation is that the dreamer or designer comes face to face with the cold reality of Murphy's Law. This may be expressed in three parts:

1. Nothing is as easy as it seems.
2. Everything takes longer than you think.
3. If anything can go wrong, it will.

This came very close to happening today in the demonstration of CVIS. When I contacted the computer center to request initiation of the program, the operator said, "I have bad news." It seems that he had attempted to load the program three times and got equipment checks on one of the control units each time. Fortunately, it was cleared up, but at the time, I felt again the heavy burden of Murphy's law, "if anything can go wrong, it will."

Now to the problems of implementation. The first group of problems I would like to classify as administrative problems.

ADMINISTRATIVE PROBLEMS

Administrative problems involve the "behind the scene" type of things that many of us do not stop to think about. I think of it like this. We have enjoyed a conference that has been tremendously well planned, and we haven't stopped to think about all the details necessary to make it function. Someone did a lot of work behind the scenes to make this conference pleasurable. It is like the work of a housewife which involves a lot of meticulous functions that have to be done, but none of them receive much publicity. There are many administrative problems that do not make the headlines. Here are a few related to the total development of a system:

1. What are the necessary parameters in the development of a computerized system?
2. What is the best hardware selection to insure meeting the total system requirements?
3. Is the proposed new system compatible with total application?
4. Is the time frame realistic?
5. Is financing adequate, and where is it to be obtained?
6. Are public relations adequate?

7. Is progress in implementation in keeping with the time chart?

8. What new hardware is being developed which affects the system?

9. What goal patterns are emerging?

10. Does present hardware conform to these goal patterns?

11. What feed back is coming through that will cause new systems development, new planning?

These are only a few of the administrative problems of implementation. Many of them are often overlooked by the naive, uninitiated or inexperienced, but they are absolutely necessary to successful implementation.

PROBLEMS OF HARDWARE

Second, there are problems related to hardware and while these have been singled out several times in this conference, I have a few personal comments to make.

First, the initial selection of equipment must be made for the system configuration, and at this point, who makes the decision? One of the things that I happen to feel is that it is a mistake to leave this decision up to the recommendation of the manufacturer of the hardware. I am convinced that the vendor does not always have in mind the most economical way to accomplish a job. Many times vendor-supplied packages, in both hardware and software, have been developed for general use. This generality then is imposed upon all users, and in many applications that which does all things for all people proves inefficient, then many people pay for generality which they do not need and will not use. I will discuss software in more detail later, but I believe that the question of who makes the decision is vitally important. Do you rely upon the vendor, do you hire qualified people on your own staff to make these decisions, or do you hire a consulting firm? In the beginning of project CVIS, a very high level

consulting firm was hired to study the feasibility of the proposals. This firm spent several weeks at a cost of several thousand dollars and published a two-page report which in essence stated that with the personnel involved, the project could not be done. This consulting firm, without knowing it, made a significant contribution to the success of CVIS because those on the original committee took the negative report as a challenge to prove that the consulting firm was wrong. I would like to suggest that neither consulting firms nor hardware vendors are in the best position to make decisions about hardware. At this point, I would like to invoke my disclaimer.

The second problem of hardware may be classified as hardware function. Do we go for a special purpose system or a multi-purpose system? Some are saying that what we really need is a special purpose computer for education. Others are going in the opposite direction, obtaining a machine capable of doing many different things in a multi-programming environment. A case can be made for both directions. I would like to suggest that if we are going to have a special purpose educational computer, then it should be one that would do the total educational data processing job. It simply does not make sense to having a computer capable of doing nothing but CAI, then having to obtain a different computer for a different kind of application.

There are other problems related to hardware. Most of you will know what I mean by "lead" time. If you plan to implement in September, the equipment must be ordered at least 6 months in advance. Then allow another month or two for delays in delivery, mistakes in orders, failure in shipping some vital parts. Human error plays a large role in hardware implementation and causes many unscheduled delays. These must be considered in the process of implementation.

Another type of hardware problem is the limitation of the planned hardware system. Once a system is installed, new applications continue to be evident, but are often impossible due to the capabilities of the existing configuration.

A final type of hardware problem is the interface problem. In installing a teleprocessing application, there are three parties involved: the communications company, the computer manufacturer and the software supplier. This can be a very trying triangle. In our own installation we went through a three month period of triangular buck-passing. If the program does not work, the programmer blames either the hardware or the communications line, while these companies blame each other and the programmer. It usually turns out to be problems related to all three. One of the significant problems is to set up initial testing which involves all three parties working close together.

SOFTWARE PROBLEMS

Software problems can be grouped into several classifications. There is the "on-line" versus "batch" problem. What functions do you perform "on-line" and what function do you perform through "batch" processing? Do you update student records on-line or batch? Do you update grades on-line? If so, you are probably increasing rather than decreasing the amount of time that someone is going to spend doing it.

The question of local and/or remote applications is an important software consideration, and I learned rather early in our programming that these are two entirely different ball games. In the initial development of CVIS, we were able at a very early date to put on a demonstration in a local environment. But when we began to expand to remote locations so that the program could work at Willowbrook High School, we ran into numerous problems. First, there was no installation in the area where we could test the program. It

was necessary to go to Cincinatti, Ohio, and test under unfavorable conditions. Second, we ran into many programming problems which are never mentioned in the manuals.

The next type of software problem is that of selecting the teleprocessing technique. Do you use QTAM, BTAM, some other vendor-supplied technique, or do you write your own? How much core is required in the central processing unit? How much core can be afforded for the application?

Next there is the problem of the programming language. Here again, who makes this decision? I remember very distinctly when JoAnn approached me about becoming involved with CVIS. I said "Yes" when I did not realize half of the implications. But, in the beginning, I took the vendor's advice and began writing the program in PLI, only to find out that this was far too expensive core-wise and so had to start all over and write in Basic Assembly Language.

INTERRELATED PROBLEMS

I would like to discuss a few things under the heading of Interrelated Problems. Here again, I will carefully invoke my disclaimer.

Interrelated Problem 1 - This I will call the problem of the fallacy of the "do it now, pay later" approach. Let me explain what I mean. The emphasis of our initial development was to get students on the system, and this was as it should be. However, this at times imposed upon us the attitude of "get the job done, get it working" approach. We have come to realize that you often pay later for this approach. You may create something you have to live with later which may be highly undesirable. There must be a very careful systems approach to development. The project should be approached from a total application rather than a fragmented point of view. This does not mean that it should be a static system. It should be a dynamic, on-going development, but it must be planned from the system point of view to prevent creating a monster which you cannot live with.

Interrelated Problem 2 - Second, I would like to talk about what I will call the "magic wand" problem. This simply means that it is easy for people to see things taking place without really having any concept of how they take place and what is involved in getting them to take place. When we demonstrated CVIS in Las Vegas, there were people who asked how much the black box costs. They actually thought you could plug in the CRT and it would automatically produce the results. To a lesser degree, others feel that you can just wave a magic wand to get results. But to those who are involved in the tedious, step by step, detailed, technical development of the procedure, it is not that simple. There, of course, needs to be some degree of empathy between the user and the developer. The user is interested in results and doesn't really care how it is produced. But he at least needs sufficient understanding to allow him to be sympathetic with the problems encountered in implementation.

Interrelated Problem 3 - Next, I would like to discuss the problem of being "all things to all people." Data processing people are classified as service people. That means that they exist to serve others. In a sense they must be able to become "all things to all men." But this is a difficult role to play and creates many other problems. This reminds me of the story of the old man, the little boy, and a donkey. An elderly man, who was quite sensitive to other people's reactions, was going along with the boy, both riding the donkey. They met someone who said, "Look at the old man and boy breaking that poor donkey's back." The old man decided to get off and walk. The next person they met said, "Look at that boy making the old man walk." So the man took the boy off and got on the donkey himself whereupon the next person said, "Look at that old man making that little boy walk." At this point, the old man decided he simply could not please everyone and continued on his way. While it is very difficult to please everyone, the people in data processing must try.

Immediately we run into the problems regarding individualization versus centralization. There is an inherent fear in many Americans of the "big brother" complex. We oppose uniformity. This places a burden upon data processing people. Yet, the modern computer is a tool that enables them to cope with this burden. I fully believe it has the potential to help us individualize society rather than making conformists out of us. The data processor can to a large extent become "all things to all men".

Interrelated Problem 4 - Finally let me talk about the IEG problem. In computer language the IRG, Inner Record Gap is a gap on a tape which allows the tape to get the proper speed before recording on the tape begins. The IEG is what I call the "Inexcusable Educational Gap", the gap between existing educational procedures and possible educational procedures. We are now discussing educational systems that are already on their way out. During this conference we have heard repeated reference to the advanced state of hardware development. We have been told to quit worrying about the technical problems of implementing educational systems and begin worrying about the problems of how the technology is to be applied. The IEG is widening, and it is up to people like those attending this conference to begin to close it. We must not fail to meet the challenge of the IEG for perhaps it also is known by another name, the generation gap.

VT 012 121
Kinnick, Robert J.
Coordinated Program of Vocational Rehabilitation and Special Education Services for the Mentally Retarded (Ohio County). Final Report.

West Virginia State Board of Vocational Education, Charleston, Div. of Vocational Rehabilitation.
Social and Rehabilitation Service (DHEW), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Jan68 90p.

DESCRIPTORS - *VOCATIONAL REHABILITATION; *SPECIAL EDUCATION; *COOPERATIVE PROGRAMS; *TRAINABLE MENTALLY HANDICAPPED; DEMONSTRATION PROJECTS; MENTAL RETARDATION; YOUTH EMPLOYMENT

ABSTRACT - The main purpose of this project was to demonstrate that a coordinated program of vocational rehabilitation and special education could result in employment for a significant number of mentally retarded youths. Project participants, who were between 14 and 21 years of age and were within the I.Q. range of 40 to 83, were chosen through referrals by teachers, administrators, or the field counselor. Having rehabilitated 55 of 231 participants, the project has demonstrated the employability of the mentally retarded in unskilled and semiskilled jobs. Careful considerations of abilities and interests in making job placements, small caseloads for counselors, and full parental cooperation are essential for success. (BH)

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A HAND OUT OF

SILENCE

COORDINATED PROGRAM OF VOCATIONAL REHABILITATION
AND SPECIAL EDUCATION SERVICES FOR THE MENTALLY RETARDED

WEST VIRGINIA DIVISION OF VOCATIONAL REHABILITATION
Charleston, West Virginia

1496

VT012121

COORDINATED PROGRAM OF VOCATIONAL REHABILITATION AND SPECIAL EDUCATION SERVICES FOR THE MENTALLY RETARDED
(Ohio County)

FINAL REPORT

PROJECT 1656-~~D~~ G

Carl G. Anderson

Project Director

This Report Prepared By

Robert J. Kinnick
Project Supervisor

WEST VIRGINIA BOARD OF VOCATIONAL EDUCATION

DIVISION OF VOCATIONAL REHABILITATION

Charleston, West Virginia

THOROLD S. FUNK, DIRECTOR

January, 1968

This investigation was supported, in part, by Research and Demonstration Grant No. RD-1656-~~D~~G from the Vocational Rehabilitation Administration, Department of Health, Education, and Welfare, Washington, D.C., 20201.

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Mr. A. F. Marshall, Jr.	Civic organization
Mr. Allan R. Miller	Civic organization

NOTE: Listing reflects Advisory Committee at time of project termination.

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MEMBERS OF VOCATIONAL REHABILITATION STAFF

Project Director:	Carl G. Anderson
Project Supervisor:	Robert J. Kinnick
Counselor:	Ronald P. Stewart
Psychologist:	James K. Gibson
Social Worker:	Linda L. McAlarney
Training and Placement Specialist:	John L. Moore
Work Evaluator:	Gordon M. Garrison
Clerical Staff:	Patricia McCombs Phyllis Synowiec
Medical Consultant:	M. D. Reiter, M.D.
Counselor Trainee:	William M. Lindley II

Others who have served previously as a member of the project staff:

Mrs. Jean H. Whiting, Psychologist
Robert D. Yeager, Counselor
Mrs. S. Helen Vassar, Work Evaluator

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LINCOLN SCHOOL STAFF

Principal:	Gerald G. Wilhelm
Teaching Staff, Primary Department:	Mrs. Mildred Parker Mrs. Hazel Pickering
Teaching Staff, Intermediate Department:	Mrs. Harriett Hardman Mrs. Gladys Noel Fred Conner
Teaching Staff, Secondary Department:	Donald Bartholomew Mrs. Daisy Kain John Lane Mrs. Susan McNeil Donald Rice Mrs. Sandra Houchins
Teacher Aides:	Mrs. Marcy Ambrose Mrs. Catherine Hunter Mrs. Betty McDonald Mrs. Jacqueline McColloch Mrs. Frances McFarland Mrs. Ann Peters
School Secretary:	Mrs. Evelyn Peluchette
Custodian:	Adolph Landahl
Assistant Custodian:	Herbert Auten
Cook:	Mrs. Cora Lee
Assistant Cook:	Mrs. Violet McCutcheon

NOTE: Listing reflects School Staff at time of project termination.

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SIGNIFICANT FINDINGS FOR THE REHABILITATION WORKER

The major purpose of Project 1656-D was to demonstrate that a cooperative program between Vocational Rehabilitation and Special Education could provide the appropriate services that would result in placing a significant number of mentally retarded youths into remunerative employment.

The following were considered to be of particular importance for the rehabilitation worker:

1. The mentally retarded can, with the proper training, learn the work skills necessary for many unskilled and semi-skilled jobs.

2. The mentally retarded must be oriented to the world of work since job skills and knowledge are not learned incidentally.

3. A work-study program must be based on sound education and rehabilitation principles.

4. Counselors working with the retarded should have smaller case-loads than those normally served by a regular field counselor.

5. A female counselor appears to be more effective than a male counselor in providing services to mentally retarded girls.

6. The team approach has proven to be very effective.

7. The abilities and interests of the retarded worker must be carefully considered in making job placements.

8. The parents need to be involved in any rehabilitation plan for the student. Rehabilitation and school personnel cannot function effectively without the full cooperation of the parents.

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ACKNOWLEDGMENTS

The writer would like to thank the members of the Ohio County Board of Education for their support of Research and Demonstration Project 1656-D. We are particularly grateful for the support and encouragement provided by the superintendent, Mr. George F. Hackett, and the assistant superintendent, Mr. Charles H. Johnson, of the Ohio County Schools.

Special acknowledgment is given to R. George Bennett, Supervisor of Services for the Mentally Retarded, West Virginia Division of Vocational Rehabilitation, whose enthusiasm, dedication to the program, and invaluable assistance to the project staff contributed greatly to the success of this program.

We wish to thank the following for their reports from which this paper was compiled:

James K. Gibson, Psychologist
Ronald P. Stewart, Counselor
Linda L. McAlarney, Social Worker
John L. Moore, Training and Placement Specialist
Gordon M. Garrison, Work Evaluator
Gerald G. Wilhelm, Principal
John Lane, Industrial Arts Instructor
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Donald Bartholomew, Social Studies Instructor
Susan McNeil, Home Economics Instructor
Daisy Kain, Art Instructor
Daryl Blue, VISTA Volunteer
William M. Lindley II, Counselor Trainee

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COORDINATED PROGRAM OF VOCATIONAL REHABILITATION
AND SPECIAL EDUCATION SERVICES FOR THE MENTALLY RETARDED
(Ohio County)

I. Introduction

The West Virginia Division of Vocational Rehabilitation is a service agency oriented to the physical restoration and training of the handicapped. Its goal is to rebuild the disabled man or woman to usefulness -- to self, to family, to community. The Agency functions as a public servant and as such must be aware of a growing and more severely disabled population and must realize that as society becomes more complex, scientific, and mechanized, handicaps become more disabling. Restoration is no longer enough. If we expect man to compete, even to exist, in modern society, to survive social and economic change, we must equip the handicapped not only with arms and legs and teeth and glasses, but with skills, knowledge, confidence, motivation, and self-respect so essential to the value of each human individual.

That there are severely disabled persons in our society is obvious. The examination of welfare and social security rolls points out well that there are persons in our society who are so severely handicapped that they cannot maintain themselves or accept the demands of self-support or independent functioning.

Mental Retardation is one of these severe disabilities. In the fast pace of today's society, education is a prerequisite for most types of gainful employment. The mentally retarded child cannot cope with the expectations of the modern educational system. And when special education is available to him, it becomes insufficient when he begins his search for a job.

In an experimental approach to this very real and complex problem, the Ohio County Board of Education and the West Virginia Division of Vocational Rehabilitation joined forces late in 1964 and embarked upon a three-year program of Research and Demonstration, aimed at the effective rehabilitation of educable mentally retarded youngsters and slow learners between the ages of fourteen and twenty-one. In Project 1656-D Vocational Rehabilitation services were to become an integral part of the special education program in the county and through the cooperative efforts of many disciplines, the mentally retarded were to be offered a comprehensive program designed to meet their educational, social, physical and vocational needs.-- to equip them with self confidence, know-how, and satisfaction with their own efforts so that each might know success and personal value.

The concept of special cooperative programs for the mentally retarded was not new. Many of the methods and programs found successful in other states and in West Virginia's two other school projects located in Huntington and in Bluefield were quickly incorporated into the Lincoln School Project. But because the goal of a Research and Demonstration Project is to design newer and better methods and to evaluate their results in terms of effectiveness, practicality, cost, and manpower, much of the three years, in addition to the actual provision of service, was spent in constant redevelopment and evaluation of the Rehabilitation Process as it applied most successfully to the Mentally Retarded.

The report which follows is a record of facts and figures compiled over a three-year period. It includes activities of the staff, job descriptions,

and several case summaries of clients who are currently receiving services or who, as a result of services received, are now productive, self-supporting members of society.

The report includes statistical results and throughout attempts to highlight those methods found most successful, or perhaps, in some cases, in need of further evaluation.

But no report can tell the complete story. For this we must rely heavily upon the understanding and imagination of the reader and the effectiveness of the clients themselves who during the next decade must demonstrate to the community that they are indeed productive members of society.

A. Background Information

Project 1656-D, Coordinated Program of Vocational Rehabilitation and Special Education Services for the Mentally Retarded, Ohio County, was approved by the Ohio County Board of Education in November 1964. The Project is located at Lincoln School, a facility that offers many excellent resources to the development of a special program. Ohio County was selected as the Project site because of an expanding program of special education, extensive interest by the County Superintendent of Schools, his staff, and the County Board of Education. Wheeling is a community with much civic pride and activity. It is intended that this Project serve as a demonstration to other communities in the state of West Virginia.

There is sufficient evidence in the literature, in reports from research in the field and in the experience of Special Education and Vocational Rehabilitation that a large number of retardates leave school prematurely because of a lack of interest in general education. Even in schools with special education programs, a number of retardates are not given the continuity of services needed between school and vocational rehabilitation. It is essential that Special Education and Vocational Rehabilitation combine their efforts toward the common goal of preparing students for eventual employment. This project is a vehicle for increasing and strengthening the relationship between Special Education and Vocational Rehabilitation within the state and for providing services needed to bridge the gap between school and employment.

There is increasing recognition that the problems and needs of the mentally retarded are of such magnitude that no single agency can serve them effectively. The project provides for close cooperation between the Division of Vocational Rehabilitation and the Division of Special Education of the State Department of Education. Relationships with Special Education have been generally confinded to liaison contacts by State Office representatives and referrals of cases to counselors in the field offices. In addition, Special Education is represented on the State Rehabilitation Advisory Council and the Advisory Committee for Project 957. Both agencies are represented on the State Interdepartmental Committee on Mental Retardation.

The Division of Vocational Rehabilitation tries to develop and maintain good working relationships with all other agencies and groups concerned with the physically and mentally handicapped. In some instances, this takes the form of written agreements, such as with the Department of Mental Health. These relationships have been extended to include

cooperative programs such as Project 1335, "Vocational Rehabilitation of Disabled Public Assistance Clients," and Rehabilitation Centers in the state mental hospitals. With other groups, such as Labor, joint conferences have been held. With still others, liaison responsibilities are assigned various staff members. In addition, local counselors are responsible for developing and maintaining good working relationships with all existing and potential referral sources in their territories.

Project 1656-D is based on the prototype, "Coordinated Program of Vocational Rehabilitation and Special Education Services for the Mentally Retarded." Progress reports have been reviewed from Project No. RD-681, "To Study and Demonstrate Special Occupational Training Services for Educable Retarded Youth," conducted by the Minneapolis Public Schools, and "A Cooperative Program Between the Division of Special Education, and Division of Vocational Rehabilitation, and Independent School Districts," in Texas.

The problem with which this project is concerned has been met in West Virginia only to the extent of initiating a cooperative program in Huntington in May 1964. Locally, many cases were not referred at all because there was little prospect of services for them. Project 957, "A Program of State Wide Vocational Rehabilitation Services to the Mentally Retarded," has demonstrated the broad gap existing between Special Education programs and Vocational Rehabilitation services. Every student in the school system identified as mentally retarded is a potential project client, at least to the extent of evaluating vocational potential. The two programs will retain their identity and purposes, yet will blend their services to achieve maximum functioning for the mentally retarded.

There was one existing program in West Virginia as described in the proposed project plan, and there is reason to believe that demonstration of an effective cooperative program between Special Education and Vocational Rehabilitation will result in the development of similar programs in other areas of the state. In previous contacts between the two agencies and in preliminary planning for the proposed project, Special Education representatives have expressed extensive interest in such a program.

The project will contribute to increased services to the mentally retarded through concentration on Special Education students, consideration for vocational rehabilitation of all such students identified in the project area, intensive vocational evaluation, job training, job placement, and related vocational rehabilitation services. It will cause Special Education to examine and modify its curricula and relationships to vocational rehabilitation services. It will produce significant data, both in relation to cases served and the unserved. It will test and compare findings with other projects. It will fill existing gaps in services for the mentally retarded. It will demonstrate the values of a cooperative program to other areas of the state. It will create a climate of need to expand and improve services for the mentally retarded.

The project has been sponsored by the Division of Vocational Rehabilitation in cooperation with the Special Education Division of the State Department of Education and the Ohio County Board of Education. Outside of the project area, other staff members were oriented to project objectives and methodology, kept informed of project developments, participated in related activities, and planned for eventual state-wide expansion of the project program.

Conferences between the Division of Vocational Rehabilitation and the Special Education Division have resulted in mutual agreement on purposes, organization, and operating methods of the Project. These conferences have been followed by joint meetings of local personnel from the two agencies including the County Superintendent of Schools, school principals, and District Office staff from the Division of Vocational Rehabilitation. In addition planning conferences are held with such agencies and organizations as the Department of Welfare, Department of Mental Health, and Division of Vocational Education regarding their relationship and involvement in the project.

B. Purpose

For a number of years the West Virginia Division of Vocational Rehabilitation has provided services for the mentally retarded. In relation to the needs of the mentally retarded, however, this has been a token program. The lack of knowledge, special facilities, trained staff, and adequate financing have been major obstacles to expansion in this area.

During the 1962-63 fiscal year there were 3,799 persons rehabilitated by the West Virginia Division of Vocational Rehabilitation. Only 132, or 3.5 percent, were mentally retarded. During the last eleven years there have been 28,075 persons rehabilitated, of whom 622, or 2.2 percent were mentally retarded.

It is estimated that three percent of the population of the United States is mentally retarded. Based on the 1960 Census, there are 1,860,421 persons in West Virginia, which would indicate there are 55,812 mentally retarded in the state. The population at the West Virginia Training School in July, 1964, was 339 with an additional 140 on the waiting list. As of May 1963, there were 98 special education classes in West Virginia. There were 2,076 students enrolled in special education classes, of whom 1,262 were mentally retarded. There were 511 students fourteen years of age or older enrolled of whom 304 were mentally retarded. Of the fifty-five counties in the state, twenty-three have no special education classes.

On January 1, 1963, there were 544 mentally retarded persons in active status with the Division of Vocational Rehabilitation. Of this number, 387 cases were in Status 1, Plan Development. There were 363 males and 181 females. There were 222 between the ages of 15 and 19. By sources of referral, 300 were from the state mental hospitals, 35 were from the West Virginia Training School, 70 were from public schools, and forty were from the Department of Welfare. The range of cases per counselor was from a low of 2 to a high of 93. In addition to the 544 active cases, there were an additional 481 mentally retarded persons in referred status. On January 1, 1964, there were 720 mentally retarded persons in active status, or whom 532 were in Status 1, Plan Development.

Realizing the need of additional programs to serve the Mentally Retarded in West Virginia, the following programs were initiated:

1. Project 537, "Development of a State-wide Program for the Vocational Rehabilitation of the Mentally Retarded." This project was designed to extend needed services to mentally retarded persons not known to, or served by, the Vocational Rehabilitation program. It terminated on March 31, 1962.

2. Project 957, "A Program of State-wide Vocational Rehabilitation Services for the Mentally Retarded." This is a project to demonstrate the effectiveness of a state-wide approach to the vocational rehabilitation of the mentally retarded through a residential course for girls at the West Virginia Rehabilitation Center. The project terminated on June 30, 1965. This special program has been incorporated into the regular rehabilitation program and now provides services for males as well as females.

3. Establishment in 1962 of a Rehabilitation Center at the West Virginia Training School.

4. Establishment in 1963 of two new positions: Chief of Services for the Mentally Handicapped and Supervisor of Services for the Mentally Retarded.

5. Project 773, "Cabell County Sheltered Workshop." Sponsored by the Cabell County Council for Retarded Children, Inc., this project serves both the educable and trainable mentally retarded in the Cabell County area.

Objectives of the Project

1. General Objectives

   a. To apply in West Virginia the new knowledge, methods, and techniques acquired through research projects in Vocational Rehabilitation and related fields.

   b. To increase substantially the number of mentally retarded persons being prepared for remunerative employment.

   c. To develop a comprehensive and coordinated program between Special Education and Vocational Rehabilitation.

2. Specific Objectives

   a. Provision of comprehensive rehabilitation diagnosis and evaluation of employment potential.

   b. Provision for actual job try-out and job training.

   c. Provision of job placement and supervision.

   d. Initiation of improved diagnosis and development of work-study programs for students based on individual needs. This includes:

      (1) Introduction of such subjects in the Special Education curriculum as activities of daily living, work attitudes, social skills, exploration of work concepts, vocational goals, job exploration and vocational adjustment.

      (2) In conjunction with project staff, the utilization of existing services within the schools such as:

         (a) Vocational shops.

         (b) Homemaking activities.

(c) In-school job evaluation and training in school cafeteria and garage, and with the school nurse, custodian, and clerical staff.

C. Setting

The Lincoln Vocational School was chosen by mutual agreement as the site for Project 1656-D. This facilitated contacts by Vocational Rehabilitation and Special Education staffs, and the clients they serve jointly. The physical arrangements were planned to promote joint planning, exchange of information and better coordination of services. Approximately 2,700 square feet of space was made available for Project use. (See Appendix C, pages 78 and 79) Project services were extended to students eligible for rehabilitation services in all schools in Ohio County.

D. Special Education Program in Ohio County

1. History of Special Education

Ohio County was one of the first counties in the State of West Virginia to establish special classes as a part of the public school program. The first classes were implemented at Jefferson School in approximately 1933. This program continued through the school year of 1964-65 as the only program for the educable mentally retarded children of Ohio County. A maximum of sixty pupils per year were enrolled in the program at Jefferson School.

In 1965 the program at Jefferson School was transferred to the Lincoln School building in downtown Wheeling. This program, in addition to the elementary program which had characterized Jefferson School, included a program for secondary-aged educable mentally retarded youngsters. The age range for the students in the secondary program is fourteen through twenty-one with the IQ range being established at 40-83. The population of Lincoln School the first year was approximately one hundred five students, about sixty in the elementary, and some forty-five in the secondary. As authorized through an agreement between the Ohio County Board of Education and the West Virginia Division of Vocational Rehabilitation, the secondary portion of the program at Lincoln School became a coordinated effort of these two agencies.

For the school year of 1966-67 the program at Lincoln School was expanded to provide for about sixty additional students. One additional elementary class was established and three additional secondary classes. This placed the population of Lincoln School at its present level of one hundred sixty-five students, seventy-five in the elementary and ninety in the secondary.

Lincoln School is presently providing for fewer than half of the mentally retarded children of Ohio County, particularly on the elementary level. Expansion of the elementary program to include classes in the respective school communities is anticipated in the near future. This will enhance the effectiveness of our secondary program as more children will be coming into our secondary program having had a special

class program rather than the inadequacy of most regular class programs for the mentally retarded child.

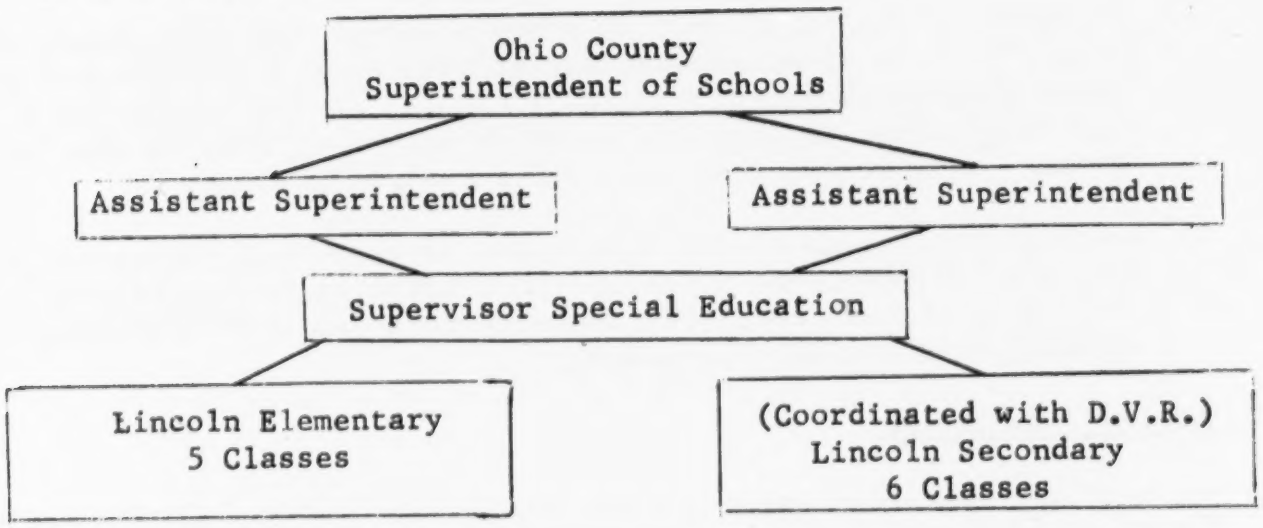
Long-range and short-range prospects for the development of programs for the mentally retarded child and other areas of exceptionality is indeed bright in Ohio County.

2. The Ohio County Special Education Program

a. Number of pupils served ---- 165
b. Number of classes ---- 11
c. Types of disabilities ---- Mental Retardation
d. Age ranges ---- 7 - 21
e. Grade levels ---- 5 ungraded elementary classes and 6 ungraded secondary classes

f. Qualifications of teachers ----
Professional teaching certificates - 11
Second class teaching certificate - 1

g. Administrative organization -



h. Special Staff -
Speech pathologist (part-time)
Speech Therapist (part-time)
Guidance counselor (part-time)

Six teacher aides -(full time)
Vista volunteer

II. Project Plan

A. Methods of Referrals

Referrals are made to the Project Supervisor by completion of a referral form by a teacher, a school counselor, or school psychologist, with approval by the school principal. All pertinent case information is available, including the school cumulative file, medical and health records, social information, results of psychological testing, information about aptitudes and vocational interests, etc. Every person admitted to the project is

identified and reported as a client of the Division of Vocational Rehabilitation. Final determination of eligibility for vocational services rests with the Project Supervisor, while decisions related to Special Education are the responsibility of the school.

For students already out of school, referrals are channeled through the Vocational Rehabilitation field counselor. Where another organization (such as the Department of Welfare) or an individual (such as a parent or physician) wishes to refer the person for consideration he is seen by the field counselor for initial interview and eligibility determination, and a decision is made by this counselor on whether or not to refer him to the project.

B. Criteria for Client Selection

1. Either male or female.

2. Within the approximate age range of 14 to 21.

3. Students in the participating schools within the approximate I.Q. range of 40 to 83 or sub-average general intellectual functioning which originates during the developmental period and is associated with impairment in adaptive behavior in one or more of the following areas: maturation, learning, and social adjustment.

4. Persons not in school are considered if they meet the criteria "1" through "3" and there is reason to believe that they will benefit from project services. The mentally retarded with secondary disabilities are also included.

C. Advisory Committee

An Advisory Committee was selected jointly by Special Education and Vocational Rehabilitation. This Committee consists of approximately eleven members, representing Special Education, Vocational Rehabilitation, Labor, Management, Welfare, Mental Health, Employment Security, and Vocational Education. The purpose of the Committee is to make the Project a part of the community, keep abreast of project activities, and make recommendations for improvement of project operations.

Valuable information has been gained from this committee concerning labor trends, employment, employer attitudes toward the retarded, on-the-job training, and placement opportunities. Emphasis, throughout the project, has been placed on public relations, both generally and specifically in terms of placement and job training.

Specific responsibilities of the Advisory Committee are:

1. To keep informed of project activities and developments through attendance of committee meetings and review of written information.

2. To ask searching questions.

3. To offer critical comments.

4. To give advice on project operations.

5. To relate the project to the committee member's particular area of interest.

6. To offer suggestions and recommendations growing out of particular areas of interest.

7. To offer suggestions and recommendations in relation to general concepts of services for the handicapped.

8. To interpret the project to the committee member's own program.

9. To interpret the project in areas of the committee member's general interest.

Goals and achievements of the project are interpreted to the public as well as to staffs of the participating agencies and persons and groups having particular interest in the mentally retarded.

D. Functions of Project Staff

The Project staff consists of a Project Director, Supervisor, Counselor, Psychologist, Training and Placement Specialist, Work Evaluator, Social Worker, and two stenographers.

1. Duties and Responsibilities of Project Director

a. Assists in planning a program of services for the district that encompasses both long and short range goals.

b. Responsible for coordinating and supervising activities of personnel and rehabilitation services in area of assignment.

c. Evaluates casework services, for comprehensiveness, conformity, and uniformity.

d. Reviews casework procedures including referral and movement of cases to insure a reasonable equity between quality and attainment of production.

e. Acts as consultant on unusual casework problems.

f. Interprets to all personnel agency policies, procedures, rules and regulations.

g. Assists in program promotion with legislative groups as appropriate.

h. Responsible for an effective and prudent administrative operation in all district units including requisition and maintenance of agency property.

i. Schedules and leads staff conferences bi-weekly or as needed.

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j. Prepares service ratings for personnel in area of responsibility.

k. Prepares recommendations for case service budget allocations and production goals.

l. Participates in the promotion and development of community rehabilitation facilities, especially sheltered workshops.

m. Responsible for the preparation of necessary records and makes required reports.

n. Performs related work as assigned.

2. <u>Duties and Responsibilities of Project Supervisor</u>

a. Coordinates and supervises activities of all the project staff.

b. Continually evaluates project methods, techniques, and procedures in provision of services to clients.

c. Evaluation and supervision of casework methods and procedures.

d. Management of fiscal affairs of the Project.

e. Serves as a consultant on operational aspects of the project.

f. Maintains necessary records and reports.

g. Conducts staff meetings and provides advice, training, and assistance to staff to increase their effectiveness and help solve problem situations.

h. Coordinates the services of the project with regular field program.

i. Promotes the program at the local level and developes community resources.

j. Participation in conferences as required at District Office.

k. Selection of new personnel.

l. Prepares service ratings for rehabilitation staff at Lincoln School.

m. Assists professional staff in establishing quotas and setting goals

n. Attends Advisory Committee meetings, conducts group and individual counseling sessions.

o. Confers with medical and other specialists and with representatives of allied agencies to exchange information regarding client needs.

p. Performs related work as assigned.

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3. Duties and Responsibilities of Counselor

a. Counsels mentally retarded persons, either individually or in groups, and members of their families to develop programs of vocational training, to impart information about the individuals limitations and potential, and to prepare the client for suitable employment.

b. Informs other staff members when their services, such as home contacts, social histories, psychological testing, on-the-job training, placement or evaluation, should be provided, allowing the case to move continually along a path so that each client receives the services that will benefit him the most.

c. Reviews medical, psychological, and social histories of client prior to preparing rehabilitation plan for client.

d. Confers with Medical Consultant and other members of the Rehabilitation team to evaluate information in attempting to determine the type of work best suited to the individual's abilities and interest.

e. Develops a training program to prepare the client for work, periodically contacts employers regarding on-the-job training programs, school-work programs, summer employment, etc. and attempts to resolve any adjustment problems the client may be experiencing.

f. Acts as a consultant to school personnel and participates in school staff meetings as well as rehabilitation team staffings.

g. Prepares case history reports.

h. Participates in inter-agency relationships and speaking engagements before interested groups on problems related to retardation.

i. Utilizes all community resources in an effort to rehabilitate a client.

j. Participates in District Office Meetings and Advisory Committee Meetings in addition to attending conferences in other areas to further the knowledge and understanding of mental retardation.

k. Submits monthly and quarterly reports to the Project Supervisor.

l. Performs related work as assigned.

4. Duties and Responsibilities of Psychologist

a. Evaluate intellectual, aptitude, and other factors of each individual referred, regarding his potential eligibility for services to the mentally retarded.

b. Assist in determination of grade or class placement if client is found to be suited for special education.

c. Evaluate client regarding potential for vocational placement in facilities (training or job placement) other than special education classes.

d. Interpret test findings obtained from school records or other non-VR sources.

e. Maintain file of testing supplies and equipment, and keep advised of new and revised evaluation materials and books as they become available.

f. Serve as contact for referrals from administrators throughout the Ohio County School system.

g. Work in close association with Ohio County Guidance personnel regarding possible referrals or for informal consultation regarding their caseloads.

h. Plan and carryout research projects whenever possible to evaluate present techniques and suggest revision or other means of improving psychological services in the Project.

5. <u>Duties and Responsibilities of Training and Placement Specialist</u>

a. Provides job placements and counseling services to mentally retarded clients.

b. Evaluates vocational potential of clients.

c. Counsels retarded and parents to explain realistic occupational choice for client.

d. Attempts to place clients in appropriate job or in on-the-job training program according to their demonstrated vocational potential.

e. Conducts follow-up counseling for client and employer to resolve any problems.

f. Visits employers and participates in speaking engagements to interested groups to increase public acceptance of retarded workers.

g. Plans training programs for retarded clients.

h. Prepares case history reports on vocational progress.

i. Helps facilitate retardate's adjustment to full or part-time employment.

6. Duties and Responsibilities of Work Evaluator

a. Develop testing procedures and techniques to assess vocational potential of clients.

b. Maintain a laboratory for the purpose of assessing vocational potential of clients.

c. Administer tests and observe clients to assess vocational potential.

d. Maintain accurate records of performance of individual clients and provide written reports of such performance to the referring counselor.

e. Provide consultation to counselor in regard to clients tested and observed in the laboratory.

f. Participates in inter-disciplinary staffing of cases for development of vocational rehabilitation plan for individual clients.

g. Participates as a team-member in program planning for the Vocational Rehabilitation Unit.

h. Assist Vocational Rehabilitation counselor in developing job training guides for his clients.

i. Acquaint other team members with evaluation techniques and procedures employed in the Work Sample Laboratory.

j. Disseminate knowledges acquired to other individuals and agencies through reports and in-service training.

k. Maintain good public relations through participation in selected activities of other agencies and community groups.

l. Research the area of assessing vocational potential of the mentally retarded and employment opportunities for the mentally retarded.

7. Duties and Responsibilities or the Social Worker

a. Make initial home visits to provide general information about Vocational Rehabilitation and the special project.

b. Supplementary home visits to secure developmental history, to observe home conditions and to evaluate the interest and cooperation of the parents.

c. Exploration with the parents of the client's vocational goals and specific abilities.

d. Recording and interpreting social information for the use of the rehabilitation and teaching staff

e. Liason between families and V.R. project personnel and/or school staff.

f. Counseling with individual students in the areas of establishing vocational goals, developing and employing good work habits, coping with home and school problems, and any area which seems pertinent to the rehabilitation process.

g. Group contacts, both with students and, periodically, with parents.

h. Participation in the securing of medical, dental, and psychological services within the community. This may involve transportation and/or interpretation to parents regarding diagnosis, prognosis, and recommendations.

i. Involvement in weekly staff planning for individual students.

j. Follow-up services.

k. Contact with community clubs in order to stimulate interest and involvement in working with the mentally retarded.

l. Contact with community agencies in order to secure pertinent social information, provide and secure referrals, and to coordinate social casework services offered to specific clients.

m. Development of socialization experiences for clients to enable individuals to realize their greatest potential and to become interested in and more able to function more adequately within society.

n. Participation in public relations programs which might involve group discussions, speeches, and training sessions.

o. Participation in in-service training programs and similar agency-sponsored meetings.

p. Involvement in school field trips and staff meetings in order to become more familiar with the pre-vocational special education program.

q. Performance of any services, not specifically mentioned, which might be of value to the clients or the agency involved in the Rehabilitation process.

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III. Project Program

The Project was intended to demonstrate the effectiveness of a coordinated organized effort by Special Education and Vocational Rehabilitation through education and rehabilitation services in assisting the mentally retarded youths in Ohio County to make an optimal adjustment to the demands of community living. Throughout the course of the Project a continuous attempt was made to keep the public informed of project activities so that the mentally retarded youngster would be accepted and regarded as a person with skills, though limited, and a deserving member of the community.

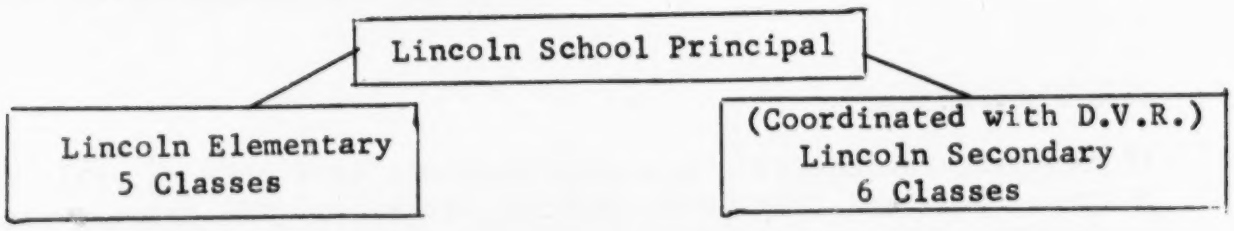
The following are examples of project public relation activities:

- Presentation of programs before civic groups and Parent-Teacher Associations.
- Visits by parents and groups to Lincoln School.
- Television coverage.
- Newspaper releases.

A. Responsibility of Special Education in the Operation of Project 1656-D

Special Education in Ohio County has been responsible for the improvement and continual operation of special education programs in the county. Activities which are currently, traditionally, and legally the function of the school system and not specifically assigned to Rehabilitation, are the responsibility of Special Education.

1. Administrative Organization



2. Special Education Program at Lincoln School

a.	Number of pupils served	- 165
b.	Number of classes	- 11
c.	Age ranges	- 7 - 21 years of age
d.	Grade levels	- 5 ungraded elementary classes and 6 ungraded secondary classes

3. Areas of Instruction

Some of the areas of instruction at Lincoln School are: industrial arts, driver education, social studies, English, reading, crafts, homemaking, typing, art, and physical education.

a. Industrial arts

Aims: Develop the students' motor skills to use all hand tools, and if possible, power tools with safety; or to the degree of safety so that they will not injure themselves or others.
To teach the use of hand tools so that the student knows the function of the tool as well as the correct name of the tool.

To have the students acquire knowledge to repair objects in the home or on the job. Such as:

Electricity -- Repair a lamp, replace a receptacle or switch and small appliance work.

Woodworking -- Repair or replace broken parts and finish furniture, plasterboard or paneled walls.

Metalworking-- Minor tasks in forming, soldering, bending, and riveting.

--- or in short, be a repairman or maintenance helper with enough knowledge to "follow through" with a given task.

Allow the student to acquire an aesthetic value in self-creations in woodturning, (lathe work) gravel mosaic work, and pattern design, so that these tasks can create a supplemental income if the student is so desirous or inclined.

The hardest task is to teach the student conservation of material, supplies and equipment. They only think of today's project and not how to get the most out of everything.

We endeavor to allow the student to bring in any project for repair that the student can handle. Some good examples of this type of project brought in were bicycles, electric trains, and minor repairs to transistor radios.

This School Project has proven that this type of child can be taught. The longer we have the student in the program the further we can develop his potentials.

b. Driver Education

If teaching the educable mentally retarded is a science, this aspect of the program is a task that words can not describe. The driving program started in January 1967, and to date twenty students have achieved their driver license and are safe, competent student drivers.

Since the program's inception, only two students had to be dropped. The problem was not the student's ability to drive, but the adjustment to the State Police Examiner and the lack of desire to overcome this difficulty.

c. Social Studies

In establishing a curriculum for children at Lincoln School a number of factors were considered.
(1) The fact that their non-school experiences were limited.
(2) The ability of the students to comprehend.

With these guidelines a course of study was considered. The following goals were outlined:
(1) To increase the reading level of the child.
(2) To bring to the student a set of new experiences.

To achieve these goals by:
(1) Use of the newspaper.
(2) Use of maps.
(3) Use of films and film strips.
(4) Field trips to points of local interest.
(5) Visits to the Public Library.

d. English

(1) Objectives

(a) Understand meaning of English
(b) Appreciate value of English
(c) Communicate
(d) Appreciate all types of books
(e) Understand poetry
(f) Express selves - spoken and written

(2) Activities accomplished

(a) Letters - personal, job applications, and business
(b) Spelling
(c) Oral reading - newspapers, magazines, workbooks, poetry, and plays
(d) Silent reading - individual books, workbooks, newspapers, plays, and poetry
(e) Workbooks
(f) Poetry - read and write
(g) Plays -- The Christmas Carol

(3) Activities to accomplish

(a) Workbooks
(b) Spelling
(c) Reading - oral and silent
(d) Poetry
(e) Prose
(f) Composition

e. Reading

The reading program is basically developmental in aiding our students in obtaining basic reading skills. Regardless of the reading achievement level of our students, it is our objective to develop his reading skills to the utmost. Toward this end our program is quite realistic; it provides the child with a basic sight vocabulary. We hope it equips the child with a phonics system for an independent attack on new words. It is also planned to provide a comfortable and successful sequence of experiences leading to the application of reading skills in both leisure time and functional situations.

In developing the instructional program the teachers use methods that most nearly accommodate the needs of our students. The ultimate levels of reading achievement vary from student to student. To be more able to aid the child in increasing his reading achievement we group our students. We use the Betts Informal Reading Inventory to evaluate our students. The range of ability of our students extends from Pre-readiness to sixth grade. In these groups we use both individual and group instruction.

The following is a list of source materials and audio-visual aides used in our classes: Scott-Foresman Company, The New Curriculum Foundation Series, Follett Publishing Company, Easy to Read Series, Turner-Livingston Reading Series, Dolch Materials, Readers Digest, Bell & Howell Language Master, tape recorder, phonics records and many others.

f. Craft Department

Objectives of the department are to
1. Expose the students to new and different materials,
2. To develop creativity, and
3. To find hidden talents in our students.

During the school year we try to expose each student to new and different ideas and materials letting each individual explore his or her own interest. Often we will find an interest in which he or she could possible produce a quality item which could be sold for profit.

Yearly projects include the following:
1. Copper enameling (jewelry, etc.)
2. Clay (pottery and free hand)
3. Paper craft
4. Slap stick
5. Silk screening
6. Block printing
7. Spin-Wheel art
8. Metal etching
9. Copper tooling
10. Slip molds

g. Typing

It is not to be expected that the educable mentally retarded will become proficient enough at typing to gain employment solely because of his typing skill. However, it is hoped that he will benefit from the study of typing by means of: satisfaction in acquirement of a new and different skill; possible improvement in reading ability due to heightened perception; possible employment because he can do simple typing in addition to other skills.

Objectives:
To learn the basics of typing
To learn proper typing habits
To develop ability to follow directions
To become an accurate typist

Procedures:
Junior high text books and typewriters with lettered keys are used.
Students receive constant stress concerning good typing habits.
Students progress at individual speeds through the text typing lessons.
Students are given periodical accuracy tests, and occasional speed tests. The greater emphasis is constantly placed upon accuracy.

h. Homemaking

The overall objective of the homemaking program is to develop through practical experience the skills and abilities necessary to care for a home and family, or to do similar work for a living.

(1) Cooking

Objectives: To learn the basic and most simple facts of nutrition and meal planning.
To become familiar with kitchen equipment.
To be able to recognize names of food items, to plan a grocery list and do grocery shopping.
To learn to read and follow a recipe, interpreting correctly the measurements and cooking terms.
To become familiar with simple food preparation for the three daily meals.

Procedures:
Students compile their own textbooks by filling loose leaf notebooks with ditto pages concerning lessons on nutrition, kitchen equipment, cooking vocabulary, etc., as lessons are covered.
Cooking lessons begin with breakfasts and progress through lunches, snacks and baking.
Girls are divided into individual kitchens. During the year they receive experience with both gas and electric ranges.
Girls prepare and serve complete meals for guests, each "kitchen" being responsible for different foods and tasks.

(2) Housekeeping

Objectives:
To learn the supplies and equipment needed and the process necessary to perform all household cleaning jobs.
To learn to do laundry including ironing and the operation of automatic equipment.

Procedures:
Girls are given actual experience in housekeeping jobs in a fully furnished apartment.
They are assigned rotating jobs so that each girl receives experience in each job.
Girls are given demonstration lessons in ironing and laundry. They are assigned to "laundry duty" on a weekly basis and are responsible for the laundry for the school lunch room, physical education department, home economics department, and nurse's room.

(3) Sewing

Objectives:
To learn to recognize common fabrics and their qualities.
To become familiar with sewing equipment and become capable in running an electric sewing machine.
To be able to do the basic clothing construction procedures, such as darts, 5/8" seams, etc.
To construct attractive garments.

To develop an awareness of style.
To develop a sense of satisfaction by acquiring a rewarding skill.

Procedures:
Girls are acquainted with sewing equipment and machines.
They receive demonstration lessons in making darts, seams, and sewing buttons. They are then required to make satisfactory samples of these before beginning actual sewing projects.
Girls work at their own speeds, beginning with simple items such as sewing bags, pin cushions, headscarves, and work their way up through skirts, jumpers and dresses.
Each girl is given individual instruction.

Filmstrips, movies, posters, displays and other visual aids are used throughout all areas of the homemaking program.

i. Art

Art is a way of life. It is a universal launguage common to all people. It provides an avenue of expression and emotional release. It acts as a builder of the kind of morale that comes from progressive accomplishment. It provides the student with the inclinations and skills to use his leisure time constructively and creatively, and to enjoy the world of color, line and form that is all around him.

General objectives of art:

(1) Understanding
Through the historical study, and the actual observation of regional art of different people of the world, the student grasps a clearer understanding and becomes more humane toward mankind. Creativity and self-expression will encourage the student to accept people individually rather than as a group.

(2) Skills
Art improves the techniques and skills in different art media. It develops ability to analyze critically both hand-made and machine made articles. It helps the student acquire an understanding of the basic principles of design, composition and color that makes him a useful member of society.

Various media
Crayon, oil pastel, chalk, charcoal, watercolor, poster paint, water color and ink, crayon and ink, chalk and wet paper, etc.

Course content
(a) Interpretation of a landscape
(b) Study of trees and other elements of nature
(c) Life drawing - Portrait study and action figures
(d) Design
(e) Study of animals
(f) Study of fish
(g) Designing buildings using perspective
(h) Development of a specific style of painting or drawing by the study of impressionism, expressionism, surrealism, cubism and abstract art.

The above are merely a few of the possible areas for individual work.

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j. Physical Education

(1) Objectives

(a) Increase knowledge of games and sports
(b) Appreciate the value of play
(c) Co-operate with other students
(d) Participate in a variety of sports and games
(e) Develop safety
(f) Develop desirable habits of conduct
(g) Develop specific muscles
(h) Develop proper ideals and attitudes
(i) Develop physical fitness
(j) Prevent fatigue

(2) Activities accomplished

(a) Swimming - float, american crawl, tread water, and bob
(b) Softball
(c) Kickball
(d) Volleyball
(e) Tumbling - forward roll, backward roll, cartwheel, and headstand

(3) Activities to accomplish

(a) Tumbling - partner stunts, pyramids, round-off, and hand stand
(b) Apparatus- balance beam, parallel bars, rings, and horizontal bar
(c) Basketball
(d) Dance - folk, square, creative
(e) Swimming - water games, breast stroke, and side stroke

4. Kephart Program

In addition to academic instruction, the Kephart Program is an integral part of the Lincoln School Program.

The Kephart Program is based on the theory that learning is basically a developmental process. One level of learning is based on another in a kind of a sequence. If the learning at the particular stage is inadequate or missed, due to brain damage, retardation or other reasons, the whole sequence is affected. There are three major stages in this program: the gross motor stage, which is the ability to maneuver in ones environment; the perceptual motor stage, which is the ability to control one's maneuvers; and the third stage, the concept stage, the ability to handle symbolic or conceptual information. If the learning within one of the stages is inadequte, then the total process is affected.

Some major areas of development are sensory-motor-learning, ocular-control and form perception which include the following training activities:

a. Gross Motor Development
b. Walking Board - 2" x 4" x 8'
c. Balance Board
d. Identification of Body Parts
e. Imitation of Movements (Simon Says)
f. Angels-in-the-Snow
g. Chalkboard activities
h. Ocular pursuit
i. Form Perception
j. Stunts and games

In working with the children, we must work with basic areas of development first and then proceed to the more difficult activities. Therefore, it is essential to work with motor activities first and then proceed with the activities of ocular control and form perception. This is not to say that these previous skills must be completely learned before a higher skill is attempted. However, a minimum amount of the more basic skills will greatly aid learning of the higher skills. Later skills are based upon earlier generalizations-this is learning.

Women's groups and other local groups have volunteered to assist with "helping hands" in this program.

B. Responsibilities of Vocational Rehabilitation in the Operation of Project 1656-D

Vocational Rehabilitation provides the operational aspects of the program as they relate to activities that are currently, traditionally, and legally, the function of Vocational Rehabilitation.

The rehabilitation of a mentally retarded client begins with a referral and ends with suitable placement in gainful employment. Between referral and placement, numerous services may be provided in order to restore the mentally retarded client to an able and qualified worker.

Project 1656-D provides a multiplicity of different services to the handicapped - each is tailored to meet the individual needs of the client. This wide diversity of assistance may be grouped under four major headings: (1) Medical, (2) Psychological, (3) Social, and (4) Vocational.

(1) Medical services are intended to eliminate or reduce the handicapped individual's physical or mental impairment. Services under this category may take many forms, depending on the nature of the client's handicapping condition.

Medical diagnosis, for example, is provided at the outset of the rehabilitation process to establish the client's eligibility for services, to determine the degree of disability, and to help evaluate work capacities. Medical, surgical, psychiatric and hospital care are carefully prescribed to meet the specific needs of each disabled person.

(2) Psychological Services may include psychological evaluation, personal adjustment counseling, and group therapy.

Psychological evaluation involves the services of a psychologist in testing and evaluating skills, aptitudes, interests, and other psychological factors

in order to arrive at a careful estimate of the disabled person's rehabilitation potential.

Personal adjustment counseling is intended to help the disabled individual understand, accept, and remedy conditions or attitudes which may interfere with his rehabilitation.

(3) Social Services include social evaluation and social casework. The collection of information of a social nature from the disabled person, his family and others and the appraisal of such information to draw conclusions regarding the disabled person's rehabilitation potential is the objective of social evaluation.

Social casework, on the other hand, is the process of working with individuals to facilitate their rehabilitation through solution or mitigation of problems growing out of their relationships with others, primarily those persons most influential in the client's social environment.

(4) Vocational Services for the handicapped include vocational evaluation, vocational guidance and counseling, pre-vocational experience or job try-outs, special and remedial education, vocational training, sheltered employment and job placement and followup.

The vocational rehabilitation counselor becomes deeply involved in collecting and appraising information on the disabled person's work history, education interests and aptitudes, and physical or mental condition for the purpose of determining a realistic job objective.

This is coupled with vocational counseling and guidance to help the client understand his vocational liabilities and assets. It also involves supplying occupational information for the purpose of helping the handicapped individual choose an occupation suitable to his interests and abilities.

In attempting to arrive at a suitable job objective, the client may undergo a series of job try-outs under simulated working conditions. Remedial and special education, vocational training and sheltered workshop services are all intended to prepare the handicapped client to take his place in the labor market. Selective job placement and follow-up services are essential to insure that the disabled worker is placed in the job for which he is best suited and to determine that both the client and his employer are well satisfied.

C. Client Evaluation

The Project provides for rehabilitation evaluation, including psychological evaluation, social-work evaluation, work evaluation, job tryouts, and vocational counseling.

1. Work Evaluation

A pre-vocational evaluation unit has been established at Lincoln School and is administered by a Work Evaluator. This unit compliments other

evaluation activities such as psychological evaluation, job try-outs, social-work evaluation, and vocational counseling. The unit makes use of selected activities and work-samples to evaluate capacities in such areas as the following:

a. Clerical tasks, including envelope assembly, counting money, stock work, collating, alphabetical filing, sorting, stapling, packaging, cutting, folding, and mailing.

b. Light industrial tasks, including cable clamp assembly, carriage bolt assembly, packaging of poker chips in tube and box, screw sorting, washer packaging, and switch assembly.

c. Service tasks, including setting table, making bed, vacuuming floor, polishing floor, sweeping, mopping, ironing, washing, dusting, window cleaning, food preparation, and busboy work.

d. Hand tool tasks, including tool identification, use of hammer, cross cut saw, screwdriver, and coping saw, and window pane installation.

e. Messenger service, including both inside and outside messenger work.

f. Vocational observation, including field trips to places where people are working, particularly in kinds of work which the project clients might obtain.

g. Association activities, including the procurement of a Social Security number, completion of job application form, functional sign reading, and independent travel.

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2. PSYCHOLOGICAL SERVICES IN PROJECT 1656-D

In a cooperative program such as ours, in which a combined school-rehabilitation staff is employed to work with mentally retarded students, the function of the Psychologist and the psychological services provided must be adapted to the dictates of the particular program. Since each cooperating staff member may see the potential contribution of the Psychologist in a different way, the emphasis may be placed on one type of service for a time, then change to a different emphasis. In describing these functions, an attempt will be made to outline the details of each phase, as well as discuss the circumstances under which the function would be stressed in the development of the Project.

a. Psychological Testing

Without question, psychological testing is the primary function of the Rehabilitation Psychologist in our setting. The need for testing is further intensified because there is no Psychologist employed by the county school system in which our Project is located. Therefore, the great majority of referrals have come to us with little or no prior testing having been done. The uses and types of psychological testing can be best discussed in terms of the particular reason for their administration.

Determination of Eligibility

The process of determination of eligibility for Project services has depended heavily on the use of psychological tests. When an individual is referred to the Project from any source, it is the responsibility of the Psychologist to establish whether he is mentally retarded and, if so, to what extent. Appropriate services are then recommended to the Rehabilitation Counselor who is handling the case.

Whenever possible, eligibility determination begins with an interview with the referral source. In this way, a brief developmental history, or a series of observations, or simply an impression which may be provided can be used to judge the appropriateness of the referral as well as gather data which is often invaluable in our handling of the case. Next, the referred individual is seen in one or two interviews for the administration of several diagnostic tests. In a screening interview, an attempt would be made to isolate the general nature of the learning difficulty, such as cultural deprivation, neurological dysfunction, or severe reading disability. Tests used in such a screening would be drawn from the following:

Peabody Picture Vocabulary Test
Slossen Intelligence Test
Bender Visual Motor Gestalt Test
Graham-Kendall Memory-for-Designs Test
Harris-Goodenough Human Figure Drawing Test
Wide Range Achievement Test - Reading section
Slossen Oral Reading Test

If after judging the results of the screening tests it appears that the individual may be retarded intellectually, he would be seen again for the administration of a more comprehensive intelligence test, such as the Stanford-Binet or Wechsler Scales. The combined interview and test data

would then be used as a basis for recommending acceptance or non-acceptance of the referred individual for client services, as well as more specific suggestions for the handling of the case, such as suitable grade placement in special classes (if eligible) or suggested referral to a more appropriate agency (if not eligible for our services). The final decision regarding eligibility, however, rests with the Rehabilitation Counselor.

Re-Testing of Active Clients

Since an individual may be accepted for client services at the age of fourteen years, he may spend several years as an active client before reaching his ultimate vocational rehabilitation. Therefore it is wise to re-evaluate clients periodically who may have been in special school or other training classes. In this way we can determine the effects of the training and other factors which may have changed since initial evaluation. For this purpose, achievement tests are best suited, although disgnostically oriented tests are sometimes used in periodic evaluations, particularly when a specific strength or deficit is noted by a teacher or administrator and felt to warrant further investigation by the Psychologist. In any case, such testing serves both to supplement and to up-date prior test findings.

Test Prior to Job Placement

Perhaps the most essential aspect of the Project testing program is that which immediately precedes consideration for job placement. It is at that time that the client must be thoroughly evaluated in terms of his occupational readiness, i.e. academic achievement, aptitudes, skills, interests, and such elusive traits as emotional and social maturity, which often do not lend themselves to quantification. Nevertheless, it is at this time, when faculty and staff agree that a client is ready for job placement, that the Psychologist and Work Evaluator work in depth with the client to determine areas of potential vocational success. During this phase, the Psychologist would utilize tests such as the following:

California Picture Interest Inventory
Geist Picture Interest Inventory
Vocational Interest Analysis
Bennett Test of Mechanical Comprehension
Prognostic Test of Mechanical Abilities
Wide Range Achievement Test - All sections
Purdue Pegboard
Vineland Social Maturity Scale
Cain-Levine Social Competency Scale
S.R.A. Occupational Exploration Kit
Thematic Apperception Test

Certainly not all the above-mentioned tests would be used with any one client; tests from this and previous lists would be used as needed for the most efficient prediction of suitable job placement.

The results of the pre-placement testing would then be combined with the observations of the Work Evaluator in a series of recommendations to the Job Training and Placement Specialist, who would then work with the Counselor in placing the client in an employment setting.

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Comment on the Use of Psychological Tests

The most notable feature in the use of psychological tests with mentally retarded adolescents is the limited number available which are suitable for persons with oral reading and comprehension levels below fourth-grade proficiency. Consequently, many desirable tests cannot be used, and we are forced to get along with those few which are available. An unusual problem arose in the use of the California Picture Interest Inventory, a test which is well suited to the mentally retarded, both in presentation and in content. However, the test uses a machine-scorable answer sheet which was apparently rather formidable to our clients, and its use often resulted in either mismarked answers, client frustration, or both. After several trials of assisting in recording responses, and later marking the answer sheet for the client as he gave each response, it was decided to devise a completely new answer sheet. This form, presented on page 76, allows not only for the client's choice of most desirable (first line) and least desirable (second line) job selection, based on the pictures presented, but also permits the examiner to record any comments the client may make as to his reasons for making a particular choice. This method was hit upon when a boy commented that he would not like to work as a telephone lineman because he was uncomfortable working in high places. With the conventional mode of answering test items, a behavioral observation such as this would go unnoticed, for it would not show in the test results as such. Therefore, while this use of the Interest Inventory limits its application to individual or small group administration, it is felt that the results have considerably more meaning for our particular purposes.

b. Psychological Counseling

Occasionally cases will be referred to the Psychologist by the Rehabilitation Counselor for purposes of individual counseling. Such cases would generally be for intensive, short-term counseling, although in rare cases the client may be seen on a continuing basis for longer periods of time. The advantage of such an arrangement would be the resolution of such problems which appear to be outside the realm of the Counselor or otherwise more appropriately dealt with by someone other than the Counselor in charge of the case. Group counseling may be utilized to advantage in some cases where similar problems exist.

c. Community Relations

Each Project staff member has developed favorable working relationships with other community agencies and organizations. The Psychologist has worked closely with the Guidance Department of the county school system, the local Guidance Clinic, and other such agencies with whom we have mutual clients and referral systems.

Also, as part of community awareness programs, the Psychologist has participated with other staff members in discussing our Project with interested local clubs and civic groups.

d. Pointers Program

Introduction

Near the completion of the three-year pilot phase of Project 1656-D, our staff conducted a careful evaluation of the design, the structure, the objectives, and the accomplishments of our program. This self-evaluation had a two-fold intent: (1) to point up ways in which we can strengthen each existing phase of the Project; and (2) to suggest to us methods whereby innovations may be incorporated into the program as it stands today, thus simultaneously broadening and upgrading the Project as a whole.

In considering ways of improving the existing program, a method was hit upon which would contribute to the achievement of both goals mentioned above. This program has been designed to fill the need for client job orientation prior to actual placement or on-the-job training. It is called "Prevocational Occupational Information Necessary To the Employability of Rehabilitation Students," hereafter referred to by the acronym, "Pointers."

Rationale

Our experience in placing Project clients in employment situations has illustrated to us first hand a phenomenon which has been observed by many others working in similar work-experience programs. That phenomenon is that in the vast majority of cases, the reasons for the success or failure of a client on the job are quite unrelated to his ability to perform the actual job itself.

While this fact is clearly established among workers in the field of rehabilitation, the simplicity of it may cause us to overlook the far-reaching implications involved. By recognizing (and hopefully accepting) this fact, we are suggesting that at least initial success on the job is to a considerable extent dependent upon factors in addition to and quite apart from actual job skills. What then are these all-important factors upon which success or failure on the job may be balanced? We might summarize them in two main categories: "Knowledge of the world of work," and "Personal initiative and responsibility on the job."

1. Knowledge of the world of work

   a. What is a job?
   b. Why work?
   c. What does it mean to hold a job?
   d. What about my salary?
   e. What do I like to do?
   f. What do my abilities equip me to do?
   g. How do I apply for a job?
   h. How do I handle a job interview?

2. Personal initiative and responsibility on the job

   a. What is expected of me on this job?
   b. Who is my immediate supervisor?
   c. What do I do if I cannot come to work or become sick on the job?
   d. What are the rules of dress and behavior on this job?

Since past experience has shown that an employee's behavior in relation to factors such as those above have a marked effect on job success, it is logical that a program such as our own, working exclusively with vocationally inexperienced adolescents, would strive toward preparing our clients to meet the complex challenge of employment. While the school program has touched on these areas from time to time, it was evident that a carefully structured program would be necessary to adequately prepare each client to meet the demands of a job. This need is being filled by the creation of the "POINTERS" program.

Methodology

The "POINTERS" plan is organized around three main variables: (1) carefully selected student-clients who are given (2) ample opportunity and time for (3) exposure to and discussion of problems dealing with job success.

"POINTERS" fits into the existing Lincoln School-DVR program at the point at which students are referred from full-time school enrollment to part-time or full-time job placement. It is an ongoing, closed-end group of both Lincoln School students and other DVR clients who are not enrolled in Lincoln School but who are felt to be ready for consideration as job-holders.

After selection, students are assigned to "POINTERS" class for two periods per week. They understand that this class is required prior to or in conjunction with their being placed on the job in any capacity.

Only after satisfactory performance in the class are they considered for initial job placement. Under no circumstances is a student taken from the class for job placement until the DVR staff is in full agreement as to the advisability of such placement. To do otherwise would undermine the entire program by destroying both student initiative and the incentive of eventual job placement only after strict adherence to the rules of the program.

The requirements of the class are designed to provide step-by-step development of occupational preparation in the areas outlined above. The student can then benefit from the cumulative effect of his learning experience.

The chart on page 77, represents the classroom chart used to record each student's progress. As each requirement is fulfilled, the student colors in the appropriate box opposite his name. The various requirements can be described as follows:

Application to class - A brief questionnaire asking for basic identifying information and a statement as to why the student desires a job.

Social Security Number - Each student must apply for and receive a Social Security Card if he does not as yet have one.

Psychological Testing - Each student will meet with the Psychologist for a minimum of four hour-long sessions for administration of various tests, outlined previously.

Work Evaluation - Each student will meet with the Work Evaluator for a minimum of five hour-long sessions as part of the program.

Job Description - Each student will interview a parent, neighbor, or friend who is working regarding the nature of his job.

Occupational Vocabulary - Each week a list of five words commonly found on job application forms or in other employment situations will be presented to the students. They are to learn to recognize these words and be familiar with their meanings.

Job Application Forms - During class periods, practice will be given in using and understanding typical job application forms.

Job Observations - Each student will be taken to several actual jobs to observe the duties and functions of a person in a particular job; whenever possible, these will be jobs in which the student has expressed a personal interest.

Job Orientation - Here the student will be accompanied to an actual job by the Training and Placement Specialist, who will instruct and supervise the student for perhaps two hours daily for one week on each of four job orientations. Examples would be (for boys) cleaning windshields and filling gas tanks at a service station, or (for girls) making beds and general cleaning at a hotel. The student would not be paid for this work, due to the training feature rather than actual employment conditions.

Job Tryouts - Here the student is placed in several successive employment settings under less sheltered conditions, for slightly longer periods of time, and for which a small salary would be arranged.

On-the-job Training - This could be either part-or full-time salaried employment in which the student performed meaningful work at his levels of interest and competence.

References - From each work experience the student would seek permission to use his supervisor or employer as a reference. This should be invaluable in his later efforts to find employment.

Resume' - Each student must develop an accurate resume' of school and work experience which he can take with him to a job interview, either as a reference in filling out application forms, or for presentation to the interviewer.

During class sessions, occupational orientation is promoted through the use of filmstrips, guest lecturers such as local employers, successfully placed students, and other community personnel. Plans include practice in being interviewed (to be done by a local personnel manager), use of the S.R.A. Occupational Exploration Kit, and talks on proper dress, behavior, and performance while on the job.

The central purpose of the program remains for each individual, the development of those qualities necessary to the understanding of and competence in vocational adjustment.

The Pointers class is jointly directed and instructed by the Staff Psychologist and Work Evaluator, under the supervision of the Project Supervisor, and with consultation by the Staff Rehabilitation Counselors and Job Training and Placement Specialist.

3. Social Work

The Research and Demonstration Project recorded officially as Project 1656-D, has since its inception utilized the team approach in an effort to serve its clients socially, psychologically, and medically, as well as vocationally. Each of these areas has been given considerable emphasis in the continuum of Rehabilitation services and each has proven significant in the total preparation of the mentally retarded to cope with the world of work, of social norms, of responsibility, into which, as rehabilitated, they will enter as productive and self sufficient members.

Realizing the social needs of the retarded, the Project, at the conclusion of its initial year of services, added to its already active program, a staff social worker whose responsibilities included client, family, and community involvement in an effort to prepare the mentally retarded to cope with society and encourage society to accept the mentally retarded.

Of significant, perhaps crucial importance, in the development of a program for the retarded, is the involvement of the parents in the rehabilitation process. Giving permission for testing or providing economic information is not sufficient; parents must be made aware of the program available to their retarded youngsters and should be expected and encouraged to play an active part in both immediate and long range vocational and social adjustment planning.

Parents, depending upon their own socio-economic status, vary in expectations for their sons and daughters. Many parents do not, some cannot, recognize the fact that retardation exists.

Home visits became an intregral part of the responsibility of the staff social worker for it was by talking with the families, in the relaxed, or perhaps typically chaotic atmosphere of the home that the social worker was able to observe and evaluate those all important factors which play a significant part in the development of the child and which provide for him standards, self-concepts, and goals. Observation of the home conditions, developmental history, evaluation of the parents' interest and willingness to cooperate, and exploration with the parents of the child's vocational goals and specific abilities enabled teachers and rehabilitation staff to plan for the individual student and to consider all of his needs. Gathering, recording and interpreting such information has been the primary responsibility of the staff social worker.

The social worker's information took the form of written summaries, extensive social histories, or verbal reports presented at regular staff meetings. Information was gathered with a considerable emphasis upon confidentiality and findings were shared only with staff members, educational

personnel directly involved with students, or with other social agencies working in a cooperative effort to provide lasting and effective services to mentally retarded individuals and their families.

Rehabilitation, especially of the mentally retarded, requires the development of both immediate and long range goals. Vocational planning with the mentally retarded is a lengthy and time-consuming process. Counseling, both individual and group, is one of the essential services provided each of the Rehabilitation clients. As a team member the staff social worker participated in the counseling program and established counseling relationships with both clients as well as parents.

Consideration has always been given to the needs of the clients served in the Project. Each of the staff members have at different points on the continuum become involved in the securing of specific medical, dental, visual, orthopedic, psychiartic, as well as diagnostic and psychological services. Often such services entailed transportation and/or interpretation to the parents of both diagnosis and pertinent recommendations. The staff social worker has been available for each of these tasks as the need has arisen.

Another need, of equal importance, but often of lesser emphasis, is the social awareness of the youngsters involved. It has been the social worker's role to provide for community involvement and socialization experiences to enable each of the clients to realize his greatest potential and to function not only at a successful but also a comfortable level in society.

In the spring of 1966 the YWCA teen-age committee volunteers offered to work with the female students enrolled in the secondary special education program at Lincoln School. Each of these girls was at the time a client of Vocational Rehabilitation and each were involved in some type of individual service aimed at their eventual placement into community employment and living situations. It was felt, therefore, by those concerned that membership in an extracurricular activity, responsibility of club offices and the fellowship involved in group functioning would serve as a productive socialization experience for the clients. Since its inception, the Lincoln School Girls Club has evolved into a locally organized, nationally affiliated and dues-paying Y-Teen club. The girls enjoy the same privileges as other junior members of the YWCA and have accepted well the responsibilities that are associated with their club membership. Each year the club elects three representatives from its membership who travel to the State Conference at Jackson's Mill, W. Va., for a weekend of workshops and activities. Throughout the development of the Y-Teen group, the staff social worker has served as Y-Teen advisor to the club, and has found the meetings, the weekend Conference, and special functions excellent opportunities to work with the clients and to observe their social awareness in action.

The Lincoln School Project has been a cooperative effort which has combined the forces of both Education and Rehabilitation. It is of particular importance for the staff social worker to maintain an awareness of school curriculum, to attend PTA meetings, and to be at all times alert to behavior and attendance problems within the school framework. It has been the social worker who functions as the liason between the parents and the staff of the coordinated program.

The role of the staff social worker in a Research and Demonstration Project of this nature is flexible, must involve many persons, and innumerable community facilities and resources in order to make a measurable contribution to the rehabilitation of the whole individual. Without meeting the social needs of the client, the rehabilitation process would have been incomplete.

4. Counselor

A person referred to the Project is one who possesses a series of problems that have been initiated and influenced by mental retardation, the primary disability. These individuals come to us seeking help so that someday they too may be able to take their useful place in society. They bring with them the characteristics that they have acquired in their years of experience, those of frustration and defeat. It is the Counselor who meets the retarded with a sincere interest and understanding, being able to place himself into the problems of the client and in return receiving the client's confidence and trust. Perhaps, for the first time in the individual's life, after being misunderstood by his parents, teachers, normal children of his age, etc., the mentally retarded comes face-to-face with one who, through the use of effective counseling techniques, may be able to help him adjust his attitudes and cope with problems to meet his overall needs. The counselor, although one of the first to contact the referral, is only one cog in the wheel that will eventually rehabilitate a client. It is his duty to inform other trained staff members when their services, such as home contacts, social histories, psychological testing, on-the-job training, placement or evaluation should be provided, allowing the case to move continually along a path so that each client receives the services that will benefit him the most. Each service can be considered a chapter that, when combined together, will formulate a book with a happy ending; not one that will be left in a bookcase to collect dust at a later date. In essence, the client will eventually have pride in himself as a wage earner, not seeing himself as a burden to society as a tax user. The counselor has a job of utmost importance and he can take pride in his work if he does it well.

In reviewing the Research and Demonstration phase of the program, the following areas appear to be significant:

a. By starting to work with the mentally retarded at an earlier age, the better the chances are of true success.

b. Getting more family involvement brings about better cooperation and parental understanding, which eventually leads to a more complete and successful program.

c. The counselor must change his counseling technique when working with the mentally retarded. A more direct method of counseling must be used.

d. Even an individual who is moderately retarded can sense when a person is not sincere or interested in him. The counselor must gain the client's confidence before he can be truly effective.

e. There is no fast or sure closure in working with the retarded. A client with dull normal intelligence may be much more difficult to rehabilitate than a mildly or moderately retarded individual. It appears that the dull normal have in many cases more psychological and emotional problems than those in lower I.Q. ranges.

f. In dealing with the physically handicapped, it is possible that a rehabilitation can be made in a few hours work over a short period of time. A closure in working with the retarded comes only after many months and years of intensive planning, counseling and follow-up.

g. A truly effective program for the mentally retarded can only come about by the joint efforts of Vocational Rehabilitation and the County School System. One without the other would lead to an incomplete program that cannot be successful.

h. The team approach is a step in the right direction but the art of communications can become a stumbling block if not practiced daily. This not only includes the rehabilitation team but also the combined efforts of the school faculty.

i. So many of the retarded have secondary disabilities which makes it much more difficult in working with them toward a final goal.

j. An excessively large caseload many times brings about a counselor doing nothing more than putting out the fires or problems of the client. The important step is getting with the client before the problems arise and leading him around or over it.

In reviewing this Project's program as it was planned and followed through, several changes should have been made (see a. and b. below); also, as the program becomes a part of the regular rehabilitation program, other changes should take place (see c, d, e, and f below).

The following are the recommended procedures:

a. Other states have found through similar Projects that 3% of the population can be classified as mentally retarded. Since this is acceptable, it is not necessary to show a "need," which inevitably, through poor screening, resulted in acceptance of clients who perhaps did not meet eligibility requirements, but are nevertheless provided services.

b. The number of clients recommended to be accepted in the plan should have been followed more closely. This would be fifty the first year, fifty the second year, and twenty-five the third year. The one hundred and twenty-five cases, minus closures, would more nearly demonstrate a working caseload.

c. A counselor, to be effective, should carry an active caseload of approximately seventy-five clients. The counselor will lose his effectiveness if it goes much beyond this point.

d. There should be different counselors for clients in the special education program and those who are in regular school programs or out in the field. Of course, once the referral is accepted by a counselor, then he should remain with that same counselor until rehabilitated.

e. The rehabilitation counselor must limit the services he can provide to students fourteen and fifteen years of age. Physical restoration and counseling are the major services to help the younger students along in the school program. The major portion of rehabilitation services should be provided only after the school faculty feels that vocational counseling, training or placement is needed in the near future.

f. The project social worker should be used as a counselor with a case-load. The counselor should be the one to go into the home for a social workup. This gives him a better picture of the client and his family, and a closer relationship with all concerned. It also eliminates some confusion to the family by having one less staff member making home contacts.

In conclusion, it can be said that much information already felt to be known has been verified and some new ideas have been formulated. Has the Project's program been a success? It is believed by the counselor that the fifty-five closures over the three year period speaks for itself. Should the program be continued or dropped in the future? The counselor looks at this question in this respect. Through the combined efforts of the West Virginia Division of Vocational Rehabilitation and the Ohio County Board of Education, new hope has been found for the mentally retarded in this area. Human beings, once thought to be detriments to society, are now being able to see themselves as something other than being different. They need help and they need it badly; they can now see hope over the horizon. We must continue our work in providing services to this disability group.

5. Training and Placement Specialist

The last phase in the rehabilitation of a client is the placement of said client into remunerative employment. Unlike other clients, the mentally retarded needs a special type of placement which is geared to his abilities. The mental retardate has had enough failure, and we should do everything in our power to eliminate vocational failure. It is the job of the Training and Placement Specialist to see that this does not happen.

The duties of this position include the following:

a. Work with clients vocationally and expand their knowledge of jobs to its fullest.

b. Search out employers who are empathetic with our clients.

c. Disseminate information to employers and agencies of the area about the abilities of the slow learner.

d. Supervise and teach the slow learner the type of work he is suited for at the employers establishment.

e. Follow-up services after the youth has worked for a given period to insure the placement.

f. Contact with employers of the area and maintenance of rapport.

g. Decision as to when an individual has worked long enough and has learned good work habits which will enable him to secure future employment and consideration for Rehabilitation Status.

Before working with any client, a referral is received from the counselors stating that a particular client is ready for training and placement. This decision is made after extensive psychological testing and work evaluation has been performed. With this information, the Placement Specialist is able to work with clients in the direction of attainable vocational interests. This phase of testing and evaluation is essential in order that placements can be made on validated recommendations. Again we return to the idea of elimination of failure if possible.

Various types of training and vocational information can be given to the students in the confines of Lincoln School. Three examples are cited below:

a. Janitorial training
b. Telephone training
c. Group meetings

A contact was made with a local maintenance concern about the methods used in cleaning establishments, and the equipment used. The equipment was secured and a janitor training program was started with four out-of-school clients. When each client had learned what was required of him he was referred to the employer for permanent employment. All four boys were hired for work, and the establishment wants to use us for recruiting janitors as needed and has approved our training facilities. The training was conducted by the work evaluator and the placement specialist.

A contact with the C & P Telephone Company was made in order that our students could secure information on proper telephone usage. C & P gave a program geared for Special Education which included a film. To further supplement the presentation, telephone sets were secured to practice the training. The students reacted to telephone training very well which was conducted in a group session. In the occupations our students are placed in, good telephone manners are needed. Especially on janitorial jobs, the telephone may ring and he should know the proper way of answering it.

Group meetings are conducted with those clients who have some type of employment after school hours. These clients all have employment as a common meeting ground. Each client is asked to describe his job to the group and the problems that he has encountered. This method has provided much information to the clients. The groups total fourteen students with twelve different occupations. During these sessions the client learns of different vocations and problems encountered by other clients, and problems are solved or learned of in order that action can be taken by the training and placement specialist.

Agency contacts are made for referral purposes. A good relationship has been built with Employment Security, Human Rights Commission, Community Action, Visiting Nurses, and the Department of Welfare. When visiting a home and evidencing a mentally retarded child, these individuals are referred to our program for services. Employment Security and MDTA programs are available to us with use of their facilities if needed. There are several programs for the disadvantaged youth at our disposal. These programs, in addition to the training we can provide, offer the gamut of training for the slow learner.

There are different methods of placement, which can be employed in getting acceptance of the mental retardate by the employer. Perhaps the most widely used is that of the sales pitch which sells the slow learner to an employer on

abilities sake. A problem encountered in this method being lack of knowledge of what mental retardation means. Some employers are unable to comprehend that mental retardation means slow learning rather than psychosis, neurosis, psychopathy, etc.; however, this feeling is not too widespread. Generally, if we can get an employer to give the slow learner a chance, he will change his opinion of what mental retardation means.

There are three methods of placement which have proved quite successful, they are:

a. School-work tryouts
b. Pictures
c. Resumes

School work tryouts are tryouts for clients at different establishments. When an individual reaches a point in the school program whereby he is not profiting academically, he is referred to the work evaluator for testing. The work evaluator will suggest areas of work for the clients. The Training and Placement Specialist will then search out this particular vocation and take the student out on a tryout for two hours, five days per week, during schoolhours. The client is supervised by the Training and Placement Specialist after the employer gives instructions about the job to be performed. The Training and Placement Specialist dresses appropriately for a particular job and works side by side with the client and answers any questions the client has.

In providing supervision at an employer's establishment, it is possible to work with and observe the client in a particular occupation with no loss of time to the employer. A client can truly be observed and his progress can be measured readily. The number of work tryouts a client will go on depends on the individual. It is our plan to expose each client to at least five jobs. With school-work tryouts, there is no remuneration in the offing except for the training or learning remuneration. The students really enjoy and profit from the opportunity to be included in the school-work program. Incidentally, no state funds are used in this program and the training which can be secured is comparable to that received at the State Rehabilitation Center, but on a one to one basis in this program.

Pictures are used to develop jobs for our clients by showing picture to the employers of clients who are working at other establishments. Included with the pictures are comments by different managers and presidents of companies. Misconceptions of mental retardation have led employers to think that the slow learner looks different. These pictures reveal that a retardate in many cases looks the same as you and I, for the exception of mongoloids. A prospective employer can see our clients at work and can see the picture of a fellow employer who hired a retardate. This definitely puts another light on the retardate and gives him a chance to prove himself. This idea was submitted to the President's Committee On Employment of the handicapped and was used in their monthly "Newsletter," a nationwide publication.

Resumes are used to inform employers of the availability of our clients for work. As many as five resumes are sent to an employer with a picture of the client and statement of work experience and references. It can be seen that one would have adequate references and a smattering of experience through the school-work program. With the school-work program, a resume

is meaningful and the employer can contact the client's past employer. Having interviewed retardates at the employment service, it was found that little or no information could be included on an application of vocational note. Now the student or client can relate to different types of work at various establishments. With each resume to an employer, a letter is enclosed asking for an interview at the employer's convenience. Below is an example of a resume designed for our students.

(last name) (first name)

(address) (city) (state)

(birthdate) (Phone number)

PHYSICAL CHARACTERISTICS: height weight

OCCUPATIONAL INTERESTS:

WORK HISTORY:

TRAINING:

CHARACTER REFERENCES:
1.
2.

There are several types of local training which can be purchased for our clients and students when the need is recognized. Training can be listed under the following areas:

1. Night school and trade school
2. Job tryouts
3. On-the-job training

At the time which an individual or client requires training other than that which can be secured at school, we are able to authorize for night or trade school training.

At night school one can secure training from automobile training to office machine training. In many cases, our best dollar is spent for night school instruction. An example of this is shown with a boy who liked woodworking and with extra night instruction becomes a candidate for an apprenticeship program in carpentry at $3.17 per hour. This program was not under the Bureau of Apprenticeship and Training, but he will work under a journeyman. Clients have been sent to a trade school for instruction in auto-mechanics; however, it is believed that adequate instruction can be obtained locally at less expense to the state. Night school is capable of going more in

depth with a particular training than Special Education. It is available for the more advanced special education student or the out-of-school client who is seeking training and clients working on a full-time basis.

Job tryouts have been in use for approximately six months. To date it has only been used twice to authorize training for our clients. Job tryout money amounts to $15 per week paid to the employer for giving our clients a chance to work in their establishment. When job tryout money is used, supervision is done completely by the employer on the job with the exception of follow-up on our part. Generally, job tryout money is used when the client involved is extremely slow and is definitely a liability to an employer. This will involve regular supervision on the employer's part and job tryout money will compensate him for his efforts; however, the time involved in securing money through invoices makes job tryouts very unattractive to the employer. The client in this case is paid a nominal fee. If job tryout can be eliminated from the placement process, it is a good policy to supervise the individual on a one-to-one basis without payment to the employer.

On-the-job training is very much similar to job tryouts with the exception of the time being for a longer duration. On-the-job training was used since the inception of this program. Since the beginning of the program $3,480 has been spent toward on-the-job training. There have been twenty-three clients involved which averages about $151 per client on two and a half months training. These figures do not include tuition for the sheltered workshop.

It is better not to use the two types of training listed above because rapport with an employer cannot be realistically assessed. The individual involved will never know whether his client is being accepted by the employer or whether money provided to the employer is the key to the current rapport. Using money as a support will threaten any full-time placement at this particular establishment.

After all services have been provided to a client or student, and he has been employed for a reasonable length of time, it is the counselor's decision to close a client rehabilitated. It is the job of the Training and Placement Specialist to ascertain whether a client is exhibiting good work habits which would enable him to secure employment elsewhere. Working with the age group 14 - 21 years of age, a client will not make a lifetime vocational choice; however, if good work habits can be learned, a client's future will hold promise for him. It has been my experience that our clients are capable of learning different types of work, but the change in setting has a great affect on the calibre of work which they can perform. This is where a school-work program which was described earlier has immeasurable importance in helping our clients become acclimated to new surroundings in addition to the learning situation involved.

A program such as Project 1656-D is capable of providing services in depth to the mentally retarded. The staff is adequate to give all services needed to a client to make him 100% rehabilitated, but it takes time to decide what is best for the client. Presently our staff is complete with counselor, psychologist, social worker, work evaluator, and two secretaries. At this point, the staff is able to have a student or client progress vocationally with validated

recommendations as to the vocation to pursue. This will be an all inclusive approach to the vocational rehabilitation of a client. The program can really hold promise for the retardate and hold interest from referral to closure. Excellent cooperation has been received from employers throughout the area.

During the three years of this Research and Demonstration Project, there have been 55 clients closed into status "26" rehabilitated.

Following is a list of cases closed as rehabilitated, indicating job at closure, date of closure, weekly salary at time of closure, and employment status at the time of a six-month after closure follow-up.

Client Number	Job at Closure	Weekly Salary	Date of Closure	Employment Status at time of 6-months follow-up
550162	Busboy, 311.8	$40.00	September 1965	Employed, different job
427123	Busboy, 311.8	40.00	September 1965	Employed, different job
550004	Janitor, 332.8	75.00	January 1966	Unemployed
550260	Housekeeper, 306.8 Domestic	40.00	January 1966	Unemployed, unwed mother
550016	Auto Reconditioner 307.3	55.00	February 1966	Employed, different job
550140	Gravedigger, 407.8	18.00	January 1966	Employed, different job
427022	Laborer, Lumber Yard 922.8	34.00	February 1966	Employed, same job
550431	Janitor, 382.8	30.00	February 1966	Moved out of state
550307	Auto Attendant, 329.8	24.00	February 1966	Employed, different job
550003	Car Unloader, 929.8	60.00	March 1966	Employed, same job
550185	Truck Driver, 906.8	112.00	May 1966	Employed different job
550139	Lubrication man 915.8	50.00	May 1966	Employed, different job
550114	Laborer, landscape 407.8	50.00	May 1966	Unemployed

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Cases Closed as Rehabilitated, continued

Client Number	Job at Closure	Weekly Salary	Date of Closure	Employment Status at time of 6-months follow-up
550191	Busboy, 311.8	$40.00	October 1966	Employed, different job
550042	Janitor, 382.8	$50.00	October 1966	Unemployed
550054	Tobacco Grader,529.6	$60.00	October 1966	Unemployed
550160	Maid,general, 306.8	$10.00	October 1966	Employed, different job
424032	Busboy, 311.8	$40.00	January 1967	Employed, different job
427194	Housekeeper,321.1	$15.00+ room & board	February 1967	Unemployed
427092	Dishwasher, 318.8	$48.00	March 1967	Employed, same job
427121	Car Cleaner, 919.8	$60.00	March 1967	Employed, same job
550006	Yardman,domestic 304.8	$60.00	April 1967	Employed, same job
550257	Car Cleaner, 919.8	$50.00	April 1967	Unemployed
550222	Laborer, produce 922.8	$50.00	May 1967	Employed, same job
550137	Janitor, 382.8	$50.00	May 1967	Employed, different job
550106	Janitor, 382.8	$50.00	June 1967	Unemployed
550446	Homemaker, 5999	---	June 1967	Employed, same job
550569	Kitchen Helper,318.8	$40.00	June 1967	Employed, same job

Cases Closed as Rehabilitated, continued

Client Number	Job at Closure	Weekly Salary	Date of Closure	Employment Status at time of 6-months follow-up
550154	Laborer, 719.8	$50.00	May 1966	Employed, different job
550211	Housekeeper, 306.8 domestic	$22.50	June 1966	Employed, same job
550242	Gas Station Attendant 637.2	$40.00	June 1966	Entered U.S.Navy
550195	Nurses Aide, 355.8	$20.00	June 1966	Unemployed
427097	Nurses Aide, 355.8	$35.00	July 1966	Employed, different job
427098	Stock Boy, 922.8	$35.00	July 1966	Unemployed
427115	Maid, institution 323.8	$30.00	July 1966	Unemployed
550164	Laborer, Landscape 407.8	$40.00	August 1966	Employed, different job
550186	Truck Driver,906.8	$60.00	July 1966	Employed, different job
427034	Homemaker, 5999 own home	---	October 1966	Employed, same job
427011	Janitor, 382.8	$13.00+ room & board	October 1966	Employed, different job
427029	Janitor, 382.8	$50.00	October 1966	Employed, same job
427154	Maid, 323.8	$31.00	October 1966	Employed, same job
550021	Assembler, automobile 806.8	$96.00	November 1966	Employed, same job

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Cases Closed as Rehabilitated, continued

Client Number	Job at Closure	Weekly Salary	Date of Closure	Employment Status at time of 6-months follow-up
550043	Automobile Service Station Attendant, 915.8	$35.00	August 1967	Employed, same job
550002	Garbage Collector 909.8	$48.00	September 1967	Employed, same job
550595	Busboy, 311.8	$44.00	September 1967	Employed, same job
406474	Kitchen Helper, 318.8	$40.00	October 1967	Employed, same job
406471	Maid, 322.8	$40.00	October 1967	Employed, same job
550218	Nursemaid, 307.8	$36.00	October 1967	Employed, same job
550219	Small parts assembler 706.8	$66.00	October 1967	Employed same job
550594	U.S.Army, enlisted	---	October 1967	Employed, same job
550433	U.S.Army, enlisted	---	October 1967	Employed, same job
550005	Orderly, 355.8	$56.00	November 1967	Employed, same job
550085	U.S.Army, enlisted	---	November 1967	Employed, same job
427193	Child Monitor, 307.8	$20.00	November 1967	Employed, same job
550069	Nursery Worker,406.8	$50.00	November 1967	Employed, same job

D. The Project as seen by Staff Psychologist

To observe the functioning of Project 1656-D from the standpoint of the Staff Psychologist is to think in terms of the Gestalt - the whole which is greater than the sum of its parts. Having just completed the third and final year as a Research and Demonstration Project, we must now consider the extent to which the Project as a whole has achieved its objectives, as well as the extent to which each "part" has contributed to the realization of these goals.

While the Project might be characterized from numerous vantage points, in this overview we will deal with the three most basic yet important factors regarding the Project - its purpose, its general functioning, and its accomplishments.

The formal title of our Project, which is dealt with in greater detail elsewhere in this report, is "Coordinated Program of Vocational Rehabilitation and Special Education Services for the Mentally Retarded - Cooperative Project with the Ohio County Board of Education." Our objectives as a pilot program were to test the workability of a cooperative venture between two agencies, each of which provides services to a population of adolescents known as "educable retarded." Each agency had, prior to the initiation of Project 1656-D, been providing services to these adolescents independently, and often without the knowledge of the other. But with the creation of the Project, duplication of services would cease, and an entirely new program would come into being which would attack the problem of educating the mentally retarded in preparation for gainful employment.

Such a cooperative plan was well conceived, for, at that time, the Ohio County School System had little or no resources for identifying those students most suited to such a program, nor for determining their legal eligibility for such a program, nor for providing in-school counseling services or job development, training or placement. Likewise, while the West Virginia Division of Vocational Rehabilitation could provide a staff to develop the services named above, they had no suitable resource locally which could meet the academic needs of this client group. Consequently, the agreement to establish Project 1656-D and utilize Lincoln School for combined services to the educable retarded population of Ohio County was the beginning of a program which would develop into a meaningful and valuable experience for both students and staff in the years to come.

By having the staffs of both agencies represented in one facility, more services could be provided the students during the daily school hours, Such an arrangement adds considerably to the convenience and smoothness in the provision of case services.

Another aspect of the cooperative nature of the program is the joint handling of referrals, determination of eligibility for school placement, and determination of readiness for job placement. Neither school personnel nor D.V.R. staff can determine these alone; only through consultation and agreement can such decisions be made.

While the Project was a functioning unit from its inception, the full range of services could not be provided until staffing of all positions was completed.

In the early months of the Project, emphasis was naturally placed on initial referrals and the determination of eligibility and feasibility for services. As more staff positions were filled, more social and job placement services were provided. For more than two of the three-years duration of the Project, there has been little staff turnover and services have continued relatively uninterrupted during the past two years.

The Rehabilitation staff consists of the parts which add up to the Project whole. These staff positions were designed in such a way that a "team approach" could be utilized in the provision of the full range of rehabilitative services, i.e. medical, psychological, social, occupational, etc. It is evident that the addition of personnel for these purposes has been quite beneficial to the program as a whole. The gaining of divergent points of view, the sharing of recommended procedures in case handling, and the provision of information which otherwise may have been unavailable to the counselor are some obvious advantages of the team approach.

On the other hand, our experience with the educable retarded points up some disadvantages of this procedure which should be noted. First, under such a system, the client often has difficulty in differentiating the roles and functions of the various staff members. How is the "man who gives us tests" different from "the man who talks to us about jobs"? The problem which arises then is that the counselor may find it difficult to develop the kind of rapport and personal involvement needed to work most effectively with our clients. Secondly, until recently the counselor has not generally visited the homes and families of the clients, as under the team system this was the domain of the social worker. I feel that it is in many cases crucial that the person who is primarily dealing with the adolescent client whether retarded, physically disabled, or whatever, should himself interpret his program and his plans to the parents or guardian of the child. This situation has been much improved in our Project with the recent division of the caseload between two counselors, each of whom handles his own family contacts. However, since our former social worker is now a counselor, we have strayed from the original team approach plan. Perhaps we are learning better and more efficient methods of rehabilitating our clients - which is, after all, why we are here!

Most individuals who are hired to work with the mentally retarded have little formal training in the field. Such was the case with our staff. We have since attended many training meetings, in-service sessions, and informal discussions regarding working with this population, as well as continually striving to upgrade our competence in our own particular areas of interest.

We are also constantly re-thinking our methods of case handling, particularly client evaluation and occupational orientation. We are now moving into a carefully planned program of client evaluation and preparation for employment which combines the efforts of the Work Evaluator, Psychologist, the Job Training and Placement Specialist, coordinated by the Project Supervisor and Rehabilitation Counselors, in a transitional program from school to work experience. This program is outlined in greater detail elsewhere in this report; however, it may be said here that high hopes are held for an improvement in the level of client preparation for employment, as well as increased understanding of the needs, general abilities and specific skills of each child prior to job placement. It is in an area such as this that the

non-counselors in the staff can make a most valuable contribution to the Project; the Training and Placement Specialist, for example, plays the most crucial role in finding or developing the job that meets the precise demands and qualifications of each client as he becomes ready for placement on a job.

The accomplishments of Project 1656-D should be considered in terms of two client groups: (1) those attending the Lincoln School program on a regular basis, and (2) those individuals who were clients of D.V.R. but who never attended the special school classes at Lincoln.

The Lincoln School clients as a group were known to us and available to us for counseling and other services for a much greater length of time than the non-school clients. Therefore, we were able to work with them in greater depth, more frequently, and less formally than those clients not enrolled at Lincoln. The Lincoln student came to know us as a staff, and seemed to feel more disposed to call on us periodically, feeling that "this is where you come" for help in finding a job or talking over problems. Our success with the Lincoln student, apart from his experiences in formal schooling in the classroom, has been primarily that of supportive counseling, help in discovering and accepting his strengths and weaknesses in both personal and vocational areas, and, of course, the indispensable services of phasing him gradually from the world of the student to the world of work. An important by-product of this program is that of client socialization - for as he learns to get along on the job with ever-increasing independence, he is also learning to get along with others in his daily living.

Those clients who were not enrolled in our school program consisted mainly of school dropouts, Job Corps dropouts, and Selective Service rejectees, all of whom must meet our eligibility requirements.

With this group, the need was for a different kind of service. They had all met with one or more kinds of personal failure, at school, at work, or elsewhere, and for the most part seemed to have thrown in the towel. Generally there were strong feelings of inadequacy veiled behind an outward show of bravado, and often an attitude which smacked of "You need me worse than I need you." Their primary stated need was always a job. They gave little consideration to their qualifications or competence. In such a case, our most successful alternative would be to develop a part-time job for the client while requiring him to go through our evaluation program, which would tell us the most appropriate kinds of training or work for him. In this manner, we are able to provide suitable services to him without jeopardizing our relationship while he waits for a job. Being carefully evaluated sometimes takes longer than such a client is willing to wait without something, such as a part-time job, to maintain his interest.

Our accomplishments with this group have been mainly in more immediate job placement, or diversion into a full or part-time specialized training situation. Also, supportive counseling and socialization have been helpful to these clients, while intensive job supervision and follow-up have been most important in insuring continued employment.

In conclusion, it should be noted that with both groups of clients, it has become readily apparent that no service, training, or employment situation holds must meaning to the individual if he has contributed nothing to his own betterment. Things acquired too easily are truly soon forgotten. So it is in Vocational Rehabilitation. But the person who must earn his way to the goal, demonstrating his readiness for work or advanced training, will recognize the value of his investment as well as ours, and will likely become a more successful employee. If we as a team can instill in our clients this feeling of self-worth and personal responsibility for their own behavior, then the whole of our efforts will surely have equalled more than the sum of our individual contributions.

E. The Project as seen by Counselor Trainee

It was my very good fortune to have had the opportunity to serve my clinical practice in a project which is concerned with my major interest with respect to a disability group, the mentally retarded, and in my home state.

To relate this experience in more detail, I would first like to discuss the positive aspects of the project as I saw them and as I was involved with them, both as they were when I was there and as it normally was during the school year.

Finally, I will discuss some of my personal frustrations, and suggestions for ways in which such a project can become and should be a permanent aspectof our West Virginia Rehabilitation Agency; that is, how it should be in my opinion.

First of all I will relate my feelings and evaluation of the project as I came into it, and functioned in it.

Two major things were atypical of the normal school year, and it was in this context that I came into the Project. First of all our Training and Placement Specialist had just gone into the United States Army for six months active duty; therefore, I came into the Project as a counselor for students/clients who were in need of intensive counseling. This also allowed the regular counselor to take over placement services, since he had done placement before, as well as his counseling duties. Shortly after I arrived, the work evaluator for the project resigned and this also made the staff atypical. Finally, school was not in session; therefore, we did not have the cooperation of the special educators as would be the normal situation.

With this structural framework, I will now go into the aspects of the project as I saw them through my involvement.

In my opinion, I could not have had a better group of people to work with in this project. All members of our staff (supervisor, social worker, counselor, psychologist, and secretaries) were most competent, helpful, interested, and concerned with our clients, and with me and all of our fellow workers. It was a very professional atmosphere, cooperative, and helpful. Most striking to me was that I was treated as an equal professional, and yet I felt I could, and I did, go to any staff member at any time I needed help and guidance. This was true at any time, and with any and all staff members.

Another thing which impressed me, and something I thought was very, very important, was our weekly staff meetings. This was especially good in that everyone was quite free to speak his mind and to keep the lines of communication open thereby planning the best possible course of action for each client.

One final major area of positive experiences was that of having had the opportunity to have a variety of experiences. Some of these experiences were as follows: attending District Meetings, visits to summer camps, visits to our new Sheltered Workshop, testing, employer contacts, and finally participation in cooperative project training sessions in Huntington and Bluefield.

Areas which could be improved upon in a cooperative program such as Project 1656-D are more and better communication and cooperation between the school system and the Rehabilitation staff, availability of more psychiatric services to our clients, and the availability of more and better training and employment opportunities for our clients. The working relationship with agencies as the Department of Welfare, Employment Opportunity Center, and others should be strengthened.

For the future such things as a residential system, psychiatric care, more communication and cooperation between all professionals, especially the school officials and educators, and the expansion of services to all disability groups in the 14 - 21 year old age group would truly give our disabled youth "a hand out of silence."

As far as what I have gained from this experience, I feel two statements will cover this: (1) This experience has made me truly aware that this is what I want as a life's vocation, and (2) I have realized that when one has a client across from him that he must perform. This is the test of what one has really learned and not just what a grade report seems to say.

With this fine start, I am looking forward to many years of service to the handicapped in giving them "a hand out of silence."

IV. The Client

The Ohio County School population between the ages of 14 - 21 was approximately 3,566 as of November 30, 1967. At the inception of Project 1656-D, the Guidance Director of the Ohio County Schools estimated that approximately 400 students in the county were in need of Project services.

A. Referrals

During the three years of the Project, 659 individuals were referred for Vocational Rehabilitation Services. (See Appendix A, Table VI, page 63) Referrals were made by the homeroom teacher to the school principal, who served as a screening agent along with the guidance counselor before referral was made to the Lincoln School principal. Of the total number referred 378

cases were closed from referral status. The reasons for closing out such a large number of referrals were many. (See Appendix A, Page 62) Table V clearly indicates that many students who were thought to be mentally deficient were in fact not retarded and in need of project services, but required in many instances a remedial program within their present school situation. Another reason for the influx of referrals during the first year and a half of the program may have resulted from a general feeling by the project staff that need for this type of program had to be demonstrated. Consequently, many students were referred and a large caseload soon came into existence; the end result being a total active caseload at times numbering over two-hundred and only one counselor available to provide services. This presented difficulties when an attempt was made to provide services in "depth" to our clients.

B. Prevalence of Secondary Disability

Table II (See Appendix A, page 59) illustrates clearly that more than one-half of the clients in the current active caseload have multiple disabilities and are in need of comprehensive rehabilitation services. Defective vision is the most common secondary disability handicapping both the clients in our current caseload and those whose cases have been closed as rehabilitated. Every effort is made to improve or correct the client's physical handicaps so that he may utilize his full potential in the pursuit of his ultimate goal -- that of becoming a trained person qualified for work that is commensurate with his ability.

C. Distribution of Client Intelligence Quotients

At the close of the three-year pilot phase of the Project there were 164 clients who were considered part of the active caseload. In addition to this group, we had closed as rehabilitated 55 other cases. Scores from individually administered intelligence tests were available on all these cases. By dividing the scores into the following five categories of intellectual functioning, (1) Above 84 I.Q., (2) Slow learner (70-84 I.Q.) (3) Mildly retarded (55-69 I.Q.), (4) Moderately retarded (40-54 I.Q.), and (5) Below 40 I.Q., (See Table below), it is possible, by inspection, to compare the two client groups with respect to their distribution of I.Q. scores.

COMPARISON OF ACTIVE VERSUS REHABILITATED CLIENT I.Q.'S
as of November 30, 1967

	Above 84 I.Q.	Slow Learner (70-84 I.Q.)	Mildly Retarded (55-69 I.Q.)	Moderately Retarded (40-54 I.Q.)	Below 40 I.Q.	TOTAL
Active Cases (N=164)	6 (4%)	72 (44%)	66 (40%)	17 (10%)	3 (2%)	164 (100%)
Status 26 Closures (N=55)	10 (18%)	33 (60%)	11 (20%)	1 (2%)	0 (0%)	55 (100%)

It can be seen in this table that the vast majority of cases which have been closed as rehabilitated fall in the two highest I.Q. groups (78% of all closures). On the other hand, among the three groups representing I.Q.'s of 69 and below we have 22% of our total closures. Our active caseload as of the end of the Project phase was more normally distributed among the I.Q. classifications.

These figures suggest that (1) the distribution of active case I.Q.'s is in line with national figures representing a decreasing number of persons in each progressively lower I.Q. classifications, and (2) that the cases in the lower I.Q. classifications are considerably more difficult to rehabilitate and consequently require more time and effort before closure can be attained.

A more detailed breakdown of the I.Q. distribution of these client groups can be found in Appendix A, page 58, of this report.

D. Socio-economic Factors

The average family income level of the fifty-five clients whose cases were closed as rehabilitated was $241 per month or $2,890 per year. Similarly the average monthly income of the 27 cases that were closed during the project as not rehabilitated was $242 per month. These total incomes are less than $3,000 per year and would meet the criteria for classification as poverty stricken families as defined by the U.S. Office of Economic Opportunity. The average annual family income of the 164 clients in the present caseload is $280 per month or $3,360 per year which is only slightly above the poverty stricken classification. Twenty-seven percent (refer to Appendix A, page 60) of the families in the active caseload are welfare recipients. Of those cases closed as rehabilitated 16.3% of the families were receiving Social Security benefits and of the current active caseload 8.8% of the families are receiving Social Security benefits. The average number of family members of all clients served was five.

The low average annual incomes and the percentage of families receiving financial assistance tends to bear out the need for providing a complete and comprehensive rehabilitation program for this disability group.

E. Cost

Table VII, page 64, illustrates the cost factors of the fifty-five clients whose cases have been closed in Status "26" Rehabilitated. The average cost per case closed as rehabilitated was $134. These costs include diagnostic procedures for all clients; physical restoration services, prosthetic appliances, training, tools and equipment as required or determined to be necessary in each individual case.

Of the twenty-seven cases that were not rehabilitated, but closed after a plan was initiated, the average cost per case was $70.

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V. Selected Case Summaries

A. Kathy

Kathy was initially referred to Vocational Rehabilitation at the age of eighteen on the basis of suspected mental retardation. At that time she was living at home with her parents and one younger sibling who was in her junior year in highschool. Kathy had attended school until the age of sixteen by which time she had reached the ninth grade through a series of social promotions. At the time of referral her daily activities consisted solely of assigned domestic chores which she was able to perform without supervision while her mother worked out of the home.

Initial efforts to plan with Kathy met with reluctant cooperation, ample bitterness, and an obvious self-consciousness on the part of both client and family. Since she was totally unprepared for any employment situation, Kathy was enrolled in the prevocational special education program for training and evaluation. During the first few months of school, Kathy was socially uncomfortable and vocationally aimless; however, as efforts continued, Kathy was able to develop interest and involve herself in planning for her future.

Through her own efforts, her family's support, the opportunities of socialization and domestic abilities afforded her in the special education classes, and the services of Vocational Rehabilitation consisting of regular vocational and supportive counseling, intensive dental work, evaluation and job try-outs in the areas of housecleaning, stock work and child care, Kathy was able to develop self-respect, confidence, and her own employment situation.

Kathy is successfully employed on a daily basis as a babysitter for a family of six children. Her responsibilities are regularly increasing and she is earning enough to make a substantial contribution to her own maintenance.

The cooperative, long-term efforts of the education and rehabilitation staffs have demonstrated what can be done to help the mentally retarded help themselves. Kathy continues to be a regular visitor to both the counselor and to the teaching staff. Kathy is a constant reminder to other clients and to those with the responsibility of providing services to the mentally retarded that Rehabilitation of the mentally retarded is possible.

B. Johnny

Unlike Kathy, Johnny became a special education student at a very early age and at the time of referral was beginning his tenth year of specialized education geared to both his interest and his ability levels.

Johnny's progress at Lincoln was good, both academically and socially, and job development was begun for him at a much earlier age than for most clients. Also, because John was the eldest of four children in a broken home, his presence in the home and financial responsibility were of great importance to his mother.

Because of this home responsibility, John was highly motivated and shortly after a period of evaluation and on-the-job training, he was successful in developing his own employment situation. Shortly before his eighteenth birthday he was closed rehabilitated as a full time, reasonably well-paid dishwasher in a local restaurant.

Supportive counseling, social and medical services, evaluation, testing, and training played a big part in Johnny's success on the job and each discipline worked closely to prepare John for successful employment. Follow-up finds Johnny still hard at work and performing well in his chosen occupation. He is well settled, grateful for the preparation and interest provided him by both facets of the cooperative program, and certainly seems confortable in his role of financial responsibility within the home.

C. Grace

Grace attended the Jefferson Special Education School in Wheeling before the students were transferred to Lincoln School. At age nineteen, she was referred to Vocational Rehabilitation due to mental retardation. According to the Wechsler Intelligence Scale for Children, she possessed a Full Scale I.Q. of 76. Shortly after acceptance, she was sent to the West Virginia Rehabilitation Center to receive domestic training in Project 957 which was an eight-week program of personal adjustment and evaluation that took place in a workshop which was made up of a model kitchen, dining room area, laundry and classroom. She was taught table manners, proper dress, personal hygiene, safety, how to tell time and the use of a telephone. After completion of this course, she was sent home where she received counseling on a regular basis. Shortly after this, Grace was re-enrolled into the Center, this time in the advanced program of Nurse's Aide Training. After approximately 700 hours of such training, she came back to Project 1656-D to receive further services. These were additional counseling, three months on-the-job training at the Duffs Nursing Home and follow-up.

Upon completion of this training, she was kept on at the Rest Home as a regular employee. The head nurse stated "If Grace is as pleased with us as we are with her, then everything is just fine." Grace stayed at the Nursing Home until she was married to a young man whom she met at the Center who had graduated from the drafting course. After marriage, she took a job at the North Wheeling Hospital. For the past year, Grace has been seen with her husband, and both are happy and living comfortably.

As you open the folder to this closed case, you can see a happy girl's picture in her wedding gown holding a bouquet of flowers. It makes you wonder what road this girl would have taken if help was not available when she needed it. A total of $228 was spent on this client in addition to Center cost and staff work -- a small price for such a big return.

D. Ronald

Ron also attended the Jefferson School for the Mentally Retarded and was transferred to Lincoln School when the old school closed down. According to the Wechsler Adult Intelligence Scale, he had a Full Scale I.Q. of 66. This was only one of Ron's many problems since he came from a very poor

environment with no father and suffered from lack of personal hygiene knowledge and ability to communicate with others. Here was a young boy, age sixteen, with excessive fear and frustration.

While spending a year and a half at Lincoln School, Ron participated in the following classes:

1. Reading (remedial)
2. Occupational Education
3. Math (geared to the individual)
4. Work period
5. Social Studies
6. Shop
7. Physical Education

During the same period, services in the way of counseling in depth, psychological testing, work evaluation, etc. were being provided by the Vocational Rehabilitation staff. Physical restoration (teeth extractions, partial denture, fillings) was also provided. When it was felt by Vocational Rehabilitation and the Lincoln School staff that Ronald reached his maximum peak of learning, an on-the-job training situation was developed for him at Imperial Display Company in Wheeling. He continued his schooling on a half day basis and worked afternoons for his employer as a stock boy. This training was set up for a period of six months, and during this time placement follow-up and counseling were almost daily events.

As Ronald progressed throughout the program, he needed less supervision. Toward the end of the six months period, Ronald developed another part-time job in the Wheeling area.

One day the client came to the counselor's office and asked if we would try to find a full-time, higher paying job for him. It was felt that the client had reached a point where he should be able to develop his own employment opportunity; therefore, he was sent out on his own. Within a week Ronald reported back to the office and stated that he had found a full-time evening job at a local restaurant as a busboy-dishwasher. He started his new job at 90¢ per hour and after he held this position for a few weeks he was moved to the day shift and given a small raise. As of this writing, the client has been employed at the same establishment for a total of sixteen months.

This rehabilitation case represented a total expenditure of $587, divided among diagnostic services, physical restoration, training, etc. The amount of client, family, and employer contacts made throughout this two-year, nine months program were numerous.

It can be said that Ronald is now a productive worker, able to meet the demands of everyday living, and in our opinion can be called a "successful" rehabilitation.

E. <u>John</u>

John was accepted into the Lincoln School program on August 31, 1965. According to the Wechsler Intelligence Scale for Children administered at that time, he achieved a Full Scale I.Q. of 75. He remained in the

special education program for two years where he received some of his academic background. While in a school setting, Vocational Rehabilitation provided a general medical examination and counseling in depth. It could be said that this client received as extensive a counseling program as possible.

In September of 1967, John asked what we thought of his enlisting into the United States Army. With the feeling that John was on his way to success, the Vocational Rehabilitation staff and school faculty encouraged him to attempt what he wanted. John left the program, but joined a much bigger one.

One morning several months later, the counselor stepped out of his car to begin another day's work only to be met by a fine, young, clean-cut man who was now Private John Smith. He is now able to take pride in himself and his accomplishments. After Christmas leave, he was to return to base where he was to become a member of a motor pool. Many sessions were held during the past few years discussing John's fondness of working around motors. Here he would be getting his chance.

Money spent - $7.50 for a general medical. This helps to illustrate the fact that it takes more than dollars to rehabilitate the mentally retarded.

F. Alvin

Alvin was referred to the Lincoln School Project by the Ohio County Board of Education due to suspected mental retardation. According to the Wechsler Adult Intelligence Scale, he achieved a Full Scale I.Q. of 80. Shortly after acceptance, the client received dental services which included hospitalization, dental extractions, and full upper and lower dentures totaling $288.52. After completion of these services, Alvin was enrolled into the Lincoln School program where he received an education in the basic elementary subjects in addition to the work evaluation program and counseling in depth. During his approximate two years stay at Lincoln School, Alvin worked after school and on weekends on a farm in the Wheeling area. It was well known that his main interest was in watching things grow and taking care of animals.

As Alvin reached his peak of learning capacity, the Training and Placement Specialist started working with him and searched the area for suitable employment. In October of 1967, he was placed at the John Dieckmann and Sons Florist as a nursery worker. For the past several months, based on placement follow-ups, the employer is well pleased with Alvin's work and now Alvin is a member of their Union. Alvin can now be considered a productive worker, being paid for doing the kind of work in which he has always found great satisfaction.

G. Robert

Robert was referred to Vocational Rehabilitation by the Weston State Hospital in 1963. According to psychological testing at that time, he achieved a Full Scale I.Q. of 56 in addition to being diagnosed as having a behavioral reaction. Before being admitted to Weston, Bobbie lived at the West Virginia Training School at St. Marys and spent some time at Lakin State Hospital.

Until the client was age sixteen, little could be done for him other than extensive counseling. Upon reaching that age, emphasis was placed on training, particularly in the food service field. It was felt that unless special training was given to the client and the client was able to establish work habits, chances of employment would be very limited. Efforts were made to enroll Bobbie into the West Virginia Rehabilitation Center; however, his fear and dislike for people made it impossible. As a result, additional counseling was provided and further emphasis was placed on trying to find local training in food service work.

Bobbie was placed at Howard Johnson's Restaurant in 1966 by the Training and Placement Specialist, and follow-up was a daily event for months. As of this report, the client is still employed with the same employer. Every so often Bobbie will come into the office with a little problem, calling for supportive counseling. This is the reason the Project may close a case as truly rehabilitated, but the open-door policy always remains in effect for those who need it.

VI. Summary of Major Findings and Conclusion

The purpose of this special project was to demonstrate the effectiveness of a coordinated-organized effort by Special Education and Vocational Rehabilitation that would assist the mentally retarded in Ohio County to make an optimal adjustment to the demands of community living and employment. The number of clients successfully placed into employment and whose case files were eventually closed as rehabilitated (55) and the large number of students receiving services (231) during the three years of the project, further indicates that many individuals who were once thought to be shiftless, delinquent, and undeserving will now be rehabilitated into gainful employment, and a place of respect and dignity in the community.

A. Major findings

1. Most of the educable mentally retarded students can, with the proper training, learn the work skills necessary for many unskilled and semi-skilled jobs.

2. Students who had been dropouts and returned to school to receive the services of this special program were in many instances more difficult to help, due to their immaturity as well as to their having acquired bad habits. This further points out the necessity of early identification and the provision of rehabilitation services while the student is young and in his formative years.

3. Counselors working with the mentally retarded should have smaller caseloads than are normally served by a regular field counselor. This is necessary because of the great amount of time that must be devoted to these individuals.

4. This program became more effective when the social worker's position was changed to that of a counselor with an assignment to provide services to the females in our program. Each counselor was responsible for providing necessary social work services; therefore, this aspect of the program was not weakened, and by now having two counselors providing services we feel this program was substantially strengthened.

5. The team approach which enables each staff member to contribute in the development of a rehabilitation plan for our students has proven to be very effective in the provision of casework services.

6. Most selective job placements were successful because the interests and the abilities of the retarded worker were carefully considered.

7. A pre-vocational program "POINTERS" and a work-study program, to be successful, should emphasize the development of attitudes and values that are essential for job placement and success.

8. Many employers have been pleased with their retarded workers and we have experienced a much greater acceptance of the retarded by the community.

9. The use of an I.Q. score alone can not serve as an absolute predictor of those students who need the services offered in a special program such as Project 1656-D. The culturally deprived or educationally disadvantaged, though not actually mentally retarded, may still require the same type of service as those individuals who are retarded.

10. It is most important to involve the parents in any rehabilitation plan for the student. Rehabilitation and school personnel can not function effectively without the full cooperation of the parents.

B. <u>What is Needed</u>

1. These special programs have demonstrated their effectiveness. It is, therefore, recommended that similar programs be initiated in other counties within the state.

2. Training of more special education teachers is needed so that we will have teachers that are highly creative and able to function in a flexible manner using a curriculum to meet the individual needs of each student.

3. This special program should eventually be expanded to include services to all disability groups of school-age children, ages 14-21 in Ohio County.

4. There is a need for a more discriminating evaluation program of the retarded so that we might assess their strengths and potentials more effectively.

5. To become more effective, cooperative programs will require more of an open-mindedness and a give and take spirit of cooperation at all levels, by both the Division of Vocational Rehabilitation and the County School System.

6. A follow-up study of our clients whose cases have been closed as rehabilitated for one year or more to learn what type of life adjustment they have been able to maintain independently. This would further illustrate the effectiveness of our program.

C. Conclusion

In a Research and Demonstration Project it is difficult to measure success or failure. Goals have been established and have been met; this is success. Several clients have remained dependent upon their families or public support, others have refused services; this is failure.

Those who have survived these years of Research and Demonstration, however, believe we have achieved our objective. We have effectively demonstrated that the Mentally Retarded can be rehabilitated. We as a staff, as an agency, as a school system have learned a great deal regarding the effective approach to the problem of retardation. There has been created within the community a clearer understanding and better acceptance of the mentally retarded. The retarded themselves have begun to adjust to their limitations and to capitalize upon their abilities and interests in establishing and achieving vocational goals.

Officially, the Research and Demonstration Project came to a close on November 30, 1967. The Division of Vocational Rehabilitation and the Ohio County Board of Education agreed that the results of this special program clearly indicate that this Project has been effective in achieving its objectives, and should be continued. Therefore, these services continue now as a part of the field service program of Vocational Rehabilitation and as a planned part of the curriculum in the county educational system. In the future, services will grow, will become better, and more effective, partly because of the efforts of the initial three years but more importantly because once having been initiated, Research and Demonstration will continue as a basic concept of the Lincoln School program. Evaluation, ingenuity, flexibility, and coordination will continue to highlight the cooperative efforts at Lincoln School and we feel that this in itself represents success.

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APPENDIX A

Statistical Data Tables

Table I	-	Intelligence Quotient Distribution
Table II	-	Secondary Disabilities
Table III	-	Occupation of Wage Earner (Active Cases)
Table IV	-	Occupation of Wage Earner (Closed Cases)
Table V	-	Reasons for Closure from Referral
Table VI	-	Number of Individuals Served throughout duration of Project
Table VII	-	Cost Factor of Cases closed Rehabilitated

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TABLE Ia

I.Q. DISTRIBUTION OF TOTAL ACTIVE CASELOAD AS OF NOVEMBER 30, 1967

I.Q.	F	CF	F	% of Total (164)
Above 84	6	161	6	4%
80-84	27	158	72 (slow learners)	44%
75-79	20	131		
70-74	25	111		
65-69	23	86	66 (mildly retarded)	40%
60-64	25	63		
55-59	18	38		
50-54	9	20	17 (moderately retarded)	10%
45-49	4	11		
40-44	4	7		
Below 40	3	3	3	2%
TOTAL	164		164	100%

F = Frequency
CF = Cumulative Frequency

Mean Average I.Q. = 67.6
Median I.Q. = 68.6

TABLE Ib

I.Q. DISTRIBUTION OF ALL STATUS 26 CLOSUERS AS OF NOVEMBER 30, 1967

I.Q.	F	CF	F	% of Total (55)
Above 84	10	55	10	18%
80-84	13	45	33 (slow learners)	60%
75-79	13	32		
70-74	7	19		
65-69	3	12	11 (mildly retarded)	20%
60-64	5	9		
55-59	3	4		
50-54	1	1	1 (moderately retarded)	2%
45-49	0			
40-44	0			
Below 40	0		0	0
TOTAL	55		55	100%

F = Frequency
CF = Cumulative Frequency

Mean Average I.Q. = 76.3
Median I.Q. = 77.8

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TABLE IIa

SECONDARY DISABILITY

CURRENT ACTIVE CASELOAD

Secondary Disability	Number of Disabilities	Percent of Total
No secondary disability	71	43.0%
Dental	16	9.5%
Hearing	4	2.4%
Visual	51	31.0%
Personality	3	1.8%
Cerebral Palsy	2	1.2%
Speech	2	1.2%
Cardiac	2	1.2%
Aphasia	1	.7%
Urinary	1	.7%
Visual/dental	4	2.4%
Orthopedic/visual	1	.7%
Speech/visual	1	.7%
Speech/dental	1	.7%
Visual/hearing	1	.7%
Hearing/speech	1	.7%
Personality/visual	1	.7%
Visual/epilepsy	1	.7%
TOTAL	164	100.0%

****

TABLE IIb

CASES CLOSED REHABILITATED

Secondary Disability	Number of Disabilities	Percent of Total
No secondary disability	33	66%
Visual	11	20%
Dental	5	8%
Hearing	1	1%
Speech	1	1%
Hearing/visual	1	1%
Visual/orthopedic	1	1%
Personality	1	1%
Epilepsy	1	1%
TOTAL	55	100%

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TABLE III

OCCUPATION OF FAMILY WAGE EARNER
(Active Cases)

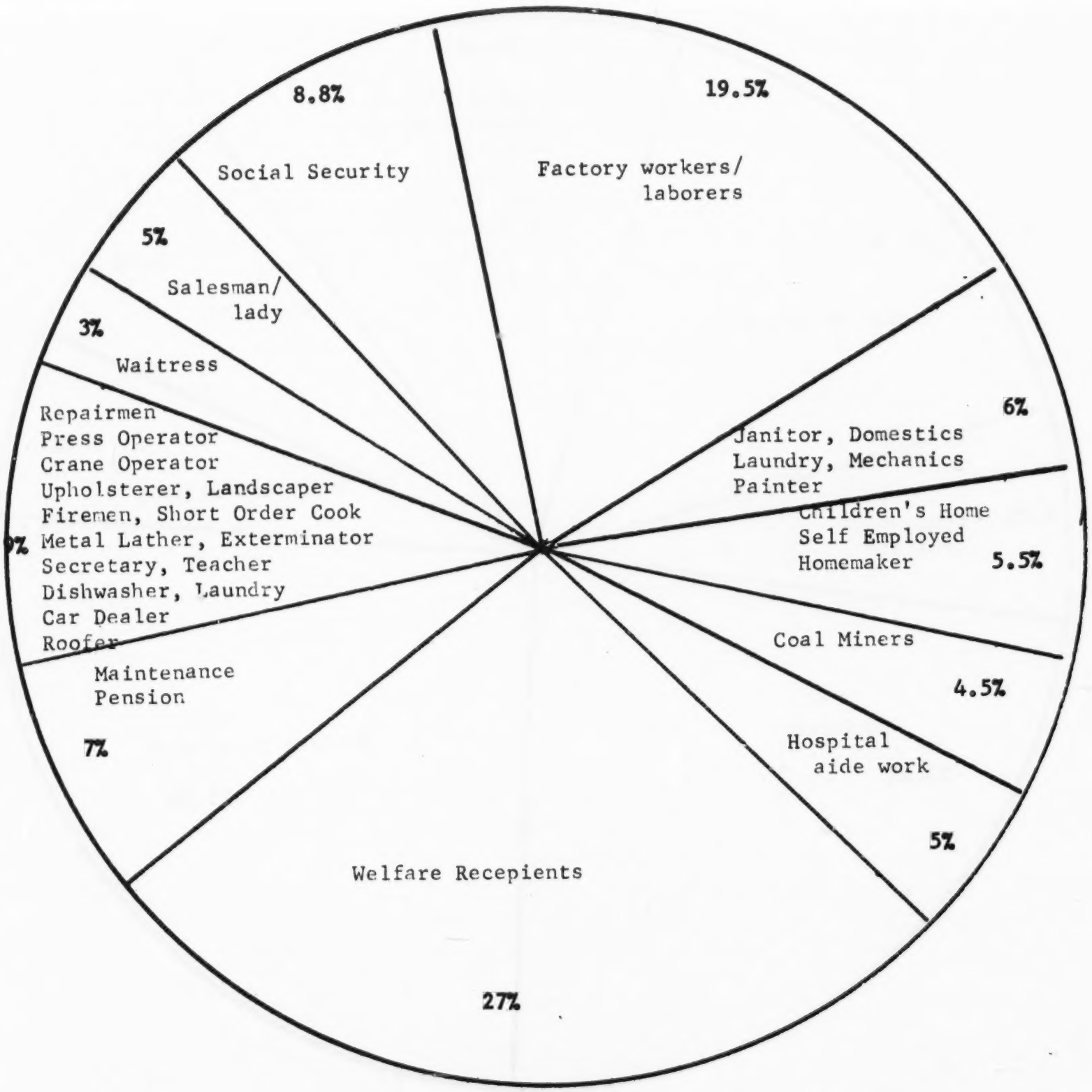

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TABLE IV

OCCUPATION OF FAMILY WAGE EARNER
(Closed Rehabilitated Cases)

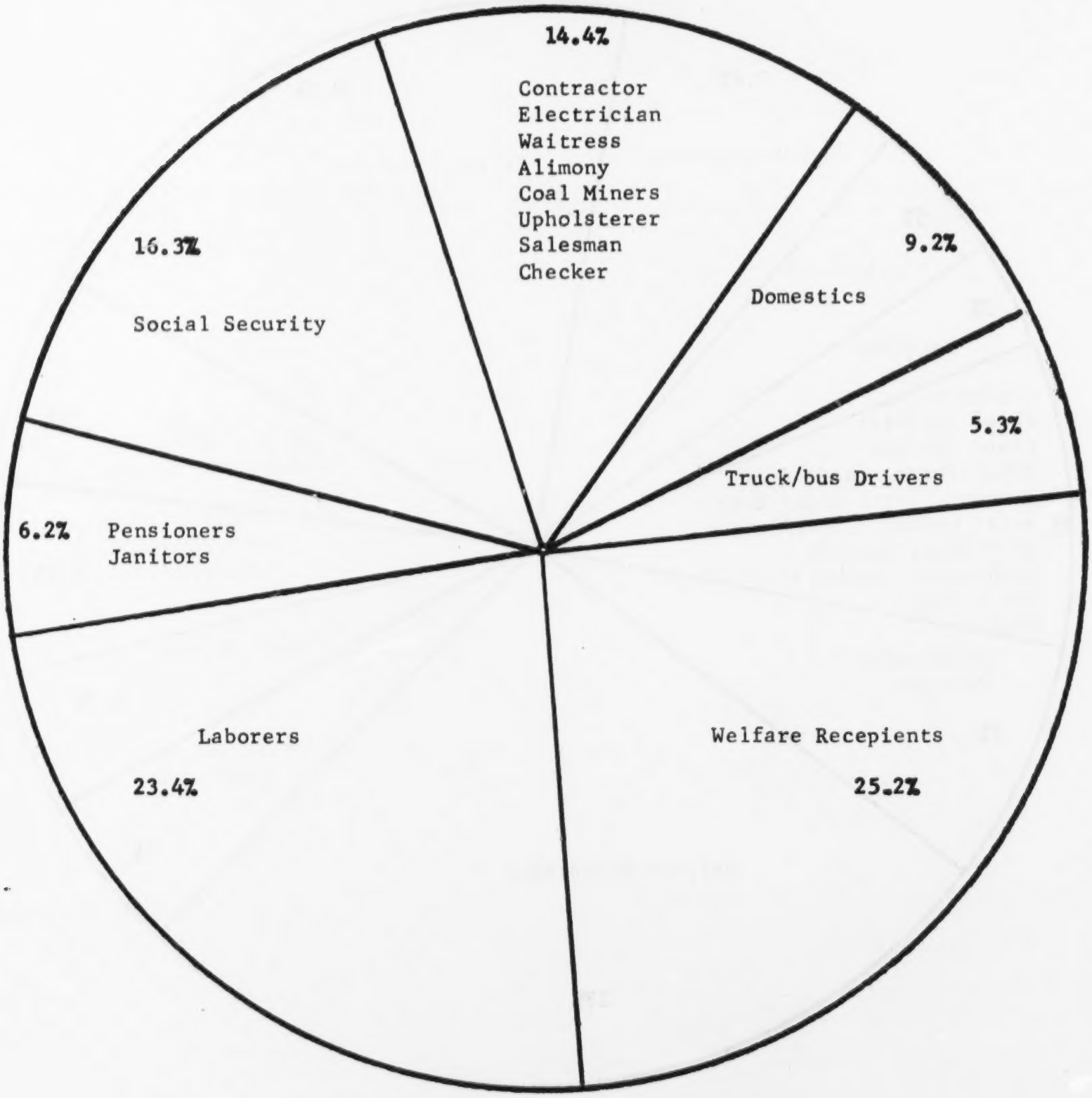

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TABLE V

PROJECT 1656-D

CASES CLOSED FROM REFERRAL

Period of Project - December 1, 1964 through November 30, 1967

Reason for Closure	Number of Cases
No response	103
Responded but refused services	63
Unable to locate	14
Moved out of area	17
Duplicate referral (Some of these cases were active District Office cases and were transferred to Project)	18
Confined (Detention Home)	6
Ineligibility WAIS or WISC given ----- 30 Peabody Voc. Test given-105 According to previous tests & school records- 11	146
In Military Service	6
In Job Corp	5
TOTAL.....	378

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TABLE VI

INDIVIDUALS SERVED THROUGHOUT DURATION OF PROJECT 1656-D

March 1, 1965 through November 30, 1967

PERIOD	REFERRALS	M	F	CLOSED FROM REFERRAL	ACCEPTED	REHABILITATED	M	F
March 1 - June 30, 1965	172	109	63	1	36	0	-	-
July 1, 1965 - June 30, 1966	394	253	142	188	116	17	13	4
July 1, 1966 - June 30, 1967	70	45	25	180	58	25	16	9
July 1, 1967 - Nov. 30, 1967	23	15	8	9	21	13	9	4
T O T A L S	659	421	238	378	231	55	38	17

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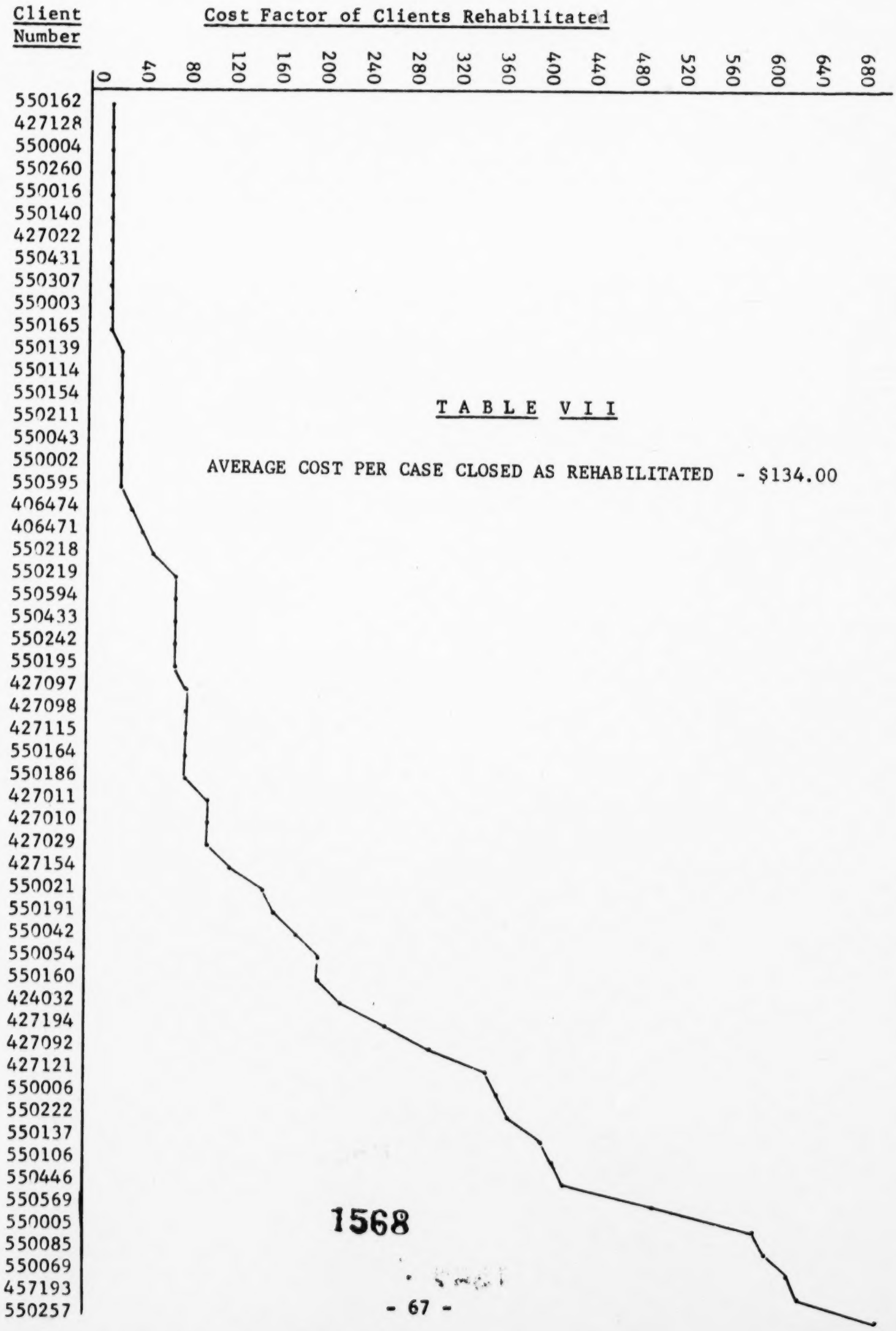

TABLE VII

AVERAGE COST PER CASE CLOSED AS REHABILITATED - $134.00

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APPENDIX B

Project Forms

Case Service: (In addition to standard state forms)

Table I - Project Data Collection Form
Table II - Training Progress Report Supplement

Psychological Testing

Table III - California Picture Interest Inventory Answer Sheet

POINTERS Program:

Table IV - Application for Admission
Table V - Words to Learn Well
Table VI- Using New Words
Table VII- Job Description
Table VIII- POINTERS Class Student Progress Chart

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WEST VIRGINIA DIVISION OF VOCATIONAL REHABILITATION
PROJECT DATA COLLECTION FORM

PROJECT NO. _____ TERRITORY NO. _____ COUNSELOR _____

DATE OF CLOSURE _____ CLIENT NO. _____ NAME _____

CLOSURE STATUS* _____ AGE _____ PRI. DIS. _____ (Code)** SEC. DIS. _____ (Code)**

COUNTY _____ (Name) _____ (Code)***

I. PSYCHOLOGICAL TEST SCORES

1. WAIS I.Q. . . . . Verbal _____ Performance _____ Full Scale _____

2. Bender-Hines. . . Raw Score _____ _____

3. Wide Range (raw & grade placement)

	Read.	G.P.	Arit.	G.P.	Sp.	G.P.	Total	G.P.
	___	___	___	___	___	___	___	___

4. Vineland. . . . . S.A. _____ S.Q. _____

5. Penn. Bimanual. . Assembly Min___Sec___., Disassembly Min___Sec___., Total Min___Sec___

II. EDUCATIONAL FACTORS

1. Number of grade failures. . . . . _____
2. Grade level first failure . . . . . _____
3. Number years in school. . . . . _____
4. School discipline problem . . . . . Yes ☐ No ☐

III. ANTISOCIAL BEHAVIOR

1. Number of arrests. . . . . _____

1st	2nd	3rd	4th	5th	6th
___	___	___	___	___	___

2. Type of offenses (choose one or more from below) . . . . . ___ ___ ___ ___ ___ ___

a. B&E
b. Auto theft
c. Sexual
d. Incorrigible behavior and/or truancy
e. Drinking
f. Robbery
g. Theft
h. Other

3. Was client incarcerated for any offense? Yes ☐ No ☐

*See Caserman, Section 200.
**See Caserman, paragraph 404.
***See Caserman, paragraph 402.

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IV. COST FACTORS

		Expenditures
1.	Diagnostic.	$_____
2.	Surgery and treatment	$_____
3.	Artificial appliances	$_____
4.	Hospitalization	$_____
5.	Training and tuition.	$_____
6.	Maintenance and transportation. . .	$_____
7.	Placement equipment	$_____
8.	Other	$_____
	Total	$_____

V. TRAINING (Check appropriate box or boxes below and list their numbers here): ____, ____, ____, ____, ____, ____, ____, ____, ____, ____.

1. On the job training. . . . . ☐
2. Rehabilitation Center
   a. Pre-vocational . . . . . ☐
   b. Trade. . . . . ☐
3. Trade school . . . . . ☐
4. Man power development. . . . . ☐
5. Youth Opportunity Center . . . . . ☐
6. Job Corps. . . . . ☐
7. Public school. . . . . ☐
8. Tutors . . . . . ☐
9. Other. . . . . ☐

VI. COUNSELING

		Number
1.	Individual contacts with client.	_____
2.	Group counseling sessions attended by individual.	_____
3.	Counseling sessions with client's family	_____
4.	Counseling sessions with client and family	_____
5.	Psychiatric contacts	_____

VII. PHYSICAL RESTORATION

Type_____

_____.

VIII. PLACEMENT

1. Job tryout No. _____

Type (choose one or more from below and list numbers here):
____, ____, ____, ____, ____, ____, ____, ____, ____.

1.	Nurse Aid	16.	Nurse Maid
2.	Food Service	17.	Unpaid Family Worker
3.	Food Preparation	18.	Tradesman helper
4.	Service Station	19.	Psychiatric Aid-Orderly
5.	Car Wash	20.	Parking Attendent
6.	Janitor	21.	Nursery & Horticulture
7.	Demolition	22.	State Park Laborer
8.	Window Cleaner	23.	Gardener's helper
9.	Painting	24.	Stock Boy
10.	Messenger	25.	Shoe Shine Boy
11.	Factory	26.	Clerical
12.	Postal Helper	27.	_____
13.	Construction Laborer	28.	_____
14.	Laundry	29.	_____
15.	Domestic	30.	_____

2. Job at closure (Code)*. . . _____
3. Length of time (in months) between placement and closure . . . . . _____
4. Number of supervisory contacts. . . . . _____

IX. FOLLOW UP AFTER CLOSURE

1. Job status (check one) ☐ On same job ☐ Different job ☐ Unemployed
2. Number of job changes. . . . . _____
3. Was client arrested. . . . . ☐ Yes ☐ No
4. Reason for arrest. . . . . _____
5. Marital status change. . . . . ☐ Yes ☐ No
6. Wages at time of contact . . . . _____
7. Major purchases. . . . . ☐ Automobile ☐ House ☐ Major appliance ☐ Other
8. Source of support. . . . . _____ (Code)**

*See Caserman, paragraph 414.
**See Caserman, paragraph 409.

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X. MEDICAL DATA

Disorders	Yes	No	Suspected	Explanation
Central Nervous System	___	___	_____	_____
Epilepsy	___	___	_____	_____
Aura	___	___	_____	_____
Other convulsive disorders	___	___	_____	_____
Cerebral Palsy	___	___	_____	_____
Other motor dysfunction	___	___	_____	_____
Other C.N.S. disorders	___	___	_____	_____
Sensory				
Eye and Vision	___	___	_____	_____
Ear and Hearing	___	___	_____	_____
Other	___	___	_____	_____
Musculo-Skeletal (congenital and orthopedic defects included)	___	___	_____	_____
Other	___	___	_____	_____
Skin and Hair	___	___	_____	_____
Cardio-vascular	___	___	_____	_____
Blood and Lymphatic	___	___	_____	_____
Metabolic, allergic and endocrine	___	___	_____	_____
Gastro-intestinal	___	___	_____	_____
Respiratory (includes asthma)	___	___	_____	_____
Genito-urinary	___	___	_____	_____
Menstrual	___	___	_____	_____
Venereal disease	___	___	_____	_____
Hernia	___	___	_____	_____
Other	___	___	_____	_____
Other disease or defect noted				
_____	___	___	_____	_____
_____	___	___	_____	_____
_____	___	___	_____	_____
Medical Treatment				
Drugs	___	___	_____	_____
Other	___	___	_____	_____

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TABLE II

TRAINING PROGRESS REPORT SUPPLEMENT*

*Training Progress Report for Mentally Retarded Clients

Since this training program is a joint effort and responsibility between our agency and your facility, we would like to present the following clarifying information:

It is our expectation that you as an employer-trainer will teach and evaluate the clients sent to you in the areas listed on the yellow sheet, as well as in the areas deemed necessary by us as listed and discussed on this supplemental sheet.

Since this program, in addition to supplying you with an economic advantage in return to your training facilities and time, is meant mainly for the client to learn about the realities and expectations of the world of work, we expect our clients to satisfy you, and that we as an agency be satisfied by their training and progress.

For both your use and ours, we request you to keep us posted on all significant progress and problems; that you submit a formal progress report once a month to this agency.

For your guidance, we would like to point out some generalities to be aware of in working with retarded (slow learning) individuals:

1. They can do most of the things other individuals can do, but it takes more effort and a longer time for them to learn to perform in various ways that it does other individuals.

2. The retarded are much more easily frustrated and discouraged than are other individuals. Therefore, they need some form of praise and encouragement, rather than criticism and complaint, much more often than do other individuals. A "thank you", "that's fine" or "a good job, nice initiative" dispursed through their day will produce happier and more efficient workers. They need to experience success, and to feel they have accomplished something worthwhile, rather than to be continually frustrated and criticized for everything they attempt to do, because their results do not meet the approval of other individuals.

3. Either because of their retardation, cultural background, or both, these individual clients (trainees) may look at work in a different way than you the employer, i.e. they may hold things to be important personally which you and others may see as trivial or totally unimportant. For example, they want to have spending money, yet they do not fully understand their responsibilities in earning it, or they may feel it is more important to go fishing than to come to work. Most likely they have never held a job before and the most simple of expectations from the world of work may frighten them or have no definite meaning for them.

4. The retarded individual tends to act out anger and frustration in overt behavior. They have difficulty in understanding that it takes time to process things. For example, if they want a job or to be paid, they want it immediately, and don't understand the process involved in obtaining these things.

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If we have done and do our job well, these clients will learn and be evaluated in the things covered on the yellow sheet and this supplemental sheet. They will then be able to adapt to their difficulties and become successful, productive workers.

ADDITIONAL AREAS FOR TRAINING, TEACHING, AND EVALUATION

13. Anger: (a) How does the Trainee handle angering and frustrating situations which may arise in the work situation?

14. Atmosphere: (a) Does the Trainee accept the physical work surroundings and conditions, i.e. a light or a dark place to work, heavy or light work, solitary or group work, hot or cold, wet or dry working areas?

    (b) If the Trainee complaint, what is involved?

15. Attire: (a) Is the Trainee's attire appropriate for the job and working area: _____ Yes _____ No

    (b) If "no", explain.

16. Consistency: (a) Is the Trainee's performance and production consistent? _____ Yes _____ No

    (b) If "no" why not?

17. Co-workers: (a) How well does the Trainee get along with fellow-workers?

18. Initiative: (a) Does the Trainee initiate work without constant supervision or suggestion by the supervisor or other workers?

19. Payment: (a) Does the Trainee understand the frequency of the pay period, deductions, and overtime pay procedures?

    (b) Is the Trainee constantly asking for advances or to be paid early?

20. Punctuality: (a) Does the Trainee arrive at work on time in the mornings and after the lunch break?
    _____ Always _____ Most Always _____ Never

    (b) If the answer is "most always" explain further.

    (c) If the Trainee is late, how late usually?

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(d) Does the Trainee call in, in advance, to give a reason for being late? _____ Yes _____ No

(e) Does the Trainee have a good acceptable reason for being late when a reason is given by phone or in person?
_____ Yes _____ No

(f) If "no" why not?

(g) Does the Trainee call in, in advance, to give a reason for not coming in on any particular day? _____ Yes _____ No

(h) Does the Trainee have a good acceptable reason for missing a day of work? _____ Yes _____ No

(i) If "no" why not?

21. Time: (a) Is the Trainee flexible in the work schedule, i.e., can the Trainee be called out for extra, unusual, or overtime work, or must the Trainee adhere to a rigid schedule?

22. Safety: (a) Is the Trainee always aware of safe work habits, especially as to fire and falling accidents?

(b) Are all tools and supplies returned to their proper storage places?

23. Supervision: (a) Does the Trainee understand and accept supervision on the job?

(b) Can the Trainee take constructive criticism?

WML,II C.T.

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TABLE III
CALIFORNIA PICTURE INTEREST INVENTORY

NAME _____ (M F)

DATE OF BIRTH _____ AGE _____ GRADE _____

DATE OF TEST _____ EXAMINER _____

****

PART I

1. a b c _____

   a b c _____

2. a b c _____

   a b c _____

3. a b c _____

   a b c _____

4. a b c _____

   a b c _____

5. a b c _____

   a b c _____

6. a b c _____

   a b c _____

7. a b c _____

   a b c _____

8. a b c _____

   a b c _____

9. a b c _____

   a b c _____

10. a b c _____

    a b c _____

11. a b c _____

    a b c _____

12. a b c _____

    a b c _____

TABLE IV

LINCOLN SCHOOL POINTERS CLASS

APPLICATION FOR ADMISSION

Name: _____ Male ___ Female ___
Last First Middle

Date of Birth: _____
Month Day Year

Address: _____
Street City State

Social Security Number _____ Phone No. _____

Height: ___ ft ___ inches Weight: _____lbs.

In case of emergency call: Name _____

Address_____

Phone_____

I would like to have a job because _____

_____

_____

_____

_____
Signature

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TABLE V

NAME _____ DATE _____

W O R D S T O L E A R N W E L L

In Pointers Class you will learn to read and understand many new words. Most of them will be found on job application forms.

Unless you know such words, you may not be able to give all the answers to the questions asked on a job application blank. You might also put down the wrong information if you do not understand what the words mean.

DRILL FOR FIRST WEEK

1. Look in the dictionary for the meaning of these words:

Word	Meaning
nationality	_____
citizen	_____
height	_____
weight	_____
dependent	_____

2. Write each new word yourself two times in the space provided:

nationality	_____	_____
citizen	_____	_____
height	_____	_____
weight	_____	_____
dependent	_____	_____

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TABLE VI

NAME _____ DATE _____

U S I N G N E W W O R D S

LESSON 1.

Below is part of a job application form which includes your five new words for this week. Fill in the information as you would if you were applying for a job.

JOB APPLICATION

NAME: _____
last first middle

ADDRESS: _____
street city state

NATIONALITY: _____

HEIGHT: _____ WEIGHT: _____
feet inches pounds

Are you a CITIZEN of the United States? ☐ Yes ☐ No

Number of DEPENDENTS: ____

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TABLE VII

LINCOLN SCHOOL POINTERS CLASS

JOB DESCRIPTION

_____
student's name

_____
date

You are to interview a parent, a neighbor, or a friend who is now working at a full-time or part-time job and find out the following information:

1. What is the name of the job? _____

2. Name the duties and responsibilities of the job: _____
_____
_____

3. What special abilities are needed to perform this job? _____
_____
_____

4. What education or training is needed to perform this job? _____
_____

5. Under what conditions is this job generally performed? (check those that apply)

___ indoors	___ with other people	___ standing
___ outdoors	___ alone	___ sitting
___ high places	___ dangerous work	
___ noisy places	___ daytime	
___ dirty places	___ night-time	

6. Name two things that make this job desirable:
   1. _____
   2. _____

7. Name two things that make this job undesirable:
   1. _____
   2. _____

8. Would you like to have this job? ___ ___ Why? _____
_____
_____
_____
_____

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TABLE VIII

POINTERS CLASS STUDENT PROGRESS CHART

Student's Name	Admis. to Class	Social Sec. Card	Testing				Work Evaluation					Job Description		Vocabulary		Application forms		Job observation		Job try-outs		References		Resume'
			I	II	III	IV	I	II	III	IV	V													
NANCY																								
LYNN																								
LINDA																								
LINDA																								
WALLY																								
BRENDA																								
RAY																								
CHUCK																								
TIM																								
ERNIE																								
DAVID																								

APPENDIX C

Floor Plan of Project 1656-D

Table I - Third Floor of Lincoln School

Table II - Vocational Rehabilitation Staff Offices

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TABLE I

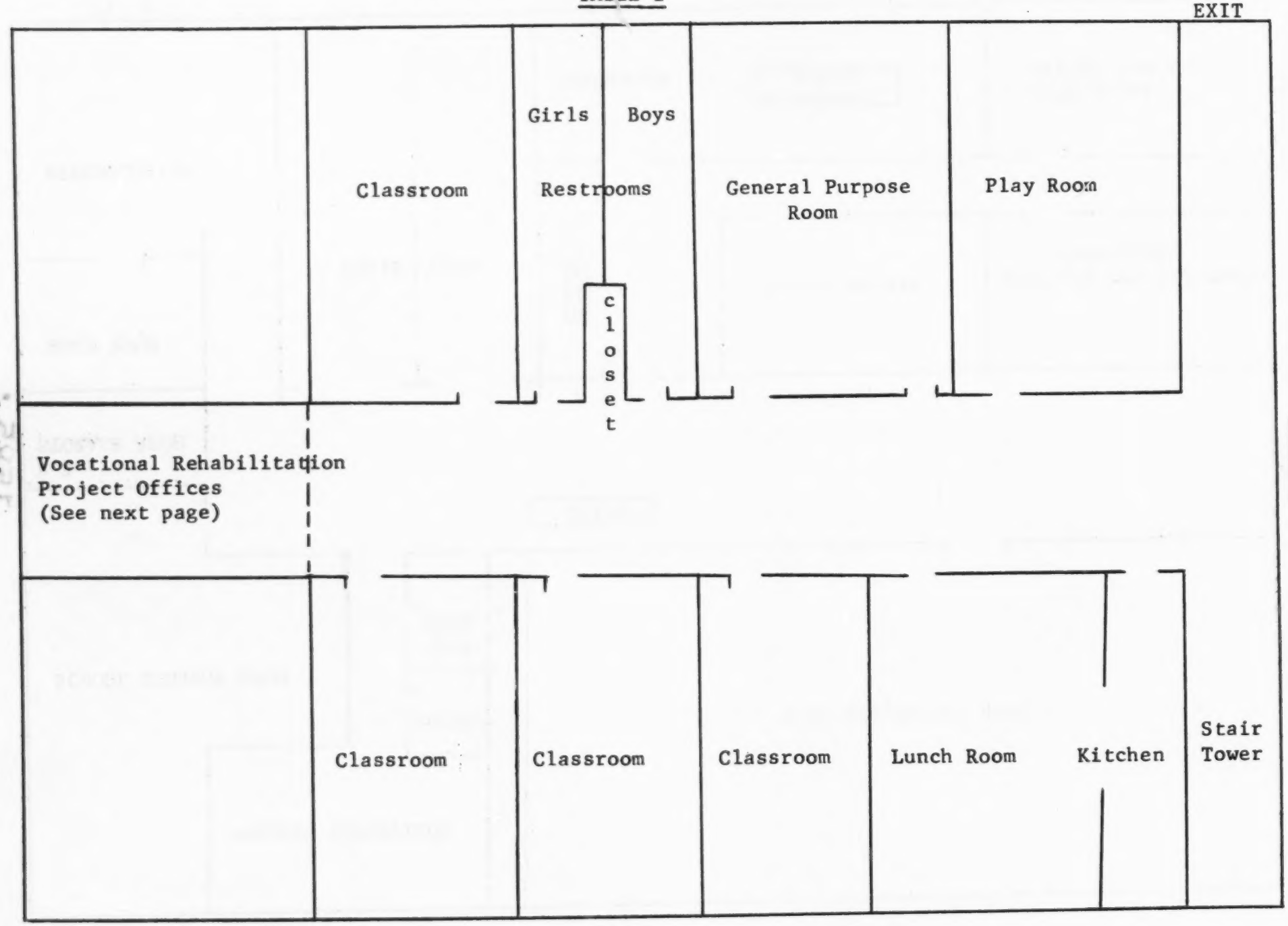
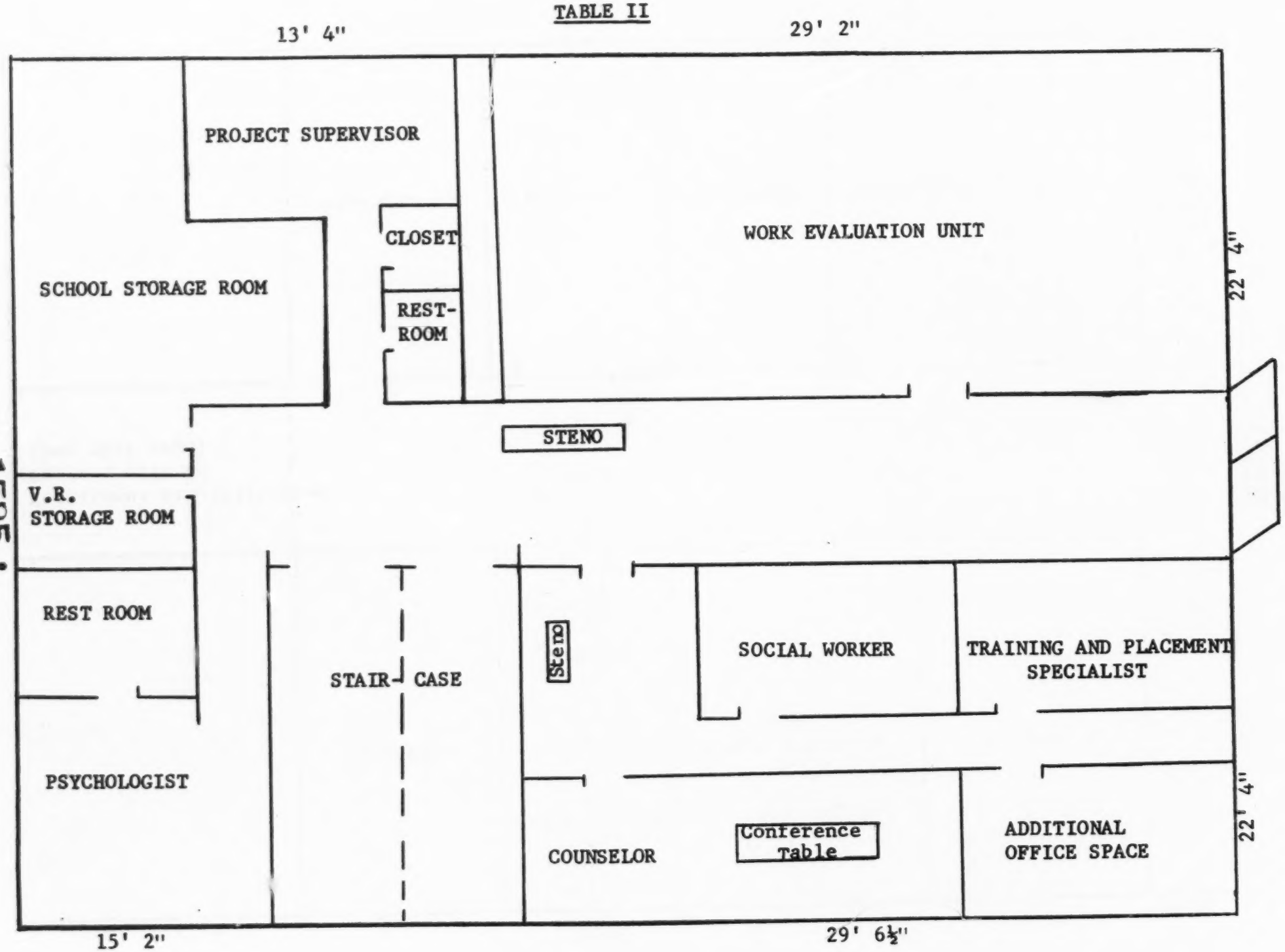


TABLE I

FLOOR PLAN - Third Floor of Lincoln School

TABLE II



FLOOR PLAN - Vocational Rehabilitation Staff Offices

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VT 012 129
McKinnon, Rachel, and Others
A Follow-up Study of Graduates from a Vocational Rehabilitation Program in a Residential Training Center for the Mentally Retarded.

California State Human Relations Agency, Sacramento. Dept. of Rehabilitation.
MF AVAILABLE IN VT-ERIC SET.
FSS 70-8-9
California State Human Relations Agency, Department of Rehabilitation, 714 P Street, Sacramento, California 95814 (single copies no charge).
PUB DATE - 21Aug70 47p.

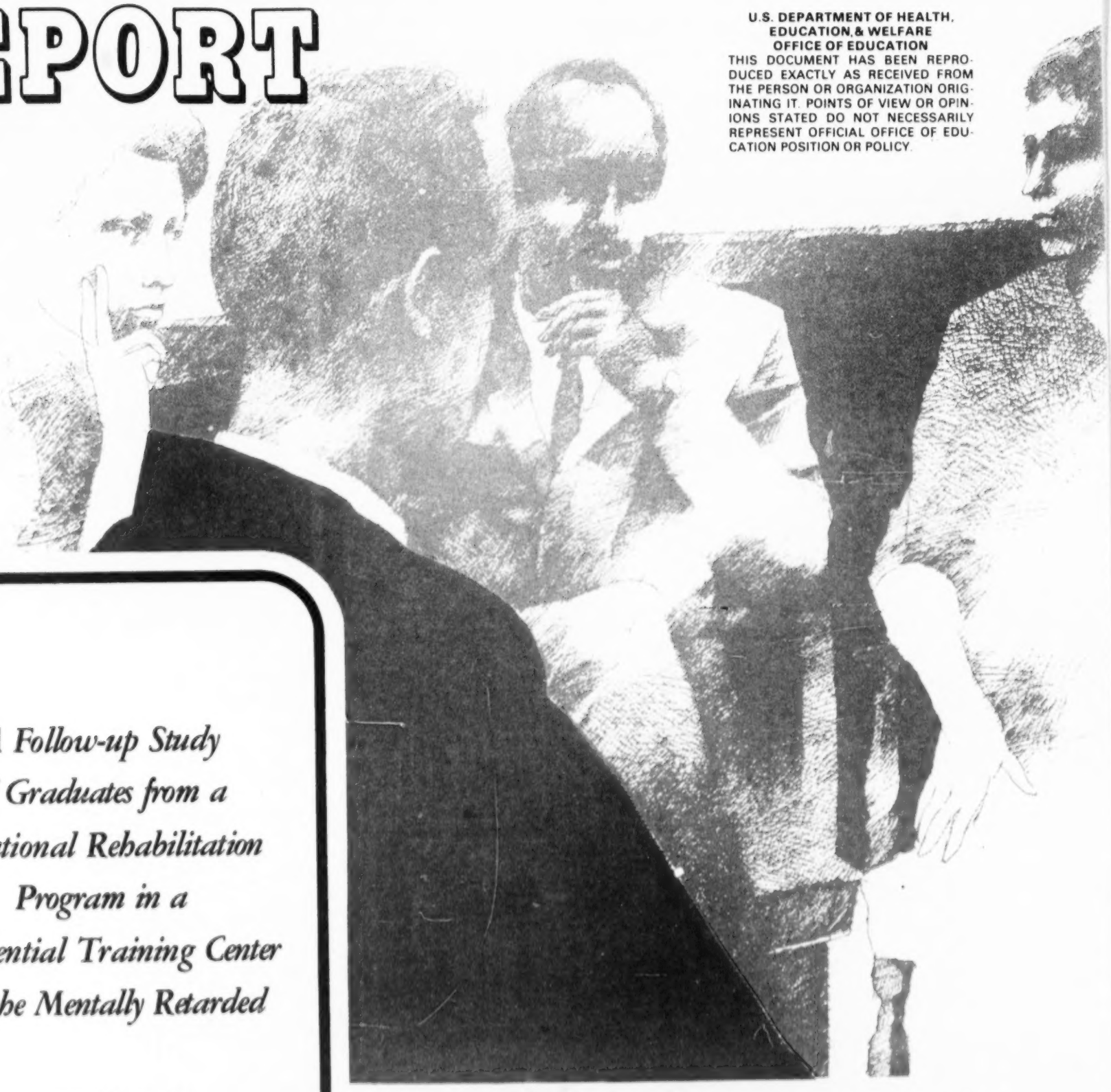
DESCRIPTORS - *VOCATIONAL REHABILITATION; *VOCATIONAL FOLLOWUP; MENTALLY HANDICAPPED; *MENTAL RETARDATION; *RESIDENTIAL PROGRAMS; RESIDENTIAL CENTERS; GRADUATE SURVEYS; *PROGRAM EVALUATION

ABSTRACT - To determine the success or failure of the Agnews State Hospital Residential Training Program for the Mentally Retarded, 136 men and women who left the program as either vocationally rehabilitated or not vocationally rehabilitated were interviewed. In addition, employers, operators of the subjects' place of residence, and a few families were interviewed. Data revealed that almost half of the 136 subjects were judged to be vocationally rehabilitated at the time that Department of Rehabilitation services were discontinued, and 75 percent of those rehabilitated were still employed. Vocationally rehabilitated persons averaged 41 years of age, had an average IQ of 46, spent an average of 2.3 years in the program, and 18 years in institutions for the [illegible]ally retarded. The rehabilitation rate was higher among the men than the women. Among those not rehabilitated, women were more likely to be residing in the community while men more often returned to the hospital. The board and home care operators and employers exhibited very positive attitudes toward the graduates. Several followup instruments are appended. (SB)

VT 012 129

REHABILITATION PROGRAM REPORT

U.S. DEPARTMENT OF HEALTH, EDUCATION, & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.



EJ0 307254

A Follow-up Study of Graduates from a Vocational Rehabilitation Program in a Residential Training Center for the Mentally Retarded

FSS 70-8-9
August 21, 1970

California State Department of Rehabilitation
Robert E. Howard, Director

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A Follow-up Study of Graduates from a Vocational Rehabilitation Program in a Residential Training Center for the Mentally Retarded

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August 21, 1970

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California State Department of Rehabilitation
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HIGHLIGHTS

-*- Almost half of the 136 persons who completed the program were judged to be vocationally rehabilitated at the time that Department of Rehabilitation services were discontinued.

-*- At time of follow-up seventy-five percent of those rehabilitated were still employed.

-*- Wages averaged $1.08 per hour with a range of 17¢ to $2.10.

-*- Individuals vocationally rehabilitated had spent an average of 2.3 years in the program.

-*- Individuals vocationally rehabilitated had previously spent an average of 18 years in institutions for the mentally retarded.

-*- By vocationally rehabilitating and placing in the community sixty-seven adult retarded men and women, the program has brought to a close an aggregate of 1,206 man-years of institutionalization.

-*- The estimated yearly net economic benefit to the state of vocational rehabilitating these men and women was $250,000.00.

-*- Individuals vocationally rehabilitated averaged 41 years of age.

-*- Individuals not vocationally rehabilitated averaged 36 years of age.

-*- The average IQ of those rehabilitated was 46.

-*- The average IQ of those not vocationally rehabilitated was 39.

-*- The rehabilitation success rate was higher among the men than the women.

-*- Among those not rehabilitated, women were much more likely to be residing in the community while men, who were not rehabilitated, more often were returned to the hospital.

-*- Thirty-six individuals, though not vocationally successful, did succeed in leaving the institution and now live in the community.

-*- Parents of the retarded exhibited favorable attitudes toward the program's success in assisting their son or daughter to adjust to community living.

-*- The mentally retarded who are vocationally successful are more involved in recreation and socializing than those who are not vocationally rehabilitated.

-*- The board and care home operators exhibit very positive attitudes toward mentally retarded graduates of the Agnews Program.

-*- The personal relationship established between the board and care or family care home operator and the student appears to be of prime importance in successful community adjustment.

-*- Employers of the graduates from the Agnews Program exhibit very positive attitudes toward the adequacy of their mentally retarded employees.

-*- When asked to state assets and liabilities of their retarded employees, employers twice as often mentioned assets as liabilities.

-*- The most often perceived asset of mentally retarded employees was their willingness, cooperation, and ability to follow a routine.

-*- The most often perceived liability of mentally retarded employees was their need for additional supervision when learning new tasks.

-*- Many employers expressed a need for continuing contact with a resource person to provide them and their employees professional and psychological support, probably on an "on-call" basis.

I. INTRODUCTION

The Agnews Residential Training Program evolved as a result of a Cooperative Agreement between the Department of Mental Hygiene and the Department of Rehabilitation effective June 10, 1966. This cooperative agreement was initiated by Section 700.1 of the Welfare and Institutions Code providing for the establishment of Residential Rehabilitation Centers for selected mentally retarded individuals.

The goals of the Program are:

1. "To provide an individualized program of services to help each resident student reach his maximum development.

2. To rehabilitate as many mentally retarded resident students as possible so that they may become better adjusted, productive members of the community. This would include:

   a) Competitive employment
   b) Sheltered employment in the community, and
   c) Gainful homebound work." *

Potential students for the Cooperative Vocational Training Program must meet certain admission criteria. The major criteria are: eligibility for entry to a State Hospital for the Mentally Retarded, 14 years old, and appears to have potential for vocational training. (The admission criteria are elaborated in the appendix, page A1.)

Through the combined efforts of a multi-disciplinary team an individualized learning and training situation is prescribed for each student. Rather than being labeled as "client" or "patient," the mentally retarded in this special program are referred to as "students." Students who, after completing the program, meet one of the criteria in 2 above are considered to be "vocationally rehabilitated." Those not meeting any of the criteria in 2 above are considered to be "not vocationally rehabilitated," even though they may have achieved community placement.

To help these mentally retarded persons become better adjusted, productive members of the community, unique training programs have been developed within the institutional setting. Because of the uniqueness of the program, the team members do not function in traditional roles (app. p. A2). The special programs begin within the institutional setting and continue into the community. This gives the student exposure to community living prior to his placement in a community work and living situation.

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*Vocational Rehabilitation Program for the Mentally Retarded; A Cooperative Program between the Department of Mental Hygiene and Department of Rehabilitation at Agnews State Hospital, San Jose, California, pamphlet, printed 5/69.

Once a student has benefited from services within the hospital, the Rehabilitation Counselor may arrange training within the community. Because the population came to the Agnews Program from other State Hospitals, it has been necessary for the Rehabilitation Counselors to coordinate with community agencies for the return of the person to the county of origin. This necessitates not only coordinating programs within the local community, but also state-wide.

II. WHY A FOLLOW-UP STUDY?

The Agnews Program has attempted to demonstrate the feasibility of applying vocational rehabilitation concepts in a residential state hospital setting to severely mentally retarded adults with long histories of institutionalization. As a result of being an innovative program, returning students to counties of commitment throughout the state, and involving many agencies and workshops, the program has stimulated great interest among professionals, lay persons, parents, and others who have been involved in the rehabilitation of the retarded. The follow-up study was not designed primarily as a research study, but rather to shed light on the following operationally oriented questions proposed by the program practitioners.

1. Has the vocationally rehabilitated student (involved in work either in the home, sheltered workshop or competitively) continued to function at this level?

2. What was the level of functioning of the student?

3. Has the student who was not vocationally rehabilitated, increased his level of functioning and become involved in work to the extent that his case should be opened and closed as vocationally rehabilitated?

4. Is there any indication that the student would benefit vocationally from additional services if offered by the Department?

5. Is there any validity to the concept that a "very important person" is involved where successful adjustment to community living has been attained?

6. If so (5 above), is this person a family member, a friend, or an agency person?

7. To what extent does the size and composition of the living unit relate to "success" or "failure"?

8. To what extent does the availability of recreational and/or social opportunities affect the vocational adjustment of the client?

9. What additional training, that could have realistically been provided in the hospital setting, would have enhanced the vocational competence or social adjustment of the client?

10. Are there any factors that become available during screening or extended evaluation that seem to be good predictors of success or failure?

The follow-up study was originally proposed to answer the above questions in order to provide the Department of Rehabilitation with information concerning the vocational rehabilitation of the severely retarded. Due to limitations of time and resources the study could not obtain data related to all of the original questions. However, in the course of data gathering, certain information was uncovered which had not been anticipated in planning the study. This information is presented and discussed along with data related to the original questions.

III. METHODOLOGY

This study proposed to locate and personally interview virtually all those students living in the community who were closed as vocationally rehabilitated* or not vocationally rehabilitated from the Agnews Residential Training Program for the Mentally Retarded (app. p. A14). Additionally it sought to locate and interview the employers of those students who were employed and the board and care or family care home operator. Since it was not practical to personally interview the families of the students, a mail questionnaire was sent to those families who could be located (app. p. A13).

A. Obtaining Sample:

One of the first considerations in designing the follow-up study of students who participated in the Agnews program was establishing the sample. The sample was to have two parameters: closure category and date of closure.

Although each closure status was potentially of value to the follow-up study, time and staff limitations precluded the follow-up of all closure categories.

Therefore, only those cases closed as vocationally rehabilitated and not rehabilitated were followed. This excludes students whose cases were closed during screening and evaluation, and not accepted for the program.

To determine the dates during which closed cases would be included in the sample, it was first determined that there should be at least a six-month period between closure and follow-up. The interviewing began on March 1, 1970. No case closed after September 30, 1969 was accepted in the sample. Since the number of closures prior to July 1, 1967 was very small, this date was chosen as the beginning of the sample. Therefore, all cases closed vocationally rehabilitated and not vocationally rehabilitated from July 1, 1967 through September 30, 1969 were selected. In that time period 136 cases were closed.

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*For a client case to be "closed rehabilitated" the client must, as a minimum, "have been determined to be suitably employed at the time of closure and for a minimum of 30 days prior to closure." (Rehabilitation Services Manual, California Department of Rehabilitation, January 1968.) Although the Department's goal is primarily to prepare people for competitive employment, cases may be closed as rehabilitated in non-competitive occupations provided that certain standards are met.

Each case closed as vocationally rehabilitated represented three interviews: the student, the parent or the operator of the place of residence, and the student's employer. Those cases closed as not vocationally rehabilitated required only two interviews since there was no employer. Therefore, the 67 cases closed as vocationally rehabilitated represented 201 interviews while the 69 cases closed as not vocationally rehabilitated represented 138 interviews. The maximum number of interviews possible were 339.

B. Structured Interview and Mail Questionnaire:

Interview questionnaires (app. p. A7-A12) were constructed for each of the three groups of individuals to be contacted: students, employers, and place of residence. Questions to be included in the questionnaires were solicited from the professional staff at the hospital as well as outside consultants.

The mail survey sent to the families (app. p. A13) was devised to secure a very gross and general measure of the families' attitudes toward the program. Since it was known beforehand that few families were actively involved with these students, the parent questionnaire was not a highly developed instrument. A mail questionnaire was utilized since many families resided a great distance from Agnews and it was not economically feasible to interview them.

C. Other Agency Involvements:

Since this follow-up study involved interviewing students in the community who were no longer clients of the Department of Rehabilitation but were clients of other agencies, it was necessary to obtain the cooperation of these other agencies. Therefore, the State Departments of Mental Hygiene and Social Welfare were contacted prior to the study. The study would have been less productive without the cooperation of these agencies.

D. Budget:

The major costs of the project consisted of the travel budget since clients were placed in approximately 18 counties throughout the state. In many instances other agencies shared these costs by allowing their personnel to accompany the counselor-interviewer and assist her in locating the many clients, homes, and employers.

E. Project Staff:

A follow-up project team was established. This team consisted of four individuals: a representative from Research and Statistics, an assistant Regional Administrator, a Rehabilitation Supervisor from the cooperative program at Agnews, and the Counselor-Interviewer from Agnews who was to assume the major burden of the study. It was the counselor-interviewer's responsibility to personally contact and interview each of the students, their employers when indicated, and the operator of their place of residence. The parent questionnaire was sent out over the signature of the Agnews Program administrator. The project team met about every three weeks to review and direct the study.

F. Pilot Study:

A pilot study was conducted to test the questionnaires and interviewing technique. Six students and their associated employers and residences were contacted. On the basis of these experiences modifications were made in the questionnaires.

G. Hypotheses to be Considered:

When the study was originally proposed, various questions were considered. The general method of obtaining information which could help answer these questions was to conduct the follow-up study and the interviews. Many of these questions could not necessarily be structured as testable hypotheses. Therefore, definitive answers would not be expected. The original questions posed were the basis for the questionnaires. (See Section II.)

IV. CHARACTERISTICS OF THE STUDENTS IN THE FOLLOW-UP STUDY

A. Community Status at Case Closure:

In the two and one-quarter years chosen for study, 136 students were either vocationally rehabilitated or not vocationally rehabilitated. These students were evenly distributed between these two categories. Thus, 67 students were rehabilitated while 69 were not rehabilitated (app. p. A15). Among the 69 students "not rehabilitated" approximately half (36) continued living in the community. No attempt at community placement was made with thirty-three students. They continued residing on Department of Mental Hygiene wards at Agnews. While there was about an even likelihood that students "not rehabilitated" would live either in the community or in Agnews, there was substantial differentiation according to sex.

B. Sex Differences:

The total sample (136) consisted of 90 men and 46 women. Fifty-three percent of the men and 41 percent of the women were rehabilitated. Of the 27 women not rehabilitated, 67 percent were living in the community, while among the 42 men not rehabilitated, only 43 percent were closed in the community. In summary, regarding sex differences, the rehabilitation success rate was higher among the men than the women. Among those not rehabilitated the women were much more likely to be residing in the community while the men more often remained in or are returned to the hospital. (See app. p.A15.)

C. Age:

The average chronological age at case closure of all 136 students was 38 years (app. p. 15). As a group, those rehabilitated were on the average 5 years older than those not rehabilitated. Taking the sample as a whole, the women were older than the men. Perhaps the most striking outcome is the fact that those not rehabilitated, who still reside on hospital wards, were twelve years younger, on the average, than those rehabilitated. That is, those in the hospital averaged 28.5 years of age while those rehabilitated averaged 40.5 years of age.

D. History of Institutionalization:

Before coming to the Agnews Program, the vast majority of clients were hospitalized in other state institutions for the retarded. On the average, the entire sample of 136 cases had each spent 15.9 years in other institutions for the retarded. Therefore, the entire sample represented 2,162 man-years in the hospital prior to entering the Agnews Program.

The rehabilitants averaged 18.0 years in the hospital prior to entering the Agnews Program. Therefore, by rehabilitating these 67 people, the Program brought 1,206 man-years of institutionalization to an end. At an estimated average cost per year of $4,000, this represents a cost of $4,800,000.

Those not rehabilitated had been hospitalized for shorter periods of time, on the average, than those rehabilitated. This was especially true of students whose cases were closed unsuccessfully and remained in the hospital. While the successes had spent 18 years in the hospital, non-rehabilitants living in the hospital had been institutionalized an average of 11 years prior to entering the Agnews Program.

E. Years in Agnews Program:

The entire sample had spent an average of 2.3 years in the Agnews Program prior to closure. This time varied very little from group to group, except that those not rehabilitated tended to remain in the program about half a year longer than the cases closed successfully.

F. Average I.Q.:

The average I.Q. for the entire sample of 136 cases was 42, which is low in the Moderate range.* The successes had an average I.Q. of 46, Moderate range,* while those not vocationally rehabilitated averaged an I.Q. of 39, Severe range.* Again there is a difference between those not vocationally rehabilitated who reside in the community and those in the hospital. The hospitalized cases closed not rehabilitated had a higher average I.Q. (43) than the cases not rehabilitated and living in the community (38). This difference appears to be the reverse of the expected direction. One would expect those rehabilitated to have a higher average I.Q. than those not rehabilitated, and this is so. However, one would also expect those not rehabilitated living in the community to have a higher I.Q. than those not rehabilitated living in the hospital, when in fact the relationship is reversed.

Perhaps more important than the slight differences in I.Q. between various closure groups is the fact that this description of the sample clearly illustrates the severity of the handicap with which the program was attempting to work.

*According to AAMD Classification

G. Race:

Only four percent (five cases) of the entire sample were black. Four of these five cases were successfully rehabilitated. There were five mentally retarded of other races. Three of this group were successfully rehabilitated.

V. ECONOMIC BENEFITS OF THE AGNEWS COOPERATIVE RESIDENTIAL TRAINING FACILITY

Of the 67 rehabilitated, 63 were contacted during the follow-up study. If these 63 students were still in the institution, the cost to the State of maintaining them as a group for a full year would be $369,684. (The average cost of maintenance per month per mentally retarded patient is $489.00.) Considering the pattern of chronic institutionalization it is reasonable to assume that without intervention, most would have continued this pattern. This $370,000, however, is not the yearly economic saving to the State. A closer approximation of the actual savings should consider additional cost factors.

Many of these students are receiving some form of welfare monies. Sixty-nine percent, that is 48, are receiving Aid to the Disabled. Some are receiving Social Security benefits and some are receiving other types of welfare benefits such as Veteran's Administration payments. Although 31 percent are not receiving Aid to the Disabled, the average total welfare cost (ATD plus Social Security plus other) per student per year equals $1,908. This is a total yearly cost of $120,204. Subtracting this welfare cost from the gross savings per year of $369,684 yields a net economic benefit to the State of $249,480. Therefore, every year that these 63 individuals maintain themselves in the community, even with partial welfare benefits, they are saving the State approximately one-quarter million dollars.

VI. HAS THE VOCATIONALLY REHABILITATED STUDENT CONTINUED TO FUNCTION AT THIS LEVEL?

A. 75% Still Working:

The first question the follow-up study sought to answer was "Has the vocationally rehabilitated student (involved in work, either in the home, sheltered workshop, or competitively) continued to function at this level?" Sixty-three of the 67 rehabilitants were contacted during the follow-up study. Among the 19 women, 18 were contacted; 11, that is 61%, were continuing to work. Among the 48 men closed as rehabilitated, 45 were contacted and of these 36, or 80%, were working.

Combining the men and the women, it is found that 75% of the rehabilitants closed from six months to three years previously were still working at the time of the follow-up study.

B. Wages Average $1.08:

Not all rehabilitants were engaged in competitive employment at the time of the follow-up study. Some were in sheltered workshops and some were unpaid family workers. Among sixteen male rehabilitants who were receiving an hourly wage, their average wage was $1.08. This varied from a low of 17¢ in a sheltered workshop to a high of $2.10 in a laundry.

Most of the rehabilitated women were employed either in sheltered workshops or as unpaid family workers in a board and care or family care setting. To evaluate the relative success of this outcome it should be recalled at this point that the average age of the female rehabilitant was 43 and they had spent an average of twenty years in one or more state institutions for the mentally retarded.

C. What was the Level of Functioning of the Students?

Considering the long period of hospitalization experienced by these students and the process of institutionalization wherein great dependencies are developed, the study sought to measure their level of functioning by selecting ten activities of daily living (app. p. A16).

The board and care home operator or ward personnel were asked whether or not the student usually performed these activities "independently, with reminding, or with supervision." Each of these items was scored for level of dependency. For example, if the student bathes independently, that item received three points; if with reminding, two points; if with supervision, only one point; if unable to perform the task, zero. Therefore, the total possible score was thirty and the lowest possible score was zero. (Although there were eleven items listed, two of these were alternates. "Has barber in the home" was used in those cases where "goes to barber shop" was an inappropriate question.) Each student received a total "independence score" which was the sum of the scores for each of ten items.

D. How do the Successful and Unsuccessful Students Compare in Their Levels of Functioning?

The total sample was distributed into two groups and a total average score assigned. As seen below, those closed successful received a higher average than those closed unsuccessful (app. p. A16).

Average "Independence Scores" of Students in Program by Outcome

	Vocationally Rehabilitated	Not Vocationally Rehabilitated
Average Total "Independence Score"	15.5	10.5

E. Was There a Sex Difference in Level of Functioning?

The men, whether closed as rehabilitated or not rehabilitated, had a higher level of independence then the women.

Average "Independence Scores" of Students by Outcome and Sex

	Vocationally Rehabilitated			Not Vocationally Rehabilitated		
	Total	Men	Women	Total	Men	Women
Average Total "Independence Score"	15.5	16.9	12.4	10.5	11.1	10.0

F. Was There a Difference in Level of Functioning Between the Unsuccessful Who Were Still Living in the Hospital and Those Living in the Community?

Even though not vocationally rehabilitated, those living in the community were functioning at a higher level than those in the hospital.

Average "Independence Score" of Students
Not Vocationally Rehabilitated by Residence and Sex

	Residing at Agnews		Residing in the Community	
	Men	Women	Men	Women
Average Total "Independence Score"	10.1	7.0	13.9	11.3

In summary, there is a consistent sex difference such that the men always have a higher "independence score" than the women. The rehabilitated men's average score was 16.9 while the average total for the women was 12.4. This sex difference is consistent among the three different groups. It appeared that all groups did best in those activities in which they were routinely trained in the program.

Therefore, in terms of level of functioning as measured by the ten selected items (app. p. A11), it was found that:

1. Those cases closed successful were functioning substantially higher or more independently than those closed unsuccessful.

2. The men, regardless of success, appeared to be functioning more independently than the women.

3. Among the non-rehabilitants, those who reside in the community were shown to be functioning at a higher level and were more independent than those still residing within the institution.

G. Has the Student Who was Closed as Not Vocationally Rehabilitated, Increased His Level of Functioning and Become Involved in Work to the Extent that He Should Now be Considered as Vocationally Rehabilitated?

During the time of the study, 3 cases closed as not rehabilitated were re-opened and closed as rehabilitated. One of these had increased his functioning to the level that he was making 90¢ an hour in a sheltered work setting. A second one had married, was doing homemaking duties in a one bedroom apartment for herself and husband. The third had increased his functioning to the point that he was able to do work tasks within the home to aid the operator as well as benefit other residents.

Four others had also increased in their functioning and became involved in work activities, to the extent that they could be re-evaluated to determine if they presently meet the criteria for successful rehabilitation. If determined to be rehabilitated, this would increase the number or rehabilitants in the study by 10% to a total of 74. On the other hand, 16 cases which were originally closed as rehabilitated are no longer involved in work though they are still successfully maintaining themselves in the community.

VII. IS THERE ANY INDICATION THAT STUDENTS WOULD BENEFIT VOCATIONALLY FROM ADDITIONAL SERVICES IF OFFERED BY THE DEPARTMENT?

To gather data relevant to this question, the employers of rehabilitants were asked, "Could more services have been provided by the Department of Rehabilitation?" In relation to 46 employed students, the employers felt that 31 did not need additional services, but that 15 could benefit from additional services.

These 15 responses showed no strong trend in the choice of a specific service or services which the employers felt the students still needed. In general terms, however, there was expressed an underlying need for some kind of continuing professional contact. It seemed the employers felt that once the case was closed successfully, the Department had totally lost contact with its ex-client and that neither the students nor the employer had a professional person to turn to in times of need. There was some interest in further training regarding grooming or transportation skills, but the underlying need seemed to be for a resource person to provide professional and psychological support, probably on an "on-call" basis.

A. What are the Mentally Retarded Employees' Liabilities?

The need for additional services is also illustrated indirectly in the response of employers to the question: "What are his liabilities?" Out of the 35 responses, six said "none." Another six respondents felt that one liability of the employee was that he needed supervision until he understood the task to be performed on the job. The following table lists the responses regarding perceived liabilities of student employees.

Employers' Responses Regarding Mentally Retarded Employees' Liabilities

LIABILITIES	TOTAL	MEN	WOMEN
TOTAL RESPONSES	35	27	8
None	6	5	1
Needs Supervision until He Understands the Task	6	5	1
Communication Problem	4	4	-
Needs a Lead Man to Follow	2	2	-
Bad Language	3	3	-
Unable to Follow a Routine	2	2	-
Talks too Much	2	2	-
Lacks Initiative	1	1	-
Anti-social	2	2	-
Stubborn	3	1	2
Inappropriate Dress	1	-	1
Ornery	1	-	1
Medical Problem	2	-	2

B. Employers' Responses Regarding Assets of the Rehabilitated Mentally Retarded:

Employers were also asked what they thought their employee's assets were. The employers were much more verbal in response to the question regarding the students' assets than they were in regard to the students' liabilities.

There was a total of 64 asset responses. Regarding liabilities, only 35 responses were elicited. Employers of the rehabilitated mentally retarded seemed most favorably impressed by the students' willingness to work, their cooperation, and their ability to follow a routine. The frequency with which employers responded and the responses given are shown below.

Employers' Responses Regarding Mentally Retarded Employees' Assets

ASSETS	TOTAL	MEN	WOMEN
TOTAL RESPONSES	64	51	13
Willing Worker	18	14	4
Cooperative	9	9	-
Ability to Follow a Routine	9	6	3
Dependable	7	6	1
Neat and Clean	6	5	1
Relates to People	6	4	2
Takes Pride in Work	3	3	-
Pleasant	4	3	1
Asks if He Doesn't Understand	2	1	1

VIII. IS THERE A "VERY IMPORTANT PERSON" INVOLVED WHERE SUCCESSFUL ADJUSTMENT TO COMMUNITY LIVING HAS BEEN ATTAINED?

Data pertaining to this question was obtained from rehabilitated and not rehabilitated students as well as board and care or family care home operators. The resident was asked two questions: "Who is your best friend?" and "When you are unhappy, who do you want to see?" The board and care or family care home operator was asked, "When the client is unhappy, who does he want to see?" To operationally define a "very important person" a person would have to be named in response to two of the above three questions.

Sixty-three rehabilitants were questioned. Approximately one-third mentioned the home operator two out of three times. An additional third mentioned another resident one out of three times. When it came to difficulties and problems, the home operator was chosen more often than the fellow resident. In response to the question regarding who the resident would want to see when he or she is unhappy, the home operator was chosen 19 times, while a fellow student was chosen only five times. Similar results were obtained for those students who were not vocationally rehabilitated but were residing in the community.

In summary, it appears that "a very important person" is involved where successful adjustment to community living has been attained. Furthermore, that person more often than not is the woman in charge of the family care or board and care home where the student resides in the community.

IX. RELATION OF SIZE AND COMPOSITION OF LIVING UNIT TO "SUCCESS" OR "FAILURE"?

Although no detailed and in-depth comparison was made between the successes and failures in terms of the size and composition of their living units, much data was uncovered during the interviewing and observations in the homes. For example, it was found that both successful and unsuccessful cases reside in family care and board and care homes; both those rehabilitated and those not rehabilitated live in homes of more than six residents and homes of six or less residents; rehabilitants and non-rehabilitants live in homes whose proprietors were either black or white; and successful and unsuccessful cases live in homes which had only mentally retarded or homes which had other disabilities in addition to the retarded. Therefore, there was no clear pattern wherein those rehabilitated lived in one type of home and those not rehabilitated in another (app. p. A17).

Success in community living did not even seem related to vocational success. For example, there were 36 clients closed "unsuccessfully" in terms of vocational rehabilitation standards; however, these 36 students are presently living in the community, in spite of the fact that they were not successfully employed at the time of case closure.

A. Attitude of Home Operators:

The home operators were asked, "If you had a vacancy and were able to select another resident, would you want one from Agnews?" The responses of the home operators reveal their attitudes toward the retarded in general and the students of the Agnews program in particular. Of the 73 responses, 72 were positive. When the home operators were further asked the reason behind their responses, they replied with such reasons as "they are well trained," "they care for themselves," "they are easier to manage," and in many ways showed that they appreciated the good adjustment and relative independence of these students. It also appeared from interviews and personal contacts that the home operators received substantial gratification in relationship to their nurturing roles as a "substitute parent." Although the home operators were more verbal in expressing favorable responses regarding the cases closed successfully, they did have many good things to say about the students closed as "not rehabilitated." This is further illustrated by the following table.

Community Home Operators Attitudes Toward Student Graduates of Agnews Program

RESPONSES	TOTAL	REHABILITATED	NOT REHABILITATED
Total Students Living in Community	103	67	36
Total Responses	72	52	20
Reasons for Wanting Another Agnews Resident			
I have vacancies and would like more . .	18	15	3
If I had a vacancy	4	1	3
I'm in business to care for retarded . .	4	4	0
If they are as good as this one.	8	5	3
They are well-trained.	9	7	2
They care for themselves	3	3	0
Good behavior.	3	3	0
Easier to manage	2	0	2
The family is interested	1	0	1
They are very nice	1	0	1
Easy to get along with	1	0	1
Well adjusted.	3	2	1
Independent and capable.	2	2	0
Awareness of family/community living . .	2	2	0
Appreciate what I do for them.	1	0	1
I enjoy them	1	1	0
Better trained then DeWitt or Porterville.	1	0	1
Not one from Napa or Mendocino	1	1	0
Agnews is local, I'm familiar with it. .	3	3	0

Therefore, it appears that the size and composition of the living units did not relate to successful community placement, nor did the vocational status of the student. What does seem of overriding importance in successful community placement is the personal relationship established between the board and care or family care operator and the student.

X. TO WHAT EXTENT DOES THE AVAILABILITY OF RECREATIONAL AND/OR SOCIAL OPPORTUNITIES AFFECT THE VOCATIONAL ADJUSTMENT OF THE STUDENT?

The parent or operator of the place of residence was asked, "What does the resident do in the evenings and weekends?"; and the student himself was asked, "What do you do for fun?" The responses from the places of residence and the students showed no significant difference. The 274 responses received from places of residence in relation to those rehabilitated as well as not rehabilitated are shown below (app. p. A18).

A. Most Students Watch T.V.:

The most popular utilization of leisure time was spent watching T.V. The other responses included such activities as going to the park, zoo, visiting friends in other homes, out for a drive, caring for pets, etc.

Recreational Activities of Students

TOTAL RESPONSES	274
Watch T.V.	65
Out for walks	29
Movies	23
Recreation Center	22
Go shopping	12
Listen to radio	12
Play checkers	5
Other, varied	106

B. Vocationally Successful More Involved in Recreation:

Those students vocationally rehabilitated were more involved in recreation than those not rehabilitated.

Number of Recreational Activities by Outcome

	REHABILITATED	NOT REHABILITATED
Total Number Activities	145	129

C. Men Consistently More Involved in Recreation:

Whether working or not working, the men were consistently more active in recreation activities than the women.

Recreational Activities by Outcome and Sex.

	REHABILITATED		NOT REHABILITATED	
	Men	Women	Men	Women
Total Number Activities	109	36	78	51

XI. STUDENT ATTITUDES TOWARD IN-HOSPITAL PROGRAM

To assess how these moderately retarded adults felt about the program, they were asked, "What part of the Agnews Program did you like best?" They were also asked, "What part of the program at Agnews didn't you like?"

A. Part of Program Liked Best:

The students, having been in State hospitals for an average of almost 16 years, reflected this in their responses. The most frequent response by far (41%) showed an interest in working. This was double the response (21%) showing an interest in leisure activities. It should be noted that not all students in the total sample responded to this question. Responses about what they liked best are shown below and on app. p. A19.

Program Preferences of Students

TOTAL RESPONSES	102
Working	42
Leisure Activities	21
Community Activities	14
Classes	10
Friends	6
I don't want to go back	5
Other	4

Nine students responded they did not want to go back, it was so long ago they didn't remember being there, or denied ever being there. This indicates that even though 79 percent of the total population of the students are in the moderate range of retardation, they still make attempts at masking their disability. This supports the findings of Dr. Edgerton.*

*Edgerton, Robert; The Cloak of Competence, University of California Press Berkeley and Los Angeles, 1967.

B. Part of Program Liked Least:

When asked, "What part of the program at Agnews didn't you like?", 53 were too nervous or unable to respond. Only five responses were received from those students residing in the institution (not rehabilitated).

STUDENT RESPONSES TO QUESTION:
"What part of the program at Agnews didn't you like?"

	TOTAL REHABILITATED and NOT REHABILITATED	REHABILITATED	NOT REHABILITATED
TOTAL NUMBER STUDENTS	136	67	69
TOTAL RESPONSES	36	24	12
Rules and strict technicians	14	9	5
Too much noise, too many people	3	3	-
Don't know	6	4	2
It was okay, I don't want to go back	4	4	-
My doctor changed, I'm unhappy	1	-	1
Too much hard work	8	4	4
TOTAL RESPONSES NOT TABULATED			
Too nervous or unable to answer	53	23	30
Not appropriate	8	3	5
Non-verbal	8	4	4

It is interesting to note how many of the students were too nervous or unable to respond to the question at all. Did they feel that a negative response to this question would mean they would be returned to the institution? Although the rehabilitants were more verbal (twice as many responses as non-rehabilitants), they too had difficulty responding to this apparently anxiety provoking question. This again reflects their learning in the institution where negative comments are not elicited. In the follow-up study, even though an opportunity was provided to express feelings, it was very difficult to elicit responses to these particular questions.

Rules, strict technicians and too much hard work were the most frequently stated parts of the program at Agnews which the students did not like.

These findings regarding student attitudes suggest that more training in utilization of leisure time, orientation to the community and counseling about feelings and attitudes might be offered in the institutional setting.

XII. ARE THERE ANY FACTORS THAT BECOME AVAILABLE DURING SCREENING OR EXTENDED EVALUATION THAT SEEM TO BE GOOD PREDICTORS OF SUCCESS OR FAILURE?

The follow-up study addressed itself to this question in only a very indirect manner. In the table describing the sample (app. p. A15) and in the section describing who are the students in the follow-up study (Section IV, pp. 5-7) certain characteristics of students were described, such as sex, I.Q., previous lengths of hospitalization. The students who were vocationally rehabilitated had slightly different characteristics than those who were not rehabilitated; however, these characteristics were not measured during screening or extended evaluation, but could be considered to be present at intake.

To relate the outcome status to factors available during the screening and evaluation process would require a separate and additional study. Such a study would need to develop many additional factors not presently measured during screening and evaluation.

There are personality factors and factors of social independence which are observed by the intake counselors and screening personnel. These factors contribute to the overall clinical impression, but they are not systematically included in case records for later research follow-up. This follow-up study has developed a questionnaire (app. p. A11) which may be of some use during the screening process. Portions of this questionnaire can later be correlated with success or failure.

Other factors could also be considered, but these also would have to be measured and recorded during screening and evaluation for later follow-up. For example, the program should consider using the "Place of Residence Questionnaire" or other questionnaire during intake or sooner. It would provide assistance in developing an individualized vocational training plan.

In summary, administering this questionnaire at intake might begin the dialogue between the parents and the program. This follow-up study found that the dialogue between the parents and the program was extremely limited. Such a questionnaire could then be used in later follow-up studies to correlate this data with success or failure.

XIII. PARENTAL ATTITUDES TOWARD THE AGNEWS REHABILITATION PROGRAM

The attitudes of the students' families were sought in those cases where their son or daughter had moved out of the institution and into the community. Former students living in the community were both rehabilitated and not rehabilitated. Of the entire sample of 136, 33 of the cases closed unsuccessfully were still living in the hospital, therefore, their parents were not contacted. Among the 103 cases remaining, both rehabilitated and not rehabilitated who were living in the community, 16 no longer had a family and in 16 cases the family was unknown. In four cases the records were transferred so that the parents' address was unknown. Therefore, 67 families were available for follow-up.

Each of the 67 families was mailed a questionnaire by the Program Administrator (app. p. A13). The questionnaire asked the parents to respond to three specific questions. The three questions were:

1. "Do you think the Agnews Training Program was helpful in assisting your son or daughter to adjust to community living?"

2. "Would you recommend to another parent with a son or daughter in a similar circumstance that they consider the Agnews Training Program?"

3. "What would you suggest to improve the program?"

A. Which Parents Returned Questionnaires?

Of the 67 forms sent, 26 or 39% were returned. However, the return rate varied considerably among those rehabilitated versus those not rehabilitated. Of the 42 families of cases closed successfully, 20 or 48% returned the forms. Of the 25 families of cases closed unsuccessfully, 6 or 24% returned the forms. Therefore, while almost half of the parents of cases closed successfully did return the questionnaire, only one-fourth of the families of clients closed unsuccessfully returned the form. Thus, the results of this mail survey represent, to a predominate degree, the attitudes of families of cases closed successfully.

Response Rate for Parents Questionnaire

STATUS	FORMS SENT	FORMS RETURNED	PERCENT RETURNED
Rehabilitated	42	20	48%
Not Rehabilitated	25	6	24%
TOTAL:	67	26	39%

B. Did Parents Feel the Program was Helpful in Assisting Their Son/Daughter to Adjust to Community Living?

To the question, "Do you think the Agnews Training Program was helpful in assisting your son or daughter to adjust to community living?", all 26 responded. Of these 26 responses 24 or 92% were favorable and only 2 or 8% responded negatively. It is particularly interesting to note that all of the 6 forms returned from cases closed unsuccessfully responded favorably. This points up the difference between the Department of Rehabilitation and the Department of Mental Hygiene criteria of success. As noted previously, when referring to cases closed unsuccessfully, unsuccessful is defined in terms of vocational rehabilitation criteria, that is, the client was not working in the community. On the other hand, viewed from the perspective of the Department of Mental Hygiene, any case that leaves the institution can be considered a success. The responses of these 6 families seem to reinforce this feeling.

Parent Responses To "Do you think the Agnews Training Program was helpful in assisting your son or daughter to adjust to community living?"

Status	Total	"Yes"		"No"	
		No.	%	No.	%
Rehabilitated	20	18	90%	2	10%
Not Rehabilitated	6	6	100%	0	0%
TOTAL	26	24	92%	2	8%

C. Would the Parent Recommend the Program to Another Parent with a Son or Daughter in a Similar Circumstance?

In response to the second question, "Would you recommend to another parent with a son or daughter in a similar circumstance that they consider the Agnews training program?", all 26 respondents replied "Yes." Thus, regardless of success or failure in vocational rehabilitation terms, all families who returned the questionnaire felt that they would recommend that other parents in a similar situation consider the Agnews training program.

D. What were Parents' Areas of Concern Regarding the Agnews Program?

The responses to the third question, soliciting suggestions to improve the program, were categorized in terms of the area of concern. Four areas of concern predominated. These were medical, outside residence, employment, and training. Most of the comments were concerned about the client's outside residence situation. (See following table.)

Area Seen by Parents as Needing Improvement

Areas Needing Improvement	# of Comments
Medical	2
Outside Residence	7
Employment	3
Training	4
Other	5

In summary, a questionnaire containing three questions was mailed to 67 families of cases closed unsuccessfully or successfully from the Agnews training program. Twenty-six forms were returned. Twenty of these were from families of cases closed successfully. On the basis of this very short questionnaire, it may be inferred that the families of cases closed both successfully and unsuccessfully maintain positive attitudes toward the effectiveness of the program in helping their child adjust to community living. Although this mail survey did not obtain very much "hard data" to be used in the follow-up study, it did allow the families to participate and express their feelings toward the program. This indirect result of the family survey may have been more beneficial than the data obtained.

XIV. CONCLUSIONS AND CONSIDERATIONS:

The follow-up study points out needs for further services as well as needs for further study. The following points review conclusions noted in the study as well as areas considered to have implications for future planning:

1. Among those not rehabilitated, the women were much more likely to be residing in the community while men not rehabilitated more often remained in the hospital.

2. The average chronological age at closure of all 136 cases was 38 years. As a group those rehabilitated were on the average 5 years older than those not rehabilitated. Thus, age did not seem to hinder potential for rehabilitation. This should encourage other programs to consider retarded who are well over school age for vocational training services.

3. Long histories of institutionalization should not be over stressed as a negative factor in accepting clients for vocational rehabilitation services.

4. Adults of severe to moderate retardation have been found to have potential for vocational rehabilitation.

5. The success of older moderately retarded adults with long histories of institutionalization demonstrates a potential for continuing maturation. This has important implications for all retarded persons regarding special education.

6. The rehabilitation of mentally retarded adults who are institutionalized yields notable economic benefits. Furthermore, those placed in the community from the Agnews Residential Program, who do not meet the vocational criteria of rehabilitation still permit lower expenditures of public funds as a result of being maintained in the community.

7. Seventy-five percent of the rehabilitants contacted from six months to three years after closure were still involved in work activities. Men were found to be more independent and self-sufficient than women. This was true among both the vocationally rehabilitated and those considered not vocationally rehabilitated.

8. Seven students who were not vocationally rehabilitated have now increased their level of functioning and may be considered as vocationally rehabilitated. The study suggests that maturation and growth is a continuing process after community placement.

9. On the other hand, 16 cases who were vocationally rehabilitated have decreased their level of functioning. However, this group has continued to maintain their personal adjustment in the community. The fact that these students did not maintain all the skills needed to continue in work activities suggests a need for continued supportive professional services.

10. Employers of mentally retarded students from the Agnews Program exhibit positive attitudes toward the adequacy of a mentally retarded employee.

11. The most important asset from the employers' point of view is that the mentally retarded person is a willing worker. Despite the severity of handicap, employers do accept the retarded. Further, this study suggests that the retarded person succeeds because of his high level of motivation.

12. Both an acceptance and an awareness of limitations of retarded were shown by employers. This suggests that understanding of the retarded has begun and could be enhanced by a resource person available to employers--an underlying need expressed by them. Also, a natural outcome of such a service would be more job opportunities for the retarded and broader community education.

13. The personal relationship established between the board and care or family care home operator and student appears to be of prime importance in successful community adjustment.

14. The above may point out a need of volunteer services coordinated from a community based agency, to assist the operator in her multiplicity of roles and to provide the retarded person with enlargement of friendship outside the home.

15. The mentally retarded who are vocationally successful are more involved in recreation and socializing than those who are not vocationally rehabilitated.

16. Except for a small number of students attending recreation centers, most students engaged in individualized non-structured recreational activities, such as watching T.V. This may confirm the need for organized recreational activities in the community for the mentally retarded.

17. The study suggests that more training in utilization of leisure time, orientation to the community, and counseling about feelings and attitudes might be offered in the Agnews Training Program.

18. Successful completion of a vocational rehabilitation training program for mentally retarded adults was more often associated with older age, higher IQ levels, longer prior hospitalization, and being a male.

19. In order to predict success or failure in a vocational rehabilitation training program, it would seem a follow-up study would have to be structured to obtain data at the time of screening. This data could then be compared with data obtained at the time the person is considered vocationally rehabilitated. Ideally a control group should also be established. It is recommended that such a study receive serious consideration.

COOPERATIVE RESIDENTIAL TRAINING PROGRAM FOR THE MENTALLY RETARDED AT AGNEWS STATE HOSPITAL

I. ADMISSION CRITERIA AND PROCEDURE

Potential students must meet the requirements for entry to a State Hospital for the Mentally Retarded.

The procedure for admission to the Cooperative Program for the Mentally Retarded at Agnews State Hospital is outlined below:

1. Application must be made for admission to a State Hospital for the Mentally Retarded.

2. Referral is then made to the screening team serving the Cooperative Program at Agnews. The referral may be initiated by (a) a State Hospital for the Mentally Retarded, (b) community agencies or (c) parents.

3. An appointment is then made for the screening team to interview both the candidate and his/her parents. The screening team consists of one member of each of the following disciplines: Social Service, Vocational Rehabilitation Counseling, Psychology, Medicine, Nursing Services.

4. The interview will take about 45 minutes and is followed by a brief tour of facilities. The purpose of the interview is to determine if the candidate meets the criteria for admission to the Cooperative Program for the Mentally Retarded.

   The criteria are:

   a. Fourteen years of age or older (it is difficult to obtain vocational placement in the community for mentally retarded individuals under 18 years of age. Therefore, to pervent long term hospitalization prior to community vocational placement we prefer students be at least 16 years of age).

   b. Most self-care skills intact.

   c. No medical or psychiatric problems that would present a barrier to total involvement in the vocational training program.

   d. Parental consent for placement in the community.

   e. Potential for vocational training.

5. Usually within one week following the screening interview, the appropriate agencies are notified of the team's decision.

6. The community agency will coordinate the actual admission to Agnews State Hospital.

II. SPECIFIC ROLES OF TEAM MEMBERS IN THE HOSPITAL

Vocational Rehabilitation Counselor - as a member of the program screening team, the Vocational Rehabilitation Counselor is responsible for determining the feasibility and eligibility for a prospective student's involvement in the residential evaluation program. During the student's evaluation and training period, the counselor is the chairman of the inter-disciplinary team in all vocational aspects of the rehabilitation program. The responsibility for medical care of the student resides with the team physician. If outside consultation services are needed, such as psychiatric, orthopedic, dental, speech and hearing, the counselor provides these services by referral to specialists on the Department of Rehabilitation Panel. When major decisions pertaining to the student's training program are required, the Rehabilitation Counselor relies heavily upon the evaluations and opinions of the various team members involved; parents or responsible relatives are consulted when practical.

In addition to regular staff members, the Rehabilitation Counselor employs part-time tutors to provide special training in areas such as money handling, sewing, and ward aide training. When the student has progressed to the extent that he is ready for vocational training and/or job placement in the community, the counselor assists him with his adjustment toward his vocational goal.

Ward Physician - is Co-chairman of the team with the Vocational Rehabilitation Counselor. He has medical responsibility for the students. He relates to the team current medical problems and any physical or mental limitations that might interfere with student training.

The Social Worker - is the prime liaison between the program for the Mentally Retarded and the family. The Social Worker helps the family to understand and accept the fact that the student has a capacity for growth as well as coping with the thought of the student's impending community living. The Social Worker also acts in a liaison capacity coordinating residential, work, and associated community resources facilitating the student's maintenance in the community. As a member of the team he presents and clarifies any family data or crisis situation that might interfere with a student's successful adjustment to the residential training program or community placement.

The Industrial Therapist - assigns the student to work in hospital industries which will provide evaluation and skill training. The previous work history, personal interviews and reports are evaluated to determine the job assignments that will provide the best supervision and training within the physical and mental limitations of the student. The rehabilitation goal is determined by the performance of the student in a variety of job experiences. The Industrial Therapist is the liaison between the work supervisor and the team.

The Music Therapist - acts as a consultant to provide music programs which will benefit the students. Direct services are provided in the form of groups for students who seem to respond in a music setting. Music is used as a tool

for developing socialization, motivation, language, motor coordination and sensory perception through such groups as Glee Club, Rhythm Band, Music Listening Groups and Rhythmic Movement.

The Supervising Group Leader - is in the classification of Senior Psychiatric Technician, Grade II, and is assigned to each team to help plan, implement, coordinate and supervise a 16-hour day rehabilitation training plan for each resident student.

An Occupational Therapist - is assigned to each team and is responsible as a resource person for direct and indirect services. A Prevocational Evaluation is given each student focusing on work skills, habits, performance and potential. Sensory motor functioning, psycho-social factors and physical limitations are evaluated as they directly relate to a student's vocational potential.

Indirect services are provided by program planning and development in working with the Supervising Group Leaders and ward staff. Direct services are provided in therapy groups and special inter-ward training programs.

The Psychologist - provides consultation to staff in the initiation, development and evaluation of programs for the students. Direct services to students include evaluations based on standardized psychological tests and personal observations as well as individual and group therapy. Treatment modalities vary to best meet the individual's needs.

Special Education Teacher - functions as an education consultant in the following manner: trains group leaders in the evaluation process, outlines sequential training programs, furnishes supplies and equipment, illustrates methods and techniques of training, furnishes formal scheduled in-service training for group leaders, functions as an integral part of the team, and offers suggestions for new training programs and techniques as a result of exploration. In addition to consultant services, direct services in the academic areas are provided for a select group of students.

Recreation Therapist - is responsible for training programs designed to enhance the motor sensory functioning of students as well as providing them with community orientation and familiarization with community recreation facilities. In addition, the Recreation Therapist conducts special programs such as day camp, swimming events, bowling and exposure to spectator sports.

Ward Charge - a Senior Psychiatric Technician, Grade II, has a 24-hour per day responsibility for implementing and coordinating, at ward level, the rehabilitation plan for each student. This is a supervisory position focusing on all areas of ward management and interpersonal relationships. He is also expected to provide an attractive and a "home-like" environment as is possible in an institutional setting.

Group Leader - is a Senior Psychiatric Technician, Grade I, or a Psychiatric Technician who may be assigned on a ward or in a special training program. This employee has the greatest individual student contact and is responsible for basic training skills with the student as described in brief outline of available programs. The Psychiatric Technician reports on a regular basis to the team the progress each student is making. With these recommendations, further planning for each student is implemented.

Workshop Evaluator and Training Officer - serves as liaison between workshop staff and the team to assist with the determination of readiness of a student for referral to the Agnews Sheltered Workshop. He coordinates training appropriate to individual student needs, and provides a composite evaluation by workshop staff of student job performance based on quantity and quality of work, attitude, and acceptance of responsibility for self and for work performance.

III. SYNOPSIS OF TRAINING AVAILABLE IN THE PROGRAM

Self-Care - includes proper hygiene development or skill (bathing, shaving, use of appropriate cosmetics, etc.). Meal time behavior is also stressed. The goal of this training is to first teach the student how to perform the activity, then to comprehend the need and perform independently with self-direction.

Home Living Skills - students learn tasks designed to make them more self-sufficient. Included are housekeeping tasks, such as making beds, sweeping, caring for own personal belongings (washing, mending, ironing of clothes, etc.) and other related activities that are usually performed in and around an independent or sheltered living situation.

Speech Therapy - consulting speech therapist with staff members providing follow-up. Therapy training is geared to meet the individual problems; the most prevalent of which are in the areas of articulation, apraxic conditions, etc.

Special Education - the areas of training with which special education is primarily concerned are: (1) basic number concept as they pertain to telling of time and handling of money, (2) language development for purpose of increasing receptive vocabulary, listening skills, and expressive language for the extension of vocabulary and language for acceptable community usage, (3) the teaching of reading skills is dependent on the intellectual functioning of the student - this can range from enhancing comprehensive reading to that of reading for minimal community survival and (4) the extent of enhanced writing skills ranges from elementary composition to that of merely printing ones name.

Juvenile Education - for select students who are capable of functioning on a higher cognitive level and can benefit from a more formal environment.

Leisure Time Training - provides exposure to a variety of activities such as arts and crafts, table games, model construction, etc. Hopefully the student will become sufficiently interested in one or more activities which will provide him with constructive means of occupying his leisure time once he is placed in the community.

Training Dance - held weekly using primarily records. Participants are learning how to dance and also included in this training are social skills such as how to ask a girl to dance, how to conduct oneself at a social affair and appropriate personal hygiene.

Educational Movie - 16 mm films shown weekly to aid in the development of students. Topics vary and are followed by discussions of the material presented in the films.

Socialization Dance - held weekly with music provided by records and a band furnished by the Musician's Union on alternate weeks. This activity is used as a reward for acceptable behavior and to increase social awareness. Participants in this activity are functioning at a relatively high level.

Recreation Movie - 35 mm films shown weekly for the entertainment of the students. Preparation for this activity is stressed (appropriate clothing, hygiene, etc.). Also used as a reward for acceptable behavior.

Drop-In Center - on Saturday and Sunday from 1:30 p.m. to 4:00 p.m. a social activity is provided for ground privileged students. This program provides table games, recreation activities, musical activities and social interaction.

Spiritual Guidance - both Protestant and Catholic services are held each Sunday. A Rabbi visits and conducts services on a regular schedule. In addition, both Protestant and Catholic instructions are offered weekly. These are held by volunteers with assistance from the appropriate chaplain.

Group Therapy - members of the professional staff conduct discussion groups exploring interpersonal relationships, desirable behavior, and individual problems. The participants are those students having particular problems of adjustment, poor self-concept, lack of motivation for work, etc. Various treatment modalities are utilized.

Behavior Modification - individual plans formulated by staff are designed to alter maladaptive behavior using a structured system of rewards.

Sewing - for students who would benefit from prevocational training (work adjustment and skills) in sewing. This training enhances independence of students living in boarding homes and prepares students for possible further vocational training in the community.

Industrial Therapy - evaluation, training (including OJT training), work experience, and adjustment on the basis of individual student needs in established industrial areas within the hospital is offered in this program. The areas included are: Canteen, Food Service, Laundry, other Service and Supply areas, Division I Medical Surgical Ward, Medical Therapy (clinics, labs and offices), Supportive areas, Business Support areas, Garage and Trucks, Maintenance, and Grounds.

Ward Aid Training - for those students who have vocational objectives such as competitive employment, which includes either independent or sheltered living and home-bound employment in which the student is able to perform tasks at a near competitive level with moderate supervision and/or assistance. Work tasks and techniques stimulate those required for employment in community nursing homes.

Yard Care - training for the job tasks of "yard man." Includes such tasks as: mowing lawns, raking leaves, pruning, transplanting, keeping yards free of debris, operation of power mowers, etc. At the lowest level of vocational placement, the individual would be contributing to his environment. At the highest level he would work for monetary gain.

Janitorial Skill Training - Participants learn to provide multi-task services including safety practices and care of equipment and supplies. At the highest level the participant is learning to function as a crew worker simulating an industrial shell crew. The lowest level is learning simple cleaning tasks and work habits that will aid him in contributing to his environment.

Bag Lunch - students participate in this program while attending community or Agnews State Hospital workshops on a full-time basis. They learn to plan five lunches per week, utilize community stores for grocery shopping and prepare their own bag lunch for the noon meal on the job.

Savings Club - teaches the students to budget, save money earned, and provides participants exposure to banking procedures.

Community Training - this program is designed to train students in the use of community facilities including appropriate behavior, etiquette and dress for the occasions. Some of the areas of concern are:

1. Communications (use of telephone, what to do in emergencies, appropriate conversation, etc.).
2. Orientation to community helpers and services (fire and police stations, post offices, church, etc.).
3. Shopping facilities (restaurants, care and purchasing of clothing, etc.).
4. Recreational facilities (movies, zoos, bowling, etc.).
5. Transportation media (bus service and schedules, taxies, etc.).

V. QUESTIONNAIRES:

(A) CLIENT QUESTIONNAIRE

NAME OF CLIENT: _____

1. What do you do for fun? [Do not read list.]

_____ go to movies
_____ go to recreation center
_____ visit friends in other homes
other: _____
_____

_____ do laundry
_____ watch TV
_____ go home to relatives
_____ not much
_____ sleep

2. Who is your best friend? _____ (relationship) _____

3. Do you work? _____ yes
_____ no (go to #6)
_____ sometimes

Where? _____

4. What do you do at work? _____

_____

5. Do you save money? _____ yes
_____ no

6. When you are unhappy, who do you want to see? [Do not read list.]

_____ board and care operator
_____ other resident in the home
_____ family member

_____ social worker
_____ rehabilitation counselor
other: _____
_____

7. Do you see your family? _____ yes
_____ no

When? [Read choices.]

_____ vacation
_____ Christmas

_____ birthday
_____ Easter
other: _____
_____

8. Do you like where you live? _____ yes
_____ no

Why? _____
_____
_____

9. Do you use a bus? _____ yes
_____ no

10. What part of the program at Agnews did you like best? _____

_____

_____

11. What part of the program at Agnews didn't you like? _____

_____

_____

Time started _____ Time finished _____ Elapsed time _____

RCM:pmf
2-24-70

(B) EMPLOYMENT QUESTIONNAIRE

NAME OF CLIENT _____

1. Does the employee usually start work on time at his (her) work station?

   _____ Yes
   _____ No
   _____ Usually

2. How many hours a day does the employee work? _____

3. How often does he (she) miss work?

   _____ Never
   _____ Once a week
   _____ Month

   Why? [Do not read list]

   _____ Medical Appointments
   _____ Fatigue
   _____ Illness
   Other _____

4. Following breaks, does he (she) usually return to his work station on time?

   _____ Yes
   _____ No

5. In terms of amount of work, how does his (her) work compare to others? [Read choices]
   (If respondent equivocates, ask, "on the average".)

   _____ Below standard
   _____ Standard
   _____ Above standard

6. How is the quality of his (her) work? [Read choices]

   _____ Below standard
   _____ Standard
   _____ Above standard

7. Does he (she) usually need more supervision than other employees?

   _____ Yes
   _____ No

8. Does he (she) usually get along with co-workers?

   _____ Yes
   _____ No

9. What are his (her) assets? _____

_____

10. What are his (her) liabilities? _____

_____

11. What is his (her) [read list]
____ hourly wage
____ weekly wage
____ monthly wage
____ unpaid family worker

12. Could more services have been provided by the Department of Rehabilitation or agencies?
____ Yes
____ No

What services? _____

_____

_____.

TIME STARTED _____ TIME FINISHED _____ TIME ELAPSED _____

(C) QUESTIONNAIRE FOR PLACE OF RESIDENCE

NAME OF RESIDENT_____

1. Is your home a ____ board and care facility?
   ____ family care home?
   ____ other?

2. Do you serve disabilities other than mentally retarded? ____ Yes ____ No

3. How many residents?_____.

4. Does the resident usually do these activities? [read the list, score each activity 1,2 or 3 according to the degree of independence]

   3. independently
   2. with reminding
   1. needs supervision

   ____ bathe
   ____ shave/set hair
   ____ shampoo hair
   ____ change clothes
   ____ makes bed

   ____ goes to beauty shop/barber shop
   ____ have barber in the home
   ____ helps with dishes
   ____ cleans his own room
   ____ handles own money
   ____ has own savings account

5. Does the resident usually get up without being called by you in the morning? ____Yes ____No

6. Does the resident work? ____ Yes ____ No Where? _____.

   What hours?_____, How long has the resident been working?_____.

7. Does the resident go to work? ____ alone ____ with others Does he/she take the ____bus? ____ walk? Other_____ _____

8. What does the resident do in the evenings and on weekends? [check, do not read the list]

   ____ goes to movies
   ____ goes to visit friends in other homes
   ____ volleyball
   ____ basketball

   ____ attends church
   ____ attends recreation center
   ____ checkers
   ____ chess

   ____ goes to visit relatives
   ____ watches TV
   Other _____
   _____
   _____

9. Does the resident present any problems for you or other residents regarding his/her sexual behavior? ____Yes ____No In what ways?_____
   _____.

10. When the resident is unhappy, who does he/she want to see? [check, do not read the list]

____ board and care operator
____ other resident in the home
____ family member
____ social worker
____ rehabilitation counselor
Other_____

11. Where does the resident's family live?_____

12. Regarding the family's relationship toward you, does the family? [check, do not read the list]

____ have no contact
____ have contact
____ visit the resident but otherwise leave the care to you
____ discuss his behavior and take part in planning for him
____ provide assistance in their part of the plan

13. What professional person calls or visits the resident? [check, do not read the list]

____ social worker
____ medical doctor
____ rehabilitation counselor
Other_____

14. How much is the resident's monthly [read the list] $_____ ATD Grant?
$_____ Social Security?
$_____ other resources?

15. If you had a vacancy and were able to select another mentally retarded resident, would you select one from the Agnews Program? ____Yes ____No Why?_____
_____.

16. Were you involved in the placement planning prior to the prospective resident coming to your home? ____ Yes
____ No

17. Did you have adequate information about the resident before the time of placement?

____ Yes
____ No

What would you have liked to have been informed about? _____
_____
_____
_____

Time started _____ Time finished _____ Time elapsed _____

RM/gs
2/24/70

QUESTIONNAIRE MAILED TO PARENTS

STATE OF CALIFORNIA—HUMAN RELATIONS AGENCY

RONALD REAGAN, Governor

DEPARTMENT OF REHABILITATION
Program for the Mentally Retarded
Agnews State Hospital
San Jose, California 95114

Dear RE:

The Department of Mental Hygiene-Department of Rehabilitation Vocational Training Program for the Mentally Retarded at Agnews State Hospital is conducting a study to determine the success of the young men and women it has helped place in the community. We are trying to determine their degree of success and if there are other ways in which we could have served them better or can presently provide assistance. We are especially interested in the attitudes and opinions of the parents of these young men and women so that we can determine in what ways we can strengthen our program. We would very much appreciate your comments in response to the following questions. We have provided a self-addressed, stamped envelope for your convenience in returning this questionnaire.

Thank you very much for your assistance.

Sincerely,

Ted Cutting
Program Administrator

1. Do you think the Agnews Training Program was helpful in assisting your son or daughter to adjust to community living?

   YES _____ NO _____

2. Would you recommend to another parent with a son or daughter in a similar circumstance that they consider the Agnews Training Program?

   YES _____ NO _____

3. What would you suggest to improve the program?

IV. COUNTY OF RESIDENCE

COUNTY OF RESIDENCE OF COMMUNITY PLACEMENTS
JULY 1967 THROUGH SEPTEMBER 1969

COUNTY	TOTAL PLACED	REHABILITATED	NOT REHABILITATED
Alameda	14	10	4
Butte	2	2	0
Fresno	3	1	2
Los Angeles	6	2	4
Merced	1	1	0
Monterey	1	0	1
Orange	1	0	1
Sacramento	4	2	2
San Diego	1	1	0
San Francisco	14	8	6
San Mateo	4	3	1
San Luis Obispo	1	1	0
Santa Barbara	1	0	1
Santa Clara	42	31	11
Santa Cruz	2	1	1
Solano	1	1	0
Sonoma	3	3	0
Tulare	2	0	2
	103*	67	36

*Total Sample equals 136, 33 of whom are residing in State Hospital

VI. **DESCRIPTION OF SAMPLE**

DEPARTMENT OF REHABILITATION

Residential Rehabilitation Training Program for the Mentally Retarded at Agnews State Hospital

Description of Sample

CHARACTERISTICS	Cases Closed from 7-1-67 thru 9-30-69												
	Grand Total	Rehabilitated			Not Rehabilitated								
					All			Community			Agnews		
		Total	M	F	Total	M	F	Total	M	F	Total	M	F
Total	136	67	48	19	69	42	27	36	18	18	33	24	9
Average Chronological Age at Closure	38.0	40.5	39.4	43.1	35.5	31.8	40.8	42.8	40.8	44.5	28.5	26.5	33.6
Average Years in Previous Hospital	15.9	18.0	17.3	19.5	13.9	13.2	14.8	17.1	19.6	15.2	10.8	9.5	13.9
Average Years in Co-operative Program	2.3	2.3	2.4	2.1	2.8	2.8	2.3	2.2	2.1	2.3	2.5	2.5	2.4
Average IQ	42	46	44	49	39	41	36	38	43	34	43	43	43
Race:													
Black	5	4	4	0	1	0	1	0	0	0	1	0	1
White	118	56	37	19	62	37	25	31	14	17	31	23	8
Other	5	3	3	0	2	1	1	1	0	1	1	1	0
Records Unavailable	8	4	4	0	4	4	0	4	4	0	0	0	0

VII. LEVEL OF FUNCTIONING: Average "Independence Scores" of Students by Outcome and Sex

SELECTED ACTIVITIES OF DAILY LIVING	REHABILITATED and NOT REHABILITATED	REHABILITATED			NOT REHABILITATED			NOT REHABILITATED			
								COMMUNITY		AGNEWS	
		All	Men	Women	All	Men	Women	Men	Women	Men	Women
TOTAL - (AVERAGES)	13.0	15.5	16.9	12.4	10.5	11.1	10.0	13.9	11.3	10.1	7.0
MAKE BED	2.2	2.4	2.4	2.1	2.1	1.9	2.2	1.9	2.1	2.0	2.2
BATHING	1.9	2.1	2.3	1.7	1.7	1.4	1.9	1.9	2.1	1.4	1.4
CHANGING CLOTHES	2.0	2.1	2.2	1.7	1.9	1.9	1.9	1.8	2.0	2.0	1.6
SHAVING/HAIR SET	1.3	1.7	2.2	.7	.8	1.4	.3	1.9	.4	1.2	.0
SHAMPOO HAIR	1.2	1.6	2.0	.8	.9	1.0	.7	1.6	1.1	.8	.0
CLEAN OWN ROOM/AREA	1.6	1.7	1.6	2.0	1.5	1.4	1.6	1.4	1.7	1.4	1.1
GO TO BARBER/BEAUTY SHOP*	.9	1.3	1.6	.8	.6	.7	.4	1.4	.5	.3	.2
HANDLE OWN MONEY	.7	1.0	1.1	.7	.3	.6	.3	.5	.4	.7	.2
HELP WITH DISHES	.7	.9	.7	1.4	.4	.5	.4	1.3	.6	.0	.0
HAVE SAVINGS ACCOUNT	.4	.5	.6	.4	.2	.2	.3	.1	.3	.2	.3
HAVE BARBER/BEAUTY SHOP IN HOME*	.1	.2	.2	.1	.1	.1	.0	.1	.1	.1	.0

*Alternative Items

VIII. CLASSIFICATION OF COMMUNITY RESIDENCES

Classification of Community Residences

Type of Residences	Number of Residences	Number of Clients	
		Rehabilitated	Not Rehabilitated
TOTALS	64	67	36
TYPE OF RESIDENCES:			
Board care home	41	58	22
Family care home	9	4	5
Own family	7	2	5
Convalescent home	4	0	4
Live adjacent to work	3	3	0

Description of Community Residences

Total Residences*	53
SIZE:	
More than 6 Residents	34
1 to 6 Residents	19
Total	53
RACE OF PROPRIETOR:	
White	26
Black	26
Other	1
Total	53
SERVE MENTALLY RETARDED OR OTHER:	
Only Mentally Retarded	33
Mentally Retarded and Other Disabilities	20
Total	53

*Excluding own families and convalescent homes

IX. RECREATION AND SOCIAL ACTIVITIES

Activities	All	Rehabilitated			Not Rehabilitated		
		Total	Male	Female	Total	Male	Female
Total Students in Study	136	67	48	19	69	36	33
Total Responses	274	145	109	36	129	78	51
Watch Television	65	36	23	13	29	19	10
Out for walks	29	14	12	2	15	6	9
Movies	23	13	10	3	10	6	4
Recreation Center	22	14	13	1	8	8	0
Go Shopping	12	7	5	2	5	5	0
Listen to Radio	12	6	5	1	6	4	2
Play Checkers	5	2	2	0	3	3	0
Other, varied	106	53	39	14	53	27	26

X. STUDENT: WHAT PART OF THE PROGRAM AT AGNEWS DID YOU LIKE BEST?

	All	Vocationally Rehabilitated			Not Vocationally Rehabilitated				
						Community		Agnews	
		Total	Men	Women	Total	Men	Women	Men	Women
Total Number Students	136	67	48	19	69	18	18	24	9
Total Responses*	102	67	47	20	35	11	9	8	7
Working:	42								
....Mopping Floors	6	5	4	1	1				1
....Dining Room	10	5	2	3	5	3	1		1
....Canteen	2	1		1	1				1
....Trucks	3	2	2		1	1			
....Laundry	2	2		2					
....Physical Therapy	1	1	1						
....Workshop	4	3	3		1		1		
....Ward Aide Training	3	2	2		1		1		
....Working	11	5	3	2	6			3	3
Classes:	10								
....Cooking	1	1		1					
....Exercises	3	3	3						
....Leisure Activities	1	1	1						
....Counting Money	1				1		1		
....In a regular room	4	3	3		1		1		
Community Activities:	14								
....Trips and Theater, Ballgames	3	2	1	1	1			1	
....Going to Town	3	2	1	1	1	1			
....Bowling	2				2	1	1		
....Taking the Bus	6	2	2		4	2		2	
Leisure Activities:	21								
....Church	6	2	1	1	4		2	2	
....Music, Singing, Dances	6	5	5		1	1			
....Movies	2				2	2			
....T.V.	3	3	3						
....Playing Records	1	1	1						
....Basketball, Baseball Games	3	3	3						
Other:	15								
....I don't want to go back	5	5	3	2					
....Technicians, they are my friends	6	4	1	3	2		1		1
....It was so long ago, I don't remember	3	3	2	1					
....I was never there	1	1		1					

*Since some students did not respond and some gave more than one response, totals will not equal number of students.

VT 012 130
Walker, James A.; Petrocchi, David
A Survey of Physically and Mentally Handicapped Welfare Recipients Who Have Vocational Rehabilitation Potential. Rehabilitation Research Report.

California State Human Relations Agency, Sacramento. Dept. of Rehabilitation.
MF AVAILABLE IN VT-ERIC SET.
FSS 70-5-4
California State Human Relations Agency, Department of Rehabilitation, 714 P Street, Sacramento, California 95814 (single copies without charge).
PUB DATE - 19May70 35p.

DESCRIPTORS - *HANDICAPPED; TABLES (DATA); *WELFARE RECIPIENTS; *EMPLOYMENT POTENTIAL; *VOCATIONAL REHABILITATION; *STATE SURVEYS; INDIVIDUAL CHARACTERISTICS
IDENTIFIERS - CALIFORNIA

ABSTRACT - This report describes a 1969 survey of recipients of blind aid in Los Angeles County, followed by a state-wide survey of disabled welfare recipients. The survey reached 13 percent of those on welfare in California, although this varied from 2 percent of those receiving Aid to Families with Dependent Children to 83 percent of the recipients of Aid to the Totally Disabled. On the basis of severity of disability, age, education, experience, and family or personal problems, nearly one out of eight welfare recipients was selected for potential rehabilitation. The seven tables included in the report provide a distribution of referrals by county, age, sex, type of disability, and disposition after referral. (BH)

VT 012 130

ED 047254

REHABILITATION RESEARCH REPORT

Robert E. Howard, Director
DEPT. OF REHABILITATION
Human Relations Agency
State of California

A Survey Of Physically And Mentally Handicapped Welfare Recipients Who Have Vocational Rehabilitation Potential

FSS 70-5-4
May 19, 1970

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VT007250

REHABILITATION RESEARCH REPORTS

A SURVEY OF PHYSICALLY AND MENTALLY HANDICAPPED WELFARE RECIPIENTS WHO HAVE VOCATIONAL REHABILITATION POTENTIAL

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FSS No. 70-5-4
May 19, 1970

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CALIFORNIA STATE DEPARTMENT OF REHABILITATION

A SURVEY OF PHYSICALLY AND MENTALLY HANDICAPPED WELFARE RECIPIENTS WHO HAVE VOCATIONAL REHABILITATION POTENTIAL

Summary

During 1969, the California Department of Rehabilitation, together with the Department of Social Welfare embarked upon a massive effort to identify physically and mentally handicapped welfare recipients who had potential for benefiting from vocational rehabilitation services to the point of becoming employed. About 500 persons from the Department of Rehabilitation staff spent 5 to 10 days each in this effort. In addition, a considerable amount of time was contributed by county welfare staff. This effort was carried out in two phases.

In March 1969, 3,748 case records of recipients of blind aid in Los Angeles County were reviewed. From December 1969 through February 1970, the staff surveyed an additional 164,104 disabled welfare recipients for a total of 167,852 reviewed.

County welfare departments made available for review all case records for recipients of blind aid and aid to the totally disabled and case records for all known disabled clients receiving general relief or aid to dependent children. Case records that were being used actively by welfare workers had to be excluded but it is believed that the survey covered the majority of disabled people receiving welfare.

In total, 13% of those on welfare were surveyed. However, this figure can be deceptive, for the extent to which the different aid categories were surveyed varied greatly. Attempts were made to pre-select the records of disabled recipients. Consequently, the most thoroughly surveyed categories were Aid to the Totally Disabled (83%) and Aid to the Blind (65%). Only 10% of those receiving General Relief and 2% of those receiving Aid to Families with Dependent Children (by far the largest aid category) were surveyed.

Factors which were considered (singly and in combination) in determining who had potential for employment after vocational rehabilitation services were the severity of the disability, age, education, previous work history and family or personal problems. Of the 167,852 records reviewed, 20,207 recipients were selected for potential referral to the Department of Rehabilitation. Although most of these welfare recipients were judged to be potentially employable, the figure contains 822 blind clients who, though not ready for vocational rehabilitation at this time, were judged to be good candidates for the counselor-teacher program.

The results obtained from the survey are presented in Table A.

Table A - Number of Welfare Recipients Surveyed and Number with Employment Potential By Type of Aid (Two surveys combined)

TYPE OF AID	DISABLED WELFARE RECIPIENTS SURVEYED	IDENTIFIED WITH EMPLOYMENT POTENTIAL*	PERCENT OF RECIPIENTS SURVEYED
TOTAL	167,852	20,207*	12.0%
Aid to Blind	8,456	1,381	16.3%
ATD	129,625	9,448	7.3%
General Relief	8,274	1,741	21.0%
AFDC	21,497	7,637	35.5%

* Includes 822 blind clients who are not ready for vocational rehabilitation at this time, but who could be assisted by the Department of Rehabilitation's counselor-teacher program.

Following the completion of the two surveys, a plan was developed for orderly referral to the Department of Rehabilitation during the calendar year 1970. County welfare workers will discuss the possible referral with all individuals who were identified as having potential for vocational rehabilitation. With the individual's consent, a referral will be initiated to the Department of Rehabilitation. It is anticipated that the welfare worker's interview with the individual may reveal that referral is not advisable because of factors not evident in the case record at the time of the review. It is not possible to determine, at this time, what the actual referral rate will be. Records will be kept in regard to action on these referrals and periodic reports issued during the coming months.

In order to insure that all future disabled applicants for welfare benefits will be evaluated for vocational rehabilitation potential, the Departments of Rehabilitation and Social Welfare have jointly developed a plan to have recipients evaluated at the time of application for welfare.

The results of the survey, in terms of the type of dispositions made, are presented in Table B. The data show that of the 167,852 recipients surveyed (including the 3,748 blind surveyed in Los Angeles early in 1969) 147,410 or 87.9 percent, were rejected for rehabilitation services and 20,207 or 12.0 percent were judged to be potential referrals for rehabilitation services from the Department of Rehabilitation. The most common reason for not referring persons was due to their disability being too severe, and this undoubtedly reflects the preponderance of ATD (Aid to the Totally Disabled) recipients among those surveyed.

Table B - Type of Disposition of Disabled Welfare Recipients Surveyed

(Two surveys combined)

Type of Disposition	Number of Clients Surveyed	Percent of All Clients Surveyed
Total all Disabled Recipients Surveyed	167,852	100.0%
Total not referred	147,410	87.9%
Disability too severe.	107,216	64.0%
Receiving DR services now.	6,781	4.0%
Served by another agency	3,226	1.9%
Client required for child care	1,411	0.8%
Other reasons.	25,662	15.3%
Not reported (L.A. blind survey) . . .	3,114	1.9%
Total potential applicants	20,207	12.0%
Refer to VR counselor now.	17,536	10.4%
Refer to counselor-teacher	822	0.5%
Refer later (delayed referral)	1,849	1.1%
Disposition not reported	235	0.1%

Table C compares the characteristics (disability, sex and age) of the total group surveyed, of those denied referral and of those judged to be potential referrals.

Table C - Characteristics of Disabled Welfare Clients Surveyed, those Denied Referral and those Judged to be Potential Referrals

(Data limited to the 1970 survey)

Characteristic	Disabled welfare recipients surveyed	Recipients denied Referral	Potential referrals
	Percent	Percent	Percent
Total, recipients	100.0%	100.0%	100.0%
Disability:			
Sensory.	4.0%	5.0%	7.0%
Physical	62.0%	63.0%	58.0%
Mental	33.0%	31.0%	32.0%
Not Reported	1.0%	1.0%	3.0%
Sex:			
Male	47.0%	47.0%	60.0%
Female	52.0%	53.0%	40.0%
Not Reported	1.0%	0.0%	0.0%
Ages:			
15-25.	11.0%	10.0%	23.0%
26-45.	28.0%	26.0%	55.0%
46-64.	61.0%	64.0%	22.0%
Not Reported	0.0%	0.0%	0.0%

Note: Any apparent discrepancies in the distribution of percentages for the two parts are due to the sampling method.

Of the welfare clients determined to be potential referrals, 58 percent had physical disabilities, 32 percent had mental disabilities and 7 percent had sensory disabilities.

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Among the potential referrals there were more males (60 percent) than females (40 percent); a radical shift from the total disabled welfare recipients survey which contained 47 percent males and 52 percent females. The primary reason for the difference appears to be that 64 percent of all the women surveyed were judged to have disabilities which were too severe for rehabilitation potential (about 55 percent of the males were denied for that reason).

As a group, the welfare recipients who were judged to be potential referrals were much younger than those determined to have no rehabilitation potential. This is dramatically illustrated by noting that among the clients rejected for service, 64 percent were between 46 and 64 years of age while the potential referrals had only 22 percent in that age group.

List of Statistical Tables

(Tables 1 through 5 include data from both surveys while Tables 6 and 7 is limited to the 1970 survey. For this reason the reported total number of recipients surveyed and the number of blind recipients surveyed differ between the two sets of tables.)

Tables 1 through 5: Disabled Welfare Recipient Survey Comparisons: For each Aid Category: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified. By County Within Rehabilitation District.

Table 6: Number of Disabled Welfare Recipients Surveyed, by Aid Category and by Major Disability Condition, Sex and Age.

Table 7: Type of Disposition of Disabled Welfare Recipients, by Welfare Aid Category, Number and Percentages.

Special note pertaining to the current survey in Los Angeles County.

Due to reporting delays the statistics for the Central Los Angeles District (District 152) were under-reported. The numbers of recipients surveyed and potential applicants not reflected in Tables 1 through 7, are shown below.

Recipients Surveyed and Potential
Applicants Not Reported in Tables 1-7

Central Los Angeles District

Welfare recipients	Total, all categories	Aid Category		
		ATD	GR	AFDC
Recipients surveyed. . .	2,525	1,896	69	560
Potential applicants . .	377	134	0	243

CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 1 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Total, All Aid Categories

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
TOTAL, STATEWIDE	1,312,924	167,852	20,207	12.0%
San Francisco (111)	71,597	13,551	913	6.7%
Marin (21).	5,539	958	88	9.2%
San Francisco (38). . .	66,058	12,593	825	6.6%
San Jose (112)	87,573	12,534	2,117	16.9%
Monterey (27)	11,411	1,529	331	21.6%
San Benito (35)	759	143	19	13.3%
San Mateo (41).	17,730	2,318	237	10.2%
Santa Clara (43). . . .	52,784	7,134	1,231	17.3%
Santa Cruz (44)	4,889	1,410	299	21.2%
Redwood (113)	31,658	4,690	341	7.3%
Del Norte (08).	985	211	10	4.7%
Humboldt (12)	7,085	1,214	70	5.8%
Lake (17)	1,280	329	27	8.2%
Mendocino (23).	3,474	562	60	10.7%
Napa (28)	3,276	687	19	2.8%
Sonoma (49)	15,558	1,687	155	9.2%
Oakland (121)	127,932	17,215	1,488	8.6%
Alameda (01).	77,633	10,822	1,079	10.0%
Contra Costa (07) . . .	39,848	5,475	369	6.7%
Solano (48)	10,451	918	40	4.4%
Fresno (131)	113,260	15,717	1,188	7.6%
Fresno (10)	45,387	5,706	354	6.2%
Inyo (14)	667	97	1	1.0%
Kern (15)	25,391	3,077	120	3.9%
Kings (16).	6,584	923	134	14.5%
Madera (20)	4,859	1,030	156	15.1%
Mariposa (22)	141	47	5	10.6%
Merced (24)	9,623	1,443	139	9.6%
Mono (26)	108	14	0	0.0%
Tulare (54)	20,500	3,380	279	8.3%

CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 1 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Total, All Aid Categories

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
Sacramento (132)	94,073	11,753	2,056	17.5%
Alpine (02)	39	0	0	-
Butte (04)	6,247	1,404	133	9.5%
Colusa (06)	573	105	7	6.7%
El Dorado (09)	2,543	411	64	15.6%
Glenn (11)	598	108	14	13.0%
Lassen (18)	684	177	7	4.0%
Modoc (25)	541	72	2	2.8%
Nevada (29)	1,292	317	20	6.3%
Placer (31)	5,312	643	116	18.0%
Plumas (32)	718	181	9	5.0%
Sacramento (34)	54,362	4,873	1,457	29.9%
Shasta (45)	7,030	1,086	77	7.1%
Sierra (46)	65	18	0	0.0%
Siskiyou (47)	1,496	446	16	3.6%
Sutter (51)	2,245	332	29	8.7%
Tehama (52)	1,489	347	11	3.2%
Trinity (53)	301	93	2	2.2%
Yolo (57)	5,054	751	63	8.4%
Yuba (58)	3,484	389	29	7.5%
Delta (133)	46,256	7,506	555	7.4%
Amador (03)	269	105	15	14.3%
Calaveras (05)	555	168	29	17.3%
San Joaquin (39)	24,273	3,926	171	4.4%
Stanislaus (50)	20,078	2,990	311	10.4%
Tuolumne (55)	1,081	317	29	9.1%

CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 1 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Total, All Aid Categories

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
Orange (141)	31,826	3,810	615	16.1%
Orange (30).	31,826	3,810	615	16.1%
San Bernardino (142)	76,807	10,062	1,817	18.1%
Riverside (33)	30,673	3,837	640	16.7%
San Bernardino (36). . . .	46,134	6,225	1,177	18.9%
San Diego (143)	63,972	10,095	436	4.3%
Imperial (13).	7,919	1,057	26	2.5%
San Diego (37)	56,053	9,038	410	4.5%
Santa Barbara (144)	32,376	4,992	946	19.0%
San Luis Obispo (40) . . .	6,595	1,184	76	6.4%
Santa Barbara (42)	12,435	1,738	209	12.0%
Ventura (56)	13,346	2,070	661	31.9%
Los Angeles County	535,594	55,927	7,735	13.8%

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CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 2 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Aid to the Blind

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
TOTAL, STATEWIDE	13,096	8,456	1,381	16.3%
San Francisco (111)	733	257	11	4.3%
Marin (21).	44	32	3	9.4%
San Francisco (38). . .	689	225	8	3.6%
San Jose (112)	851	461	89	19.3%
Monterey (27)	114	49	35	71.4%
San Benito (35)	20	16	1	6.2%
San Mateo (41).	190	109	18	16.5%
Santa Clara (43). . . .	418	183	16	8.7%
Santa Cruz (44)	109	104	19	18.3%
Redwood (113)	378	128	16	12.5%
Del Norte (08).	13	6	1	16.7%
Humboldt (12)	81	46	3	6.5%
Lake (17)	30	15	0	0.0%
Mendocino (23).	27	11	4	36.4%
Napa (28)	54	0	0	-
Sonoma (49)	173	50	8	16.0%
Oakland (121)	1,357	891	154	17.3%
Alameda (01).	931	518	98	18.9%
Contra Costa (07) . . .	345	341	51	15.0%
Solano (48)	81	32	5	15.6%
Fresno (131)	1,112	576	82	14.2%
Fresno (10)	397	171	8	4.7%
Inyo (14)	10	0	0	-
Kern (15)	248	188	22	11.7%
Kings (16).	47	23	9	39.1%
Madera (20)	58	25	3	12.0%
Mariposa (22)	3	2	0	0.0%
Merced (24)	112	44	5	11.4%
Mono (26)	0	0	0	-
Tulare (54)	237	123	35	28.5%

CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 2 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Aid to the Blind

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
Sacramento (132)	992	564	118	20.9%
Alpine (02)	4	0	0	-
Butte (04)	106	35	2	5.7%
Colusa (06)	5	2	1	50.0%
El Dorado (09)	22	23	4	17.4%
Glenn (11)	16	4	2	50.0%
Lassen (18)	25	28	1	3.6%
Modoc (25)	8	2	0	0.0%
Nevada (29)	22	7	1	14.3%
Placer (31)	45	21	2	9.5%
Plumas (32)	12	11	0	0.0%
Sacramento (34)	479	264	92	34.8%
Shasta (45)	70	69	2	2.9%
Sierra (46)	0	0	0	-
Siskiyou (47)	20	7	2	28.6%
Sutter (51)	25	7	3	42.9%
Tehama (52)	24	4	1	25.0%
Trinity (53)	6	5	1	20.0%
Yolo (57)	52	51	3	5.9%
Yuba (58)	51	24	1	4.2%
Delta (133)	540	220	38	17.3%
Amador (03)	9	10	2	20.0%
Calaveras (05)	6	0	0	-
San Joaquin (39)	307	105	28	26.7%
Stanislaus (50)	211	99	8	8.1%
Tuolumne (55)	7	6	0	0.0%

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CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 2 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Aid to the Blind

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
Orange (141)	354	173	50	28.9%
Orange (30).	354	173	50	28.9%
San Bernardino (142)	983	778	144	18.5%
Riverside (33)	369	128	33	25.8%
San Bernardino (36). . . .	614	650	111	17.1%
San Diego (143)	810	320	25	7.8%
Imperial (13).	85	28	7	25.0%
San Diego (37)	725	292	18	6.2%
Santa Barbara (144)	331	340	20	5.9%
San Luis Obispo (40) . . .	65	71	6	8.4%
Santa Barbara (42)	121	118	6	5.1%
Ventura (56)	145	151	8	5.3%
Los Angeles County	4,655	3,748	634	16.9%

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CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 3 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Aid to the Disabled

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
TOTAL, STATEWIDE	155,447	129,625	9,448	7.3%
San Francisco (111)	10,843	10,184	218	2.1%
Marin (21)	710	719	39	5.4%
San Francisco (38)	10,133	9,465	179	1.9%
San Jose (112)	10,277	9,927	1,347	13.6%
Monterey (27)	1,350	1,367	237	17.3%
San Benito (35)	117	116	16	13.8%
San Mateo (41)	2,414	1,905	153	8.0%
Santa Clara (43)	5,439	5,458	781	14.3%
Santa Cruz (44)	957	1,081	160	14.8%
Redwood (113)	4,431	4,129	207	5.0%
Del Norte (08)	223	199	9	4.5%
Humboldt (12)	1,077	905	22	2.4%
Lake (17)	308	268	9	3.4%
Mendocino (23)	511	495	27	5.5%
Napa (28)	559	687	19	2.8%
Sonoma (49)	1,753	1,575	121	7.7%
Oakland (121)	14,554	14,234	971	6.8%
Alameda (01)	9,341	8,919	736	8.3%
Contra Costa (07)	4,321	4,510	223	4.9%
Solano (48)	892	805	12	1.5%
Fresno (131)	15,097	13,112	596	4.5%
Fresno (10)	5,406	5,054	241	4.8%
Inyo (14)	132	89	0	0.0%
Kern (15)	3,813	2,560	37	1.4%
Kings (16)	665	630	25	4.0%
Madera (20)	909	878	95	10.8%
Mariposa (22)	43	40	3	7.5%
Merced (24)	1,202	1,215	68	5.6%
Mono (26)	27	14	0	0.0%
Tulare (54)	2,900	2,632	127	4.8%

CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 3 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Aid to the Disabled

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
Sacramento (132)	11,773	8,525	792	9.3%
Alpine (02).	4	0	0	-
Butte (04).	1,149	1,193	63	5.3%
Colusa (06).	115	96	1	1.0%
El Dorado (09)	332	343	34	9.9%
Glenn (11)	109	90	4	4.4%
Lassen (18).	134	138	3	2.2%
Modoc (25)	60	55	0	0.0%
Nevada (29).	301	290	14	4.8%
Placer (31).	625	533	83	15.6%
Plumas (32).	121	143	4	2.8%
Sacramento (34).	5,912	2,730	481	17.6%
Shasta (45).	881	895	37	4.1%
Sierra (46).	14	16	0	0.0%
Siskiyou (47).	325	389	8	2.1%
Sutter (51).	329	276	12	4.3%
Tehama (52).	290	318	6	1.9%
Trinity (53)	54	80	0	0.0%
Yolo (57).	658	619	30	4.8%
Yuba (58).	360	321	12	3.7%
Delta (133)	6,576	6,457	319	4.9%
Amador (03).	76	89	10	11.2%
Calaveras (05)	113	132	13	9.8%
San Joaquin (39)	3,599	3,545	92	2.6%
Stanislaus (50).	2,570	2,414	184	7.6%
Tuolumne (55).	218	277	20	7.2%

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CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 3 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Aid to the Disabled

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
Orange (141)	3,640	3,205	424	13.2%
Orange (30).	3,640	3,205	424	13.2%
San Bernardino (142)	9,540	7,647	979	12.8%
Riverside (33)	4,247	3,067	365	11.9%
San Bernardino (36). . . .	5,293	4,580	614	13.4%
San Diego (143)	8,147	8,422	191	2.3%
Imperial (13).	811	871	10	1.1%
San Diego (37)	7,336	7,551	181	2.4%
Santa Barbara (144)	3,882	3,940	694	17.6%
San Luis Obispo (40) . . .	990	961	33	3.4%
Santa Barbara (42)	1,279	1,263	112	8.9%
Ventura (56)	1,613	1,716	549	32.0%
Los Angeles County	56,687	39,843	2,710	6.8%

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CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 4 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

General Relief

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
TOTAL, STATEWIDE	83,012	8,274	1,741	21.0%
San Francisco (111)	8,857	2,458	469	19.1%
Marin (21).	412	93	17	18.3%
San Francisco (38). . .	8,445	2,365	452	19.1%
San Jose (112)	2,651	654	231	35.3%
Monterey (27)	336	0	0	-
San Benito (35)	10	3	1	33.3%
San Mateo (41).	538	134	30	22.4%
Santa Clara (43). . . .	1,700	504	193	38.3%
Santa Cruz (44)	67	13	7	53.8%
Redwood (113)	991	95	10	10.5%
Del Norte (08).	2	0	0	-
Humboldt (12)	251	95	10	10.5%
Lake (17)	10	0	0	-
Mendocino (23).	102	0	0	-
Napa (28)	168	0	0	-
Sonoma (49)	458	0	0	-
Oakland (121)	5,175	1,208	180	14.9%
Alameda (01).	3,416	902	148	16.4%
Contra Costa (07) . . .	1,561	306	32	10.5%
Solano (48)	198	0	0	-
Fresno (131)	794	5	1	20.0%
Fresno (10)	220	0	0	-
Inyo (14)	137	0	0	-
Kern (15)	79	0	0	-
Kings (16).	37	0	0	-
Madera (20)	17	0	0	-
Mariposa (22)	0	1	1	100.0%
Merced (24)	221	4	0	0.0%
Mono (26)	1	0	0	-
Tulare (54)	82	0	0	-

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CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 4 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

General Relief

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
Sacramento (132)	3,922	503	181	36.0%
Alpine (02)	0	0	0	-
Butte (04)	69	0	0	-
Colusa (06)	11	0	0	-
El Dorado (09)	124	7	7	100.0%
Glenn (11)	7	0	0	-
Lassen (18)	0	0	0	-
Modoc (25)	83	0	0	-
Nevada (29)	11	0	0	-
Placer (31)	449	0	0	-
Plumas (32)	3	0	0	-
Sacramento (34)	2,777	479	169	35.3%
Shasta (45)	118	1	1	100.0%
Sierra (46)	0	1	0	0.0%
Siskiyou (47)	62	6	1	16.7%
Sutter (51)	14	4	1	25.0%
Tehama (52)	34	0	0	-
Trinity (53)	28	0	0	-
Yolo (57)	46	1	0	0.0%
Yuba (58)	86	4	2	50.0%
Delta (133)	414	246	26	10.6%
Amador (03)	6	2	0	0.0%
Calaveras (05)	18	20	3	15.0%
San Joaquin (39)	202	44	7	15.9%
Stanislaus (50)	176	180	16	8.9%
Tuolumne (55)	12	0	0	-

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CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 4 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

General Relief

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
Orange (141)	2,014	20	5	25.0%
Orange (30).	2,014	20	5	25.0%
San Bernardino (142)	1,412	239	56	23.4%
Riverside (33)	546	114	47	41.2%
San Bernardino (36). . . .	866	125	9	7.2%
San Diego (143)	1,945	181	41	22.7%
Imperial (13).	301	10	0	0.0%
San Diego (37)	1,644	171	41	24.0%
Santa Barbara (144)	646	172	46	26.7%
San Luis Obispo (40) . . .	244	24	9	37.5%
Santa Barbara (42)	258	128	34	26.6%
Ventura (56)	144	20	3	15.0%
Los Angeles County	54,191	2,493	495	19.9%

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CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 5 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Aid to Families with Dependent Children

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
TOTAL, STATEWIDE	1,061,369	21,497	7,637	35.5%
San Francisco (111)	51,164	652	215	33.0%
Marin (21).	4,373	114	29	25.4%
San Francisco (38). . .	46,791	538	186	34.6%
San Jose (112)	73,794	1,492	450	30.2%
Monterey (27)	9,611	113	59	52.2%
San Benito (35)	612	8	1	12.5%
San Mateo (41).	14,588	170	36	21.2%
Santa Clara (43). . . .	45,227	989	241	24.4%
Santa Cruz (44)	3,756	212	113	53.3%
Redwood (113)	25,858	338	108	32.0%
Del Norte (08).	747	6	0	0.0%
Humboldt (12)	5,676	168	35	20.8%
Lake (17)	932	46	18	39.1%
Mendocino (23).	2,834	56	29	51.8%
Napa (28)	2,495	0	0	-
Sonoma (49)	13,174	62	26	41.9%
Oakland (121)	106,846	882	183	20.7%
Alameda (01).	63,945	483	97	20.1%
Contra Costa (07) . . .	33,621	318	63	19.8%
Solano (48)	9,280	81	23	28.4%
Fresno (131)	96,257	2,024	509	25.1%
Fresno (10)	39,364	481	105	21.8%
Inyo (14)	388	8	1	12.5%
Kern (15)	21,251	329	61	18.5%
Kings (16).	5,835	270	100	37.0%
Madera (20)	3,875	127	58	45.7%
Mariposa (22)	95	4	1	25.0%
Merced (24)	8,088	180	66	36.7%
Mono (26)	80	0	0	-
Tulare (54)	17,281	625	117	18.7%

CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 5 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Aid to Families with Dependent Children

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
Sacramento (132)	77,386	2,161	965	44.7%
Alpine (02).	31	0	0	-
Butte (04).	4,923	176	68	38.6%
Colusa (06).	442	7	5	71.4%
El Dorado (09)	2,065	38	19	50.0%
Glenn (11)	466	14	8	57.1%
Lassen (18).	525	11	3	27.3%
Modoc (25)	390	15	2	13.3%
Nevada (29).	958	20	5	25.0%
Placer (31).	4,193	89	31	34.8%
Plumas (32).	582	27	5	18.5%
Sacramento (34).	45,194	1,400	715	51.1%
Shasta (45).	5,961	121	37	30.6%
Sierra (46).	51	1	0	0.0%
Siskiyou (47).	1,089	44	5	11.4%
Sutter (51).	1,877	45	13	28.9%
Tehama (52).	1,141	25	4	16.0%
Trinity (53)	213	8	1	12.5%
Yolo (57).	4,298	80	30	37.5%
Yuba (58).	2,987	40	14	35.0%
Delta (133)	38,726	583	172	29.5%
Amador (03).	178	4	3	75.0%
Calaveras (05)	418	16	13	81.3%
San Joaquin (39)	20,165	232	44	19.0%
Stanislaus (50).	17,121	297	103	34.7%
Tuolumne (55).	844	34	9	26.5%

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CALIFORNIA STATE DEPARTMENT OF REHABILITATION

Disabled Welfare Recipient Survey

Table 5 Comparisons: Total Number of Welfare Recipients, Number Surveyed, and Number of Potential Applicants Identified, By County Within Rehabilitation District

Aid to Families with Dependent Children

District and County (Name and Statistical Code)	Total number of welfare recipients	Number of welfare recipients surveyed	Number of potential applicants in survey	Potential applicants as percent of recipients surveyed
Orange (141)	25,818	412	136	33.0%
Orange (30).	25,818	412	136	33.0%
San Bernardino (142)	64,872	1,398	638	45.6%
Riverside (33)	25,511	528	195	36.9%
San Bernardino (36). . . .	39,361	870	443	50.9%
San Diego (143)	53,070	1,172	179	15.3%
Imperial (13).	6,722	148	9	6.1%
San Diego (37)	46,348	1,024	170	16.6%
Santa Barbara (144)	27,517	540	186	34.4%
San Luis Obispo (40) . . .	5,296	128	28	21.9%
Santa Barbara (42)	10,777	229	57	24.9%
Ventura (56)	11,444	183	101	55.2%
Los Angeles County	420,061	9,843	3,896	39.6%

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Department of Rehabilitation
Welfare Recipient Survey

Table 6 Number of Disabled Welfare Recipients Surveyed
by Aid Category and by Major Disabling Condition, Sex, and Age

Disability Sex & Age	Total persons reported		Aid to the Blind		Aid to the Disabled		General Relief		AFDC	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total, all disabilities	164,104	100.0	4,708	100.0	129,625	100.0	8,274	100.0	21,497	100.0
Sensory.	7,246	4.4	4,628	98.3	2,016	1.6	151	1.8	451	2.0
Physical	100,912	61.5	71	1.5	81,520	62.9	5,345	64.6	13,976	65.1
Mental	53,841	32.8	8	0.2	45,756	35.3	2,669	32.3	5,408	25.2
Not Reported	2,105	1.3	1	0.0	333	0.2	109	1.3	1,662	7.7
Total, both sexes	164,104	100.0	4,708	100.0	129,625	100.0	8,274	100.0	21,497	100.0
Male	77,529	47.2	2,314	49.2	56,856	43.9	4,796	58.0	13,563	63.1
Female	85,773	52.3	2,392	50.8	72,155	55.6	3,458	41.8	7,768	36.1
Not Reported	802	0.5	2	0.0	614	0.5	20	0.2	166	0.8
Total, all ages	164,104	100.0	4,708	100.0	129,625	100.0	8,274	100.0	21,497	100.0
Young (15-25). . . .	18,420	11.2	753	16.0	13,366	10.3	1,127	13.6	3,174	14.8
Middle (26-45) . . .	45,274	27.6	1,025	21.8	29,483	22.7	2,809	33.9	11,957	55.6
Old (46-64).	99,707	60.8	2,917	61.9	86,276	66.6	4,287	51.9	6,227	29.0
Not Reported	703	0.4	13	0.3	500	0.4	51	0.6	139	0.6

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June 22, 1970

ADDENDA

Page 2 (Table A): Add to the footnote: "Of these, 719 were in the Aid to the Blind group and the remaining 103 were in the other aid categories".

Page 9 (Table 2):
1. Add a footnote symbol "*" to the figure of 1,381 at top of page.
2. Add a footnote at bottom of page: * "Including 719 blind clients to be referred for services from the Counselor-Teachers for the Blind Program. Without them, the number of potential applicants would be 662 instead of 1,381 and the percent would be 4.8% instead of 16.3%.

Page 21 (Table 6):
1. Add a headnote immediately below the table title: (Data Limited to the 1970 Survey).
2. Add a footnote symbol "*" at the first line of figures, after the number "4,708" in the Aid to the Blind column.
3. Add a footnote at the bottom of Table 6: * "Excludes 3,748 Aid to the Blind clients surveyed in L.A. in 1969 because detailed characteristics are not available".

Page 22 (Table 7):
1. Add a headnote immediately below the table title: (Data Limited to the 1970 Survey).
2. Add a footnote symbol "*" at the number "4,708" in the first column, in the "AB" line.
3. Add a footnote at the bottom of Table 7: * "Excludes 3,748 Aid to the Blind clients surveyed in L.A. in 1969. Of these, 634 were potential applicants (317 to Counselor-Teachers and 317 to regular counselors)".

Pages 6, 7, 8, 9, 10, 11: Add a headnote immediately below the table title: (Two Surveys Combined).

Department of Rehabilitation
Welfare Recipient Survey

Table 7 Type of Disposition of Disabled Welfare Recipients by Welfare Aid Category, Number and Percentages

Aid Category	Total clients surveyed	Type of disposition of client by the Department of Rehabilitation										
		Total not referred	Referral denied; reason				Other reason	Total potential applicants	Potential applicant, type			Disposition not reported
			Disability too severe	Receiving services now (D.R.)	Served by another agency	Client required for child care			Refer to Dept. of Rehab. now	Refer to counselor teacher	Refer later (delayed)	
Statewide Total:												
Number. . . .	164,104	144,296	107,216	6,781	3,226	1,411	25,662	19,573	17,219	505	1,849	235
Percent . . .	100.0%	88.0%	65.4%	4.1%	2.0%	0.9%	15.6%	11.9%	10.5%	0.3%	1.1%	0.1%
AB:												
Number. . . .	4,708	3,943	1,288	798	54	61	1,742	747	270	402	75	18
Percent . . .	100.0%	83.8%	27.4%	16.9%	1.1%	1.3%	37.1%	15.8%	5.7%	8.5%	1.6%	0.4%
ATD:												
Number. . . .	129,625	120,017	97,443	3,697	1,842	564	16,471	9,448	8,487	63	898	160
Percent . . .	100.0%	92.7%	75.3%	2.9%	1.4%	0.4%	12.7%	7.2%	6.5%	0.0%	0.7%	0.1%
GR:												
Number. . . .	8,274	6,523	3,400	494	617	23	1,989	1,741	1,382	11	348	10
Percent . . .	100.0%	78.9%	41.1%	6.0%	7.5%	0.3%	24.0%	21.0%	16.7%	0.1%	4.2%	0.1%
AFDC:												
Number. . . .	21,497	13,813	5,085	1,792	713	763	5,460	7,637	7,080	29	528	47
Percent . . .	100.0%	64.3%	23.7%	8.3%	3.3%	3.5%	25.5%	35.5%	32.9%	0.1%	2.5%	0.2%

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VT 012 131
Savino, Michael T.; Zobo, Lawrence J.
A Two Year Follow-Up of a Cooperative Vocational Rehabilitation Program at Metropolitan State Hospital.

California State Human Relations Agency, Sacramento. Dept. of Rehabilitation.
MF AVAILABLE IN VT-ERIC SET.
FSS 70-4-6
California State Human Relations Agency, Department of Rehabilitation-714 P Street, Sacramento, California 95814 (single copies without charge).
PUB DATE - 1Apr70 19p.

DESCRIPTORS - *VOCATIONAL REHABILITATION; *MENTAL ILLNESS; *PSYCHIATRIC HOSPITALS; *COOPERATIVE PROGRAMS; *FOLLOWUP STUDIES; PATIENTS (PERSONS); INDIVIDUAL CHARACTERISTICS; TABLES (DATA)

ABSTRACT - To provide results of 2 years experience with a shared data program and suggest how a more complete description of patient chacacteristics resulting from shared data can achieve program objectives, 513 referrals to the Metropolitan State Hospital Cooperative Vocational Rehabilitation Program during 1967-68 were followed until June 30, 1969. Of every 10 patients referred to the program during 1968, approximately nine were closed, with about half the closures occurring before receiving plan services. Of the five who received plan services, about two failed and almost three were rehabilitated to gainful occupations. In 1968, 24 percent of the closures were rehabilitated while in 1969, 27 percent were rehabilitated. Analysis of sociopsychiatric characteristics yielded these relationships: (1) The older client is more likely to be rehabilitated, (2) Females are more likely to be rehabilitated than males, (3) There was a tendency for those who had completed either high school or college to succeed more frequently than those who had dropped out of either, (4) Clients who had never married were significantly underrepresented among the rehabilitations, and (5) The non-psychotic patients were more likely to be accepted for service and, once accepted, more likely to be rehabilitated. (SB)

VT 012 131

ED0 57254

C1

REHABILITATION RESEARCH REPORT

Robert E. Howard, Director
DEPT. OF REHABILITATION
Human Relations Agency
State of California

A Two Year Follow-Up Of A Cooperative Vocational Rehabilitation Program At Metropolitan State Hospital

FSS 70-4-6
April 1, 1970

VT012131

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REHABILITATION RESEARCH REPORTS

A TWO YEAR FOLLOW-UP
of a
COOPERATIVE VOCATIONAL REHABILITATION PROGRAM
at Metropolitan State Hospital

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FSS 70-4-6
April 1, 1970

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A TWO YEAR FOLLOW-UP

of a

COOPERATIVE VOCATIONAL REHABILITATION PROGRAM

at Metropolitan State Hospital

During the past four years the Department of Mental Hygiene and the Department of Rehabilitation have combined resources to attack the problem of the lack of continuity of vocational rehabilitation services from hospitalization through return to the community. Formerly, each department published separate reports which described the characteristics of patients or clients receiving their services. No attempt was made to combine the available data in order to develop broader and more insightful analyses of the characteristics of those patients or clients.

This paper will present the results of a shared data program. Specifically, its objectives are (1) to provide a comprehensive picture of the Cooperative Vocational Rehabilitation Program; (2) to present the results of two fiscal years' experience with the above shared data program at Metropolitan State Hospital; and (3) to suggest how the more complete description of patient characteristics resulting from shared data can assist the program to achieve its goals by answering such questions as, for example, which patients are more likely to succeed as vocational rehabilitation clients.

THE CO-OP PROGRAM

Early in 1965 the California Legislature, acting upon recommendations of the Departments of Rehabilitation and Mental Hygiene, approved the establishment of a Cooperative Vocational Rehabilitation Program (CVRP) in the area of mental health. This new program, jointly pursued by the departments, provided the advantage of enhanced communication among State agencies serving the same target group. The Department of Mental Hygiene would help potential clients become more amenable to vocational rehabilitation, and the Department of Rehabilitation, in turn, by providing vocational services, would render the client less likely to return repeatedly to the hospital for State care.

The Departments of Rehabilitation and Mental Hygiene established contractual agreements with eight state hospitals and two community mental health programs. In addition to technical arrangements and operational programs, these contracts listed seven goals for the program. Each of the following goals was prompted by specific problems such as the aforementioned lack of continuity of services from hospitalization through return to the community:

1. Provide continuity of vocational services from admission to the hospital through job placement in the community.

2. Provide early identification of patients needing vocational rehabilitation.

3. Commence vocational services as early as possible.

4. Utilize a vocational rehabilitation workshop for pre-vocational and vocational activities.

5. Provide a well-planned transition from hospital to community.

6. Reduce the re-entry rate through improved personal and vocational adjustment in the community.

7. Increase the number of patients leaving the hospital who become gainfully employed in the community.

The essential difference between the Departments' programs is that the Department of Mental Hygiene's program is a "rights program," while the Department of Rehabilitation's program is a "privilege program." The mentally ill are entitled to psychiatric care. Though we may believe the mentally and physically disabled should also be "entitled" to vocational rehabilitation services, the limitations of funds and personnel require that clients be screened to determine their likelihood of success. Beyond the practical limitations, feasibility determination is necessitated by the nature of the vocational rehabilitation process. Even with more funds and personnel, clients must be limited to only those for whom there is a reasonable prospect of success. All Department of Mental Hygiene patients cannot profit from vocational rehabilitation services.

Vocational rehabilitation is a combination of services provided to a physically or mentally disabled person, as needed, to prepare him for employment and a productive life. These services are provided to disabled persons whose disability is a vocational handicap which interferes with acquiring or maintaining employment. The essence of the program is to marshal all resources, in a coordinated way, to bring the disabled person to a better level of functioning.

The vocational rehabilitation program, one of the oldest grant-in-aid programs for providing services for individuals, had its start when President Wilson signed the Smith-Fess Act ~~in~~ 1920. In the 50 years since the start of the program, its basic concepts have continued essentially unchanged. Substantial enlargement of scope and effectiveness through legislative authority in 1943, 1954, and 1965 allows the Department of Rehabilitation to provide services to clients with disabilities who would not have been eligible for services in the past. One of these recently added disability groups is composed of the mentally disabled.

When discharged into the community, the mentally restored patient has traditionally been left on his own to overcome his vocational disabilities, to develop the skills necessary to perform a job adequately, and to find a job. Only during the last two decades has major attention been devoted to vocational rehabilitation of the mentally restored, both in and out of the hospital. Thus, the discharged patient could find a place in the community and not return to the hospital in spite of a combination of factors, one of which was the stress of being unemployed.

In the United States during the fiscal year 1968-69 over 240,000 persons with various disabilities were restored to productive lives. California, with 14,450 persons rehabilitated, ranked second in the entire Nation. Over the past few years, the general caseload has increased as has the total number of patient/clients receiving services through the CVRP. This steady increase came as additional hospital programs were initiated and as the total program matured. At the close of fiscal year 1966-67, about 1,000 persons were actively engaged in formalized vocational rehabilitation, while another 1,000 cases were being evaluated as referrals to Co-op programs for the mentally

disabled. Therefore, the total caseload was approximately 2,000 patient/clients. At the end of fiscal 1968-69, approximately 2,400 patient/clients were being served. In fiscal year 1966-67, about 250 patient/clients were rehabilitated, while in fiscal 1967-68 this figure was doubled. During 1968-69 the CVRP rehabilitated 914 patient/clients.

Since the services provided in this cooperative program are a joint venture, it seemed appropriate that program progress reports also be a cooperative effort of the participating departments. It is anticipated that this cooperative research venture will provide advantages for both the clients and program management since it will allow the integration of two different data systems, neither of which alone could present a comprehensive picture of the program. While cooperative research has this advantage, it also presents the management of each agency with the added responsibility of fully understanding the clinical, management, and research operations of its sister agency. This paper will present data which will enhance the understanding of this program among personnel and guidance professionals.

COHORT FOLLOW-UP AT METROPOLITAN STATE HOSPITAL

During the course of the fiscal year 1967-68, the basic ground-work was done to support cooperative research descriptive of the patient/clients in the vocational rehabilitation programs at the state hospitals. The following tables are descriptive of the Metropolitan State Hospital referrals during the fiscal year 1967-68 who were followed until June 30, 1969. Follow-up base expectancy data was not available for patients who did not receive vocational rehabilitation services. Thus, the relative degree of success of the rehabilitation services cannot be judged without such a control group.

The tables illustrate social-psychiatric characteristics of a patient/client referral cohort (defined as 513* clients referred to the Metropolitan State Hospital Cooperative Vocational Rehabilitation Program during fiscal year 1967-68). The variables selected for analysis are representative of those characteristics that have been found to prognostically significant. In addition, the tables are organized according to the rehabilitation status of the patient/client referrals as of the end of fiscal year 1968-69. At the end of the year a case can be in one of five statuses -- open, or closed in one of four closure categories:

a. Open in referral status or receiving plan services;

b. Closed during referral evaluation;

c. Closed <u>not</u> rehabilitated <u>before</u> rehabilitation plan services initiated;

d. Closed <u>not</u> rehabilitated <u>after</u> rehabilitation plan services initiated; and

e. Closed rehabilitated.

The basic criterion for closing a case and reporting a client rehabilitated is that he has been suitably employed for a minimum of 30 days. On June 30, 1968, almost half of the referrals were open and over half were closed. On June 30, 1969, 92 percent were closed.

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*While the cohort consisted of 514 cases referred during fiscal 1967-68, only 513 of these were followed until June 30, 1969.

Of those cases closed as of June 30, 1968, 62 cases (24 percent) were closed as successful, "rehabilitated," while half of that number (11 percent) were closed as unsuccessful ("d" above). Thirty-two percent of all the referrals were closed during diagnostic and evaluation services ("b" and "c" above), without being placed in a formal rehabilitation plan.

One year later on June 30, 1969 of those cases closed, 126 cases (27 percent) were closed as rehabilitated, while 95 cases (20 percent) were closed as unsuccessful. Forty-seven percent of all referrals were closed during diagnostic and evaluation services, without being placed in a formal rehabilitation plan.

AGE (Table 1)

Observing the age distribution of the original group of referrals as well as the closures and those still open on June 30, 1968, the modal class was the age group 25 to 34. It appeared at that time that age was directly related to outcome. There was a tendency for older clients, that is those 35 and above, to be rehabilitated more often than those 34 and below. Now, however, after a two-year follow-up, this tendency has been reduced. The present status of the cohort followed for two years indicates that there is an almost equal likelihood of being rehabilitated or not regardless of age.

While there presently appears to be no strong relationship between age and successful outcome, two age groups seem to be disproportionately represented among the unsuccessful closures; these are the age groups from 21 through 24 and 45 through 54. Observing the age group 21 to 24, we find that although they represented 14 percent of the original cohort they represent 23 percent of the cases unsuccessfully closed. This was true both at one year and at two years after referral. The 45 to 54 age group represented 15 percent of the original cohort, and one year after referral they comprised only four percent of the unsuccessful closures.* However, two years after referral their proportion had increased to 11 percent. Therefore, while the 45 to 54 age group had fewer unsuccessful closures than their original proportion of referrals, this difference has decreased markedly over time. This may indicate that the age group 45 to 54 is kept in plan for a longer period of time before a failure is either recognized or accepted.

SEX (Table 2)

The second table illustrates the distribution of the cohort according to sex. Although 48 percent of the original referrals were female, at the end of the one-year follow-up females represented 65 percent of those cases successfully rehabilitated.* One year later, on June 30, 1969, this proportion decreased six percent to 59 percent. Thus, it is apparent that the degree of difference between male and female in rate of successful closure has decreased. This decrease may reflect the use of longer rehabilitation service plans for male clients. However, it is apparent that the females have a greater likelihood of being rehabilitated ($p < .01$).**

*Savino, M., Brynda, J. and Zabo, L., "Cooperation Vocational Rehabilitation Program, Report #1: Metropolitan State Hospital," California Data, Vol. 3, Supp. 2, Sept. 1969, published by California State Department of Mental Hygiene.

**All tests of significance reported have been made by Chi Square.

RACE (Table 3)

Ten percent of the original group were Negro and 89 percent were white (including Mexican-Americans). All other categories account for one percent of the original group. This breakdown remained consistent among the closure categories throughout the follow-up until June 30, 1969. That is, among the successes, 87 percent were white and 11 percent were Negro. Among the rejectees, 90 percent were white and 10 percent were Negro. Therefore, there is no significant difference by race regarding the chance of acceptance versus rejection or failure versus success. Once referred, the Negro is just as likely to be accepted, and once accepted, he is just as likely to succeed as a non-Negro.

MARITAL STATUS (Table 4)

This table illustrates a significant ($p < .02$) underrepresentation among the successful closures of the "never married" marital status group; that is, while the "never married" represented 38 percent of the original cohort group they represented only 28 percent of the successful closures on June 30, 1969. Except the "separated" which had a slight increase, all other marital status groups maintained essentially the same proportion among the successful closures as they did among the original group. For example, the "married" group represented 21 percent of the original cohort and two years later represented 22 percent of the successful closures. The "divorced," 22 percent of the original cohort group, were 24 percent of the successful closures.

HIGHEST GRADE COMPLETED (Table 5)

The variable of education is certainly a complex one and presents difficulties in interpretation. Even when a pattern is found in any one program it may not at all be true in other programs due to labor market differences, differences in kinds of training programs available, differences in types of referrals, etc. Additionally, an over-all general pattern may mask patterns in individual programs or individual clients.

As presented, Table 5 does not appear to show any significant trends when individual educational levels are compared to each other. This is even true when these grade levels are grouped to compare all those who have completed high school or above versus those who have had less than a complete high school education. For example, 54 percent of the original cohort had an education level equal to high school graduate or above. The same group represented 55 percent of the successful closures. There is no significant change.

An interesting pattern does emerge, however, when high school and college "dropouts" are compared to those who did receive either their high school or college diplomas. In this instance, it is found that those who received partial high school or partial college training represented 43 percent of the original cohort, but only 36 percent of the successful closures. On the other hand, those who successfully completed either high school or college represented 36 percent of the original cohort, but among the successful closures they represented 39 percent. However, a chi-square analysis of this hypothesized relationship was not significant ($p < .25$).

DIAGNOSIS (Table 6a and 6b)

The cohort was divided into nine diagnostic categories. The schizophrenic reactions were, by far, the largest diagnostic group composing 59 percent of the original referral group. The second largest diagnostic group, 19 percent, was the non-psychotic personality disorders. All diagnostic groups maintained approximately the same proportion among the successful closures as they did among the original referral cohort. For example, the psychoneurotic reactions comprised 10 percent of the referrals to the program and 12 percent of the program successes.

In Table 6b clients were combined into two major groupings: psychotic and non-psychotic. The non-psychotic grouping includes psychoneurotic reactions, personality disorders and miscellaneous non-psychotic diagnoses. The psychotic group includes the other six diagnoses. Comparing the psychotic and the non-psychotic according to outcome, the percents across in Table 6b indicate that the non-psychotic were more likely to be closed successfully and this relationship was statistically significant ($p < .05$). Of the original group of non-psychotics, 29 percent were rehabilitated while 23 percent of the psychotics were rehabilitated. The non-psychotics were also less likely to be rejected during referral evaluation than were the psychotics. While 39 percent of the non-psychotics were rejected, 50 percent of the psychotics were rejected. These relationships when tested concurrently yielded a chi-square value of 5.9 which, at one degree of freedom is significant at the .025 level of probability.

HOSPITAL STATUS (Table 7)

Table 7 illustrates the last hospital status of the 513 referrals as of June 30, 1969. That is, the computer records at the Department of Mental Hygiene, for the last day of fiscal 1968-69, were run to determine the last status on that day for each of these patient/clients. It is important to note that a person's status on that day, for example residence or discharge, does not rule out the possibility of movements in or out of the hospital during the previous two fiscal years. Thus, some of those clients discharged in fiscal 1968 may have returned to the hospital in fiscal 1969. However, due to information system limitations this can not be determined with certainty. Therefore, the "discharge" row in Table 7 is based on the assumption that all fiscal 1968 discharges remained out of the hospital. To that extent this row is an estimate.

Six percent of the total cohort was found to be in residence at the hospital on the above date. The percent in residence varied among the closure groups from a high of nine percent among those cases rejected for services, to a low of two percent among those cases who had been successfully closed.

Sixty-three percent of the total cohort, based on the above assumption, was found to be in "discharge status" as of June 30, 1969. This represents a sharp rise over the 28 percent which were in this status on June 30, 1968. Among the closure groups the successfully closed had the highest proportion (70 percent) in this status. It is interesting to note that the unsuccessful closure group had the second highest proportion, 65 percent, of closures in this status. This may support the popular contention that even those cases unsuccessfully closed do receive some benefits from vocational rehabilitation services.

ADMISSION STATUS (Table 8)

The original group was almost equally distributed between first admissions (48 percent) and readmissions (52 percent). Thus, it appears that client/patients who have been admitted to the hospital more than once, are just as likely as first admissions to be referred to the Vocational Rehabilitation Program. Furthermore, and more significantly, readmissions are not rejected significantly more often than first admissions and they succeed equally as often.

SUMMARY AND IMPLICATIONS

A sample of 513 referrals to the Metropolitan State Hospital Cooperative Vocational Rehabilitation Program during fiscal year 1967-68 was followed until June 30, 1969. Of every ten patients referred to the Co-op Program during fiscal 1968, approximately nine were closed by June 30, 1969. About half the closures occurred during evaluation services previous to receiving plan services. These potential clients either drop out of the program by rejecting its services or were screened out as not meeting program requirements. Of the remaining five who do receive plan services, about two fail while almost three are rehabilitated to gainful occupations. On June 30, 1968, 24 percent of the closures were rehabilitated, while on June 30, 1969, 27 percent of the closures were rehabilitated.

Certain socio-psychiatric characteristics were studied which, in the past, have been found to relate to case outcome. The following relationships were found.

FINDINGS

1. Age--There is a slight tendency for age to be related to outcome such that the older a client the more likely he will be rehabilitated. However, this is not a statistically significant relationship.

2. Sex--Female referrals are more likely ($p < .01$) to be rehabilitated than male referrals, however, females are more likely to be accepted for services.

3 Race--The Negro referral is just as likely to be accepted as the non-Negro and, once placed in plan, is just as likely to be rehabilitated as the non-Negro.

4. Marital Status--The only statistically significant relationship between marital status and successful closure was that the "never married" group was significantly underrepresented among the rehabilitations ($p < .02$).

5. Education--There appears to be a "dropout phenomenon." That is, though not statistically significant, there was a tendency ($p < .25$) for those clients who completed either high school or college to succeed more frequently than those who "dropped out" of either. Beyond this, in the limited context of this study, education was found not to be significantly related to outcome. The possibility of a "dropout phenomenon" should be studied further.

6. Diagnosis--Though individual diagnoses showed no significant relationship to outcome, when grouped together (psychotic versus non-psychotic), some patterns did emerge. The non-psychotic were more likely ($p < .025$) to be accepted for service and once accepted, more likely ($p < .05$) to be rehabilitated.

7. Hospital Status--Six percent of the total cohort was found to be in residence at the hospital on June 30, 1969. The percent in residence varied among the closure groups from a high of nine percent among those cases rejected for services, to a low of two percent among those cases who had been successfully closed.

8. Admission Status--First admissions and readmissions to the hospital are referred to the Vocational Rehabilitation Program, accepted, and rehabilitated almost equally as often. Thus, more than one admission to the hospital, prior to referral, does not adversely affect either the patient's likelihood of being accepted as a client or of being successfully rehabilitated.

The above relationships, if supported through further study, could serve as the basis for the construction of a profile of the successful patient/client. This profile could be instrumental in screening referrals. At present, marital status and diagnosis appear to be significant variables affecting outcome. On the other hand, recidivism, which was previously thought to decrease the likelihood of success, no longer seems to be a valid reason to reject a patient for service. Thus, the more complete description of these patient/clients provided through a shared data system can assist the program to achieve stated goals.

California State Department of Rehabilitation
Cooperative Programs for the Mentally Disabled

Table 1. 1967-68 Referral Cohort Study
at Metropolitan State Hospital
AGE BY CLIENT STATUS AS OF JUNE 30, 1969

Age	Total Fiscal Year 1967-1968 New Referrals		Open as of June 30, 1969		Closed During Fiscal Years 1967-68 and 1968-69							
					Received Only Diagnostic and Evaluation Services				Received Plan Services			
					From Referral		Prior to Plan Services		Unsuccessful		Successful	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	513	100.0	41	100.0	240	100.0	11	100.0	95	100.0	126	100.0
Less than 21	36	7.0	4	9.8	19	7.9	1	9.1	7	7.4	5	4.0
21 - 24	72	14.0	4	9.8	33	13.8	1	9.1	22	23.1	12	9.5
25 - 34	174	33.9	17	41.4	81	33.8	7	63.6	24	25.3	45	35.7
35 - 44	125	24.4	11	26.8	55	22.9	0	-	26	27.4	33	26.2
45 - 54	78	15.2	4	9.8	38	15.8	2	18.2	10	10.5	24	19.0
55 - 64	28	5.5	1	2.4	14	5.8	0	-	6	6.3	7	5.6

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California State Department of Rehabilitation
Cooperative Programs for the Mentally Disabled

Table 2. 1967-68 Referral Cohort Study
at Metropolitan State Hospital
SEX BY CLIENT STATUS AS OF JUNE 30, 1969

Sex	Total Fiscal Year 1967-1968 New Referrals		Open as of June 30, 1969		Closed During Fiscal Years 1967-68 and 1968-69							
					Received Only Diagnostic and Evaluation Services				Received Plan Services			
					From Referral		Prior to Plan Services		Unsuccessful		Successful	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	513	100.0	41	100.0	240	100.0	11	100.0	95	100.0	126	100.0
Male	269	52.4	20	48.8	143	59.6	8	72.7	46	48.4	52	41.3
Female	244	47.6	21	51.2	97	40.4	3	27.3	49	51.6	74	58.7

California State Department of Rehabilitation
Cooperative Programs for the Mentally Disabled

Table 3. 1967-68 Referral Cohort Study
at Metropolitan State Hospital
RACE BY CLIENT STATUS AS OF JUNE 30, 1969

Race	Total Fiscal Year 1967-1968 New Referrals		Open as of June 30, 1969		Closed During Fiscal Years 1967-68 and 1968-69							
					Received Only Diagnostic and Evaluation Services				Received Plan Services			
					From Referral		Prior to Plan Services		Unsuccessful		Successful	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	513	100.0	41	100.0	240	100.0	11	100.0	95	100.0	126	100.0
White	457	89.1	36	87.8	215	89.6	10	90.9	86	90.5	110	87.3
Negro	52	10.1	5	12.2	24	10.0	0	-	9	9.5	14	11.1
Oriental	4	.8	0	-	1	.4	1	9.1	0	-	2	1.6

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Cooperative Programs for the Mentally Disabled

Table 4. 1967-68 Referral Cohort Study
at Metropolitan State Hospital
MARITAL STATUS BY CLIENT STATUS AS OF JUNE 30, 1969

Marital Status	Total Fiscal Year 1967-1968 New Referrals		Open as of June 30, 1969		Closed During Fiscal Years 1967-68 and 1968-69							
					Received Only Diagnostic and Evaluation Services				Received Plan Services			
					From Referral		Prior to Plan Services		Unsuccessful		Successful	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	513	100.0	41	100.0	240	100.0	11	100.0	95	100.0	126	100.0
Married	108	21.1	8	19.5	52	21.7	2	18.2	18	18.9	28	22.2
Widowed	13	2.5	1	2.4	4	1.7	0	-	3	3.2	5	4.0
Divorced	112	21.8	8	19.5	48	20.0	2	18.2	24	25.3	30	23.8
Separated	85	16.6	9	22.0	34	14.1	3	27.3	12	12.6	27	21.4
Never Married	193	37.6	15	36.6	101	42.1	4	36.3	38	40.0	35	27.8
Not Reported	2	.4	0	-	1	.4	0	-	0	-	1	.8

California State Department of Rehabilitation
Cooperative Programs for the Mentally Disabled

Table 5. 1967-68 Referral Cohort Study
at Metropolitan State Hospital
HIGHEST GRADE COMPLETED BY CLIENT STATUS AS OF JUNE 30, 1969

Highest Grade Completed	Total Fiscal Year 1967-1968 New Refferals		Open as of June 30, 1969		Closed During Fiscal Years 1967-68 and 1968-69							
					Received Only Diagnostic and Evaluation Services				Received Plan Services			
					From Referral		Prior to Plan Services		Unsuccessful		Successful	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	513	100.0	41	100.0	240	100.0	11	100.0	95	100.0	126	100.0
Less than 7 years	15	2.9	0	-	11	4.6	0	-	2	2.1	2	1.6
Jr. High (Grades 7-9)	74	14.4	6	14.7	30	12.5	1	9.1	12	12.6	25	19.8
Partial High School	132	25.7	10	24.4	72	30.0	2	18.2	23	24.2	25	19.8
High School Graduate	162	31.6	18	43.9	73	30.4	1	9.1	28	29.5	42	33.3
Partial College Training	88	17.2	5	12.2	39	16.3	6	54.5	18	18.9	20	15.9
College Graduate	20	3.9	1	2.4	7	2.9	0	-	5	5.3	7	5.6
Graduate or Prof. Training	4	.8	1	2.4	1	.4	0	-	2	2.1	0	-
Not Reported	18	3.5	0	-	7	2.9	1	9.1	5	5.3	5	4.0

California State Department of Rehabilitation
Cooperative Programs for the Mentally Disabled

Table 6a. 1967-68 Referral Cohort Study
at Metropolitan State Hospital
PSYCHIATRIC DIAGNOSIS BY CLIENT STATUS AS OF JUNE 30, 1969

Psychiatric Diagnosis	Total Fiscal Year 1967-1968 New Referrals		Open as of June 30, 1969		Closed During Fiscal Years 1967-68 and 1968-69							
					Received Only Diagnostic and Evaluation Services				Received Plan Services			
					From Referral		Prior to Plan Services		Unsuccessful		Successful	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	513	100.0	41	100.0	240	100.0	11	100.0	95	100.0	126	100.0
Manic Depressive	4	.8	0	-	2	.8	0	-	2	2.1	0	-
Schizophrenic Reactions	302	58.9	27	65.9	151	62.9	6	54.5	48	50.5	70	55.6
Other Psychoses	13	2.5	0	-	5	2.1	0	-	1	1.1	7	5.6
Diseases of the Senium	2	.4	0	-	2	.8	0	-	0	-	0	-
Other Brain Syndromes	22	4.3	3	7.3	12	5.0	1	9.1	3	3.1	3	2.4
Alcoholism and Alco. Intex.	17	3.3	0	-	8	3.3	0	-	7	7.4	2	1.6
Psychoneurotic Reactions	50	9.7	5	12.2	19	8.0	1	9.1	10	10.5	15	11.9
Personality Disorders	98	19.1	6	14.6	38	15.8	3	27.3	23	24.2	28	22.2
Miscellaneous Diagnoses	5	1.0	0	-	3	1.3	0	-	1	1.1	1	.7

California State Department of Rehabilitation
Cooperative Programs for the Mentally Disabled

Table 6b. 1967-68 Referral Cohort Study
at Metropolitan State Hospital
PSYCHIATRIC DIAGNOSIS BY CLIENT STATUS AS OF JUNE 30, 1969

Psychiatric Diagnosis	Total Fiscal Year 1967-68 New Referrals		Open as of June 30, 1969		Closed During Fiscal Years 1967-68 and 1968-69							
					Received Only Diagnostic and Evaluation Services				Received Plan Services			
					From Referral		Prior to Plan Services		Unsuccessful		Successful	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	513	100.0	41	100.0	240	100.0	11	100.0	95	100.0	126	100.0
Psychotic	360	70.2	30	73.2	180	75.0	7	63.6	61	64.2	82	65.1
Non-Psychotic	153	29.8	11	26.8	60	25.0	4	36.4	34	35.8	44	34.9

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California State Department of Rehabilitation
Cooperative Programs for the Mentally Disabled

Table 7. 1967-68 Referral Cohort Study
at Metropolitan State Hospital
HOSPITAL STATUS BY CLIENT STATUS AS OF JUNE 30, 1969

Hospital Status	Total Fiscal Year 1967-1968 New Referrals		Open as of June 30, 1969		Closed During Fiscal Years 1967-68 and 1968-69							
					Received Only Diagnostic and Evaluation Services				Received Plan Services			
					From Referral		Prior to Plan Services		Unsuccessful		Successful	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	513	100.0	64	100.0	231	100.0	11	100.0	86	100.0	121	100.0
Resident	32	6.3	4	6.3	20	8.7	1	9.1	4	4.7	3	2.5
Day Treatment	5	1.0	2	3.1	1	.4	0	-	0	-	2	1.7
Visit	1	.2	0	-	1	.4	0	-	0	-	0	-
Home Leave	74	14.4	8	12.5	32	13.9	4	36.4	14	16.3	16	13.2
Family Care	13	2.5	2	3.1	6	2.6	1	9.1	2	2.3	2	1.7
Work Leave	5	1.0	0	-	4	1.7	0	-	0	-	1	.8
AWOL	6	1.2	0	-	4	1.7	0	-	1	1.2	1	.8
Transfer-Out	44	8.6	8	12.5	20	8.7	0	-	5	5.8	11	9.1
Discharge	326*	63.4	40	62.5	140	60.6	5	45.4	56	65.1	85	70.2
Death	7	1.4	0	-	3	1.3	0	-	4	4.6	0	-

*Since we were only able to follow-up 513, we dropped one from this table.

California State Department of Rehabilitation
Cooperative Programs for the Mentally Disabled

Table 8. 1967-68 Referral Cohort Study
at Metropolitan State Hospital
ADMISSION STATUS BY CLIENT STATUS AS OF JUNE 30, 1969

Admission Status	Total Fiscal Year 1967-1968 New Referrals		Open as of June 30, 1969		Closed During Fiscal Years 1967-68 and 1968-69							
					Received Only Diagnostic and Evaluation Services				Received Plan Services			
					From Referral		Prior to Plan Services		Unsuccessful		Successful	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	513	100.0	41	100.0	240	100.0	11	100.0	95	100.0	126	100.0
First Admission	244	47.6	19	46.3	115	47.9	4	36.4	44	46.3	62	49.2
Re-Admission	269	52.4	22	53.7	125	52.1	7	63.6	51	53.7	64	50.8

VT 012 155
Technical Education and Industrial Training.

Papua and New Guinea Univ., Port Moresby.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 265p.Proceedings of the Lae Seminar (Oct 9-11, 1969).

DESCRIPTORS - *MANPOWER NEEDS; *DEVELOPING NATIONS; *ECONOMIC DEVELOPMENT; *EDUCATIONAL COORDINATION; *MANPOWER DEVELOPMENT; EDUCATIONAL DEVELOPMENT; EDUCATIONAL PLANNING; INTERAGENCY COOPERATION
IDENTIFIERS - PAPUA; NEW GUINEA

ABSTRACT - As a consequence of an attempt to build rapidly the skilled labor supply needed for development, both fragmentation and duplication of effort have occurred among the many small vocational training programs in Papua and New Guinea. This seminar was held to coordinate the various training activities in a cooperative program of manpower development. The seminar recommended the establishment of a human resources development authority to coordinate programs and provide national manpower information and standards. (Not recommended for hard copy reproduction due to marginal legibility of original document). (BH)

VT 012 155

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9-11 October, 1969

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Proceedings of the Lae Seminar,
9-11 October, 1969

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First Published 1970
by Technical Education Consultative Committee
Printed by the University of Papua and New Guinea

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FOREWORD

Shortage of skilled indigenous manpower is common to all developing countries. Papua and New Guinea is no exception. While this situation calls for maximum use of scarce resources there occurs frequently, and paradoxically, a mushrooming growth of relatively small and inefficient training institutions aiming to satisfy only the immediate needs of a particular employing authority. The unfortunate consequences are duplication of effort and under-utilization of expensive manpower, buildings and equipment.

The Technical Education Consultative Committee felt that in the field of vocational training there was sufficient evidence to suggest that fragmentation and duplication already were serious problems in this Territory. Those responsible for the planning and organisation of vocational training programmes should be made aware of what in fact was happening, of the actual existence of a broad range of training facilities and of plans for further expansion. It seemed evident that there was an urgent need for encouraging much closer co-ordination and co-operation in vocational training, and for attempting to change the rather narrow approaches of the past in favour of a national, all-embracing approach for the future. A Seminar on Technical Education and Industrial Training, involving wide representation of both the public and private sectors of the economy, was believed to be an effective means of focussing attention on existing problems and providing guidance for future action.

It is hoped that as a result of this Seminar there will be a much better understanding of all the efforts presently being made in the vocational training area, and increased recognition of the need to bring about greater co-ordination between existing training institutions and in-service training programmes. This would enhance the likelihood of more efficient and effective development in the future.

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A number of people and organisations have rendered valuable assistance in the organisation of the Seminar. Without their help, the Seminar would not have taken place. It does not detract from the appreciation for all others if special mentions is made here of the indebtedness by the organisers to the Vice-Chancellor of the University of Papua and New Guinea, the Director of the Papua and New Guinea Institute of Technology, and Dr. O.G. Pickard who so bravely and successfully undertook to act as Chairman of the Seminar.

The Seminar was the first major undertaking of the Technical Education Consultative Committee. The Committee evolved out of informal meetings between some people vitally concerned with vocational training in the Territory. It comprises representatives from the Institute of Technology, the University, the Department of Education, and the Manpower Planning Unit located in the Department of Labour. Representatives from private enterprise or from some training institution are regularly invited to its monthly meetings. The broad objectives of the Committee are to foster a greater degree of co-ordination and co-operation in the vocational training field, especially between training institutions, and to encourage investigations into the problems associated with the development of effective vocational training programmes in the Territory.

Members of the Technical Education Consultative Committee in 1969 were:

C. BELTZ
P. BOTSMAN
I. HOSSACK
D. JOYNT
M. KELLOCK
P. RYALL
G. SMITH
W. WESTON

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OFFICIAL OPENING

by

HIS HONOUR THE ADMINISTRATOR

OF

PAPUA AND NEW GUINEA

D.O. HAY, C.B.E., D.S.O.

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Technical education - and the solution of technical education problems - are important for the development of the Territory. I am pleased to see here a representative group gathered together for this discussion so that experience from many sections of the community can be utilised. It is an opportune time in the Territory's development for a review to take place of technical education and training. There have been some very good things done in this Territory already, many of them arising from previous reports and recommendations. One could mention certain recommendations of the Currie Commission on Higher Education* concerning the upgrading of technical schools, the introduction of technician level courses in industry and commerce, the development of diploma level courses in Forestry and Agriculture and the establishment of professional level courses in Engineering, Surveying and Commerce at what I am pleased to say is now called the Institute of Technology.

A good deal has been done and a foundation has been laid for future development. The Administration has given its support and blessing to what has been done in the past and has shown its concern for what has to be done in the future. One sign of this has been the appointment of an Assistant Ministerial Member for Technical Education.

I take this opportunity of saying that I believe these political appointments are proving of value both to the holders of the appointments and to the Territory itself. They provide an opportunity for an influx of new and different ideas into the Administration system. Another sign of Administration concern is the establishment of a Manpower Planning Unit in the Department of Labour. We have to determine our needs as the development programme advances and set up adequate schemes of training to meet these needs.

* Report of the Commission on Higher Education in Papua and New Guinea. Canberra, 1964.

Again, the Administration and the Commonwealth Government together have supported the joint proposal, initiated by the Departments of Education and Labour, to the United Nations Development Programme for assistance in the establishment of a vocational and industrial training programme. I am hopeful that this request will meet with a sympathetic and positive response. There is no need for me to emphasise to you the demands for skilled manpower that will come from the economic expansion that is already being generated by the Development Programme. These demands will seriously tax our existing training resources. Certain categories of manpower, particularly at highly skilled and professional levels, will not be able to come from our institutions at their present levels of capacity. This means, of course, that we will have to continue recruitment of skilled and highly-trained expatriate personnel. It emphasises the urgency with which we must review our training facilities and the types of courses offered in them, to make sure that those training facilities are used to the maximum effect.

It is important, too, that we use our different training institutions in a co-ordinated way. This is one of the areas of concern in which the views of this Seminar can be of particular value. We should be looking for ways in which our existing forms of training and facilities can better serve the students and the needs of the Territory. In particular, we should look for ways and means of avoiding any unnecessary duplication of effort and facilities, and of ensuring the greatest possible degree of consultation and co-operation between our training institutions. Perhaps the Seminar should also consider the problems that arise when courses are terminal and do not qualify students to proceed to higher level training.

The Administration has been worried by what has appeared to be a lack of interest or a lack of commitment to training by important sections of the private sector. This has been most evident in the declining percentage of apprentices indentured by the private employers in relation to those indentured by the Administration and statutory bodies. Our concern at this lack of training in the private sector has led to the passing by the House of Assembly, introduced by Mr. Toua Kapena who is with us this morning, of the Indigenous Training Incentive Scheme. The aim of this scheme is to relieve the employer of those expenses associated with training in the Territory which are not normally encountered by

employers in Australia. Such expenses include the provision of accommodation, the issuing of tools, the transport of trainees and some costs associated with allowances. The introduction of such a scheme should emphasise how important the Administration regards the training of indigenes at all levels. As a result of the incentive scheme I hope there will be increased interest in training by the private sector. In relation to the numbers of apprentices being indentured there has already been a positive response from the private sector.

It is significant that in the Report of the Tripartite Labour Mission which visited the Territory last year, it was stated, "Education was probably the most frequently raised topic in the Mission's discussions with the various groups and individuals it met." Although educational issues were not strictly within the Mission's terms of reference it was felt by members of the Mission that as education was the deciding factor in determining whether manpower needs would be met, comment on education and training schemes should form part of their report. I would like to mention here briefly two aspects of the report which concern education and training. Firstly, members of the Mission gained the impression that "Perhaps in content and form of education the bias has been that of European style scholastic education as found in Australia and elsewhere." I feel that it is in order for me to sound a warning to a representative group such as this that, particularly in regard to technical education and vocational training, we need to be quite sure that our courses and our methods and the way we utilise our resources and facilities are appropriate to the circumstances and needs of the Territory. It is very easy to transplant what one has been accustomed to doing into a new context without adequate consideration of its appropriateness.

The second aspect of the Tripartite Mission Report that I would like to mention is the training of supervisors and managers. The members of the Mission noted that not very much progress had been made in this area of training. This is one aspect of technical training that could well form an important part of the discussions at your Seminar. It is important that more Papuans and New Guineans be prepared for positions at higher levels of supervision and management and also, and possibly more important, in the skills required in running one's own business.

Gentlemen, I hope that this Seminar will raise important questions in relation to technical education and industrial training in the Territory. I am sure there will be no reluctance on the part of those of you who are participating to question in a penetrating way the appropriateness of our current practices, and that you will not be reluctant to offer recommendations as to how we may improve our training methods in the future. I look forward to hearing and reading the results of the Seminar. You are starting off in a good atmosphere with highly qualified persons to lead the discussions. I am confident that out of this Seminar will come great benefits to this Territory and its development. I am very pleased to declare the Seminar formally open.

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OPENING ADDRESS

THE FOUNDATIONS OF TECHNICAL EDUCATION

IN

PAPUA AND NEW GUINEA

by

K.R. McKINNON

Director of Education

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One aspect of education which always comes in for comment in a developing country is technical education. If there is a cliché it is the catch-cry "We need more technical education." Alternately phrased the cliché is "There is too much academic education - they should teach students to use their hands." One can almost guarantee, in every developing country that has ever had an education commission, that there has somewhere been included in the report mention of the inadequacies of technical education. I am somewhat heartened by the fact that if this is the only criteria then both Britain and Australia have inadequate technical education, because included in their reports is exactly the same kind of phrasing. Rarely, if ever, is there an accusation that a country has put too many of its resources into technical education. Small wonder, then, that it is fashionable to say the same things about Papua and New Guinea and for us during this Seminar to be examining technical education in some detail.

Now, as I see it, the main function of an opening speaker is to suggest a pattern for the Seminar. One way to do this would be to recite the story of our past achievements, announce that we have reached a turning point and invite the Seminar to contribute thoughts to the direction that turn should take. Another possibility is to take for granted the cliché phrase and ask how we might achieve more in technical education. A third possibility is for us all to be hypercritical and accuse each other of shortcomings in the hope that mutual recriminations will somehow lead to improvements. That course would no doubt have the same outcome as most marriage arguments. Still another course is simply to blame the Government for everything. That is often done and it will relieve some people's feelings but it is not very helpful.

Casting about for an appropriate way to fulfill the function that you have entrusted to me, I came to the conclusion that the best course would be to examine some prevalent assumptions about technical education in Papua and New Guinea and to make you too uncomfortable to take these at face value. Speakers during the Seminar will focus in detail on the levels of technical education and on aspects of either the theoretical or practical parts of particular courses. I shall only make such references in passing, for my main purpose is to put you in a questioning frame of mind. Hopefully, as you listen to the papers you will be looking for the

things the speakers have taken for granted. I hope you will critically analyse their assumptions and be a little uneasy if they make it sound too simple.

Common assumptions about technical education current in Papua and New Guinea are of four kinds as I see it: those that stress the importance of technical education, assumptions about the way the educational components should be carried on, assumptions about the pattern of training, and quantity assumptions. I propose to take each of these in turn and try to look at its validity.

The most widely held assumption is that technical education is important for the welfare of the country and is, in fact, the foundation for its forward progress. Now, I wonder, if this assumption were true would we have allowed the fragmentation of tertiary education in the way that now exists in Papua and New Guinea? Would we have allowed our politicians to separate the Institute of Technology from the University? We have a University - we have other tertiary institutions. The University can give degrees - the other institutions cannot. The University has traditional status - they must struggle for theirs.

The Institute of Technology has been separated geographically from the University, and it must be admitted that it is presently at a marked disadvantage in terms of the kind of status and recognition that it can secure for its graduates. It is unlikely that a government would finance a Faculty of Engineering at the University at the same time as it is financing high level engineering training at the Institute. In terms of the time taken to acquire qualifications many will have the same preparation as those from the University. Perhaps in terms of salary they may, at least for a time, obtain commensurate rewards. Nevertheless, it would be difficult to dispel an already widely held conception that a diploma does not equate with a degree, and that therefore institutions not awarding degrees have inferior status. The implications for recruitment and retention of good people in technological fields are obvious enough. The assumption that technology is important can only be sustained if the logical follow-up to separation of these institutions is taken, either to award graduate qualifications to those trained in them or to bring them into association with the University so that university qualifications may be awarded.

A related assumption of importance is that there are clearly defined levels of technical training. It is, for example, assumed that there are at least four levels - tradesmen, technicians, technologists and professionals. Indeed, we have set up courses in institutions based on the assumption of these differences. In advanced countries the levels may be easily distinguished but demarcation is not as easy in less well-developed countries. Can anyone here, for example, clearly distinguish between a technician and a tradesman, or between a technologist and a technician in the New Guinea context? Are the wage scales and conditions such as to clearly distinguish between members of each pair? Is one somehow more practical than the other or have we merely taken over an assumption from another country?

The second group of assumptions are educational in origin. Let me deal firstly with the assumption that in technical fields we are training and not educating. One constantly hears technical "training" rather than technical "education." Frequently it is believed that there is merely a set of hand skills to be acquired, involving only the hand and eye and not the brain. Even at the highest level, at the Institute of Technology, there has been at least one student who enrolled while under the impression that he was there to learn to be a super-mechanic. I think this is a very false assumption. In fact technologists and professional engineers rarely have physical skills comparable to those of a craftsman. To train a process worker for an assembly line, an employer endeavours to distinguish the minute steps in the production process and then by repetitious practice train the novice so that he is completely automatic in his assembly. The learning is task-specific and good for only that machine. New or different machines entail new learning.

In educational institutions we attempt to do much more than this. We want the learner competent in many machines and able to cope with design changes. We seek to maximise the transfer of training, the transfer of skills from one task to a new and different task. As a distinguished psychologist, Bruner, points out, initially the task concerns learning not a skill but a general idea which can then be used as a basis for recognising subsequent problems as special cases of the idea originally mastered. This type of transfer is at the heart of the educational process - the continuing broadening and deepening of knowledge in terms

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of basic and general ideas. We seek to do this in constructing courses in technical institutions and it is not appropriate to equate technical education with the training given to a process worker or to drill training for army recruits.

In this country, if you add to the difficulties of learning in a foreign language the absence of prior experience in the community, technical curriculum development becomes one requiring the highest technical competence. There is nothing simple or uncomplicated about technical education. Employers would be disappointed with those trained on the process worker principle. Equally, unless they understand the need for some training in the peculiarities of their machines or their business, following technical education, they will be expecting too much. Full understanding of the whole process that constitutes technical education will produce effective workers.

Another assumption which needs examination is one that might be called the great Australian fallacy, that a high failure rate is indicative of high standards. The engineering course at the Institute of Technology, for example, has rather worrying failure rates. High failure rates constitute expensive wastage of relatively well-educated young people who are in particularly short supply. It follows that either of two propositions are true, and you can choose. Either the right people were admitted but given the wrong kind of teaching and examinations, or the wrong people were admitted. If the former, we are trying to turn out professionals from an institution designed to train technicians. If the latter, insufficiently qualified students take up valuable places without obvious profit for the country or themselves. In that case, slower expansion of the institution through more selective entry might be the answer.

Turning from general educational considerations to more specific issues relating to the lower and intermediate levels of technical training it would be true, I think, to say that we have in New Guinea a general assumption that Australian patterns of trade training are good. We use pretty much the same trade designations. We split the tasks to be done into the same kind of trades in the same way and it is difficult to distinguish differences. For a developing country the divisions of labour relevant to a developed country may not be as appropriate. There are numerous small settlements in this country where the services of one

all-round competent handyman would be of more use than a highly skilled man in one restricted trade. And in that context the most useful man that I have seen in recent years was a prisoner skilled at a relatively low level in a whole range of building tasks, so that he was able to meet the urgent needs of a settlement of several hundred people.

There is also more general evidence that trade designations are becoming inappropriate even in Australia due to the appearance of new materials, processes and techniques which cannot be easily categorised in the traditional categories. Indeed, there was a recent example where I saw tradesmen arguing who should replace a roof. One group of tradesmen could take it off because it was fibro but they could not put new iron on because that task belonged to plumbers. Nor could they decide who should carry down the waste material from the roof because they thought that was somebody else's task again.

Perhaps the most widespread assumption is that the apprenticeship scheme is good for Papua and New Guinea. Most of us are aware that the apprenticeship system dates from the time of medieval guilds and this suggests that such a well tested formula must obviously be useful. The reverse of that argument is brought to the fore when we realise that the most technologically developed country in the world, the United States of America, has managed to do without the apprenticeship system as we know it. The supporting rationale for apprentices involves the mystique of a young learner at the feet of an old master craftsman, absorbing not only the skills but also the attitudes and a pride in work by some kind of osmosis. Unfortunately, all too often the reality requires the apprentice to fetch the billy of tea continuously for a year or mindlessly file away at useless pieces of metal for up to six months. Those who survive this type of introduction are thought to be tempered and fit to be trained.

Another possible reason for the continuation of apprenticeship training is that it may be a convenient labour supply. Employers in Papua and New Guinea vigorously deny this possibility. How true this is we have yet to see. A third reason in at least some countries - I hope it will not get to be the case here - is to restrict the number of people entering a particular trade to keep the scarcity

value and hence improve the incomes of the various members of the trade. The one-to-one tradesman to apprentice system certainly restricts the number of people entering a trade. Since not every employer automatically engages apprentices, in the end the ranks of tradesmen would diminish under the one-to-one system. It is also questionable whether one tradesman working against modern time and cost pressures can successfully train an unskilled person. Much of the on-the-job experience of apprentices is repetitious and unlikely to result in enhanced skills.

The general query arising from these considerations is whether an ancient system evolved for different conditions continues to be relevant. Another sacred cow, the relationship between institutional and on-the-job training, is rarely questioned. We might ask if it is possible for someone to learn everything without going to an organised trades school. Alternately, is it possible for a person to acquire all the necessary skills from a trades school without work experience? Employers in Papua and New Guinea, as far as I am told anyhow, deny that either is adequate without the other. They insist that there must be a combination of institutional and practical training. Behind this assumption seems to be the thought that there are some things that can only be learned by systematic instruction, in full time courses, and that there are some things that can only be learned in the random experiences of day-to-day work. But how much do we really know about this? We have had at least three systems of training apprentices in the Territory, sometimes operating simultaneously - day release, block release and continuous training. Some are used for convenience, true, but there are strong partisans of each pattern of training. It would certainly be useful to have more reliable evidence of their relative effectiveness.

Many people assume that the levels of technical training must be interconnected. In this view the system must allow for the tradesman to do extra study and convert his qualifications to those of the technician, a technician to convert to a technologist, and a technologist to a professional. Ideally upward, and I suppose downward mobility too, ensures that no talent is wasted and that each finds his appropriate level. Is it realistic, however, for a tradesman to aspire to become more than a technician - for good nurses or medical aides to aspire to become doctors and gain credit

for their nurse training? Is there not a fundamental difference between a technician and a professional which cannot be made up by bridging courses? Just how much can we do by way of connecting courses without seriously distorting the original basis of the different forms of training?

We now turn to two assumptions about quantity which are naturally of interest to the Government. These are the assumptions that the country needs more technically trained people and the assumption that the apprenticeship system can supply these. In relation to the question of whether the country needs more technically trained people it is helpful to make a distinction between needs and wants. We may, in absolute terms, need people long before we become sufficiently aware of the need to want them enough to set up appropriate arrangements to fill the need. Papua and New Guinea needs economic development - whether enough of the people want it is another matter.

The Co-ordinator of Transport points out that out of every five vehicles bought only three are on the road at the end of the first year. This is a worrying rate of capital attrition and dispersal; in addition to wreckage by accidents many vehicles are lost by inadequate maintenance. There is a clearly established need in the community for more people with mechanical skills. The need is greatly in excess of the number that any or all of the garages in Papua and New Guinea could or would be prepared to train through the apprenticeship system. The need is for mechanics strategically located outside the towns, along the Highlands Highway, in villages and wherever else there are vehicles. The need is for people who can repair vehicles within a subsistence economy which does not demand high hourly rates but allows payment in some other way. The need is evident but the number of people who can be trained within the present system by employment in garages, currently all owned by foreigners, is extremely limited. Moreover, those who can be placed are expected to work within the Western framework. Owners of vehicles are expected to pay in scarce cash rather than merely incur obligations. I do not doubt that we need more people in most of the trades. I very much doubt whether the need is sufficiently strong, however, to force us into formulating suitable training arrangements which would enable us to meet the kind of needs that I have outlined.

We come back again to the apprenticeship system. Although the Apprenticeship Board in Papua and New Guinea has been very flexible and allowed modification of the one-to-one tradesman apprenticeship relationship, the size of the scheme is still very much restricted by the number of master tradesmen, mostly expatriates, who are employed in Papua and New Guinea. The number of apprentices employed depends entirely on what the big companies think is the economic outlook of the Territory. Furthermore, these companies and individuals only employ enough apprentices for their current needs. By definition, a developing country hopes to expand its economy. It will need a vastly increased number of people within five to ten years. Thus, in order to supply its needs five years hence, it should take into training far more apprentices than are currently needed. The apprenticeship system in its present form effectively prevents us from providing the number of people with technical training that the country will need in five years.

Turning to the exploration of institutional versus on-the-job training we could ask whether or not more people could be secured if there were a variety of forms of training. If most trades cover a clearly definable body of skills and techniques performed at specific levels, could not all of these be tested quite adequately by performance tests? Why worry about how people are trained? Let us keep our technical colleges but let us see if we can diversify the forms and patterns of training. Why not merely give those who graduate tests of competence which can be rigorous enough to ensure both that the work is at a level satisfactory to the trade and within acceptable time limits? These are surely the two main criteria that employers and the general public are interested in. Why not set up a licensing system which would allow people to attempt the tests whenever they feel prepared? Then there would be an incentive for novel approaches to training without in any way giving up the goal of a satisfactory level of performance. Good as the apprenticeship system is we must have something more than this to provide for future needs.

Another assumption about numbers is that the cost of training to employers is high, making incentives necessary. To test this we now have an incentive scheme which, as His Honour has pointed out, is beginning to bring results. Perhaps we can speed it up. The carrot is there. Should we

also provide a stick by levying employers who do not train indigenous workers?

Undoubtedly, as Director of Education, it is my duty to be preoccupied with problems of technical education, with problems of meeting the need for sufficient people with technical competence. Acceptance of the burden, however, does not entail the necessity to continue inherently limited or outdated arrangements. In particular, we are not committed to current combinations of institutional and practical training. We have in the last two years made substantial changes in the previous patterns. These will be traversed in more detail in some of the papers delivered at this Seminar. We would not, of course, have made these changes unless we thought that they were the best that we could devise within the present framework in Papua and New Guinea. But there is no suggestion that we think they are the ultimate. There is no suggestion even that improvements cannot be made to the framework itself. If persuasive arguments for improvements are advanced during the Seminar we would be glad to adopt them. Similarly, we hope that there will be exploration of improved ways of teaching and learning.

As far as the Department of Education is concerned changes are possible, but the job is not ours alone. It will be obvious enough from what I have said that community arrangements and attitudes are integral to effective technical education. Perhaps they are even more important than the formal institutional courses. I believe that many community arrangements and attitudes are not satisfactory, not conducive to encouraging an adequate flow of technically qualified people. I hope you will vigorously attack the deficiencies, but more important, I hope you will be creative in formulating solutions. The task is certainly worthy of your labours. We are confident also that the labourers are more than worthy of their hire.

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TRENDS IN TECHNICAL EDUCATION

IN

DEVELOPING COUNTRIES

by

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University of the South Pacific

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Introduction

For the purpose of this paper I am assuming that by technical education we are concerned with "the whole field of vocationally oriented education which leads from general education to employment in the public and private sectors of industry and commerce, and which normally continues, through a variety of in-service courses and training schemes, after entry into such employment". The variety of the topic which we are to discuss in this Seminar during the next three days testifies to the complexity of the branch of education in which we are engaged. It is a branch of education which is increasing very rapidly in nearly all the developing countries.

The General Pattern of Trends from Metropolitan Models to Local Needs

Almost the whole of the educational systems of developing countries has been introduced from outside, and mainly from the more industrial countries of the world. Thus the first stages in vocational education have, like the rest of the educational system, been based on the model of the metropolitan country concerned. My personal experience is almost entirely of educational systems based on British models. What I have to say, therefore, would need considerable modification in countries whose system of education has been based on French, Dutch, Portuguese or American models.

The British Model for Vocational Education

Vocational education, in the developing countries with which I am familiar, began as a diversification of general education on British patterns : "education for livelihood" as part of "education for life". We introduced trade training schools to complement the traditional academic schools; we founded technical colleges to supplement the Oxbridge type universities. At a later stage we introduced some vocational studies into ordinary academic schools following bilateral or comprehensive British models, often against the opposition of parents, teachers and students. Part of the difficulties we met arose from the facts that

(i) we had not ourselves identified clearly the vocational implications of our own education system and (ii) we were exporting attitudes towards education as well as institutions and systems. In Britain we have had the "cult of the amateur" at the heart of our educational system which has given prestige and status to the educated generalist instead of to the vocationally trained specialist. If education was useful, it was not fit for a gentleman!

The Vocational Implications of British General Education

As long ago as the late 1860's some critics of our school system in Britain pointed out that what our schools provided, just at the time when we were about to make school attendance compulsory for all children, was "a clerk's education". But this was brushed aside, partly because, in fact, our society was at the stage when for the next 100 years it required more and more clerks; as many as the schools could produce. But only the highly industrialised societies and advanced "welfare" states, such as Canada, Australia and New Zealand, can employ clerks on this scale. An educational system which works in these countries leads to a grotesque overproduction of clerks in developing countries as many African and Asian states have found. Unfortunately, the British regard for general academic education, combined with the initial need of all developing countries to build up their essential government administrative services, have given "a clerk's education" a false vocational prestige. Hence the resistance of teachers and parents to a wider range of vocational studies in so many developing countries.

Education and Training for Economic and Social Development

The way out of this difficulty has come from (i) the slow "feed back" into the educational system from the labour market as when the boy from the technical stream of a secondary school in Uganda visited his old school driving his own Mercedes car, and (ii) from the inclusion of educational development in general economic and social development plans for the emerging nations of the world. These plans, even though they can often provide only targets or tentative guide lines, do lead to consideration being given

to manpower needs in some detail and thence to training and to education in vocational terms for the needs of developing countries. Thus, in the 1960's, we have been forced furiously to think about education and training in terms of mainly rural communities, which is what most developing countries are, instead of industrialised urban societies, which is what most of the metropolitan countries who have supplied the educational models, are.

The Development of Resources of Manpower - Some Financial Implications

Later in this Seminar other speakers will be talking to us on this subject in relation to Papua and New Guinea. I will, therefore, confine my remarks to a few generalisations. To begin with, this approach to education and training enables us to look at it in a different way, namely as an investment instead of as a social service. This has a number of implications. One concerns the way in which governments analyse their expenditures. Another is that if expenditure on vocational education is to be justified as an investment it must be assessed in the same way as all proposals for investment are judged : namely, will it pay? In more technical terms this type of education is subject to an appraisal of its costs measured against a valuation of its benefits. Capital and recurrent costs can generally be estimated with a fair degree of accuracy; the problem is to convert the benefits into cash terms to set against the bills we wish the Minister of Finance and such international agencies as the World Bank, U.N.D.P., etc. to pay. The attempt has to be made. In this process the time factor is important, not because we should introduce a spurious accuracy into the calculations by using such advanced techniques as estimates of discounted cash flows, but because international aid agencies are often willing to provide finance for the capital investment involved, while expecting the country concerned to provide the finance for the recurrent costs from the start of the operation. We all know that it may be several years before technically trained people begin to generate a flow of wealth which is the justification for their training. What I am saying is that the initial building up of a nation's stock of skilled manpower is of the nature of a capital investment: the later replacement of that manpower is when recurrent costs really begin.

Development of Manpower: Some Problems

Another general problem is that of the degree of accuracy with which forecasts of manpower needs can be made and in what detail does any country know just how many welders it will need in four years' time? What is the ratio of technologists to technicians to draftsmen to operatives in say, a particular country's engineering industry? A lot of intelligent guessing is needed for these manpower forecasts. The more stable industrial developed countries may be able to make these estimates industry by industry. The developing countries rarely can. It is usually easier, however, to say what should be the standards of the courses of education and training. Here there has been a welcome move to design courses and set standards that are relevant to the needs of developing countries instead of being copies of the courses and standards of the metropolitan countries involved. One dilemma which faces us here is whether the trainees will be satisfied with a qualification which has only local currency. Recently, however, I have increasingly found greater willingness to be satisfied with local qualifications, especially as they become built into wage schemes. These include schemes of practical trade testing not tied to apprenticeship schemes.

Manpower Needs for Rural Development

Rural development is perhaps the most complex form of development in many of the emerging countries. It involves not only education and training designed to bring about technical changes in agriculture itself, but also for the development of related input and output industries and services. These changes are not entirely economic; they are partly social, because one of the objectives is to make rural society more attractive, so that life in the country does not always suffer in any comparison with life in the cities and modern industrial enclaves. The education which goes along with this likewise includes not only the need for vocational skills, but needs to be slanted towards creating a lifelong interest in the life and affairs of rural societies. This is in marked contrast with so much education in developing countries in the past which has unfitted boys and girls for life in the country. More and more it is now recognised that a developing country needs to have a balanced system

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of vocational education and training, and not just one which caters for a few industrial enclaves.

Vocational Education for Agricultural Development

Furthermore, it is often most noticeable in education associated with rural development that vocational education can be very much involved in social problems. Let me give just one example taken from Fiji. Fifteen miles from Suva is the excellent agricultural secondary school of Navuso run by Muriel Bamford and her husband. The distinctive feature of this school is its end-on farm training scheme, which enables the boys to have a small farm (3 acres) for three years, out of which they earn their keep and save anything between 400 and 900 dollars, which they can draw on thereafter for one purpose only - to set up in life as farmers themselves. All this is first class, but this is farming appropriate to a society of yeomen farmers or at least sturdy peasants. How appropriate is it in Fijian society with its mataqali system of land usage and the traditional obligations of kerikeri and communal labour, communal feasts etc? Can there be rural development under these conditions? The answer to that question must involve agricultural education and training in Fiji.

Vocational Education and Social Problems

Land tenure is not the only social problem which vocational education runs into. One of the largely undiscussed aspects of vocational education is that it is producing vocational leaders in all kinds of productive processes - for example, farmers, workshop foremen, and transport superintendents. Because these forms and levels of leadership affect people's daily lives and obviously so, it is all too clear that education and training are often a direct challenge to traditional forms of leadership. Education, and especially vocational education, so often replaces local aristocracy by a meritocracy. This has been a lengthy process in the metropolitan countries, and the social adjustments have been made over generations. Developing countries are, almost by definition, countries in a hurry. The speeded-up process of social changes in leadership systems can be painful and is nearly always bewildering.

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Vocational Education and Social Values

Other aspects of traditional societies are threatened by economic development and the associated vocational education. This, often by implication, challenges the traditional values and objectives of society. Many societies in the developing world place much more emphasis on communal living than does the individualistic society of Western Europe and its cultural off-shoots, with its implied emphasis on self-reliance, individual initiative, and personal responsibility. This particularly affects such branches of vocational education and training as business studies. There is much social and economic development which is hindered by the traditional value systems and social objectives of societies. Vocational education may be quite ineffective unless it changes people's attitudes, and education for this purpose is still little understood. What is more, is it always right to make the attempt? Western Samoa is proud of the fact that in its society there is no need for orphanages or for old people's homes.

Vocational Education and Racial Problems

There is one particularly complex social problem with which vocational education can be much involved. Multi-racial societies often present very difficult problems of varying rates and forms of economic development. Malaysia is one such society, Fiji is another. To what extent can vocational education and training be used to remove gross communal inequalities? In Malaysia, since 1960, a considerable effort has been put into the vocational education and training of the Malay Malaysian so as to make them more nearly equal to the Chinese Malaysians in industrial and commercial skills. This is having some effect, and Fiji is looking at the Malaysian experience with some interest, wondering whether it has lessons which might assist in reducing the divergencies between Fijians and Indians in Fiji. But linking vocational education and training with racial problems, poses awkward questions. When does discrimination in favour of one race or community become discrimination against another?

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Complementary Studies in Vocational Education

I have said enough to show that vocational education and training are not limited to vocational skills and techniques. Hence the interest even in the metropolitan countries in liberal studies, contrasting studies and complementary studies as part of vocational courses. Even more so in the developing countries are studies required which will put the vocational courses into a social context. Here I would like just to say a word or two about the imaginative work of Patrick van Rensburg in Botswana. A course in the civics of a developing society is an essential part not only of normal academic secondary education at his school but of his "builders' brigades", "farmers' brigades", "mechanics' brigades", etc. From the Olympic heights of Swaneng Hill he sees to it that all his boys and girls have some preparation for facing the social challenges of a developing society. So far he has neither sparked off a revolution nor landed himself in jail!

Organisational Problems (1)

One organisational problem which a number of developing countries are facing is that of setting the right relationship between vocational education and the associated industrial training. In England we have come to regard vocational education and industrial training as complementary aspects of a single process. Thus we have developed a wide variety of sandwich courses, block release and day release courses in which an educational institution takes responsibility for its part of the teaching and the students' employer undertakes the industrial training. Both these parts of the course are fully effective only when there is close co-ordination between them, and this we are beginning to achieve. In most developing countries progress along the same lines is beginning, sometimes with encouraging speed, elsewhere more slowly.

Organisational Problems (2)

There are other organisational problems which are receiving attention at the present time. In the course of trying to meet varying specific needs for this or that

kind of technical specialist in developing countries there has been much improvisation. Small institutes for this or the other form of training, too small to be effective and nearly always inefficient, have been set up. There is now greater awareness that there needs to be much more overall planning and control of vocational education and training, if the result is to be in harmony with national plans for economic and social development. Certainly countries with populations of a few hundred thousand cannot afford the luxury of a great variety of small specialised institutions in place of one decent organisation. From this thinking stems a development such as The University of the South Pacific with its non-traditional links with other institutions like the Derrick Technical Institute.

Organising for Local Initiative and Responsibility

Another organisational problem concerns the control over the day to day working of institutions of vocational education and training. Developing countries have often only recently emerged from colonial rule and colonies were usually pretty paternalistic societies. This tradition has been obvious in the way in which many institutions were closely controlled from some central office of government. Yet, if the institutions are to be responsive to local needs as they arise, they require to have more freedom to act on their own responsibility, within the approved policy and financial budget. There is an encouraging trend in this direction, with governing bodies being set up representing government, the private sector of the economy and the staff of the institution. The aim must be to have sufficient delegation of responsibility and authority to encourage local initiative, and to achieve this within a general framework of co-ordination and co-operation. This becomes more and more possible as the administrative talent and experience of a country increases and as confidence grows.

Problems of Resources

International aid is considerably assisting in the development of vocational education and training, but many countries are chronically short of money to keep the work going. Furthermore, vocational education and training is

usually more costly than academic education using "chalk and talk" methods of teaching. One of the trends which has struck me as encouraging has been the ingenuity which has been put into self-help schemes which must have given those concerned a great deal of confidence in the value of the training which they are providing. To give an example I would like to refer again to Patrick van Rensburg's work in Botswana. His "brigades" undertake work on contract which provide the on-the-job training they need. The experience which this provides in estimating and costing jobs is invaluable. The revenue also provides each member with some modest savings, and when they have finished their three years of training-cum-education in the "brigade", Patrick has encouraged them to form co-operative societies which carry on competing for contracts on a thoroughly efficient commercial basis. Out in Western Samoa the Small Trades' Training Institute is also undertaking work in both building, electrical trades and in engineering to provide training experience, materials and a contribution in cash towards overheads. This is not completely new, because the London Missionary Society's famous training institute, Tiger Kloof, in the Northern Cape was training on production in the early days of this century and, of course, Dr. Herbert Schofield built up Loughborough in England on the same principle. Nevertheless, this spirit of enterprise associated with vocational education and training seems to be spreading and since arriving in Papua and New Guinea I have been most impressed by the enterprise and initiative in this direction being shown by some of your institutions. There is, of course, a need to keep all this kind of activity under review and to evaluate the experience gained in these unorthodox ways.

Communications

I have said enough to show that vocational education and training throughout the developing world is advancing in spite of the social complexities with which it is involved, in spite of shortages of resources and lack of information about manpower needs. Much experience is being gained and one of my concerns is to seek ways and means of getting information about what is being done passed on more quickly. Personally, I have been very fortunate: short term secondments for assignment in South East Asia, East Africa and Southern Africa have given me a knowledge of problems

and achievements in several varied parts of the world, which I am now finding invaluable in the job I am engaged on in the South Pacific. This Seminar is an opportunity for all of us to learn more from the sharing of experience. Its organisers are to be congratulated. I hope that we shall see more of such seminars in future, and perhaps sometimes covering more of the many island communities of the South Pacific.

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TECHNICAL MANPOWER NEEDS

IN

PRIVATE ENTERPRISE

by

J.E. HENRY

Secretary,
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of Papua-New Guinea

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Since the end of World War II many countries have proceeded from being colonies, with little or no say in their own affairs, towards self-government and independence. The fact that this country has entered the process somewhat later than most others does give everyone living here or involved with Territory affairs one very big advantage. We have the chance to take stock of what has gone on elsewhere and to avoid the mistakes and violent transitions from one stage to another which have disrupted the economies of some other countries.

Awareness of this situation brings us to the heart of my subject - the problem or many problems of localisation. The basic fact about localisation is its inevitability. There is no question of likes or dislikes, rights or wrongs. I abhor value judgments and the profession of moralistic sentiments in matters like this. I would rather say that localisation has received the pragmatic sanction. It is going to come about and the only questions are: "How?" and "Over what period?"

For private enterprise this is the time to prepare for a new era when firms will be dealing with a government which, irrespective of its formal designation, will in fact be independent and predominantly indigenous. Among other things it is certain that such a government will regard localisation as of very great importance and urgency. Hence it must become an objective of management policy to foster the recruitment, education, training and promotion of indigenous employees and potential employees. This means, in straight terms, the ultimate displacement of many expatriates whose jobs will have to be filled by local people.

Besides such long-range considerations of policy there are numerous everyday reasons which are inclining companies to favour an increasing placement of local people in a wide spectrum of jobs, and in jobs at higher levels than were contemplated ten years ago. While this is the climate of response to the situation, all companies are not moving at a uniform pace and there can be anomalies even within a company, that is among its various branches and departments. Overall there is still a lack of precise thinking on the subject and an absence of clear-cut planning and a really co-ordinated approach. It is possible that my Federation might do more towards providing a common meeting ground

for exchange of views and experiences.

On one point there seems to be general concurrence. It is clear that in terms of the Programme of this Seminar, the Employers' main concern is with Group II - Technician and Sub-Professional Training; although there is some overlap with people who could fit into Group III - Professional Training, or Group I - Trade Level Training.

At the present time it seems to private enterprise rather premature to look for local people to fill such professional positions as exist at the Group III level. Also, this category is receiving a great deal of attention from other directions so we can concentrate on problems of more immediate and direct concern to us. Somewhere just below this fully professional level, however, we see a need for education and training of such people as agricultural and forestry officers. I have used this designation despite its association with the Administration usage because I want to make clear I am not referring to graduates but to sub-professional people. It seems likely that equivalent types will be needed in connection with the growth of the mining industry. Also, a whole variety of industries are opening up in the Territory, some on a small scale as yet, but with a potential for growth. These, too, will find a need for sub-professional employees.

Looking back to Group I and assuming that this is intended to cover not merely actual tradesmen and apprentices but all those whose present ceiling is at this level, we have very much the same people as would be covered by the classifications under the General Employment Awards which came into operation this year. These include semi-skilled trades workers, other semi-skilled workers who cannot be associated with a specific trade, also unqualified (or "practical") tradesmen and the lower ranks of clerical, sales and store assistants. An unknown proportion of these employees have latent aptitudes or acquired (but not formally recognised) skills which, by means of proper training, could be brought out and developed to general benefit. As it is, some degree of potential skilled manpower is being lost through inadequate utilisation of abilities because of lack of training, which is not necessarily the fault of individual employers.

There is in addition the substantial number of what in Australia would be called "white-collar" workers of the lower grades. Here we begin to overlap into Group II. Many of these office and shop workers are young enough to offer good prospects of rising from the bottom of the "white-collar" to somewhere within Group II if the necessary training was available. Above these you have the indigenous clerk who, although he may lack the educational qualifications to become an accountant, might be able to reach the position of a bookkeeper, or take on clerical work of a specialised nature. The same applies to the girls. There is a crying need for the education and training of indigenes so that they may enter or rise within the whole intermediate bracket. I have specifically mentioned "white-collar" jobs, but the same consideration applies to others, for example, the tradesman who might become a technician or be taught some specialised process related to his trade.

In closing I shall refer to three special problems. The first is that of the indigenous foremen or supervisors (and the number of these is growing). These people are, as a rule, very reluctant to exercise any real authority. This has been observed elsewhere, for example in Africa, and there are theories exploring this attitude which are no doubt very interesting to anthropologists. However, from a practical viewpoint it is a distinctly adverse factor in running a business and must be overcome. This means a special kind of training and education is needed for these indigenous supervisors.

The second problem is related to the first in its origins, that is the traditions and cultural background of the indigenous workforce. In relation to the actual work situation it seems to me that if we want to get the best results we must devise methods of helping the employee to adapt himself to the demands of working in a sophisticated economy. Put bluntly, the old culture and traditions must be adapted to a Western style of living and of working.

The third problem can be put equally bluntly. There is a need for training of expatriates to train, or help in training, the indigenous employees working under or alongside them. The acquisition of job "know-how" is a very slow and uncertain process if it is left to take place by some kind of osmosis.

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One word of caution. In all we are discussing and suggesting let us try to avoid an unco-ordinated proliferation or duplication of schools or of training courses. This Seminar gives us an opportunity to review the institutions and sources now available and assess not only what is desirable but also what is practicable for the future.

TECHNICAL MANPOWER FOR DEVELOPMENT: A PRELIMINARY ASSESSMENT OF NEEDS

by

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1. Introduction

Since the establishment of the Manpower Planning Unit in the Department of Labour which took effect in January 1968, the demand for manpower information has increased substantially. Partly this is a logical consequence of the existence of the Unit, but it is also indicative of a growing recognition that human resources play a vital and decisive role in the attainment of development targets, both in the context of overall national development and in specific functional areas.

Many misunderstandings exist about the intricacy of manpower analysis and projections. It is surprising how many people believe that manpower estimates are based on a straightforward process of making a number of necessary assumptions and then sitting down in front of a calculating machine or a computer to produce the results. Because of such simplistic beliefs there is probably no comparable field of research and analysis in which so many people claim expertise and knowledge.

The complexity of manpower planning, however, goes far beyond the mastering of statistical techniques. Fundamentally, manpower planning rests upon a qualitative basis, a knowledge and appreciation of society in all its facets and of all the forces at work within it, all tending, particularly in a developing country, towards drastic and rapid change. Continuous evaluation and revaluation of societal change and its implications for human resources development are, therefore, a major prerequisite for sound manpower planning.

Research into the qualitative aspects of manpower is another important responsibility of the manpower planner. Every factor which influences the creation and utilisation of personal skills must be analysed and taken into account. It is not sufficient to have the right number of skills created if measures have not been taken in time to ensure that they also are of the right kind so that they can be effectively applied when and where required.

Comparative research is also vitally necessary. Many problems of manpower planning have been experienced in other developing countries from which valuable lessons can

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and should be learned. Whilst some features may be unique to this Territory, it is folly to believe that they all are and that we will have to find our own solutions to all our own problems. In many instances, different solutions to similar problems have been tried elsewhere with varying degrees of success. Mistakes and pitfalls can be avoided if adequate knowledge is gained of other countries' experiences.

Even in respect to statistical analysis the manpower planner has no clear-cut answers to his problems. There exists no firmly established body of knowledge and systematic analysis to which he can turn with confidence. He has to acquire at least a working knowledge of techniques, developed over the years in a number of related disciplines, in order to be able to select, in each instance, the most relevant and appropriate technique - or develop his own if he cannot find any suitable to borrow.

The paucity of manpower data, particularly in terms of time series covering the past, puts an additional burden on the manpower planner as he often has to fill in existing gaps by using his own judgment. This renders the task of making future estimates a peculiarly hazardous undertaking, the more so since many people use such estimates without any reference to the qualifications attaching to them. The conscientious manpower planner has to bear this constantly in mind and ensure that his analyses are as thorough as resources and data permit.

It is sometimes said that the manpower planner adds only one more guess to an array of guesses made by various other people. It is the contention of these introductory remarks that the manpower planner's guess, despite all its limitations, is likely to be the best informed and that he is better equipped to exercise judgment in the relevant areas where it is required.

In presenting estimates of technical manpower in this paper, it has been necessary to proceed through a succession of analytical stages only the outcome of which can be shown, with some brief comments. It must be emphasised that the use of the word "preliminary" in the sub-title is quite deliberate and that the data presented must be so regarded. At the same time, it hold the promise of a more definitive analysis in the future.

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The Manpower Planning Unit has recently completed projections of the total monetary sector workforce to 1976. They were made within the broad framework of development targets and based mainly on relationships between likely growth of Gross Territory Product by industrial sector and the corresponding growth in the workforce required to produce that G.T.P. The results, shown in Table 1, form the basis for the analysis of technical manpower needs.

The first step to be taken in the drawing up of an inventory of technical manpower at the date for which we have the relevant information, i.e. the date of the Population Census, 30th June, 1966. Having defined the meaning of the word "technical", the stock of technical manpower is determined and its relationship to the total manpower stock established.

The following step is to give consideration to the structure of the technical manpower stock in a developing economy and to the question how growth-cum-change is likely to affect that structure and its relative position in the expanding total workforce. This will be quantitatively expressed in estimates of technical manpower needs at various levels of skill.

Next, major implications of the estimated needs for skills in the workforce through training and education will be analysed, following which some conclusions will be drawn.

2. Inventory of Technical Manpower

The term "technical" is generally used in relation to occupations which require some degree of manipulative skill and varying degrees of knowledge and understanding of science and technology. At the one end of the scale is placed the craftsman or tradesman who has to possess a high degree of manual dexterity in applying a limited number of established processes with which he has to make himself completely familiar. On the other end is the scientist/technologist who, these days, has become almost totally divorced from the sphere of manual work and is primarily, if not solely, concerned with theory, with research, and with the design and development of technological innovations and processes.

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Between the two extremes lies a whole range of occupations and skills, roughly in the middle of which is found what has become known as the technician.

For the present purpose, however, the conventional definition of technical manpower needs to be widened. In particular, the white collar occupations associated with office work were included for two reasons:

(a) a number of these occupations have advanced to a level where mere education is no longer (if it ever was) sufficient to produce a competent worker; the particular skills demanded from workers in these occupations make training, additional to education, a definite requirement;

(b) in a developing country like the Territory where nearly all entrants to the modern sector of the workforce lack a tradition of literacy and of acquaintance with basic communication and operational skills, the preparation of indigenous workers for clerical and administrative occupations necessitates instruction and training far beyond that needed in a literate, advanced society. This process of instruction and training must aim at building up an array of skills from the lowest levels upwards and must, therefore, be based on a minute analysis of all skill requirements for particular occupations. The fact that all too commonly training and instruction are not based on such detailed analysis but tend to be simply pitched at a level analogous to that of Australia, explains why the results so far have been unsatisfactory. Because of this need for specific skill inculcation and its resulting similarity to the more conventional technical training and education, the products of these processes have here been included in the technical manpower stock.

In two Appendices, relevant information is provided for the interpreation of the data contained in the various tables. Appendix I gives definitions of the five Manpower Classes A to E which relate, roughly in that order,

MONETARY SECTOR WORKFORCE BY INDIGENOUS/NON INDIGENOUS AND BY MANPOWER CLASSES, 30TH JUNE, COMPARISON OF ASSESSMENTS

MANPOWER CLASS											
A	%	B	%	C	%	D	%	E	%	Total	%
				Indigenous		Sept. 1968*					
66	5	2,635	31	18,737	73	26,402	88	186,790	99	234,630	92
						Sept. 1969					
19	1	751	13	9,777	51	37,000	91	186,890	99.6	234,437	92
				Non-Indigenous		Sept. 1968*					
1,080	95	5,794	69	7,071	27	3,724	12	2,734	1	20,403	8
						Sept. 1969					
1,729	99	4,962	87	9,254	49	3,650	9	839	0.4	20,434	8
						Total					
						Sept. 1968*					
1,146	100	8,429	100	25,808	100	30,126	100	189,524	100	255,033	100
						Sept. 1969					
1,748	100	5,713	100	19,031	100	40,650	100	187,729	100	254,871	100

* op. cit., Appendix II, Table 6

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to professionals, sub-professionals, skilled manual and related workers, semi-skilled and unskilled workers. Appendix II shows the list of occupations which have been included in the assessment of the technical manpower stock. While only one term, administrative, is used in the tables to refer to the occupations not traditionally regarded as technical, it incorporates most clerical and commercial occupations. The exceptions are such occupations as accountants, economists, statisticians and personnel specialists which are included in the "technical (traditional)" category as it was not possible to extract them from the grouped data available (Occupation Codes 075-083).

The list of occupations has been composed fairly liberally because application of Manpower Classes to the number of workers in each occupational category distinguishes relative skill levels and the concern here is primarily with skilled workers, i.e. from Manpower Class C up to Class A. In allocating Manpower Classes to the workforce, an earlier analysis[1] was completely reviewed in the light of additional census data which have since been released. The review has led to some drastic changes. These are caused by relating nominal occupational statements in the Census - the only information available at the time of the first assessment in 1968 - to such characteristics as educational standard reached, qualifications, and wage distribution by occupation. The latter was derived from the employment statistics collected by the Department of Labour.

As a result of this re-assessment, the indigenous component of high level manpower was substantially reduced, dropping in Class A from 5 to 1 per cent, in Class B from 31 to 13, and in Class C from 73 to 51 per cent. In these three Classes combined, the proportion was revised from 61 to 40 per cent. Since the recent analysis is much more definitive than the earlier one, it highlights the very strong dependency on expatriates in the occupations requiring higher

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1 See C.L. Beltz, "High Level Manpower in Papua and New Guinea. Current Situation and Future Prospects". Paper delivered to Seminar on the Demography of Papua and New Guinea, The Australian National University Canberra, 16-18 Oct. 1968, and to Seminar on Industrial Relations in a Developing Country, University of Papua and New Guinea, Port Moresby, 25-30 Oct. 1968.

skill levels. It must be emphasised, however, that these data refer to the situation more than three years ago and that in the intervening period annually increasing numbers of indigenes have completed secondary and advanced education or have otherwise qualified for entry into the skilled occupations.

On the basis of this latest analysis of the manpower structure, a dissection was made showing separately the technical components of the workforce. Table 2 (A, B and C) presents the composition of the technical manpower stock by Manpower Classes, by indigenous/non-indigenous and by industry.

Table 2A requires some explanation. Firstly, the Total Workforce in each industry includes, besides the two components shown, all other workers in that industry. Secondly, it proved difficult from the available data to determine what number in the armed services to allocate to Manpower Class E in the technical and administrative categories; consequently, all Class E manpower was included in the total only of the classification "Public Authority n.e.i. & Defence". To this extent, the numerical relationships between Manpower Classes in the two categories and in the total are distorted. Thirdly, the separate listing of technical and administrative categories (cf. Appendix II) clearly identifies the industries which are most dependent on this type of manpower. Finally, the allocation of manpower in the selected occupational categories to Manpower Class E, i.e. unskilled labour, leaves a generally large component of unskilled labour out of consideration; the census classification of "labourer" is not included in the selected list and therefore tends to increase substantially the Manpower Class E in the total workforce in each industry.

Tables 2B and 2C show the percentage distribution of the workforce by industry/occupational category/ Manpower Class. The skill structure of the workforce, as indicated by Manpower Classes, varies greatly both between industries and between the categories "Technical (traditional)" and "Administrative". Manpower Class E is disregarded here as the elasticity in that Class is generally such that it responds very rapidly to every fluctuation in the economy. The total workforce in all industries, compared with the occupational categories considered here, shows the following ratios

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between the various skill levels:

ALL INDUSTRIES (1966)

	A	B	C	D
Technical (trad.)	1	1.5	11.1	39.1
Administrative	1	2.3	5.8	9.4
Total	1	3.3	10.9	23.3

There are no optimal ratios known to exist between manpower at different levels of skill, although much current research is concerned with this problem. It has been argued, however, that existing ratios often reflect under-utilisation of high level manpower which, particularly in a developing economy, is a luxury that no one can afford. In India, for example, the existing ratio between graduate and non-graduate engineers (Manpower Classes A and B, respectively) is 1 : 1.7, compared with an almost 1 : 1 ratio in 1947. Thus, over a 20 year period, the training of non-graduate engineers has only been slightly higher than that of graduates. Investigations in a number of important engineering organisations, however, have revealed that a large proportion of graduate engineers (nearly 40%) was employed in positions which could quite adequately be filled by technicians, i.e. non-graduate engineers. This implies either that too many graduate engineers are being trained - which is a very costly affair - so that they have to accept employment at a lower level, or that they are being diverted from areas where their qualifications are needed through over-evaluation of the jobs in which they are placed. The latter would reflect on the management of the organisations concerned who have not properly analysed the exact requirements for the particular jobs. In either case, the wastage of high level manpower involved can be serious. As a result of these investigations, the Indian Government decided that in the Fourth Five Year Plan period (1966-1971) "the output of graduate engineers should be pegged down and that of

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technicians gradually pegged up to reach a proportion of one engineer to three or four technicians".2 A model developed for the assessment of technical manpower in the forest industry suggests an average ratio between Manpower Classes A and B of, approximately, 1 : 7.[3]

The ratios existing in the Territory show a surprisingly low number of technician level manpower underpinning the professional and management workers. Whilst much research and study will need to be undertaken to establish far more accurately than is now possible the desirable ratios between manpower at different skill levels, there appears to be a case for increasing support-level training (Class B) much faster than the professional level training. This is not meant to imply that the latter ought not to increase, but that its increase could be at a lower rate relative to the B level training.

A peculiar feature of the administrative/managerial structure in the Territory's industries is the predominance of the public sector (as defined) and commerce which, between them, account for more than 50% of all Class A and B manpower in this category and almost 70% of Class C. Because these are the Classes in which the large majority of expatriates are employed, it follows that in any plans for setting up or expanding training facilities for indigenous manpower of this type, a detailed assessment of the actual job requirements in these employment sectors must be made if it is to be effective.

In terms of technical (traditional) training facilities, the employment sectors which need to be examined in detail are primarily the Building and Construction industry

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2 L.S. Chandrakant, "Manpower Background of Technician Training and the Status of Technicians" in: Commonwealth Education Liaison Committee, Education and Training of Technicians, Report of an Expert Conference held at Huddersfield, England, October 1966, p.38.

3 S.D. Richardson, Manpower and Training Requirements in Forestry Development Planning, F.A.O., FO:IWP/67/1, 1967, pp. 56-59.

(which, incidentally, appears to have only 6 technicians for every 11 professional technical workers), professional establishments in Community and Business Services, and the public sector.

Primary industry stands apart from all others in its skill composition. In a largely agriculturally oriented economy at the Territory's stage of development, one would expect this. At the same time, however, the very importance of primary industry to the economy makes it mandatory that it be organised as quickly as possible on the most rational organisational basis capable of achievement. This will mean a much greater diversification of the skill structure and an injection of relatively large numbers of skilled workers at all levels. Surely, an industry which (inclusive of a number of high level government officers) has only one professional or top managerial worker in every 1000 employed, and only four in 1000 who can legitimately claim to be skilled, cannot be expected to make its maximum contribution to the national development effort. The figures suggest that management in this industry can do much to improve the manpower organisation, which is tantamount to saying that it can improve the industry's productivity. The one does not make sense if it does not achieve the other. But it seems beyond argument, as the figures show (Table 2C), that an industry which employs 56% of all workers in the monetary sector workforce cannot be organised effectively if it only employs 1.6% of all professional and top managerial workers, 4.5% of all technician/supervisor level workers and 5.2% of skilled manual and clerical workers.

3. Future Needs for Technical Manpower

It will be noted that the workforce projections presented in Table 1 show a different industry listing than is given in Table 2. This was necessary because of the basis used for the projections, i.e. the estimates of growth of Gross Territory Product whose industrial sectors could only be reconciled by reducing the 13 industries listed in the Census to 8. Apart from "Communications" which was combined with "Transport & Storage", and "Electricity, Water, etc", which was joined with "Public Authority n.e.i. etc.", the four other eliminated industry groups were combined into "Professional and Other".

Table III shows the projected workforce in 1976, again by Industry and Manpower Class. The two occupational categories of interest here were calculated by applying the ratios obtained in Table IIB (second part) to the total in each Industry/Manpower Class. The only justification for the straightforward technique would be the argument that over a 10 year period the structural changes in a workforce are not so drastic as to make it lose its value of indicating orders of magnitude. Exactitude in estimates for 10 years ahead can hardly be expected. On the other hand, one can argue that in a rapidly developing economy like the Territory's, starting from a very small base, much can and will happen in 10 years and that planners ought to attempt to provide some guidelines as to what may or should happen.

Following both arguments up might provide the best answer. In the first instance, the results of "the straightforward technique" will be considered. It is contended that this technique will provide a minimum estimate of manpower needs. Subsequently, some changes in the technical manpower structure will be suggested and the results discussed.

Whereas the data presented in Table 3 is shown by industry, it is proposed henceforth to restrict the analysis to the total workforce (by Manpower Class and occupational category). Even so, we will be largely in the realm of speculation but it is at least likely that a number of factors influencing the results for individual industries may partly or wholly be cancelled out. Such factors include differentials between industries in rates of growth, changes in racial composition, wastage rates, sex and age structure of workforce, impact of technological change, sensitivity to political developments, influence of government spending, manpower supply situation, establishment of new enterprises, etc. This, by no means exhaustive list of factors which all affect the manpower situation in individual industries in different degrees, illustrates how intricate manpower analysis becomes if one considers the small-sized components of the workforce. To try, with only one basic set of bench mark data available (the 1966 Population Census), and project individual occupations obviously passes out of the realm of serious manpower planning.

Maintaining constant ratios of the occupational categories in each Manpower Class leads to a quite considerable

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increase in skilled manpower. The technical occupations would absorb double the numbers in each Manpower Class while the administrative/clerical workers would increase by more than 80% in Classes A and B and only little less in the other Classes. An average annual compound rate of increase of about 7% in the number of jobs requiring manpower at all levels of skill would strain the resources of this country probably beyond capacity. A major aggravating factor, however, which is often overlooked or disregarded, is the wastage occurring in the workforce. This affects particularly the most crucial Manpower Classes, the higher skill levels, which are predominantly occupied by expatriates. What evidence there is suggests that an estimate of annual wastage rates in Classes A and B at 10% is conservative. Applying the same rate to the expatriate and a rate of 3% per annum to the indigenous component of Class C would yield a combined rate of approximately 6% in that Class. This makes some allowance for a gradual increase in the indigenous component.

For ease of presentation, the calculation of total manpower needs in the skilled occupations has been made using the average annual strength of the workforce in the period 1966-1976 for the calculation of wastage and adding to the result 10% of the total increase over the period. This annual average would tend to overstate the needs in the first five years, and understate them in the last quinquennium. Considering, however, that already more than three years of the period under consideration have passed, the needs estimates would very soon become minimum estimates if the workforce is developing at anywhere near the rate postulated in the projections. The results are shown in Table 4 - III. The annual total need for high level manpower in the two occupational categories (only) would be more than 2,500 with skilled technical workers accounting for 1100, and some 300 being professional and top technical and managerial personnel. The wastage factor would account for over half the total needs.

It seems likely, however, in view of the increasing sophistication of the modern sector of the economy, of new industries with advanced management practices being established, and of the apparent need in several industries to rationalise the skill structure of their workforces, that the need for skilled personnel at sub-professional and

skilled manual and clerical level (Classes B and C) will become more pronounced. It is assumed here - while it is equally possible to make a different basic assumption - that the estimated increase in Manpower Class A remains unchanged. Next, a relatively arbitrary set of ratios between Classes A, B and C is adopted - which is believed, though, to be more rational in terms of effective utilisation of high level manpower - and applied to the total projected workforce in the two occupational categories. The results (and the adopted ratios) are presented in Table 4, parts I, II and III, juxtaposed to the results obtained by applying constant ratios between 1966 and 1967. It must be stressed that the results do not purport more than to illustrate what consequences a rationalisation in the manpower structure could have.

The most striking increase would occur in the sub-professional technical group of occupations and, particularly, in the skilled clerical/administrative group. The latter is partly due to a built-in improvement factor as Class E clerical workers have been eliminated. There is an apparent anomaly in having, in this country, completely unskilled workers in clerical/administrative type occupations. The minimum educational standard and communication skill required in these occupations would automatically place such workers in Class D.

Rationalisation of the workforce in the two occupational categories (only) on the basis suggested here would create an additional need for manpower in Classes B and C of more than 10,000 in the 10 years to 1976. This is over and above the 25,000 required if the 1966 ratios remain constant.

4. Implications of Needs Estimates

It is one thing to make estimates of needs, quite another to determine how those needs will be met. The latter is the real problem to the solution of which the need estimates provide some guidelines, at least in orders of magnitude. It is not proposed to analyse the quantitative aspects of the manpower supply here in any detail. These can be tackled once a number of basic problems pertaining to the build-up of the necessary supply lines have been solved.

A first point that needs to be made is that one needs to distinguish very explicitly between manpower needs and manpower demand. The one can be assessed in the light of expected developments in the economy; the other is largely determined by considerations other than those concerned with the development of human resources. In the public sector, budgetary decisions may be completely at odds with manpower structure in that most important segment of the national economy. The same is to some extent true in the private sector but other factors play significant roles there too. The exercise of a demand for qualified manpower by companies and firms at any one time depends much more on perceived immediate needs to attain relatively short-term objectives than on long-term planned expansion needs. The exercise of actual demand for manpower, therefore, is very often the result of subjective judgments on the part of management in response to ad hoc situations. All too frequently, management has not even the basic data at its disposal to make objective decisions. It would appear that the developing situation in the Territory, both politically and economically, and the increasing recognition of the need for indigenisation of the workforce, demands of management that they plan the growth of their organisations not merely in terms of financial targets but also of manpower targets. There is an urgent need for instituting more advanced personnel practices, incorporating methodical and annually recurring reviews of the staffing situation in the perspective of long-term manpower needs in the organisation.

Indigenisation of the workforce has deliberately been left out of the analysis presented here, not because of any under-estimation of its importance but because the stage of manpower analysis reached does not permit adequate evaluation of its impact in the future, nor are the available quantitative data amenable to such analysis. Suffice it to make the point that it is of tremendous importance in future manpower assessments and that it should form a major explicit objective in the determination of any organisation's manpower targets.

Skilled manpower supply depends for the major part on two sources: education and training on the one hand, overseas recruitment on the other. Whilst individual industries and organisations obtain manpower also from other industries and organisations and mobility between occupations

cannot be disregarded, their effect cancels out at the level of the total workforce which has to acquire its supply from outside or create it from within. Outside recruitment for the professional and sub-professional levels will be necessary for quite some time to come if the economy is to expand, notwithstanding a gradual increase in the numbers graduating from the Territory's own institutions. Particularly in the technical occupations, it seems likely that the supply lines from overseas will have to remain open for a long time. Political developments may make it difficult in the future to rely on expatriate supply for policy, managerial and executive positions as there are likely to be pressures for rapid indigenisation of those positions. The same arguments do not apply, however, in the technical field. The experience of other developing countries has shown that even after gaining independence large numbers of high level technical manpower continue to be recruited from abroad, be it directly or under some technical assistance programme. This suggests that at the higher levels, emphasis on the training of qualified indigenous manpower should be placed primarily (though by no means exclusively) on the non-technical field.

Creation of skilled manpower from within takes place through education and through formal and informal training programmes. Taking the viewpoint that general education is a prerequisite for successful training in that it should be able to produce what may be called "trainables", it devolves mainly on formal and informal training to equip persons with the knowledge and skills required to perform effectively in one or more particular jobs. Training is here considered as the learning process which is job-oriented and relies heavily on acquainting the learner with the skill, environmental and attitudinal requirements of a specific (group of) occupation (s). Contrary to the fairly common concept of "putting a man in a job is the best form of training", it is contended that even informal training should have the characteristics just described if it is to be effective. This concept, therefore, requires the employer to become an active participant in the informal training within his organisation by analysing job requirements in great detail and devising a programme of instruction on-the-job which will enable the trainee to fit those requirements. With some notable exceptions, private enterprise in this Territory appears not to have paid much attention to this form of on-the-job training, even though it would benefit themselves.

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Formal training in the Territory, again with some notable exceptions, is largely conducted in government institutions. Whilst historical and traditional factors have largely determined the development of these institutions, it is becoming increasingly evident that the private sector wants to stake out claims on their products. But it seems a priori a conceptual mistake to stand back from the whole of the training process until the point of completion. Needs and requirements of private industry, as they will apply to their recruits from among these institutional outputs, have not been translated into their training programme and will, therefore, necessitate further training efforts in employment. Active interest and involvement of private enterprise in the relevant forms of institutional training would appear to be highly desirable if these institutions are to be truly national in their outlook and their programmes. In this context the question may be asked whether full-time institutional training/education in an environment which is very different from that in which the trainee will find himself when he takes up employment, is the most appropriate form of training.

As stated earlier in this paper, no quantitative conclusions will be drawn from the analysis presented here. On what evidence we have, the need for skilled technical and administrative/clerical/commercial manpower in this developing economy is very considerable. Existing and foreseeable formal training resources cannot be expected to cope with the demand in numerical terms. Therefore, one of two things must happen: either employers recognise their own vital interest in skilled manpower and take decisive steps now to augment the institutional training efforts with comprehensive training programmes of their own, both formal and informal; every year such decisions are delayed means that the manpower will not be available when it may be required - and it takes time to create skills; or development will not be able to proceed at the rate possible for lack of adequate human resources. It is generally recognised in developing countries that while capital and natural resources are indispensable, the greatest cause of shortfalls in development plans is the lack of skilled manpower.

The choice between these two alternatives will determine to a large extent how quickly the Territory can forge ahead.

APPENDIX I

MANPOWER CLASSIFICATION

Class A: Professional, Managerial and Related Workers

Professional workers and top-level managerial, administrative and executive workers whose level of responsibility is regarded as giving them professional status. In the Public Service, all those occupying positions which require a University degree, and those in Class 10 and above.

Class B: Sub-professional, Higher Technical and Related Workers

Diplomates of post-secondary diploma courses of at least two years' duration. Medium-level managerial, administrative and executive workers. In the Public Service, all those in positions with a "degree desirable" requirement and those in Classes 7 to 9 inclusive, not included in Manpower Class A.

Class C: Skilled workers

Higher clerical and supervisory workers with higher secondary schooling (Form 3 and above). Technicians, Artisans and other workers having at least one year of formal training at Form 3 or above.

Class D: Semi-skilled Workers

Lower clerical workers, low level technical workers and others with one year or less of formal training after lower secondary schooling (Form 2 and below).

Class E: Unskilled Workers

Workers in low level positions requiring no formal training, education or exercise of particular skills such as labourers, messengers, cleaners etc.

APPENDIX II

LIST OF OCCUPATIONS DESIGNATED AS "TECHNICAL" AND "ADMINISTRATIVE"

STANDARD OCCUP. CODE	OCCUPATION
	I. TECHNICAL (Traditional)
001-009	Architects, Engineers and Surveyors
013-017	Chemists, Physicists, Geologists, etc.
020-022	Biologists, Veterinarians, Agronomists, etc.
070-072	Draftsmen and Technicians n.e.i.
075-083	Other Professional and Technical Workers
355-356	Timber Getters and Other Forestry Workers
400-425	Miners, Quarrymen & Related Workers
500-501	Deck Officers, Engineer Officers, Pilots (Ship)
510	Aircraft Pilots, Navigators
520-524	Drivers, Road Transport
535-539	Inspectors, Supervisors and Controllers, Transport
545-548	Telephone, Telegraph, Telecommunications Operators
560-561	Workers in Transport and Communications n.e.i.
600-606	Spinners, Weavers, etc.
627-631	Metal Making and Treating Workers
636-639	Precision Instrument Makers, Watchmakers, etc.
642-656	Toolmakers, Machinists, Plumbers, Welders, etc.
659-665	Electricians and Related Workers
668-672	Metal Makers and Other Metal and Electr. Workers n.e.i.
675-684	Carpenters, Joiners, Cabinetmakers
687-688	Painters and Decorators
691-698	Bricklayers, Plasterers and Other Construction Workers n.e.i.
703-708	Compositors, Pressmen, Engravers, Bookbinders, etc.
711-717	Potters, Kilnmen, Glass and Clay Formers
720-730	Millers, Bakers, Brewmasters
735-736	Chemical and Related Process Workers
743-750	Craftsmen and Process Workers n.e.i.
757-763	Stationary Engine, Excavation Operators, etc.
805-811	Housekeepers, Cooks, Maids
815-816	Waiters, Bartenders
840	Photographers and Camera Operators
855	Members of Armed Services
	II. ADMINISTRATIVE/CLERICAL/COMMERCIAL
100-107	Administrators, Executive Officials, Government n.e.i.
110-118	Employers, Directors, Managers, n.e.i.
150	Bookkeepers and Cashiers
155	Stenographers and Typists
160-163	Other Clerical Workers
200-214	Salesmen, Valuers, Shopkeepers, etc.

TABLE 1

MONETARY SECTOR WORKFORCE PROJECTIONS 1966-1976

INDUSTRY	Rate	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
	% p.a.											
Primary Production	5.7	143298	182039	183192	181902	190717	193801	206832	209039	222290	221964	249622
Mining & Quarrying	7.1	3108	3180	3395	4698	4871	5137	5440	6061	6451	6317	6185
Manufacturing	11.7	10314	12869	14175	17176	20016	21925	24173	26714	28668	29654	31219
Building & Construction	6.8	15964	17924	17965	20655	30023	41798	23789	25126	26996	28997	30868
Commerce	2.4	11084	11586	12591	12458	13016	13533	13870	14392	14273	14225	14082
Transport, Storage & Commun.	6.9	9153	9762	11543	11917	13001	14071	15065	15985	16590	17292	17890
Public Auth. nei & Electricity	7.5	16050	17254	18548	19939	21434	23042	24770	26628	28625	30643	32941
Professional & Other	6.6	45900	47604	55242	57669	63759	67109	71243	76629	79861	83106	86782
TOTAL	6.3	254871	302218	316651	326414	356837	380416	385182	400574	423754	432198	469589

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TABLE 2A

TECHNICAL MANPOWER STOCK, 30TH JUNE, 1966

DISTRIBUTION OF WORKFORCE: INDIGENOUS/NON-INDIGENOUS X MANPOWER CLASS X OCCUPATIONAL CATEGORY X INDUSTRY

INDUSTRY	OCCUPATIONAL CATEGORY	INDIGENOUS						NON-INDIGENOUS						TOTAL					
		Manpower Class						Manpower Class						Manpower Class					
		A	B	C	D	E	TOTAL	A	B	C	D	E	TOTAL	A	B	C	D	E	TOTAL
Primary Production	Technical (trad)	-	1	122	1555	2311	3989	18	16	55	14	8	111	18	17	177	1569	2319	4100
	Administrative	-	-	4	107	46	157	10	22	36	32	-	100	10	22	40	139	46	257
	Total Workforce	-	1	271	3881	137925	142078	28	256	724	91	121	1220	28	257	995	3972	138046	143298
Mining & Quarrying	Tech.	-	-	15	239	2469	2723	26	16	52	43	40	177	26	16	67	282	2509	2900
	Admin.	-	-	1	16	7	24	8	17	22	7	-	54	8	17	23	23	7	78
	Total w.f.	-	-	17	283	2565	2865	34	35	74	54	46	243	34	35	91	337	2611	3108
Manufacturing	Tech.	-	-	212	1895	3747	5854	20	17	437	198	13	685	20	17	649	2093	3760	6539
	Admin.	-	-	10	122	60	192	71	141	121	73	-	406	71	141	131	195	60	598
	Total w.f.	-	-	250	2612	628	9148	92	164	588	294	28	1166	92	164	838	2906	6314	10314
Electricity, Water, etc.	Tech.	-	1	89	309	206	605	9	11	74	37	-	131	9	12	163	346	206	736
	Admin.	-	-	1	28	8	37	6	13	52	39	-	110	6	13	53	67	8	147
	Total w.f.	-	1	91	367	535	994	15	25	126	77	4	247	15	26	217	444	539	1241
Building & Construction	Tech.	-	1	865	4743	3397	9006	116	60	1416	294	23	1909	116	61	2281	5037	3420	10915
	Admin.	-	-	13	133	36	182	60	121	106	85	-	372	60	121	119	218	36	554
	Total w.f.	-	1	902	5299	7400	13602	177	187	1527	387	84	2362	177	188	2429	5686	7484	15964
Transport & Storage	Tech.	-	-	189	1647	669	2505	13	202	556	168	97	1036	13	202	745	1815	766	3541
	Admin.	-	-	18	166	58	242	49	98	262	205	-	614	49	98	280	371	58	856
	Total w.f.	-	-	247	2781	3116	6144	64	310	830	696	163	2063	64	310	1077	3477	3279	8207
Communications	Tech.	-	2	46	184	68	300	10	11	82	96	-	199	10	13	128	280	68	499
	Admin.	-	-	3	36	6	47	4	9	60	38	-	111	4	9	65	74	6	158
	Total w.f.	-	2	68	256	247	573	14	23	197	135	4	373	14	25	265	391	251	946
Finance & Property	Tech.	-	-	1	25	40	66	1	1	1	-	-	3	1	1	2	25	40	69
	Admin.	-	-	8	59	14	81	18	37	224	135	-	414	18	37	232	194	14	495
	Total w.f.	-	-	11	85	92	188	19	38	243	135	-	435	19	38	254	220	92	623

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TABLE 2A (cont'd)

		A	B	C	D	E	TOTAL	A	B	C	D	E	TOTAL	A	B	C	D	E	TOTAL
Commerce	Tech.	-	-	71	851	757	1679	7	31	152	61	5	256	7	31	223	912	762	1935
	Admin.	-	-	76	2117	1808	4001	268	538	1301	349	-	2456	268	538	1377	2466	1808	6457
	Total w.f.	-	-	188	3389	4683	8260	276	586	1462	440	60	2824	276	586	1650	3829	4743	11084
Community & Business Services	Tech.	1	16	301	1775	2020	4113	146	119	362	102	50	779	147	135	663	1877	2070	4892
	Admin.	-	1	43	250	87	381	51	113	206	243	-	613	51	114	249	493	87	994
	Total w.f.	18	716	7114	9620	10344	27812	654	2527	1712	404	97	5394	672	3243	8826	10024	10441	33206
Amusement, Hotels, etc.	Tech.	-	-	24	3749	4926	8699	2	5	28	33	105	173	2	5	52	3782	5031	8872
	Admin.	-	-	6	42	12	60	49	114	36	48	-	247	49	114	42	90	12	307
	Total w.f.	-	-	37	3887	6266	10190	51	124	120	105	118	518	51	124	157	3992	6384	10708
Public Authority n.e.i. & Defence	Tech.	-	10	181	1849	994	3034	140	232	317	67	2	758	140	242	498	1916	996	3792
	Admin.	-	3	217	1503	231	1954	93	349	1181	683	-	2306	93	352	1398	2186	231	4260
	Total w.f.	1	30	573	4438	6282	11324	302	679	1641	789	74	3485	303	709	2214	5227	6356	14809
Inadequately described or not stated	Tech.	-	-	2	35	34	71	1	-	4	4	-	9	1	-	6	39	34	80
	Admin.	-	-	2	22	7	31	2	5	4	1	-	12	2	5	6	23	7	43
	Total w.f.	-	-	8	102	1149	1259	3	8	10	43	40	104	3	8	18	145	1189	1363
ALL INDUSTRIES	Tech.	1	31	2118	18856	21638	42644	509	721	3536	1117	343	6226	510	752	5654	19973	21981	48870
	Admin.	-	4	404	4601	2380	7389	689	1577	3611	1938	-	7815	689	1581	4015	6539	2380	15204
	Total w.f.	19	751	9777	37000	186890	234437	1729	4962	9254	3650	839	20434	1748	5713	19031	40650	187729	254871

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TECHNICAL MANPOWER STOCK, 30TH JUNE, 1966 — TABLE 2B

PERCENTAGE DISTRIBUTION OF WORKFORCE: INDUSTRY BY MANPOWER CLASS AND OCCUPATIONAL CATEGORY

INDUSTRY	OCCUPATIONAL CATEGORY	INDIGENOUS AND NON-INDIGENOUS COMBINED											
		Manpower Class						Manpower Class					
		A	B	C	D	E	TOTAL	A	B	C	D	E	TOTAL
Primary Production	Technical (trad.)	0.4	0.4	4.3	38.3	56.6	100.0	64.3	6.6	17.8	39.5	1.7	2.9
	Administrative	3.9	8.6	15.6	54.0	17.9	100.0	35.7	8.6	4.0	3.5	.03	0.2
	Total Workforce	0.1	0.2	0.7	2.7	96.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mining and Quarrying	Tech.	0.9	0.6	2.3	9.7	86.5	100.0	76.5	45.7	73.6	83.7	96.1	93.3
	Admin.	10.2	21.8	29.5	29.5	9.0	100.0	23.5	48.6	25.3	6.8	.27	2.5
	Total w.f.	1.1	1.2	2.9	10.8	84.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Manufacturing	Tech.	0.3	0.3	9.9	32.0	57.5	100.0	21.7	10.4	77.4	72.0	59.5	63.4
	Admin.	11.9	23.6	21.9	32.6	10.0	100.0	77.2	86.0	15.6	6.7	.95	5.8
	Total w.f.	0.9	1.6	8.1	28.2	61.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Electricity, Water, etc.	Tech.	1.2	1.6	22.2	47.0	28.0	100.0	60.0	46.2	75.1	77.9	38.2	59.3
	Admin.	4.1	8.8	36.1	45.6	5.4	100.0	40.0	50.0	24.4	15.1	1.5	11.8
	Total w.f.	1.2	2.1	17.5	35.8	43.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Building and Construction	Tech.	1.1	0.6	20.9	46.1	31.3	100.0	65.5	32.4	93.9	88.6	45.7	68.4
	Admin.	10.8	21.8	21.5	39.4	6.5	100.0	33.9	64.4	4.9	3.8	.48	3.5
	Total w.f.	1.1	1.2	15.2	35.6	46.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Transport and Storage	Tech.	0.4	5.7	21.0	51.3	21.6	100.0	20.3	65.2	69.2	52.2	23.4	43.1
	Admin.	5.7	11.4	32.7	43.4	6.8	100.0	76.6	31.6	26.0	10.7	1.8	10.4
	Total w.f.	0.8	3.7	13.1	42.4	40.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Communication	Tech.	2.0	2.6	25.7	56.1	13.6	100.0	71.4	52.0	48.3	71.6	27.1	52.7
	Admin.	2.5	5.7	41.1	46.8	3.9	100.0	28.6	36.0	24.5	18.9	2.4	16.7
	Total w.f.	1.5	2.6	28.0	41.3	26.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Finance and Property	Tech.	1.4	1.4	3.0	36.2	58.0	100.0	5.3	2.6	0.8	11.4	43.5	11.1
	Admin.	3.6	7.5	46.9	39.2	2.8	100.0	94.7	97.4	91.3	88.2	15.2	79.5
	Total w.f.	3.0	6.1	40.8	35.3	14.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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TABLE 2B (cont'd)

		A	B	C	D	E	TOTAL	A	B	C	D	E	TOTAL
Commerce	Tech.	0.4	1.6	11.5	47.1	39.4	100.0	2.5	5.3	13.5	23.8	16.1	17.5
	Admin.	4.2	8.3	21.3	38.2	28.0	100.0	97.1	91.8	83.5	64.4	38.1	58.3
	Total w.f.	2.5	5.3	14.9	34.5	42.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Community and Business Services	Tech.	3.0	2.8	13.5	38.4	42.3	100.0	21.9	4.2	7.5	18.7	19.8	14.7
	Admin.	5.1	11.5	25.0	49.6	8.8	100.0	7.6	3.5	2.8	4.9	0.8	3.0
	Total w.f.	2.0	9.8	26.6	30.2	31.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Amusement, Hotels, etc.	Tech.	-	0.1	0.6	42.6	56.7	100.0	3.9	4.0	33.1	94.7	78.8	82.9
	Admin.	16.0	37.1	13.7	29.3	3.9	100.0	96.1	91.9	26.8	2.3	0.2	2.9
	Total w.f.	0.5	1.1	1.5	37.3	59.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Public Authority n.e.i. & Defence	Tech.	3.7	6.4	13.1	50.5	26.3	100.0	46.2	34.1	22.5	36.7	15.7	25.6
	Admin.	2.2	8.3	32.8	51.3	5.4	100.0	30.7	49.6	63.1	41.8	3.6	28.8
	Total w.f.	2.0	4.8	15.0	35.3	42.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Inadequately described or not stated	Tech.	1.2	-	7.5	48.8	42.5	100.0	33.3	-	33.3	26.9	2.9	5.9
	Admin.	4.6	11.6	14.0	53.5	16.3	100.0	66.7	62.5	33.3	15.9	0.6	3.2
	Total w.f.	0.2	0.6	1.3	10.7	87.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0
ALL INDUSTRIES	Tech.	1.0	1.5	11.6	40.9	45.0	100.0	29.2	13.2	29.7	49.1	11.7	19.2
	Admin.	4.5	10.4	26.4	43.0	15.7	100.0	39.4	27.7	21.1	16.1	1.3	6.0
	Total w.f.	0.7	2.2	7.5	15.9	73.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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TECHNICAL MANPOWER STOCK, 30TH JUNE, 1966

TABLE 2C

PERCENTAGE DISTRIBUTION OF WORKFORCE: OCCUPATIONAL CATEGORY AND MANPOWER CLASS BY INDUSTRY

INDUSTRY	TECHNICAL (TRADITIONAL)						ADMINISTRATIVE						TOTAL WORKFORCE					
	Manpower Class						Manpower Class						Manpower Class					
	A	B	C	D	E	TOTAL	A	B	C	D	E	TOTAL	A	B	C	D	E	TOTAL
Primary Production	3.5	2.3	3.1	7.9	10.5	8.4	1.4	1.4	1.0	2.1	1.9	1.7	1.6	4.5	5.2	9.8	73.5	56.2
Mining & Quarrying	5.1	2.1	1.2	1.4	11.4	5.9	1.2	1.1	0.6	0.4	0.3	0.5	1.9	0.6	0.5	0.8	1.4	1.2
Manufacturing	3.9	2.3	11.5	10.5	17.1	13.4	10.3	8.9	3.3	3.0	2.5	3.9	5.3	2.9	4.4	7.1	3.4	4.1
Electricity, Water etc	1.8	1.6	2.9	1.7	0.9	1.5	0.9	0.8	1.3	1.0	0.3	1.0	0.9	0.4	1.1	1.1	0.3	0.5
Building & Construct.	22.7	8.1	40.3	25.2	15.6	22.3	8.7	7.7	3.0	3.3	1.5	3.7	10.1	3.3	12.8	14.0	4.0	6.3
Transport & Storage	2.5	26.9	13.2	9.1	3.5	7.2	7.1	6.2	7.0	5.7	2.4	5.6	3.7	5.4	5.7	8.5	1.8	3.2
Communications	2.0	1.7	2.3	1.4	0.3	1.0	0.6	0.6	1.6	1.1	0.3	1.0	0.8	0.4	1.4	1.0	0.1	0.4
Finance & Property	0.2	0.1	-	0.1	0.2	0.1	2.6	2.3	5.8	3.0	0.6	3.3	1.1	0.7	1.3	0.5	-	0.2
Commerce	1.4	4.1	4.0	4.6	3.5	4.0	38.9	34.0	34.3	37.7	76.0	42.5	15.8	10.3	8.7	9.4	2.5	4.4
Community & Bus. Serv.	28.8	17.9	11.7	9.4	9.4	10.0	7.4	7.2	6.2	7.5	3.7	6.5	38.4	56.8	46.4	24.7	5.6	13.0
Amusement, Hotels etc.	0.4	0.7	0.9	18.9	22.9	18.2	7.1	7.2	1.0	1.4	0.5	2.0	2.9	2.2	0.8	9.8	3.4	4.2
Public Auth.nei & Def.	27.5	32.2	8.8	9.6	4.5	7.8	13.5	22.3	34.8	33.4	9.7	28.0	17.3	12.4	11.6	12.9	3.4	5.8
Inadequately descr.etc	0.2	-	0.1	0.2	0.2	0.2	0.3	0.3	0.1	0.4	0.3	0.3	0.2	0.1	0.1	0.4	0.6	0.5
ALL INDUSTRIES	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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PROJECTED MONETARY SECTOR WORKFORCE IN 1976, AND INCREASE 1966-1976 **TABLE 3**

BY INDUSTRY/OCCUPATIONAL CATEGORY/MANPOWER CLASS

(Assuming constant proportion in each Manpower Class/Occupational Category)

INDUSTRY	OCCUP. CATEGORY	1976						INCREASE 1966-1976					
		MANPOWER CLASS						MANPOWER CLASS					
		A	B	C	D	E	TOTAL	A	B	C	D	E	TOTAL
1. Primary Production	Tech.	32	30	307	2731	4088	7188	14	13	130	1162	1769	3088
	Admin.	18	39	69	242	79	447	8	17	29	103	33	190
	Total	50	449	1722	6915	240486	249622	22	192	727	2943	102440	106324
2. Mining & Quarrying	Tech.	52	31	137	559	4992	5771	26	15	70	277	2483	2871
	Admin.	16	33	47	45	14	155	8	16	24	22	7	77
	Total	68	68	186	668	5195	6185	34	33	95	331	2584	3072
3. Manufacturing	Tech.	61	52	1957	6339	11368	19777	41	35	1308	4246	7608	13238
	Admin.	216	430	395	590	182	1813	145	289	264	395	122	1215
	Total	280	500	2529	8804	19106	31219	188	336	1691	5898	12792	20905
4. Building & Construction	Tech.	223	120	4406	9736	6616	21101	107	59	2125	4699	3196	10186
	Admin.	115	239	230	418	69	1071	55	118	111	200	33	517
	Total	340	370	4692	10989	14477	30868	163	182	2263	5303	6993	14904
5. Transport & Storage; Communications	Tech.	45	421	1708	4098	1628	7900	22	206	835	2003	794	3860
	Admin.	103	209	674	869	124	1979	50	102	329	424	60	965
	Total	152	655	2623	7560	6900	17890	74	320	1281	3692	3370	8737
6. Commerce	Tech.	9	40	283	1156	970	2458	2	9	60	244	208	523
	Admin.	342	686	1752	3129	2296	8205	74	148	375	663	488	1748
	Total	352	747	2098	4858	6027	14082	76	161	448	1029	1284	2998
7. Public Auth. n.e.i. & Defence; Electricity, Water, etc.	Tech.	309	524	1353	4640	2465	9291	160	270	692	2378	1263	4763
	Admin.	205	753	2969	4616	496	9039	106	388	1518	2363	257	4632
	Total	659	1515	4974	11628	14165	32941	341	780	2543	5957	7270	16891
8. Professional & Other *	Tech.	285	265	1365	10821	13557	26293	134	124	642	5098	6382	12380
	Admin.	226	510	997	1523	240	3496	106	240	468	723	120	1657
	Total	1406	6457	17495	27189	34235	86782	661	3044	8240	12808	16129	40882
ALL INDUSTRIES	Tech.	1016	1483	11516	40080	45684	99779	506	731	5862	20107	23703	50909
	Admin.	1241	2899	7133	11432	3500	26205	552	1318	3118	4893	1120	11001
	Total	3307	10761	36319	78611	340591	469589	1559	5048	17288	37961	152862	214718

* Includes: Community & Business Services; Finance & Property; Amusement, Hotels, etc.; Not adequately described or not stated.

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TABLE 4

I: PROJECTED WORKFORCE 1976
OCCUPATIONAL CATEGORY BY MANPOWER CLASS

ALL INDUSTRIES	CONSTANT RATIOS A	B	C	D	E	TOTAL	CHANGED RATIOS* A	B	C	D	E	TOTAL
Technical (trad.)	1016	1483	11516	40080	45684	99779	1016	3048	12192	60960	22563	99779
Administrative	1241	2899	7133	11432	3500	26205	1241	3102	12410	9452	-	26205

II: INCREASE IN WORKFORCE 1966-1976
OCCUPATIONAL CATEGORY BY MANPOWER CLASS

ALL INDUSTRIES	I CONSTANT RATIOS A	B	C	II CHANGED RATIOS* A	B	C	DIFFERENCE I - II A	B	C
Technical (trad.)	506	731	5862	506	2296	6538	-	1565	676
Administrative	552	1318	3118	552	1521	8395	-	203	5277

III: AVERAGE ANNUAL MANPOWER NEEDS 1966-1976
OCCUPATIONAL CATEGORY BY MANPOWER CLASS

ALL INDUSTRIES	CONSTANT RATIOS A	B	C	CHANGED RATIOS* A	B	C
Technical (trad.)	127	185	1101	127	420	1189
Administrative	152	356	646	152	386	1333

* Ratios adopted are: Technical: A : B = 1 : 3 and B : C = 1 : 4 (C : D = 1 : 5)
Administrative: A : B = 1 : 2.5 and B : C = 1 : 4

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TECHNICAL EDUCATION

AND

INDUSTRIAL TRAINING

by

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The title I have given this paper is not original. The phrase "technical education and industrial training" is used frequently. Its component terms are often held to mean the same thing and almost as frequently contrasted as if they described quite different, even incompatible, processes or activities. When academics and educationists (and perhaps industrial trainers) are gathered together they may succumb to the impulse to discuss whether a line can be drawn between what is admitted as "education" and what is dismissed as "training". It would be interesting to examine the differences between teachers who some years ago were subjected to "teacher training" in a "training college" and those who today have had the benefit of "teacher education" in a "teachers' college". Could the former be described as trained but not educated and the latter as educated but not trained? I do not propose to answer that question, although I should be qualified to answer it having been "educated" in a university and then "trained" in a teachers' training college. The main purpose of this piece of nonsense is to help set the stage for an examination of the roles of technical education and industrial training.

Should one set out among academics and educationists to talk about technical education or vocational education, one may encounter those who, while conceding a place somewhere for technical or vocational training, consider the terms "technical" and "educational" to be mutually exclusive. The primary purpose of this paper is to trace some relationships between technical education and industrial training.

I come from a State where the age at which a child may leave school is fifteen years; where all children progress from primary school to secondary school; and where (in 1968) in terms of the numbers entering first form secondary school, 99% were in second form, 80% in third form, 64% in fourth form, 28% in fifth form and 24% in sixth form. The "holding power" of the secondary school in New South Wales is increasing and has been increasing for many years as shown in Table 1. The trend for young people to stay longer at school is world-wide. The secondary school curriculum in New South Wales, based upon the recommendations of the Wyndham Report

is non-vocational. In the words of the Wyndham Report:[1] "True vocational training, even specific pre-vocational training, are not proper elements of a general education ..." "The secondary school will not provide vocational education, ..." and "the school's most significant contribution is to ensure that the adolescent has enjoyed a sound general education". In New South Wales no young person will undertake technical education or vocational training before leaving secondary school and only those who have left secondary school will enrol in a technical college.

The technical education system in New South Wales is a post-secondary system. Enrolments in technical colleges exceed those in all other post-secondary educational institutions. The age range 17-22 has been used frequently by demographers, sociologists and others when examining the need for educational provision beyond the primary and secondary school. Some idea of the distribution of those in the 17-22 age range pursuing formal education in New South Wales may be gained from Table 2. Of the 140,000 students enrolled in technical colleges in 1968, 52.1% were in the age range 17-22 and 30.5% older than 22. Perhaps more than 40% were older than 22 for, of the remainder 10.8% failed to declare their age upon enrolment and 6.6% were under seventeen.

That secondary education in New South Wales is non-vocational; that the technical education system is vocational and post-secondary; that the technical colleges of the Department of Technical Education enrol annually more students than the universities, the teachers' colleges, the agricultural colleges and all other post-secondary institutions combined; that the New South Wales Department of Technical Education is the only department of technical education in Australia - these facts may reveal little about the nature and role of technical education or about its relationship with industrial training, but they may give some insight into the background and bias of the writer. It is his view that

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1 Report of the Committee Appointed to Survey Secondary Education in New South Wales, New South Wales Government Printer, 1957, page 60.

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Australia's future is tied to the efficiency of her industries and her success as a trading nation; that the standard of living of any community depends upon the health of its industry and trade; that the healthy and continued growth of industry depends upon the quality and skill of the workforce; that those countries with effective systems of technical and vocational education have a great advantage in the struggle for better standards of living including better schools and general education, better hospitals and medical services, better social services, better endowment of the arts and other things which distinguish the world's most highly developed civilisations.

Men of goodwill the world over would ask of their society that it provide the facilities and conditions so that every individual may have the opportunity through education to develop his potential to the fullest extent. An important basic step towards raising the dignity of man and the spiritual and intellectual quality of living is to provide initially the kind of education and training which will promote industrial and economic development through which the resources to achieve those objectives are won. Technical education is concerned with the production of a balanced workforce appropriate to the country's industries and stage of development. No country can wait until it has universal primary and secondary education or until it has what it regards as an ideal system of primary, secondary and tertiary education before providing an effective system of technical education. Technical education is one of the essential components of the educational system of any country.

The highly trained workforce of the modern industrialised country is a product of the educational system and the training and experience provided by the various industries. In general, the "industries", the employers of labour both in the public and private sectors, must provide that training (and education) which fills the gap between the knowledge, skills and attitudes with which the individual comes from the educational institution and the specific knowledge and skills needed for competence in the particular work situation. It may be said that the educational institutions of a country and the training arrangements of the country's industries discharge complementary roles in producing the nation's trained workforce. Where one falls short, the burden upon the other is greater. Thus the specific role and the pattern of technical

education may be expected to differ from country to country and indeed within the same country from state to state, region to region or industry to industry.

The need for technical education arises when the gap between that knowledge, skill and understanding engendered through primary, secondary (and tertiary) education and that required at the work place becomes too great to be bridged by the employers' training arrangements. The vocational emphasis in educational institutions differs greatly. There are secondary schools in some countries (or in some States within a country) which do not provide vocational education. On the other hand, some university courses are highly vocational. As Western countries have become more industrialised, there has been an increasing need for vocational education which has been provided neither by the secondary schools nor the universities. Technical institutions, variously named, have developed to meet the need. They have provided courses leading into a wide range of skilled, technical, professional, supervisory, managerial, administrative, service, clerical, sales and other occupations. Many of the courses are not "technical" in the narrow sense of training in the techniques of the mechanical arts. Perhaps surprisingly, technical education is characterised by the breadth of its range of courses.

The gap between a general primary and secondary school curriculum and the knowledge, skills and attitudes needed in an increasing number of occupations may be bridged in a number of ways:

1. the primary or secondary school may include vocational studies in its curriculum;

2. post-secondary technical institutions may be established in which the emphasis in teaching the sciences, mathematics, economics, language, principles of human behaviour and other fundamental subjects is vocationally oriented, generally by relating such studies to the technology and skills of an occupation or group of occupations;

3. training schemes within industry may relate the fundamental knowledge and skills gained in the schools or the technical institutions to the special requirements of the firm concerned.

What takes place within the schools and technical institutions is generally described as "technical education." What takes place within industry is generally described as "training." Where training schemes do not extend throughout an industry there is a tendency for the technical college to place greater emphasis upon training. Where technical education is non-existent or poorly developed, the larger undertakings at least will tend to include some aspects of technical education in their training schemes. In general however, the main characteristics of technical education and training may be summarised as follows -

TECHNICAL EDUCATION	IN-INDUSTRY TRAINING
Provides a broad vocational education concerned primarily with preparation for an occupation so that the individual may adapt readily in changing from job to job within his occupation and to facilitate re-training as jobs change.	Is concerned to fit the individual to carry out to specified standards the job to which he is assigned or to meet the the specialised requirements of his firm.
Although technical education is concerned primarily with vocational preparation, it will provide opportunities for the broadening of interests. It will have some interest in preparation for living as well as for earning a living.	In general, the major concern is for efficiency on the job but some firms do attempt to develop citizens as well as loyal and efficient employees.
The curriculum will generally include practice in skills or techniques basic to the occupation but the major reason for this is to deepen	Training will include practice and repetition of skills and techniques until performance reaches the specifications adopted by the firm. Unlike

TECHNICAL EDUCATION	IN-INDUSTRY TRAINING
understanding of underlying scientific principles and to stimulate and maintain that interest which makes learning more effective.	the practice in a technical college, it will continue until specific tasks can be completed within specified times and without error.
The teaching will aim to relate basic principles to a wide range of skills, techniques and other applications relevant to the occupation.	Training may be undertaken without reference to basic principles, or may refer to basic principles as a means of accelerating the acquisition of skill, relating them only to the applications encountered on the job or within the firm's specialised field.

The government of any country should have a policy on education just as it has a policy on economic development, on overseas trade, on defence or on social welfare. Indeed, a national policy on economic development (or even on overseas trade or defence) would be deficient without policies on manpower development and technical education. In working out its policy on technical education, a government may need to decide whether specific functions are best carried out in educational institutions or whether industry should be encouraged or required to undertake them. Such decisions will need to take into account the nature and stage of development of the country's industries and of its educational system. Britain, with its Industrial Training Act 1964, decided to place greater emphasis upon industrial training.2 A developing country, faced with a different

2. see (i) Industrial Training Act 1964, General Guide.
(ii) Central Training Council Memorandum No.1 - Industrial Training and Further Education.
(iii) Central Training Council Memorandum No.4 - Industrial Training and Further Education: a further statement.
(iv) Central Training Council Memorandum No.5 - Approach to Industrial Training.

set of problems may need to adopt a different strategy.

The period since World War II has been remarkable for the number of countries which have emerged from foreign colonial rule to become independent states. These and currently emerging countries are engaged in what is perhaps the most colossal endeavour in the history of mankind. They are attempting to establish national economies, to provide for more and better food, housing and education, to strengthen their own social and cultural heritage and to become effective members of the world community of nations. They feel a sense of urgency to achieve in a few decades what has taken centuries in some developed countries. Never before have so many countries been involved simultaneously in such a struggle. Upon their success depends the security and progress of the world.

The economic and social problems faced by most of the developing countries are not those of the developed countries. For that reason alone the British Industrial Training Act, the systems or strategies adopted in other developed countries, are generally not suitable for export to developing countries. In the developing countries one may find low levels of productivity; low average incomes and standards of living; massive unemployment or under-employment; high levels of illiteracy; high proportions of population living in what may be described as a rural subsistence society, dependent upon agriculture; divisions based upon race, creed and even language; and, with all this, an inadequate rate of economic growth. Such countries will be found trying to improve agricultural productivity, to establish secondary industries and to develop the kind of infrastructure adequate to support an industrial economy with its need for electrical power, communications, transport, distribution services, foreign trade and so on. Aided perhaps by developed countries, they may pour money into machines, plant and equipment, into acquiring all the instruments of production. Economic growth will not occur, however, until the people are trained and motivated to make the most effective use and obtain the maximum output from these instruments. The urgent need is to educate, to motivate and train the population.

In such a country, the burden of industrial training cannot be effectively assumed by a new industry which scarcely exists or by an old one organised on traditional, economically inefficient lines such that old skills and practices should be replaced by new and quite different ones.

In such a country the task of achieving functional literacy for an adequate proportion of the population may not be achieved by trying to duplicate the educational system of a developed country. By functional literacy is meant something more than the ability to read and write a common language. It includes the ability to comprehend and manipulate the concepts essential for mastering the scientific and technological basis of the new industries which must be developed.

At the time of the 1966 Census, 87% of the population of Papua and New Guinea lived in the rural subsistence society. Indigenous members of the monetary sector workforce did not exceed 235,000. Some aspects of the contrast between the occupational structures of New South Wales and the Territory of Papua and New Guinea may be appreciated from Table 3. It should not be forgotten that the picture for the Territory of Papua and New Guinea given in Table 3 refers to the monetary sector of the workforce. The subsistence sector, with no formal skills and largely illiterate, accounted for 87% of the population.

One who, like the writer, has never before been to Papua-New Guinea and has never been in a position to make a close study of its needs and problems in the field of technical education and industrial training, is not qualified to set down strategies or programmes to be followed. Nevertheless, those concerned with technical education and industrial training in the Territory may be interested in some general comments.

The first comment is one which, no doubt, will have been made by those dealing with manpower planning. It is that any developing country must be seriously involved in national development planning and, within such overall planning, educational planning must be integrated with economic planning and manpower planning. In particular, the coordinated planning of technical education and industrial training must be based upon the best information which can be produced by the manpower planners about the needs for the various levels and categories. Technical education authorities should not work in isolation from departments of labour nor from those in the public and private sectors of industry who will be concerned with industrial training.3

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3. Pan Indian Ocean Conference on Technical Education and Training. Perth, 1966. Conference Report pp. 21-22, 25-27

Because technical education and industrial training are partners in a common enterprise - the production of appropriately educated and trained manpower for that range of occupations required for development and in the right proportions to produce a well-balanced workforce - a system of technical education or a pattern of industrial training cannot be imported uncritically from another country. The six Australian States, for example, have apprenticeship systems rendered rigid through tradition which could hardly be imported unchanged to any developing country. Some features of these systems which would seem inappropriate in a developing country are -

> there are restrictions upon entry to apprenticeable occupations which ensure that the system produces fewer skilled workers than are needed in an expanding economy (or for that matter, in a static economy);
>
> during a four-year apprenticeship term in New South Wales an apprentice spends over 6,800 hours with his employer in training and practice on the job and 864 hours at a technical college so that his quality as a skilled worker depends very heavily upon the kind of training and practice provided by his employer.

It is obvious from these two features alone that in a developing country, struggling to establish a new industry, such a system would be inappropriate, for the employers will lack training capacity and will need assistance. Nor can the training be left to chance by expecting the trainee to copy other workers (as is often the case in our apprenticeship systems) if the aim of the Government is to reorganise a traditional industry on more efficient and scientific lines.

Notwithstanding the practice in developed countries, it will be desirable in many instances for a developing country to assist industry with its training by providing full-time basic courses leading into those occupational areas in which manpower investigations reveal the greatest needs. In the technical colleges of New South Wales there are virtually no full-time courses leading into skilled occupations. and middle range technical and sub-professional occupations. There is mounting evidence that such an omission is

inappropriate in New South Wales. In a developing country such full-time courses with an emphasis upon practice would seem to be essential where the government plans to establish or expand a new industry or to reconstruct an old industry on new lines.4

One problem faced by developed and developing countries alike concerns the relative roles of government departments concerned with education, with labour or with industries of national importance such as agriculture or mining. Responsibility for provision and co-ordination of education (including technical education) is generally located within departments or ministries of education, although ministries such as agriculture or health may assume some responsibility in their specialised fields. On the other hand, there are features about industrial training which generally ensure that responsibility for it is located within departments of labour. Where formal provision is made both for technical education and training there arise problems of deciding whether certain functions and kinds of facilities are to be located in one department or another or in more than one. In developed countries, with greater financial resources and poor co-ordination between government departments, duplication of facilities in separate and quite unrelated vocational educational and training projects may often be observed. In Australia, for example, one may find a ministry of agriculture, a department of mines, a ministry of labour and sometimes trade and professional associations providing for some aspects of technical education or training, often in competition with a ministry of education. A developing country may not be able to afford the additional financial drain of such multiple provision nor the inefficiency of such unco-ordinated effort.

In this paper no attempt has been made to draw a line between technical education and training. It is the view of the writer that the relationship is a dynamic one. One advantage of providing part-time courses in technical colleges is that the arrangement facilitates the co-ordination of technical education and training. What is done in a technical college may be adjusted to the training capacity of the industry it serves. I did notice that the Seminar Program sent to me records the topic of my paper as "New

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4. ibid p.28

Developments in Industrial Training". Upon receiving it, I thought about the developments associated with the British Industrial Training Act, I pondered briefly upon the seasonal window-dressing to which the Australian States treat their apprenticeship systems, I looked at the impact of educational technology and I wondered about the current fashion of firms in Australia to establish and expand industry training schemes. I decided that, if there is one new development which would do more for industrial training than any other, it would be to develop a close functional relationship with technical education. It would involve positive planning and effort on the part of those concerned with technical education as well as those concerned with training.

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APPENDIX I

TABLE 1

PROGRESS OF FIRST YEAR GENERATIONS THROUGH DEPARTMENTAL SECONDARY SCHOOLS

Details are provided in the following tables of the progress of first year generations through Departmental Schools. Enrolments shown in these tables are taken from the Age Grade Distribution of Pupils prepared in August each year and include all secondary pupils with the exception of those following post primary courses in smaller primary schools. Correspondence School pupils who are enrolled at other Departmental Schools have not been included in the enrolments shown for 1962 and since.

ENROLMENTS

	Year or Form					
Year	First	Second	Third	Fourth	Fifth	Sixth
1948	31,952	25,266	14,790	4,226	2,991	
1949	33,193	26,166	15,711	4,501	3,313	
1950	35,281	28,503	17,316	5,217	3,792	
1951	35,907	29,592	18,628	5,202	3,760	
1952	37,403	30,986	19,250	5,716	4,344	
1953	39,226	32,594	20,551	6,373	4,978	
1954	40,430	34,680	22,925	7,343	5,659	
1955	42,046	36,669	25,149	8,140	6,445	
1956	44,740	39,238	28,304	9,612	7,681	
1957	46,817	41,877	30,413	10,637	8,623	
1958	49,706	44,280	32,526	11,768	9,798	
1959	55,903	49,932	38,205	15,538	12,806	
1960	57,869	52,763	40,709	16,524	13,933	
1961	56,779	52,433	42,382	17,912	16,311	
*1962	58,224	54,964	42,317	24,515	12,946	11,424
1963	58,227	55,124	43,340	27,729	14,359	13,787
1964	57,972	55,934	45,383	31,208	16,386	
1965	59,762	58,177	46,657	38,451		
1966	61,336	59,936	49,037			
1967	62,331	61,590				
1968	63,453					

ENROLMENTS AS A PERCENTAGE OF 1ST YEAR ENROLMENTS

	Year or Form					
Year	First	Second	Third	Fourth	Fifth	Sixth
1948	100	79.1	46.3	13.2	9.4	
1949	100	78.8	47.3	13.6	10.0	
1950	100	80.8	49.1	14.8	10.7	
1951	100	82.4	51.9	14.5	10.5	
1952	100	82.8	51.5	15.3	11.6	
1953	100	83.1	52.4	16.3	12.7	
1954	100	85.8	56.7	18.2	14.1	
1955	100	87.2	59.8	19.4	15.3	
1956	100	87.7	63.3	21.5	17.2	
1957	100	89.4	65.0	22.7	18.4	
1958	100	89.1	65.4	23.7	19.7	
1959	100	89.3	68.3	27.8	22.9	
1960	100	91.2	70.3	28.6	24.1	
1961	100	92.3	74.6	31.5	28.7	
*1962	100	94.4	72.7	42.1	22.2	19.6
1963	100	94.8	74.4	47.6	24.6	23.7
1964	100	96.5	78.3	53.8	28.3	
1965	100	97.3	78.1	64.3		
1966	100	97.7	80.0			
1967	100	98.8				

* 1962 Intake in First Form was the first under the New Secondary Course.

TABLE 2

PERCENTAGE OF POPULATION AGED 17-22 IN MAJOR EDUCATIONAL INSTITUTIONS IN NEW SOUTH WALES

	1961	1963	1965	1967
Universities	4.4	4.7	5.0	4.8
Technical Colleges	14.9	16.3	16.5	16.4
Secondary Schools	2.2	2.7	3.1	5.8
Teachers' Colleges	1.1	1.2	1.0	0.9

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TABLE 3

OCCUPATIONAL STRUCTURES
(by major group)

	OCCUPATIONAL GROUP	New South Wales		T.P.N.G. (Monetary Sector Workforce)	
		Number	Percentage of Workforce	Number	Percentage of Workforce
0.	Professional, Technical and Related Workers	166,896	9.20	19,472	7.6
1.	Administrative, Executive and Managerial Workers	115,563	6.37	4,355	1.7
2.	Clerical Workers	277,166	15.28	7,097	2.8
3.	Sales Workers	138,903	7.66	5,266	2.1
4.	Farmers, Fishermen, Hunters, Timber-Getters and Related Workers	141,147	7.78	132,215	51.8
5.	Miners, Quarrymen and Related Workers	14,212	0.78	3,274	1.3
6.	Workers in Transport and Communication.	112,333	6.19	7,754	3.0
7/ 8.	Craftsmen, Production Process Workers and Labourers n.e.c.	655,309	36.12	46,692	18.3
9.	Service, Sport and Recreation Workers	137,659	7.59	22,900	9.0
10.	Armed Services	24,046	1.33	2,703	1.1
X	Occupation inadequately described	30,918	1.70	3,305	1.3
	TOTAL	1,814,152	100.00	255,033	100.0

THE FRAGMENTATION OF VOCATIONAL EDUCATION

AND

THE NEED FOR CO-ORDINATION

by

J. T. GUNTHER

Vice Chancellor
University of Papua and New Guinea

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When I discussed this subject with one of the organizers of the Seminar, he stated that the word 'co-ordination' was the other side of the fragmentation penny. I make no apologies for promoting a discussion on the fragmentation of education, since I believe it is one of the very real problems the Administration must meet.

There is obviously a need to define just what is meant by some of the words in the title. By fragmentation I mean a series of isolated institutions or persons, whose only connecting thread is, for the most part, membership of the Public Service, or other established bodies, the Christian Missions, or such bodies as the Cooperative Movement. However, in this paper I do consider the autonomous institutions: the University and the Institute of Higher Technical Education. If we could take adult education as it was practiced some months ago as an example - there was an Advisory Council; there is the Department of Information and Extension Services; in the Department of Health there is a branch providing health education; a major labour of the Department of Agriculture is extension; there is a training officer with the Public Service Board; the Department of District Administration and Native Affairs had welfare officers and conducted community development courses; the same Department also had an officer whom I assume was responsible for the development of youth; the Department of Education has a clearly labelled adult education officer; and then on top of all this the University is examining the part it should play. There must be gross duplications and overlapping. The creation of the Department of Social Development and Interior might have altered this pattern greatly; I hope it has.

I originally chose to use the word tertiary education, in the meaning of education following a period of secondary education, either at the end of a prescribed period in the cycle of education or after completion of the leaving certificate. Most of this, except some university education in the humanities and liberal arts and perhaps science, could be called vocational education. Education in Law and Medicine is as much vocational education as the trade training of, say, a carpenter.

One of the terms of reference of the Commission on Higher Education in Papua and New Guinea was "The functions of the schools for medical, agricultural, administrative and

teacher training and for other forms of tertiary education that have already been established or planned in the Territory and the relationship of such schools to any university institution which may be recommended to be established in the Territory". The Report of the Commission went to some length to link these institutions of tertiary education with the University. Its recommendations were apparently not acceptable to the Government. The Minister for Territories made three announcements about the Report: one that the Report had been received; the second that there was a need for technical and technological education, to which the Report itself had given great prominence; and finally, after a Departmental enquiry, a report that the Australian Government was prepared to accept the need for a university in Papua and New Guinea. To the best of my knowledge, at no time did the Government accept or reject those sections of the Report that dealt with the relationship of the Medical College, the Agricultural College, the Administrative College, and teacher-training colleges to the University. A unilateral proposal that the Administrative College should become an institution of the University was rejected. In 1965 the Interim Council of the University announced that it would conduct degree courses in Medicine; currently this is still being considered by the Government.

The situation today is there are two autonomous institutions; and there are a number of tertiary institutions set up and managed by Departments. The original intention was that the Institute of Higher Technical Education should be an autonomous institution, but physically associated with the University and sharing with the University certain common facilities, for example, the Students' Union Building and Cafeteria, Halls of Residence and the Library. The ordinance which established the Institute prescribed that it should be in Port Moresby. Its first teaching building was located on the site plan and a standard architectural design was adopted for this building. There was some disagreement between the Council of the University and the Council of the Institute. But it was not at the wish of the Council of the Institute that the House of Assembly amended the ordinance to prescribe that the Institute be located in Lae. I have previously said that this decision was a bad one financially and educationally; I still believe this is so. Financially it probably will have cost about $600,000 more to move to Lae during the first triennium.

Educationally it separated the academic staff, and it prevented the students from enjoying common facilities and being able to make fairly easy changes between courses. On the other hand it did decentralise higher education, and though there may be desirable reasons for this they would be political. It did bring an institution of higher learning to Lae, which could well be a major port on the New Guinea side of Papua and New Guinea.

The Report on Higher Education in Papua and New Guinea deliberately recommended an autonomous Institute of Higher Technical Education, and, by the way, deliberately chose that rather verbose title. Members of the Commission are now regularly told that they made a mistake in not establishing technological degree courses in the University from the beginning. Perhaps the Commission did make a mistake. It spent a very great deal of time trying to see how you could fit the urgent needs for people with technological "know-how" into the pattern of education then existing. The Commission thought it saw a most satisfactory model in South Australia. Here an Institute of Technology occupied grounds adjoining the University, and the University gave its degree to those of the Institute's graduates who undertook a university type course. The Institute in South Australia gave diplomas and certificates to students taking so called vocational courses. The Commission was also impressed by what had happened in New South Wales, where the New South Wales University of Technology was set up to take over some of the diploma-giving courses from the Technical College and to grant degrees to graduates. Subsequently it became the University of New South Wales, extending its teaching into all commonly taught university subjects, including recently, Law. At the time the Commission was looking at the pattern of Australian universities, they were impressed that members of the professions of Engineering and Architecture saw the need for technical college training for these vocations, so that the classes that had been closed in the technical colleges in New South Wales were reopened. Exactly the same thing has happened at Kumasi. Kumasi started off as the Kumasi College of Technology teaching at diploma and certificate level. Later it became Kwame Nkrumah University of Science and Technology and gave degrees. Since the revolt against Nkrumah it is now named the University of Science and Technology, Kumasi, and it has been requested to reintroduce a number of diploma courses. It was the hope of the

Commission on Higher Education that the association of the diploma-giving Institute of Higher Technical Education with the University would allow it to drift into the University, rather than away from it, so that a co-ordinated institution would result. But, this cannot now happen. I repeat. I am certain both institutions are the poorer; certainly the University feels it is. The tragedy of it is, if it is a tragedy, that what happened need never have happened.

Once the decision was made, it was essential that the Institute of Higher Technical Education become a degree giving institution. Inevitably it will become a second university. If one asks whether the Territory requires a second institution today, part of the answer could be that New Zealand with about the same population has six universities; Singapore with a lesser population has two universities and a polytechnic; the University at Townsville is about to become autonomous and plans are well advanced for a third campus in Queensland.

A University has been created in Malawi, a country that has twice the population of Papua and New Guinea. The University is made up to a series of constituent institutions, which include the Bunda College of Agriculture; the Chancellor College, which provides courses for degrees in Arts and Science and post-graduate study; an Institute of Public Administration, which not only gives a diploma course for post-graduate students, but also a degree in Law; a polytechnic, which at this stage gives diploma courses in technology and business subjects and also a wide choice of certificate courses, including evening classes; and finally Soche Hill College which trains secondary school teachers, including homecraft specialists. It was the ambition of those who set up the University to provide training under the one umbrella at all levels, and although this is fraught with many difficulties, I believe they will succeed in Malawi. The Morris Committee recommended a similar co-ordination of already established institutions for the University of the South Pacific. Its Report was subject to advice first from Sir Norman Alexander who suggested some amendments, then from Mr. T.W. Gee and now Dr. Pickard. I am not suggesting for one moment that we apply the same umbrella approach in Papua and New Guinea, although the Currie Commission gave such advice.

Australia saw the need for another kind of tertiary education institution. In some States in the Commonwealth, particularly South Australia and Victoria, Institutes of Technology were serving this need. A committee, the Advisory Committee on Advanced Education, was set up and recommended that Colleges of Advanced Education be established to absorb those students who wanted a more "applied" education than was given at the universities. It was said the cost of this education would be cheaper since research would not be done. Therefore the teachers in the advanced colleges would teach for longer hours than is the usual habit in a university. It was said that the colleges would develop close relationships with industry and meet industry's particular needs. The proposal was that much of the education should be practical, but with the learning of one subject in depth. At first the universities were inclined to look upon these Advanced Colleges as little more than slightly superior diploma-giving technical colleges; they should have been aware of the history of the CATS in the United Kingdom. The situation now is following the recent release of two Reports, the Sweeney Report on salaries in Colleges of Advanced Education, and the Wiltshire Report on academic awards in advanced education, that the cost of these Colleges will not be as cheap as hoped. To put it in a nutshell, one report recommends that the same salaries that are given in universities be given to senior lecturer and lecturers in Colleges of Advanced Education and the other that the Colleges be given the power to grant degrees. Thus, the Colleges of Advanced Education are moving rapidly towards having a stream with university status. In my opinion they will not achieve what the Commonwealth Government originally wanted them to achieve; the teachers will want to undertake research; they will develop along the lines of the New South Wales University of Technology and the Kwame Nkrumah University of Science and Technology. Then the Australian States will have to do what the New South Wales Department of Technical Education did and redevelop education in technological subjects at a diploma level. Eventually they will not cheapen, but add greatly to the high cost of advanced education. It is surely a case of fragmentation of another kind. This may contradict my belief that the University of Malawi and the University of the South Pacific will succeed. The difference is in the societies. An affluent society will want to separate the chaff and the grain, without much thought of cost.

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The great failing of the Belgian colonial administration was to establish primary education but greatly hold back on secondary education. In 1958 a Belgian apologist, Eric Cypres, had said: "At the end of thirty years the Belgian system will also produce an elite with university training, but unlike the French colonies, the Belgian Congo will have a broad base of literate persons for them to lead". I am trusting my memory now, but I think there were only twelve university graduates in the Belgian Congo when independence was given, and not more than double that number at universities in Belgium. When Lumumbu and others demanded independence hhe public service was almost entirely Belgian. Frankly, I think the Belgians thought that the Force Publique, a paramilitary force, would remain loyal to their Belgian officers, (there was not one Congolese officer in the Force Publique). They thought this military force would continue to rule the country according to the dictates of its Belgian commanders, no matter what the civil government of Lumumbu did. The intense surprise that the Belgians got was the mutiny by the non-commissioned officers and soldiers in the Force Publique, so that this so-called disciplined body became a force of frightful destruction overnight. Quoting from Colin Legum's Congo Disaster: "On the eve of the mutiny the Commander of the Force Publique, General Janssens, attended an American July the Fourth party in Leopoldville. Laughing and joking, he met questions about the security position in the Congo with easy confidence: 'The Force Publique? It is my creation. It is absolutely loyal. I have made my dispositions'. Three days later he was dismissed; a few days more and the Force Publique had become the rogue elephant of the Congo."

The claim was made in Australia that the policy of the Australian Government was gradualism. It was suggested that there was development of universal primary education and the holding back of secondary education; this was never true. Probably education did not really get under way until 1951. The primary cycle was a seven-year course, and I would think that nearly as many people as could satisfactorily complete secondary education were given the opportunity. There has been a steady development of high schools since the late '50's and early '60's; the University and the Institute of Higher Technical Education could not have come much before they did. On the other hand, training in semi-professional and skilled occupations did not proceed with any reasonable speed. In fact I think there was a lack of foresight. It

seems to me quite wrong that the generalist department, the new Department of the Administrator, has only 11 local officers out of 201 in manpower Class B, the sub-professionals, and 113 out of 618 in Class C, skilled workers. This is respectively 5.5% and 17.7% and compares most unfavourably with Public Health's 52% and 44.5% respectively. Similarly, Agriculture's 7.5% local officers in Class B and Class C 47% compares unfavourably with the Royal Papuan and New Guinea Constabulary 61% and 55% of its non-civilian force. The Stores Department has only 9 local officers out of 61 of its workers with any skill, and in fact it only has 148 of its 239 workers in Category D the semi-skilled division.

Until there is a policy which quite clearly lays down certain training programmes, the present fragmentation will maintain this complete imbalance in localisation of the Public Service. Although the outturn from the schools is not yet sufficient to meet all of the bed places available in most tertiary institutions or to meet the great need in the trades, we must settle down to train people not only to take over from expensive overseas officers, but to provide what the population wants.

I do not now suggest we should mark time whilst we fill up manpower classes D, C and B. It is far too late to try and create a nice balanced pattern of vocational education as the Belgians tried to do. It has been said some will fall out of class A to make up the deficiency in numbers in B, others will move up from C and still others will gain skills on-the-job and move from D to C. As things are we cannot train too many people for any one class. We have to make the best use of what we are getting from the schools, and I, for one, would have no objection if the Administration used its scholarship schemes for manpower development, subject to the individual having a reasonable choice and to giving encouragement to enter the semi-skilled, skilled and sub-professional categories by offering a fair margin in wages over the base grade labourers entitlement.

I know that very much thought is being given to manpower needs and ways are being sought to mend the imbalance. What is needed is another Currie-type commission, but this time it should have wider terms of reference to advise, if you want to give it a name, on <u>balanced education</u>. Let us try to do something about the fragmentation in adult education. I repeat it is not my theme to say that all

education policy should come under the one umbrella. The Report on Higher Education in Papua and New Guinea did not say so. It tried to suggest and recommend, within its Terms of Reference, what should be taught and where it should be taught. I have heard nothing but commendation for the content of the Report, yet much of it still seems to be unaccepted. As to training or teaching Niuginians, it may be interesting to look at some of the past.

It was popularly believed before the War that Niuginians could not be trained to be professional or sub-professional people. One Director of Public Health speaking of the local people said they could never be trained to be better than a dresser. In fact some of the Annual Reports went well out of the way to describe how carefully they applied a bandage. In Papua from 1929 the government tried to train magistrates. I think they gave up what they believed was an impossible struggle in 1942. On the other hand, the Papuan government sent Papuans to Sydney to the School of Public Health and Tropical Medicine, where they did come to do what was said to be a part of the medical course. I am not sure what they learned. Certainly, as I remember it, they learned no clinical medicine whilst in Sydney. There is no reason given for the Papuan government changing its mind to send these people to Sydney rather than to Suva, Fiji. In 1945 the graduates from the Sydney scheme were mostly employed in the then new Department of Native Labour. The fact is that the additional education had improved their fluency in English and according to the Head of the Department of Native Labour, they made first-rate clerks despite a so-called sub-professional training.

I make no apologies now for being one of the people who was first responsible for the fragmentation of vocational education. The Department of Public Health saw that unless the Niuginian could be involved to the greatest possible extent, no satisfactory health service could be established. I can well remember in 1946 travelling to Suva, meeting Dr. Hoodless, who was then the Principal of the Suva Medical School (now the Fiji School of Medicine) and discussing the possibility of sending young men to Suva who had not completed a secondary education. (In explanation of this proposal it is not unreasonable to quote Miss Dannsvig, the educational expert of the Permanent Mandate's Commission as saying of New Guinea that she knew of no Territory under

mandate in which education progressed so slowly. In 1946 there was no student available with a complete secondary education.) Dr. Hoodless was one of those interesting people who did Medicine part-time; he had been Director of Education in Fiji and during his vacations he studied in London to get a qualification which allowed him to be registered to practice as a doctor. Thus, as an educator and a doctor, he was probably eminently suited for the position of Principal of the Medical School. He also realised the urgent need for Assistant Medical Practitioners throughout the Pacific and he felt he could graft his type of vocational or tertiary education on to anybody who had had, say, eight years of schooling. There were a few such people then at Sogeri, a school that had been set up by ANGAU. The late Harry Buckland was charged with giving a select few what amounted to a hot-house schooling to fit them for Suva. The Suva School, however, rapidly increased its standards and raised its requirements, so that after a while it became almost impossible for Papuans and New Guineans to enter that school. Hence the early need for the Medical College in the Territory. When it was set up this College was taking pupils from high schools before they had completed their secondary education and giving them special education in English and Mathematics. This was continuing fragmentation at its worst - but it was localising the service.

After this one of two things happened. Departments maintained the belief that Papuans and New Guineans could not be trained to be professional people or administrators, or, alternatively, they were unable to compete in the race between the Department of Education and the Department of Public Health to recruit better school leavers.

Today 9% semi-skilled workers employed in Papua and New Guinea are non-indigenous. This is inexcusable, and I regret to say that the Public Health Department is quite a major offender in this regard. It is also inexcusable that in 1969 only 51 of the 678 persons employed in Category A are local officers. The rest are overseas officers. Of the 51, 46 are in the Department of Public Health. There are 139 Professional Officers in that Department, thus 24% of them are local. The only other Department that has anywhere near this percentage is the Public Service Board which has 3 out of 13. The Department of Agriculture, Stock & Fisheries has 1 out of 108; the Department of Law 1 out of 70.

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One must blame an uncoordinated post-school education policy for this situation, and those of us who had the opportunity to do something about correcting it must take the blame.

The ordinance which created the University of Papua and New Guinea has a sub-section 5(2): "Notwithstanding anything in this Ordinance contained the Council shall, as soon as practicable after the commencement of this Ordinance, establish and maintain an institute or college as part of the University at Bulolo and Goroka and at such other places in the Territory as the Council may from time to time deem necessary or convenient". This sub-clause was inserted at the specific request of the Elected Members of the House of Assembly. They had in mind that the Forestry School at Bulolo and the Secondary Teachers' College at Goroka should be colleges of the University. This would give U.P.N.G. a similar educational pattern to the Universities of Malawi and the South Pacific.

The decision to send students to Australia for degrees in Agriculture and Forestry would not, I believe, have the blessing of any educationist in the Territory or any educationist in Australia with experience of the needs of developing countries. Last year an effort was made to recruit students for agricultural education in Australia. I think one student is now studying at the Australian National University. The University of Papua and New Guinea has long said that it can prepare students for the vocation of Agricultural Science. We have not said that we can offer a degree course in Agricultural Science, but our proposition clearly could lead to this. We have a very sound Faculty of Science, all the members of which are involved, or wish to become involved, in the application of their particular discipline in the service of the Territory. The University would need no increase in staff to take into its Science course those who have already chosen to undertake a Bachelor of Science degree course and who wish to become agricultural scientists, and I should add here that a recent survey of our local science students shows that a great majority wish to enter the agricultural field. Instead, however, some students will be selected to go to Australia, apparently to take part in a Science Summer School. I assume those who are not already matriculated to enter an Australian university will then be given the opportunity to qualify. There can be no objection to Papuans and New Guineans entering

other universities but I am a very firm believer in the first degree being taken locally. I think it might be a good thing for the country generally if some had worthwhile experience of other countries and other universities, but it is madness to choose Agricultural Science as a subject on which Niuginians should concentrate overseas. Papua and New Guinea needs geologists and the University hoped to set up a Department of Geology, but it has been unable to do so. Therefore, until a department can be established in the Territory, it might be wise to educate geologists in Australia.

The Report of the Commission on Higher Education strongly recommended that the University embark on external studies. In principle the University has accepted this challenge but has been unable to promote external studies through lack of finance. Nevertheless, either the Administration or the Department of External Territories contributes towards the maintenance of external studies courses at the University of Queensland. The University of Queensland had a very real desire to get out of teaching in Papua and New Guinea and, in fact, its Senate so decided. However, they were asked to continue on the grounds that there were a number of overseas persons in Papua and New Guinea who would want to be educated through the University of Queensland rather than through the University of Papua and New Guinea. This argument perhaps had merit. But our experience in Port Moresby shows that overseas personnel prefer the local university.

I suppose the amount of money spent on maintaining our link with Queensland is not great. As I remember it the Territory had to provide a training officer, or officers, and library facilities. Also an annual residential school had to be conducted. There will be a number of Niuginians who complete the course at the secondary teachers' college at Goroka who will want to continue studies and get a degree. They may be unacceptable to Queensland as they probably would not have reached Queensland's matriculation standards.

There is also, I believe, some fragmentation at lower levels of vocational education. There are training institutions conducted by the Christian Missions which are counterparts of Administrative vocational schools or colleges.

There is one institution that I will never be able to understand, and that is the Cooperative Training Centre. This Centre is training people in business practices and business ethics, in the art of management, and in the principles of buying and selling. Its graduates should be able to keep books. These surely are activities that at a higher level would be carried on at the Institute of Higher Technical Education, and at a lower level in technical colleges. One difference between these colleges and the Cooperative Training Centre is that the Training Centre tries to inculcate the Rochdale philosophy. For the life of me I cannot understand why this cannot be done just as easily in a technical college or in the Institute of Higher Technical Education. If these institutions are not able to obtain somebody steeped in this cooperative philosophy, then the cooperative movement itself could, perhaps, provide the part-time teacher.

Probably the fragmentation and the lack of coordination was at its worst when the University and the Administrative College were each teaching their own courses in English as a Second Language, under the same roof, using the same equipment, with students having the same entrance standard. A similar sort of thing is probably happening today in Public Administration. The University teaching Political Studies must include as a unit a course in Public Administration. The Administrative College conducts a course in Public Administration for which it grants a diploma and which the University accepts by granting of four credits in a degree course.

There is a developing expertise in the Territory in teaching English as a second language and in education. I believe there is coordination at a personal level, but from experience, very little at the official or hierarchical level. This could well be the fault of the University. We have been jealous of our standards. However, because of the importance of teaching English as a second language, there surely is an urgent need to coordinate the best available information and skills.

The University has now had four years experience of setting up and teaching a preliminary year that will raise the standards of school leavers to qualify them to matriculate and take university courses. I believe the course developed might be sufficient to allow persons to

enter some colleges of advanced education in Australia. It would, I think, be a useful course for persons entering say a police college or the Officers' Training College at Portsea. Instead of making use of it the Army has set up its own preliminary education centre in New Guinea. Obviously there are special reasons for this and I might reasonably be told to mind my own business.

Before bringing this fragmentary sketch to a position where we can talk about coordination, I would like to make the point as I have often done before that Papua and New Guinea cannot afford the luxury of two reference libraries, especially if both these libraries are in a town the size of Port Moresby. The University library has to be developed not only to meet the needs of students, but to satisfy the research needs of staff. This library can be, and indeed at the present time is a public library, lending as freely to the general public as it does to staff and students. The Administrative College has a first-rate library, covering the disciplines, government and administration. It is so close to the University that we should not be duplicating those areas, except to carry material that the Administrative College does not feel it should put on its shelves.

I have talked of fragmentation and the need for coordination. Some of the worst features are:

1. Duplication of effort. As an example, our science course would not be complete today unless we offered Genetics as a subject. Whilst it is a separate institution the Medical College will need a geneticist. The same may be said of biologists and biochemists, and so on. If a special cooperative training centre is set up it will require administrative staff already held by the Institute of Higher Technical Education or the technical colleges, for local government training.

2. Different Educational Standards. Even at the diploma-giving level the Medical College, the Agricultural College, the Secondary Teacher Training College and the Forestry School may be compared. A further comparison may be made between the Preliminary Year at the University, the mature education or 1A course at the Administrative College, and Forms V and VI at the Senior High School.

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3. Different library policies lead to some degree of duplication and to different standards of training of library assistants.

4. Different Extension Techniques. The methods used by Public Health, Agriculture, Native Affairs may be compared; also the audiovisual equipment used, and its standardization and maintenance.

5. Wasteful Training Practices. Sometimes the rigid application of an overseas practice such as the apprenticeship scheme when it was first introduced twelve or more years ago.

6. Different Office and Budgetary Control Practices.

These are but some of the disadvantages of our imbalanced education. We must have another long, hard look at requirements and methods. The first thing is to complete the delineation of manpower needs. Then another Currie-type commission, but with wider terms of reference, should be set up, and, finally, a Council for the Accreditation of Awards to ensure that if the Institute of Higher Technical Education is giving courses of advanced education its graduates get degrees. This Council would also ensure that diplomas have some equating merit, and that those who earn diplomas can see they will attract emoluments well in excess of the basic wage.

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EDUCATION AND TRAINING

FOR THE

BOUGAINVILLE COPPER PROJECT:

A CASE STUDY

by

L.W. LYONS

Training Officer
Bougainville Copper Pty. Ltd.

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Introduction

Selected statements from a White Paper presented to the House of Assembly by the Acting Assistant Administrator, Mr. A.P.J. Newman, provide an appropriate introduction to an analysis of the industrial education and training being undertaken by the Company.

The copper deposit at Panguna on Bougainville contains some 760,000,000 tons of ore with an average grade of 0.47% copper and 0.4 dwt per ton gold, which has been proven over a number of years at a cost of some $16 million.

It is envisaged that an investment of $300,000,000 will be required to bring the Project into operation with a resultant throughput of 30,000,000 tons of ore per year to produce copper concentrate containing some 150,000 tons of copper and 500,000 ozs of gold.

The export of copper concentrate in 1972-3 will double the value of the Territory's exports to nearly $200,000,000 with considerable revenue benefits by way of taxes, royalties and dividends accruing to the Administration and people of the Territory. To bring such an operation into fruition a considerable workforce has been needed in the exploration stage and will number up to 4,000 in the contruction stage.

By 1972 a permanent company workforce comprising approximately 1,100 Papuans and New Guineans and 700 expatriates will have been established. Additional employment by industrial and service industries will provide employment for a further 200 expatriates and 700 indigenous people. The Project is extremely large even by world standards, involving considerable utilisation of manpower, materials and machines.

The planners of the project realised early in the exploration phase that the utilisation of the local manpower potential available in the Territory would immediately and in the long-term, be beneficial to the operation and would result in a considerable upgrading in industrial skills for those employed in the enterprise.

By 1967 an education and training programme had been inaugurated to improve the skills and abilities of our indigenous employees.

Realising the useful information which could be obtained both in the technical and manpower spheres, senior Company personnel visited copper mining complexes in Africa, the Philippines and other countries, obtaining a considerable body of knowledge on training and educational programmes directed mainly towards the indigenous workforce in these countries. The paramount lessons learned from such visits were that:

(a) it is politically, socially and economically expedient to train and utilise the local population in such an industry in as many positions as possible;

(b) Papua-New Guinea in relation to many other emerging countries had considerably lower numbers of skilled manpower available as tertiary and sub-tertiary institutions were only just beginning;

(c) because of the complex nature and variety of work contingent with any large-scale mining venture where a workforce ranges from unskilled labourers to highly skilled professionals it is axiomatic that the range of education and training provided would be necessarily very broad, involving a substantial capital expenditure in setting up and manning a training establishment.

From these and related studies certain aims for the development of an educational-training programme were formulated which included:

(a) To meet and, where possible, exceed the preliminary manning (operational) guidelines in relation to the indigenous labour content.

(b) To examine methods and undertake steps to provide effective practical and theoretical training for indigenous employees.

(c) To provide additional academic instruction to enable employees to profit from industrial training.

(d) To explore and undertake steps to obtain an adequate supply of technically qualified personnel.

In a single operation such as ours the range of skills required both in an exploration and in an operational stage are uniquely wide for this Territory and cover amongst other skills, chemists, assayers, geologists, minerologists, samplers, surveyors, draughtsmen, quality control inspectors, civil, mechanical, electrical and design engineers, instrument technicians, fitters, welders, power plant operators, light and heavy equipment drivers, secretarial and accounting personnel, storekeepers, explosives issuers, welfare and community development officers, laboratory technicians, cooks, first aid officers, industrial relations officers, photographers, industrial psychologists, teachers and instructors.

The crucial elements in the establishment of a training programme to provide a range of the above personnel were firstly that not only the training section but other personnel in the operation would, to a large degree, be involved in training and, secondly, that the training programme would have to be very flexible to provide the right training at the appropriate time. As new needs occur, so new training courses would have to be devised. Continuous liaison between the training people and the operating departments within the Company would be necessary for the success of the training programme.

Education and Training 1969 and Beyond

Management - Engineers

The main avenues for training in this field are through the tertiary institutions in the Territory, including the University of Papua and New Guinea, the Institute of Technology, and at overseas tertiary institutions which will be utilised for courses not immediately available in the Territory, and some post-graduate study.

In the current year the Company is providing a total of 41 full-time and 7 part-time block release scholarships. Of the full-time group, 11 are undertaking Engineering, Surveying and Business Studies courses at the Institute here in Lae, and 4 are undertaking Science Degrees at the University.

An increasing number of students will be sponsored to these institutions to provide a substantial proportion of the high-level skilled manpower necessary for our operation. By 1972, with the commencement of production, 5 graduates and diplomates will be employed by the Company in various capacities, and the numbers graduating and proceeding to the site will expand rapidly during the early production years.

The Scholarships provided by the Company cover all expenses as well as liberal textbook and spending allowances. In addition, yearly home leave is granted and well paid and interesting vacation employment is provided whilst the sponsored student is studying.

The response to Scholarship advertisements for all professional disciplines at both the University and the Institute of Technology has been extremely promising and the young men of Papua and New Guinea have shown a keen desire to participate actively in a copper mining venture.

Scholarship-holders of the calibre of Nolis T. Douglas from New Ireland, at present studying Civil Engineering under a Company Scholarship at the Institute, and a recent winner of the Territory Youth of the Year award, provide considerable promise for the future efficient and responsible operation of the Company.

In selecting school leavers for Company Scholarships the accent is on the high achiever who shows leadership potential. Where possible, a selection of students from a variety of Territory districts are sponsored to inculcate a healthy spirit of inter-Territory cooperation both on the campus, during vacation employment, and, ultimately, when the Project becomes a viable operation.

Close cooperation is maintained with University and Institute authorities, and the details of future proposed technical courses are discussed.

The Company is aware of the benefits from post-graduate studies and recently granted the Institute $1,000 for a Post-Graduate Scholarship.

Technical, Commercial and Tradesmen Training

In the training of technicians, we are at the present time utilising Lae Technical College, with additional training being given on site and, when appropriate, at other Company operations overseas.

The Company has sponsored students into the Mechanical, Building and Commerce certificate courses at the College. Our first Certificate of Mechanical Engineering graduate, Sierra Munaga, arrived on site in January and is now under the guidance of a Mechanical Engineer engaged in planning and liaison work connected with construction and the utilisation of heavy plant on the Project.

The benefits of promoting outstanding tradesmen and apprentices into such courses is realised and among our recent sponsorships on a three months Mechanical Engineering block course at Lae Technical College was Aaron Mirana, a fourth-year apprentice mechanic, who has excelled in his trade and is a forerunner to many other high-level apprentices who will be increasingly sponsored to similar courses and ultimately to full tertiary level courses.

The formal training of tradesmen by the Company at the present time involves 39 apprentices either undergoing training on site or at Territory technical colleges.

In 1970 50 apprentices will be undertaking on site training and an additional 40 will be sponsored to technical colleges to undertake the revised Form III allied trades year with opportunities for the brighter apprentices to undertake an additional specialised Form IV year.

During the period 1970-73 some 220 tradesmen will be undertaking formal training at Territory technical institutions and on site.

It is essential that our tradesmen be of as high a standard as possible and to this end apprentices on site will be given additional intensive theoretical and practical training in the Company's apprentice workshops as well as undertaking yearly 5 to 6 week block courses provided by technical colleges.

The demand by Administration departments and private companies for apprentices is extremely heavy, and we welcome the expansion of the Territory technical system by the commencement of the Bougainville Technical College which should add considerably to the numbers of young apprentices being turned out by the technical colleges.

It is essential that young apprentices be given adequate guidance and testing to enable them to specialise in the trade to which they are best suited. A large proportion of young mechanical apprentices think specifically of a mechanical apprenticeship being of an auto or diesel mechanics nature only, yet we will have a need for fitters and turners, with the best of these specialising in machining and instrument work. It is considered that guidance in the exact nature and requirements and the type of work undertaken in each trade would serve to help the prospective young apprentice to gain a clearer idea of the type of work he could ultimately undertake. Visits by potential apprentices to engineering and other establishments in the various Territory centres, both prior to and during technical college training, would help considerably in accurate and satisfying job selection.

A difficulty which will become increasingly pronounced in the Territory is the implementation of an educational system which pushes the brightest youths to complete academic education, thereby materially reducing the quality of apprentice applicants. The importance of "blue collar" work needs to be firmly implanted in the minds of Headmasters and Careers Advisers and that occupations in this category need their share of high-level school students.

Semi-Skilled Operator Training

Considerable importance is attached to on site light and heavy vehicle driver training and plant operator training.

At the present time three light vehicles are engaged full-time on driver training. To ensure maximum utilisation of vehicles training takes place seven days per week.

Light vehicle drivers normally take 6-8 weeks to complete a driving course which comprises as well as extensive instruction in the vehicle, basic mechanical and servicing techniques, and instruction and practice in safety and road rules. Safety films are used where possible and a miniature test track with scale model vehicles also aids instruction. Lectures by police officers are arranged periodically to reinforce safe driving techniques.

Truck driving has been proceeding in a 4x4 tipper truck and this will be supplemented by a larger tipper unit.

Bulldozer operator training has already commenced and a full-time expatriate instructor will shortly be arriving to add impetus to this training. The Company's Mining Department has allocated a Caterpillar D8H bulldozer for on the job training and this is supplemented by workshop instruction and practice in servicing techniques.

The standard of training must be maintained at a high level as many of the present trainees will ultimately be used to drive off-the-highway dump trucks of between 75 and 120 ton capacity.

A number of other training courses have been arranged for chainsaw operators, cooks, radio operators, clerks, trade store assistants, photographic and hydrographic assistants, diamond drill core handlers, explosives handlers and projector operators.

As new demands arise so new courses will be devised to fulfil the relevant needs. The integral feature of any broad training programme must be flexibility and ability to rapidly supply the training service required.

Non-Vocational Education and Training

This embraces such instruction as safety and First Aid training and extends to correspondence courses under the auspices of the Port Moresby Correspondence School and Sydney Technical College. At the present time some 80 students are studying for Territory school levels ranging from Form I to Form IV. Company employees are encouraged to

undertake studies with those passing successfully being given an opportunity to undertake additional training with consequent promotional benefits.

In October of this year we propose to commence an Industrial Development course, extending over a period of 6-8 weeks to up-grade Company employees in English, Mathematics, Industrial Science, Company Policy, General Industrial Information and Supervisory Skills. In programming this course, liaison will be maintained with the Adult Education authorities of the Department of Education. It is hoped that one of the benefits of such a course will be better communication between indigenous and expatriate employees and that present and future employees can be inculcated with a fuller awareness of what is expected of them in an industrial working environment.

Induction courses are held daily for newly arrived indigenous employees, providing them with basic information on pay and conditions of employment.

Pidgin instruction is given as an integral part of Induction sessions for newly arrived expatriate employees and basic English classes are to be provided for those who have recently arrived from foreign countries and who have little facility in English.

Other developmental training undertaken for employee improvement includes junior supervisory courses for indigenes and in the not too distant future, supervisory, senior supervisor, middle and senior management courses for both expatriate and indigenous employees.

As an adjunct to the range of training facilities made available to Company employees, training personnel are engaged in the organisation of sport for indigenous employees. It is also hoped to commence Boy Scouts shortly to aid in the development of the younger employee.

A technical and general recreational library is available for the benefit of all employees and educational film evenings have become a regular and eagerly awaited Friday evening feature.

We are keen to welcome any Administration or private agencies to conduct useful courses or give lectures on site and one of our regrets to date is that many such services stop at the main centres and that various authorities

and instructors do not penetrate as far as Bougainville. As the Project comes into fruition it is hoped that supplementary courses can increasingly be made available to Company employees. A recent example has been the Territory Savings and Loans Society which has established a branch on site to foster responsible saving habits among the Company employees.

At various times other functions which have come within the ambit of training personnel has included the preparation or overseeing of the production of the regular Company information bulletin - "The Bougainville Copper Bulletin", of which some 5,000 copies are distributed widely in Bougainville and other Territory areas.

The Company has arranged displays at Territory agricultural shows, particularly the New Britain Show, aimed to extend information on Company operations to other peoples of the Territory. Such exhibits are normally fully staffed by indigenous trainees, who delight in telling people of the happenings at Panguna.

Other informational services provided include the supplying of geological samples and information on copper to Territory high schools.

Expenditure on Training

Over the next 5 years $1.9 million will be allocated to the Company education and training programme, including buildings and equipment, scholarships and training in the Territory and overseas, libraries, wages costs, etc. A large apprentice and educational complex will be ready for occupation towards the middle of 1970.

Staffing

At the present time the personnel engaged in full-time training functions comprise a Senior Education and Training Officer, a Technical Training Officer, an Educational Officer, a Clerk/Typist and, shortly, an Apprentice Master and Plant Operator Trainer, all expatriates, and also a senior indigenous assistant and four indigenous trainees. A fairly rapid stepping up in staff is anticipated as the

apprentice training system expands where individual trade specialists will be needed. As well as the full-time training staff, the on-job training programme is of considerable importance and tradesmen and supervisors on the job are regularly engaged in instruction. The Training Section maintains close liaison with the operational side of the organisation on such on-job training and provides advice and counselling and extra job instruction for trainees.

The improvement of training methods is a continuous exercise. We are currently looking very closely at a 10 booth language laboratory, a simulator for training drivers and operators, programmed learning machines and other visual and audio-visual aids.

Localisation

Lastly, a factor which needs some comment is the indigenisation or localisation of the work force. Throughout the paper the range of training discussed points directly to the extensive utilisation of indigenes on the Project. The Company is aware of the many benefits which must flow to it from rapid indigenisation and, indeed, is actively engaged in the planning and implementation of a localisation policy keeping in mind the nature and complexity of a mining venture in a newly emerging country.

We will continue to promote the indigenous employee into positions of responsibility immediately we feel an individual is ready and capable of assuming such responsibility.

PAPERS PRESENTED

TO

WORKING GROUPS

GROUP I

TRADE LEVEL

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APPRENTICESHIP IN PAPUA AND NEW GUINEA

D.J. PARRISH
Secretary for Labour

I would like in this paper to give an outline of the Apprenticeship Training System as it now operates and to mention some of the measures the Board intends taking to ensure that apprentice training keeps abreast of the changing demands being made on all training institutions in the Territory.

A backbone of skilled tradesmen is essential in the continuing development of this country. Certainly the many development plans we hear about cannot be carried into effect if there are simply not enough skilled persons available to carry them out. It was as recently as March, 1958, that the first apprentice received his Certificate of Completion of Training. Since then over 580 apprentices have qualified as skilled tradesmen and there are now over 1500 apprentices being trained in 23 different trades. By 1973 over 2,000 tradesmen will have been placed in private industry and the Public Service. Of real significance, however, is the fact that by that time at least 2,000 (if all goes well about 2,500) young men and women will be in training.

Present Apprenticeship System

The present system provides for training in 23 trades over a period of four to five years. They are trained in the following ways:

(a) Direct Entry Apprenticeship.

Under this system of training apprentices are indentured direct to an employer after leaving school for a full period of four or five years. The apprentice immediately commences work on the job with his employer in order to gain a background knowledge of his particular trade. About June or July of the first year the apprentice attends a Regional Technical College for a Block Course of some five weeks duration, during which time he is given the basic theoretical and practical understanding of his trade. After successfully completing this block course he returns to his employment and undertakes correspondence lessons with the School of External Studies. Throughout the ensuing years of his apprenticeship he must satisfactorily progress through successive block courses and correspondence lessons, gaining theoretical knowledge as experience on the job is widened. At the end of the apprenticeship period the apprentice will have had theoretical and practical training which will enable him to be qualified as a tradesman.

(b) Continuous Training.

Under the system of continuous training (which will be phased out at the end of this year) an apprentice enters Technical College at Form 2 level and attends the College for a full two years of theoretical and practical work covering his particular trade. Successful completion of the two year course enables the apprentice to be indentured to an employer for three years of practical training. Depending upon progress this period of three years could, with the approval of the Board, be shortened to two years. This particular form of training, while quite sound, has not proved entirely satisfactory for apprenticeship training in that by the time the trainee

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has reached his final year much of his theoretical understanding has been lost.

(c) Composite Continuous and Block Course Training.

This year the Department of Education revised its Technical College courses and combined the basic aspects of block release and continuous training. The new system caters for students at post Form 2 level where they undergo one year of full time training in both general and trade subjects. The aim of this scheme is to enable the student to qualify at the Form 3 level thus raising his educational qualifications while undertaking industry-oriented studies equivalent to the first stage of an apprenticeship course. The Department has reorganized this course to cover a particular industry rather than specific trade areas. To this end they have introduced five main industry groupings. They are the Building Industry Group, the Metal Trade Group, the Electrical Group, the Printing Industry Group, and the Commercial Group. In the first part of the year the student is given a thorough grounding in the industry group which interests him. Later in the year he is given the opportunity of selecting a particular trade in which he will specialize. The satisfactory completion of this type of training would enable the student to be available for apprenticeship after one year, having completed Form 3 level in general subjects and having gained credit in his particular industry group. Once indentured the apprentice serves a further three years with his employer and at the same time he is required to satisfactorily complete block courses relative to his particular trade. The length of these block courses at this point in time is five weeks. It is considered that in the future the majority of apprentices entering employment will have been trained through this programme. It is expected that the standards of applicants for apprenticeship will rise accordingly.

The Department of Education, in designing this form of Technical Training, sought a system whereby there could be a free movement of students at all levels. In

future, Technical Training will commence after the second year of secondary education and, depending on the levels attained, students will either do one year at the Technical College as in (c) above and become available for entry to Apprenticeship for a period of two or three years, or they will progress to Form 4 for a second year of trade training together with associated general subjects. At the end of this second stage the students, depending again on ability and interest may enter into

(a) Apprenticeship,
(b) Certificate Level Training, or,
(c) The Papua and New Guinea Institute of Technology for Diploma courses.

A student who has reached Certificate level or Diploma level training but who fails to meet the necessary standards in these areas may revert to a lower level of training with some credits towards the lower level training course. It is considered the freedom of movement offered by this system will enable each student in the technical field to find his own particular level without too many problems.

Future Development

Earlier this year the Apprenticeship Board, in conjunction with the Department of Education, investigated the present apprenticeship system with the intention of determining means by which the system would be better able to meet the skilled manpower requirements of general economic development. To this end the Board approved a reorganization whereby trades were split into two categories, with apprenticeship in A Category trades being of four years duration, and in B Category trades of three years duration.

The A Category trades will form the major group in the Apprenticeship System and will involve 22 trades with minimum entrance standards of at least Form 2 secondary education. In five of these trades an apprentice must attain at least a pass at Form 3 level during his 1st year before being able to continue to the next stage of training. These trades are:

Printer/Compositor

Mechanic/Aircraft
Mechanic/Radio
Electrician
Clerk

All A Category trades are considered to have a higher theoretical content and thus require the additional year of study for the apprentice to reach the proper standards of qualified tradesmen.

B Category trades are considered to be more practical in their content and thus "on-the-job" training becomes more important. Apprenticeship in each of these seven trades will be of three years duration.

A declaration authorizing this dual category system should be made in the near future. In addition, all block courses are to be increased from five to six weeks.

One final point I would like to bring to your attention is the recent introduction of the Indigenous Training Incentive Scheme. At the August sitting of the House of Assembly the Ministerial Member for Labour, Mr. Toua Kapena, outlined details of the Incentive Scheme. The aim of the Scheme is to encourage greater participation by the private employer in the training of the indigenous workforce. I would like to mention briefly the benefits which are available to those employers who take on apprentices. These are in the form of financial assistance and include:

(a) A refund to an employer of the costs of the tools required to be supplied to a new apprentice.

(b) Leave fares for apprentices. The scheme provides for the payment of a return air fare for each apprentice after his initial two years of service.

(c) An accommodation subsidy of up to $52 a year for each apprentice accommodated by an employer.

In summary may I say that I consider that the

Apprenticeship System has been successful and will continue to play a major part in providing skilled tradesmen to assist the Territory's development.

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AN APPRAISAL OF THE TERRITORY APPRENTICESHIP SYSTEM

A. COLQUHOUN

Department of Trade and Industry

The overall figures for apprentices are:

Private Enterprise	573
Government Departments	889
Total number in training	1462
Numbers qualified to date	580
Numbers completed training 1968/69	126

These figures look impressive until we realise that they represent the full extent of our effort to introduce the indigenous people to modern technology.

To be honest we must admit that the technical training and education programme is not geared to any serious training effort. If we wish to make a more positive contribution we must analyse the reasons which have inhibited our efforts to date.

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Some of the reasons for our failure to produce an attractive forward oriented apprenticeship scheme is the lack of long term planning of the apprenticeship role and the failure to integrate apprentice training with a viable industrial effort. For too long apprentices were regarded as a form of cheap labour and no real effort was made to ensure the steady progression of the recruit in his technical career. Even a cursory examination of the ratio of apprentices to tradesmen would indicate that the standard of the training provided is minimal.

If we examine the entrance requirement for a percentage of manipulative skills (such as bricklayers, carpenters and welders) we find an apprentice is required to produce evidence of academic achievement if he is to be accepted for this training. In the absence of other criteria this method has some merit, but surely where the skills to be learned are of a manipulative nature this standard debars all those who have not had the opportunity to reach the academic standard required.

My experience has been that provided intelligent on-the-job training is given most local people who are keen to learn a trade are capable of so doing, and I suggest that the standard of acceptance for training should be a test of practical ability rather than one of a theoretical skill.

To ensure a high standard of practical training the Apprenticeship Board must ensure that the training of these people is entrusted to the hands of fully qualified and experienced tradesmen. Personally, I am aware that this has not been the case and hence a high proportion of apprentices have been poorly and inadequately trained and are not qualified to accept positions as tradesmen on completion of their indenture. It is appreciated that the task of training apprentices is becoming increasingly technical but we gain nothing by failing to face up to this fact and to provide the necessary qualified instructors who are capable of passing on their knowledge and skills.

To prove this point one needs only to look around to note that almost every large organisation, be it Government Department, Statutory Body, Private Enterprise, the Army or Mission is endeavouring to set up similar

training institutions. These training establishments all tend to raise the standard of the poorly trained apprentice.

To probe deeper into the cause of the failure to produce fully trained tradesmen one has to take a closer look at the whole apprenticeship scheme structure. Each trade is covered with a syllabus often taken straight from an outdated textbook. A panel of three tradesmen is appointed with a senior Education Officer as an ex officio member. While considerable importance is placed on the panel's views and recommendations these are not always heeded much to the disappointment of the panel members. The purpose of organising such panels will be defeated if this attitude is continued and eventually it would be the apprentice who would suffer.

Another anomaly, and a serious one, occurs where Trade Instructors are not given any understanding or co-operation by the Headmaster in teaching to a current syllabus. Pressure is put on competent instructors to deviate from teaching the syllabus so that some unnecessary school beautification project can be completed. This again brings us to the situation where apprentices are used as cheap labour.

Block courses are of too short a duration to cope with the syllabus and a fair percentage of the course is not taught thoroughly. From my personal contact with numerous small industries it is abundantly clear that small industrialists are appalled at the low standard of apprentices. With their confidence shaken they have resorted to providing on-the-job training for their own personnel. This has the effect of training local people faster and in a more realistic environment.

Not all of the apprentice training is the responsibility of the Administration and Private Enterprise must bear a fair share of the effort required. The record of expatriate employers (with some odd exceptions) is not encouraging and if our trained apprentices are to find a reward for their skills small industrial enterprises must be created, encouraged, fostered and subsidised by reasonable work allocations so that they may participate in every field of industry to make them more skilled and confident in themselves.

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Uppermost in our minds must be the intention to plan for the post-apprenticeship problems that these people will encounter. There appears to be no scheme to provide a meeting place for them to collect and exchange views or discuss their problems. Some evening courses could be arranged to prepare them for supervisory positions like charge hands and foremen and from these trained people our potential businessmen could emerge.

The Vocational Schools appear to be undermining the role of the Apprenticeship Scheme because if, in the short space of one year with young boys of sixth standard education, the Vocational Schools really achieve and maintain production targets at low cost, then I am sure the necessity for a five year apprenticeship is questionable.

If we accept the responsibility for training apprentices, we must be prepared to pay for the essential requirement which will make it a success.

To restate the above:

1. We need a higher standard of instructor.

2. We must ensure that there is no departure from the syllabus to suit the need for cheap labour on wasteful projects.

3. We need to ensure that the members of the panel visit the block courses and assess the students at each stage.

4. We need to provide adequate housing, recreational facilities and a fair selection of reading material for the trainees.

5. We need to establish a centre for qualified tradesmen where they can develop the skills required for advancement to foremen and, later, potential businessmen.

6. We need to be in closer contact with the industries and the apprentices and be able to express our views freely in order to effect changes vital to a developing country. Officers charged with these responsibilities should be technical and practical rather than be an educationist with a degree in 'Ancient History'.

ARMY TRAINING

MAJOR D.J. SANDERSON
PNG Command

Background

Army training of Pacific Island soldiers in skilled trades requiring formal apprenticeship training commenced in 1964. The first two groups to be trained underwent two years continuous training in Army trade training establishments in Australia. This was followed by two years of on-the-job training in Army technical units in the Territory.

In 1966 agreement was reached with the Department of Technical Education whereby Army apprentices would undertake their first two years of training at the Port Moresby Technical College. This agreement has since been ratified. Army apprentices will continue to do two years of full time training at the Port Moresby Technical College followed by two years of on-the-job training in the technical units of the Army in the Territory. In order to meet the increased workload caused by the attendance of Army apprentices at the Port Moresby Technical

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College, the Army provides the College with two full-time General Education Instructors and one full-time Trade Instructor. In addition the College has call upon two further Trade Instructors should the need for their services arise.

The current position of the Army Apprentice Training Programme is as follows:

(a) 54 apprentices have graduated.
(b) 68 apprentices are in various stages of training.
(c) It is planned to commence some 30-40 apprentices in 1970.

Aim

The aim of the Army Apprenticeship Training Programme is to produce highly skilled Pacific Island soldier-tradesmen who will be capable of maintaining the technical equipment and performing the technical function of the future Army of the Territory of Papua and New Guinea.

Selection of Apprentices

Army apprentices are selected from serving soldier applicants. All applicants for apprenticeship training are psychologically assessed as to their capability to undertake apprenticeship training. In addition to the above prime requirement applicants must have reached a Form 2 level of education and have a favourable conduct record.

Failure to reach the required education standard or to have a favourable conduct record does not invalidate an applicant from subsequent selection. The Army education programme is available to bring the soldier up to the required level of education, while improvement in conduct is a matter for the soldier's individual attention.

It may yet be too early to assess the success of the Army's selection procedures. However it appears

significant that few Army apprentices have so far been taken off the course because of lack of ability.

Availability of Facilities and On-the-job Training

The Army is fortunate in that it is not lacking in facilities for on-the-job training of its apprentices. The main workshop building in Murray Barracks is fully equipped to a standard comparable with, if not better than, similar ones in Australia. Smaller workshop buildings are also fully equipped and operational. The workload is such that all facilities are utilised.

Supervision of on-the-job training is given by Australian tradesmen, non-commissioned officers and warrant officers. In the worst case the ratio is 4 to 1, while in the best case this ratio is 1 to 1. As Pacific Island tradesmen develop, Australian tradesmen are phased out. To date this phase-out programme is at the junior non-commissioned officer level in some trades.

Estimated Skilled Manpower Requirements

The Army requirement for skilled manpower in the initial phase is:

(a) Mechanical Trades - 130
(b) Electrical Trades - 30
(c) Construction Trades - 30

A wastage rate from the Army has not yet been determined. Army tradesmen are required to serve in the Army for a period of approximately five years after graduation from apprenticeship training.

At present the need for post-graduation trade training is being given serious consideration by the Army. This post-graduation training will be aimed at producing senior supervisors at the skilled technician/assistant engineer level.

Adequacy of Existing System

The Army training system is based on first producing a fully qualified basic tradesman. From this base, potential officers and senior non-commissioned officers/ supervisors become apparent by their individual display of leadership and trade ability. Those displaying potential are further trained to reach the full limit of their capability. It is considered that this system of training best fits the needs of the Territory as failure at a subsequent level, beyond the basic tradesman, does not deprive a soldier of his initial achievement.

The existing system of training up to the basic tradesman is considered satisfactory, provided undue emphasis is not placed on the general academic achievement. The Army considers that trade theory and practice must take precedence over all other teaching. If necessary, trade training should start at the very basic level. In practice this has been found necessary. The price paid for jumping too far ahead of the apprentice is a lack of understanding resulting in apparent lapses of ability. Where ability is coupled with understanding these so-called lapses are not apparent.

The current system of introducing apprentices to all trades applicable to the group trade (main trade plus allied trades), as at the Port Moresby Technical College, is considered a good practice. This gives the apprentice a good background and a feel for the trade in which he is to specialise.

Training Trends

The training trend in the Army is towards producing the higher level tradesman and supervisor. This is coupled with a greater participation by Pacific Island soldiers without Australian supervision. The Army can see no reason why this trend cannot continue with no loss in the standard of work produced.

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Relationship Between On-the-job Training and Institutional Training

The Army expects that the apprentice who has finished the two year Port Moresby Technical College phase of training will be able to absorb further on-the-job theory and practical training.

Therefore the apprentice should have a thorough knowledge of the basic requirements of the trade before he commences the on-the-job training phase.

With the on-the-job training, the apprentice should develop speed and quality in his trade work. The requirement for continuation of theoretical training should not be overlooked during this phase.

Recognition of Army Training

At the completion of formal apprenticeship training the Army apprentice must pass a trade test covering all aspects of his trade, both practical and theory. The trade test given to the Pacific Island apprentice is the same as that given to Australian apprentices. Only those equipments not applicable to the Territory are omitted. The log book of the qualified Army apprentice is endorsed by the Apprenticeship Board affording the same trade recognition as for other Territory apprentices.

Necessity of Overseas Training

It is anticipated that Army tradesmen will undertake at least one post-apprenticeship equipment course after graduation. This course will be conducted in Australia. On such a course the Pacific Island tradesman will be competing with his Australian counterpart. One such course to date has shown a favourable result. It is hoped that an Advanced Techniques Course and a Supervisor Course will become available in the Territory.

Two ex-apprentices have been selected to attend the Officer Cadet School in Portsea in 1970. At the successful completion of their officer training it is hoped

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that they will undergo tertiary education and training in the Territory.

Summary

The Army is continuing on a course of apprenticeship training incorporating:

(a) Two years full time theoretical and practical training at the Port Moresby Technical College.

(b) Two years on-the-job training in technical units within the Army.

The Army feels that emphasis must be placed on trade training during the first two years at the Port Moresby Technical College. It is agreed that all apprentices should be given the opportunity to sit for Intermediate. However this should not be to the detriment of their trade training.

In addition the Army sees the need for the following post-apprentice graduation courses to be established in the Territory:

(a) Advanced trade techniques courses.

(b) Supervisor courses - to cover trade theory and practice up to the sub-professional level with emphasis on junior management.

The underlying theme of the above post-graduate courses should be that of producing leadership in industry at the foreman and senior supervisor level. Such leadership must be based on self-confidence gained through knowledge, self-discipline necessary to shoulder responsibility, and a willingness to face up to and overcome problems.

APPRENTICE TRAINING IN THE PAPUA AND NEW GUINEA ELECTRICITY COMMISSION

G.W. MARTIN

Papua and New Guinea Electricity Commission

Where changing conditions exist, attitudes towards training methods and course content must be adaptable.

Initially, apprentices were given "on-the-job" training from day one with minimum formal training. The general education level was Standard Six/Form I. Today the aim is to recruit at Form III/Form IV level and there is a move to concentrate on formal training. Starting in 1970, the Papua and New Guinea Electricity Commission is embarking on a programme which introduces formal training for the first two years of the apprentice courses on a full time basis. This scheme will apply to Electricians, Diesel Mechanics and Clerical Apprentices.

The Papua and New Guinea Electricity Commission is currently reviewing the content of subject matter to be covered during training. Each course is being analysed to determine what must be taught in each year, what should be taught to re-inforce the key material, what could be added to broaden the general background and outlook, what subjects will be common, and whether they will receive equal emphasis

with each discipline.

The following tables indicate the intakes and anticipated movements for electrical and mechanical apprentices 1969-1974.

Table I. Electrical Apprentices

	1969	1970	1971	1972	1973	1974
1st Year F/T	38	15	15	15	15	15
2nd Year F/T		25	15	15	15	15
2nd Year Field	11	13				
3rd Year Field	9	11	38	15	15	15
4th Year Field	11	9	11	38	15	15
5th Year Field	6	11	9	11	-	-
Number Qualifying	6	11	9	49	15	15

Table II. Mechanical Apprentices (Diesel Mechanics)

	1969	1970	1971	1972	1973	1974
1st Year F/T	30		10	10	10	10
2nd Year F/T	-	20	10	10	10	10
2nd Year Field	13	10				
3rd Year Field	4	13	30	10	10	10
4th Year Field	8	4	13	30	10	10
5th Year Field	5	8	4	13		
Number Qualifying=	5	8	4	43	10	10

We anticipate some losses from the trade training due to "drop out" and other attractions. We will be

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re-streaming the better apprentice to technician level training.

In 1972/1973 we will have all base level tradesmen's positions filled by local officers. This is already the case with linesmen.

Table III. Clerical Apprentices

	1969	1970	1971	1972	1973	1974
1st Year F/T	77	30	45	45	45	45
2nd Year F/T		77	30	45	45	45
2nd Year Field	26					
3rd Year Field	22	26	77	30	45	45
4th Year Field		22	26	77	30	45
Number Qualifying		22	26	77	30	45

Serious consideration is given to re-training where necessary.

Specialised courses are being reviewed or planned for post apprenticeship training, Licensing Exams, Appliance Servicing, Electronics, Motor/Alternator Repairs, Supervision Courses.

In 1963 all shifts in diesel stations had an overseas officer in charge. As a result of training local officers now operate two of the three shifts at all diesel stations without supervision. Five intermediate stations are fully staffed by local officers responsible for operation and mechanical maintenance.

All tradesmen now undergo an intensive hand tools instruction course during which they are taught the correct use of all the basic tools and machines. During this course they make some of the squares and tools they will use as tradesmen.

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Table IV. Syllabus - Hand Tools Course

1st Week

1. Safety precautions necessary in the workshop
2. Introduction to metal work
3. Files and filing

2nd Week

1. Hacksaws and hack sawing
2. Chipping and chisels

3rd and 4th Weeks

The use and care of all marking off tools

(a) Steel rule
(b) The scriber
(c) The Engineer's Try Square
(d) The Centre Punch
(e) Dividers
(f) Calipers
(g) The Surface Gauge
(h) "V" Blocks
(i) Surface Plate and marking off table
(j) Marking off in general

Revision
Progress Examination

5th Week

Metal work tools, uses, care, etc. of:

(a) Pliers, Combination, Flat nose, Round nose
(b) Tin snips - types, sharpening, etc.
(c) Spanners - types and uses
(d) Wrenches, types and uses
(e) Scrapers and scraping

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6th Week

The Engineer's Vice - types and uses
Types of wood bits, chisels, etc.

7th Week

Drills and drilling - types of twist drills and uses

1. Types of angles, sharpening, etc.
2. Drilling machines - types, uses
3. Setting up and holding work

8th Week

Types of tap wrenches, procedures when using.
Taps. Hand threading dies.
Types of threads, angles, etc. Methods of measuring.

Revision.
Progress Examination.

9th Week

Bolts, nuts and screws. Types, uses.
Soldering irons, Tinning the bit.

10th Week

Bench grinders, use and care of wheels and safety precautions.
Using the brazing lamp.

11th Week

Portable drilling machines
Portable grinding machines

12th Week

The lathe and safety precautions when using

(a) Types of lathes
(b) Tools and their uses
(c) Types of tools

Revision
Progress Examination

13th Week

Principal features of the lathe
Turning between centres

14th Week

Drilling, tapping in the lathe

15th Week

Boring in the lathe
Revision
Progress Examination

16th Week

Oxywelding - Safety first

17th Week

Uses of Gauges
Welding, types of flames and adjustments

18th Week

Oxywelding technique
Preparing material for welding, types of joints

19th Week

Hand cutting and reference tables
Revision
Progress Examination

20th Week

Electric welding, safety required, types of machines, etc.
Technique, electrode selection, electrode size, arc length, correct speed of travel.

21st Week

Types of welded joints
Revision (Entire Course)
Final Examination

First aid and driving is also taught.

It is our belief that we can produce good tradesmen in four years if we give concentrated instruction in a formal manner for two years followed by supervised field instruction for two years.

When the apprentice goes into the field at the end of the second year he knows all the basic skills, is of more practical use and will be able to absorb more rapidly the practical applications of these skills.

At the end of their apprenticeship they qualify as tradesmen and may progress, with additional experience and training.

Table V

Diesel Mechanic	Restream & Retrain
Diesel Mechanic/Fitter	
Senior Artisan	Technicians
Foreman	
Supervisor	Technical Officers

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TRAINING REPORT FOR THE MONTH ENDED JULY 31ST 1969

		At Present	This Time Last Year
1.	Number of Trainee or Apprentice Power Station Operators under full time training	Nil	18
2.	Number of Trainee and Apprentice Power Station Operators under correspondence training	79	108
3.	Number of Trainee or Apprentice Linesmen under full time training	11	10
4.	Number of Trainee or Apprentice Linesmen under in-service and correspondence training	44	80
5.	Number of Apprentice Clerks under full time training	37	31
6.	Number of Apprentice Clerks under in-service training	90	29
7.	Number of Apprentice Electricians under full time training	38 + 4*	12
8.	Number of Apprentice Electricians under in-service training	40	25
9.	Number of Apprentice Diesel Mechanics under full time training	30 + 4*	Nil
10.	Number of Apprentice Diesel Mechanics under in-service training	31	32
11.	Number of Apprentices (other trades) under full time training	3	1
12.	Number of Apprentices (other trades) under in-service training	10	8
13.	Number of Apprentices graduated for month	9	Nil
14.	Total number of Trainees and Apprentices in Training	424	354

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* Trainee Technical Officers on Apprentice Annexe Courses

TRADE LEVEL TRAINING

IN THE

PRINTING INDUSTRY

D.R. LUDBEY

South Pacific Post Pty.Ltd.

The Ministerial Member for Labour, Mr. Toua Kapena, said in the House of Assembly in August this year, "We want Papuans and New Guineans trained for all levels of responsibility as soon as possible. The best results will occur when all sectors pull together in the same direction towards the same common purpose."

This paper deals with the problems of the existing system of formal training which I consider to be the major hurdle facing my Company in the training of apprentices.

Much has already been done by many Government Departments and a few of the private firms in the localisation of their staff. Probably the two best examples of this are the Electricity Commission and Steamships Trading Company. However, I feel very strongly that businesses of a smaller nature, especially specialist trades such as the printing industry, have been seriously neglected in the past by the Division of Technical Education.

It must be remembered that printing and publishing in the Territory deals with a 90% European market, demanding a standard at least comparable with overseas countries with whom we are forced to compete. Therefore, for any training system to function efficiently a high standard must be introduced and maintained.

The South Pacific Post Pty. Ltd. employs a factory staff consisting of the following:

European Tradesmen	22
Native Tradesmen	11
Native Apprentices	14
Semi Skilled Native (doing a tradesmen's job but with no Formal education)	25
Semi Skilled European	3
Labourers	33
TOTAL	108

Although this Company has been in the Territory some 20 years the above figures show that very little has been done in the way of technical education for native apprentices. However, over the last two years it has been driven home that localisation of our factory staff is not only essential to the country but essential to us if we are to survive financially.

At this point I would also like to point out that my Company pays much in excess of the scales laid down by the Administration (e.g. a hand compositor receives $34.00 a week).

All 14 apprentices now employed have had only spasmodic training.

In an effort to correct this the Department of Education this year paid in the vicinity of $5000 for a printing trades expert from Australia, Mr. Jim Bravery, to tour the Territory and make recommendations to the Education Department. It was agreed in principle by the Department of

Education to accept the Bravery report which, because of the lack of finances was trimmed considerably by the Printing Trades Advisory Panel. A building was commenced at Idubada to house the new School of Graphic Arts and with the assistance of members of the advisory panel, instructors were obtained and training and some oral examinations held. I am also led to believe that tenders have now been called for the supply of $20,000 of equipment for installation at Idubada and that instructors have been recruited for 1970. However, to a certain extent the above is window dressing and the School of Graphic Arts is still without a syllabus, equipment and properly laid-out courses. Post-trade courses do not exist. No formal examinations were held for apprentices at the end of 1968 and no classes or correspondence lessons of any kind formed in their place in the early part of 1969. It is also possible that classes will not resume after Friday October 3 and, if this is the case, it seems only fair to surmise that there will again be no formal examinations at the end of 1969. Over the last two years the Department of Education has employed four full time instructors, all of whom have resigned. Most of what has been accomplished over the last two years has been aimed at providing a front so that management and apprentices will not become too disgruntled with the lack of formal training.

So that it does not appear that industry wants everything for nothing it is pointed out that members of the advisory panel carried out the oral examinations that have been held and also made certain items of machinery available for training purposes. From time to time my Company has also had senior tradesmen run schools on the premises for four hours a week in an effort to fill the gap.

The Department of Technical Education seems to lack the necessary skilled staff capable of implementing in the shortest possible time the tremendous amount of work still to be done, such as: the setting up of a workable syllabus, staffing and operation of the School of Graphic Arts, and integration of essential courses already covered by other training facilities for example English and Maths.

Because of the Department's inability to provide a workable scheme for technical education in the printing industry, we have already had the experience of losing to

other trades lads who have appeared to have the makings of exceptionally good tradesmen.

The apprentices themselves are as concerned as management about the lack of training and are asking questions like "Why did we not have examinations?" and "Why have we not got classes such as other trades?" and "Why do we have to waste time attending school at Idubada when we do not learn anything?"

I fully realise that the printing industry is reasonably small in numbers when compared to the building trades and that the Department of Education has to be concerned with probably a dozen others similar to us in size. However, I am sure that none will argue the importance of technical education nor the necessity of an efficient printing industry in this country.

If Mr. Kapena's request to industries is to be achieved and all sectors are to pull together towards the same common purpose, I respectfully suggest that the heads of the Department of Labour and the Department of Education closely examine technical education in fields such as the printing industry.

I also strongly suggest that serious consideration be given to the setting up of a board to handle the Administration of Technical Education in each of the smaller trades.

The Graphic Arts Board could be made up of an impartial Chairman, an employees' representative (who has served an apprenticeship and is employed in the trade as a tradesman), and a representative from:

The Department of Education
The Department of Labour
Private Industry, and
The Government Printery

The board should be responsible only to the Head of the Department of Education and should have the authority to work out a yearly budget for that particular trade.

It should appoint a principal to run the School of Graphic Arts. The Principal should be responsible to the board and not to the headmaster of the present Technical College. The board would have as its aims:

(a) the setting up and staffing of technical training facilities;

(b) the introduction of a syllabus for the full five years of apprenticeship;

(c) the setting up of day courses, block courses and correspondence courses that would cover all apprentices in the Territory and the setting up of post trade courses;

(d) making sure that examinations are held yearly and certificates of achievement issued, and

(e) keeping the apprenticeship board fully informed of its activities and ensuring that a certain standard is maintained by the apprenticeship board when issuing certificates of attainment and indentures.

I believe that the above suggestions, if implemented, would lessen the burden of the Department of Technical Education and enable the apprentices in a trade such as ours to receive the technical education and necessary attention necessary for industry to employ Papuans and New Guineans capable of accepting a greater share of the responsibilities.

THE DEVELOPMENT OF AN INDIGENOUS WORKFORCE IN THE GLASS AND FIBRE PACKAGING INDUSTRY

W.A. JOHNSTON

New Guinea Containers Pty. Ltd.

New Guinea Containers Pty. Limited, a wholly owned subsidiary of Australian Consolidated Industries Limited, is a new company in this country, and although our association with developing countries outside Australia, namely Singapore, Malaysia and Thailand, dates back over a twenty year period, we know there are special problems here, some of which we are learning more of now and others which we have yet to encounter.

The company is due to commence production of glass containers early next year, and the training of personnel now being undertaken is preparatory to the full-scale operation and manning requirements that we anticipate.

At present, most training is taking place in Australia at Brisbane, Sydney and Adelaide. In these cities we have established industries and on-the-job training facilities which we are exploiting. At Lae amongst our expatriate workforce are ten tradesmen who are now being understudied by young Papuans and New Guineans, whom we expect

will commence apprenticeship training during the next six months.

We propose next year to follow the form of training outlined for in-service projects in other A.C.I. companies. This will include training courses for all personnel involved in production and supervision courses. We have found that some good young men are leaving school at the end of a Primary School or at Form 2 level, and it is this group which we intend to concentrate on (some involved in production and others training as apprentices) once production commences next year.

At this stage we have no fair basis for comparing a New Guinea trained as opposed to an Australia trained tradesman. Nine young men are completing the first two stages of the New South Wales Apprenticeship Course in Sydney and may continue it here by correspondence. We are experimenting now to try to assess the best path. So far indications in Sydney are that the fellows have managed to cope quite happily whilst attending Technical College classes, but they are struggling with correspondence studies.

On the production side, most of our trainees at present in Australia are progressing well. We have dismissed one and two others appear to be unstable and we may have to dispense with their services shortly. This, of a group of fourteen, was not unexpected, and the balance contains some strength. All production trainees have attended formal training at Sydney Tech as well as in-service training. They will continue to train as leading hands and foremen in the production area when they return, and those who wish may also continue formal training at technician or trade level.

In recruitment and selection of personnel for the purposes outlined we have used the facilities provided in this country by the Education and Labour Departments. This information has proved to be most valuable. Certainly it is not fool-proof but the aids are developed to such a degree that no prospective employer can afford to ignore them.

Trade Training: Formal and Informal

Now that direct incentives are offered to employers who train young men and women in this country I believe the time has arrived for the employers and Administration experts to work more closely in assessing the needs in employment situations and, in particular, in-service training. There is still little movement by employers to engage in on-the-job training. Finding a method of tackling this aspect seems to present a barrier and, as the effectiveness of such training cannot easily be measured outside the specific location of employment, little action is being taken except by a few major organisations.

Within the apprenticeship system in-service training is an integral part. We are presented with a complementary formal and informal training schedule and a prescribed format of instruction. Unlike other forms of on-the-job training this is given recognition in the community and a yardstick in the form of a Trade Certificate indicates an individual's achievement.

This year, I believe at trade leve, 387 young men commenced apprenticeship training and this fell short by just over 100 of the Apprenticeship Board's estimated requirements in the country. In addition, the proportion of the total number of apprentices training in the private sector has dropped over recent years.

I cannot accept that the fault rests with the system itself. It is evident, however, that employers are half-hearted in their interest and I can find no valid reason for this. Could it be that the employers in the private sector, who have shown in the past two years a reluctance to train under the apprenticeship method, are steering away from it because they wish to play no part in providing a training ground or trainers? Instead are they looking towards formal training to provide all their requirements and, in the absence of these being met, are content to muddle along with expatriate supervisors, poor communications and labour intensive chaos?

It is popular to criticise apprenticeship training as being out-moded. However, in this country the Education Department has shown its willingness to experiment and

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change old methods - perhaps sometimes they are too quick to change. In recent years, apprentices have been trained under the traditional five year system, by continuous training, block release training, and integrated training (trade and general subjects). The different approaches have often taken on candidates of a higher entrance standard which has resulted in a reduction of the training period from five to four years, and whilst all paths have shown success for particular purposes, they have not attracted the required increased total.

If it is not the system, what then needs to be examined?

(a) I believe that insufficient attention is being paid to selection.

There is a tendency to allow and encourage the young men of this country to over-reach themselves and, having steered them to institutions of higher learning, we then sit back and watch them fail. Rather than attempting to reduce failures to a minimum, are we more interested in ensuring that there are no vacant beds? The drop of interest in apprentice training is explained in part by the extension of higher level training institutions which are absorbing a percentage of manpower that would have been training at trade or technical level.

On the other hand, many young men leave school around Form 2 and fall by the wayside because an employer pays insufficient attention to their performance and capabilities.

(b) There appears to be a lack of knowledge on the part of employers and outsiders of the ability firms and businesses possess to train, in both a quantitative and qualitative sense.

A starting point in trade training is, I believe, the number of qualified tradesmen in the country, both local and overseas. Do we know this figure and where such personnel are located?

At this point could I suggest that there may be wisdom in a partial breakdown of the protective wall the Administration maintains around this country and that they

allow tradesmen from South East Asian countries to come here to assist with this task of training. I feel that there could be greater advantage taken of trained manpower from other neighbouring countries. We are all aware that the Australian tradesman has certain shortcomings, outside of skill, which in this social community would not apply to the same extent to his South East Asian counterpart.

(c) The current and projected needs of the community seem to be vague. We have a system for controlling and estimating the supply of manpower, but are the signposts indicating a demand scale which embraces the entire community good enough? Indeed many employers do not know what their demands are.

Credits and Overseas Training

In a firm such as New Guinea Containers Pty. Limited, we will look to competent journeymen, the middle group in which we include skilled tradesmen, to provide us with a promotional prospect and those we wish to sponsor for higher training. It is therefore important that a system of credits exists, which embraces the entire technical field and thereby eliminates unnecessary repetition.

The last thing we wish is to put a ceiling on a man's progress, particularly when such an urgent need exists for responsible local men as supervisors and executives.

Despite the relatively large contingent we sent to Australia at the beginning of this year we do not advocate formal training overseas unless it is essential. In our case, the deciding factor has been the aspect of in-service training and we believe that by training our requirements in advance we will reduce the expatriate content of our workforce by up to 50%. In future we will consider sending selected personnel overseas to broaden their experience and understanding of the industry but we would prefer to do this after a trainee has completed a formal course of training in his own country. The cultural clashes brought about by overseas training are real, and I feel sure that in some instances we are not doing justice to these people by bundling them off to Australia or other overseas countries the minute they complete a secondary school course.

Conclusion

Between 1909 and 1929, the United States experienced the beginning of what has become known as "an economic miracle". The U.S. Department of Statistics and Bureau of Census tells us that the major factors influencing this period of development were changes in the labour force and the growth of invested capital. Following on from this technical education assumed a vital role.

It seems logical to me to assume that a high degree of on-the-job training took place during this early period, and there may be some reasons for comparing our situation now with the first thirty years of this century's economic development in the U.S.

In our efforts to improve the system, our searching for increased efficiency and output, we should avoid expecting too much from formal education. The facilities, as they are now being developed, provide employers with a good base to work from. In all instances, they must be backed up by some form of programmed on-the-job training.

Whilst a man is taught to think in college and understand the principles contained in and surrounding his subject, he will never develop his learning beyond the theory stage unless his employment situation provides the tools and scope for this to happen.

It would be good to see the Departments of Education and Labour assign some of their brainpower to the task of assisting employers in the neglected and all-important area of on-the-job training.

A method whereby the community recognises the level of achievement of an individual who has trained outside the apprenticeship system, requires careful thought. We are particularly concerned in finding the best course for young men with only Standard VI education who we know have potential but who are excluded from the present apprenticeship scheme.

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GROUP II

TECHNICIAN AND SUB-PROFESSIONAL

1825 PSE

TRAINING OF AIRCRAFT MAINTENANCE ENGINEERS

A.W. ROBERTSON

Department of Civil Aviation

In the aircraft industry there are many trades but here we are concerned with those trades which relate directly to the servicing of aircraft.

In contrast to most trades the completion of an apprenticeship does not confer the seal of competence upon the tradesman. Until he is licensed his work is always subject to check by someone who holds a licence. No aircraft is permitted to fly which has not been checked by a Licensed Aircraft Maintenance Engineer (LAME). This is an air safety regulation which must be adhered to.

Definition

In the aircraft industry, the tradesman who services aircraft is called an Aircraft Maintenance Engineer (AME). This term is used throughout Air Navigation Orders of the Department of Civil Aviation (DCA) which defines their functions, and throughout the industry. An Aircraft

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Maintenance Engineer is a technician and should not be confused with the Aeronautical Engineer who is a technologist.

Licensing

The licensing of Aircraft Maintenance Engineers is one of the functions of DCA. It is a means of ensuring a high level of workmanship and it makes someone responsible for the safety of the passengers and crew of an aircraft. This is a very heavy responsibility and should an accident occur through the negligence of the LAME the consequences would be very serious. DCA would decide whether the licence of the LAME should be temporarily suspended, withdrawn altogether, or altered in status. As well, if there was a fatality, the engineer could face a charge of manslaughter.

Requirements for Licensing

The essential requirements for gaining a licence are that the person must have worked in the trade for at least five years and must pass the examinations set by DCA. He is not required to be a tradesman in the sense that he must have completed an apprenticeship. Indeed, if an apprentice was indentured to a small airline elsewhere than in Sydney or Melbourne, he would have to do a great deal of private study before he could pass a licensing examination.

It must be pointed out that he need never pass these examinations. He can work in a highly skilled capacity and do an excellent job and may even become a foreman, but always someone who is licensed must pass his work before the aircraft can be certified as airworthy.

Need for Apprenticeships

It may seem from what has just been said that there is no need for apprenticeships in these trades. This is not so. An apprenticeship, if it is designed properly, provides the apprentice with a broad basis of experience upon which he can confidently make vital decisions about his work. In the Aircraft Maintenance trades a wrong decision

can have very serious consequences. It is important, therefore, that the technician should be able to calculate the effect of the various decisions he may make. This can only be done if he has a sound understanding of the principles upon which his skill is based.

Apprenticeship Problems

The first major problem is that there is not just one trade. Instead there are five separate highly skilled trades. This means that the apprenticeship scheme must be extremely broad if it is to cater for all of these.

It has been found that the radio and electrical trades courses in Technical Colleges provide a good basis; but apprenticeships in these trades take five years to complete and at the end the apprentice has only the basics of what he needs.

To illustrate this point, the Radio Mechanic course at the Royal Melbourne Institute of Technology is a five year course for part-time students, and a one year course for full-time students. At the end of this course the tradesman has never touched pulse techniques which is the essential basis of radar, and he knows nothing about navigational aids. This section of the course takes another full-time year, and can also be done part-time. At the end of all this study the Technician has covered only the theoretical basis and must concentrate on particular equipments. It is significant that the RAAF, which uses this scheme, finds need to give a further eight months of intensive training on equipments before a Radio Apprentice can be considered to have reached a satisfactory level of proficiency.

In the other trades a similar situation exists. The motor trade provides a basis for the engine category, but because an aircraft has a sophisticated type of engine, a much broader course is needed.

And when we think about jets they seem a remarkably simple engine, but in fact the precision of their engineering requires elaborate workshop facilities and a consequent high level of technical skill. For this reason, major

overhauls are usually done in factories. To illustrate this point, the Garrett engine which powers the Skyvan is sent to America for overhauls. This is a costly business, but as there are only five Skyvans operating in this part of the world it is far less costly than establishing a special workshop for servicing them.

Another problem to be considered is the increasing shortage of skilled labour in this trade. In fact this is causing considerable concern in the industry, especially as new and more sophisticated aircraft are being introduced and the industry is expanding very rapidly. This could lead to an acute shortage of skilled men here in the Territory.

Apprenticeship Aims

It is first of all necessary to establish the aims of an apprenticeship in Aircraft Maintenance Engineering in this Territory. To do this the expectations of the employers must be known. Also the possible developments in aviation must be considered.

It must be realised that in Australia the Technical Education system is unable to provide adequate apprenticeship courses for AMEs, and the major airlines, the RAAF and the RAN have developed elaborate training systems of their own to meet their needs. For this reason any local system of training should be based on the basic requirements of these systems so that an apprentice is able to go to Australia for advanced training.

As the licensing examinations are the only qualifying examinations for Aircraft Maintenance Engineers apprentice training should take into account the requirements of these exams. The airline schools are developed according to this principle and their courses are divided into segments which give intensive training in each area of the course.

Prerequisites

An essential factor in the training of AME's is

a high level of comprehension in English. In the aircraft industry safety is of primary importance. At all times a person working on an aircraft must be aware of the possible dangers which constantly confront him. He must understand what corrosion and fatigue are and how they are detected. He must be able to carry out any modification the manufacturers determine to be necessary for the safety of the aircraft. He must be able to read and correctly interpret the maintenance and major repair requirements laid down in the manufacturer's handbook. This is his "bible". He must be able to weigh an aircraft and calculate its centre of gravity and its load potential. He must be able to make accurate reports of any structural defect he detects. These are some of the aspects which indicate the level of education which it is necessary for an apprentice to possess.

The Services test the aptitude of a student before he commences training with the consequence that wastage is low. The usual minimum standard required is the Intermediate Certificate, with good passes in mathematics and physics. Each should have at least a high average I.Q. and should possess aptitude for manipulative skills and abstract reasoning.

Licences

Licences are granted in the following categories:

(a) Airframes
(b) Engines
(c) Radio Systems
(d) Electrical Installations
(e) Instrument Installations

A licensed engineer may have licences in one or more of these categories.

Each of the categories listed is divided into groups 1, 2 and 3.

Airframe groupings are as follows:

Group 1 covers all types of aircraft up to 4,250 lbs. in weight with fixed undercarriages.

Group 2 covers aircraft weighing above 4,250 lbs with powered retractable gear.

Group 3 covers over 12,500 lbs.

Group 3B covers pressurized aircraft of any kind.

Engine groupings are similarly divided.

From this it is clear that apprentice training should aim at bringing a lad up to Group 1 standard in at least one category. It should be pointed out that the salaries for LAME's are not lucrative and the large companies in Australia are faced with critical shortages of trained men. This situation, no doubt, will emerge in the Territory in the future. Therefore proper training for local apprentices is essential if the industry is not to become starved of skilled labour.

Because the Radio, Electrical and Instrument licences require high competence in electronics, and because it is unlikely that sufficiently advanced courses will be available at the technical colleges for some time, these categories can be omitted from this discussion.

It is necessary now, to consider engine and airframe training.

Engine Training. An aircraft works on similar principles to a motor car engine. However, for its weight it develops a great deal more power and it must be extremely reliable (especially when it powers a single engined aircraft). Where oil seals can be used between metal surfaces on a car engine to retain oil, on aircraft engines, seals are often metal to metal. Working with these conditions requires a high degree of skill and the AME must know what he is doing. He must understand superchargers as many light aircraft have sea-level boost to 17,000 feet. He must have some knowledge of the electrical system, and he must be able to interpret what he reads on the various meters.

Airframe Training. To gain an airframe licence the AME must be competent with aluminium and the alloys used in aircraft construction. He must know something of heat treatment of

these metals and he must know how to effect repairs without weakening the structure of the aircraft. If the aircraft has a retractable undercarriage and hydraulic flaps the AME must understand hydraulics. He must know how to repair and replace shock struts, and after a heavy landing or a ground loop, he must be able to test the symmetry of the aircraft.

Available Facilities

There appear to be few facilities available in the Territory to teach airframe technology. The major airlines and the RAAF have splendid practical class-rooms in which students can be exposed to a great variety of practical situations, with a consequence that the technicians who emerge from these situations have a very good grounding on which to build.

It would seem that except for learning basic fitting and drawing there are no local facilities which can be utilised to train an airframe apprentice.

Trends Within the Industry

The airline industry is expanding faster than men can be trained to meet the needs. There is one advantage, however. Because the development of an aircraft is a long process the company which purchases a new type of aircraft has time to train its staff. Indeed very often the conditions of sale today include training as part of a package deal. Initially someone is sent to the manufacturer's plant to be trained, the manufacturer then supplies all the necessary notes and training aids, and long before the aircraft flies in Australia, someone has gained a licence to service it and teach others about it.

With the advent of the jumbo jet a new dimension has been added to the aircraft maintenance field. The Boeing 747 is so complex an aircraft that the present system of licensing will have to be altered to cope with it. A whole new concept of maintenance organisation will have to be developed. But this has no immediate consequences in the Territory.

Overseas Training

As adequate training facilities are not available in the Territory, and as the cost of establishing them is so high for so few students, it seems to indicate that serious consideration should be given to subsidising one of the airlines which has a properly organised training school to do the training.

This would mean that the apprentices would have to go to Australia, which may have some industrial consequences. However, being trained in Australia would have advantages. The apprentices would be exposed to a variety of work situations in the company of highly skilled tradesmen, they would quickly appreciate the high level of workmanship which is required, and they would have a better background for their licence examinations.

Conclusion

It must be considered whether an apprentice Aircraft Maintenance Engineer would need to be trained to licensing standards. The fact that there is an increasing shortage of AMEs in Australia and that in some areas the situation is already critical must be taken into account in this consideration. A means of overcoming the problem in T.P.N.G. is to commence a scheme to train local people as soon as possible. But it should not be organised at the risk of standards. Also, unless someone is licensed the aircraft is not permitted to fly, so consideration must be given for some to reach licence standards. Further, airworthiness surveyors are required to maintain surveillance on the standards of workmanship of LAMEs and to be an airworthiness surveyor, a LAME must have had several years of experience on the job. This point must not be overlooked if high standards of safety are to be maintained.

The best person to be apprenticed to this trade would be a drop out from an eingeering course at the Institute whose mathematics and science were reasonable. But the term apprenticeship has an undesirable connotation for lads educated to that level. Cadetship or some other term would sound more attractive.

Recommendation

My only recommendation is that a syllabus of study should be drawn up which conforms to the requirements of the licence examinations. This would allow an apprentice to gain a qualification which is recognised and will put his competence beyond doubt. Where he is to be trained should then be determined.

Despite the plea to lower standards here to meet the circumstances, we must determine whether it is wise or it is, indeed, stupid to compromise safety when one error caused by incompetent workmanship can cause the death of many.

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THE TRAINING OF ENGINEERING TECHNICIANS IN PAPUA AND NEW GUINEA

J.W. WILLIAMS
Lae Technical College

There is doubt and confusion among employers regarding the definition and role of the technician.

The engineering technician is a person carrying out work requiring a level of technological knowledge beyond that reached by a skilled worker, but below that of a graduate or professional engineer. The technician is one who can apply in a responsible manner proven techniques in a field of engineering. He usually specialises in areas such as mechanical, structural, electrical, or civil engineering.

Some of the engineering technician's duties may include working on the design and development of engineering plant, engineering drawing and related design problems, testing of materials, quantity surveying, etc. He usually works under the direction of engineers or engineering associates, but judgment is required within the scope of standard procedures. The technician may be involved in the supervision of junior technical, trade, or unskilled personnel.

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In 1968 eleven engineering technicians graduated from Lae Technical College and these are now with private enterprises or government departments. At the end of 1969 a similar group will graduate. These technicians attended a three year full-time course of study with a minimum entry qualification of Form 3. In contrast, future technicians will be trained under a block release scheme.

The employer will sponsor an ex-apprentice, or technical school student who has passed English, Mathematics and Science at Form 4 level. The trainee technician will attend four yearly block courses of 12 weeks each. For the remaining nine months of the year the technician will gain the specialised industrial experience with his employer. Thus the training of engineering technicians is a joint venture with the responsibility shared between employer and technical college.

In 1969 two Stage 1 block courses will have been completed (15 students per block course), and it is hoped that 30 Stage 1 technicians will be enrolled each year so that by 1972, 120 technicians will be attending the various stages and courses. The introduction of a new form of training has posed problems; the answers for some of these are not readily available.

There is a lack of sufficient numbers of qualified applicants. This situation should be relieved as the output from technical schools at Form 4 level increases.

It has been difficult to provide an appropriate course of training, a real effort having been made not to transplant Australian courses. Liaison between employers and technical colleges will be essential to enable the courses to be modified and updated where necessary.

An untested plan which may reveal problems is the system of written correspondence assignments that each student has to do between block courses. The intention is to follow up work covered in a block course and to achieve some continuity of study.

Finally, it is important that technicians occupy positions which are seen to be not those of superior level artisans, nor inferior sub-professionals, but those of vital members of the engineering profession.

SUB-PROFESSIONAL AGRICULTURAL TRAINING

B. BONIWELL

Department of Agriculture, Stock & Fisheries

Papua and New Guinea is primarily an agricultural country with the majority of people engaged in agricultural pursuits ranging from subsistence and commercial farming to Government and plantation employment. Consequently an increase in agricultural productivity can be achieved both directly, by training farmers and plantation/company employees, and indirectly, by training more Administration officers to expand and develop the agricultural services provided by the Department of Agriculture, Stock and Fisheries. Naturally, Government emphasis has tended to be on this latter form of training as it is only through a well trained and efficient agricultural extension service that any large scale training of farmers can be achieved in a country such as Papua and New Guinea with remote and well dispersed rural population centres.

The number of trained agricultural personnel in Papua and New Guinea is at present inadequate to meet the requirements for development and it is in this light that we will examine the technical training of agricultural diplomates

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at the Vudal Agricultural College.

Vudal Agricultural College, situated on the Gazelle Peninsula near Keravat, provides a sub-professional three year diploma course for Form IV school leavers - preferably with at least C passes in English, Mathematics and Science. The first nine Diplomas were awarded in 1967 and another 16 were granted in 1968. At present there are 22 students preparing to sit for the final examination of the three year course - 14 of whom are on Administration Traineeships, four privately sponsored Papuans and New Guineans, and four overseas students from various South Pacific countries (a proportionate breakup which is fairly characteristic of all years at Vudal).

Vudal is deliberately industry-based and aims to produce diplomates who can fill a cross section of positions within primary industry. Even though the majority of Papua and New Guinean students at Vudal hold Administration Traineeships it is significant that no effort is made to bond the students to the Administration, and, in fact, positive encouragement is given to various interested students to go into suitable avenues of private enterprise. Private sponsors such as Carpenters, the Papua and New Guinea Development Bank, and Cottees have followed the Administration lead and do not make subsequent Company or Bank employment a condition of sponsorship. Naturally, however, the sponsoring Company takes a keen interest in the students for whom they are financially responsible and gives positive encouragement to any interest in Company employment. The Public Service Board performs a comparable role for Administration sponsored students.

By comparison the Papua and New Guinea Development Bank is somewhat unique in actually preferring their students to work outside the Bank for a number of years in the first instance, as they place a high premium on experience as well as on qualifications for successful Bank employment.

At present approximately 40% of any one intake of Form IV students fails to gain a Vudal Diploma or Certificate (awarded for successful completion of practical training despite examination failure). This immediately draws attention to possible weaknesses in student selection, staff, syllabus and/or College facilities.

Student Selection:

Selection is generally unsatisfactory and is not likely to improve significantly while the present shortage of Form IV school leavers persists. Administration selection of students for Traineeships is basically a paper exercise and unless the Headmaster happens to make a few appropriate comments on the school leaver form (a very rare occurrence), it is virtually impossible to determine the students' interests or attitudes, and consequently selection must rely entirely on examination results and the assessment of the Psychological Service of the Public Service Board. Admittedly this is better than nothing but, taken in conjunction with the chronic shortage of Vudal applicants, it can only mean that objective selection of students is virtually non-existent. Because of the smaller numbers involved Carpenters are able to carry out interviews and generally speaking their selection is more successful. With even smaller numbers, Cottees and the Papua and New Guinea Development Bank do not undertake their own selection but tend to rely on Administration selection to obtain their students. Student selection problems will no doubt be overcome as the number of Form IV school leavers increases.

Staff:

Vudal staff falls into two categories:

(a) Professional teachers with little or no agricultural experience.

(b) Professional agriculturalists with little or no teaching experience.

Unfortunately there is a tendency for group (a) to dominate group (b) and consequently Vudal teaching runs the very real risk of becoming too academic and too divorced from the practice of agriculture in Papua and New Guinea. This problem is aggravated by an inadequate grasp of English and Mathematics by the average Form IV student, hampering communication with the professional teachers. Consequently fluency in English and Mathematics tends to be regarded as a pre-requisite for successfully teaching the application of scientific principles to agricultural

problems and the first year of the course has at present an academic rather than an agricultural bias.

This highlights a staff training need which has not yet been tackled seriously. Both categories of staff are working at Vudal on temporary secondment only. Category (a) is seconded from various State Departments of Education in Australia, while Category (b) is seconded from the Department of Agriculture, Stock & Fisheries field staff of Rural Development Officers. This lack of stability and continuity must be overcome if worthwhile staff training is going to take place. It is hoped to change the status of Category (b) from seconded field officers to permanent Vudal staff who are periodically seconded back to field duties to keep in touch with agricultural developments and undergo in-service training. This should allow (b) to dominate (a), rather than vice versa, and should also allow the Vudal course to start with a clear agricultural bias rather than the present academic tendency. First Year students could thus come to grips with the practice of agriculture immediately instead of having whatever agricultural interest they may have killed by a twelve month continuation of straight school work, concentrating on English and Mathematics. This development, particularly if taken together with better selection, should minimize first year failures and what have come to be regarded as the inevitable Vudal dropouts.

Syllabus:

The problems associated with the above staff dichotomy tend to run into course content and, consequently, subject mastery is sometimes seen as an end in itself rather than an aid to the successful practice of agriculture. However, as already mentioned, deliberate efforts are made to keep the Vudal course industry-based by a heavy loading towards practical work, particularly in the Second and Third year of the course. Much of this practical work is undertaken during the normal Christmas vacation period and the mid-year break when students are obliged to work on various Territory properties and plantations. A tour of the Highlands is also undertaken during the course and all the time students are encouraged, through report writing, to assess and criticise the various agricultural situations in which they find themselves. It is significant that Vudal students

are not permitted the luxury of long holidays during the whole three year course period.

Every endeavour is made to keep business principles and farm management central to the whole syllabus and Third Year students are required to embark on practical farm projects of their own choosing where they can apply skills and principles to an actual field situation.

Physical Facilities:

In view of the present student shortage accommodation and facilities generally are considered adequate. Individual bedrooms are provided which, with a desk and chair, can double as private studies. Common study rooms are also provided and a rapidly developing library provides a third alternative for quiet reading and study. Good accommodation exists at Vudal for approximately 180 students while at present there are only just over 100 students in residence. (52 in First Year, 27 in Second Year and 22 in Third Year).

Relation Between Vudal and In-Service Training:

To date there has been inadequate evaluation of the Vudal Diploma Course and in an effort to remedy this situation it has been suggested that in-service training of Rural Development Officers (the position to which Vudal Diplomates are appointed when joining the Administration) becomes an integral function of the Vudal Agricultural College. The Vudal Diploma represents no more than pre-service or pre-industry training and to ensure effective work units both within primary industry and the Public Service it is essential that systematic in-service training builds on this base of pre-service training. Conducting in-service training at Vudal would enable valuable feedback to be obtained for continuously evaluating and reappraising Diploma Course content. Territory agricultural development and farm systems are changing at such a rapid rate that constant feedback is essential if teaching relevance is to be maintained.

In addition to short periodic in-service training it is hoped that Vudal will also be able to provide specific post-diploma training courses according to the needs and

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activities of working Diplomates. Once again, locating such courses at Vudal should make it possible for all aspects of agricultural training to retain a relevant whole industry approach.

With no faculty of Agricultural Science yet developed at the University of Papua and New Guinea it follows that full professional training in agriculture will have to take place at overseas universities for some time to come. To date the demand for this level of training has been very limited, although this could be due in part to the non-existence of an Agricultural Science Faculty in the Territory as there is some evidence of considerable interest in careers in agriculture amongst present undergraduates at the University of Papua and New Guinea. The Department agrees with recent statements by the University's Vice Chancellor that a Faculty of Agricultural Science should be developed at the University as soon as possible, and, in fact, should have taken precedence over some of the existing faculties.

Post Diploma Mobility:

While there is no formal recognition of the Vudal Diploma by the University (and in the interest of retaining a practical industry based course at Vudal this is not being sought by the College) individual Vudal Diplomates according to their merits can gain access to related courses such as Economics and Science at the University of Papua and New Guinea. However these same students have no access to Agricultural Science faculties in Australia where the higher qualification of a matriculation pass is required.

Despite lack of automatic access to tertiary education career opportunities for Vudal Diplomates are good. Within the Public Service the Vudal Diplomate can progress according to ability from R.D.O. Grade I to R.D.O. Grade V (which is the equivalent of a Regional Rural Development Officer). Within this range the career officer can specialise according to his inclination in a variety of work ranging from extension, livestock, or agronomy work in the field, to quarantine or laboratory work. Within private enterprise Diplomates who demonstrate managerial ability usually have excellent career opportunities.

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Estimated Needs for Skilled Manpower:

According to the Conference on Industrialisation in Developing Countries (Cambridge Overseas Studies Committee September 1964) a reasonable Agricultural Advisory Manpower target for countries where from 65% to 85% of population are engaged in agriculture and kindred occupations is as follows:

Agricultural Advisory
Manpower per 10,000,000 of
population

	University Graduates	Diploma Level	Field Men
Field Force	250	750 - 800	2,500
"Support"	750	-	-

Reduced to Papua and New Guinea population levels of 2,000,000 (approximately) gives us a required field force and scientific "support" staff, of:

	University Graduates	Diploma Level	Field Men
Field Force	50	130 - 160	500
"Support"	150	-	-

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At present the Department has:

	University Graduates	Diploma Level	Field Men (P.A.T.I.)*
Field Force	33	171	90
"Support"	69	-	-

Breaking these figures up into local and overseas officers gives us:

	University Graduates		Diploma Level		Field Men (P.A.T.I.)	
	L	O	L	O	L	O
Field Force	1	32	11	160	90	-
"Support"	-	69	-	-	-	-

Thus, simply replacing present overseas staff with local officers gives us a shortfall of:

Graduates	101
Diplomates	160
Field Men (Certificates)	-

Considered against what the Cambridge group thought a reasonable staffing target, brings this shortfall up to a total shortage of:

University Graduates	199
Diplomates (Vudal)	160
Field Men P.A.T.I. (Certificates)	410

* Popondetta Agricultural Training Institute

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If we consider this shortfall against our projections for Departmental institutional output and Departmental employment, then it is clear that we cannot hope to make good until about 1973-74 for Diplomates and even later for field men (P.A.T.I. Certificates). It is not possible to give a reasonable guess as to when the country's need for Agricultural Science and Science graduates is likely to be met by qualified local officers.

No projection figures are available for the trained manpower needs of the private sector of the Territory's primary industry, but it is well accepted that these must increase as the country develops and consequently will tend to compound the above shortage.

Conclusion:

I agree with Guy Hunter (Report on Cambridge Overseas Studies Committee 1964) when he says: "I believe the most important issue for discussion is this - how to provide the opportunity, after technical education, for practical and guided experience in the real conditions of production, commerce and administration." Particularly is this true for agricultural extension workers who are concerned all the time with teaching and educating farmers, because, paradoxically, as pointed out by the Uganda Educational Commission 1963:

"The problems of agricultural education are not primarily educational: they are bound up with the solution of economic, technical and social problems over which the Ministry of Education has no control - systems of land tenure, improved land use, finance and marketing research and development, traditions and tribal customs being among them."

Effective in-service or on-the-job training is at least equally as important as pre-service training, and I would suggest that concentration on the latter at the expense of the former will result not only in ineffective work units, but extremely frustrated ones as well.

To my mind the present shortage of students

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for pre-service training at Vudal, gives a splendid chance to concentrate on in-service and on-the-job training, and as already indicated, I think this should be formalised to the extent that in-service training becomes an integral part of Vudal operations with all Vudal Diplomates undergoing periodic short courses in a systematic manner.

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APPENDIX I

Department of Agriculture, Stock and Fisheries

COMPARISON OF OUTPUT OF HIGHER TRAINING INSTITUTIONS AND NUMBERS EMPLOYED BY DEPARTMENT

	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73
(a) Vudal Output (Diplomates)	9	16	22	24	36	36
Cumulative number	9	25	48	72	108	144
(b) Expected Dept. employ						
yearly	9	14	18	19	29	29
cumulative	9	23	41	60	89	118
(c) P.A.T.I., H.A.T.I.* & K.A.T.I.*						
Output (certificates)	15	26	36	36	60	84
Cumulative number	58	84	120	156	216	300
(d) Expected Dept. employ (Total)		108	131	154	195	255

(a) Vudal wastage from initial input to diploma graduation is 40%.
(b) Excess Vudal graduates expected to be employed in private enterprise and other government departments. Also, no allowance in cumulative figures for retirements etc.
(c) P.A.T.I. wastage from initial input to certificate graduation is 40%.
(d) Excess certificate holders to department employ expected to be employed in private enterprise (including own farms) and other Admin. departments.

* H.A.T.I. and K.A.T.I. refer, respectively, to the Agricultural Training Institutes to be established in Mount Hagen and Kapogere.

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SUB-PROFESSIONAL TRAINING
BULOLO FORESTRY COLLEGE

J.R. ANGUS
Bulolo Forestry College

The objective of forestry training is, primarily, to provide trained personnel at all sub-professional levels for the Department of Forests, but as well, we hope to be able to supply technically trained personnel for the utilization side of the industry, as and when the need and worth of such personnel is appreciated. At present we have one student sponsored by the industry. Our courses can be geared to some degree of specialization to suit particular needs.

Forestry training commenced in 1962 with a brief one year course for in-service staff in make-shift conditions at Bulolo. In 1963 a series of 2 year courses leading to a certificate was started for in-service staff and external recruits with a nominal entry level of Form II, but actually in many cases lower. In 1965 the level of entry was raised to Form III, but Form II's were accepted.

In 1967 the level of training was raised to a three year course leading to a diploma with a level of entry set at Form IV, but once again it was found necessary

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to accept Form III trainees at the start. Years 1968 and 1969 have shown a steady improvement in the educational level of trainees, although in comparison with other tertiary training institutions the average calibre of trainee has been very low. This state of affairs has resulted in high failure rates in each course at the initial level attempted but the picture is not as dismal as it could have been in other circumstances.

The reason for this is that the Department of Forests has an organizational structure that incorporates three levels of sub-professional staff - two technician levels and one artisan or tradesman level. We are, therefore, in comparison to other tertiary institutions, fortunate in that the absolute dropout rate can be kept to a low level. Illustrating this is the fact that since 1963 of a total intake of 90 local students in certificate and diploma courses, 38 have so far failed the courses at the level they started. The actual number of dropouts has totalled only nine, and of these two have gone to Posts and Telegraphs and one into the timber industry. The remaining 29 have been appointed at lower levels in the Department or are continuing training at a lower level.

Student numbers have steadily increased each year and at present there are some 50 students in diploma and certificate courses. The optimum estimated intake is 45 a year. Of this total about 25 places are for local forestry students and 10 for cartographers, with 10 places earmarked for overseas students. (We have already had students from the British Solomon Islands Protectorate, Fiji, Tonga, Western Samoa and the US Trust Territories, and currently have seven such students at the College.)

The basis of this estimate follows. Currently there are some 115 sub-professional officers in the Department. Nearly 60% are expatriate officers. Short term forward estimates of sub-professional staff is some 250, that is an increase of 135. Add to these some 65 replacements for expatriate staff and we have a total of 200. If perhaps 20 of our intake of 25 will make the grade at diploma or certificate level it will take 10 years to achieve this "short term" requirement. This does not take account of replacement of local staff who may drop out. In

the cartographic field the Departments of Lands and Forest estimate that between them, for expansion and expatriate replacement, some seven to eight graduates per annum are required.

An assessment I made of sub-professional training needs for public forestry among English speaking South Pacific territories early this year indicates a demand for up to 10 a year for courses we could provide.

It should be noted, however, that these estimates of manpower needs take no account of private industry. The demand for trained personnel in this area should be high but a special study would be needed to arrive at an accurate figure.

As I have already indicated we are currently operating full time courses at two levels. We run a three year diploma course in Forestry, one in Cartography started in 1969, and a two year certificate course in Forestry. The first year course for both diploma and certificate forestry students is identical. So at full operation we will have seven different courses operating, consisting of two first year - one forestry and one cartography; three second year - two diploma level and one certificate level; and two third year diploma. In addition there is a six month artisan course each year, in a particular branch of forestry with practical work as its major content.

To handle these courses teaching staff normally consists of myself, doing part-time lecturing along with administration, and nine full-time lecturers consisting of one academic, one science, five forestry and two cartography. In addition, there are two other sub-professional officers who assist with field work supervision attached to the College, one of whom is in charge of the six month courses when they are functioning. Omitting myself and the handful of hours lecturing I do, the average weekly hours for the full-time staff are some 23. Even allowing for the fact that a considerable proportion of the week's work is practical this is still a fairly heavy work load. And, of course, not all staff are carrying equal work loads.

Now let us take a brief look at our forestry syllabus. I have prepared a handout* which gives brief details plus a break-down by subject and hours so I will not go into it in detail. But under the main heads there are some 21 subjects to be taught. Added to that are two or three special short courses. One third of the main subjects could be regarded as basics, and the remainder constitute a wide diversity of technical subjects which can be broadly divided into three sections - biological, engineering and administrative. The whole presents a very formidable programme both for teaching and learning. A clearer idea of this can be gained if you care to look at the subject content outlined in the handout.

Turning to some of the problems associated with training. Firstly, because the scholastic level of the students we are receiving is insufficient for them to go straight into technical training, we spend the best part of the first year teaching basic subjects. Secondly, by virtue of their inadequacy of background, educational and otherwise, absorption rate of technical information is generally slow and necessitates very piecemeal and repetitive presentation. With a broad and varied range of technical subjects and subject content such as we have, the time available for a really desirable coverage is insufficient. Yet the general expectancy among field staff in the department is that at the end of these three years the graduate from the College should be an expert in every branch of forestry. We are happy if he has absorbed sufficient basic knowledge to form a sound foundation on which practical experience and maturity will add superstructure. A third problem is the relative immaturity of many of the students, even on completion of training, and due allowance has to be made for this when they are posted out.

We thus have three main factors involved, namely lack of basic education, insufficient time and immaturity. They are all inter-related.

Let us look at basic education. Neither quality nor (in the context of technical education) depth is adequate at present. As long as we are dependent on Form

* See Appendix I

IV material and the current Education Department syllabus we shall continue to have this problem. As a result we are faced in the first year with over 600 hours of basic subjects. This time is insufficient but it is all we can spare. This 600 hours plus is time we could usefully spend on purely technical forestry subjects.

This situation or something very close to it is repeated in each tertiary technical training institution. The result is a redundant repetition of a similar sector of the training programme. There is competitive demand for teaching staff with identical qualifications. It is difficult to get these and, when we do, their capabilities and time, perhaps, are not then always fully occupied. In addition there is a duplication or attempted duplication of equipment and training facilities. I say attempted duplication because we do not all achieve the same standards. There are varying levels of salary, equipment, facilities and accommodation at the different institutions and these all affect and aggravate the staff supply problem.

It seems that a little early planning might have avoided or at least minimized this proliferation of basic subject teaching with its resultant problems and repeats of expenditure. A centralized concentration of staff, equipment, facilities and trainees would have resulted in more effective and economic use of staff and funds.

As more Form V students become available through the normal educational channels this problem should diminish, but obviously this will take considerable time. With the present situation established as it is can anything be done to rectify or at least improve it?

It may still be practicable to concentrate a "preliminary year" in one or more centres, despite some undoubted and very considerable disruption to the present organization. Some partial amalgamation between institutions with similar basic subject interests could be a possible answer. Alternatively, since the Department of Education has established a Form V at Sogeri and presumably intends to extend Senior High Schools, the immediate creation of "specialised" Forms V at suitable schools, with emphasis on biological and science subjects to which suitable students interested in technical training could be channelled, may be

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an answer. The undoubted need for large numbers of indigenous technologist and technician level personnel if the country is to develop satisfactorily could be sufficient justification for the very early establishment of such specialised Forms.

The advantages of shedding basic subject teaching, as far as we are concerned, would be relief from the recurrent and almost certainly increasing problem of competitive recruitment of basic subject staff under considerable handicap, the availability of valuable additional time for technical training, and the fact that the trainee is at least one year more mature.

Another problem, common I think to most of the training institutions, is the matter of motivation. Broadly speaking, it is non-existent amongst the majority of forestry trainee recruits. Many, when they find they have to get out in the bush and get their hands dirty, lose whatever small interest they might have had. A possible solution, particularly if the basic subjects remain part of the curriculum, would be to extend the overall course by a year, and when the student trainees have been selected, post them to field work for six months for on-the-job initiation followed by six months of basic subject teaching. This, in the first six months, would help to eliminate the uninterested and unsuitable and would also tend to deal with the other problems of insufficient time and immaturity.

I would like to mention one or two other points where appropriate action might help to rationalise and improve the whole field of technical education and training. One is the desirability of general standardisation of conditions of studentship at appropriate levels, both in relation to grants, leave, discipline, and so on, and the living conditions and facilities available, particularly when there is movement of students between the institutions. It is probable that at this stage of development of the system many of the anomalies cannot be rectified but some could be evened out. For example, rather than variation of training grants by age, particularly when many do not know their ages, either a flat rate during training or standard increases with each year of training would be more equitable.

Again it seems to me to be stultifying an admirable effort at promoting tertiary training in the Territory with a wide range of schemes and institutions, if they are not supported by at least the minimum of facilities and/or equipment to ensure effective implementation of the function and purpose of the institution. Often the logistics of a scheme are not geared to the intention or purpose of the scheme, which is a reflection on the overall planning or the mechanism of administration. Even so, relatively minor an item as lack of a vehicle can effectively cripple a course. It savours of "For the sake of a nail the battle was lost". There appears to be plenty of battle strategy but it is impossible to acquire the tactical nail.

I was particularly interested to hear Dr. Pickard comment on the need for some degree of autonomy from central government control of the content and methods of vocational training and educational institutions. There is need not only to sever the umbilical cord of paternalistic (pardon me - maternalistic!) control, but also it would appear essential to cut the Gordian knot of administrative red tape related to financial allocations, procedures and strictures. It seems to me that it should not be impossible to devise some financial autonomy, within overall limitations, which would permit the means to be obtained that would achieve the ends.

APPENDIX I

DIPLOMA IN FORESTRY

The diploma may be conferred as an ordinary diploma or as a diploma with credit or with distinction.

Syllabus - First Year

English
Maths
Chemistry
Physics
Climatology
Geology
Biogeography

Forest Products - introduction
Survey - introduction
Mensuration - introduction
Botany - plant physiology
- plant anatomy
Silviculture - plantation establishment

Syllabus - Second Year

Botany - taxonomy
- wood identification
Survey (incl. photogrammetry and photo interpretation)

Mensuration
Engineering
Forest Products
Silviculture - foundations of
Soil Science
Wood Science

Syllabus - Third Year

Botany - ecology

Silviculture - silvicultural practice
Forest Management
Wood Science
Engineering

Land Use, Policy, Law, Administration

Protection - entomology
- pathology
- fire, man, animal
Business Principles

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SYLLABUS HOURS

SUBJECT		DIPLOMA COURSE	TECHNICAL ASSISTANTS		
English		210			210
Maths		150			150
Chemistry		90			90
Physics		90			90
Climatology		30			30
Geology		30			30
Biogeography		60			60
Survey -					
Theory	70)		Theory	70)	
Practical	240)	310	Practical	240)	310
Mensuration -					
Theory	60)		Theory	30)	
Practical	90)	150	Practical	90)	120
Forest Products -					
Lecture		30	Lecture		30
Wood Science -					
Laboratory	90)				
Practical	80)	170	Practical		80
Engineering -					
Lecture	30)		Lecture	30)	
Practical	170)	200	Practical	70)	100
Botany -					
Plant Physiology -					
Laboratory	20)		Laboratory	20)	
Practical	20)	40	Practical	20)	40
Plant Anatomy					
Laboratory	20)		Laboratory	20)	
Practical	20)	40	Practical	20)	40
Taxonomy					
Laboratory	120)		Laboratory	120)	
Practical	120)	240	Practical	120)	240
Wood Identification					
Laboratory	90	90	Laboratory	90	90
Forest Ecology					
Laboratory	70)				
Practical	170)	240			
(Total Botany 650)			(Total Botany 410)		

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SUBJECT		DIPLOMA COURSE	TECHNICAL ASSISTANTS		
Silviculture -					
Plant Establishment					
Lecture	25)	90	Lecture	25)	90
Practical	65)		Practical	65)	
Foundations of Silviculture					
Lecture	45)	60	Lecture	45)	60
Practical	15)		Practical	15)	
Silvicultural Practice					
Lecture	45)	90	Lecture	45)	90
Practical	45)		Practical	45)	
(Total Silviculture 240)			(Total Silviculture 240)		
Soil Science -					
Lectures) Practical)	150	150			
Management (incl. Economics)					
Lectures	40)	120			
Practical	80)				
Protection -					
Lectures	30)	90			
Practical	60)				
Policy, Law, Land Use		90			
Administration		30			
Business Principles		30			
Special Courses					
Photogrammetry) Photo Interpretation)		90			
Extension Methods		35	Extension Methods		35
First Aid		35	First Aid		35
Explosives		35			
TOTAL HOURS		3115			2020

English - 210 hours

Textual analysis; written expression; vocabulary expansion; English patterns and structure; clear thinking; oral expression; reading and listening skills.

Mathematics - 150 hours

Revision of basic properties; decimal notation; approximation; base 10 logarithms; accuracy and errors; function and graphs: straight line and curves; interpretation of graphs; statistics: descriptive; volumes and areas.

Chemistry - 90 hours

Atomic structure: atoms, ions; elements: periodic table, valency and formulae; substances: compounds, mixtures, elements; acids, bases and salts: neutralization, equivalent weights and pH; solutions: solubility and precipitation, colloids; properties of gases: Boyle's and Charles' Laws; electrolysis.

Physics - 90 hours

Units of length, area, volume and mass; measurement and estimation of these quantities; hydrostatics: density and specific gravity determinations; mechanics: velocity, speed and acceleration, forces, work and power, simple machines; heat: thermometry and calorimetry; light: study of optical instruments, camera and microscope; magnetism: earth's magnetism and use of compass; electricity: theory, costing of electricity, electrical wiring.

Biogeography - 60 hours

Background knowledge of world's biotic regions and what they look like; a general picture of forest resources of the world; wood surplus and deficit regions; major trade flows in wood and wood products; reasons for variation in living standards in different regions.

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Climatology - 30 hours lectures; continuous practical meteorology. Climate classification; climatic factors - temperature, precipitation, evaporation, etc; effect of climatic factors on plant growth and forest distribution. Meteorological instruments and data recording.

Geology - 30 hours lectures and laboratory; continuous practical during field excursions.
Concepts and terminology; classification of rocks; outline of stratigraphy; volcanic activity; geological basis of soil formation; weathering, transportation and deposition of materials.

Botany: Plant Physiology - 20 hours theory; 20 hours practical. Elementary course in major plant functions: solutions, colloids, movement of water through plants, osmosis, imbibition; transpiration; photosynthesis; respiration; vegetative growth, wound healing; germination, dormancy; plant movements.

Botany: Plant Anatomy - 20 hours theory, 20 hours practical. Internal organization of plant; cells, cell types, structure, inclusions, wall formation; embryo, germination; primary and secondary growth; plant tissues; root system anatomy; leaf, flower, fruit, seed structures.

Botany: Taxonomy - 50 hours theory; 190 hours practical. Morphology and history of classification; phylogeny and evolution of plants; preparation of keys; herbarium procedures; definition and recognition of tree species and plant indicators.

Botany: Wood Identification - 90 hours.
Wood macro-structure; use of card-keys; continual identification of unknowns; field application in taxonomy and ecology classes.

Botany: Forest Ecology - 70 hours theory; 170 hours practical. Concept of plant ecology; history, life forms, succession, competition; forest structures and physiognomy; habitat identification, plant indicators; site and vegetation relationship; forest typing; plot layout and design; data collection.

Surveying - 100 hours theory; 300 hours practical.
Mathematics for surveying; survey calculation, instrumentation, traversing; topographic survey, contours, contour mapping; interpretation of map contours. Photointerpretation and elementary photogrammetry.

Mensuration - 60 hours theory; 90 hours practical.
Mathematics for mensuration; instrumentation and introduction to errors; measurement of individual tree volume; bark and crown measurements; growth, increment and yield; area basis of stand measurement; sampling for stand variables; stand basal area, height, volume; introduction to forest inventory.

Forest Products - 60 hours lectures; 30 hours practical.
Fundamentals of harvesting forest products, conversion, manufacture and end uses, and the relationship of silvicultural, management and economic objectives. Practicals include attachment to actual harvesting and conversion operations.

Wood Science - 90 hours lectures and laboratory; 80 hours practical.
Revision of wood origin, structure and growth; physical properties, variability, gross features, defects and deterioration; wood seasoning and preservation; timber and log grading.

Engineering - 30 hours lectures; 170 hours practical.
Minor forestry works - engineering surveys, foundations, minor building construction, concrete, fencing, water supplies, retaining walls; road engineering - location, surveys, design, construction, drainage, maintenance, explosives; industrial safety.

Silviculture: Plant Establishment - 25 hours lectures; 65 hours practical.
Nursery practice; seed collection; site preparation; silvicultural techniques of major plantation species.

Silviculture: Foundations of Silviculture - 45 hours lectures; 15 hours practical.
Tree growth and characteristics; forest environment and factors affecting plant growth; the forest stand and silvicultural systems.

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Silviculture: Silvicultural Practice - 45 hours lectures; 45 hours practical.
Objectives of silviculture; reproduction - natural and artificial regeneration; choice of species; theory of seed collectionl extraction, testing; nursery preparation and procedures; planting systems; care and maintenance of growing forest.

Soil Science - 50 hours lectures; 100 hours practical.
Soil origin and development; factors affecting soil; soil classification; physical and chemical properties; soil sampling and testing in major soil groups in P. & N.G.

Management and Economics - 40 hours lectures; 80 hours practical.
Objectives of forest management; requirements for efficient management; management tools and techniques; yield regulation and management plans.

Protection - 30 hours lectures; 60 hours practical.
Forest pathology - major diseases of forest trees and timber, identification and methods of control and treatment; forest entomology - important forest insects of forest trees and timber, recognition and methods of control and treatment; fire control - causes and effects of fire, controlled use of fire, techniques of prevention and suppression; plant quarantine, imports and exports.

Policy, Law, Land Use - 90 hours.
Factors affecting forest policy; basic principles and development of forest policy; forest law, general principles and particular studies; principles of land use, relationship of forestry to other land use, multiple use of forest land.

Administration - 30 hours.
Outline of organisation of government and the public service, organisation of forestry department; administrative procedures, record systems, correspondence, financial procedures, estimates, procurement of stores, costing; staff and labour: conditions, wages, records, etc.

Business Principles - 30 hours.
Elementary book-keeping and budget control.

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THE NEED FOR COMMERCIAL TRAINING

C.W.G. JOHNSON
W.R. Carpenter, Ltd.

It is submitted that a demand which is far from filled exists in commercial organisations (and possibly elsewhere) for the following people of local origin:

Typistes
Stenographers
Salesmen
Retail Supervisors
Book-keepers
Accountants

Typistes and stenographers are trained now on a small scale, mainly for the Administration. Those who are fortunate enough to be sponsored to a full time course of 4 years may go to the Institute of Technology to become accountants. This precludes most of those already at work in this field. There are also short courses for supervisors conducted from time to time by two different Administration Departments.

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It is suggested that the need could be met by Commercial Institutes teaching mainly after hours courses, but some full time courses also. The town which at present has the most potential students is Port Moresby. It is both the commercial and the administrative capital. The first such Commercial Institute might well be set up there, and possibly others elsewhere later.

It would not at first need its own buildings, but after hours at least could occupy existing high school or technical school buildings. It would need a staff, and some of the members of it could be part time. To get the best out of such an Institute and to justify good teachers it would be essential to concentrate as much teaching of commercial subjects there as possible.

In addition to the people mentioned already it should teach:

(1) Commercial Apprentices. The first are to commence apprenticeships in early 1970.

(2) Management at all levels. A proposed U.N. Survey could well recommend the teaching of supervision and management more widely than hitherto, and this will have to be done somewhere.

However, one of the main functions, as I see it, would be teaching part time students courses leading to an intermediate level and eventually a professional level qualification in Accountancy. I leave it to the accountants to sort out the details of these courses, but there is no doubt that we need local people with some such qualifications, and the sooner they can start studying the better. The Institute of Technology will meet only part of the demand and only for that part of the potential students that can attend it.

In furtherance of the need to concentrate, the Administration might consider merging with the proposed Institute its existing school for typistes and stenographers and also that training to do with book-keeping etc. at present conducted at the Administrative College. Separate

schools run by different Departments (e.g. the proposed Co-operatives College of the Department of Trade & Industry) should be avoided.

If such a Commercial Institute can be organised, and I suggest the Department of Education should do this, then its running costs should not be a charge only on the Administration. The running costs should be met by the students, or their sponsors, whether business houses or Administration Departments.

I am sure the Commercial Institute I have proposed would receive adequate support, and I know that the people it would turn out will be essential to the development of the Territory of Papua and New Guinea.

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THE TRAINING OF INDIGENOUS ACCOUNTANTS IN PAPUA AND NEW GUINEA

R.V. BOWMER
Australian Society of Accountants

Introduction

Since its inception in August 1968, the Territory of Papua and New Guinea Group of the Australian Society of Accountants has conducted as its major project, an educational research project into the needs of business, commerce and industry for well trained indigenous officers at both the full professional level and the support level in the subjects of accountancy and commerce.

By 1 September 1969 this research project - which had initially been conducted at the support course or technician level - had reached a stage where it could be submitted to the Department of Education. This was done so that the Department could give consideration to the Group's proposals on technical training (in commerce) being included in the commerce course conducted by the Lae Technical College, and also, in the course conducted by the External Studies Division of the Department of Education. The Group's proposals, as submitted to the Department of

Education, are attached as Appendices.

When the Society was invited to contribute a paper to the Lae Seminar on Technical Education and Industrial Training it readily agreed - partly because it saw in this an opportunity to spread its research message into a much wider field of interested persons than previously but mainly because its research project over the preceding 12 months had indicated clearly (a) some very great weaknesses in technical training facilities in this country, and, (b) a great fragmentation in the training which was being conducted in commercial subjects, particularly in Port Moresby.

This paper mentions briefly some of the problems which exist in commercial training, and it concludes with certain recommendations by the Australian Society. It is up to this Seminar to determine where, in the overall concept of technical training in this country, the recommendations of the Society may best fit.

Problems

Inherent in the preparation of indigenes with accounting skills are the following problems:

(a) The determination of the "base" course of commercial training. In commerce thousands of trained clerks are needed as well as hundreds at the technician level.

(b) The need for common course and a common certificate, so that employers may recognise the worth of a particular certificate.

(c) The progression from school to Technical College (or equivalent) to Institute of Technology or to University. Recognition of credits and admission with advanced standing.

(d) The inadequate resources of Lae Technical College (commerce courses). How many block or sandwich courses in 1970? Are block courses the answer? Consider also the status of Lae Technical College.

(e) The part-time student. Question of night classes at Lae-Port Moresby-Rabaul-Madang-Highlands.

(f) (i) The inadequacy of Department of Education training facilities in commerce at Port Moresby

but contrast with

(ii) The rash of unco-ordinated commercial training facilities at Port Moresby, for example the Administrative College; Education Department supervision courses; Labour Department supervision courses; Electricity Commission's Clerks course; Bankers courses; the proposed new Cooperatives College (Cooperatives Education Trust).

(g) The use of correspondence lessons. Is correspondence training the answer to the bulk needs of this country?

(h) The need for a recognised body to issue certificates at

(i) the technician level
(ii) the full professional level of Accountancy.

Some Manpower Figures

It has been said that we need thousands of clerks but it is clearly uneconomical for each organisation to have a number of Training Officers to conduct base level training. Local trainees should get basic training in a Technical Education system, whether they attend part-time, full-time or by correspondence. They should then receive further specialised training in salesmanship, management, taxation, local government, supervision, or whatever, in either a Technical College system or, if desired, in their own organisation where specialist organisational techniques are required to be taught. The Technical Colleges should be the place where the bulk of the training is carried out.

Some figures recently prepared by the Administration on the native business and co-operatives side alone

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are:

(a) 5000 Indigenous owned trade stores operating in the Territory. With imminent taxation enforcement all will require some accounting assistance. Taking half this number as viable trade stores, and allowing one accounting technician for every 20 stores, there is a demand for 125 technician level accountants.

(b) The 5 year plan for expansion of indigenous entrepreneurs in light industries will give rise to additional 85 Business Advisory Officers in the Department of Trade and Industry. These should be at the technician level.

(c) Field Officers for Registry of Co-operatives - there is an expected increase of 25 per year over the next 5 years = 125 (on top of the present 100).

(d) Co-operatives Association Inspectors - At least 40 required.

The Department of Trade and Industry suggests 500 students (at the accounting support course level) in the above areas alone. This figure does not include any other Government Department, Authority, or major business house. Figures and statistics can be made to lie, but there cannot be any doubt that the demand (and need) runs into thousands at the technician level.

Overseas Training or Local Training

There will always be good reasons for well selected officers to receive training overseas.

The Australian Society (TPNG Group), however, believes that if Technical Division resources were rapidly expanded, developed and co-ordinated in this country, local training would suffice at the support course level and at the full professional level.

Further, the TPNG Group believes that a standard of training (at both levels) which is BELOW the standard in Australia is acceptable and, in fact, necessary.

Recommendations

For these and other reasons the Territory Group of the Australian Society makes the following recommendations:

(a) That this Seminar endorses the proposals of the Society for the formation of a Territory Institute of Commercial Studies within the next 18 months to assist in the coordination of technical training at the support course level for accountancy students. This body would represent the professional viewpoint and, in particular, would maintain standards. It would be jointly represented on the Examination Board of the Department of Education, and could issue a "Certificate in Commercial Studies" on successful completion of a 3 year course. This certificate would become "the" recognised Certificate by all business houses throughout the Territory and by the P.S.B. The holder would be entitled to advanced entry into the Institute of Technology towards a full professional accounting qualification. He may also be entitled to some advanced standing in the University should a commerce or economics degree subsequently develop there.

(b) That this Seminar endorses the proposals of the Society for the formation of a Territory Society of Accountants to be formed within the next 3 years to regulate the practices of accounting in the Territory, and to register public accountants. This body may have a lower standard than its Australian counterpart, and would take its members (as at today) from graduates of the Accountancy & Business Studies School of the Institute of Technology.

(c) That, in the interests of co-ordination, the Administration looks closely into the possibility of bringing

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under one hand the fragmented commercial training which currently exists at Port Moresby.

(d) (i) That full time courses in commerce be extended on both sides of the Island, and in major centres, so as to cater for the needs of commerce and industry.

(ii) That night courses be developed throughout Technical Colleges for the further training of local officers who, because of employment, cannot get to full-time courses.

(iii) That correspondence courses keep pace and keep parallel with such full-time and part-time courses as are developed by the Department of Education.

(iv) Finally that the certificates issued be of a standard nature, whether for a full-time, part-time or correspondence student. The question of certificates should be co-ordinated at the highest level so as to avoid the rash of independent certificate issuing bodies which has been a failing in Australia for the past 25 years.

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APPENDIX I

FORMATION OF TERRITORY INSTITUTE OF COMMERCIAL STUDIES

Proposals prepared by Executive Committee of TPNG Group of Australian Society of Accountants, as part of an Educational Research Project into the needs for business, accounting and commerce training in the Territory of Papua and New Guinea.

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Foreword

1. In August, 1968, a Territory Group of the Australian Society of Accountants was formed in Papua New Guinea. The group comprised some 150 qualified accountants resident in different parts of the Territory, of whom nearly 100 resided in Port Moresby and environs.

2. From the outset the Group concerned itself with educational (accounting) matters, and the assistance of educational authorities in the co-ordination of accounting training.

3. It soon emerged that there were 5 main areas of research.

   (a) A complete review of syllabi up to the technician or support course level;
   (e.g. - Technical College, Adult Education and External Studies courses).

   (b) A review of syllabi from the support course level to the full professional level;
   (e.g. - Accountancy and Business Studies Course at IHTE).

   (c) The place for commercial, accounting or managerial subjects at the University;
   (e.g. - for mature age students).

   (d) A review of examining bodies, including the issue of diplomas or certificates;
   (e.g. - the need for a Territory Institute of Commercial Studies at the technician level).

   (e) The registration of practicing Accountants in TPNG.
   (e.g. - Public Accountants' Registration Board).

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4. The Territory Group recognised the importance of steering students into a study 'pipe-line' - indeed, the Territory's Department of Education pressed the Group to provide a lead in the type of commercial training which the professional (ASA) body desired. As a result, the weight of the whole Group Committee was thrown into the following educational research project for 1969. This was designed to cover item 3(a) above.

> "a complete and critical survey of accounting and support level training (including syllabis and examinations), conducted within the Territory with a view to submitting, by 31 Dec 69, to Appropriate Authorities, a full report on the level of training, examinations and qualifications required by Territory Accountants at both the full professional level and at the support course level. This project to be undertaken in conjunction with appropriate Educational, Public Service, or Administration Departments to ensure an end result which is acceptable to the A.S.A., to all interested Authorities and to Commercial and Industrial Interests within the Territory."

5. After preliminary research and discussions with educational and manpower planning officers, the Territory Group conducted its first accounting seminar at Goroka on 7-9 June 69. This seminar, which was attended by 30 representatives of commerce, industry, government, banking, public authorities and practicing accountants, considered in some depth the type of commercial training required at the support level. This paper now represents the results of the Goroka Seminar - it produces a suggested examination syllabi for candidates at the support or technician level.

6. The paper does not of itself recommend the establishment of a Territory Institute of Commercial Studies to confer membership or issue certificates at the support course level. The Research Committee of the Group does, however, feel that, in the near future, some body similarly named will need to be formed in the Territory - or

alternatively, that the Institute of Commercial Studies in Australia will need to extend its membership to those Papuans and New Guineans who complete a course of study appropriate to the Territory, and which approximates the Australian standard for affiliate membership of that Institute.

The Territory Group, as a group of the Queensland Division of the Australian Society of Accountants can only make its recommendations to its parent body in Australia, and then await the expertise of the Australian body to recommend to the Administration at the appropriate time, the formation of any new Institution.

7. All of this means that the predominant, and indeed the most pressing, task is to consider the type of training required and to recommend courses to the educational teaching bodies. Those bodies must then prepare their own detailed syllabis and teach towards their own examinations. These examinations will then be "recognised" by the proposed new body.

   Such courses must be fully integrated. Present school leavers at the Form 4 level, must be able to fit into the scheme. School leavers, at the Form 6 level, must be able to fit in at an advanced level. The Commerce Certificate course at the Lae Technical College should be parallel (in common subjects) so that exemptions may be granted on the grounds of recognised equivalent qualifications - similarly, with Form 5 or 6 subjects taught by the Department of External Studies.

   Candidates completing the technician level course should be able to fit with some advanced standing, into the Accountancy & Business Studies course at the IHTE.

8. The attached draft proposals and syllabi of examinations for a "Territory Institute of Commercial Studies" is put forward by the TPNG Group of the Australian Society of Accountants, in an effort to co-ordinate and advance commercial and accounting training in TPNG.

Aims and Objectives

The primary aims and objectives of the proposed Territory Institute of Commercial Studies are:

(a) a to co-operate with the accountancy profession and the business community generally for the purpose of fostering and maintaining in the Territory a body of qualified personnel skilled in accounting and related procedures;

(b) to prescribe and adopt standards of attainments of members and for such purposes to be represented on the examination boards of educational bodies conducting examinations in the Territory, in accounting and commercial subjects;

(c) to actively promote the qualification of its members throughout the Territory, for the purpose of gaining appropriate recognition and status for its members;

(d) to protect the general interests of Territory members and to provide them with appropriate services and facilities.

Introduction to Course

The support level (or technician) course will be conducted in three stages - Stages I, II and III. Each stage will contain four subjects, the details of which are set out under the heading of "Plan of Course".

The basic entrance qualifications for the technician level course should be a pass in four subjects at the Form 4 level, two of the subjects to be English and Mathematics. Persons wishing to undertake the course who have not passed Form 4 at the required level, but who have had three years experience in work considered by a committee of the Institute to be work that provides a suitable background for accountancy studies, may be admitted as candidates.

It is envisaged that the full course would take three years of full time study to complete. Alternatively,

by taking two subjects per year by correspondence or part time study, the course would take six years.

Exemptions from individual subjects could be granted on production of evidence of other recognised equivalent qualification.

The Institute would not be a tutorial body nor would it be, in the early stages, an examining body. By being represented on examining bodies of educational authorities, it would thus grant recognition to the examinations of those bodies.

It would issue letters of attainment at the completion of each of Stages I and II, and a certificate on successful completion of Stage III.

The classes of Institute membership and the designatory letters (e.g. M.C.S.) to be used after a member's name are to be determined.

Plan of Course

The course will be divided into three stages. Each stage must be completed before any subject in a succeeding stage may be taken.

There are four subjects in each stage. In Stage I each of the four subjects listed are compulsory. In Stage II there are three compulsory subjects with a choice of one additional subject from those listed. In Stage III there are two compulsory subjects with a choice of two additional subjects from those listed.

A letter of attainment will be issued on completion of each of Stages I and II.

A certificate will be issued on successful completion of Stage III. A member of the Institute receiving such a certificate will be permitted to use letters after his name designating Institute status.

STAGE I - All subjects compulsory

* 1.1 Accounting I
* 1.2 Commercial Mathematics
* 1.3 Business English
* 1.4 Social and Business Structure

STAGE II - Four subjects to be taken, three are compulsory and there is a choice of one subject to be taken from subject No. 2.4 or 2.5.

* 2.1 Accounting II
* 2.2 Business Law
* 2.3 Business Communications
* 2.4 Accounting Controls and Auditing
  2.5 Office Administration and Personnel Relations

STAGE III - Four subjects to be taken, two are compulsory and there is a choice of two subjects to be taken from subjects No. 3.3, 3.4 or 3.5.

* 3.1 Accounting III
* 3.2 Business Economics
  3.3 Business Statistics
  3.4 Taxation Law
  3.5 Special Law

NOTES

(a) Subjects marked * are compulsory (unless exempted on grounds of some other recognised qualifications)

(b) Subjects not marked * are electives (these must be completed unless exempted therefrom on the grounds of some other recognised qualification)

APPENDIX II

EXAMINATION SYLLABUS

STAGE I subject of ACCOUNTING I

(Subject No. 1.1) (2 papers)

AIM: The aim of this subject is to ensure that the candidate has a sound knowledge of double entry book-keeping and accounting for simple business enterprises. Emphasis will be placed on an ability to work from original documentation.

Office procedures will also be examined in this subject.

SCOPE:

Part "A" Accounting (to Trial Balance)

1. History, nature and purpose of book-keeping
2. Introduction to Balance Sheet
3. Need for Internal controls and documentation
4. Cash transactions
5. Double entry system
6. General Journal and subjournals
7. Ledger and Chart of Accounts
8. Subsidiary ledgers and sectional balancing
9. Trial Balance

Office Procedures (to be included in Part "A")

1. Records and index systems, including correspondence
2. Office communications
3. The handling of cash in the office (including petty cash)
4. Office machines

5. Dealing with the public

Part "B" Accounting (to Balance Sheet)

1. Depreciation
2. Sale of assets
3. General ledger adjustments (incl. correction of errors)
4. Classification of revenue and expenditure items
5. Trading and Profit and Loss Account
6. Accounting equation and Balance Sheet
7. Classification of Balance Sheet items
8. Different methods of presenting final accounts

Office Procedures (to be included in Part "B")

1. Nature of office work - organisational diagrams
2. The Office Manager
3. Office Layout (including office furnishings and equipments)
4. Office forms
5. Statistics
6. Office Security
7. Insurance

STAGE I subject of COMMERCIAL MATHEMATICS

(Subject No. 1.2) (1 paper)

AIM: The aim of this subject is to ensure that the candidate has the basic mathematic skills required in Commerce. The emphasis will be on commercial needs and usage.

SCOPE:

1. Basic arithmetical manipulations. To include decimals, fractions, percentages. Applications of these in the use of money, weights and measures.

2. Ratio and Proportion. Use and method of computation.

3. Arithmetical Applications. Discounts, Mark-ups, Unit Cost Calculations, Oncost, Duty, Commission.

4. Interest, Simple Interest, Interest on Loans and Deposits, Principles of compound interest, Basis of Interest calculations.

5. Hire Purchase calculations.

6. Payroll, Calculations of pay on a weekly basis - at casual rates - at piece work rates. Incentive payments, deductions, reduction etc. Cash analysis.

7. Volume Calculations. Necessary for shipping and transport documents.

8. Postage and Air Freight calculations, Use of scales, how to read air freight and postage rates.

9. Averages, Mean and Median.

10. Mathematical Aids. Ready Reckoners, Payroll Tables, Interest and Quantity tables.

11. Averages, Mean, Median.

STAGE I subject of BUSINESS ENGLISH

(Subject No. 1.3) (1 paper)

AIM: The aim of this subject is to ensure that the candidate has a basic knowledge of English comprehension and expression, and an ability to think and express himself clearly in English. This subject is a basis for the compulsory Stage II subject of 'Business Commumications'.

SCOPE: It is considered that this course could be structured after the manner of the English course conducted by the Bankers College, where various situations which a candidate might meet in his daily work are analysed, and lessons dealing with the language requirements of each situation are developed. The scope will include such items as:

1. Sentence and paragraph construction based on business situations.

2. Commercial vocabulary work.

3. Comprehension work.

4. Filling in Forms - Application Forms of various kinds, income tax forms, etc.

5. Types of business letters - job applications, ordering goods etc., telegrams.

Overall, candidates should be able to comprehend English and effectively use it. They should be able to distinguish between good and bad writing, correct and incorrect expression. They should be able to think and express themselves clearly and communicate effectively.

STAGE I subject of SOCIAL AND BUSINESS STUDIES

(Subject No. 1.4) (1 paper)

AIM: The aims of this subject are threefold. Firstly it is intended to provide the candidate with a general understanding of the structure of the Territory community, including the nature of its government, its social structure, and its economic organisation. Secondly it seeks to give him an understanding of the way in which commercial activity is organised in the western society. Thirdly,

1881

the subject seeks to provide candidates with an understanding of the special problems which exist in the Territory where imported business concepts are being introduced to a generally under-developed country and a plural society.

PART "A" - SOCIAL STUDIES

Politico/Economic Structure-Governmental Structure

1. Political evolution in the Territory: Pre World War 1 - inter war years - World War II - Post War.

2. Structure of Government: The House of Assembly - the Administrator - departmental structure - District Organisation - Commonwealth Departments. Emphasis to be placed on the Papua-New Guinea Act.

3. External political influences; the Australian Government - the United Nations and the Trusteeship Council.

4. The Judicial System: Supreme Court - District Court - Local Court - Jurisdictions and Powers.

5. Local Government: Constitution, powers and finances of Councils.

6. Semi-governmental organisations: The Housing Commission - the Electricity Commission - the Harbour's Board - the Copra Marketing Board - the Overseas Telecommunications Commission, etc.

Social Structure

1. The Traditional Society

2. The Impact of Social Change

1882

Economic Structure

1. Topography of the Territory: physical features - geological formation - volcanic areas - limitations imposed by topography on human ecology.

2. Natural Resources: Soil, vegetations, climate, minerals, water.

3. Primary Productions: major crops and industries - plantations production and indigenous small holdings - organisational differences - the system of land tenure and land usage.

4. Secondary and Tertiary industries: types and magnitude - road development - transport and shipping services - retail trading - manufacturing.

5. The Balance of Payments: import replacement: major imports and exports - the need for balanced economic development.

6. The labour force: availability of skilled, semi-skilled and unskilled labour - labour mobility - traditional influences on labour, including land tenure and customary obligations.

7. Government Finance: Revenue, including taxation tariffs and grants - expenditure - historical growth pattern.

PART "B" - BUSINESS STUDIES

Business Structure

1. Business organisation in the plural society: the contrast of the formalised contractual relationship of western society with the informal relationship based on customary social

obligations of the traditional society - their impact on commercial organisation in the indigenous environment - the profit motive.

2. Sole proprietorship: nature of ownership - risk - capital raising.

3. Partnership: Nature - agreements - capital raising - risk.

4. Indigenous enterprises: the Co-operative movement - rural progress societies - economic activity of local government councils.

5. The concept of legal corporate structure: origins - definition - features.

6. Forms of corporate structure in the Territory - Business Names Ordinance - Organisations Incorporation Ordinance - Co-operatives Ordinance - Companies Ordinance.

7. The concept of limited liability generally - development and origins - definition - features. (Should be treated generally. Legal aspects in Company Law Paper). Relationship of limited liability to various types of corporate structure in the Territory.

8. Transactions in Shares: the Stock Exchange - Stockbrokers - values of shares - market report on shares - reasons for market fluctuations.

9. The indigenous entrepreneur: source of capital - organisation - means of operation - profit distribution.

10. Unincorporated indigenous group enterprises (Part I) : origins - the group joint venture - capital structure - means of operation - divergence from western corporate organisations.

11. Unincorporated indigenous group enterprises (Part II): case studies - successful and unsuccessful enterprises.

1884

12. Attitudes towards formal business structure (Part I): the conflict between the profit motive and customary obligations - problems of organisation.

13. Attitudes towards formal business structure (Part II): the problem of capital - maintenance of assets - capital distributions - separating the individual from the organisation.

14. Cult activity and business structure: myths of the origins of the developed society's wealth - case studies of cult orientated pseudo business ventures - the role of traditional beliefs.

15. Indigenous business structure and economic activity generally and its effect on the political, economic and social development of the Territory.

16. The future: the role of the trained accountant in the Territory community, with particular emphasis on the need for trained people in assisting the organisation and development of indigenous business enterprises.

STAGE II subject of ACCOUNTING II

(Subject No. 2.1) (2 Papers)

AIM: The aim of this subject is the extension of the Stage I subject of Accounting I into more specialised fields of Accounting, and to prepare the candidate to work at more senior levels involving an understanding of financial accounting systems and elementary budgeting systems.

1885

SCOPE:

1. More advanced balance day adjustments and balance sheets.
2. Different methods of Balance Sheet and Revenue Account presentations.
3. Interpretation of accounts - percentages, ratios, comparisons.
4. Accounting of stocks and methods of valuing stocks.
5. Funds statements.
6. Bills of Exchange.
7. Manufacturing accounts.
8. Departmental accounting.
9. Accounting for Payroll.
10. Hire Purchase Accounting.
11. Elementary Company Accounting.

STAGE II subject of, BUSINESS LAW

(Subject No. 2.2) (1 Paper)

AIM: The aim of this subject is to give an introduction to business law. It aims at acquainting the candidate with basic principles rather than with the technical details of case law.

SCOPE:

1. Origin and History. Types of Business Law.
2. Administration, property affected, necessity for knowledge ...
3. Structure of the Courts. Difference between common law and statute law.

4. Contract, Sale of Goods and Hire Purchase.

5. Negotiable Instruments.

6. Carriage of Goods.

7. Licences - various.

8. Agents and Principals.

9. Liens and Bailment, Bills of Sale, Mortgages.

10. Insurance.

The following topics should also be treated but not in great detail:

11. Bankruptcy (General).

12. Taxation (General).

13. Company (General).

STAGE II subject of BUSINESS COMMUNICATIONS

(Subject No. 2.3) (1 Paper)

AIM: The aim of this subject is to achieve effective communications in business. Using the Stage I subject of "Business English" as a basis, the candidate should develop an ability to use language to communicate effectively and to understand communications, both formal and informal within an organisation.

SCOPE:

1. Methods of Communication - oral, visual, written.

2. Problems of communication - different approach, psychological barriers, language etc.

3. Internal and external correspondence by Memos, Minutes, Notes etc.

4. Letter writing, various types.

5. Report writing.

6. Precis writing.

7. Comprehension of Business reports, contracts, business documents generally.

8. Clear Thinking - summarising of information, sequencing of information, interpretation of instructions.

9. Oral communications and speech making techniques.

10. Nature of meetings and elementary conduct of meetings.

STAGE II subject of ACCOUNTING CONTROLS AND AUDITING

(Subject No. 2.4) (1 paper)

AIM: The aim of this subject is to provide a general understanding of the nature of accounting controls and auditing procedures. The stress will be on aspects of internal control needed for commerce and industry generally, rather than on specific audit programmes for different industries; and on internal auditing as an aid to efficient management in the avoidance of waste and in the safeguarding of the enterprise's investment.

SCOPE: 1. Introduction to Auditing - Definition, objectives, advantages of audits for management, creditors, investors and others.

2. Types of Audits - Continuous, periodical, partial, balance sheet, etc.

3. Procedure - Inspection of Accounting System, concept of vouching, documentation and evidence to support entries, concept of verification.

INTERNAL CONTROL

1. Importance of control, organised systems, basic principles, delegation of authority, division of responsibilities.

2. Handling and security of cash receipts, banking, petty cash.

3. Credit Sales, cash sales, C.O.D. systems, sales summaries.

4. Cash purchases, credit purchases, invoices, delivery notes, vouching and payment of invoices.

5. Returns Inwards, Returns Outwards, credit notes, shortages, damaged goods.

6. Stock recording, perpetual inventories, stocktakes, valuation of stock, stock on consignment, retail stocktakes.

7. Postings, Balancing and inspection of ledgers control accounts, subsidiary ledgers and records, reconciliations.

AUDITING

1. Checking of Accounting System, methods used for documentation, checking, filing and recording.

2. Test checks, methods and use.

3. Audit programmes - types.

1889

STAGE II subject of OFFICE ADMINISTRATION AND PERSONNEL RELATIONS

(Subject No. 2.5) (1 Paper)

AIM: The aim of this subject is to provide an understanding of the principles of sound administration in an office situation. The candidate should be given an insight of all aspects of office administration relating to the employment of new staff, as well as office procedures and public relations generally.

SCOPE:

1. The place of the office in the organisation and the relationship of the office staff with the outside staff.

2. Staff recruitment: categories of staff needed - qualifications - advertisements - applications - interviews - general availability of staff.

3. Staff administration: attendance records - leave of absence - entitlements and privileges - working conditions - living conditions - keeping staff efficient and satisfied - job descriptions and duty statements.

4. Staff control: lines of responsibility - discipline - incentives to efficiency - loyalty to the organisation - promotional opportunities - need for personal integrity - dangers of favouritism, patronage and nepotism.

5. Staff training: need for training - forms of training (institutional academic on job) - facilities for training - training and procedural manuals.

6. Staff salary procedures: salary and staff records - methods of salary payment - extra payments overtime, (bonuses, commissions) deductions from salaries (tax instalments, group insurance, superannuation and provident funds,

medical benefits, etc.).

7. Committees: purposes of committees - use and organisation of committees - advantage and disadvantages of committees.

8. Meeting procedures: duties of chairman - agenda - procedures during meetings - standing orders and rules of debate - order of business - recording meetings - minutes - resolutions - follow up.

9. Personnel relations, personnel practice.

10. Self Motivation, esprit de corps, how to get things done.

11. Public Relations.

STAGE III subject of ACCOUNTING III

(Subject No. 3.1) (2 Papers)

AIM: The aim of this subject is to equip the candidate with a knowledge of the aims and methods of both the financial accounting system and the cost accounting system. The techniques of company accounting will be further developed. The candidate will obtain a general appreciation of costing techniques and the operations of a costing department. He will also be given some understanding of data processing and mechanised means of handling business transactions and business data.

SCOPE: Company Accounting

1. Revision of work on company accounting including all aspects of issue, allotment, payment and recording for shares.

2. Issue of Bonus shares.

1891

3. Formation of a company and conversion of a business into a company.

4. Simple company profit and loss accounts and balance sheets.

Costing Procedures

1. Introduction to costing procedures.

2. Job, process and Standard Costs.

3. Basic documents required for costing and budgeting work.

4. Relationship of cost accounting to financial accounting.

5. Relationship of cost department to planning and purchasing departments.

6. Control of material, labour and expense.

7. Costing reports.

Mechanised Accounting and Data Processing

1. Types of mechanised accounting systems available.

2. Impact of automation on business and commerce generally.

3. Records and Records Management.

4. Adaption of internal control procedures for mechanisation.

5. Data processing equipments.

6. Introduction to computer planning.

7. Business systems and systems flow-charts.

STAGE III subject of BUSINESS ECONOMICS

(Subject No. 3.2) (1 Paper)

AIM: The aim of this subject is to introduce the candidate to the major concepts of economics and their application in the Territory environment. Questions may be set to test the candidates ability to apply his knowledge to current economic events in the Territory.

SCOPE:

1. Money and Banking:

   (a) Methods of exchange, barter and its disadvantages, meaning, function and forms of money.

   (b) Nature and advantages of banks, kinds of banks, creation of credit by banks, roles of the Savings, Trading, Development and Reserve Banks, borrowing from banks.

2. Income:

   Forms of Income: Wages, Profits, Interest, Rentals, Dividends etc.

3. Prices:

   Price Mechanism: importance of price, demand and supply, equilibrium of demand and supply, pricing of export commodities.

4. Division of Labour:

   Meaning, advantages and disadvantages, necessity for exchange, limit of extent.

5. Location of Industries:

   Meaning, reasons, principles of comparative costs, international trade, exchange rate,

balance of payments.

6. Scale of Production:

A brief introduction to the factors governing the size of industrial undertakings. Population - size - skills. Accumulation of capital, advantages of large scale production. Optimum size.

STAGE III subject of TAXATION LAW

(Subject No. 3.4) (1 Paper)

AIM: The aim of this paper is to provide an understanding and knowledge of the Territory Income Tax Ordinance. The emphasis will be on the normal rather than the rare or complex case. The candidate will be expected to be able to handle the ordinary personal returns of expatriate and local employees, as well as business and company returns.

SCOPE:

1. A knowledge of the Territory Income Tax Ordinance.
2. Types of Income Tax Return Forms.
3. Chargeable Income.
4. Returns of (expatriate) residents with income from sources outside the Territory.
5. Taxable income, exempt income and allowable deductions.
6. Concessional deductions.
7. Appeals and offences.
8. Candidates will be expected to know the effects of legal and Treasury decisions on common items of income and deduction.

GROUP III

PROFESSIONAL

1895

THE PROFESSIONAL TRAINING OF MATHEMATICS AND SCIENCE TEACHERS IN THE TERRITORY OF PAPUA AND NEW GUINEA

DENIS JOYNT
University of Papua and New Guinea

I Background

It seems to me that there is an urgent need for further manpower planning in the Territory. An order of priorities needs to be established which will serve as a guide for those whose task it is to plan production of skilled personnel. A related issue is that of adequate reward for skills. One of the most potent factors in channelling people in particular directions is financial reward. Therefore it seems important that the wage structure be designed to attract people to the areas where they are most needed. Some organisations such as the Department of Civil Aviation, I understand, have already acted appropriately by establishing salary scales which attract able people to jobs requiring intelligence and application. Teaching, on the other hand, offers comparatively low rewards and consequently there are many empty beds in Teachers' Colleges. Finally I believe that one of the most pressing needs in Papua New Guinea is not only to produce skilled men and women but also

to ensure that these people are able to pass on their skills to others. Against this background I present the following case study.

II Introductory Remarks

It is important that people concerned with technical and industrial training take more interest in the preparation of teachers in general, and science and mathematics teachers in particular. Regardless of which technical or industrial field one enters, some mathematical and scientific skills and knowledge are necessary. The higher the individual climbs the vocational ladder the more important these become. In a country where western scientific concepts are almost non-existent in indigenous culture, and mathematical concepts are demonstrably even more rudimentary (Prince 1969), science and mathematics teachers become the key to successful vocational training.

Tertiary institutions have four major responsibilities. These are to provide:

(i) advanced general education and training;

(ii) the education and training needed by practising professionals in certain fields;

(iii) the education and training of staff for post-secondary including tertiary institutions;

(iv) the education and training of a substantial proportion of secondary teachers.

In this paper I propose to emphasise the last responsibility, and to concentrate on the need for competent indigenous secondary teachers of mathematics and science - an emphasis clearly apparent in the report which led to the establishment of the University of Papua and New Guinea.

As Drover (1967) points out, students in the Territory come from a relatively "science-free" culture and are frequently exposed to a western type curriculum quite

detached from their everyday experience. What the introduction of the scientific method and science concepts means to the indigenous student is very difficult for the expatriate teacher to appreciate in full. The problems of the local students probably are best understood by one who has had to face the same problems himself. However, it must be emphasised that an understanding of student difficulties is not enough to make a successful teacher. He also needs an adequate knowledge of his discipline. Just as important, perhaps, he needs an understanding of child psychology and the stages through which the growing individual passes in the cumulative development of mathematics and science concepts. Such vital knowledge will not be encountered in a university department of mathematics or science.

Courses in the latter area are included only in education units, and here it may be of value to describe briefly the university qualification for teaching. Four education units are prescribed for students who intend to teach and who are completing a degree in arts or science. This degree course includes, in addition, 13 units of science or arts. It is anticipated that graduates from such a course will later complete another five education courses, qualifying for the Bachelor of Education as a second degree and completing their basic professional education. A second alternative is for the student to enrol initially for a Bachelor of Education degree, comprising the nine education units and a further eight units in arts or science. Such students might subsequently complete a further five units of arts or science and qualify for a B.A. or B.Sc. also. Passing the nine education units makes up a complete teacher training qualification.

Prince (1967) has drawn attention to the trend in the local Department of Education to move expatriate primary school teachers into high schools to provide an increased staff. In addition McKay (1968) points out that many expatriate secondary teachers are not graduates, while those who do hold degrees are not necessarily qualified in the fields in which they teach. Of the mathematics and science teachers in the field probably very few have any detailed knowledge of the psychological limitations on the development of scientific and mathematical concepts.

All these factors make it obvious, to me at least, that, in order to facilitate technical and industrial education in the Territory, there is an urgent need for well-qualified indigenous mathematics and science teachers. At present the only opportunities to prepare such teachers are provided by the University of Papua and New Guinea and Goroka Secondary Teachers College.

III The Present Situation With Regard to Science and Mathematics at the Goroka Secondary Teachers' College and the University of Papua and New Guinea

1. University of Papua and New Guinea

(a) Faculty of Education

An examination of enrolments reveals the following picture:

1968	1st semester	13 Group 1 enrolments
	2nd semester	12 Group 1 & 2 enrolments
1969	1st semester	39 Group 1 & 2 enrolments
	2nd semester	39 Group 1 & 2 enrolments

approximately half of these students are indigenous.

When individual courses were examined it was found that:

(i) 3 expatriate students were taking science courses concurrently. All were already teaching.

(ii) One Australian Aboriginal student was taking concurrent science and education courses with the intention of teaching science in the Territory.

1899

(iii) No indigenous students were enrolled in education and science courses concurrently.

(iv) Three indigenous students were concurrently enrolled in both education and first year mathematics courses.

In view of the fact that so few students appeared to be preparing for careers as teachers, further enquiries were made in both the Faculties of Arts and Science. In each of these Faculties course advising is undertaken by the Sub-Deans. Therefore both Sub-Deans and Heads of relevant Departments were interviewed.

(b) Faculty of Arts

Here Mathematics was the only Department consulted. The Acting Head of Department expressed the opinion that any graduate would need to have passed the subject at least at second year level to make a successful teacher. Enrolment figures at this level for indigenous students have been:

1968	3 students
1969	3 students

The 1968 figure includes one successful student who is majoring in science. The 1969 figure includes two repeat students. One of these already works as a statistician and the other is described in the terms "education is his only hole." Experience suggests that this type of student is no more likely to succeed in education than in mathematics. The third student is uncommitted vocationally but has expressed no interest in teaching. The estimated number of indigenous graduates majoring in mathematics over the next few years is

19900

1970	0 graduates
1971	1 graduate
1972	2 graduates
1973	3 graduates

On enquiry it was found that during guidance sessions the Sub-Dean does not go out of his way to point out the necessity for a student who wishes to teach immediately upon graduating to include education courses in his degree structure. Discussions are centred about necessary courses for completing the B.A. degree and nothing specific is done to encourage students to enter the teaching profession. However in the University Calendar the Department of Mathematics has recommended a sequence of mathematics courses for any students who sets out to become a teacher.

In relation to the classroom, McKay (1968,p.14) pointed out that there were only 44 teachers in the Secondary Division of the Department of Education whose main teaching subject was mathematics. Of these only 7 had university degrees and not all of those 7 had mathematics as a major subject in their degrees. He estimated from his analysis of the Currie Commission figures that about 300 mathematics teachers would be needed in the Territory by 1973 and that some 150 of these should have university degrees in mathematics.

(c) Faculty of Science

None of the three departments, Physics, Chemistry, and Earth Science and Biology, appear to have put in writing an appropriate course prescription for a science teacher. The Faculty of Science does suggest model courses for students intending to progress in particular areas of specialisation, but nowhere was I able

to discover a proposed model course for the science teacher.

Here, too, an interview with Sub-Dean made it clear that guidance is not given to encourage science students to enrol in a general course suitable for science teachers, nor to plan the inclusion of the four education units which an undergraduate must include in his degree course if he is to qualify for teaching upon graduation. Let us now look at the situation in individual departments.

1. The Department of Biology

This Department has carried out a manpower survey to assess the need for biologists. In 1967 Lamb stated

> According to our figures there are 16 specialist biologists in the Territory, all in various branches of the Administration. There is an immediate requirement for almost twice this number. The number required in five years is 52, and in ten years approximately 48, making a total of 130 for the next 10 years. This figure includes seven from private industry and does not allow for wastage or replacement. The estimate is probably a conservative one, because an independent survey carried out by the Administration indicates a need for 133 graduates up to 1970. The Currie Report gave a much higher number required up to 1973. However, these latter figures include requirements for agriculture and forestry graduates.

With regard to forestry graduates a present estimate suggests that 85 graduates could be placed in the Territory immediately. Recognition of the need for such graduates has

led to a proposal for a degree in forestry science to be taught jointly by the U.P.N.G. and the Forestry College at Bulolo. This has received support locally but has been awaiting approval from Canberra for over 12 months. Should the course be introduced it is intended to produce a minimum of 5 graduates per annum for the next 10 years, when it will be increased to 12. The course is intended to cater for the need for graduates in tropical forestry from the whole South Pacific Region.

The estimated output of indigenous biology graduates from present courses is:

1970	2 graduates
1971	4 graduates
1972	8 graduates
1973	15 graduates

These students are trained to enter the agricultural, forestry and medical fields but it was stated that up to 50% would probably enter teaching. There appeared an implicit assumption that it would be the weaker students who would do so. However, as has been shown, none of these students plans to earn qualifications that will enable him to enter the classroom. Although Lamb (1967, p.4) said that "Many early graduates of this University will become schoolteachers" nothing practical appears to have been done to encourage them to qualify professionally.

2. Department of Physics

In terms of the manpower needs of the Territory enrolment in this department is high, and the anticipated number of graduates specialising in physics rivals that in chemistry although there appear to be only about 20-30 expatriate physicists in the country to be replaced. The estimated output of indigenous students is as follows:

1903

1970	1 graduate
1971	2 graduates
1972	3 graduates
1973	4 graduates

As with other science departments the Physics Department does not guide its students in the direction of teaching. There is not a physics course specifically designed for the needs of teachers, nor is it possible for a student to include the required education courses in the model physics course suggested in the 1970 University Calendar, unless that student is classified as exceptional. As with other science departments teaching seems to be considered as an alternative for weaker students who are not good enough to specialise.

3. The Department of Chemistry and Earth Science

It is difficult to anticipate the need for scientists with chemistry and earth science backgrounds. Drover (1967, p.9) gives the following table covering the need for science graduates in 1973:

1904

Requirements for Graduates in Science Disciplines - 1973

	Total in employment 1963	Number needed in 1973	University science graduates needed in 1973
Scientists employed in agriculture and forestry	34	312	312
Soil survey and land use	5	54	54
Agricultural officers including specialists such as plant introduction and fisheries development officer	132	485 (a)	97
Geologists and geophysicists	15	37	37
Scientists employed in medicine including biochemists, entomologists, bacteriologists	3	8	8
Meterologists and weather officers	6	14	14
Secondary Teachers	186	2218 (b)	222
	381	3132	743

(a) Many of these would be agricultural and forestry diplomates, so assume 20 per cent to be graduates, e.g. 97 science graduates.

(b) 50 per cent of these assumed to be graduates and one-fifth of these are science teachers, e.g. 222 science graduates required.

Whatever the proportion of the required 222 secondary science teachers who should have knowledge in chemistry quite clearly the supply will not nearly meet the demand (see table below).

Estimated Indigenous Chemistry Majors

1970	0 graduates
1971	2 graduates
1972	4 graduates
1973	6 graduates

2. Goroka Secondary Teachers' College

Preparation of teachers for secondary schools is a fairly recent departure for the Territory. The first group of teachers at Goroka to complete the course of secondary teacher training will be available in 1970. Output of mathematics and science teachers from this institution for the next three years is expected to be

	1970	1971	1972
Mathematics teachers	5	11	12
Science teachers	3	9	10

It is not possible to forecast beyond 1972 with any degree of accuracy, as the intake of students to the college is unpredictable. In 1969 it was expected that approximately 110 secondary teacher trainees would enter the college. For some reason recruitment failed and only 46 students began the course. As the increase in enrolment from the previous year was only 5 the 1971 and 1972 outputs will be similar. It is to be hoped that Goroka Teachers' College will be more successful in attracting students in the future, but it seems that one major reason for its unpopularity is low salary scales. So far as is

known it is not planned to increase these.

IV Conclusions

(a) Teachers of Mathematics

In the near future Goroka Teachers College is likely to be the only major source of indigenous secondary mathematics teachers. There is going to be only a small number of mathematics graduates from the university over the next four years, and only three indigenous students are concurrently taking mathematics and education units. Should all three major in mathematics, a highly improbable situation, then all the mathematics graduates anticipated in 1972 could teach - also improbable. 1973 is the first year in which it seems barely possible for the Territory to produce enough secondary mathematics teachers to fill places caused by growth and wastage - but not replacement of expatriates (see table below). This assumes a large increase in the Goroka intake of secondary trainees.

If McKay (1968) is correct in that half the mathematics teachers should be graduates, however, it then becomes obvious that the University is hardly beginning to contribute. While there seems some movement towards preparation of non-graduate local teachers the operation of the present system will fail to produce a significant number of indigenous graduate mathematics teachers.

(b) Teachers of Science

If the situation with regard to indigenous graduate teachers of mathematics is unfortunate, the position is worse as far as science teachers are concerned. In contrast to the Mathematics Department no science department offers a model

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	Indigenous Students Completing Science Courses				Indigenous Students Completing Maths Courses			
	1970	1971	1972	1973	1970	1971	1972	1973
U.P.N.G.	3	7*	15*	25*	0	1	3	3
Goroka Secondary Teacher Training College	3	9	10	10+	5	11	12	12*
Teachers needed (expansion and replacement posts only)**	19	18	21	22	22	21	24	24
Currie Report projected graduates needed by 1973				222				150

* Probably an inflated figure as it is drawn up from the projections of individual departments and a student may major in more than one subject.

** Present Department of Education manpower planning figures.

course for science teachers. While science departments offer lip service to the need for graduate teachers it appears that most if not all science students are encouraged to specialise in science rather than qualify as teachers.

Not only does the Faculty of Science avoid counselling science students to take up a career in teaching but also its course regulations and prerequisites make it difficult or impossible for a student majoring in science to include in his programme the education courses necessary to give him the minimal competence to function in the classroom.

With regard to statistics inspection of material presented shows that it will be a long time before many indigenous science graduates enter the secondary school classroom. While there will be more science than mathematics graduates from the U.P.N.G. the evidence suggests that there is much less likelihood that many of the former will enter the teaching profession.

In the science departments, also, there seem other interesting trends. For example, although there would seem likely to be less demand for physicists than practitioners of other branches of science, the anticipated output of graduates over the next four years from the chemistry and physics departments is similar.

While there appears to be a general tendency throughout the science faculty to encourage students to specialise it is necessary to question the desirability of such a move. Quite apart from the fact that the Territory has an urgent requirement for indigenous science teachers, one wonders whether it is possible, even if it were desirable, to train specialists who will be competent to hold their own with graduates who emerge from the improved education system of a few years hence.

Again, while it may be a rational act to introduce further areas of specialisation in science, such as the proposed degree course in forestry, it might be asked whether it is either rational or economic to consider such developments at this stage of the Territory's growth. Perhaps there are other more important priorities?

Finally might I say that, in my view, it seems necessary to take some positive action to rationalise the entry of students to tertiary institutions and to provide career guidance related to national needs.

V Recommendations

With regard to the output of tertiary institutions in the Territory, may I make the following recommendations:

1. That tertiary scholarships be tied to specific career channels, and that the awards of these scholarships be decided in terms of established manpower needs;

2. That the wage structure be related to these needs and priorities;

3. That all tertiary students begiven training and experience in passing their skills on to others.

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PROFESSIONAL TRAINING FOR ENGINEERS

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Introduction

We meet seldom enough to discuss Technical Education despite the fact that education is the starting point of Professional Training and the basis for its development.

The Institution of Engineers is concerned with a broad range of educational aspects, but this paper concentrates on four specific problems which stand at the top of this writer's personal priority list and they are presented in the hope that discussion may be stimulated. The list is:

(i) The ever changing and increasing complexity of the characteristics and orientation of professional engineering educational programmes.

(ii) The problem of attracting young people into the profession of engineering.

(iii) Social and human consequences of engineering activities.

(iv) Confusion between Science and Engineering.

The Changing Role of the Professional Engineer

Firstly, the educational programmes should be responsive to the needs of society. The engineering profession is a dynamic one, called upon to engineer physical facilities not only in increasing numbers but also of constantly improved quality and effectiveness. This has brought a need for more effective planning, control and coordination of all elements of many industrial enterprises, with a resultant growing use of engineers in a management role. The demands must be met in ways which will utilise, develop and protect both our natural resources and our engineering manpower.

Emphasis should be on the production of versatile engineers with inquisitive minds and fewer in-built prejudices, more ready to think back to fundamentals when in doubt. Engineering courses must continue to move from practical details of the profession to a more theoretical, more mathematical and more abstract presentation aiming to give a deeper and broader understanding of fundamentals before introducing advanced engineering techniques and practices. An important (possibly the most important) example would be the introduction of computer techniques into undergraduate curricula, since these techniques have during the last decade become essential in many aspects of technology.

This changing state of the art of engineering, poses problems of continuing education for the graduate engineer. New methods will frequently require a knowledge of fundamentals which were not included in the engineer's area of education. Whilst this is the responsibility of the individual, educational institutions, industry, government and professional societies must

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co-operate to make post graduate opportunities available.

Guidance for Potential Engineers

The second problem is the widespread ignorance of the profession of engineering amongst secondary students. Capable engineers cannot be produced unless capable students are attracted to engineering schools. There is evidence that in Australia, as elsewhere in the Western World, the proportion of students coming forward to study engineering is declining. Australia already has the lowest ratio of engineers to population of the developed countries (2.01 per 1000 population in 1966).

Young people are very much concerned with the major problems afflicting the world today - war, over-population, poverty, minority rights. Is it that they do not see how engineering can make an effective contribution to the solution of these problems which appear to them to require political and social action?

Most secondary teachers have had little or no experience with engineering and they cannot therefore be expected to relate their topics of discussion to real-life engineering, and hence stimulate their students to follow a career in engineering. The responsibility for correcting the situation, therefore rests with the engineering profession and, I suggest, especially with those members of the profession in universities and institutes of technology.

Social and Human Consequences

The Duke of Edinburgh has posed this third problem well.

"Technology has become the main controlling factor in human existence. No matter how civilised a nation is, no matter how strong moral or religious principles may be, the material comfort, bodily health and national prosperity depend absolutely on the standard of national technology. Without the means of transport there can be no communication or distribution, without the technology of public health there can be no prevention of

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disease, without technology in agriculture there is no escape from subsistence farming and peasant poverty.

All this means that technology is irretrievably involved in social progress. Purely practical considerations are no longer sufficient. No technologist can afford to neglect the social and human consequences of his activities."

In the past the engineering profession as a group has not shone at the conduct of public/industrial relations. Past training of engineers has not led them to take naturally to elusive human factors. The engineering profession must give this matter the same systematic study and application as it does to technical aspects.

Science and Engineering

Finally, Engineering is not 'science'. Educators confuse the issue; industry regularly uses people trained for one position in the other; the Press compounds the misunderstanding with every report of technological advances.

The aim of engineering is to design, make and operate things; the aim of physical sciences is to discover the nature of things. The engineer, utilising the knowledge made available by the scientist, develops the means of controlling man's physical environment and transforming the conditions of life. He produces workable and economically practical solutions within a rigid time limit.

Our engineering schools must beware of too much science orientation at the expense of technology, thereby risking a diminution of engineering outlook and attitude.

Conclusion

The Institution of Engineers is vitally concerned with engineering education. The author has discussed only four aspects of the total range, namely the need

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for:

(i) Flexible and continuing curricula

(ii) attraction of young people into the profession

(iii) understanding of social and human consequences and

(iv) clarification of the engineer's role - the scientist makes it known - the engineer makes it work.

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PROFESSIONAL ENGINEERING EDUCATION AT THE INSTITUTE OF TECHNOLOGY

P.C. RYALL

Papua and New Guinea Institute
of Technology

The Institute of Technology is the only educational institution in the Territory providing courses in engineering intended to fit students for posts of fully professional standing. The Institute also carries out this function for Accountancy and Business Studies and Surveying, but these will be covered separately, so I shall consider mainly engineering.

Many of you are well aware of the history of the Institute and its position in the educational system in the Territory and I hope you will forgive me if I go briefly over this as it is important to our future role in the Territory's education system. The Currie Commission on higher education in the Territory recommended in its wisdom the setting up of two major tertiary institutions to cover education to full professional levels. Instead of the more normal pattern of having education of this level at one institution - a University - the Commission decided that technical and commercial subjects should not be taught at the

University even at full professional level. This institution would, therefore, concentrate on Arts, Science, Social Science, Law, and probably also Medicine. It was decided that another parallel establishment, an "institute of higher technical education", should be set up to teach these other subjects not covered at the University. The description of the type of establishment used in the Currie Commission stuck and became the official, somewhat ambiguous, name of the Institute until its recent alteration.

The original intention was that the Institute was to be on the same campus as the University at Waigani and courses were started in 1967. Early in 1967, however, political pressure brought about the decision to move the Institute to Lae and the move was physically made in time for the start of the 1968 academic year.

At the moment courses are being conducted in: Surveying, now up to its fourth and final year; Civil Engineering, where the first students will graduate in 1971; Mechanical and Electrical Engineering, with graduates at the end of 1972; Accountancy and Business Studies, with graduates at the end of their four year course in 1971. Courses in Architecture and Building Technology are scheduled to start next year, producing graduates in 1974 for Architects and possibly in 1973 for Building Technology.

The Institute has, in common with other tertiary institutions and employers of Form IV students, found it difficult to recruit sufficient students of suitable academic level, and it would seem likely that the 1970 intake will also be below our approved numbers. By 1972, however, the rapidly increasing number of pupils in Form IV should enable us not only to fill our approved intake places, but also to be more selective than at present. At the same time it is anticipated that the entry from the new senior high school starting in 1971 will form an increasing proportion of our total intake, though on present indication the Institute, like the University, is unlikely to be able to completely change over to a Form VI intake for several years.

It is perhaps important at this stage to say something about the Institute standards. I must emphasise that the entry standard at the Institute is in no way below that of the University and that the engineering courses

(being largely analytical in content as are all engineering courses) are at least as demanding as the courses at the University. Similarly, the courses are of the same length and it is accepted by the Administration and other bodies such as the Electricity Commission who have already published their scale of pay for professional engineering posts that graduates from the Institute will be recognised as equal to their counterparts from the University. I feel there is no difficulty in persuading the people present at this seminar that this position is as it should be. The professional engineers are of prime importance in any developing country and any attempt to suggest that engineering is less important than other careers can only result in substantial staff shortages in later years which can be made up only by expensive overseas recruiting.

The current courses aim to provide professional engineers well qualified for all normal engineering or engineering/managerial posts in the Territory except for those requiring very specialist qualifications and a few where especially high analytical ability is essential. The latter category would normally have a post graduate qualification in any country which will not be available here for a few years. The Institute therefore aims to cover the broad spectrum of staff requirements in the professional engineering field.

I should like to consider now, however, the areas where courses at present scheduled will not fulfill the needs of the Territory.

Because of the relatively small population of the Territory, staff requirements in many of the more specialised fields are bound to be fairly limited. For example, even in the general field of telecommunications it is not yet certain what the overall demand for engineers is and whether the requirements would justify a continuing course with a substantial annual entry. There are of course many more specialised fields where it would be uneconomical for the Institute to run specialised courses for one or two people. The question therefore arises as to whether these specialised fields should continue to use expatriates for some years to come or should take immediate steps to train indigenous staff. In some cases it might be necessary to

take the former course of action, but it is very easy to say that this is the only course when, in fact, with some ingenuity training schemes could be designed for indigenous people in these restricted areas. It might be necessary for example to look at the possibility of using two or perhaps three years of a course at the Institute and then sending students to Institutions in Australia or elsewhere where more specialised courses are available. While the Institute naturally prefers to keep its students right through, if there is a clear need for students to do part of their studies with us and then move on elsewhere we shall be happy to look at ways of fitting in with such an arrangement.

I have already mentioned that at the moment we can barely fill the approved numbers in existing courses, but within five years this position will change and I feel that it is essential to look ahead to see whether our scheduled numbers for this period are sufficient.

In the major employment field of general civil engineering it will be 1975 before 50 students have graduated and probably 1977 or 1978 before 100 civil engineers are available. Based on the current numbers of civil engineers employed in the Territory and a reasonable figure for expansion the indications are that this number of new graduates will only have served to fill the extra vacancies caused by expansion and it will not have been possible to replace any expatriates. No one can estimate exactly the date at which full independence will come, but it would seem likely that in ten years time there will be at least a measure of real self-government and possibly even full independence. In this situation, there is bound to be strong pressure for an education system which is able to replace at least a major proportion of professional staff in the foreseeable future. It would therefore seem that even in civil engineering which has the largest scheduled intake (40 per annum), this intake will not be sufficient and once adequate numbers are available from schools it should be increased.

In the mechanical and electrical field, however, where the combined scheduled intake is only 20, it is already clear from the way in which all available students are taken up by sponsors that the scheduled output of 11 graduates per

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year will be totally inadequate. I am sure that many of you here could point to a need in your own organisation to support this contention. Intake numbers of this size also mean a very inefficient use of laboratory and teaching facilities as numbers up to 20 in a class mean virtually no increase in capital cost except in the actual provision of student accommodation. It is therefore essential that our intake figures should be realistically reassessed as soon as possible and I hope that those of you who are considering the employment of engineers from the Institute either as engineers or in a managerial capacity will let us know of your likely needs as soon as possible so that the evidence is available for the further expansion of these courses.

Similarly we would like to have discussions even of a very preliminary nature concerning the sort of specialised training I mentioned earlier where we might be able to assist in part of a training scheme. But we do not want to work in a vacuum. A developing country just cannot afford the luxury of education unrelated to the country's needs. It will come later, as a desirable addition to the essential education to produce the skilled manpower so badly needed now.

PROFESSIONAL TRAINING OF ACCOUNTANTS AND MANAGEMENT EXECUTIVES

R.S. MIDDLETON

Institute of Technology

One of the themes at the third Waigani Seminar last May was "Indigenous Group Enterprise in Melanesia." Speakers made many points which drew attention to gaps in professional business training within the Territory.

Problems which concern us here at this Seminar include:

1. Training tertiary students in Accountancy and Business Studies, which I take to include Management Training at its higher levels, and

2. Liaison with industry, with kindred and related institutions, and with appropriate professional bodies.

Speaking as the Territory Chairman of the Australian Society of Accountants, my concern would be directed more to points such as -

1. Standards of material and students in courses offered in the Territory, and

2. Relationships with institutions concerned.

Speaking also as Head of the only School of Accountancy and Business Studies in the Territory, this lays a heavy responsibility upon me, because I have the rare opportunity to shape an educational policy and institution in the direction which professional training suggests is best. Not many teachers have such a free hand, and even the common constraints of housing, staff, and budgets are not impossibly restrictive.

To set out the problem in more detail we have, firstly, a demand in the next few years for several hundred trained indigenes to be able to step into executive positions without requiring too much practical training after graduation. Even the number needed is a problem and this is considered below. Secondly, that large but rather vague number of executives must have a diversity of skills and an adaptability to the needs of their employers which has been rare in the past in most places. Thirdly, the supply aspect is limited by several factors including:

1. A ceiling on recruitment, at present 30 per year, and

2. An even more definite present ceiling in eligible and interested Form IV (or better) student passes available.

This year, just under 1,400 were enrolled in Form IV classes throughout the Territory. A fair guess is that some 1,000 will pass. But experience shows that only students in the top 20-30% of passes can hope to survive at the Institute, so our potential drops to some 300.

This same group is wanted by the University of Papua and New Guinea, the Medical College, the Dental College, Vudal Agricultural College, Goroka and Port Moresby Teachers' Colleges, Bulolo Forestry School, Vunadadir Local Government Training Centre and the new Bomana Industrial Training and Advisory Officers' Centre. This is only the Administration's and institutional demand, and to it we must

add all the commercial organisations and many semi-government bodies such as the Department of Civil Aviation, Electricity Commission, Army and Navy, the Reserve and Development Banks.

Many employers may settle for lower level passes as adequate, for example the Public Service Board will no doubt say that any Form IV leaver is preferable to a Form III, and entrance levels for primary teachers and nurses are lower, but as Mr Beltz has already indicated, manpower needs far exceed supply at tertiary levels.

Standards:

The Australian Society of Accountants has laid down requirements for degree or diploma courses to be acceptable, allowing holders to sit for the Society's professional entrance examination. The listed requirements include the following "... that the minimum accounting requirement should be the equivalent of a major discipline in each of the 3 years of the course, and that the supporting subjects should include basic administrative studies, business law, fundamentals of data processing, economics, business mathematics and statistics and social science or other subjects of study in the humanities ... That the courses in accounting should include a comprehensive treatment of company law, a sound knowledge of taxation law and procedures, auditing as a major study in the final year of the course, and the application of accounting data to managerial planning and control."

Although the intention was admirable (to remove the strait-jacket of purely Society orientated courses and allow diversity with considerable academic freedom) the result is less satisfactory. Because students logically ask for courses which will allow them to complete the professional examinations concurrently (or nearly so) with degree studies, considerable pressure falls on Institutions to provide final year units which comply also with Society requirements. I have already seen one case where an Australian Institute of Technology has varied its courses for that purpose.

The big unknown as yet is the content and depth of the qualifying examination which will be held for the

first time in May, 1970. How many papers and how tight for time? Will there be alternative questions to give some teaching flexibility? For the profession, these are urgent queries and not just vague academic questions.

Another area in "standards" deals with relations with similar Institutions in Australia and elsewhere. It is vital that equivalents be arranged and exemptions allowed both for transfers in and transfers out. This raises the general problem of acceptability. Already the Australian Society of Accountants has "agreed in principle" to diplomates of the Papua and New Guinea Institute of Technology being allowed to sit for the qualifying Examinations discussed above. I anticipate little difficulty in having credits allowed for transfers to and from Australia when the need arises.

Practical Training:

This is being tackled in two ways. Firstly, the Accounting Laboratory is already operating with 3 accounting machines of two types, plus several adding machines. On order are various items such as a cash register, several punch card machines, a time recorder and a computer trainer. Secondly, students are helped to get suitable vacation employment. Last year all students had 6-8 weeks experience and mostly it was relevant to their training. We have circularised employers to try to improve the quality of experience offered.

Manpower Needs in Accountancy:

Attempts to forecast demand for qualified men are necessarily very inaccurate because equivalents with, say, Australia are not particularly relevant. There some 30,000 accountants serve 12 million people, but we should more correctly add some 5,000 Chartered Secretaries plus several thousand approved by Public Accountants Registration Boards in New South Wales or Queensland but who are not professional Society members; also many hundreds of Commerce graduates in industry. On the other hand, included in that total of nearly 40,000 must be many

thousands who qualified but never operate in the field. For example, the various Public Services have large numbers who really should be concerned with Public Administration rather than with Management or Accountancy. It is an allied field of course, but not what we are discussing. So at a "guess-timate" of 30,000 to 12 million we need about 1 per 400 trained to tertiary business level which would mean 5,000 in the Territory. This is not realistic as conditions are not parallelled in a mainly agrarian developing country, but it is a starting point. I don't think we need anything like 5,000 for the Territory - but 500 is realistic in the short run.

We hope to produce from the Institute 10 in each of 1971 and 1972 and perhaps 15 in each of 1973 and 1974. If intake is raised and suitable applicants are available it will be 4 years before the output reflects this - at best 50 by December 1974 perhaps rising to 20 per annum thereafter. Thus, 100 would be produced by December 1979 with a likely annual increase of 25 to 30; consequently it will take decades to supply the 500 suggested earlier. A further supply bottleneck lies in training of replacement staff at the Institute and in Secondary Education. No teaching staff for any areas of Commerce are currently being trained at Goroka Teachers' College, nor have any plans been made for further lecturing staff. Proposals have been made suggesting, broadly:

(1) Train Diplomates as teachers, or
(2) Train teachers in Business Studies, or
(3) Send teachers or diploma holders to suitable University courses.

Management training raises another allied group of problems because of its disparate demands. It is hard to find adequate time and staff to train students in all of the varied units of Administration, Psychology, Personnel, Work Study, Office Organisation, Data Processing, Industrial Relations, Systems Analysis, Marketing Theory and Salesmanship in addition to all the basic areas of Management, Economics, Accounting and Law. A few of each specialty are demanded early, yet small classes obviously are expensive.

I am aware that our efforts are being supplemented by students taking Economics units in Arts degrees at Waigani, but I am also sure that our combined efforts are insufficient in the short run.

We need pressure from all interested parties to ensure that the training needs of the business area are kept at least in perspective, and, if possible, are hurried along. Unless we do this, the independent Papua and New Guinea will suffer from an acute shortage in these vital areas.

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CLOSING ADDRESS

O.G. PICKARD
University of the South Pacific

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I am not going to attempt anything in the nature of a comprehensive summary of what we have been doing during this seminar. Rather I will take five items which have especially interested me and say something about them. I hope that perhaps they are reasonably important and might be regarded as some of the highlights of the conference.

The Education and Training of Technicians

First of all, I spent the whole of yesterday morning with the group which was dealing with the middle level (technician level) manpower and its problems. I was particularly interested in this because among other things, in 1966, I had the pleasure of being one of the British delegates to the Commonwealth Education Conference on the Education and Training of Technicians. This was held in Huddersfield in Yorkshire and most of the countries that had been present at the Commonwealth Education Conference in Ottawa two years earlier were represented there. We found that there was general agreement that this was an especially difficult area of education and training.

Since 1966, partly as a follow-up to that conference, we in Britain have had a special committee of enquiry looking into this field because we thought we had plenty of problems there ourselves. The Committee has been sitting under the chairmanship of Dr Haslegrave who was until about a year ago the Vice-Chancellor of the Technological University of Loughborough. Its report is due in a few weeks' time. I have no idea what is going to be in that report. I know what I told the Committee to say, but whether they will do so is another matter! I did sit in on one or two of its deliberations and very clearly what seemed to be coming out was that when you had a look at this middle band of occupations (sub-professional, below the technologist, chaps who have got more to do than just being skilled workmen) there are all kinds of people in this group. Roughly, I think, they fall into two classes.

Interestingly enough this has been reflected in our discussions here. Firstly, there is the kind of chap who is probably a very good craftsman, or a very good

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artisan, or a very skilled man in some way, who, by his ability, by what he learns through experience, has come up to technician level on the job. This is a technician, then, with his education and training based on the craft skills. But we certainly found in Britain, and I think this is true of the employers in developing countries as well, that you cannot rely on this flow upwards from skilled labour to meet all the requirements at this level. As the developing countries become more technological and begin to apply the lessons of science in all kinds of fields, including agriculture and forestry, they will also find a need for sub-professional people who have a better basic education in mathematics, theoretical science and so on. Thus this area of occupations has also to be fed with a second stream of recruits who come in from a higher level of vocational education and training. In other words they are not all promoted craftsmen, they need specialised courses giving them this rather more theoretical basis for the occupations that they are going to follow.

In our discussions yesterday this question came up once or twice - do we really have to plan education and training for these people? Is it a relevant classification for Papua and New Guinea? I think it is. I think that in any schemes that are made for education and training it must be borne in mind that there are these two broad classes of people - chaps who can do these jobs on the basis of having been trained in craft skills and others who need to have a definitely sub-professional kind of education.

The Provision of Basic General Education

The second point I put down on my list is the question which arose during the Seminar over and over again. What should be the basis of general education for the technician and higher levels? People working in this field repeatedly spoke of the difficulties they are facing because of the inadequate general education in mathematics, in science, and in communication skills of their students or trainees. In order to make good these deficiencies, they told us that they have had to introduce preliminary courses, remedial courses and so on into their schemes of vocational education. This is usually wasteful of resources with

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several specialist institutions trying to do more or less the same job of general education.

Quite rightly it was pointed out that you never go to an educational conference without hearing the universities grumbling about the product they are getting from the secondary schools, and the secondary schools complaining about what they are getting from the primary schools. We ought not to indulge too much in this kind of lament. But I suspect that here in Papua and New Guinea there is more to it than that. The discussions pointed to an undoubted general shortage of people coming through the system of secondary education, and I would certainly see some merit in tackling this problem as one that urgently requires a general solution. To take one example, in Fiji all the people going into medical school, into the School of Agriculture, and into secondary teacher training have been brought together in the University for a preliminary year of basic general education. In this way they hope that they have economised in such scarce resources as good teachers of mathematics, good teachers of English as a foreign language and good teachers of the basic sciences.

However, they have found, incidentally, that in achieving those economies there are some deficiencies to be offset against them. The Principal of the School of Agriculture has sensed, although he did not realise it beforehand, that his first year students now are losing something because of their lack of contact with second and third year students. In other words they do not get into their agricultural education proper until they are in the second year of the course. Now this did not matter while the first year of continued general education was being done in the School of Agriculture, and students were living there with the other agricultural students, because apparently they were picking up a lot from older students that was relevant and useful to an agricultural education although they were still in the preliminary year. But, this is the way Fiji tackles the problem and we may develop still further along these lines. For example, my colleagues in Fiji are considering whether these preliminary courses should not be converted into a Junior College on the American model. There may, indeed, be a place in the educational system of a developing country for a junior

college which concentrates on this basis of general education with the general bias towards mathematics, basic sciences and English as a foreign language.

Training in Business Skills

Another topic I put on my list deals with the question of business skills. This is something we have found cropping up quite frequently in our discussions during this Seminar. It is undoubtedly a very important problem in many developing countries where the indigenous culture hitherto has not led the people into the kind of business activities that go with the modern world, with its European, American, Australian background. This was true among the Malays, it is true among the Fijians, it is true in Western Samoa, it is true in Tonga and I think it is probably true in many communities here in Papua and in New Guinea.

The Americans have tried to do something in this field. It is not an easy one and it is very often an unrewarding one to work in. The International Labour Office has also done some successful work in this field in Uganda. They set up a mobile instructional unit of a technical kind which moved around Uganda trying to develop a number of good craftsmen into good small businessmen, and this was done individual by individual. In Malaysia there is an organisation, known as MARA, which has a good deal of autonomy from Government in spite of the fact that it gets all its money from Government, and it is doing this kind of thing on a big scale for the Malays. It involves having managerial and technical consultative services for small businessmen; it is closely linked with the Development Bank which provides the money for them and it also has a training scheme so that the Malay who is going into a small business can be trained for it. They have had some failures, but they have also had successes. It is certainly something which I think should receive more attention and I hope you will be successful in finding some means of tackling this particular problem. It is an important one.[1]

[1]Since the Seminar at Lae, I have learned that some research into the development of entrepreneural skills among indigenous businessmen has been undertaken in Papua and New Guinea. More is needed.

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The Problem of Fragmentation

Can I then say something about this problem of fragmentation that we have heard such a lot about and also make a reference to the relationship of this to the kind of model which has been used in setting up some of your educational institutions here. For example, it was quite clear from the address that we had this morning from the Vice-Chancellor that the University has been firmly established on what you might call the English/Australian model, a university which gives degrees and not any lesser qualification than that. There are, however, other models available for designing a university. I have recently become very interested in the American Land Grant colleges which provided the beginnings of most of the great American universities.

The Land Grant colleges of America were authorised at the height of the Civil War just over 100 years ago. I think it is a really extraordinary thing that in the middle of that Civil War, President Abraham Lincoln signed the Act of Congress which set up the Land Grant colleges. That Act of Congress provided that in every state in the United States land was to be appropriated for the support of a college whose job was to train the American people in the agricultural and mechanical arts. All over America these colleges were set up and qualified for land grants; the land that some of them acquired has since proved to be extremely valuable and they have today a wonderful asset. Many have become rich and practically all of them have become universities - indeed some of the most famous American universities started in this way.

When they began they did everything within their terms of reference, the agricultural and mechanic arts and the professions, which incidentally included the military profession. If this meant teaching people quite elementary skills in a particular trade, they did it. Gradually, of course, with the growth of population there was a need for specialisation and inevitably the lower levels of this work were hived off to other institutions, but this explains why even today many American universities have a much more vocational atmosphere about them than

1933

universities which have been established on the Oxbridge model.

Recently in Africa, and now in the South Pacific, when founding new universities, we have had the model of an American Land Grant college in mind. Ahmadu Bello University in Northern Nigeria is one example, the University of Mauritius is another, and to some extent so is the University mentioned this morning by the Vice-Chancellor - the University of Malawi. They have all to some extent been based on the American Land Grant colleges and they are all so far beginning to work out how to provide under the one organisation the teaching and training in a range of skills that goes right from the craftsman's level up to the university degree level. The Morris Commission which investigated the needs for an institution of higher education in Fiji made the point that there was nothing a university need be afraid of in using American Land Grant colleges as a model. Its degrees would not suffer in the eyes of the international university world because it was also doing diploma and certificate work, and I personally feel that it is perhaps a pity that those of us who are in the British Commonwealth did not (much earlier than we have done) think about land grant colleges and found universities on that model instead of on our own.

I have said enough to show that you can associate a university with other work which is not, in the British tradition, usual for a university. Incidentally, it may actually help the degree part of a university if this is done, because sooner or later independent countries have to start doing their sums about the cost of universities. In Papua and New Guinea, I believe, something like two-thirds of the national revenue comes from Australia. But presumably at some stage this country has to become financially self-supporting and at that stage if you have the university work at degree level fairly firmly locked in with the vocational work at diploma and certificate level this would help to spread the cost and justify the existence of the institution in the eyes of the local Minister of Finance. I believe also that you can exercise this sort of overall control of education and training under a university or some other organisation and preserve what several speakers at this Conference have been very

concerned about - the preservation of initiative at the local level and an immediate responsiveness to change when this is indicated. There are real gains to be made, in addition to spreading overheads.

Earlier this year I had to draw up schemes of Technical Education for three African countries. Each country was far too small to afford a university, but needed a good deal of vocational education and training, some of which had hitherto been done in an unco-ordinated way. I could very easily have written reports in each case which would have so fully justified vocational education and training that the Finance Ministers and the Cabinets of those countries could have said "Right, this is where we are going to put our money. We are not going to bother to continue the university which had been established to serve all three countries by the British before they pulled out." But I and my colleagues, who wrote these reports, went to great pains to show what tremendous benefits vocational education can have from being part of the same system of tertiary education which includes a university. I do not think there is any doubt about this at all, and in each of these three reports in Africa we drew detailed attention to the benefits which could flow from continuing to keep the university going.

We made recommendations about the university as well, which I hope will be followed, but we did try to show this, and I very much believe this, that a university in any country, let alone developing countries, must not be allowed to carry on its education in isolation from other parties in the educational system. I do not think the University of Papua and New Guinea is going to do this, but institutionally this could happen to it because it has not any organisational responsibility for anything else that is going on. This is something I think might receive some attention here. Not that you have necessarily to adopt the Fiji or Malawi solution to the problem - it is too late, anyhow - but there may be other ways in which the University itself can make sure that it does not retire into its shell but does get out into the field and have contact with the rest of the educational system.

1935

Co-operation in Tertiary Education in the South Pacific

One final thing that has come out of this conference for me is an increased appreciation of the need for co-operation throughout the South Pacific in the field of tertiary education. Because I am at the University of the South Pacific I have seen the need for co-operation over on the eastern side in Western Samoa, in Tonga and within Fiji, and so on, but until Icame here I had not fully appreciated that there is probably a very strong case for bringing Papua and New Guinea into regional co-operation in tertiary education covering the whole of the Western and South Pacific. We might have links further north with Hawaii as well. I shall certainly go on thinking about it and if I have the opportunity I intend to do something about it.

Finally may I say just two things. Firstly, a very heartfelt thank you to those who were responsible for inviting me to come here. I enormously enjoyed the last few days. It has been extremely stimulating. I feel I have been given a wonderful opportunity of discovering something about the education and training of this fascinating country and I am intensely grateful for that opportunity. Secondly, I wish you well in solving all the problems of vocational education and training that you are facing here.

RESOLUTIONS

AND

RECOMMENDATIONS

1937

An extensive change of views took place during the three days of the Seminar. On the first day major papers were delivered and discussed in plenary session. The following morning delegates were divided into groups according to their interest in Trade, Technician and Sub-Professional, or Professional level training. Papers were read to each group and discussed, following which summaries of each group's proceedings were presented to a plenary session.

On the last day the Chairman's closing address and subsequent final statements by participants revealed how the major themes, which had emanated from the papers and discussions, had converged into a general agreement on resolutions and recommendations. For this reason no summary of the proceedings was attempted for inclusion in this publication as it was believed that the reproduction of the unanimously adopted Resolutions and Recommendations would provide the most concise statement of the conclusions of the Seminar.

1938

RESOLUTIONS AND RECOMMENDATIONS

1. This Seminar stresses the vital need to improve the present machinery for ascertaining the manpower needed for the social and economic development of Papua & New Guinea and relating vocational education and training to these needs. In particular, the Seminar sees urgent requirements for:

   (a) The regular publication of more detailed manpower assessments in relation to demand and supply in specific industries and occupations.

   (b) The use of this information in setting targets for indigenisation and guiding manpower into specific branches of education and training leading to employment.

   (c) A greater degree of co-ordination and co-operation between government departments, employers' and employees' organisations, and education and training institutions, in developing Papua & New Guinea's resources of manpower.

   (d) A national system enabling employers and employees to recognise standards of skill and enterprise through appropriate testing and certification over a wide range of occupations.

2. The Seminar, therefore, strongly recommends the immediate establishment of a human resources development authority for Papua & New Guinea, with adequate powers to enable it to meet the above requirements.

3. The Seminar further recommends:

   (a) An increase in the use of existing facilities for commercial training (part and full-time) in the main urban centres.

   (b) The granting of a greater degree of financial

autonomy to educational and training institutions to enable them to function more efficiently.

4. The Seminar wishes to draw attention to the urgent need for the establishment of training programmes for teachers of vocational subjects at all levels.

5. The Seminar recognises that increased financial allocations are required in order to implement these recommendations, and urges that funds be made available for this purpose.

6. The Seminar believes that greater co-operation between countries in the Pacific area is necessary to ensure that available resources are used to the best advantage.

7. The Seminar resolves that a further meeting be convened within two years.

1940

ACKNOWLEDGEMENTS

1941

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1944

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South Pacific Brewery Ltd
W.R. Carpenter (T.P.N.G.) Ltd
Shell Company (Pacific Islands) Ltd
Ansett Airlines of Papua-New Guinea
Balm Paints (New Guinea) Pty Ltd
Bank of New South Wales
Bougainville Copper Pty Ltd
Burns Philp (New Guinea) Ltd
Development Bank of Papua & New Guinea
Monier (Papua-New Guinea) Ltd
Papua New Guinea Printing Co. Pty Ltd
Reserve Bank of Australia

1945

VT 012 169
Schmiedeberg, Judy
Follow-Up Study of the Graduates of the Albuquerque Technical-Vocational Institute.

Albuquerque Technical-Vocational Inst., N. Mex.
New Mexico Occupational Research and Development Coordinating Unit, Santa Fe
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Apr70 48p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *GRADUATE SURVEYS; *VOCATIONAL FOLLOWUP; OCCUPATIONAL CHOICE; SALARIES; STUDENT CHARACTERISTICS; *COMMUNITY COLLEGES; JOB TRAINING

ABSTRACT - To determine the success of the training programs of the Albuquerque Vocational-Technical Institute, questionnaires were mailed to 2,236 graduates. Out of the 807 responses, 381 represented day division graduates and 426 represented the evening division. Of the 477 graduates who indicated a salary range, 24 percent have earnings in the $301-$400 per month range, with an average of $369.50 per month. At the full-time employment level, 25 percent were working in non-training-related jobs with an average salary of $380 per month, while 66 percent were working at training-related jobs with an average salary of $393 per month. A total of 144 of the graduates are unemployed, and of these 22 are going to school full time, 83 are unemployed and seeking work, and seven are unemployed but not seeking work. The largest unemployed group is office occupations graduates, followed by sales, health occupations, accounting, and data processing. These and other data are described and presented in tabular form. (SB)

VT 012 169

ED0 57254

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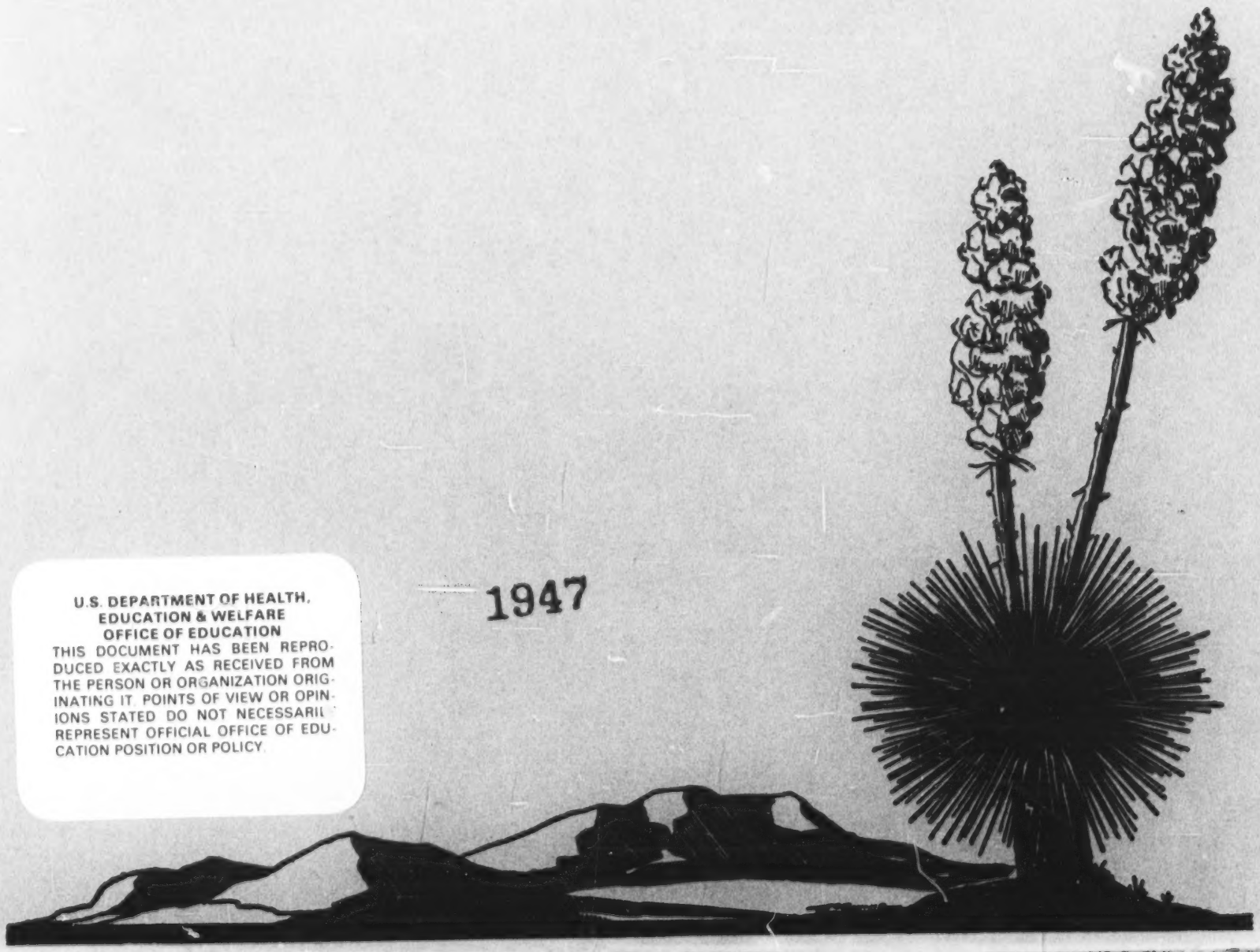
FOLLOW-UP STUDY OF THE GRADUATES OF THE ALBUQUERQUE TECHNICAL-VOCATIONAL INSTITUTE



1947

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VT012169

FOLLOW-UP STUDY OF THE GRADUATES

OF

THE ALBUQUERQUE TECHNICAL-VOCATIONAL INSTITUTE

by Judy Schmiedeberg

April 1970

Conducted under a mini-grant from the
New Mexico State Department of Education
Research Coordinating Unit
Santa Fe, New Mexico 87501

Albuquerque Technical-Vocational Institute
525 Buena Vista S. E.
Albuquerque, New Mexico

Louis E. Saavedra
Vice President

1948

Published By:
Research Coordinating Unit
Mini-Grant #1

TO: All Interested Persons

FROM: Hilda Majors, Director, Research Coordinating Unit

The Research Coordinating Unit Personnel and the New Mexico Research Coordinating Unit Advisory Committee need your reaction to this Mini-grant project in order to help us evaluate the total Mini-grant projects for the school year 1969-1970.

From your reactions, recommendations will be made by us to the State Director of Vocational Education as to the continued funding of Mini-grants.

After reading this report, will you please comment as to your reactions on the form below and return to:

Hilda Majors, Director
Research Coordinating Unit
Capitol Building
Santa Fe, New Mexico 87501

Your cooperation is appreciated.

- -

QUESTIONNAIRE

Title: Follow-Up Study of the Graduates of Albuquerque Technical-Vocational Institute.

COMMENTS _____

_____

_____

_____

_____

Yes_____ No_____ Should the Research Coordinating Unit continue to award Mini-Grants?

NAME_____ POSITION_____

SCHOOL_____

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1950

INTRODUCTION

The success of a school providing occupational level technical and vocational skills can best be measured by the employment status of its graduates.

On several occasions, the Institute has initiated a follow-up study of its graduates by means of a questionnaire. The 1970 Follow-up Study of graduates of the Albuquerque Technical-Vocational Institute was made possible by a mini-grant from the State Department of Education Research Coordinating Unit.

The primary function of the study is to determine the success in the world of work of men and women who have attended T-VI. The questionnaire asks for specific information on employment status allowing interpretation of the collected data to determine:

1. Employment and unemployment rates of T-VI graduates.
2. Percentages of T-VI graduates employed in their major field of study.
3. Average salary of T-VI graduates
    a. Who are working in their major field of study;
    b. Who are not working in their major field of study.
4. T-VI graduates who were able to obtain only part-time work in their major field of study.

Among the graduates who are unemployed we wanted to know:

1. If they are looking for work.
2. If they are available and looking for work.
3. If they would like placement help from T-VI.

4. If they would like placement help in work related to training for those graduates employed in non-related occupations.
5. If they would like placement help into full-time jobs for those with part-time employment, both related and nonrelated.

In addition, we needed to determine the number of graduates:

1. In the military.
2. Going to school full time.

Data important to keeping our files up to date on the individual graduates can be retrieved through a questionnaire with questions on personal status including current mailing address and marital status.

Finally, we want to know what the graduates think of us. Many of the graduates responded to our request to let us know:

1. What was most useful about your training?
2. What else might have been included that would have helped you on your job?
3. What additional training do you feel you now need?

In the following survey, the analysis of responses has been divided into two groups -- Day Division graduates and Evening Division graduates, as well as a section that combines the statistics for an overall comparison. The separation of divisions reflects the distinctive types of educational programs offered by the Institute's full-time day school and part-time night school.

1952

THE DIVISIONS

Day Division

In the Day Division, instruction at the post-high school level is offered. It is comprehensive training and retraining in technical and vocational skills with some related courses in the arts and sciences.

Students in the Day Division generally carry a class load of 25 hours or more per week, and depending on the major in which they are enrolled, may attend school full time 10 weeks (Nurse Aide) to 16 months (technologies).

An additional four-month preparatory program is offered for persons whose previous education does not qualify them for immediate acceptance in one of the major vocational or technical areas, or to provide refresher work for those who have not been in school for some time.

The Day Division program at the Institute provides full-time instruction leading to diplomas and certificates in 14 major areas. These include: Accounting and Business Administration, Automotive Collision Repair, Automotive Mechanics, Data Processing Technology, Drafting Technology, Electronics Technology, Practical Nursing, Nurse Aide, Machine Trades, Secretarial Office Education, Sales Education and Welding.

Entry in the Institute's Day Division is by application and each applicant must take a series of aptitude and achievement tests which are designed to help him find the area of studies for which his chance of success is the greatest. To enter a particular program, the applicant must score on the tests at or above the minimum requirements established for that major.

1953

The applicant must then appear for scheduled interviews with an admissions counselor who will work with the applicant to decide which instructional programs are best suited for him on the basis of his interests and abilities.

Typically, a T-VI student, once enrolled in a major program, will spend two to three hours daily in a laboratory situation which will include theory as well as practice of the skill being taught.

His related classes have been designed to enhance the major laboratory courses and may lead to a minor course of study,as with the Accounting Program where students select a business or data processing minor,and related courses include: office machines, business math, technical math, economics, business law, English, statistics, business systems, cost accounting, tax accounting, personnel management, report writing and data processing languages.

1954

THE EVENING DIVISION

Any adult may attend the Evening Division classes. The largest of the Institute's programs, the Evening Division's Skill Improvement classes have enrolled more than 2,500 students in 95 classes for the spring, 1970, trimester.

Skill Improvement classes are offered in five areas of study. These are Office Education, Trade and Industrial, Technical, Health Occupations and Distributive Education.

Most of the Evening Division courses meet two nights a week in two or three hour sessions and provide part-time instruction for the skills and education needed by business and industry in Albuquerque and throughout the state.

One of the specific provisions of the Evening Division is to help employed adults to attain a higher degree of skill through which they may improve their occupational level.

Other programs offered by the Institute's Evening Division are the Vocational Enrichment Program (mini classes), Apprenticeship Program and the Adult Basic Education Program.

In addition to the T-VI campus, the Evening Division classes use facilities at several of the city's public high schools.

1955

THE STUDENTS

Day Division

An Institute class of Data Processing majors recently provided the most current and comprehensive profile of T-VI students with a statistical study of the summer, 1969, day enrollment.

As a classroom project, the group undertook to present a statistical representation of the student body including average age, means of support, school district, sex, surnames, average educational level for each program, as well as for the total enrollment.

Of the 561 full-time Day Division students canvassed, 59.18% (332) were male, and 39.39% (221) had Spanish surnames. The average age of a T-VI student was 25.6 Educational level achieved before attending the Institute ranged from completion of the first grade to post-graduate work at the college level.

The majority of T-VI students are single (55.44%), 29.06% are married, and 8.91% are divorced. In the work history category, 70.94% (398) of the full-time day students have worked while 28.52% (160) have never been employed.

Statistics on the backgrounds of the students show that 181 or 32.26% of the group came to the T-VI from an urban area and 354 or 63.10% from rural areas.

Of the 561 students, only 37 or 6.5% said that their residence was out of the county. However, when asked the location of the school they

1956

last attended, the responses were 10.34% came from Albuquerque's northeastern quadrant, 5.88% from the southeast, 7.66% from the northwest, 11.23% from the southwest, and 10.70% from the central portion of the city; while 49.20% said they last attended a school outside of Bernalillo County.

The parents of T-VI students are 4.99% professional persons, 30.12% skilled workers, 31.55% unskilled laborers, and 30.48% unemployed.

Many of the students receive financial support to attend school as follows: Veterans Administration, 20.32%; Manpower Development and Training Act, 4.99%; Social Security, 1.96%; WIN program under the Department of Welfare, 5.88%; Vocational Rehabilitation, 4.10%; Concentrated Employment Program, .71%; Upward Bound, .18%; and Bureau of Indian Affairs, .18%.

A 1970 Student Characteristics Study shows that 85.2% of the Institute's students are high school graduates with 77.1% having completed high school, 8.1% have earned the General Equivalency Diploma, and 8.5% of the above are college dropouts.

A comparison with the 1969 figures shows that this is an increase of 7.2%. In 1969, 78% of the students were high school graduates with 67.96% having completed high school, 10.04% earning the GED and 5.94% of these are college dropouts. The increase in college dropouts who attend the Institute is 2.6% in 1970.

The 1969 figure represents an increase of 16.2% over 1968 of Institute students who completed high school. Although comparable figures are not available for 1968, the percentage of students who completed high school was 61.80%.

1957

Evening Division

The Evening Division student is usually employed, has completed high school and is older than the Day Division student. Many are college graduates who are taking a "brush-up" course in a specific area, or have jobs, but by taking extra training at T-VI can improve their employment potential.

Evening Division students go to school part time, often after work, for concentrated study in a single area. An Evening Division student will often take more than one class during a trimester on alternate evenings, and may continue to enroll in skill improvements classes until he has attained the desired skill or is employable.

In a student characteristic study of 684 summer, 1968, enrollments, 49% had been previously enrolled in skill improvement classes.

According to a recent survey, the average age of Evening Division students is 32.58, the average grade level is 12.217, and 86.66% of the students have completed high school, while 21.50% have attended college or received a degree. (See Exhibit #1, Exhibit #2, pages 9 and 10.)

By city quadrant (99% of the students are local), 36% are from the northeast area, 16% from the northwest, 22% from the southeast, and 16% from the southwest. The other 10% are from central Albuquerque or are nonresidents.

Although a high percentage of the Evening Division students are unemployed, the statistic does not represent an accurate picture of unemployment, since included in the group are housewives and retirees not looking for work, and high school seniors who have been recommended by their school counselors.

EXHIBIT #1

EVENING DIVISION
Spring Trimester, 1970

AVERAGE AGE = 32.58 Years

AGE LEVEL	NUMBER PERSONS
16	1
17	5
18	34
19	94
20	87
21	90
22	106
23	98
24	83
25	68
26	65
27	65
28	52
29	43
30	48
31	44
32	52
33	47
34	47
35	50
36	40
37	40
38	46
39	52
40	40

50% of the 1900 Skill Improvement students are 30 1/2 years of age or younger

AGE LEVEL	NUMBER PERSONS
41	50
42	34
43	44
44	36
45	30
46	35
47	29
48	31
49	32
50	21
51	26
52	25
53	22
54	16
55	11
56	8
57	13
58	9
59	6
60	5
61	7
62	1
63	3
64	5
65 and up	4
	1,900

1959

EXHIBIT #2

EVENING DIVISION
Spring Trimester, 1970

AVERAGE GRADE LEVEL = 12.217

COMPLETED	NUMBER	PERCENT	
4th Year	1	.05	
5th Year	1	.05	
6th Year	5	.26	
7th Year	8	.42	
8th Year	30	1.62	
9th Year	31	1.63	
10th Year	68	3.57	
11th Year	109	5.74	
12th Year	1,238	65.16	
13th Year	126	6.63	
14th Year	128	6.73	86.66%
15th Year	45	2.36	
16th Year or above	110	5.78	
	1,900	100.00%	

1960

THE INQUIRY FORM

The questionnaire (Exhibit #3, page 14) was mailed to 2,236 former T-VI students; 2,022 locally and 214 out of town. With each, we included a postage paid return envelope.

Since, in many cases, the last known address of the graduates was the temporary address used while attending the Institute, 143 of the mailed questionnaires (6.4%) were returned by the Post Office.

The final response was 807, or 36.09% of the original 2,236, questionnaires filled out and returned.

Of that response the returns were categorized into two segments -- Day Division and Evening Division graduates. Out of the 807 questionnaires, 381 (47.21%) represented the Day Division graduates; and 426 (52.79%) the Evening Division.

Although the questionnaire was identical for both groups, they were easily distinguishable if the form was filled out accurately and completely.

The opening portion of the inquiry form asked for:

1. Name
2. Address
3. City
4. Training Taken at T-VI
5. Approximate Date Training Completed

Further identification of groups for sorting purposes was obtainable by referring to the permanent record files kept by the Attendance Office

1961

on each student. Future follow-up studies will, however, include a separate form designed for each group. This may also include grouping project students such as MDTA, WIN, and CEP.

The second portion of the inquiry form is on employment status with two sections -- one for the employed and one for the unemployed.

The employed were asked to tell us the name of their employer and the kind of work they are doing; specifically if the work is full time or part time and if the work is related to the training taken at T-VI.

Employed graduates were asked to check their salary from eight categories provided on the form ranging from below $100 to $701 and up.

Those graduates who checked the square marked "unemployed" were asked to tell us whether they are actually looking for work, or are remaining unemployed by choice; and if they need assistance from the Institute in finding a job. This square was also checked by many of the employed graduates seeking better jobs, jobs in related areas or full-time work.

Categories were provided in this section to indicate military service and unemployment because of going to school full time. Graduates in school were asked to name the school they are now attending.

The third section of the inquiry form asked the graduates to check appropriate squares to indicate: Male, Female, Single, Married, Other.

The final section asked:

"If your time permits, we would also appreciate hearing from you

1962

about our training programs. Please use the other side of this sheet to let us know (1) what was most useful about your training; (2) what else might have been included that would have helped you on your job; and (3) what additional training you feel you now need."

A summary of these comments is provided on page 42.

1963

EXHIBIT #3

ALBUQUERQUE TECHNICAL - VOCATIONAL INSTITUTE

FOLLOW - UP STUDY OF GRADUATES

Name _____

Address _____ City _____

Training Taken At T-VI _____

Approximate Date Training Completed _____

Employment Status

[] Employed

_____
Name of Employer

_____
Kind of Work

[] Full Time [] Part Time

[] Related to Training Taken

[] Not related

SALARY RANGE:

[] Below $100 [] $401 - $500
[] $101 - $200 [] $501 - $600
[] $201 - $300 [] $601 - $700
[] $301 - $400 [] $701 & Up

[] Unemployed

[] Not looking for work

[] Available and looking for work

[] I would like placement help from T-VI

[] I am in the military

[] Going to School (Where?_____)

Personal Status

[] Male [] Female [] Single [] Married [] Other

PLEASE SEND US THE ANSWERS TO THE ABOVE QUESTIONS TODAY OR TOMORROW.

If your time permits, we would also appreciate hearing from you about our training programs. Please use the other side of this sheet to let us know (1) what was most useful about your training; (2) what else might have been included that would have helped you on your job; and (3) what additional training you feel you now need.

1964

GRADUATES

DAY AND EVENING DIVISIONS*

Of the 477 graduates who indicated a salary level, 23.69% have earnings in the $301 - $400 range which was the modal and medium income of the total respondants.

The average salary of a T-VI graduate was $369.50 per month. At the full-time employment level, 24.74% were working at jobs not related to training at an average salary of $380.51 per month; and 65.62% were working at training related jobs with an average salary of $393.77 per month.

Median and modal salaries were in the $301 - $400 range for both groups of full-time employed graduates. On an average, graduates employed in a training related field are earning $13.62 more per month than graduates employed in a nonrelated field.

Another significant figure is the percentage of graduates working in related areas -- 65.62% as compared to the 24.74% who found work outside of training.

Of this latter group, 15.25% have requested placement help from T-VI and 4.24% are available and looking for other work. Another 9.32% are going to school; 6.78% at T-VI.

*Percentages, averages and other statistics on working graduates in this and subsequent sections are of the total respondants who indicated a salary level -- 477 in this section. Statistics on unemployed are based on the total responses.

1965

Of the 357 graduates in the category of employed full time in a training related area, 5.43% are continuing their education, 2.23% at the Institute; 4.15% have requested placement help from the Institute, and 2.24% consider themselves available and looking for other, higher-paying employment.

These figures represent a marked reduction from comparable working figures in the other working groups, and can support one of the Institute's long range goals -- that of providing the community with a stabilized working force.

At the part-time employment level, 3.77% of the graduates have found part-time work in a nonrelated area at an average salary of $166.67 per month. The median and modal salaries for this group fell in the $101 - $200 range.

Women make up 66.67% of this group; 44.44% are married and for the most part are not looking for any other work. Students are 27.78% of the group, 22.22% at the University of New Mexico.

Placement help from the Institute for full-time work in a training related area was requested by 61.11% of this group, and 27.78% indicated that they were immediately available and actively looking for work.

Part-time employment in a related area was also dominated by women graduates with 83.33% women and 43.33% of them married and not looking for full-time employment. The average salary for this group was $182.14 per month, a monthly increase of $15.47 over the part-time, nonrelated employment group.

1966

Median and modal salaries are both in the $101 - $200 range, and the range encompasses the below $100 to the $401 - $500 group. Of the total responses, 5.87% of the graduates are employed part time in a training related area as compared to 3.77% of graduates employed part time in a nonrelated area.

There were no requests for placement help from the graduates in this group, and none considered themselves available and looking for work. Continuing their education were 28.57%, 14.29% at the Institute.

The military accounted for 29 or 3.59% of the 807 graduates who responded to our questionnaire. For purposes of this study, this group was tabulated separately and placed neither under employed or unemployed.

Of the 807, 144 or 17.85% are unemployed. Of this number, 22 or 2.73% are going to school full time and are not working either full time or part time, are not looking for work or requesting placement assistance. Therefore, this group was not included in the other categories of graduates going to school and working or looking for work.

Of the group 31.82% are going full time to T-VI, and the rest to the University of New Mexico and the University of Albuquerque. The majority graduates in this area are former data processing and office education students, and 13.64% are nurse aide graduates who are continuing with the Institute in the Licensed Practical Nursing programs.

Not all of the unemployed want to work. Of the 807 graduates, 4.83% are unemployed and are not looking for work. Again, this group consists mostly of married women -- 84.62%.

1967

Eighty-three graduates, or 10.29% of the total response to our questionnaire, are unemployed, available and looking for work. Placement help from the Institute was requested by 9.29% of the unemployed, 7.23% are attending some kind of school, 4.82% are continuing their education at T-VI until work can be found.

By major, the largest unemployed group is office education graduates with 60.35% of the total. The others are drafting, 3.45%; health occupations, 6.91%; sales, 12.07%; accounting, 5.17%; data processing, 3.45%; small engine repair, 1.72%; machine trades, 1.72%; industrial sewing, 1.72%; electronics 1.72%; and welding, 1.72%.

Of the total 807 responses, 14.62% have asked the Institute for help with placement for initial employment or change of employment to match skill level or to a higher salary range. Of these, 10.16% consider themselves available and looking for work. This statistic is made up mostly of the unemployed, but also represents graduates not content with their present employment level.

Seventy-four of the T-VI graduates are continuing their education -- 4.21% at the Institute, 3.59% at the college level, and 1.36% at other schools.

1968

SUMMARY OF GRADUATES

DAY AND EVENING DIVISIONS

EMPLOYED - 634 Graduates	78.56%*
Mean Salary	$369.50**
Modal and Median Salaries	$301 - $400 Range**
Full time, Related	65.62%**
Mean Salary	$393.77**
Modal and Median Salaries	$301 - $400 Range**
Full time, Nonrelated	24.74%**
Mean Salary	$380.51**
Modal and Median Salaries	$301 - $400**
Part time, Related	5.87%**
Mean Salary	$182.14**
Modal and Median Salaries	$101 - $200 Range**
Part time, Nonrelated	3.77%**
Mean Salary	$166.67**
Modal and Median Salaries	$101 - $200 Range**
MILITARY	3.59%*
UNEMPLOYED	17.85%*
Going to School	2.73%*
Not Looking for Work	4.83%*
Available and Looking for Work	10.29%*
Request Placement Help from T-VI	9.29%*

* Of the 807 total responses

** Of the 477 who indicated a salary range

DAY AND EVENING DIVISIONS
MONTHLY SALARY RANGE BY PERCENTS*

	Part time Related	Part time Nonrelated	Full time Related	Full time Nonrelated
Below $100	32.15% 9	33.33% 6	2.33% 7	5.08% 6
$101 - $200	39.29% 11	38.90% 7	31.50% 21	13.56% 16
$201 - $300	10.71% 3	16.67% 3	20.77% 65	15.25% 18
$301 - $400	10.71% 3	5.55% 1	26.20% 82	22.89% 27
$401 - $500	3.57% 1		21.73% 68	19.49% 23
$501 - $600		5.55% 1	9.90% 31	11.02% 13
$601 - $700			6.71% 21	4.24% 18
$701 and up	3.57 1		5.57% 18	8.47% 10

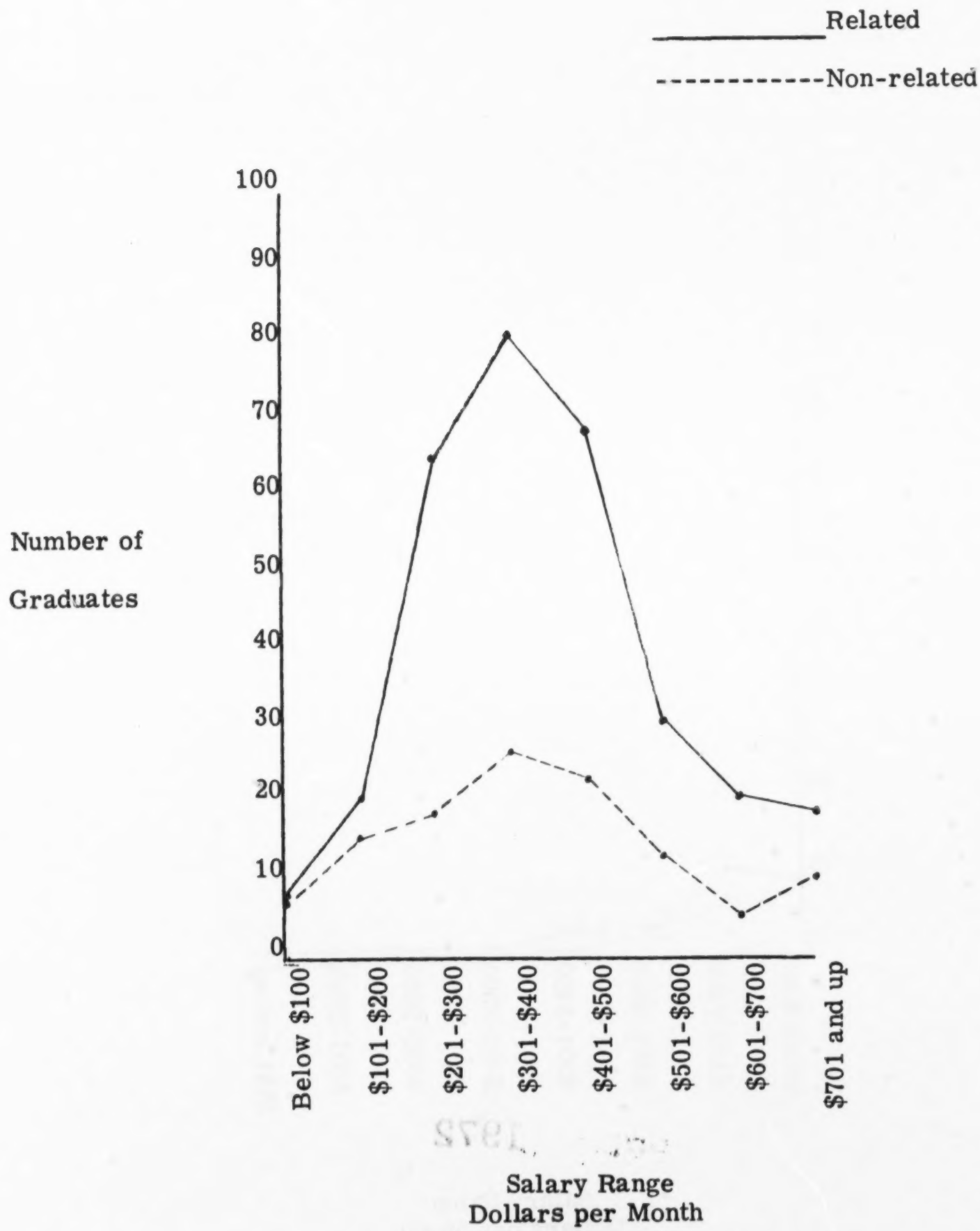
* The above percentages are of the total response for salary ranges which are:

Part time, related occupation	28
Part time, nonrelated occupation	18
Full time, related occupation	313
Full time, nonrelated occupation	118
TOTAL	477

1970

EXHIBIT # 4

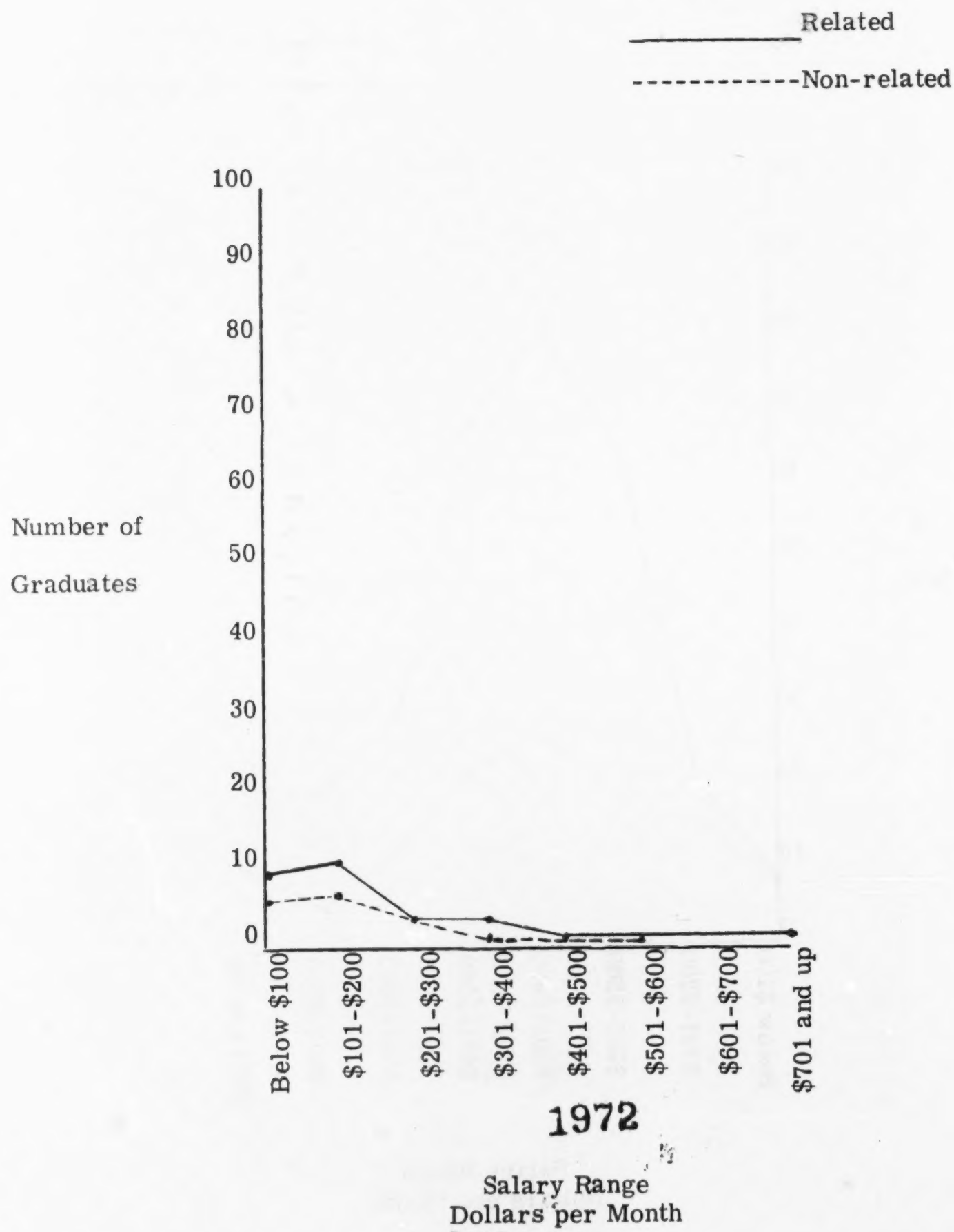
DAY AND EVENING GRADUATES
FULL-TIME EMPLOYMENT
SALARY DISTRIBUTION



1971

EXHIBIT # 5

DAY AND EVENING GRADUATES
PART-TIME EMPLOYMENT
SALARY DISTRIBUTION



GRADUATES

EVENING DIVISION

Of the 426 questionnaires returned by graduates of the Institute's night classes, 235 (55.16%) indicated a salary level to compute an average salary of $395.11. This figure is higher than salary averages taken for other groups of graduates indicating the level of the Evening Division student -- one who is already employed, sometimes at a professional level, and who is taking a single class to improve a skill or to supplement previous education.

Of the 235, 133, or 56.60%*, are employed in full-time jobs related to training taken at the Institute. The average salary for this group is $433.46 per month, the median salary is in the $401-$500 range, and the modal salary distributed between the $301-$400 and $401-$500 range.

Continuing their studies at the University of New Mexico are 2.26% of the group while another 2.26% are still attending the Institute. Placement help from T-VI was requested by 6.02% and another 3.01% consider themselves available and looking for better paying jobs.

Another 186 night school graduates have full-time employment but in occupations not related to training taken at the Institute. Of the 186, 77 indicated a salary level for an average salary of $392.86. This figure is $40.60 per month less than the comparable figure for graduates working full time in a related occupation. The median and modal salaries for this group is in the $301-$400.

*This figure does not compare as unfavorably with the 65.62% of the combined group, and the 74.38% of the day group when the Evening Division's course offerings are taken into consideration. These courses include classes in English, mathematics and other self-improvement subjects of study that are widely attended by nonworking housewives and retired persons.

1973

Among this group, 8.06% are looking for training related work, and 5.91% have requested placement help from T-VI. Another 5.91% are continuing their education, 4.30% at T-VI.

Sixteen evening school graduates have part-time jobs related to training taken, and 14 indicated a salary level for an average salary of $214.29. The median and modal salaries are both in the $101-$200 range. Of the 16, there were no requests for placement help from the Institute, and none were available and looking for work. One is attending the University of New Mexico full time, and four are taking additional classes at T-VI. Eleven of the 16 were women, seven of them married.

Of the 11 graduates who are employed part time in a nonrelated area, nine or 81.82%, are looking for better jobs, and seven requested placement help from the Institute. One of the graduates is attending the University of New Mexico full time. Nine of the 11 are women, six of these are married.

The average salary for this group was $177.27, $37.02 less monthly than those graduates working part time in related occupations. The median salary is the $101-$200 range, and the modal salary is divided equally between the below $100 and the $101-$200 ranges.

The military accounts for 11 (2.59%) of the 426 evening school graduates who responded to the questionnaire.

Of the total 426 responses, 68 (15.93%) are unemployed. Not looking for work are 4.66% of the group. Again, this group is dominated by women. Nineteen of the 20 who are not looking for work are women; 18 are married.

1974

A total of 20.59% of the unemployed are going to school full time and not looking for work. Of these, 57.14% are at the college level, and 35.71% are attending the T-VI Day Division. The 22 persons are graduates of data processing and office education courses except for one University of New Mexico student who took a skill improvement course in algebra to help him pass a University level algebra course required for his degree.

Thirty-four (7.98%) were employed, available and looking for work, and 30 (7.04%) requested placement help from the Institute. Among the unemployed, 11.76% were continuing with T-VI night classes, and 8.82% were attending college level classes on a part-time basis.

An analysis of the group shows that the graduates trained in office occupations have the highest unemployment rate with 38.24% of the total. The others are refrigeration and air conditioning, 2.94%; electronics, 2.94%; industrial sewing, 2.94%; accounting, 11.76%; data processing, 14.71%; sales occupations, 17.65%; welding, 2.94%; and health occupations, 5.88%.

It was possible to list with some exactness the course work taken by 361 of the graduates. Rather, 361 is a total representing fewer than that number of students since many Evening Division students take more than one course. The listing is on the following page.

1975

Class	# of Students	%
Office Education (Typing, shorthand, filing)	112	31.02%
Health Occupations (Hospital Ward Clerk, Medical Office Assistant)	8	2.22%
Domestic Skills	1	.28%
Industrial Sewing	2	.56%
English (Basic, business, speech, technical, report writing)	15	4.15%
Data Processing	46	12.74%
Drafting	12	3.32%
Cashier-Salesmanship	11	3.05%
Mathematics (Albegra, tech math, business math)	15	4.15%
Automotive	31	8.59%
Welding	12	3.32%
Machine Trades	15	4.15%
Electronics	20	5.54%
Printing	1	.28%
Air Conditioning & Refrigeration	11	3.05%
Accounting	25	6.93%
Upholstery	6	1.66%
Audio-Visual Aids	18	4.99%
	361	100.00%

1976

SUMMARY OF GRADUATES

EVENING DIVISION

EMPLOYED - 347 graduates	81.48%
Mean Salary	$395.11**
Modal and Median Salaries	$301-$400 Range**
Full time, Related	56.60%**
Mean Salary	$433.46**
Modal Salary	$301-$500 Range***
Median Salary	$401-$500 Range**
Full time, Nonrelated	32.77%**
Mean Salary	$392.86**
Modal and Median Salaries	$301-$400 Range
Part time, Related	5.96%**
Mean Salary	$214.29**
Modal and Median Salaries	$101-$200 Range**
Part time, Nonrelated	4.68%**
Mean Salary	$177.27**
Modal Salary	Below $100-$200 Range**
Median Salary	$101-$200 Range**
MILITARY	2.59%*
UNEMPLOYED	15.93%*
Going to School	3.29%*
Not Looking for Work	4.66%*
Available and Looking for Work	7.98%*
Request Placement Help from T-VI	7.04%*

1977

PERSONAL STATUS (310 responses in this category)

Married Women	110	35.48%
Single Women	39	12.58%
Other	28	9.03%
Married Men	103	33.23%
Single Men	27	8.71%
Other	3	.97%
	310	100.00%

* Of the total 426 who responded
** Of the 235 who indicated a salary level

1978

EVENING DIVISION
SALARY RANGE BY PERCENTS*

	Part time Related	Part time Nonrelated	Full time Related	Full time Nonrelated
Below $100	28.57% 4	36.36% 4	2.26% 3	3.90% 3
$101-$200	35.72% 5	36.37% 4	3.76% 5	12.99% 10
$201-$300	14.29% 2	9.09% 1	16.54% 22	15.58% 12
$301-$400	7.14% 1	9.09% 1	23.31% 31	23.38% 18
$401-$500	7.14% 1		23.31% 31	18.18% 14
$501-$600		9.09% 1	12.03% 16	11.69% 9
$601-$700			8.27% 11	2.60% 2
$701 and up	7.14% 1		10.52% 14	11.69% 9

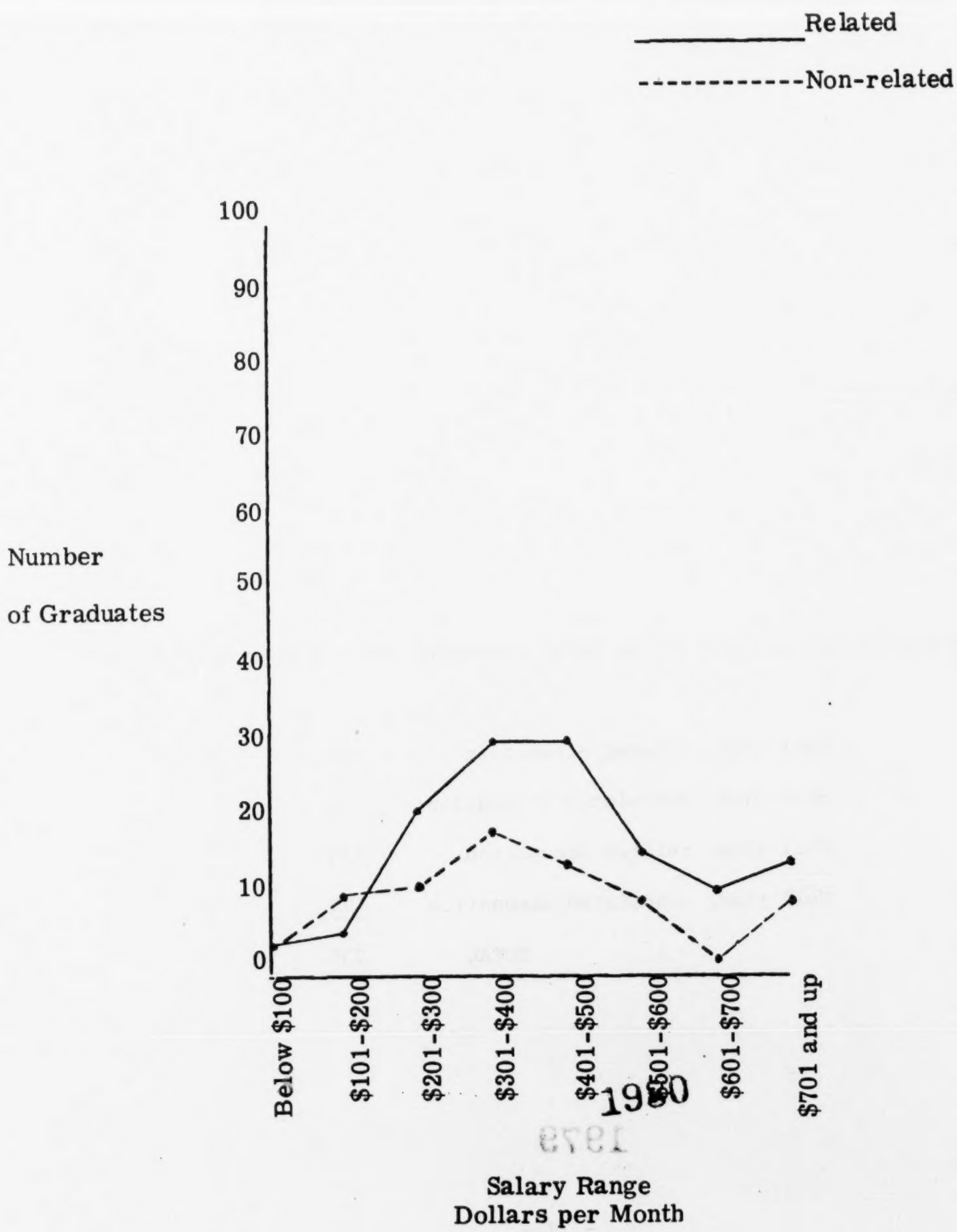
*The above percentages are of the total responses for salary ranges which are:

Part time, related occupation	14
Part time, nonrelated occupation	11
Full time, related occupation	133
Full time, nonrelated occupation	77
TOTAL	235

1979

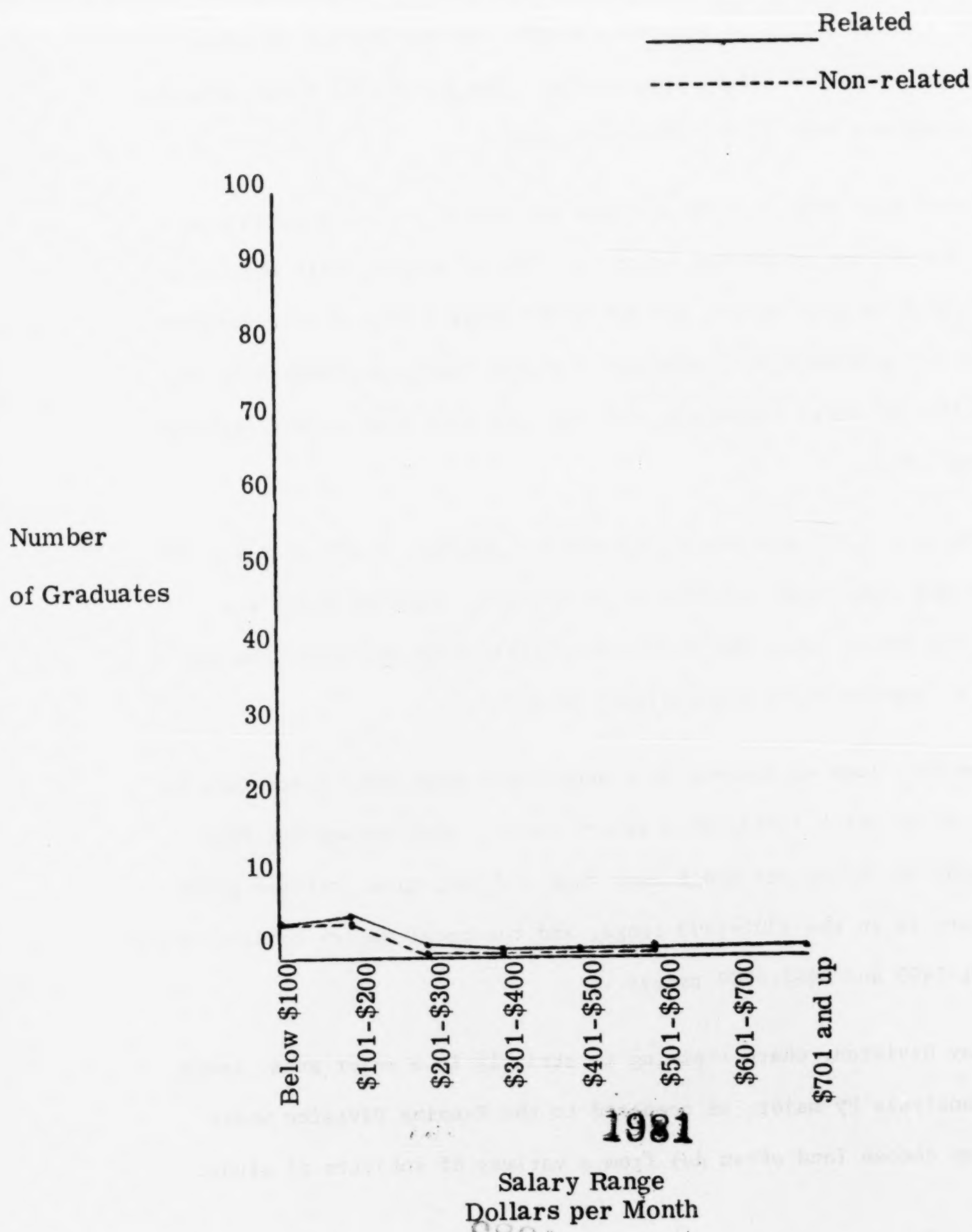
FXHIBIT # 6

EVENING GRADUATES
FULL-TIME EMPLOYMENT
SALARY DISTRIBUTION



FXHIBIT # 7

EVENING GRADUATES
PART-TIME EMPLOYMENT
SALARY DISTRIBUTION



GRADUATES

DAY DIVISION

Graduates of the Institute's Day Division full-time training are earning an average salary of $344.63 a month. Of the 381 Day Division responses, 242 provided salary information. The median and modal salaries for this group are both in the $301-$400 range.

Employed full time in work directly related to training taken are 74.38% of the 242 at an average salary of $364.44 monthly with the median and modal salaries also within the $301-$400 range. The 74.38% represents 180 of the 242 graduates who indicated a salary level, although 223, or 58.53% of the 381 total responses, are employed full time in work related to training taken.

Of the 223, 4.93% are continuing their education, 1.79% at T-VI, .9% at the college level, and 2.24% at other schools. Another 1.35% are available for better jobs, and 2.24% would like placement help from the Institute to improve their occupational level.

At the full-time employment in a nonrelated area level there were 43 graduates; 41 of which indicated a salary range. Mean salary for this group is $357.32, $7.12 per month less than the full time, related group. Median salary is in the $301-$400 range, and the modal salary is distributed in the $301-$400 and $401-$500 ranges.

The Day Division, where training is strictly in a major area, lends itself to analysis by major, as compared to the Evening Division where students may choose (and often do) from a variety of subjects of study.

1982

Therefore, this type of analysis will be provided in the Day Division report when appropriate.

Graduates employed full time in an area not related to training taken at the Institute are widely distributed among the majors offered. The largest number, 20.45%, are from the office education area (office education is the Institute's largest program). The figures are based on 43 students in 44 majors as one of the students reporting is a graduate of two programs -- data processing and machine trades.

The second largest group is Electronics Technology with 13.64%. The others are health occupations, 11.37% (Nurse Aide is 2.27%); Welding, 6.82%; Accounting, 4.55%; Machine Trades, 11.36%; Drafting Technology, 11.36%; Auto Mechanics and Auto Collision Repair, 6.82%; Data Processing Technology, 6.82%; Small Engine Repair, 2.27%; Operating Room Technology, 2.27%; and Sales Education, 2.27%.

Continuing their education at T-VI is 6.98% of the graduates, 16.28% would like placement help from the Institute in finding training related jobs, and 2.33% are available and looking for better work.

Of those graduates who reported salaries, 5.79% are working part time in a training related area. The 14 persons are women, 21.43% are going to school at the college level, and 42.86% are married. Nine are Office Education graduates, two from Nurse Aide, two from Data Processing Technology and one is a graduate from the Licensed Practical Nursing Program. There were no placement requests from this group, and none of the graduates were looking for other work.

1983

The average salary for graduates employed part time in a training related job is $150 per month. The modal and median salaries fell in the $101-$200 salary range.

Of the total responses, 1.84% are employed part time in a nonrelated occupation. All are available and looking for training related work, and all would like some placement help from T-VI, mostly for continued part-time work as 71.43% are going to school at the college level.

Average salary for this group is also $150 per month, and the modal and median salaries fall in the $101-$200 range. These figures duplicate the group working part time in a related occupation.

By major, they are Drafting Technology, 28.57%; Office Education, 28.57%; Electronics Technology, 28.57%; and Accounting, 14.29%.

The military accounted for 18, or 4.72%, of the 381 total responses in the Day Division graduates category.

The unemployed came to 19.95%, or 76 of the graduates. Of these, 19, or 25.00%, are not looking for work; 89.47% are women, and 84.21% are married women.

Going to school are 10.53% of the unemployed; 50.00% of these at the college level, 25.00% to T-VI, and 25.00% to other schools. Those attending T-VI are all graduates of the Nurse Aide program who subsequently enrolled in the Practical Nursing program. One of the graduates going to the University of New Mexico is working for a degree in nursing after completing the T-VI Practical Nursing program. The other UNM students are graduates of the Institute's Drafting Technology and Office Education majors.

Available and looking for work are 49 graduates, or 12.86% of the total 381 responses. Placement help from T-VI was requested by 45 of the graduates.

Most of the unemployed (63.28%) are Office Education graduates. The others are Drafting Technology, 4.08%; Machine Trades, 2.04%; Small Engine Repair, 2.04%; Hospital Aides, 10.20%; Sales Education, 10.20%; Accounting, 4.08%; Operating Room Technology, 2.04%; and Landscaping and Grounds, 2.04%.

We were able to determine major areas of study of 378 of the graduate responses. They are grouped on the following page.

1985

Major	# of Students	%
Office Education	171	45.24%
Drafting Technology	35	9.26%
Nurse Aide	46	12.17%
Automotive	10	2.65%
Sales Education	13	3.44%
Accounting	18	4.76%
Machine Trades	27	7.14%
Electronics Technology	24	6.35%
Data Processing Technology	17	4.50%
Licensed Practical Nursing	4	1.06%
Welding	4	1.06%
Cook	2	.53%
Operating Room Technology	3	.79%
Small Engine Repair	3	.79%
Landscaping and Grounds	1	.26%
	378	100.00%

1986

SUMMARY OF GRADUATES

DAY DIVISION

EMPLOYED - 287 Graduates	75.33%*
Mean Salary	$344.63**
Modal and Median Salaries	$301-$400 Range**
Full time, Related	74.38%**
Mean Salary	$364.44**
Modal and Median Salaries	$301-$400 Range**
Full time, Nonrelated	16.94%**
Mean Salary	$357.32**
Modal Salary	$301-$500 Range**
Median Salary	$301-$400 Range**
Part time, Related	5.79%**
Mean Salary	$150.00**
Modal and Median Salary	$101-$200 Range**
Part time, Nonrelated	2.89**
Mean Salary	$150.00
Modal and Median Salaries	$101-$200 Range**
MILITARY	4.72%*
UNEMPLOYED	19.95%*
Going to School	2.10%*
No Looking for Work	4.99%*
Available and Looking for Work	12.86%*
Request Placement Help from T-VI	11.81%*

1987

PERSONAL STATUS (347 responses in this category)

Married Women	81	23.34%
Single Women	123	35.45%
Other	27	7.78%
Married Men	61	17.58%
Single Men	53	15.27%
Other	2	.58%
	347	100.00%

* of the total 381 who responded
** of the 242 who indicated a salary level

1988

DAY DIVISION
SALARY RANGE BY PERCENTS*

	Part time Related	Part time Nonrelated	Full time Related	Full time Nonrelated
Below $100	35.71% 5	28.57% 2	2.22% 4	7.32% 3
$101 - $200	42.86% 6	42.86% 6	8.89% 16	14.63% 6
$201 - $300	7.14% 1	28.57% 2	23.89% 43	14.63% 6
$301 - $400	14.29% 2		28.33% 51	21.95% 9
$401 - $500			20.56% 37	21.95% 9
$501 - $600			8.33% 15	9.76% 4
$601 - $700			5.56% 10	7.32% 3
$701 and up			2.22% 4	2.44% 1

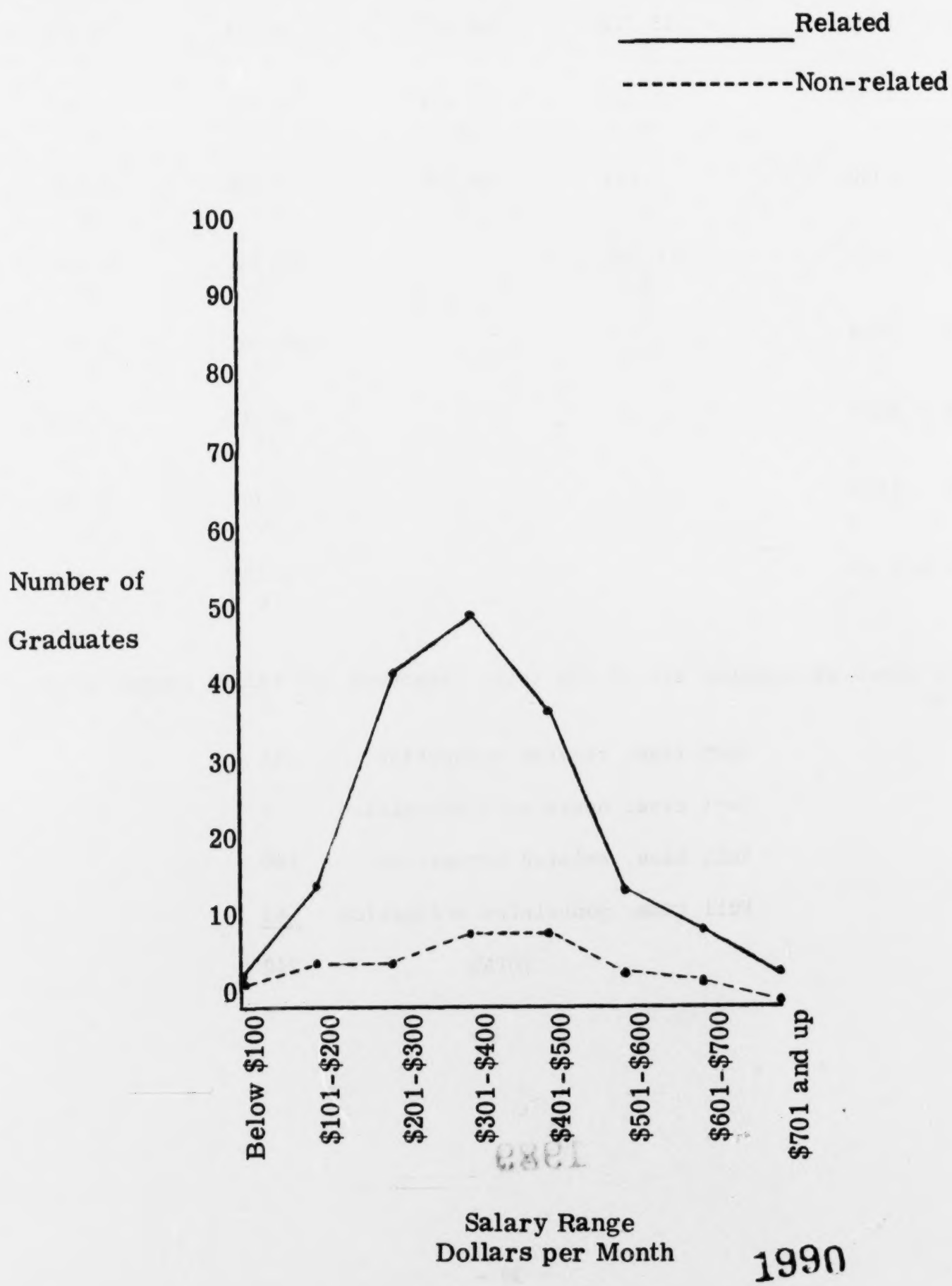
* The above percentages are of the total responses for salary ranges which are:

Part time, related occupation	14
Part time, nonrelated occupation	7
Full time, related occupation	180
Full time, nonrelated occupation	41
TOTAL	242

1989

FXHIBIT #8

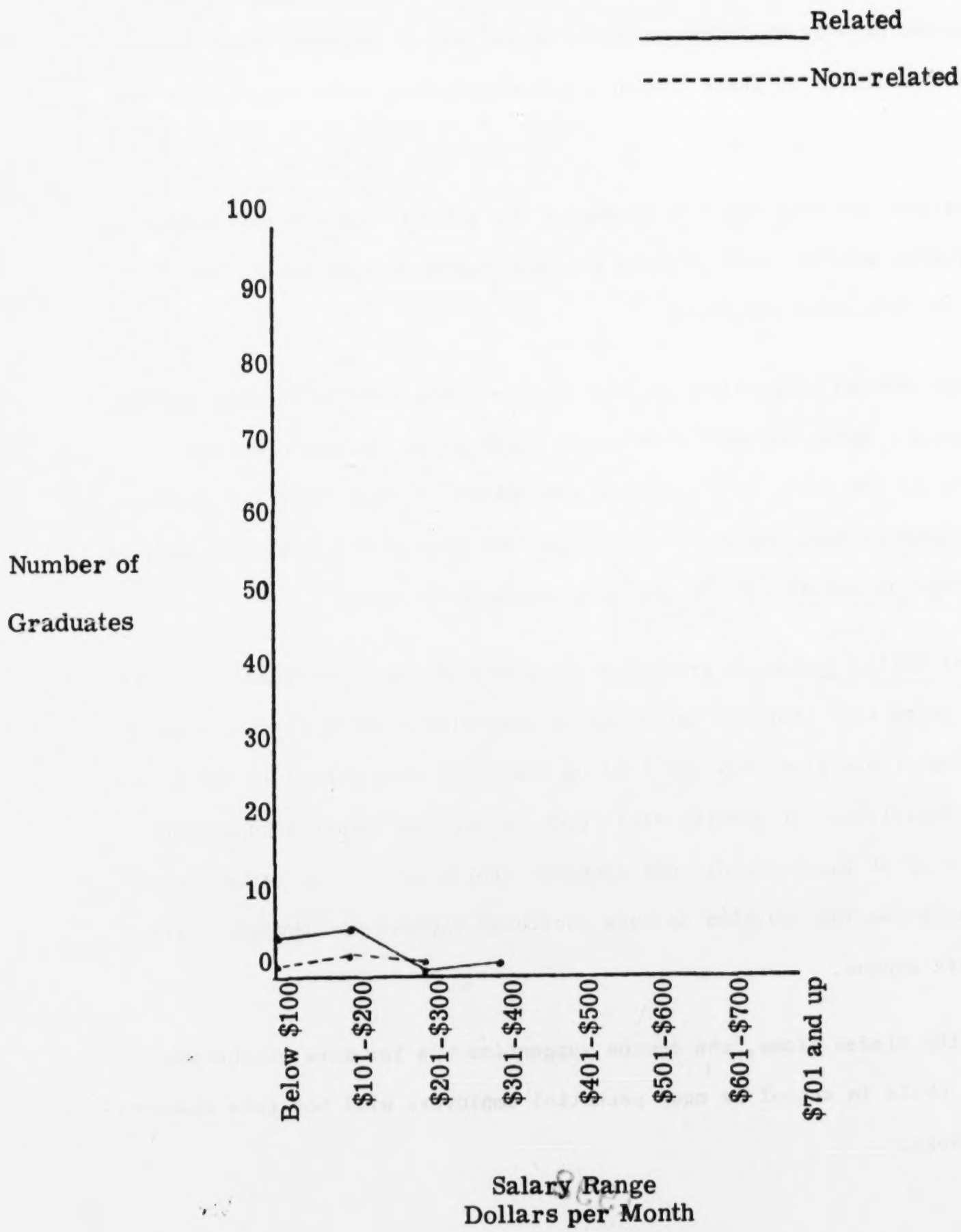
DAY GRADUATES
FULL-TIME EMPLOYMENT
SALARY DISTRIBUTION



1990

FXHIBIT #9

DAY GRADUATES
PART-TIME EMPLOYMENT
SALARY DISTRIBUTION



GRADUATE COMMENTARY ON T-VI EXPERIENCE

The graduates who responded to our questionnaire were generous with their comments. A total of 356 responses included some comment. Since the replies were diversified in their nature and no apparent trend could be found, analysis of these comments and suggestions would require another study.

Instead, we have tried to summarize the general mood of the commentary by providing samples which suggest how the graduates feel about the Technical-Vocational Institute.

Many offered suggestions on how they felt the Institute could improve its program. Among the most consistent suggestions was the one from graduates of the Nurse Aide programs and Medical Office Assistant classes. These graduates have found while working they need more practice in medical terminology and would like to see this stressed in class.

Most Office Education graduates commented on their shorthand, or lack of it. Those that took and subsequently completed a class in shorthand to a skill level are glad they did finding the skill most useful in day-to-day working activities for greater efficiency as well as higher occupational level. Most of those who did not complete shorthand wish to return to the Institute's Evening Division to take shorthand classes and thereby improve their work status.

In the trades areas, the common suggestion was for more on-the-job training while in school as many potential employers will not take inexperience workers.

1992

Along this same line, several of the graduates felt that their time would have been better spent entirely in a laboratory situation in actual practice of their future occupation rather than in related subject area classes.

Among the comments were inquiries about future classes and programs; and requests for brochures pertaining to the Day and Evening Divisions, for GED testing dates and for information on new industry training programs. The Institute is following up on each of these inquiries, providing the materials and information requested.

Finally, many of the comments were appeals for help from the unemployed and part-time workers. These will be analyzed further by the Institute's counseling staff in an effort to probe some of the problems of the unemployed, and possibly provide some assistance in the form of employment counseling and notification of job openings.

A sampling of the comments:

"I have found all phases of my mechanical training beneficial, since my job requires checking everything on new cars. I do not feel, however, that I gained anything from my English classes, but I did learn quite a lot in Business Management."

"I have used my training in my work and found it to be very beneficial. I plan to further my education with shorthand and other courses in the near future."

"In one way my course did not help me. I have an electric typewriter at work and had to use a manual at T-VI classes. My speed dropped and it was most difficult under these circumstances. On the other hand I did learn all the basics and am now able to apply them on my job."

"The training I took while at T-VI included everything in which I am involved right now on the job I have."

1993

"You might be interested in knowing that our personnel department head told me that the performance of T-VI graduates was such that she has a very warm feeling for T-VI."

(Most useful part of training) "getting along with others. It helped my understanding others. Going on interviews, how to act and what not to do. Also I received my General Equivalency Diploma."

"I feel that the courses (Drafting Technology) I took were instrumental in my getting a job at Sandia (Corporation). Courses in electronic drafting and in manufacturing processes were particularly helpful in preparation for my present job."

"T-VI training school opened a new career in my life, something I had always dreamed of. It made it possible and I'm very proud because right away I got a steady full-time job. Later on with time and experience, I would like to go in to Licensed Practical Nursing training."

"I took the concentrated T-VI program for employment with GE (General Electric) and did not get the full machinist course. The training which I did receive, however, was quite adequate and I have not yet encountered any work at my present job which I have not been qualified to handle. I will enroll at T-VI in February for additional courses in Machine Trades and Drafting to further my knowledge in this very interesting vocation which was opened to me by T-VI."

"Everything which I took has come in handy for me. But, I do need the additional training in my shorthand, which I am doing in my night courses at T-VI. I feel that there should be more stress on spelling, punctuation, and sentence structure."

"I feel that more training in Circuit Analysis, trouble shooting and Solid State are very essential to make a good Electronics Technology technician."

(What additional training) "More keypunch experience. More knowledge in Data Processing."

1994

VT 012 174
Conklin, Norma K.
Reading Institute for Vocational Teachers (March 20, 1969 to June 30, 1970). Director's Report.

Ferris State Coll., Big Rapids, Mich.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Jul70 39p.

DESCRIPTORS - *VOCATIONAL EDUCATION TEACHERS; *INSERVICE TEACHER EDUCATION; *READING INSTRUCTION; READING SKILLS; READING IMPROVEMENT; *STUDENTS; *PROGRAM EVALUATION; INSTITUTES (TRAINING PROGRAMS)

ABSTRACT - A 15-month project funded under the Education Professions Development Act was conducted to help 25 Michigan vocational teachers become more aware of their students' reading problems, to introduce teachers to reading skills needed for their subject matter, to provide teachers with material written at a more readable level, and to encourage teachers to upgrade their students' reading proficiency. The four project phases were: (1) revision of the proposal, (2) a 2-week inservice training program for teachers, (3) a study of the impact of the inservice training program upon the high school students taught during the 1969-70 school year, and (4) a final report. During Phase 3, the Diagnostic Reading Test, Forms A (pretest) and B (posttest) were administered to students in the fall and spring, respectively, while the teachers attended three seminars emphasizing vocabulary development, use of the library, and the teaching of a reading activity. Evaluation of students' reading test scores revealed that gains in reading rate, vocabulary, and comprehension performance were made between the pretest and posttest. Evaluation and comments by the teachers and institute director and appended. (SB)

VT 012 174

ED0 57254

(C1)

DIRECTOR'S REPORT

READING INSTITUTE FOR VOCATIONAL TEACHERS

MARCH 20, 1969 to JUNE 30, 1970

MRS. NORMA K. CONKLIN
Assistant Professor

FERRIS STATE COLLEGE

BIG RAPIDS, MICHIGAN 49307

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1996

VT012174

Evaluator's Report
Phase Three

Reading Institute for Vocational Teachers
Ferris State College
March 20, 1969 to June 30, 1970

A. R. Gaskill, Ph.D.
Professor, School of Education
Central Michigan University

The two major activities carried on as Phase Three of this project are universally recommended but rarely implemented in projects like this: namely, follow-up conferences with Institute participants; and, evaluation of progress made by students taught by the participants.

Valuable base-line data has been generated, and the results are reported on page thirteen of the Final Report. While it is not possible to state that the gains obtained were statistically greater than comparable (control) groups, since the modest funding of this project did not make it possible to incorporate this feature in the project design, school systems may wish to take note, both of the actual level of competence in reading exhibited by the students taught by teachers trained in the Institute, and the amount of gain which took place between the pre-test and post-test examinations.

The gain in rate is especially significant, since many students who will be pursuing technical courses beyond high school frequently find the volume of reading to be done a formidable barrier to academic progress. This writer can speak to this point with assurance since he was responsible for providing similar instruction at one of our major scientific universities in response to a felt need for this kind of instruction. (at Purdue University, circa 1949-50).

Gains, in rate, with both vocabulary and comprehension performance either being maintained or improved, speak well for the calibre of instruction provided by the Institute.

In conclusion, it may be observed that the number of public high schools throughout the State represented in the Institute suggests that there will be, in all likelihood, much multiplier effect emerging from this effort.

The Institute Director and her staff are to be commended highly for persevering this difficult professional job, and bringing it to a highly successful conclusion.

The Final Report reflects the important, scholarly, and professional work made possible by the grant.

A.R.G.
July 23, 1970

I. Introduction

In the fall of 1968, Ferris State College received notice of approval for a federal grant under the Education Professions Development Act to conduct a fifteen (15) month (March 20, 1969 - June 30, 1970) Reading Institute for Vocational Teachers of employment-bound students.

Objectives:

1. To help teacher-participants become more aware of the reading problems of their students.

2. To introduce the teacher-participants to the reading skills necessary for reading in their particular subject area.

3. To provide the teacher-participants with material written at a more readable level.

4. To encourage teacher-participants to up-grade the reading proficiency of their students so the students would be more employable when they reach the labor market.

II. Operation of the Program

1. Planning

Phase I -- The original proposal had to be re-written to reduce the budget and to delete several of the resource people who had been contacted to give presentations in the two week summer workshop.

The recruitment of vocational teacher-participants had to be extended to all schools in Michigan and many personal contacts had to be made. Seven hundred fifty (750) letters were written to recruit twenty-five (25) participants, as the Vocational Teachers were reluctant to give up good paying jobs to become involved in a Reading Institute.

The summer workshop had to be revised to fit the budget, staff and resource personnel.

The number of seminars was reduced to three; the location of these was changed from the Ferris State College Campus to three area schools: Alpena; Everett High School in Lansing; and, Mt. Pleasant.

Phase II -- During the summer workshop, with twenty-five (25) vocational teacher-participants, the teachers evaluated it as a SUPERIOR experience; Dr. A. R. Gaskill, the outside evaluator, also gave the workshop a SUPERIOR rating.

The Workshop started slowly, at least in part because the "kick-off" speakers were in the field of Vocational Education. Although they described programs which were unique, the participants were not receptive. The staff responded by arranging for an in-process evaluation and planning meeting for staff and key class members. The concensus of the class members was "we want Reading instruction."

Phase II (Continued)

During the remainder of the Workshop, the three regular staff members: Mrs. Norma K. Conklin (Director), Mrs. Caroline Cline, and Mrs. Delores Franck presented a program focusing on reading skills necessary for students reading at the secondary level.

Several resource people from the areas of reading and vocational education were used to enrich the Workshop program.

Phase III -- This phase covered the time period of the regular school year -- September 1969 to June 1970. During the Fall Term, Mr. Shanahan, Co-Director, and Mrs. Conklin administered the Diagnostic Reading Test, form A,* to the first and second classes of high school students (802) who were receiving instruction from the teacher-participants. The Fall Quarter Seminar was held on October 17, 1969, at the Alpena High School with the emphasis on how to teach a Directed Reading Activity.

Dr. George Storm, Associate Director of Trade-Technical Teachers at Ferris State College; Mr. Shanahan; and/or Mrs. Conklin made visitations during the Winter Quarter to each of the schools where the teacher-participants teach. The second seminar, with emphasis on using the library, was held at Everett High School in Lansing on January 9, 1970.

The Spring Quarter activities of the staff were to administer the Diagnostic Reading Test, form B, to all high school students who were pre-tested in the Fall Quarter. The Spring Quarter Seminar was held at Mt. Pleasant High School on April 10, 1970, with a special presentation by Mrs. Meinknecht on "KEY WORDS" - vocabulary development.

Phase IV -- Although the terminal date of the proposal is June 30, 1970, a reasonable amount of time (up to ninety days) will be allowed for writing the final report of the program and budget.

2. Participants

Recruitment of vocational teacher-participants was no easy task as they were reluctant to give up good paying jobs to attend a Reading Institute. Therefore, many personal letters were written (750) and personal contacts made to "SELL" the Institute. The success of the Institute has spread "by word-of-mouth" and many requests have been made for application for another Institute, if it should materialize.

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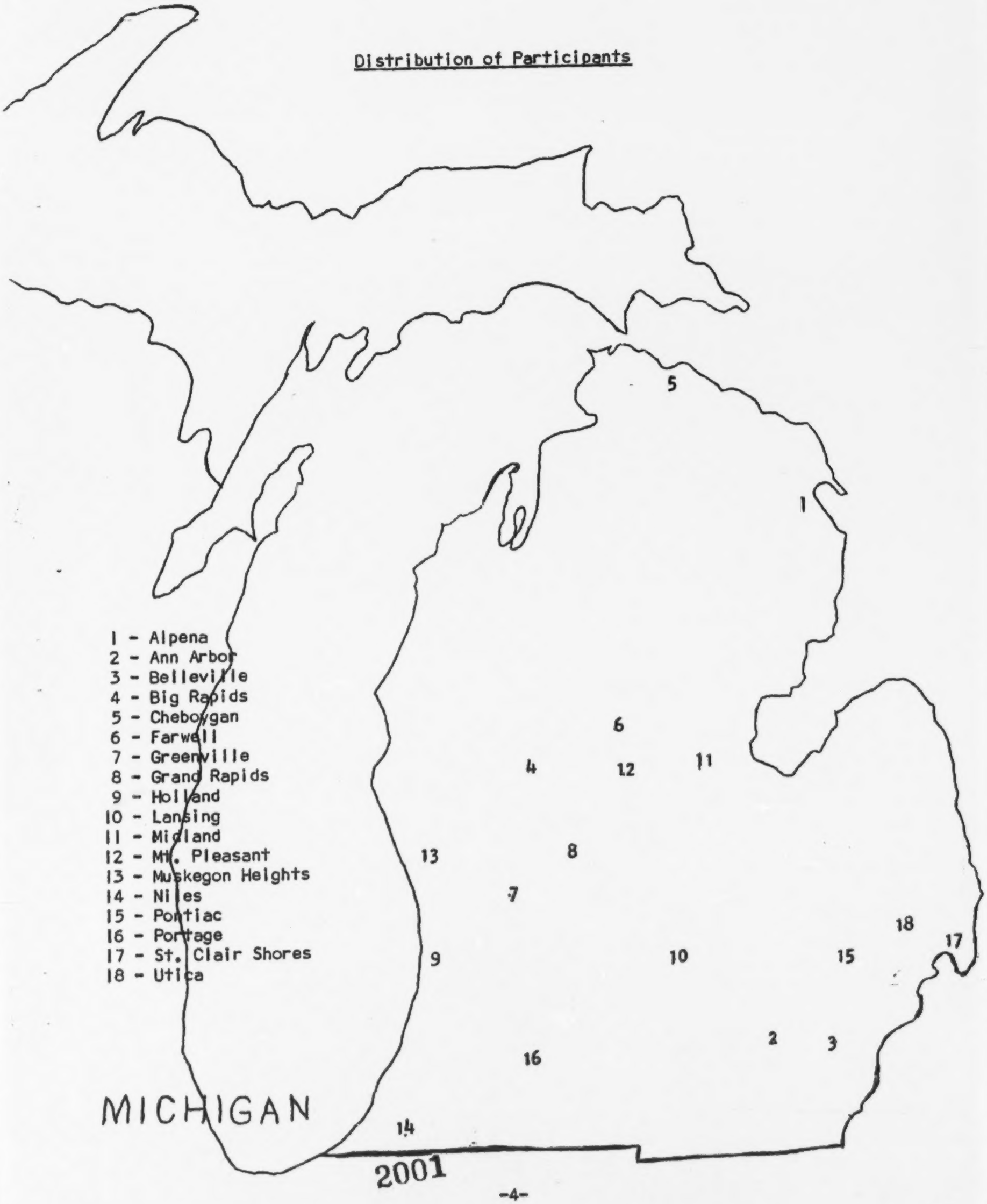
* Diagnostic Reading Tests, Survey Section: Upper Level (Grades 7-13)
Form A (pre-test), Form B (post-test)
Published by: The Committee on Diagnostic Reading Tests, Inc.
Mountain Home, North Carolina
Revised Edition 1966

List of Participants

Name	City	Location in Michigan	Degree	Subject Taught
Abnet, Mrs. Beatrice	Portage	Southwest	M.A.	Food Management
Best, James W.	Niles	Southwest	B.S.	Machine Shop
Bye, Earl A.	Alpena	Northwest	B.S.	Welding
Dembinski, Miss Joanne	Pontiac	Southeast	M.A.	Business
DeVries, Ervin R.	Holland	Southwest	B.S.	Auto Mechanics
Hamming, Jerry	Farwell	Central	B.S.	Metal Shop
Housholder, Donald F.	Utica	Southeast	M.A.	Business
Isles, Richard L.	Cheboygan	North	None	Auto Service and Engineering Draft.
Junker, Elmer S.	Big Rapids	Central	M.S.	Foremanship
Keller, Donald R.	Ann Arbor	Southeast	M.A.	Distributive Educ.
Klotz Sr., Hilbert W.	Big Rapids	Central	B.S.	Metals
Lessard, Luther F.	Greenville	Central	B.S.	Business
Lind, Gordon K.	Lansing	South Central	B.S.	Printing
Mantych, Thomas R.	St. Clair Shores	Southeast	B.A.	Business
Marshall, William E.	Midland	Central	B.S.	General Shop
Moerdyk, Glen D.	Grand Rapids	Southwest	M.A.	Graphic Arts
Moore, James L.	Mt. Pleasant	Central	B.S.	Power Mechanics
Nagy, Bill A.	Belleville	South	M.A.	Machine Shop
Nystrom, Edward M.	Lansing	South Central	M.A.	Auto Mechanics
Reynolds, Warren O.	Big Rapids	Central	B.S.	Agriculture
Schoch, Harold H.	Ann Arbor	Southeast	M.S.	Distributive Educ.
Stender, Jerry V.	Lansing	South Central	None	Auto Body
Struble, Gordon S.	Mt. Pleasant	Central	M.A.	Horticulture and Conservation
Thompson, Charles N.	Muskegon Hgts.	Southwest	B.A.	Auto Mechanics
Wakevainen, John T.	Niles	Southwest	M.A.	Metals

Distribution of Participants



3. Staff

The regular staff members were selected because they were well qualified, had excellent experiential background and related well to people. The staff members and resource people were as follows:

Staff Members

Norma K. Conklin, Assistant Professor of Reading
Ferris State College
B.S. Central Michigan University
M.A. Michigan State University

Richard H. Shanahan, Assistant Professor and Director of Reading
Ferris State College
B.A. Allegheny College
M.A. Western Reserve University

William Van Trump, Director, Trade-Technical Teacher Education
Ferris State College
B.S. University of Missouri
M.Ed. University of Missouri
Ed.D. University of Missouri

George Storm, Associate Director, Trade-Technical Teacher Education
Ferris State College
B.V.E. California State College at Long Beach
M.A. California State College at Long Beach
Ed.D. Oregon State University

Caroline Cline, Reading Consultant
Saginaw Public Schools
B.S. Central Michigan University
M.A. University of Michigan

Delores Franck, Coordinator of Reading Program
Big Rapids Public Schools
B.S. Central Michigan University
M.A. University of Michigan

Technical Writer

Andrew Hart, Associate Professor, Technical Writing
Ferris State College
B.S. Michigan State University
M.S. Michigan State University
Ph.D. Michigan State University

Evaluator

A. R. Gaskill, Director of the Bureau of School Services
Central Michigan University
B.S. Ohio University, Athens
M.S. Ohio State University
Ph.D. Purdue University

Resource People

David Bjorkquist, University of Missouri
M.A. Iowa State University
Ph.D. University of Minnesota

Brother Leonard Courtney, Director of Education
St. Mary's College, Minnesota
Ph.D. University of Chicago

Dale McAlvey, Director of Vocational Education
Petoskey Public Schools
M.A. Michigan State University

Ernest Minelli, Director, Partnership Vocational Education Project
Central Michigan University
Ed.D. Wayne State University

Robert Nickodemus, Director of Vocational Education
Saginaw Public Schools
B.S. Central Michigan University
M.A. Central Michigan University

Malcolm D. Salinger, Educational Counselor
Ferris State College
B.S. University of Cennecticut
M.A. Western Reserve University
Ed.D. Western Reserve University

William Steffens, Vocational Education Instructor
Petoskey Public Schools
M.A. Central Michigan University

Mary Weborg, CORE and Reading Teacher
Walled Lake Public Schools
Ferris State College - Summer Instructor
B.S. Wayne State University

4. Orientation Program

No advance orientation meeting was held because of travel distance; however, the staff was able "to keep its finger on the pulse" of the instruction by eating, at least, one meal a day with the teacher-participants.

5. Program Operation

Phase II -- Summer Workshop

PROGRAM

THE READING INSTITUTE FOR VOCATIONAL TEACHERS'

August 18-29, 1969

MONDAY, August 18, 1969

Morning		
8:30-9:30	Registration and coffee in Carlisle Hall	
9:30	Presiding	(Mrs.) Norma K. Conklin
	Welcome	Dr. Robert Huxol, Vice President of Instruction, Ferris State College
	Announcements	"Overview of Institute"
	Introduction of Staff	
	Speaker	Dr. William Van Trump, Director of Trade-Technical Education, Ferris State College

LUNCH

Afternoon		
1:00-2:00	Speaker	Dr. Ernest Minelli, Chairman Department of Industrial Education and Technology, Central Michigan University
2:30	Tour	Ferris State College Campus Dr. George Storm, Assistant Director of Trade-Technical Education, Ferris State College

TUESDAY, August 19, 1969

Morning		
8:30	Review and Daily Schedule	
9:00	Speaker	Dr. Minelli -- Follow-up of Program

COFFEE BREAK

10:30	Reading Test	Delores Franck

LUNCH

Afternoon		
1:00	Film	"No Reason to Stay" Discussion
2:30	Speakers	Mr. Dale McAlvey Mr. William Steffens

2004

WEDNESDAY, August 20, 1969

Morning		
8:30	Review	
9:00	Speakers	Mr. Dale McAlvey Mr. William Steffens
	COFFEE BREAK	
10:30	Speaker	Dr. Malcolm Salinger
	LUNCH	
Afternoon		
1:00	Mental Age-I.Q. Expectency Levels Assignment	D. Franck N. Conklin C. Cline Levels

THURSDAY, August 21, 1969

Morning		
8:30	Review	
9:00	Open for Speaker	
	COFFEE BREAK	
10:30	Library	M. Weborg
	LUNCH	
Afternoon		
1:00	Readability of Text Problem	

FRIDAY, August 22, 1969

Morning		
8:30	Review	
9:00	Discussion of Readability of Text	
	COFFEE BREAK	
10:30	Continued above discussion	
	LUNCH	
Afternoon		
1:30	Evaluation Test	

2005

MONDAY, August 25, 1969

Morning		
8:30	Review	
9:00-3:30PM	Vocabulary	C. Cline
	Words Attack Skills	D. Franck
	Comprehension	N. Conklin

TUESDAY, August 26, 1969

Morning		
8:30	Review	
9:00-3:30PM	SQ3R	C. Cline
	Study Skills	C. Cline
	Techniques	N. Conklin
Evening		
6:30	Banquet Speaker	Brother Courtney

WEDNESDAY, August 27, 1969

Morning		
8:30	Review	
9:00	Speaker	Brother Courtney
10:30	Speaker	Dr. Van Trump - Follow-up
	LUNCH	
Afternoon		
1:00	Direct Reading Activity	D. Franck

THURSDAY, August 28, 1969

Morning		
8:30	Review	
9:00	Open for Carry over	
	LUNCH	
Afternoon		
1:00	Listening Skills	C. Cline
	Listening Lesson	Dr. Storm

FRIDAY, August 29, 1969

Morning		
8:30	Review	
9:00	Speaker	Dr. David Bjorkquist
10:30	SUMMARY - EVALUATION	

2006

OUTLINE, AUGUST 18-22, 1969 - Resource Personnel Schedule

TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:30	Registration	Review and daily schedule			
9:00	Dr. Huxol	Dr. Minelli	Mr. McAlvey Mr. Steffens	Speaker to be announced	
10:00	COFFEE BREAK				
10:30	Dr. Van Trump		Dr. Salinger	M. Weborg	
11:00					
12:00	LUNCHEON				
1:00	Dr. Minelli	Film "No Reason to Stay"			
2:30	Dr. Storm	Mr. McAlvey Mr. Steffens			
3:00					

2007

OUTLINE, AUGUST 25-29, 1969 - Resource Personnel Schedule

TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:30	Review and Daily Schedule				
9:00			Brother Courtney		Dr. David Bjorkquist
10:00	C O F F E E B R E A K				
10:30			Dr. William Van Trump	Robert Nickodemus	
11:00					
12:00	L U N C H E O N				
1:00					
2:00				Dr. George Storm	
3:00					
6:30		Banquet -- Brother Courtney			

2008

5. Program Operation (Continued)

Technical Writer

Dr. Andrew Hart, the technical writer, rewrote nine sample units from the various Vocational High School textbooks; these were re-written at the Junior-High School level to make them more "readable" for students with reading problems or low reading ability.

The sampling units were:

Paper
Modern Poultry Farming
Engine Lubricating Systems
Electric Arc Welding
Engine Cooling Systems
Printing Inks
The Lathe
Ignition Systems
Salesmanship Fundamentals

Testing and Evaluation Procedures

The staff, participants and evaluator agreed that the classes of the teacher-participants which would be used for a sampling would be their first and second classes. The students would be given a pre- and post-reading test.

They decided on having three seminars, one each quarter; these were to be held in the schools:

Alpena - October
Lansing - January
Mt. Pleasant - April

Phase III -- Testing and visitations during the regular school year

Standardized Testing -- The Triggs Diagnostic Reading Test, form A, was administered in the fall quarter to get an indication of the reading ability of the 802 students who were involved in the sampling of the teacher-participants.

Form B of the same test was given during the spring quarter to get an indication of change.

The information on the following page is a breakdown by grades:

2009

RESULTS OF TRIGGS DIAGNOSTIC READING TEST

	Form	*1-Rate	2-Vocabulary	3-Comprehension
Special Education	A	119.1	15.6%	21.5%
	B	148.0	14.6%	23.5%
9th Grade	A	193.7	39.0%	43.2%
	B	219.0	47.0%	56.2%
10th Grade	A	226.6	46.1%	50.2%
	B	233.5	48.0%	64.0%
11th Grade	A	215.6	50.6%	54.2%
	B	236.9	52.1%	66.2%
12th Grade	A	237.5	54.0%	57.0%
	B	271.3	54.3%	66.5%
College Freshmen	A	249.2	64.8%	72.2%
	B	276.7	67.3%	77.0%

* 1-Rate -- Words per minute on a 3 minute time

2-Vocabulary -- Percentage correct from a total of 60 items

3-Comprehension -- Percentage correct from a total of 40 items

2010

Visitations -- Mrs. Norma K. Conklin
Mr. Richard H. Shanahan
Dr. George Storm

In our visitations during the regular school year, it was noted that the vocational teachers were using reading-study procedures which had been presented during the Summer Workshop. The following are some of these techniques which were in use:

a. Introduction of technical vocabulary
b. Directed Reading Activity
c. Supervision in reading of technical materials
d. Library reference assignments
e. Work-study reading lessons
f. Written directions for activities instead of verbal

Trade-Technical Teacher Education Class

Mrs. Conklin spent four class periods with the Trade-Technical student-teachers introducing them to reading in the Content Area, explaining readability of textbooks and presenting an explanation on individual differences as they relate to reading problems.

6. Evaluation

Phase II -- Summer Workshop

(See the following pages for detailed comments by participants; Dr. A. R. Gaskill, Evaluator; and Mrs. Norma K. Conklin, Director.)

Rating of Summer Workshop by Teacher Participants

1st - Reading Institute Staff's presentation on skills

2nd - Readability of textbooks followed by actual application to their own text (presented and supervised by staff)

3rd - Library presentation (Mary Weborg)

4th - (a) Tour of Campus - Dr. Storm

(b) Film "No Reason to Stay"

(c) McAlvey-Steffens -- Petoskey High School -- team teaching

2011

Letter of Transmittal

The attached evaluation statement relates to a federally funded EPDA project identified as follows:

An Operating Project
Grant Number OE6-0-9-321598-2275-725
Reading Institute for Vocational Teachers
for Twenty-five (25) participants
Ferris State College
Big Rapids, Michigan
3-20-69 to 6-30-70

The evaluation report is being prepared in two parts. This report, Part One, deals with the two week In-service Training of Vocational Teachers, August 18 to August 29, 1969. The second part, (to be submitted later) will deal with the impact of the in-service training program upon the high school students taught during the academic year 1969-1970 by those who attended the in-service training program during the summer of 1969.

A. R. Gaskill, Evaluator
September 1969

2012

EVALUATION OF AN IN-SERVICE
TRAINING PROGRAM, READING INSTITUTE
FOR VOCATIONAL TEACHERS, FERRIS
STATE COLLEGE, AUGUST 18 - AUGUST 29,
1969, GRANT NUMBER OE6-0-9-321598-2275-725

1. Program Objectives:

"1. To train vocational teachers to adjust their methodology in terms of the reading abilities of the students.

2. To implement a reading program to up-grade the reading proficiency of vocational students.

3. To provide reading assignment material of suitable difficulty and interest level."

<u>These objectives are clearly stated and represent valid and attainable instructional goals.</u>

2. Project Design:

This project differs from another major effort which has a similar thrust (A Ford Foundation project being carried on under the auspices of Central Michigan University) in that it concentrates on the vocational teacher and his (or her) needs rather than on a team approach to instructional problem which is characteristic of the Ford Foundation project.

At first glance, this appeared to be a defect of this project, but experience has suggested that this is not necessarily so. The greater security of being with teachers having similar needs and backgrounds appears to be an advantage.

<u>The idea of a follow-up study to measure the impact of the in-service training of teachers by means of a pre-test, post-test of reading skills of students taught by these teachers is an excellent feature of this design.</u>

3. Internal Evaluation Procedures:

Periodic internal evaluation of in-service activities was made, and the results are attached as appended material to this report. An unusual degree of candor was reflected in these evaluation statements since they were collected in an atmosphere of mutual trust and confidence.

4. External Evaluation Procedures:

The major burden for "outside" evaluation of this project has been given to this writer. Having served as an Institute Director on two previous occasions, and having worked intensively in the field of reading improvement for many years, the opinions expressed by the evaluator might be considered to have some validity.

5. Management and Administration:

Although the proposal as originally submitted was designed and written by a member of the Ferris State College staff who subsequently accepted another position, the project was managed and administrationed with a high degree of skill by Professor Norma K. Conklin who has conducted popular and well received in-service training programs on that campus for many years.

6. Adequancy of Financial Support:

This project was fully and adequately (but not excessively) funded by Federal monies. The facilities available on the campus make it possible for these funds to be used most advantageously. The vocational-occupational orientation of the college makes Ferris a natural setting for such projects.

7. Strengths and Weaknesses of the In-Service Training Program

A. Strengths:

* Professional competence of resident staff.
* Availability of necessary instructional materials and equipment.

2014

* Appropriate campus "climate".
* A unique professional need is being met.

B. Weaknesses:

* The inclusion of visiting staff with strong vocational orientation appeared to make little contribution.
* More time should have been allowed for participants to design and develop their own instructional materials based on what they learned in the institute.
* There appears to be a need for some follow-up work with the participants after they have had a chance to try out their ideas in the classroom. (Perhaps a follow-up institute for these participants should be planned.)

Summary: This project was well conceived, effectively managed, and well staffed. I would give it an over-all rating of "superior".

A. R. Gaskill, Professor
School of Education
Central Michigan University
September 1969

2015

Appended Material

The appended material which follows consists of three elements.

A. A qualitative judgment by participants of each major daily activity during the two week institute period.

B. Anecdotal comments by participants concerning the in-service program.

C. A summary statement prepared by the Institute Director.

A.R.G.

2016

Appendix A

READING INSTITUTE FOR VOCATIONAL TEACHERS

1st WEEK

EVALUATION	Excellent	Very Good	Good	Fair	Poor
MONDAY - August 18					
Dr. Van Trump		2	14	5	1
Dr. Minelli		6	9	5	3
Dr. Storm (Tour of Campus)	3	5	10	2	2
TUESDAY - August 19					
Dr. Minelli	2	5	11	3	2
D. Franck (test)	2	8	11	2	
D. Franck (M.A.)	2	12	9		
N. Conklin (Expectancy)	3	12	5	1	
C. Cline (Levels)	1	11	6		1
Film "No Reason to Stay"	9	5	6	2	2
Problem - Levels of Achievement	2	1	9	2	
WEDNESDAY - August 20					
Evaluation of Achievement Problem	1	1	4	2	
Dr. Mel Salinger - Counseling	5	6	8	4	
Readability of Text	11	8	2		
Problem on Readability	7	7	4		
THURSDAY - August 21					
Evaluation of Readability Problem	1	4	3	1	
M. Weborg - Library	16	6	1		
Mr. McAlvey	2	10	10	1	
Mr. Steffens	3	11	7	2	
Mr. Nickodemus	2		1	1	1

2017

FRIDAY - August 22

Mr. McAlvey	2	12	6	1	
Mr. Steffens	2	13	6		
Discussion	2				

2018

READING INSTITUTE FOR VOCATIONAL TEACHERS

2nd WEEK

EVALUATION

	Excellent	Very Good	Good	Fair	Poor
MONDAY - August 25					
Vocabulary - C. Cline	7	13	5	1	
Word Attack Skills - D. Franck	9	12	3	1	
Comprehension - N. Conklin	7	11	4	1	
TUESDAY - August 26					
SQ3R - C. Cline	11	11	3	2	
Brother Courtney	13	4	2	1	
WEDNESDAY - August 27					
Brother Courtney	18	2	3		
Dr. Van Trump - Follow Up		8	11	3	1
Directed Reading Activity - D. Franck	7	12	6		
THURSDAY - August 28					
Listening - C. Cline	11	8	4	1	1
Listening - Dr. Storm	13	10	2		
FRIDAY - August 29					
Dr. Bjorkquist					

2019

Appendix B

COMMENTS OF PARTICIPANTS

Concerning the First Week of the Institute

Bob from Saginaw was not an expert. I am not rating his program but I feel he is weak in his objectives. He contradicted himself several times and reversed his statements.

Presentations of other school programs are educational in methods. The reading concern is great in this class.

I hope to find ideas to help my problems.

You're doing a tremendous job in the reading area - let's go and forget the rest.

I feel that the first one or two days would be more meaningful to me if you had introduced more reading materials, ideas, etc. Then as related interest areas incorporate your speakers into the program. Some days I thought you (plural) were speaking down to us.

So far I am pleased with the conference. I came with the intention of listening and learning all I could and I have done just that. I'm sure I will be a better teacher (at least in being more sensitive to reading problems) because of this conference.

Very well pleased thus far, enjoyed the three resource persons and their personal comments as we go along. Have learned something from every guest resource person some more than others. There have been no errors in judgment made by the director or any of the events under her control.

Hope they continue confident in their convictions that the program as planned will be productive.

More on reading and less on general things.

I think more time was spent in course procedure (curriculum) and instructional methods; than was really necessary.

I feel that this was not lost time, but I really needed more in the reading area.

This has given me an insight to teaching not only in the reading skills but in the act of teaching.

We need to keep more to the topic being presented. We wander too far at times.

2020

I am interested more in what I can do for the student and not how to diagnose his problems as I am not an expert in this.

If possible we should stay on the subject and quit going off on tangents.

What has been done so far has been very interesting and informative. Some of the problems that have been discussed do not relate to the true vocational class.

The staff who put this work together have done a very good job.

I feel that although the speakers were good, they only served as the starting points for discussions that followed - over coffee! The exchange of ideas between the participants in the institute were in most cases, more valuable than the basics presented by the staff!

At first I was not very satisfied with the meetings. I thought we would get into helps in reading right away. However, after a few days we moved into the area and I feel now that I am gaining much more help. It is nice to have different speakers to make the sessions more interesting.

Up until now, the most meaningful aspect has been the discussion on Reading related to our own fields. This is more meaningful than the speakers.

I think the most valuable part of this program is the presentations by Conklin, Cline, and Franck. Possibly because the material is new to me.

I thought the presentation by the Vocational Education Director from Petoskey was timely. I would like to see such a program in the Big Rapids area.

I thought the "human" side of understanding the poor reader was valuable.

I like what has been done to show us how to improve our teaching in the reading area.

I didn't think very much of Minelli's presentation. I like practical things.

I have enjoyed the course so far. Many of the problems that have been discussed are old problems to me and have been covered in other courses. The reading material is the most important to me and I would like to have more time on this subject.

During the first three days of the institute I did not gain anything of value. Most of the guest speakers were not inspiring in the presentation of their materials. I felt I was wasting my time.

2021

I confess, as an individual I have not contributed information from my own experiences. From what I have seen and heard, the majority of the institute has been trade and industry oriented.

I had hoped to gain more from the distributive and the secretarial areas as these are my speciality.

In future planning for institutes of this type it might be more beneficial to group participants according to their area of training and let them operate in a workshop type of situation.

As a rather withdrawn individual, I find the workshop situation gives me a better chance to join in an exchange of ideas.

I would like to see some credit given for the two week session.

I would also like to see more ideas, suggestions, procedures for improving the students reading problem.

Technical - Vocational projects and other school programs, we get at area meetings, M.E.A. conference, etc.

Stay with the problem at hand, reading institute for Vocational teachers.

Comments about the Second Week

The total experience has been most valuable - making me conscious of my own inadequacies, related to the needs of many of my students.

I thank you for the opportunity to be here.

This has been a very enjoyable informal learning program. I am now aware of things which I have taken for granted before. Two things I want to improve on and that is;

1. Vocabulary and better understanding of the textbook.

2. I would like to have more on the improvement of reading speed.

In another conference, get down to reading faster and end up with more projects in planning.

Survey the meal situation more as to having cafeteria available or opinions as to whether many like to eat around in a new community.

I probably should have had this 20 years ago.

2022

Dr. Bjorkquist was good but not the type to come at the end because of his type of delivery.

Dr. Bjorkquist was an outstanding speaker and an excellent follow-up to the weeks work. I feel he was the best of the Ph.D.'s speaking to us these two weeks.

The institute itself is a great success as far as I'm concerned and it has left me "fired up" to return to the classroom!

Overall evaluation - very good. Reading, listening, grade level of text very good. Dr. Bjorkquist did a good job of applying your work to our areas of interest.

The second week got into the meat of the subject matter. The Workshop was more valuable than any education class in the techniques of reading. Some of this material should be covered in education classes. I know that I have learned many new techniques to help my students better understand the subject matter taught.

As for the Reading Institute in its entirety I am really impressed. I have a very sincere feeling that the material covered will make me a much better teacher. The most important thing I feel is that by becoming awake I will be continually looking for student problems.

On the other side of the spectrum I felt that the speakers, although very interesting at times, as a whole weren't geared to the aspect of reading. My feeling is that those dealing with areas other than reading could have been eliminated.

To end on a good note I am glad I attended and will be looking forward to seeing everyone.

Should be able to put some of these things to use. If nothing else it should help my understanding of students reading problems.

Dr. Bjorkquist did a good job of summing up. Perhaps the best speaker we had.

Dr. Storm's talk on listening turned out to be a paraphrase of the tape.

This has been a most stimulating Workshop. One which has had as much of an impact on my personal outlook as well as my teaching as any course or series of courses will or ever could have with me. I truly cannot find words to express my feelings on the importance of this course.

I think a course should be developed for vocational as well as industrial auto teachers and it should be a REQUIRED course. What good is the knowledge we learn if we are unable to properly convey and effectively teach our students.

2023

I would be very interested in a follow-up Workshop within the next two years.

Thanks again for the very stimulating and enlightening Workshop.

The first week was of less value than the second week. The second week provided the things that I expected and desired from this Workshop. All teachers should have refresher courses or Workshops of this type often, to improve their sympathy and understanding of the students problems.

I am very happy to have been a part of this program.

Dr. Bjorkquist was very good. He gave me several good ideas that I am eager to use.

The Reading Institute this past week has been very rewarding and I am so grateful for having the opportunity of attending. Keep up with the good work.

This has been a very helpful experience in learning techniques and listening techniques. This will start me on the way to reaching my students - thank you.

The readability portion of this seminar are very helpful to me in training my students to become better on their tests and reports and to understand the terminology of our course - thank you very much.

My attitude was most changed this second week, it has been most challenging. With the material presented this second week I can see how it ties in with the first week presentation.

Dr. Bjorkquist did an excellent job of recapitulatory and wrap up. Now feel like I am in the middle of the forest and equipped with much information for a way or direction to start out.

Dr. Bjorkquist was fair. The conference was very good. I have learned a great deal and it will be of value many years hence. My teaching should show a definite improvement.

However, I do believe some of the material was elementary. It was hard to keep at continued attention on some of the texts administered. Also sometimes the persons presenting material would get carried away with what they were doing and lose many people.

The speakers were fair. This is an area for need of improvement. Try to get better and more speakers.

2024

Again, I enjoyed it very much. I believe one week could have covered the material. Maybe it could be condensed if done in the future. Mrs. Conklin you did a nice job and you should be congratulated.

As we have all observed the second week was much more meaningful to us. The program was presented well, (the second week) although it was necessary to revive our interest. The use of speakers was well chosen and the topic on listening was informative and educational.

This was a good experience, it might have been better if we had had the second week to taper off and time for discussion.

Food: Make lunch compulsory.

The second week of the Reading Institute has been very beneficial. I have learned and applied techniques which I plan to use during the coming school year to test the ability of my students.

I also have appreciated the association with the many other teachers in the group and through an exchange of ideas have learned much in how others handle various problem situations.

Thank you for providing a wonderful learning experience. May we have many more like it.

Dr. Bjorkquist was the best of the speakers we had with a Ph.D.

Speakers with a knowledge of the subject area of the listeners are more effective.

I thought the presentations and material by Conklin, Cline, and Franck were of the most value to me.

I consider the institute very beneficial.

Dr. Bjorkquist was very good in his summary of the Workshop.

The second week was excellent - things I have listed to remind myself to do as inspired by the material you have presented;

1. Pay closer attention to readability in selecting new texts.

2. Help guide students to better use of printed word.

3. Check reading assignments more closely.

4. Check with college people on amount of this kind of thing being done to help students before going out in field.

2025

Dr. Bjorkquist was excellent. Overall this has been a rewarding experience. At times I had difficulty in seeing relationships, but for the most part the information I received I can use. It has been enjoyable, it has been exciting.

The second week was great. The speaker on Friday used good techniques and drew things together. These sessions in the school year should be good. Maybe we could hear some of your tapes at that time.

Let's get the reading test done as soon as possible.

Brother Courtney was very good. I have already started reading some of the books on his list.

The last week was the most enjoyable and meaningful. The development of the instructional text material could, in my opinion be extended to 1/2 days or more.

During the first week the time went very slowly and painfully at times. The propaganda about the school should have been omitted.

As I have previously stated, I have thoroughly enjoyed this conference. I'm sure that I will be more aware of the reading problems of our students. I was somewhat apprehensive about the conference - especially after the first two days, the conference did take on a meaning for me. I thought the banquet was very delightful and Brother Courtney was absolutely marvelous.

Housing for families should be included. I don't think the Housing Director extended his department to make our stay too enjoyable. I wasn't impressed with the meals. I hope you will work on this.

In summary the conference on the whole was well organized and the presentations were very good.

I have gained new ideas which I will try this school year. Time is a problem with me as I will be working on my masters and teaching Adult Education. The class has had slow periods for me and I'm never motivated for busy work tests. I failed to get the meaning for some tests.

The speaker Dr. Bjorkquist was the best because I could relate to his level. He did speak too slowly.

I am leaving with good intentions.

2026

This was a very fine Workshop. Presented at a great facility during the most enjoyable weather. Conducted by three dedicated and inspired persons who possess a treasure of background information and knowledge. Look forward to getting on the job and trying out the materials.

The last speaker was very fine, he talked a bit slowly however, his subject matter was of much value.

All of the speakers contributed to the Workshop, some more than others.

The group was great.

2027

Appendix C

Institute Director's Evaluation

The Reading Institute ended on a much higher "note" than it started. The participants were not enthusiastic about the Voc-Ed speakers although they were selected because they had unique programs--a team teaching approach. However, I could not change the program as the speakers had been engaged for a particular time.

When we (Staff) presented reading, the participants' attitude changed, and they were most pleased. Two or three participants kept us informed as to interests and needs of the group; and we geared as much of the program as possible to meet these needs.

Strengths:

1. The Staff's presentations on overall picture of developmental reading. (Note program)

2. When one speaker didn't come, we substituted a library session which proved to be an excellent decision.

Weaknesses:

1. Vocational Education resource people. Participants did not want to hear from Voc-Ed people.

2. More activities needed, such as: a presentation on building vocabulary followed by work experience in developing vocabulary lessons in their own field.

6. Evaluation (Continued)

Dr. Hart's Material -- The teacher-participants were impressed with the value of these units; however, they felt many illustrations should be added in order to make the lessons meaningful.

Phase III -- September 1, 1969 - June 30, 1970

Pre- and Post-Reading Test - Showing Increase and/or Change

RAW SCORE INCREASE IN RATE AND
PERCENTAGE OF INCREASE AND/OR CHANGE
IN VOCABULARY AND COMPREHENSION

	Rate	Vocabulary	Comprehension
Special Education	21.5 wpm	- 1.1%	- .3%
9th Grade	15.3 wpm	8.0%	13.0%
10th Grade	6.9 wpm	1.9%	13.8%
11th Grade	21.3 wpm	1.5%	12.0%
12th Grade	32.8 wpm	.3%	9.5%
College Freshmen (in Trade Technical two-year programs)	27.5 wpm	2.5%	4.8%

Observations

Dropouts -- 84 or 10.5% of the 802 students dropped out of school

In classes predominately black male, 24.5% dropped out

In classes predominately black female, 7.7% dropped out

Post High School -- 91 or 33.8% of the 269 12th grade students have arranged to attend some institution of higher learning.

2029

Observations (Continued)

Honor Point Average -- Each teacher-participant was asked to collect and record each student's HPA for both 1969 and 1970. Reports on only 394 of the 802 students were returned; however, this is over 50% of the students left in school.

BREAKDOWN OF HONOR POINT AVERAGES

Grade	Total Students	HPA - All Students		Total Boys	HPA Boys		Total Girls	HPA Girls	
		1969	1970		1969	1970		1969	1970
9th	1	1.90	2.06	1	1.90	2.06			
10th	54	1.77	1.79	54	1.77	1.79			
11th	99	1.94	1.97	79	1.89	1.92	20	2.13	2.27
12th	177	1.92	1.94	113	1.84	1.86	64	2.30	2.34
College Freshmen	59	2.59	2.62	59	2.59	2.62			

Visitations -- Winter Quarter

Observations by Mrs. Conklin, Mr. Shanahan, and Dr. Storm:

1. What is the general attitude of students?

   Very Good - 3 Satisfactory - 17 Fair - 3

2. Does attendance seem to be reasonably good?

   Very Good - 3 Satisfactory - 13 Fair - 7

3. Are most of the students participating in class discussion and/or activities?

   Yes - 21 No - 2 (If not closely supervised, students do not participate)

4. Is the attitude of the teacher toward the students acceptable?

   Yes - 21 No - 1 (To permissive)

   No Comment - 1

Visitations (Continued)

5. Additional Comments.

"Stress is placed on the use of pertinent reference materials."

Teacher-participant "assigned special study periods to his students. He uses a large number of instructional pamphlets supplied by the Agriculture Extension Service."

"Students are allowed and encouraged to go to the library to research problems encountered in shop work."

Teacher-participant "uses a good variety of instruction sheets in his classes. He also uses vocabulary lists with each new unit of instruction."

Teacher-participant "has not had time to implement the reading improvement procedures because of heavy work load."

"Special study period assigned to students."

Teacher-participant "increased both reading and writing assignments for his students this year."

Teacher-participant "has introduced more reading materials in his program than he had previously."

Teacher-participant "has been borrowing reading improvement materials and equipment from the school's reading specialist for use with his own students."

"Very little academic work can be carried out in the building the class is housed in. The drafting program is well organized and emphasis is placed on outside reading assignments."

Teacher-participant "requires more reading assignments as a result of the Workshop and has a number of technical journals available in the lab area for student use."

"Due to the large classes and the different level of the students, the teacher has a very difficult task. An example is his printing class which has first term students and advanced students in the same class. I don't envy him his job."

"Impressed with general attitude of the teacher."

"Facilities at the school are especially good."

Teacher-participant "seems very appreciative of the good he got out of the Institute."

"Presentation of vocabulary is biggest problem, but teacher is working hard at it and trying to be innovative."

Overall Comments by Teacher-Participants

I had not realized that I could really be of assistance in helping kids to learn how to read. Some of the means and methods are most helpful to me in my situation.

The reading tests were really an "eye-opener" for me. I knew I had problems in my teaching situation but had not supposed they were so serious. I began to understand why many of my students were not showing the interest I had anticipated they would or should have. I feel that I can be more considerate of my students and of some assistance because of participation in this Institute.

To evaluate the Reading Institute I find difficult simply because I have learned and used so many approaches, techniques, and ideas that it would take me hours to relate this to you.

I was able to use many ideas presented to me last summer. To say that they helped more than any other method cannot be determined yet ...in organization of courses I tried some of the ideas, and I do think that it helped me close the communication gap faster than some other methods might have done.

My problems were many, and I see more and more that these kids need more from me on how to learn terms (vocabulary) as they are the best way of communication between teacher and student.

What have I done with the information (Summer Workshop)?
Became aware that students do have real problems in reading
Worked with vocabulary
Stimulated interest in reading periodicals and other literature

I must say that the Institute has changed my job; I am now 1/10 Reading Teacher in all of my classes.

As a result of our sessions, I am now aware of the problems of reading.

I now stress more such things as vocabulary.

I have used a readability formula in helping select a new text.

This year has been a real eye-opener for me and my attitude toward teaching techniques and student learning. I have a new awareness of the needs of students. This year has produced growth for me as a teacher, and I am excitedly looking forward to next year when the fruits of the Institute will be harvested in my students. To say there has been a great change in the learning of my students would be unrealistic but to say that a definite change is beginning to occur would be an objective observation.

I think that overall this Reading Institute has been a meaningful experience for me, and I hope it will be beneficial for my students.

Overall Comments (Continued)

I think another result of this Reading Institute was that I have made a conscious effort to incorporate many of these techniques into my teaching. Another aspect of the Institute which I thought helpful was our meetings throughout the year at the different schools.

I guess you would say my chief benefit from the Institute has been a more defined vocabulary teaching tool.

One of the activities that has been carried out in reading has been the use of technical vocabulary that has been reproduced and handed out to the students.

The observation that I have about the reading of my students is that seven have improved noticeably.

I think the way the Institute was handled would be hard to improve upon.

The Institute has made me more conscious of the students and their reading problems. I would like to see courses of this nature continued and enlarged for many more teachers.

This program has had value for me. I still have my same reading problems that encouraged me to enter your program. At best I've found systems that won't work for me. I realize my present textbook does not reach my "C" and below students.

III. Conclusions

The uniqueness of the EPDA Institute was that it was a Reading Institute geared to Vocational Teachers of employment-bound students.

There are several observations that indicate the success of the program:

1. All of the teacher-participants stayed with the Institute for the entire period.

2. The teacher-participants initiated some reading skills in their Content Areas.

3. Two schools are developing secondary reading programs particularly geared to the employment-bound students.

4. One participant enrolled in a Method Reading Course.

5. Over half of the participants were anxious to continue the project.

6. All students tested except the Special Education Students improved in all areas.

III. Conclusions (Continued)

7. Students showed improvement in HPA.

8. Teacher-participants showed more concern for students with reading problems.

9. 91 students who had been labeled "employment-bound" have enrolled in some institution of higher learning.

Weaknesses:

1. Summer Workshop was too short.

2. Teacher-participants did not have time to develop reading lessons pertinent to their particular field.

3. Visitations to the schools were difficult because of weather conditions and distance.

VT 012 183
Iverson, Maynard J., Comp.
1970-71 Directory of Post-Secondary Education in Agricultural and Natural Resource Occupations.

Ohio State Univ., Columbus. Dept. of Agricultural Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Nov70 43p.

DESCRIPTORS - *DIRECTORIES; *POST SECONDARY EDUCATION; *AGRICULTURE; *NATURAL RESOURCES; *AGRICULTURAL EDUCATION; VOCATIONAL SCHOOLS; TECHNICAL OCCUPATIONS; TECHNICAL EDUCATION

ABSTRACT - This national directory of postsecondary education in agricultural and natural resource occupations was compiled from information received from requests sent to persons listed in earlier directories of post-high school institutions. Information is listed alphabetically by state and includes: (1) contact persons on a statewide basis, (2) institutions in alphabetical order within the state, and (3) programs offered by each institution. (GB)

VT 012 183

ED0 57254

1970-71
DIRECTORY of POST-SECONDARY EDUCATION
in
AGRICULTURAL AND NATURAL RESOURCE OCCUPATIONS

Compiled by
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Research Associate
Department of Agricultural Education
The Ohio State University

November, 1970

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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VT012183

FOREWORD

Post-secondary, less-than-baccalaureate level vocational, technical or transfer programs comprise the fastest growing segment of education in America today. Agriculture has shared in this development in terms of ecological, natural resource and applied biological science programs as well as in production-related offerings. In a growing field, much is gained through exchange of ideas and communication--and a national directory can be a useful link in this process.

During the summer of 1970, while investigating the status of program-related student organizations, the author sought a current list of institutions offering post-secondary programs in agriculture. Finding the directories then available were for the 1968-69 school year, the writer sent requests for up-dated listings to officials responsible in the respective states. The information thus received became the basis for this publication.

Where responses were incomplete, data were secured from earlier directories.[1, 2] If no agriculture department chairman or chief instructor was identified from among a group of instructors, the compiler listed the first name given. Institutions appear in alphabetical order and offerings are listed by area or specific curricular name. In most cases the terms "agriculture" or "agricultural" have been deleted from the program title in order to conserve space. Although the information contained herein has been assembled with due care and is believed to be reasonably accurate and complete, no guarantee is made or implied.

The editor extends his sincere appreciation to Mr. H. N. Hunsicker, the Agricultural Education Staff of The Ohio State University, the respective state contact officials and Mitzi Iverson, typist, for their contributions to the development of this directory. It is hoped that this effort will help to improve communication and thus encourage continued growth and sophistication of the field.

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[1] "1968-69 Directory of Technical Education Curriculums in Agriculture and Natural Resources in the United States of America", compiled by Fred Wm. Manley, Department of Community Colleges, State Board of Education, (Raleigh, North Carolina), September, 1969.

[2] "1968-69 Directory--One-Year and Two-Year Post-High School Institutions Which Offer Programs of Instruction in Agriculture", U. S. Office of Education. (Mimeo).

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DIRECTORY OF
POST-SECONDARY EDUCATION
IN AGRICULTURAL AND NATURAL RESOURCE OCCUPATIONS

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
ALABAMA T. L. Faulkner State Director of Vocational Education Montgomery 36104	NORTHWEST ALABAMA STATE Phil Campbell 35581 Cecil E. Clapp, Instr.	Ornamental Hort.
ALASKA Lester W. Batterton Supt., Trades, Ind. & Fisheries State Department of Ed. Alaska Office Bldg. Juneau 99801	NO PROGRAMS OFFERED	
ARIZONA Carlos H. Moore State Supervisor Agricultural Education 412 Arizona State Building Phoenix 85007	ARIZONA WESTERN COLLEGE P. O. Box 929 Yuma 85364 Jim Willis, Chmn.	Production Supplies Ornamental Hort. Other Ag.
	CENTRAL ARIZONA COLLEGE P. O. Box 1407 Coolidge 85228 Dean Merrell	Production Agri-Business Mechanics
	EASTERN ARIZONA COLLEGE 616 Church Street Thatcher 85552 Donald A. Foote	Production Supplies Resources Other Ag.
	GLENDALE COMMUNITY COLLEGE 6000 W. Olive Avenue Glendale 85301 R. Clair Decker	Production Ornamental Hort.
	MESA COMMUNITY COLLEGE 1833 W. Southern Avenue Mesa 85201 Jim Claridge	Production Supplies Ornamental Hort. Other Ag.

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
ARKANSAS James H. Shepard Director Agricultural Education State Education Building Little Rock 72201	ARKANSAS A & M COLLEGE College Heights 71655 Percy Grissom	Production Forestry Mechanics
	ARKANSAS A M & N COLLEGE Pine Bluff 71601 R. C. Haynie	Supplies Mechanics Ornamental Hort.
	ARKANSAS STATE UNIVERSITY State University 72467 Dr. O. P. Nail	Production Mechanics
	ARKANSAS STATE UNIVERSITY (BEEBE BRANCH) Beebe 72012 Denver Nettles	Production Supplies Mechanics Products Resources
	ARKANSAS POLYTECHNIC COLLEGE Russellville 72801 Melvern Watson	Production Forestry
	DELTA VOCATIONAL-TECHNICAL SCHOOL P. O. Box 279 Hwy. 63 West Marked Tree 72365 William Stanley	Mechanics
	FOOTHILLS VOCATIONAL-TECHNICAL SCHOOL 1800 East Moore Avenue Searcy 72143 Luther Hardin	Mechanics
	PETIT JEAN VOCATIONAL SCHOOL P. O. Box 586 Morrilton 72110 Jack McDuff	Ornamental Hort.
	PINES VOCATIONAL-TECHNICAL SCHOOL 2220 West 18th Pine Bluff 71601 Leon Coker, Dir.	Mechanics

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
ARKANSAS--Cont'd.	RED RIVER VOCATIONAL-TECHNICAL SCHOOL P. O. Box E Hope 71801 J. Matt McCauley	Forestry
	SOUTHERN STATE COLLEGE Magnolia 71753 O. A. Childs	Production Mechanics Ornamental Hort. Forestry
	UNIVERSITY OF ARKANSAS Fayetteville 72701 Dean Glenn Hardy	Production Supplies Hort. Mechanics
CALIFORNIA Ralph E. Matthews Agricultural Education Consultant California Community Colleges 825 Fifteenth Street Sacramento 95814	AMERICAN RIVER COLLEGE 4700 College Oak Drive Sacramento 95841 George Dobbins	Ornamental Hort. Forestry
	ANTELOPE VALLEY COLLEGE 3041 West Avenue K Lancaster 93534 Joe Randolph	Production Ornamental Hort. Other Ag.
	BAKERSFIELD COLLEGE 1801 Panorama Drive Bakersfield 93305 Holger Hansen, Dir.	Production Supplies Mechanics Ornamental Hort. Forestry
	BUTTE JUNIOR COLLEGE P. O. Box 566 Durham 95938 Frank Hutchinson, Dir.	Production Supplies Mechanics Ornamental Hort. Resources
	CITY COLLEGE OF SAN FRANCISCO 50 Phelan Avenue San Francisco 94112 Harry E. Nelson	Mechanics Ornamental Hort.

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
CALIFORNIA--Cont'd.	COALINGA COLLEGE 300 Cherry Lane Coalinga 93210 Byron Harrison, Dir.	Production Supplies Mechanics
	COLLEGE OF SAN MATEO 1700 W. Hillsdale Blvd. San Mateo 94402 Alexander Graham, Dir.	Ornamental Hort.
	COLLEGE OF THE DESERT 43-500 Monterey Avenue Palm Desert 92260 Ted Sypolt, Dir.	Production Ornamental Hort. Other Ag.
	COLLEGE OF THE REDWOODS 1040 Del Norte Street Eureka 95501 Laurel Richter	Production Forestry Other Ag.
	COLLEGE OF THE SEQUOIAS 915 South Mooney Blvd. Visalia 93277 Bruce F. Jensen, Dir.	Production Supplies Mechanics Ornamental Hort.
	COLLEGE OF THE SISKIYOUS Rt. 1, Box 1025 Weed 96094 Ray Platt, Dir.	Production Forestry
	FULLERTON JUNIOR COLLEGE 321 East Chapman Avenue Fullerton 92634 William P. Morgan	Production Mechanics Ornamental Hort. Forestry Other Ag.
	HARTNELL COLLEGE 156 Homestead Avenue Salinas 93901 Earl Penix, Dir.	Production Products
	IMPERIAL VALLEY COLLEGE P. O. Box 158 Imperial 92251 E. J. Mellinger	Production Mechanics

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
CALIFORNIA--Cont'd.	LASSEN JUNIOR COLLEGE 1100 Main Street Susanville 96130 John Hamilton, Dir.	Production Forestry
	LOS ANGELES PIERCE 6201 Winnetka Avenue Woodland Hills 91364 Bernyl Sanden, Coord.	Production Ornamental Hort.
	MERCED JUNIOR COLLEGE 920 J Street Merced 95340 Gary Clausen	Production Ornamental Hort.
	MERRITT COLLEGE 5714 Grove Street Oakland 94609 Emilie Labadie, Jr.	Ornamental Hort.
	MIRA COSTA COLLEGE Barnard Drive Oceanside 92054 William H. Thompson	Supplies Ornamental Hort. Resources Other Ag.
	MODESTO JUNIOR COLLEGE College Avenue Modesto 95350 Ugo P. Lea	Production Supplies Mechanics Products Ornamental Hort. Resources Forestry Other Ag.
	MOORPARK COLLEGE 7075 Campus Road Moorpark 93021 Don Anderson, Dir.	Production
	MT. SAN ANTONIO COLLEGE 1100 N. Grand Avenue Walnut 91789 G. Allen Sherman, Dean of Ag. Services	Production Supplies Mechanics Products Ornamental Hort. Resources Forestry Other Ag.

State/ Contact Person/Title Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
CALIFORNIA--Cont'd.	NAPA JUNIOR COLLEGE 2277 Napa Vallejo Highway Napa 94558 Wilmer Nord, Dir.	Ornamental Hort.
	ORANGE COAST COLLEGE 2701 Fairview Road Costa Mesa 92626 John Lenaton, Dir.	Production Mechanics Ornamental Hort.
	PALO VERDE COLLEGE 811 West Chanslerway Blythe 92225 Earl P. Johnson	
	PORTERVILLE COLLEGE P. O. Box 952 Porterville 93257 Sam Baker	Production Mechanics Forestry
	REEDLEY COLLEGE Reed & Manning Avenue Reedley 93654 Bob Bristow	Production Mechanics Ornamental Hort.
	SAN BERNARDINO VALLEY COLLEGE 701 S. Mt. Vernon San Bernardino 92403 Glen E. Arthur, Dir.	Ornamental Hort.
	SAN DIEGO MESA COLLEGE 7250 Artillery Drive San Diego 92111 Marshall Ploff, Dir.	Ornamental Hort.
	SAN JOAQUIN DELTA COLLEGE 3301 Kensington Way Stockton 95201 Dean McNeilly	Production Supplies Mechanics Ornamental Hort. Resources Forestry

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CALIFORNIA--Cont'd.	SANTA ROSA JUNIOR COLLEGE 1501 Mendocino Avenue Santa Rosa 95401 John Edwards, Dir.	Forestry
	SHASTA COLLEGE Old Oregon Trail 299 E, Redding 96001 Bill Burrows	Production Supplies Mechanics Products Ornamental Hort. Resources Forestry
	SIERRA COLLEGE 5000 Rocklin Road Rocklin 95677 Ron Bryant, Dir.	Production Mechanics Ornamental Hort. Resources Forestry
	VENTURA COLLEGE 4667 Telegraph Road Ventura 93003 Dave Kleine, Dir.	Production Supplies Ornamental Hort. Other Ag.
	YUBA COLLEGE 2088 N. Beale Road Marysville 95901 George W. Vaught	Production Mechanics Ornamental Hort. Other Ag.
COLORADO Darrell Anderson Supervisor Agricultural Education 207 State Services Bldg. Denver 80203	COLORADO MOUNTAIN COLLEGE Glenwood Springs 81601 A. D. Anderson	Production
	COMMUNITY COLLEGE OF DENVER P. O. Box 16745 Denver 80216 James O'Shea, Inst.	Ornamental Hort.
	LAMAR COMMUNITY COLLEGE Lamar 81052 James Shane, Voc. Dir.	Other Ag.

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COLORADO--Cont'd.	NORTHEASTERN JUNIOR COLLEGE Sterling 80751 Hilbert Kahl, Voc. Dir.	Supplies Ornamental Hort. Other Ag.
	TRINIDAD STATE JUNIOR COLLEGE Trinidad 81082 Fred Sola, Inst.	Mechanics
CONNECTICUT Llewellyn L. Turner State Supervisor Agricultural Education State Department of Education Box 2219 Hartford 06115	NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE Park Place East Winsted 06098 Jerome Leventhal	Ornamental Hort.
	RATCLIFFE HICKS SCHOOL OF AGRICULTURE University of Connecticut Storrs 06268 John P. H. Brand, Dir.	Animal Science Nursery Mgt. Floriculture Food Tech.
DELAWARE Ralph Barwick Agricultural Hall College of Ag Sciences University of Delaware Newark 19711	S. HALLOCK DUPONT SCHOOL OF APPLIED AGRICULTURAL SCIENCE Newark 19711 Ralph P. Barwick	Production Mechanics Ornamental Hort.
FLORIDA Wm. R. Jeffries Consultant, Post High School Programs, State Dept. of Ed. Room 275, Knott Bldg. Tallahassee 32304	BRADFORD-UNION AREA VOCATIONAL-TECHNICAL CENTER 609 North Orange Street Starke 32091 William E. Dampier	Mechanics Ornamental Hort.
	BROWARD JUNIOR COLLEGE 3501 S. W. Davie Road Fort Lauderdale 33314 Dudley A. Palmer	Landscape Tech. Test Control Tech.
	CENTRAL FLORIDA JUNIOR COLLEGE Ocala 32670 Warren N. McMillen	Ag. Tech.

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
FLORIDA--Cont'd.	DAYTONA BEACH JUNIOR COLLEGE P. O. Box 1111 Daytona 32015 Martin J. Wittbold	Supplies Ornamental Hort.
	DIXIE-TAYLOR VO-TECH SCHOOL P. O. Box 780 Perry 32347 T. C. Campbell	Forestry
	INDIAN RIVER JUNIOR COLLEGE 3209 Virginia Avenue Fort Pierce 33450 Ted Swingle	Production Mechanics
	LAKE CITY JUNIOR AND FOREST RANGER COLLEGE Lake City 32055 Jerry Chessman, Inst.	Landscape Operations Forestry Golf Course Operations
	MANATEE AREA VOCATIONAL AND TECHNICAL CENTER 5603 34th St. West Bradenton 33505 Charles H. Williams	Mechanics Ornamental Hort.
	PINELLAS VO-TECH CENTER 6100 154th Ave. North Clearwater 33516 Charles E. Bingaman, Inst.	
	POLK JUNIOR COLLEGE Winter Haven 33880 Ken Rauth, Inst.	Products Ornamental Hort.
	POLK VOCATIONAL-TECHNICAL CENTER Rt. 1, Box 71 E Bartow 33830 Manning Carter, Jr.	Mechanics Other Ag.
	SOUTH FLORIDA JUNIOR COLLEGE P. O. Box 845 Avon Park 33825 Lewis Miller	Production Mechanics

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FLORIDA--Cont'd.	SUWANNEE-HAMILTON AREA VOCATIONAL-TECHNICAL and ADULT CENTER 415 Pinewood Drive, S. W. Live Oak 32060 H. Wilson Suggs	Mechanics Ornamental Hort. Forestry
GEORGIA J. L. Branch, State Supr. Agricultural Ed., State Dept. of Education, 325 State Office Building Atlanta 30334	ABRAHAM BALDWIN AGRICULTURAL COLLEGE ABAC Station Tifton 31794 Dr. F. S. McCain	Production Mechanics Forestry Other Ag.
	AUGUSTA AREA VOCATIONAL-TECHNICAL SCHOOL 2025 Lumpkin Road Augusta 30900 Terry Wilson	Agri-Marketing
	NORTH GEORGIA TECHNICAL & VOCATIONAL SCHOOL Clarkesville 30523 Harold Cunningham	Ornamental Hort.
	SAVANNAH AREA VOCATIONAL-TECHNICAL SCHOOL 101 Wheathill Road Savannah 31401 A. L. Pollock	Forestry
	SOUTH GEORGIA TECHNICAL & VOCATIONAL SCHOOL P. O. Box 560 Americus 31709 Jerry R. Bowen	Mechanics
	VALDOSTA AREA VOCATIONAL-TECHNICAL SCHOOL Rt. 1, Box 211 Valdosta 31601 Lamar Holloway, Dir.	Agri-Marketing
	WAYCROSS AREA VOCATIONAL-TECHNICAL SCHOOL 1701 Carswell Avenue Waycross 31501 M. W. Higgenbotham	Forestry

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GUAM Samuel S. Cespedes Assoc. Supt., Voc. Ed. Department of Education Agana 96910	NO PROGRAMS OFFERED	
HAWAII Thomas G. Hatakeyama Program Specialist Agricultural Education State Dept. of Ed. Box 2360 Honolulu 96804	NO PROGRAMS OFFERED	
IDAHO Ralph W. Edwards State Supervisor Agricultural Education 518 Front Street Boise 83706	BOISE STATE COLLEGE 1907 Campus Drive Boise 83706 Neldon D. Oyler	Hort. Service Tech.
	COLLEGE OF SOUTHERN IDAHO Box 1238 Twin Falls 83301 D. Herschel Boydstun	Agri-Business
	EASTERN IDAHO VOCATIONAL SCHOOL Idaho Falls 83401 Mac Dean Kump	Agri-Business
	IDAHO STATE UNIVERSITY Pocatello 83201 Leslie G. Jackson	Crop & Soil Tech.
	NORTH IDAHO JUNIOR COLLEGE Coeur d'Alene 83814 Clarence E. Stillwell	Forestry Tech.
	VALLIVUE POST HIGH SCHOOL PROGRAM 715 Albany Street Caldwell 83605 Chester Roberts	Agri-Equipment

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ILLINOIS Harold W. Homann, Consultant Applied Bio. & Ag'l. Occ. 405 Centennial Building Springfield 62706	BELLEVILLE JUNIOR COLLEGE 2555 West Boulevard Belleville 62221 Fred Barber	Agri-Business
	BLACK HAWK COLLEGE East Campus P. O. Box 489 Kewanee 61443 Eldon Aupperle	Production Supplies
	DANVILLE JUNIOR COLLEGE 2000 East Main Street Danville 61832 Jerald Binkley	Production Supplies Ag. Mech. Ornamental Hort.
	HIGHLAND COMMUNITY COLLEGE 511 West Stephenson Freeport 61032 Robert Van Rheeden	Agri-Management Supplies Mechanics
	ILLINOIS CENTRAL COLLEGE P. O. Box 2400 East Peoria 61611 William Martinie	Production & Mgt. Supply & Service Mechanics Tech. Ag. Marketing
	ILLINOIS VALLEY COMMUNITY COLLEGE Rural Route 1 Oglesby 61348 Donald Wiechman	Agronomy Tech.
	JOLIET JUNIOR COLLEGE 201 East Jefferson Joliet 60432 Max Kuster	Production Supplies
	KANKAKEE COMMUNITY COLLEGE Box 888 Kankakee 60901 John Hacker	Production Supplies Mechanics
	KASKASKIA COLLEGE Shattuc Road Centralia 62801 Donald Hobbs	Production

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ILLINOIS--Cont'd.	KISHWAUKEE COLLEGE P. O. Box 29 Malta 60150 Donald Higgs	Farm Mgt. Agri-Business
	LAKE LAND COLLEGE 1921 Richmond Mattoon 61938 E. J. Dunphy	Supplies Mechanization
	LINCOLN LAND COMMUNITY COLLEGE 3865 South Sixth Street Springfield 62703 William R. Craig	Farm Bus. Mgt. Ag'l. Mechan.
	MCHENRY COUNTY COLLEGE 6200 Northwest Highway Box 415 Crystal Lake 60014 Donald Barrett	Ag'l. Chemical Tech. Ornamental Hort.
	OLNEY CENTRAL COLLEGE 305 North West Street Olney 62450 E. L. Bosomworth	Production Supplies
	PARKLAND COLLEGE 2 Main Street Champaign 61820 William Annin	Supplies Farm Equip. Tech. Farm Equip. Ser. Products
	REND LAKE COLLEGE 315 South 7th Street Mt. Vernon 62864 Mark Kern	Production Supplies Mechanization
	CARL SANDBURG COLLEGE 139 South Cherry Street Galesburg 61401 Dr. William D. Masters	Production Supplies Resources
	SHAWNEE COMMUNITY COLLEGE Shawnee College Road Ullin 62992 Hartzel Black	Production Resources

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ILLINOIS--Cont'd.	SAUK VALLEY COLLEGE R. R. #1 Dixon 61021 E. L. Rice	Production Agri-Business Mechanics
	SOUTHEASTERN JUNIOR COLLEGE 333 West College Street Harrisburg 62946 Grover C. Burkett	Supplies Mechanics
	SPOON RIVER COLLEGE 102 East Elm Street Canton 61520 Harold Huber	Production Mechanics
	WABASH VALLEY COLLEGE 2222 College Drive Mt. Carmel 62863 Edward Bennett	Agri-Business Mechanization
	WILBUR WRIGHT CAMPUS Chicago City College 3400 North Austin Avenue Chicago 60634 R. LeFevour	Ornamental Hort.
INDIANA Dewey W. Stewart State Supervisor Agricultural Education State Dept. of Public Instruction 401 State House Indianapolis 46204	VINCENNES UNIVERSITY Vincennes 47591 William Spence, Voc. Dir.	Vocational Hort.
IOWA Ron Jarchow, Chief Post-Secondary Service Grimes State Office Bldg. Des Moines 50319	AREA VOCATIONAL COMMUNITY COLLEGE, NO. 10 4401 Sixth Street Cedar Rapids 52406 David Jensen	Ornamental Hort. Other Ag.

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IOWA--Cont'd.	AREA XI COMMUNITY COLLEGE 2501 Vine Street West Des Moines 50265 O. J. Shadel, Dir.	Production
	EASTERN IOWA COMMUNITY COLLEGE (AREA IX) 1829 State Street Bettendorf 52772 R. H. Schultz, Dir.	Production Supplies
	MUSCATINE COMMUNITY COLLEGE 152 Colorado St. Muscatine 52761 F. L. Clover	
	HAWKEYE INSTITUTE OF TECHNOLOGY (AREA VII) Airline & Hwy. 57 Box 8015 Waterloo 50704 Virgil Christensen	Production Mechanics
	IOWA CENTRAL COMMUNITY COLLEGE 330 Avenue M Fort Dodge 50501 John Bartlett	Supplies Mechanics
	IOWA LAKES COMMUNITY COLLEGE 119 South 6th Street Estherville 51334 Marlin L. Edwards Leonard S. Stronske	Supplies
	IOWA TECHNICAL AREA XV SCHOOL DISTRICT Ottumwa Industrial Airport Bldg. # 5 Ottumwa 52501 Harold L. Norris	Mechanics
	IOWA WESTERN COMMUNITY COLLEGE 321 16th Avenue Council Bluffs 51501 Oren Beatty	Mechanics

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IOWA--Cont'd.	NORTH IOWA AREA COMMUNITY COLLEGE 220 E. State Mason City 50401 Roger Holcomb	Supplies Mechanics
	NORTHEAST IOWA AVTS (AREA 1) 142 Main Street Calmer 52152 Bob Ruen	Production Supplies
	NORTHWEST IOWA VOCATIONAL SCHOOL (AREA IV) Hwy. 18 West Sheldon 51201 Robert St. Clair	Production
KANSAS Harold Shoaf Executive Secretary State Board for Vocational Education 120 East 10th Street Topeka 66612	COWLEY COUNTY JUNIOR COLLEGE AVTS DIVISION 125 South 2nd St. Arkansas City 67005 Richard Tredway	Production Supplies
	DODGE CITY COMMUNITY JUNIOR COLLEGE Dodge City 67801 Howard N. Acott	Other Ag.
	FLINT HILLS AVTS Emporia 66801 Bob Farrar	Production
	KAW AVTS Topeka 66603 Don Brock	Supplies
	MCPHERSON CENTER Central Kansas AVTS 801 E. 1st Street McPherson 67460 Richard Ramsdale	Production Other Ag.
	NORTH CENTRAL KANSAS AVTS Box 626 Beloit 67420 Gary Jarmer	Production Mechanics

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KANSAS--Cont'd.	NORTHWEST KANSAS AVTS Goodland 67735 Larry Kerns	Mechanics
	SOUTHEAST KANSAS AVTS Coffeyville 67337 Eldred Harris	Production
	SOUTHEAST KANSAS AVTS Columbus 66725 Dean Knewtson	Mechanics
KENTUCKY Dr. Stanley Wall Head, University Community College System University of Kentucky Lexington 40500	ASHLAND COMMUNITY COLLEGE Ashland 41101 Robert Goodpaster	Forestry
	EASTERN KENTUCKY UNIVERSITY Richmond 40475 William Householder	Mechanics Ornamental Hort.
	FORT KNOX COMMUNITY COLLEGE Fort Knox 40120 James A. Jones	Production Forestry
	HENDERSON COMMUNITY COLLEGE Henderson 42420 Carl Boyd	Supplies Forestry
	HOPKINSVILLE COMMUNITY COLLEGE North Drive Hopkinsville 42240 Dr. Clyde L. Lewis	Other Ag.
	JEFFERSON COMMUNITY COLLEGE Louisville 40201 James Hawkins	Ornamental Hort.
	JEFFERSON COUNTY AREA VOCATIONAL SCHOOL Jeffersontown 40029 Bill L. Evans, Regional Superintendent	Horticulture

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KENTUCKY--Cont'd.	MOREHEAD STATE UNIVERSITY Morehead 40351 Dr. Charles Derrickson	Production Supplies
	MURRAY STATE UNIVERSITY Murray 42071 E. B. Howton	Other Ag.
	NORTHERN KENTUCKY COMMUNITY COLLEGE Covington 41012 Thomas L. Hankins	Forestry
	PRESTONBURG COMMUNITY COLLEGE Prestonburg 41653 G. K. Sharma	Forestry
	SOMERSET COMMUNITY COLLEGE Monticello Street Somerset 42501 Dr. Roscoe D. Kelley	Supplies Forestry Other Ag.
	SOUTHEAST COMMUNITY COLLEGE Cumberland 40823 Dr. George Luster	Forestry
	WESTERN KENTUCKY UNIVERSITY Bowling Green 42101 William H. Stroube	Production Other Ag.
LOUISIANA T. S. Colvin State Director Agricultural Education State Department of Education State Capitol Building Baton Rouge 70804	NO PROGRAMS OFFERED	
MAINE Alton G. Bridges State Consultant Agricultural Education State Department of Education Augusta 04330	UNITY COLLEGE Unity 04988 Gerald E. Trundy	Forestry
	UNIVERSITY OF MAINE Winslow Hall Orono 04473 Winston E. Pullen, Dean	Production Supplies Products Forestry

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MARYLAND Glenn W. Lewis State Supervisor Agricultural Education State Department of Education 600 Wyndhurst Avenue Baltimore 21210	ALLEGANY COMMUNITY COLLEGE Cumberland 21502	Forestry
	UNIVERSITY OF MARYLAND College Park 20740 George D. Quigley	Production Supplies Ornamental Hort. Other Ag.
MASSACHUSETTS Philip A. Haight Senior Supervisor Agricultural Education State Department of Education 182 Tremont Street Boston 02111	ESSEX AGRICULTURAL & TECHNICAL INSTITUTE Hathorne 01973 James F. Gallant	Production Products Ornamental Hort. Resources Other Ag.
	NORFOLK COUNTY AGRICULTURAL SCHOOL 460 Main Street Walpole 02081 Thomas J. McGarr	Mechanics Ornamental Hort. Forestry
	STOCKBRIDGE SCHOOL OF AGRICULTURE Amherst 01002 Fred P. Jeffrey	Production Products Ornamental Hort. Other Ag.
MICHIGAN Clifford G. Haslick Consultant Vocational Agriculture P. O. Box 928 Lansing 48904	ALPENA COMMUNITY COLLEGE Alpena 49707 Alan E. Reed	Forestry
	KIRTLAND COMMUNITY COLLEGE Roscommon 48653 Wayne F. Krueger, Dean	Recreation and Natural Resources
	MICHIGAN STATE UNIVERSITY East Lansing 48823 Harold Ecker	Production Supplies Products Ornamental Hort. Resources Other Ag.
	MONTCALM COMMUNITY COLLEGE Sidney 48888 Maurice D. Swift, Dean	Mechanics

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MICHIGAN--Cont'd.	NORTHWESTERN MICHIGAN COLLEGE Traverse City 49684 Herbert H. Tedder, Dir.	Resources
	OAKLAND COMMUNITY COLLEGE Bloomfield Hills 48013 Donald E. Fox, Dir.	Ornamental Hort.
	SOUTHWESTERN MICHIGAN Dowagiac 49047 Lance Jepson	Production Supplies Other Ag.
	WASHTENAW COMMUNITY COLLEGE P. O. Box 345 Ann Arbor 48107 Paul W. Davis, Dir.	Ornamental Hort.
MINNESOTA Odell T. Barduson Asst. State Supervisor Agricultural Education State Dept. of Education Centennial Building 658 Cedar Street St. Paul 55101	ALEXANDRIA AVTS Alexandria 56308 Carl Thompson	Production Mechanics
	ANOKA AVTS Box 191 Anoka 55303 Ernest A. Larsen	Supplies Ornamental Hort.
	AUSTIN AVTS Austin 55912 J. V. Raine	Farm Mechanics
	BRAINERD AVTS 300 Quince Brainerd 56401 Elwood Wessman	Ornamental Hort. Natural Resource Technician
	CANBY AVTS Canby 56220 Norman Haugaard	Supplies Production
	DETROIT LAKES AVTS Detroit Lakes 56501 Gunder Hanson	Supplies Products

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MINNESOTA--Cont'd.	DULUTH AVTS 2102 Trinity Road Duluth 55802 Robert Anderson	Forestry
	FARIBAULT AVTS Faribault 55021	Production
	JACKSON AVTS Jackson 56143 John Murray	Production Supplies
	MANKATO AVTS 1920 Lee Blvd. Mankato 56001 Delbert Hodgkins	Production Supplies Mechanics
	PIPESTONE AVTS Pipestone 56164 Marvin Thompson	Ag'l. Banking Products
	ST. CLOUD AVTS St. Cloud 56301	Other Ag.
	STAPLES AVTS Staples 56479 William E. Guelker	Mechanics Irrigation Tech.
	THIEF RIVER FALLS AVTS Thief River Falls 56701	Other Ag.
	UNIVERSITY OF MINNESOTA Technical Institution Crookston 56716 Harold Hasslen	Production Supplies Ag. Products
	WILLMAR AVTS Willmar 56201 John Thell	Production Supplies
	WINONA AVTS Winona 55987 Thomas Raine	Resources Production

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MISSISSIPPI O. L. Snowden Professor and Head Department of Agricultural Education P. O. Drawer AV State College 39762	EAST CENTRAL JUNIOR COLLEGE Decatur 39327 John Lovett	Dairy Farm Supplies
	HINDS JUNIOR COLLEGE Raymond 39154 Jack Treloar, Chmn.	Ag. Engineering Horticulture Livestock Tech.
	JONES COUNTY JUNIOR COLLEGE Ellisville 39437 R. L. Caves, Chmn.	Agri-Equipment Forestry Horticulture Livestock Production Technology Meats Processing Technology
	MISSISSIPPI DELTA JUNIOR COLLEGE Moorhead 38761 John P. Walker	Mechanics
	MISSISSIPPI GULF COAST JUNIOR COLLEGE DISTRICT Perkinston 39573 Walter E. Davis	Horticulture
	NORTHEAST MISSISSIPPI JUNIOR COLLEGE Booneville 38829 Raymond T. Mattox	Farm Equip. Mech.
	NORTHWEST MISSISSIPPI JUNIOR COLLEGE Senatobia 38668 A. M. Briscoe, Chmn.	Horticulture Livestock Tech. Ag. Mechanics
	PARCHMAN VOCATIONAL SCHOOL Parchman J. E. Congleton	Ag. Mechanics Horticulture
MISSOURI Robert L. Hayward Assistant Director Agricultural Education State Department of Education Jefferson City 65101	CHILLICOTHE AREA SCHOOL 1200 Fair Street Chillicothe 64601 Lee Fitchett	Mechanics

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MISSOURI--Cont'd.	CROWDER JUNIOR COLLEGE Neosho 64850 Hugh Hardie	Supplies Other Ag.
	JUNIOR COLLEGE DISTRICT OF ST. LOUIS 7508 Forsyth Street St. Louis 63105 Robert Gillespie	Ornamental Hort.
	MARYVILLE STATE COLLEGE Maryville 64468 Dr. John Beeks	Products (Dairy & Food Processing)
	MISSOURI WESTERN COLLEGE 4525 Downs Drive St. Joseph 64507 Cloyce Coffman	Feed, Grain & Seed Supply
	MOBERLY JUNIOR COLLEGE Moberly 65270 Lewis Vaughan	Supplies, Sales & Service
	STATE FAIR COMMUNITY COLLEGE Sedalia 65301 Roscoe R. Gibson	Sales & Service
	THREE RIVERS JUNIOR COLLEGE Poplar Bluff 63901 Kenneth Howard	Sales, Service & Supplies
	TRENTON JUNIOR COLLEGE 1301 Main Street, Trenton 64683 Donald G. Claycomb	Agri-Business
MONTANA Basil C. Ashcraft State Supervisor Agricultural Education State Dept. of Public Instruction State Capitol Building Helena 59601	HELENA AVTS 1115 Roberts Helena 59601 James Lewis	Mechanics
	MISSOULA TECHNICAL CENTER South Avenue & Stephens Missoula 59801 Thomas E. Downey	Ornamental Hort. Forestry

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MONTANA--Cont'd.	NORTHERN MONTANA COLLEGE Havre 59501 B. J. Siebrasse	Production Services Farm & Ranch Management
NEBRASKA B. E. Gingery State Director Agricultural Education State Dept. of Education 10th Floor State Capitol Building Lincoln 68509	CENTRAL NEBRASKA VOCATIONAL TECHNICAL SCHOOL OF AGRICULTURE Box 1024 Hastings 68901 Harold Hughes	Production Supplies Ornamental Hort. Other Ag.
	UNIVERSITY OF NEBRASKA SCHOOL OF TECHNICAL AGRICULTURE Curtis 69025 Bill Siminoe	Production Supplies Mechanics Ornamental Hort. Other Ag. Resources
NEVADA J. R. Peddicord State Supervisor Agricultural Education Heroes Memorial Building Carson City 89701	UNIVERSITY OF NEVADA 9th and Valley Road Reno 89507 Dr. Leo Herndon	Production (Mgt.) Supplies & Sales Mechanics Ornamental Hort. Other Ag.
NEW HAMPSHIRE Richard H. Bittner Director Thompson School of Applied Science University of New Hampshire Durham 03824	THOMPSON SCHOOL OF APPLIED SCIENCE University of New Hampshire Durham 03824 Richard H. Bittner	Animal Science Business Mgt. Food Service Mgt. Forest Tech. General Ag. Plant Science Soil, Water, & Construction Technology
NEW JERSEY Charles C. Drawbaugh Rutgers University 60 Gage Road E. Brunswick 08816	NO PROGRAMS OFFERED	

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NEW MEXICO L. C. Dalton State Supervisor Agricultural Education Drawer 3V University Park 88001	NEW MEXICO STATE UNIVERSITY AGRICULTURAL INSTITUTE P. O. Box 3501 University Park Las Cruces 88001 Joe Richardson	Mechanics
	PORTALES PUBLIC SCHOOL P. O. Box 779 Portales 88130 Parker Woodul	Other Ag.
NEW YORK (Write directly to each institution) or Harold L. Noakes, Chief Agricultural Education State Education Dept. Albany 12224	AGRICULTURAL AND TECHNICAL COLLEGE State University of New York Alfred 14802 William W. Stopper	Agri-Business Ag. Power & Machinery Ag. Science Ag. Structures & Electrification Agronomy Animal Husbandry Floricultural Merchandising Floricultural Production Food Distribution General Ag. Landscape Development
	AGRICULTURAL AND TECHNICAL COLLEGE State University of New York Canton 13617 Evan M. Dana	Agri-Business Ag. Engineering Ag. Science Dairy & Food Science General Ag. Agronomy Animal Husbandry
	AGRICULTURAL AND TECHNICAL COLLEGE State University of New York Cobleskill 12043 Howard Sidney	Agri-Business Ag. Engineering Agronomy Animal Husbandry Dairy & Food Science Ornamental Hort.

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NEW YORK--Cont'd.	AGRICULTURAL AND TECHNICAL COLLEGE State University of New York Delhi 13753 Wilbur M. Farnsworth	Agri-Business Ag. Engineering Animal Husbandry Animal Science Dairy Food Tech. General Ag. Plant Science (Hort.)
	AGRICULTURAL AND TECHNICAL COLLEGE State University of New York Farmingdale 11735 Robert R. Stockbridge	Agriculture Biology Tech. Food Processing Ornamental Hort.
	AGRICULTURAL AND TECHNICAL COLLEGE State University of New York Morrisville 13408 L. Robert Crane	Agri-Business Ag. Engineering Ag. Science Agronomy Animal Husbandry Dairy & Food Science Horticulture Natural Resources Conservation
	NEW YORK STATE RANGER SCHOOL Wanakena 13695 J. Eugene Fisher	Forest Tech.
	PAUL SMITHS COLLEGE Paul Smiths 12970 William Rutherford, Jr.	Forestry
NORTH CAROLINA Roger G. Worthington Program Development Coord. Occupational Ed. Division Dept. of Community Colleges State Board of Education Raleigh 27602	AGRICULTURAL INSTITUTE North Carolina State University 108 Patterson Hall Raleigh 27607 H. B. Craig	Mechanics Agronomy Tech General Ag. Livestock Mgt. Ornamental Crops Pest Control Soil Tech.
	CATAWBA VALLEY TECHNICAL INSTITUTE Highway 64-70 Hickory 28601 D. R. Boone, Chmn.	Agri-Business Ornamental Hort. Recreational Grds. Mgt. Tech.

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
NORTH CAROLINA--Cont'd.	CENTRAL CAROLINA TECHNICAL INSTITUTE Route 2, Box 55 Sanford 27330 R. C. Faulk	Agri-Business Ag. Research Veterinary Medical
	CLEVELAND COUNTY TECHNICAL INSTITUTE Shelby 28150	Agri-Business Poultry & Livestock Tech.
	DAVIDSON COUNTY COMMUNITY COLLEGE P. O. Box 1083 Lexington 27292 W. H. Adams, Jr., Chmn.	Agri-Business Soil & Water Conservation
	FAYETTEVILLE TECHNICAL INSTITUTE P. O. Box 5236 Fayetteville 28303 W. McD. Croom, Chmn.	Agri-Business
	FORSYTH TECHNICAL INSTITUTE 2100 Silas Creek Parkway Winston-Salem 27103 T. A. Taylor, Chmn.	Agri-Business Ornamental Hort.
	HAYWOOD TECHNICAL INSTITUTE P. O. Box 457 Clyde 28721 W. D. Rice, Chmn.	Fish & Wildlife Mgt. Forest Mgt. Log Sawing Lumber Inspecting & Dry Kilning Saw Filing
	ISOTHERMAL COMMUNITY COLLEGE P. O. Box 804 Spindale 28160 L. R. Edwards, Chmn.	Agri-Business
	JAMES SPRUNT INSTITUTE P. O. Box 398 Kenansville 28349 T. Hall, Chmn.	Agri-Business Poultry & Livestock

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NORTH CAROLINA--Cont'd.	LENOIR COMMUNITY COLLEGE P. O. Box 188 Kinston 28501 L. T. Beckham, Chmn.	Agri-Business Ornamental Hort.
	MARTIN TECHNICAL INSTITUTE P. O. Drawer 866 Williamston 27892 H. R. Hendricks, Chmn.	Forest Mgt. Agri-Business
	PITT TECHNICAL INSTITUTE P. O. Box 97 Greenville 27834 W. H. Moore, Chmn.	Agri-Business Ag. Chemicals Farriering
	RANDOLPH TECHNICAL INSTITUTE P.O. Box 1009 Asheboro 27203 H. J. Brubaker, Chmn.	Agri-Business
	SANDHILLS COMMUNITY COLLEGE P. O. Box 1379 Southern Pines 28387 F. W. Garrett, Chmn.	Landscape Gardening
	SOUTHEASTERN COMMUNITY COLLEGE P. O. Box 151 Whiteville 28472 R. M. Shaw, Chmn.	Agri-Business
	SURRY COMMUNITY COLLEGE P. O. Box 304 Dobson 27017 C. L. Hudson, Chmn.	Agri-Business
	WAYNE COMMUNITY COLLEGE P. O. Box 1878 Goldsboro 27530 W. R. Ball, Chmn.	Fish & Wildlife Mgt. Forest Mgt. Poultry & Livestock Recreational Grds. Management Soil & Water Conservation

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
NORTH CAROLINA--Cont'd.	WILKES COMMUNITY COLLEGE P. O. Drawer 120 Wilkesboro 28697 H. D. Simpson, Chmn.	Agri-Business Ag. Equipment Food Processing Poultry & Livestock
	WILSON COUNTY TECHNICAL INSTITUTE 902 Herring Avenue Wilson 27893 J. R. Respess, Chmn.	Ag. Equipment
NORTH DAKOTA Donald Erickson State Supervisor Vocational Agriculture State Office Building 900 E. Blvd. Bismarck 58501	BISMARCK JUNIOR COLLEGE Bismarck 58501 Allan Doctor, Inst.	Agri-Business Production Ag.
	UNIVERSITY OF NORTH DAKOTA BRANCH Williston 58801 Harley Schlichting, Inst.	Agri-Business
OHIO Welch Barnett Assistant Supervisor Agricultural Education The Ohio State University Agricultural Admin. Bldg. 2120 Fyffe Road Columbus 43210	CLARK COUNTY TECHNICAL INSTITUTE 570 East Leffels Lane Springfield 45505 Dan Garrison, Chmn.	Agri-Business Agri-Equipment Turf-Nursery
	CLEVELAND TECHNICIAN SCHOOL 4600 Detroit Avenue Cleveland 44102 Pete Wotowiec, Coord.	Ornamental Hort.
	COLUMBUS TECHNICAL INSTITUTE 550 East Spring Street Columbus 43215 Dale Tippett, Supervisor	Food Processing Laboratory Animal
	FOUR COUNTY TECHNICAL 101 Depot Street Archbold 43502 John Wilson, Dir.	Ag'l. Management & Accounting

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
OHIO--Cont'd.	MUSKINGUM AREA TECHNICAL INSTITUTE 704 Main Street Zanesville 43701 James Bowling, Dir.	Natural Resources Conservation Water Pollution
	PENTA COUNTY TECHNICAL COLLEGE Oregon Road Perrysburg 43551 Harry Plank, Coord.	Agri-Business Agri-Business (Farm Business Option)
	TRI-COUNTY TECHNICAL INSTITUTE Route #1 Nelsonville 45764 John Light, Dir.	Outdoor Recreation and Wildlife Forestry
	VANGUARD TECHNICAL INSTITUTE 1306 Cedar Street Fremont 43420 V. L. McGraw, Supervisor	Ag'l. Diesel Equip.
OKLAHOMA Byrle Killian State Supervisor Agricultural Education 1515 West 6th Avenue Stillwater 74074	EASTERN OKLAHOMA STATE COLLEGE Wilburton 74578 Forest Hamilton, Chmn.	Ranch Operation Forestry
OREGON Curt Loewen Specialist Agricultural Education Oregon Board of Education 942 Lancaster Drive NE Salem 97310	BLUE MOUNTAIN COMMUNITY COLLEGE P. O. Box 100 Pendleton 97801 David Raynalds	Production
	CENTRAL OREGON COMMUNITY COLLEGE College Way Bend 97701 James E. Mattox	Forestry
	CLACKAMAS COMMUNITY COLLEGE 270 Warner-Milne Road Oregon City 97045	Ornamental Hort.

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
OREGON--Cont'd.	CLATSOP COMMUNITY COLLEGE 16th and Jerome Astoria 97103 Merle Peters	Production Forestry
	LANE COMMUNITY COLLEGE 401 Willa Kenzie Road Eugene 97401 Paul Patrick	Mechanics
	LINN BENTON COMMUNITY COLLEGE Albany 97321 Ed Draper	Supplies
	MT. HOOD COMMUNITY COLLEGE 26000 S. E. Stark St. Gresham 97030 James Wagner	Ornamental Hort.
	SOUTHWESTERN OREGON COMMUNITY COLLEGE Coos Bay 97420 Jim Piercey	Forestry
	TREASURE VALLEY COMMUNITY COLLEGE 650 College Blvd. Ontario 96914 Earl McCollom	Production Ornamental Hort. Other Ag. Mechanics
	UMPQUA COMMUNITY COLLEGE Roseburg 97470 Robert Moldenhauer	Forestry
PENNSYLVANIA J. C. Fink State Supervisor Agricultural Education State Department of Education Box 911 Harrisburg 17126	ALTOONA CAMPUS OF PENNSYLVANIA STATE UNIVERSITY R. D. #4, Box 1 Altoona 16601 Jack G. Zulrod	Production
	BERKS CENTER The Pennsylvania State University 814 Hill Avenue Wyomissing 19610 Russell E. Larson	Supplies

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PENNSYLVANIA--Cont'd.	BUTLER COMMUNITY COLLEGE College Drive Oak Hills Butler 16001 Bertrum Shaffer, Adm.	Resources
	MONT ALTO CAMPUS Pensylvania State University Mont Alto 17237 Harry L. Mosher	Forestry
	PENNSYLVANIA STATE UNIVERSITY University Park 16802 Dr. Russell Larson	Mechanics Ornamental Hort. Other Ag.
	PENNSYLVANIA STATE UNIVERSITY Commonwealth Campus Union Town 15401 Hugh M. Barclay	Supplies Products
	WILLIAMSPORT AREA COMMUNITY COLLEGE 1005 W. 3rd St. Williamsport 17701 Joseph G. Sick	Ornamental Hort. Forestry
PUERTO RICO Victor Hernandez Penzol Director Ag'l. Vocational Program P. O. Box 818 Hato Rey 00919	COFFEE SCHOOL Utauado 00761 Miguel A. Saez	Production Supplies Mechanics Products Resources
	ORNAMENTAL HORTICULTURE SCHOOL Rio Piedras 00928 Carmen Mendez D'Andrea	Mechanics Products Ornamental Hort.
	POULTRY SCHOOL Aibonito 00609 Orsini Reyes	Production Mechanics Products
	TRACTOR OPERATORS TRAINING SCHOOL Corozal 00643 Francisco Rodriguez	Mechanics

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
SOUTH CAROLINA--Cont'd.	FLORENCE-DARLINGTON TECHNICAL CENTER P. O. Drawer Florence 29501 J. E. Cox	Production
	HORRY-MARION-GEORGETOWN TECHNICAL CENTER Conway 29526 Joe Phillips	Forestry
	ORANGEBURG-CALHOUN TECHNICAL CENTER Orangeburg 29115 W. C. Cook	Production
	TRI-COUNTY TECHNICAL EDUCATION CENTER P. O. Box 87 Pendleton 29670 George M. Barnett	Production
SOUTH DAKOTA E. W. Gustafson State Supervisor Agricultural Education Division of Vocational Ed. State Dept. of Public Instruction Pierre 57501	MITCHELL AREA VO-TECH SCHOOL 821 North Capitol St. Mitchell 57301 Loren Kasten	Marketing & Management
	LAKE AREA VO-TECH SCHOOL 230 11th Street, N. E. Watertown 57201 Larry Nelson	Services
TENNESSEE Kenneth K. Mitchell State Supervisor Agricultural Education State Dept. of Education 205 Cordell Hull Bldg. Nashville 37219	COLUMBIA STATE COLLEGE P. O. Box 562 Columbia 38401 Robert L. White	Agri-Business
	DYERSBURG STATE COMMUNITY COLLEGE Dyersburg 38024 Robert Logue, Director	Agriculture

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PUERTO RICO--Cont'd.	TRACTOR OPERATORS TRAINING SCHOOL Isabela 00662 Ismael Perez Bayron	Mechanics
	TRACTOR OPERATORS TRAINING SCHOOL Maunabo 00707 Pedro A. Vargas	Mechanics
	TRACTOR MECHANICS TRAINING SCHOOL Toa Baja 00759 Anselmo Miranda	Mechanics
	TRACTOR OPERATORS TRAINING SCHOOL Toa Baja 00759 Jose B. Velez	Mechanics
	TRACTOR OPERATORS TRAINING SCHOOL Lajas 00667 Carlos Roman Ramirez	Mechanics
	TRACTOR OPERATORS TRAINING SCHOOL Penuelas 00724 Jose F. Corales	Mechanics
RHODE ISLAND Dr. John C. Sainsbury Chmn. Fisheries & Marine Technology Woodward Hall Kingston 02881	UNIVERSITY OF RHODE ISLAND Woodward Hall Kingston 02881 Dr. John C. Sainsbury, Chmn.	Commercial Fisheries
SOUTH CAROLINA Joe D. McCormick Coordinator Agricultural Technology Program State Committee for Tech. Ed. 1429 Senate Building Columbia 29201	BERKELEY-CHARLESTON-DORCHESTER TECHNICAL EDUCATION CENTER 7000 Rivers Avenue North Charleston 29406 Mack J. Fleming	Production

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
TEXAS--Cont'd.	WHARTON COUNTY JUNIOR COLLEGE 911 Boling Hwy. Wharton 77488 Dr. James Blakeley	Supplies
UTAH Elvin Downs Specialist Agricultural Education State Board of Education 1300 University Club Bldg. 136 East South Temple Salt Lake City 84111	UTAH STATE UNIVERSITY Logan 84321 Vearl R. Smith	Mechanics
VERMONT Julian M. Carter State Consultant Agricultural Education State Dept. of Education State Office Building Montpelier 05602	VERMONT TECHNICAL COLLEGE Randolph Center 05061 Ralph F. Evans	Production Agri-Business
VIRGINIA John W. Lavery Assoc. Dir. for Student Services 911 East Broad Street Richmond 23219	BLUE RIDGE COMMUNITY COLLEGE Box 80 Weyers Cave 24486 Dr. Emerson W. Hibbard, Dean of Instruction	Agri-Business
	LORD FAIRFAX COMMUNITY COLLEGE Old Dominion Motel U. S. Route 11 Middletown 22645 Dr. Harold G. McMullen, Dean of Instruction	Agri-Business
	SOUTHSIDE VIRGINIA COMMUNITY COLLEGE P. O. Box 31 Lawrenceville 23868 Dr. Miland B. Dady, Dean of Instruction	Agri-Business

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
TENNESSEE--Cont'd.	JACKSON STATE COMMUNITY COLLEGE Box 2467 Jackson 38301 W. S. Hamilton	Supplies & Services
TEXAS Raymond L. Holt Consultant Agricultural Education Texas Education Agency State Board of Education Austin 78711	CENTRAL TEXAS JUNIOR COLLEGE P. O. Box 848 Killeen 76541 Raiford Williams	Production
	HENDERSON COUNTY JUNIOR COLLEGE Cardinal Drive Athens 75751 J. B. Simmons, Dean of Vo-Tech Education	Production
	PARIS JUNIOR COLLEGE Clarkesville Street Paris 75460	Production
	SOUTH PLAINS JUNIOR COLLEGE Levelland 79336 Frank Hunt, Dean of Vo-Tech Education	Other Ag.
	SOUTHWEST TEXAS JUNIOR COLLEGE Uvalde 78801 Dardus J. Elrod, Dir. of Vo-Tech Education	Production
	TEXAS STATE TECHNICAL INSTITUTE James Connally Campus Waco 76705	Production Supplies Products Power & Machinery Floriculture & Horticulture
	WEATHERFORD COLLEGE Weatherford 76086 Henry Hasse	Production

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
WASHINGTON--Cont'd.	CLOVER PARK EDUCATION CENTER 4500 Steilacoom Blvd., S. W. Lakewood Center 98499 Allen Quick	Other Ag.
	EDMONDS COMMUNITY COLLEGE 23200-100 West Edmonds 98020 Paul Hylton	Ornamental Hort.
	EVERETT COMMUNITY COLLEGE 801 Wetmore Avenue Everett 98201 Donald R. Theoe	Forestry
	FORT STEILACOOM COMMUNITY COLLEGE 6010 Mt. Tacoma Dr., S. E. Tacoma 98400 Homer Halverson	Other Ag.
	LOWER COLUMBIA COLLEGE Longview 98632 Carl G. Devin	Ornamental Hort. Forestry
	SHORELINE COMMUNITY COLLEGE 16101 Grenwood Avenue N. Seattle 98133 Ward Teel	Forestry
	SKAGIT VALLEY COLLEGE Route 1, Box 10 Mt. Vernon 98273 Richard Nowadnick	Production
	SPOKANE COMMUNITY COLLEGE 3403 E. Mission Avenue Spokane 99202 Alvin B. Danielson	Other Ag.
	WASHINGTON BASIN COMMUNITY COLLEGE Pasco 99301 Albert Killingsworth	Production Supplies Mechanics Other Ag.

State/ Contact Person/Title/ Address	Institution/Address Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
VIRGINIA--Cont'd.	SOUTHWEST VIRGINIA COMMUNITY COLLEGE P. O. Box 878 Richlands 24641 Dr. Daniel L. Barlow, Dean of Instruction	Agri-Business
	WYTHEVILLE COMMUNITY COLLEGE Wytheville 24382 Dr. Walter W. Palmer, Dean of Instruction	Agri-Business
VIRGIN ISLANDS Evelyn H. Sprauve Admin. Officer Insular Board of Vocational Education Charlotte Amalie, St. Thomas 00801	NO PROGRAMS OFFERED	
WASHINGTON Jay Wood Director Agricultural Education Box 248 Olympia 98501	BELLEVUE PUBLIC SCHOOLS Bellevue 98004 Gerald Maki	Ornamental Hort.
	BELLINGHAM TECHNICAL SCHOOL 3028 Lindbergh Bellingham 98225 Raymond S. Smith	Production
	BIG BEND COMMUNITY COLLEGE Hwy. 17 and Nelson Road Moses Lake 98837 Fred Huston	Production Supplies Other Ag.
	CENTRALIA COLLEGE Box 639 Centralia 98531 Eugene K. Irwin	Production Supplies Ornamental Hort. Forestry Other Ag.
	CLARK COLLEGE 1800 McLoughlin Vancouver 98663 W. A. Hall	Production Ornamental Hort.

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
WASHINGTON--Cont'd.	WENATCHEE VALLEY COLLEGE Fifth Street Wenatchee 98801 Dr. Harry Keppler	Production Supplies Forestry
	YAKIMA VALLEY COLLEGE Yakima 98901 John Griffith	Production Mechanics
WEST VIRGINIA Carl S. Thomas State Supervisor Vocational Agriculture State Dept. of Education Charleston 25305	GLENVILLE STATE COLLEGE Glenville 26351 Dr. David Smith	Forest Tech.
	POTOMAC STATE COLLEGE Keyser 26726 Oscar H. Gustafson	Production
WISCONSIN Doyle E. Beyl Supervisor Vocational Agriculture 137 E. Wilson Street Madison 53702	DISTRICT 1 TECHNICAL INSTITUTE 620 W. Clairemont Ave. Eau Claire 54701 Irvin Rounsville	Farm Machinery Partsman, Salesman
	FOND DU LAC TECHNICAL INSTITUTE 805 East Johnson Street Fond du Lac 54935 Wayne G. Koene	Food Mfg. Mechanics
	FOX VALLEY TECHNICAL INSTITUTE 105 E. Kimball Street Appleton 54911 Leonard Warner	Farm Machinery Partsman, Salesman Feed, Seed & Farm Supply Chem. & Fertilizers Farm Bldgs. & Equipment
	FOX VALLEY TECHNICAL INSTITUTE--OSKOSH 228 Algoma Blvd. Oshkosh 54901 Richard Hall	Conservation Tech.

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
WISCONSIN--Cont'd.	KENOSHA TECHNICAL INSTITUTE 3520 30th Avenue Kenosha 53140 Ken Mills	Horticulture, Production, Retail
	N. CENTRAL TECHNICAL INSTITUTE 1000 Schoefield Avenue Wausau 54401 Reuben Roehl	Mechanics
	TECHNICAL INSTITUTE Fennimore 53809	Ag. Bldgs. Serviceman
	TECHNICAL INSTITUTE Madison 53700	Animal Tech.
	TECHNICAL INSTITUTE Rhinelander 54501	Timber Producers Aide
	TECHNICAL INSTITUTE Superior 54880	Agri-Business
	W. WISCONSIN TECHNICAL INSTITUTE Sixth Street, Vine to Pine La Crosse 54601 Merlin V. Niccum	Feed, Seed & Farm Supply Chem. & Fertilizers Farm Bldgs. & Equipment
WYOMING Richard M. Rowles Director Adult Basic Education Capitol Building Cheyenne 82001	CASPER COLLEGE 125 College Drive Casper 82601 William Henry	Production Mechanics
	CENTRAL WYOMING COLLEGE P. O. Box 3D Riverton 82501 Gene Schrader	Agri-Business
	GOSHEN COUNTY COMMUNITY COLLEGE Torrington 82240 Joseph A. Baird	Production Other Ag.

State/ Contact Person/Title/ Address	Institution/Address/ Ag. Dept. Chairman or Chief Instructor	Agricultural Programs/Areas Offered
WYOMING--Cont'd.	NORTHWEST COMMUNITY COLLEGE Box 568 Powell 82435 William B. Sheets	Production Products Forestry Other Ag.
	SHERIDAN COLLEGE Sheridan 82801 Scott Redington	Production

VT 012 203
Newton, W.L.
Vocational Instructors Workshops. Final Descriptive Report.

Florida State Univ., Tallahassee. Dept. of Vocational Education.
Florida State Dept. of Education, Tallahassee. Div. of Vocational, Technical, and Adult Education
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Aug70 121p.

DESCRIPTORS - *WORKSHOPS; *VOCATIONAL EDUCATION TEACHERS; *TRADE AND INDUSTRIAL EDUCATION; COSMETOLOGY; AUTO MECHANICS (OCCUPATION); AUTO MECHANICS; MACHINE REPAIRMEN; APPLIANCE REPAIRING; WELDING; *CREDIT COURSES; TEACHER CERTIFICATION; *TEACHER EDUCATION

ABSTRACT - Nine 3-week vocational instructors workshops, which were planned by Florida State University and several collaborating industries in cooperation with the Florida State Department of Education, were held from June 16-July 31, 1970. The workshops and their sponsors were: (1) Welding--Hobart Brothers, (2) Auto Mechanics--Ford Motor Company, Chrysler Corporation, and General Motors Corporation, (3) Machine Shop--collaborating industries, (4) Appliance Repair--G.M.C. Frigidaire Division, (5) Small Engines 1 and 2--Kiekhaefer Mercury, and (6) Cosmetology--collaborating consultants and specialists. Included in the reports of each workshop are the participants' names, a brief description of the workshop activities, participant reactions and suggestions for improvement, and a sample of the certification letter. A more complete report of the cosmetology workshop is available as VT 012 204 (also in this issue). (SB)

VT 012 203

ED0 57254

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FINAL DESCRIPTIVE REPORT
VOCATIONAL INSTRUCTORS WORKSHOPS

IN

HOBART WELDING
FORD AUTOMOTIVE
CHRYSLER AUTOMOTIVE
G. M. C. AUTOMOTIVE
COLLABORATING INDUSTRIES - MACHINE SHOP
G. M. C.'s FRIGIDAIRE - APPLIANCE REPAIR
KIEKHAEFER MERCURY - SMALL ENGINE REPAIR (1)
KIEKHAEFER MERCURY - SMALL ENGINE REPAIR (2)
COLLABORATING CONSULTANTS AND SPECIALISTS-COSMETOLOGY

DEPARTMENT OF VOCATIONAL EDUCATION
COLLEGE OF EDUCATION FLORIDA STATE UNIVERSITY
IN COOPERATION WITH
FLORIDA STATE DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
TALLAHASSEE, FLORIDA

AUGUST 1970

REPORT BY:

W. L. NEWTON
ASSISTANT PROFESSOR
VOCATIONAL TEACHER EDUCATION

VT012203

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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A C K N O W L E D G E M E N T S

These Workshops required and received the support and assistance of a large number of people in various categories. Each of them made important contributions which are deeply appreciated. The body of this report identifies most of the contributors and their respective roles. Special recognition is given to Florida State University and to the State Department of Education for making these activities possible.

Appreciation is expressed for the use of facilities and equipment at Hobart Welding Center, Vero Beach; General Motors Training Center, Ford Motor Company Training Center, William Raines High School, Jacksonville; Chrysler Mobile Training Unit, Orlando; Kiekhaefer Mercury Service Center, Sarasota, and to Sheridan Vocational Center, Hollywood.

To Mr. Thomas Carter and Mr. Aaron Twiggs, Coordinators of Vocational Education, Duval County School Board, we add a special word of appreciation for helping to supervise the four Institutes in Jacksonville, and for procuring many materials that added to the success of the activities.

To Mr. John Sojat, Mrs. Christine Sharon and Mr. Murray Thornburg of the Division of Vocational, Technical and Adult Education, State Department of Education, we give very special recognition for helping to plan, organize, procure instructors and many of the other things that go into making workshops of this kind a success.

W. L. Newton
August, 1970

2082

HOBART BROTHERS WELDING WORKSHOP

VERO BEACH, FLORIDA

June 17 - July 3, 1970

2083

Workshop For Welding Instructors
Hobart Brothers Company
Sales and Service Center
Vero Beach, Florida
June 17 - July 3, 1970

PARTICIPANTS

Glenn Hosegood
Polk Vocational Technical Center
619 W. Oak Dr.
Lakeland, Florida 33801

Hiram D. McCall
Pensacola Junior College
Rt. 3 Box 91-A
Pensacola, Florida 32504

Roland V. Murwin
Technical High School
3888 Towngend Blvd.
Jacksonville, Florida 32211

Martin P. Nygard
North Technical Education Center
2530 Havenwood St.
W. Palm Beach, Florida 33406

Richard A. Falasca
Okaloosa Walton Junior College
26 Memorial Parkway
Ft. Walton Beach, Florida 32548

John G. Whitten
Polk Vocational Technical Center
1570 Davis Ave.
Barton, Florida 33830

INTRODUCTION

The Workshop for Welding Instructors was planned to accommodate eight instructors and to fit into the regular class schedule of the Hobart Welding School conducted in the Hobart Brothers Welding Equipment Company, Vero Beach, Florida. It was planned and conducted in cooperation with the Division of Vocational, Technical, and Adult Education, State Department of Education, and the staff of Hobart Brothers.

Of the eight instructors who were selected from those recommended by their county superintendents or county directors of Vocational Education, only seven reported, one left at the end of the first day and one other was hospitalized after the first week. The remaining five completed the Workshop and four received 5 quarter hours credit offered by Florida State University.

The first three days of the Workshop were devoted to intensive study of professional improvement topics considered essential to success in teaching Vocational Industrial subject. These included: (1) The Application of Prosser's Theories of Vocational Education to The Seven Cardinal Principles of Education in the Development of a Working Philosophy for Vocational Teachers; (2) Basic Principles of Writing and Using Instructional Objectives; (3) Characteristics of The Good Instructor; (4) Essentials of Writing, Administering, Grading and (5) Review of Precepts and Practices of Classroom Control.

During the next two weeks, Mr. Bob Hight, Hobart Brothers' Welding Instructor, took the participants into the shops and guided them through a "most valuable" series of Welding lessons, both practical and Technical, which were individualized according to need and desire.

A. Basic and Advanced Arc Welding

B. Oxy-Acetylene Welding and Cutting

C. Gas Tungsten - Arc Welding

D. Shielded Arc; Argon; Argon + CO_2; Helium + Argon + CO_2; Argon 2% Oxygen

At the end of the third week, each participant was asked to evaluate the entire institute by filling out the survey form, "REACTIONS OF A PARTICIPANT," which follows.

The reactions and suggestions of the five participants who completed the Workshop were studied carefully and the results are summarized in italics on the form itself.

These will be used as guidelines in formulating plans for similar Workshops which may be instigated later.

REACTIONS OF PARTICIPANT

INTRODUCTION

Your constructive reactions to this institute are invited on this form. They are needed as a basis for planning similar activities for you and others in the future. Hopefully, they can be made better with your help in identifying strengths which suggest more of the same and weaknesses which call for change and improvement.

This shouldn't take you a great deal of time, but please do it carefully, thoughtfully, and in the spirit of the invitation. Also, please do it without consulting others. Your independent reactions are wanted. Of course, it is not signed. Most meaning will be derived from a composite of the reactions, with the greatest attention given to the points of agreement among some of the participants.

INSTITUTE: *Welding*

LOCATION: *Hobart Brothers Sales and Service Center*

DATE: *June 15 - July 3, 1970*

Summary of
GENERAL REACTIONS AND SUGGESTIONS

1. What activity not in the program would you like to see included?

1 of 6 participants was hospitalized and did not complete
1 of 5 who completed course left this blank.
Have longer (4week) workshop.
Include up-to-date course in Welding symbols

2. What changes would you suggest for the improvement of similar activities in the future? (Such as course content and method of instruction.)

1 left blank
Emphasize teaching methods
Allow more time to observe each other

3. Aside from the topics, what did you like best about this institute.

Quality of instructors and instruction
Felt Welcome
Oxygen and Mig Welding

4. Aside from the topics what did you dislike about this institute?

All left this blank

Reaction Sheet

5. What other suggestions would you make for improving future institute?

3 left this blank
Have workshop yearly
Completely satisfied

6. What activities would you suggest adding or deleting from the institute?

Variety of makes of equipment
Add sheet metal workshop

7. What is your overall reaction to the entire institute? (Check one

_____a. It was a complete waste of time.

_____b. Mostly old stuff or of little significance.

_____c. Some of little value, mostly good.

11 d. A valuable experience I was happy to have.

_____e. As good as it could be under the circumstances. (limitation of time, size of group)

~~*1111*~~ f. Excellent: No criticism.

8. Number of years teaching experience *1 had 1; 2 had 3;* _____.
1 had 5; and 1 had 14

9. General comments on the institute.
Excellent school
Received many points
Best instructors

THE FLORIDA STATE UNIVERSITY
TALLAHASSEE 32306

VOCATIONAL EDUCATION DIVISION

TRADE AND INDUSTRIAL
DISTRIBUTIVE
COOPERATIVE
MANAGEMENT TRAINING
HEALTH OCCUPATIONS
PERSONAL SERVICE
VOCATIONAL GUIDANCE SERVICES

July 3, 1970

To Whom it May Concern

This will certify that:

attended the Welding Institute conducted at the Hobart Welding Co. Training Center, Vero Beach Florida, June 15 through July 3, 1970. This Institute was sponsored jointly by Florida State University and the State Department of Education.

W. L. Newton
Assistant Professor
Vocational Education

WLN:jw

FORD MOTOR COMPANY AUTOMOTIVE WORKSHOP

JACKSONVILLE, FLORIDA

JUNE 15 - JULY 3, 1970

Workshop for Auto Mechanics Instructors
Ford - Mercury Training Center
6674 Commonwealth Avenue
Jacksonville, Florida
June 15 - July 3, 1970

PARTICIPANTS

Lynn L. Banister
Duval County Schools
5625 Netti Rd.
Jacksonville, Florida 32207

Walter F. Basford
Chipola Junior College
Rt. #2 Box 232
Marianna, Florida 32446

Threadwell Campbell
Tom P. Haney Vocational Technical Center
1625 E. 9th Ct.
Panama City, Florida 32401

George T. Dumencich Sr.
Wymore Technical School
911 Aldrich Ave.
Winter Park, Florida 32789

Sherwood C. Farris
Terry Parker Senior High School
2225 Limoges Dr.
Jacksonville, Florida 32210

Raymond S. Hurst
Dixie County High School
Post Office Box 6
Cross City, Florida 32628

John F. Hutson
Levy County School Board
Post Office Box 457
Chiefland, Florida 32626

Bruce V. Lisle
Key West High School
201 Ave. 13
Key West, Florida 33040

John A. McKinley
Clay High School
Rt. 2 Box
Green Cove Springs, Florida 32043

Vincent M. Perpich
Lake Co. Area Vocational Technical Center
1519 Leeway
Orlando, Florida 32810

Maurice H. Shafer
Orange County High School
2818 Woodbridge Lane
Orlando, Florida 32808

Carroll N. Smith
Pensacola Junior College
610 Pickens Ave.
Pensacola, Florida

Edward G. Truman
Monroe County High School
1300 Flagler Ave.
Key West, Florida 33040

INTRODUCTION

This Workshop was conducted in the Ford Motor Company Training Center, Commonwealth Avenue, Jacksonville, Florida, from June 15 through July 3, 1970. It was planned and conducted in cooperation with the Division of Vocational Technical and Adult Education, State Department of Education, and the Ford Motor Company training staff.

Participants were selected, on the basis of background and need, from automotive instructors who were recommended by their superintendents and/or county vocational directors. They were paid stipends and travel to help offset expenses of participating.

Organization of the Workshop groups was conducted on July 15, 1970, at 9:00 a.m. Participants who needed college credit for the Workshop were officially registered in Florida State University for 5 quarter hours credit. Of the 13 participants, 12 registered for college credit.

After registration and introductions, the Ford Motor Company staff of Mr. William Todd and Mr. William Thompson, took charge of the group and conducted a two week program in Automotives, that included the following

FIRST WEEK

William Todd, Instructor

Monday 6/15/70 through Friday 6/19/70

SECOND WEEK

William Thompson, Instructor

Monday 6/22/70 through Friday 6/26/70

This service school consisted of intensive study and Shop practicum designed to bring Automotive instructors up-to-date in the field. Many new methods of instruction were introduced, and practiced, as the following outline was treated.

FIRST WEEK

15	June	Mon.	-	Engine 351C & 351W
16	June	Tue.	-	Engine 351C & 351W
17	June	Wed.	-	Carburetor 1V, 2V, & 4V Distributor
18	June	Thur.	-	Emission System, Thermator, Distributor Modulator System
19	June	Fri.	-	Electrical System

SECOND WEEK

22	June	Mon.	-	981 & 881 Scope & Tune-up
23	June	Tue.	-	C-G & C-4 Transmission
24	June	Wed.	-	C-G & C-4 Transmission
25	June	Thur.	-	C-G & C-4 Transmission
26	June	Fri.	-	Power Steering System Air Conditioner System

The third week of the Jacksonville Workshops was devoted to Teacher Improvement. Through intensive study and practice in writing test questions, much progress was made in developing materials which can serve as a basis and guide in constructing a state-wide, standard, competence examination for students graduating from Vocational Industrial courses. Mr. John Sojat, State Division of Vocational, Technical, and Adult Education, Mr. Thomas Carter, Coordinator Vocational Industrial Education, Duval County School Board, and Mr. W. L. Newton, assistant Professor, Vocational Teacher Education, College of Education, Florida State University conducted this phase of the workshops. The participating teachers worked on phases of the examination represented by the following list.

Instructors Who Worked on Automotive Examination

GROUP NO.	SECTION	ROOM
1-A	Engines	D-14
F. (Ford)	Lynn L. Banister	
G. (G.M.C.)	Gernald R. Arney	
F.	Carl Farris	
G.	L. R. Lindsey	
C. (Chrysler)	L. A. Sprinkles	
G.	M. B. Dorsey	
G.	W. Robbins	
1-B	Engines	D-17
F.	Threadwell Campbell	
G.	W. L. McElroy	
F.	M. H. Shafer	
F.	Roy Hurst	
C.	P. W. Greiss	
G.	C. R. Atchley	
G.	W. T. Watkins	
2-A	Electrical	D-15
C.	A. L. McClain	
G.	A. Govantes	
C.	L. J. Frektic	
G.	A. J. Burnette	
F.	V. M. Derich	
G.	Bill Horne	
G.	L. A. Perpoll	
2-B	Electrical	D-10
G.	John D. Davis	
G.	J. L. Groover	
G.	T. O. Andrews	
C.	N. J. Reinec	
G.	N. J. Wahington	
G.	Homer Bull	

GROUP NO.	SECTION	ROOM
3-A	Front End Steering & Brakes	D-12
C.	H. L. Hildreth	
C.	Richard McBride	
F.	B. V. Lisle	
G.	A. C. Gonzalez	
G.	E. B. Taylor	
G.	Don Browning	
G.	Walter Basford	
3-B	Front End Steering & Brakes	D-13
F.	John A. McKinley	
G.	Douglas Southworth	
G.	K. G. McCallister	
G.	James Frost	
G.	Wayne Ruper	
G.	Fricker, E. F.	
G.	G. R. Meyers	
4-A	Transmissions and Drive Line	D-11
G.	J. W. Baggan	
C.	John Coleman	
F.	John E. Hutson	
G.	D. A. Chorvat	
G.	William Conner	
G.	J. K. Baxter	
4-B	Transmissions and Drive Line	D-8
F.	Carrol N. Smith	
C.	S. S. Williams	
G.	P. E. Nixon	
G.	C. R. Barr	
G.	N. Mills	
	G. H. Stroud	

GROUP NO.	SECTION	ROOM
5-A	Emission System: Tune Up & Air Condition	D-6
C.	H. W. Stobert	
G.	K. J. Burlew	
G.	N. D. Nelson	
F.	G. T. Dumencich	
G.	Ray Wallenthin	
G.	Jose Lopez	
5-B	Emission System: Tune Up & Air Condition	D-9
C.	John E. Meyers	
G.	L. F. Lawson	
G.	G. B. Howden	
G.	Peter Bernado	
F.	E. G. Trumans	
G.	James W. McKinney	

Instructors Who Worked on Appliance Repair Examinations

Donald H. Buxton
H. L. Cheatham
Buck Commander
William C. Hansen
Amos T. Hatmaker
William B. Kelly
Paul Kretzschmar
James H. Lazenby
Edward J. Lemcke
William F. Long Jr.
Walter A. Lyons
Mack A. McQuaig
Andrew Madison
Ossie O. Padgett
Joseph H. Spencer Jr.
Warren G. Voegeli
Marcus A. Winsryg
Thomas C. Wynn

At the end of the third week, each participant was asked to evaluate the entire institute by filling out the survey form, "REACTIONS OF A PARTICIPANT", which follows.

The reactions and suggestions of the thirteen participants were studied carefully and the results are summarized in italics on the form itself.

These will be used as guidelines in formulating plans for similar Workshops which may be instigated later.

REACTIONS OF A PARTICIPANT

INTRODUCTION

Your constructive reactions to this institute are invited on this form. They are needed as a basis for planning similar activities for you and others in the future. Hopefully, they can be made better with your help in identifying strengths which suggest more of the same and weaknesses which call for change and improvement.

This shouldn't take you a great deal of time, but please do it carefully, thoughtfully, and in the spirit of the invitation. Also, please do it without consulting others. Your independent reactions are wanted. Of course, it is not signed. Most meaning will be derived from a composite of the reactions, with the greatest attention given to the points of agreement among some of the participants.

INSTITUTE: *Automotive*

LOCATION *Ford Motor Company*

DATE: *June 15 - June 22, 1970*

GENERAL REATIONS AND SUGGESTIONS

1. What activity not in the program would you like to see included?

   Body and Fender Repair
   Have Instructors take examination
   More variety with Companies

2. What changes would you suggest for the improvement of similar activities in the future? (Such as course content and method of instruction.

   More handout materials
   More time in training Center
   One week on Automotive transmissions

3. Aside from the topics, what did you like best about this institute?

   Excellence of instructors, instruction, and methods
   Interest on individual student
   Facilities

4. Aside from the topics what did you dislike about this institute?

   No cafeteria
   Location of third week
   Not enough time in shop--too much paper work

Reaction Sheet

5. What other suggestions would you make for improving future institute?

Run six weeks
Stagger dates so more teachers can attend
Notify teachers directly about future workshops.
More time in Center

6. What activities would you suggest adding or deleting from the institute?

More electronics
Do not delete any
Add shop work in last week

7. What is your overall reaction to the entire institute? (Check one

_____ a. It was a complete waste of time.

_____ b. Mostly old stuff or of little significance.

1 c. Some of little value, mostly good.

~~*1111*~~ d. A valuable experience I was happy to have.

1 e. As good as it could be under the circumstances. (limitation of time, size of group)

~~*1111*~~ *11* f. Excellent: No criticism.

8. Number of years teaching experience *5 had 1; 2 had 2;* . *1 had 5; 1 had 6; and 2 had 25 years.*

9. General comments on the institute.

Thanks-for excellent administration, instruction, and enthusiasm.
Enjoyable-Good-Outstanding
Preferred 3 week in training Center
Plan to come back.

THE FLORIDA STATE UNIVERSITY
TALLAHASSEE 32306

VOCATIONAL EDUCATION DIVISION

TRADE AND INDUSTRIAL
DISTRIBUTIVE
COOPERATIVE
MANAGEMENT TRAINING
HEALTH OCCUPATIONS
PERSONAL SERVICE
VOCATIONAL GUIDANCE SERVICES

July 3, 1970

To Whom it May Concern

This will certify that:

attended the Auto Mechanics Institure conducted at the Ford-Mercury Training Center, Jacksonville Florida, June 15 through July 3, 1970. This Institute was sponsored jointly by Florida State University and the State Department of Education.

W. L. Newton
Assistant Professor
Vocational Education

WLN:jw

CHRYSLER CORPORATION AUTOMOTIVE WORKSHOP

JACKSONVILLE, FLORIDA

June 15 - July 3 1970

Workshop for Auto Mechanics Instructors
Chrysler Corporation Portable Training Center
(120 Jupiter Circle - Orlando, Florida)
William Raines High School
3663 Clarkson Avenue
Jacksonville, Florida
June 15 - July 3, 1970

PARTICIPANTS

John J. Coleman
New Stanton
2354 W. Edgewood Ave.
Jacksonville, Florida 32209

Howard W. Francoeur
Clearwater Comprehensive Junior High
1048 Iroquois
Clearwater, Florida 33515

Louis J. Frketic
Paxon Senior High School
4709 Burgundy Rd.
Jacksonville, Florida 32210

Paul W. Griess
Apopka Memorial High School
3302 Conway Garden Rd.
Orlando, Florida 32806

Howard L. Hildreth
Fernandna Beach High School
Rt. 1 Box 236
Fernandina Beach, Florida 32034

Richard McBridge
Williams M. Raines High School
3504 Pearce St.
Jacksonville, Florida 32209

Andrew L. McClain
Palatka South High School
Post Office Box 102
East Palatka, Florida 32031

John E. Myers
Englewood High School
4418 Kennedy Ct.
Jacksonville, Florida 33207

Norman J. Reiner
Withlacoochee Vocational Technical Center
Post Office Box 1113
Inverness, Florida 32650

Leonard A. Sprinkles
Jones High School
7010 Pender Way
Orlando, Florida 32807

Herbert W. Stobert
Brewster Adult Technical School
1201 S. Lincoln Ave
Lakeland, Florida 33803

Samuel S. Williams
William M. Raines High School
2064 W. 17th
Jacksonville, Florida 32209

INTRODUCTION

This Automotive Workshop was planned and conducted co-operatively by personnel of the Division of Vocational, Technical and Adult Education, State Department of Education, Tallahassee, Florida; the Vocational Education Department of the Duval County School Board, Jacksonville; the Chrysler Motor Corporation's Atlanta Training Center, Atlanta Georgia; and the Vocational Teacher Education Department, College of Education, Florida State University, Tallahassee, Florida.

The twelve participants were selected from those recommended by their county superintendents and/or Vocational directors on the basis of their need and availability for the training. A stipend and travel allowance was provided for those who had to go out of their home counties to attend. Five of the twelve participants officially registered for and received the five quarter hours of college credit offered by Florida State University.

After registration and introductions, the class was turned over to Chrysler Corporation's instructor, Mr. Matt C. Rogers who provided the following very valuable program:

A. Engine Tune-up ..... 2 days
B. Electrical Work ..... 2 days
C. Power Steering and Front Suspension ..... 1 day
D. Air Conditioning ..... 1 day
E. Auto Temperature ..... 1 day
F. Brakes ..... 1 day
G. Automatic Transmissions ..... 1 day
H. Rear Axles ..... 1 day

The third week of the Jacksonville Workshops was devoted to Teacher Improvement. Through intensive study and practice in writing test questions, much progress was made in developing materials which can serve as a basis and guide in constructing a state-wide, standard, competence examination for students graduating from Vocational Industrial courses. Mr. John Sojat, State Division of Vocational, Technical, and Adult Education, Mr. Thomas Carter, Coordinator Vocational Industrial Education, Duval County School Board, and Mr. W. L. Newton, assistant Professor, Vocational Teacher Education, College of Education, Florida State University conducted this phase of the workshops. The participating teachers worked on phases of the examination represented by the following list.

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F.	Carl Farris	
G.	L. R. Lindsey	
C. (Chrysler)	L. A. Sprinkles	
G.	M. B. Dorsey	
G.	W. Robbins	
1-B	Engines	D-17
F.	Threadwell Campbell	
G.	W. L. McElroy	
F.	M. H. Shafer	
F.	Roy Hurst	
C.	P. W. Greiss	
G.	C. R. Atchley	
G.	W. T. Watkins	
2-A	Electrical	D-15
C.	A. L. McClain	
G.	A. Govantes	
C.	L. J. Frektic	
G.	A. J. Burnette	
F.	V. M. Derich	
G.	Bill Horne	
G.	L. A. Perpoll	
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G.	J. L. Groover	
G.	T. O. Andrews	
C.	N. J. Reinec	
G.	N. J. Wahington	
G.	Homer Bull	

GROUP NO.	SECTION	ROOM
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C.	H. L. Hildreth	
C.	Richard McBride	
F.	B. V. Lisle	
G.	A. C. Gonzalez	
G.	E. B. Taylor	
G.	Don Browning	
G.	Walter Basford	
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G.	K. G. McCallister	
G.	James Frost	
G.	Wayne Ruper	
G.	Fricker, E. F.	
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G.	J. W. Baggan	
C.	John Coleman	
F.	John E. Hutson	
G.	D. A. Chorvat	
G.	William Conner	
G.	J. K. Baxter	
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F.	Carrol N. Smith	
C.	S. S. Williams	
G.	P. E. Nixon	
G.	C. R. Barr	
G.	N. Mills	
G.	G. H. Stroud	

GROUP NO.	SECTION	ROOM
5-A	Emission System: Tune Up & Air Condition	D-6
C.	H. W. Stobert	
G.	K. J. Burlew	
G.	N. D. Nelson	
F.	G. T. Dumencich	
G.	Ray Wallenthin	
G.	Jose Lopez	
5-B	Emission System: Tune Up & Air Condition	D-9
C.	John E. Meyers	
G.	L. F. Lawson	
G.	G. B. Howden	
G.	Peter Bernado	
F.	E. G. Trumans	
G.	James W. McKinney	

Instructors Who Worked on Appliance Repair Examinations

Donald H. Buxton
H. L. Cheatham
Buck Commander
William C. Hansen
Amos T. Hatmaker
William B. Kelly
Paul Kretzschmar
James H. Lazenby
Edward J. Lemcke
William F. Long Jr.
Walter A. Lyons
Mack A. McQuaig
Andrew Madison
Ossie O. Padgett
Joseph H. Spencer Jr.
Warren G. Voegeli
Marcus A. Winsryg
Thomas C. Wynn

At the end of the third week, each participant was asked to evaluate the entire institute by filling out the survey form, "REACTIONS OF A PARTICIPANT," which follows.

The reactions and suggestions of the twelve participants were studied carefully and the results are summarized in italics on the form itself.

These will be used as guidelines in formulating plans for similar Workshops which may be instigated later.

REACTIONS OF A PARTICIPANT

INTRODUCTION

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INSTITUTE: *Automotive*

LOCATION: *Chrysler Corporation*

At William Raines High School

DATE: *June 15 - July 3, 1970*

SUMMARY OF
GENERAL REACTIONS AND SUGGESTIONS

1. What activity not in the program would you like to see included?

   8 of the 12 participants left this blank
   5 more practical shop work including transmissions

2. What changes would you suggest for the improvement of similar activities in the future? (Such as course content and method of instruction.)

   3 left blank
   All 3 weeks in training center
   Better location
   Better equipment and facilities
   More handouts and teaching aids

3. Aside from the topics, what did you like best about this institute?

   2 left blank
   3 Discussions with other teachers
   7 Quality of instructor and instructions

4. Aside from the topics what did you dislike about this institute?

   3 left blank
   Not enough hardware
   Poor location

Reaction Sheet

5. What other suggestions would you make for improving future institute?
2 left blank
Have a day of conference with outside prospective employers.
Notify teachers directly instead of through county.
Spend more time in shop

6. What activities would you suggest adding or deleting from the institute?

8 left blank
Night classes may increase learning
More handouts with time allocated for study

7. What is your overall reaction to the entire institute? (Check one

_____ a. It was a complete waste of time.

1 b. Mostly old stuff or of little significance.

_____ c. Some of little value, mostly good.

1111 11 d. A valuable experience I was happy to have.

1111 e. As good as it could be under the circumstances. (limitation of time, size of group)

1111 f. Excellent: No criticism.

8. Number of years teaching experience *3 had1; 2 had 3; 1 had 4; 1 had 5; 3 had 6; 1 had 19; and 1 had 23.*.

9. General comments on the institute.

5 left this blank
Fortunate to get to attend - hope to return
Technical information very worthwhile.

THE FLORIDA STATE UNIVERSITY
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July 3, 1970

To Whom it May Concern

This will certify that:

attended the Auto Mechanics Institute conducted at the Chrysler Training Center, Jacksonville Florida, June 15 through July 3, 1970. This Institute was sponsored jointly by Florida State University and the State Department of Education.

W. L. Newton
Assistant Professor
Vocational Education

WLN: jw

GENERAL MOTORS CORPORATION AUTOMOTIVE WORKSHOP

JACKSONVILLE, FLORIDA

June 15 - July 3, 1970

2119

Workshop for Auto Mechanics Instructors
General Motors Taining Center
9039 Beach Boulevard
Jacksonville, Florida
June 15 - July 3, 1970

PARTICIPANTS

Thomas O. Andrews
Polk Vocational Technical Center
2209 12th St. N.W.
Winter Haven, Florida 33883

Gerald R. Arney
Orange County Board of Instruction
432 North Main St.
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Charles R. Atchley
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Merritt Island, Florida 32952

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Alfred C. Gonzalez
Key West High School
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Alfred Govantes
Howard W. Blake High School
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Vanguard High School
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Ocala, Florida 32670

Lester F. Lawson
George Stone High School
709 Lakewood Rd.
Pensacola, Florida 32505

Lawrence R. Lindsey
Dixie Hollins High School
1700-28 St. S.
St. Petersbury, Florida

Jose' C. Lopez
Dixie M. Hollins High School
5251 54th St. N.
St. Petersburg, Florida

Kenneth G. McCallister
Titusville High School
62 Carpenter Rd.
Titusville, Florida 32780

Willie L. McElroy
Hialeah High School
16320 N.W. 23ct.
Opalocka, Florida 33054

James W. McKinney
Lakeview High School
285 James Dr.
Winter Garden, Florida 32787

Napoleon Mills
Manatee Area Vocational Center
203-10th Av. E.
Bradenton, Florida 33505

Gerald R. Myers
Mid. Florida Technical Institution
4200 Lake Underhill Dr.
Orlando, Florida 32803

Norwood D. Nelson Jr.
The English Center
230 W. 31 St.
Hialeah, Florida 33012

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Marion County High School
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Oklawaha, Florida 32679

Wayne Rupe
Polk Vocational Technical Center
422 21 st. S.W.
Winter Haven, Florida 333880

Douglas Southworth
Duval County
2102 Ronald Lane
Jacksonville, Florida 32216

George H. Stroud
Florida School for Deaf and Blind
83 Coquina
St Augustine, Florida 32084

Edward B. Taylor
Clay Jr. Sr. High School
303 E. Nyguist Cr.
Green Cove Springs, Florida 32043

Lawrence Udell
Hamilton County School
Post Office Box 135
White Springs, Florida 32096

Raymond S. Wallenthin
Anne Lytle #583
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Jacksonville, Florida 32210

Nathaniel J. Washington
Melbourne High School
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Cocoa, Florida 32924

Winzalo T. Walkins Sr.
Withlacoochee Vocational Technical Center
654 N.E. 1st St.
Crystal River, Florida 32629

INTRODUCTION

This Institute was conducted in the General Motors Company Training Center 9039 Beach Boulevard of U. S. Alt. #1S and U. S. 90S, Jacksonville, Florida, from June 16 through July 3, 1970. It was planned and conducted in cooperation with the Division of Vocational, Technical and Adult Education of the State Department of Education and the General Motors Training Staff.

Participants were recommended by their county superintendent or vocational directors and were selected on the basis of their need for the institute. The participants were given a stipend and travel allowance to offset the expenses of attendance.

Organization and registration was conducted on June 15, 1970, at 9:00 a.m. Registration for college credit was available for all those desirous of the 5 quarter hours credit and were officially registered in Florida State University. Thirty seven of the forty three participants registered for college credit.

After registration and introductions, Mr. Larry E. Saville, Manager of the General Motors Training Center, divided the participants into five groups for the two-week program in Automotive Mechanics. Four of the groups devoted two and one half days (22 hours) to each of the first four division programs and the fifth group (one teacher) joined another group and spent the entire ten days in the last division program.

Each of the five staff members as follows:

I Pontiac Motor Division
Mr. Ralph O. Martin, Instructor

A.	Remove and Re-install all parts in transmission case	2 hrs.
B.	Studying the proper names and positions of all parts	2 hrs.
C.	Disassemble, inspect, and assemble component parts	6 hrs.
D.	Study and trace power-flow and unit application	4 hrs.
E.	Study, trace, and inspect hydraulic oil circuits	8 hrs.

II Cadillac Motor Car Division
Mr. E. G. Bruno, Instructor
Electrical Accessories

A. Guide Matic: a semi-automatic electric device that controls the high and low beams of the cars headlights in response to light from approaching car.

1. Theory and operation
2. Diagnosis
3. Service

B. Cruise Control: a speed control system which employs manifold vacuum to power the throttle servo unit.

1. Theory and operation
2. Diagnosis
3. Service

C. Quadrajet Carburetor

1. Theory and operating
2. Early production changes
3. Diagnosis
4. Service

D. Emission Control System

1. Transmission controlled spark (T.C.S.)
2. Air injection reactions (A.I.R.)
3. Controlled combustion system (C.C.S.)

III United Motors Service
Gene Toles, Instructor
Advanced Electrical

A. Semi Conductors: Function and use in automotive electrical components

1. Ignition
2. Regulators
3. Generators
4. Transmission

B. Integrated Charging Systems

C. New product information

D. Electrical component of Emission Control System

IV Brake Division
George Keelean, Instructor

A. Review of History of Development

B. Fundamentals of Brakes

C. Operation and servicing of Disc Brakes

D. Operation and Servicing of Power Brakes

V Fisher Body Division
Mr. Charles T. Thompson, Instructor

A.	Fabric Roof Cover Repair	1 day
B.	Fabric Cover Replacement	1 day
C.	Metal Repair	2 days
D.	Gas Welding	1 day
E.	Heat Distortion and Shrinking	2 days
F.	Advanced Refinishing Techniques	3 days

The third week of the Jacksonville Workshops was devoted to Teacher Improvement. Through intensive study and practice in writing test questions, much progress was made in developing materials which can serve as a basis and guide in constructing a state-wide, standard, competence examination for students graduating from Vocational Industrial courses. Mr. John Sojat, State Division of Vocational, Technical, and Adult Education, Mr. Thomas Carter, Coordinator Vocational Industrial Education, Duval County School Board, and Mr. W. L. Newton, assistant Professor, Vocational Teacher Education, College of Education, Florida State University conducted this phase of the workshops. The participating teachers worked on phases of the examination represented by the following list.

Instructors Who Worked on Automotive Examination

GROUP NO.	SECTION	ROOM
1-A	Engines	D-14
F. (Ford)	Lynn L. Banister	
G. (G.M.C.)	Gernald R. Arney	
F.	Carl Farris	
G.	L. R. Lindsey	
C. (Chrysler)	L. A. Sprinkles	
G.	M. B. Dorsey	
G.	W. Robbins	
1-B	Engines	D-17
F.	Threadwell Campbell	
G.	W. L. McElroy	
F.	M. H. Shafer	
F.	Roy Hurst	
C.	P. W. Greiss	
G.	C. R. Atchley	
G.	W. T. Watkins	
2-A	Electrical	D-15
C.	A. L. McClain	
G.	A. Govantes	
C.	L. J. Frektic	
G.	A. J. Burnette	
F.	V. M. Derich	
G.	Bill Horne	
G.	L. A. Perpoll	
2-B	Electrical	D-10
G.	John D. Davis	
G.	J. L. Groover	
G.	T. O. Andrews	
C.	N. J. Reinec	
G.	N. J. Washington	
G.	Homer Bull	

GROUP NO.	SECTION	ROOM
3-A	Front End Steering & Brakes	D-12
C.	H. L. Hildreth	
C.	Richard McBride	
F.	B. V. Lisle	
G.	A. C. Gonzalez	
G.	E. B. Taylor	
G.	Don Browning	
G.	Walter Basford	
3-B	Front End Steering & Brakes	D-13
F.	John A. McKinley	
G.	Douglas Southworth	
G.	K. G. McCallister	
G.	James Frost	
G.	Wayne Ruper	
G.	Fricker, E. F.	
G.	G. R. Meyers	
4-A	Transmissions and Drive Line	D-11
G.	J. W. Baggan	
C.	John Coleman	
F.	John E. Hutson	
G.	D. A. Chorvat	
G.	William Conner	
G.	J. K. Baxter	
4-B	Transmissions and Drive Line	D-8
F.	Carrol N. Smith	
C.	S. S. Williams	
G.	P. E. Nixon	
G.	C. R. Barr	
G.	N. Mills	
G.	G. H. Stroud	

GROUP NO.	SECTION	ROOM
5-A	Emission System: Tune Up & Air Condition	D-6
C.	H. W. Stobert	
G.	K. J. Burlew	
G.	N. D. Nelson	
F.	G. T. Dumencich	
G.	Ray Wallenthin	
G.	Jose Lopez	
5-B	Emission System: Tune Up & Air Condition	D-9
C.	John E. Meyers	
G.	L. F. Lawson	
G.	G. B. Howden	
G.	Peter Bernado	
F.	E. G. Trumans	
G.	James W. McKinney	

Instructors Who Worked on Appliance Repair Examinations

Donald H. Buxton
H. L. Cheatham
Buck Commander
William C. Hansen
Amos T. Hatmaker
William B. Kelly
Paul Kretzschmar
James H. Lazenby
Edward J. Lemcke
William F. Long Jr.
Walter A. Lyons
Mack A. McQuaig
Andrew Madison
Ossie O. Padgett
Joseph H. Spencer Jr.
Warren G. Voegeli
Marcus A. Winsryg
Thomas C. Wynn

At the end of the third week, each participant was asked to evaluate the entire institute by filling out the survey form, "REACTIONS OF A PARTICIPANT," WHICH FOLLOWS.

The reactions and suggestions of the forty three participants were studied carefully and the results are summarized in italics on the form itself.

These will be used as guidelines in formulating plans for similar Workshops which may be instigated later.

REACTIONS OF A PARTICIPANT

INTRODUCTION

Your constructive reactions to this institute are invited on this form. They are needed as a basis for planning similar activities for you and others in the future. Hopefully, they can be made better with your help in identifying strengths which suggest more of the same and weaknesses which call for change and improvement.

This shouldn't take you a great deal of time, but please do it carefully, thoughtfully, and in the spirit of the invitation. Also, please do it without consulting others. Your independent reactions are wanted. Of course, it is not signed. Most meaning will be derived from a composite of the reactions, with the greatest attention given to the points of agreement among some of the participants.

INSTITUTE: *Automotive*

LOCATION: *General Motors Training Center*

DATE: *June 15 - July 3, 1970*

GENERAL REACTIONS AND SUGGESTIONS

1. What activity not in the program would you like to see included?
   15 of 43 participants left this blank.
   2 wanted more on Methods of teaching
   3 more time at training center
   2 more Diesel tuneup
   2 glasswork
   others complimentary

2. What changes would you suggest for the improvement of similar activities in the future? (Such as course content and method of instruction.)
   6 of 43 participants left this blank
   3 more time on fewer units.
   2 more glass work.
   4 more handout materials
   2 poor location for last week
   others complimentary

3. Aside from the topics, what did you like best about this institute?
   6 of the 43 participants left this blank
   20 quality of instruction and instructors.
   5 work with teachers from other schools
   6 facilities - clean, neat, adequate, cool, good food.
   3 training aids
   3 informality and communication between instructors and students

4. Aside from the topics what did you dislike about this institute?

   10 of the 43 participants left this blank
   14 no dislikes
   19 Location of third week.

Reaction Sheet

5. What other suggestions would you make for improving future institute?

12 of the participants left this blank.
Use 3rd week for lesson plans.
Better planning on motels, rates and reservations
10 location for 3rd week
10 none
More time in training center
More time for teachers to "get together and talk"

6. What activities would you suggest adding or deleting from the institute?

22 of the participants left this blank
5 none
More time for teachers to "get together and talk"
More handout materials
More time at training center.

7. What is your overall reaction to the entire institute? (Check one

____ a. It was a complete waste of time.

1 b. Mostly old stuff or of little significance.

~~1111~~ c. Some of little value, mostly good.

~~1111~~ ~~1111~~ ~~1111~~ d. A valuable experience I was happy to have.

~~1111~~ ~~1111~~ ~~1111~~ e. As good as it could be under the circumstances. (limitation of time, size of group)

~~1111~~ ~~1111~~ f. Excellent: No criticism.

8. Number of years teaching experience *6 had 1; 7 had 2; 6 had 3; 2 had 4; 5 had 5; 5 had 7; 2 had 9; 2 had 10; 1 had 11; 1 had 12; 1 had 13; 1 had 16; 2 had 18; 1 had 19; and 1 had 22*.

9. General comments on the institute.

18 of the participants left this blank
20 well planned, informative, educational, excellent, very good,
Change location of 3rd week.
Need more emphesis on professionalism and preparedness

THE FLORIDA STATE UNIVERSITY
TALLAHASSEE 32306

VOCATIONAL EDUCATION DIVISION

TRADE AND INDUSTRIAL
DISTRIBUTIVE
COOPERATIVE
MANAGEMENT TRAINING
HEALTH OCCUPATIONS
PERSONAL SERVICE
VOCATIONAL GUIDANCE SERVICES

July 3, 1970

To Whom it May Concern

This will certify that:

attended the Auto Mechanics Institute conducted at the Gereral Motors Training Center, Jacksonville, Florida, June 15 through July 3, 1970. This Institute was sponsored jointly by Florida State University and the State Department of Education.

W. L. Newton
Assistant Professor
Vocational Education

WLN:mo

COLLABORATING INDUSTRIES - MACHINE SHOP WORKSHOP

FORT LAUDERDALE, FLORIDA

July 15 - July 31, 1970

Workshop for Machine Shop Instructors
Sheridan Vocational Center
5400 Sheridan Street
Hollywood, Florida
July 15 - 31, 1970

PARTICIPANTS

Edward A. Arnold
North Technical Education Center
7071 Garden Road
Post Office Box 10415
Riviera Beach, Florida 33404

Thomas Booher
Sheridan Vocational Center
5400 Sheridan Street
Hollywood, Florida 33020

Louis J. Castronuovo
Sheridan Vocational Center
5400 Sheridan Street
Hollywood, Florida 33020

John Diehl
Booker T. Washington Jr. High
1200 N. W. 6 Avenue
Miami, Florida 33136

Wallace Elliot
Sheridan Vocational Center
5400 Sheridan Street
Hollywood, Florida 33020

Richard F. Finn
Broward Vocational Center-North
900 N. E. 56 Street
Fort Lauderdale, Florida 33308

Thomas Hillard
Polk Vocational-Technical Center
Route 1, Box 71-E
Bartow, Florida 33830

William C. House
Polk Vocational-Technical Center
Route 1, Box 71-E
Bartow, Florida 33830

James A. Humberstone
Dixie Hollins High School
4940 62 Street, North
St. Petersburg, Florida 33709

Theodore Lydzinski
Vocational-Technical Education
Dade County School Board
1410 N. E. 2 Avenue
Miami, Florida 33132

Edward F. Mahoney
Vocational-Technical Education
Broward County School Board
1350 S. W. 2 Court
Fort Lauderdale, Florida 33312

Gordon A. Masony
Broward County Vocational Center-North
900 N. E. 56 Street
Fort Lauderdale, Florida 33308

Vincent A. Mitchell
Hialeah Senior High School
251 E. 47 Street
Hialeah, Florida 33012

Ralph P. Mundell
Paxton Senior High School
3239 W. 5 Street
Jacksonville, Florida 32205

Hugh D. Norton
Centeral Florida Junior College
Post Office Box 1388
Ocala, Florida 32670

William Oakley
Sheridan Vocational Center
5400 Sheridan Street
Hollywood, Florida 33020

Richard J. Rickey
Vocational-Technical Education
Broward County School Board
1350 S. W. 2 Court
Fort Lauderdale, Florida 33312

Arlie J. Roberts
North Miami Senior High School
800 N. E. 137 Street
Miami, Florida 33161

Herman G. Voss, Jr.
Sheridan Vocational Center
5400 Sheridan Street
Hollywood, Florida 33020

INTRODUCTION

The summer Workshop for machine shop instructors was planned and organized cooperatively by personnel from many industrial plants and educational agencies. Each made many valuable contributions toward making it both practical and technical in nature and content. It was conducted in and from the Sheridan Vocational Center 5400 Sheridan Street, Hollywood, Florida and the Broward County Vocational Center 900 N.E. 56th Street, Fort Lauderdale, Florida.

The nineteen participants were selected from those recommended by their respective county superintendents and/or county directors of Vocational Education. Those participants who had to leave their home counties were paid a stipend and travel allowance to help with expenses of attending the workshop.

After the organization and orientation meeting 18 of the 19 participants were officially registered with Florida State University for the five quarter hours of college credit

AGENDA

WORKSHOP FOR MACHINE SHOP INSTRUCTORS

Sheridan Vocational Center
5400 Sheridan Street
Hollywood, Florida
July 15-31, 1970

July 15 8:30 a.m. - 9:30 a.m.
Registration - Room F-3
W. L. Newton, Registrar

9:30 a.m. - 12:00 noon
Basic Principles Involved in Developing a sound Philosophy and Principal Objectives for Vocational Education Programs

July 16 9:00 a.m. - 1:00 p.m.
Seminar - ECM
Chem-Form Plant - 1410 S. W. 8 Street
Pompano Beach

July 17 9:00 a.m. - 1:00 p.m.
Continuation of Seminar on ECM

July 20 9:00 a.m. - 1:00 p.m.
Seminar on EDM
Machine Shop - Sheridan Vocational Center

July 21 9:00 a.m. - 1:00 p.m.
Continuation of Seminar on EDM

July 22 8:30 a.m. - 4:30 p.m.
Developing and Using Performance Objectives
Room F-3, Sheridan Vocational Center

July 23 8:30 a.m. - 4:30 p.m.
Construction, Administration and Evaluation of tests

July 24 8:30 a.m. - 4:30 p.m.
Effective Techniques for Teaching in the Classroom and Shop

July 27 9:00 a.m. Meet at Broward County Vocational Center 900 N.E. 56th Street, Ft. Lauderdale; Phone 771-0515; For lost persons.

9:30 a.m. Esarbe Manufacturing
5421 N.E. 14th Avenue
Ft. Lauderdale
(Mr. Quinn Sturgis, Production Manager)

11:00 a.m. Luncheon
Sweden House (Smorgasbord)
5550 N. Federal Highway
Ft. Lauderdale

1:30 p.m. New Industrial Techniques
12325 West Sample Road
Coral Springs
(Mr. Don Manning,
Vice-President of
Manufacturing)

July 28 8:00 a.m. Meet at Broward
County Vocational Center
900 N.E. 56th Street
Ft. Lauderdale

9:00 a.m. Thomas Edison (McGraw)
1400 West Commercial Boulevard
Ft. Lauderdale
(Mr. Jim Brewer, Training and
Safety Supervisor)

11:00 a.m. Luncheon
Harris Imperial Steak House
A-1-A at Atlantic Boulevard
Pompano Beach

2:00 p.m. S.T.D.
1408 S.W. 8th Street
Pompano Beach
(Mr. Leonard E. Burgess, Vice-
President and General Manufacturing
Engineer

July 29 9:00 a.m. - 3:00 p.m.
Seminar - Numerical Control
Machine Shop, Sheridan Vocational Center

July 30 9:00 a.m. - 3:00 p.m.
Continuation of Seminar on Numerical Control

July 31 8:30 a.m. Meet at Broward County
Vocational Center
900 N.E. 56th Street
Ft. Lauderdale

9:30 a.m. Control Laser Corporation
1800 S.W. 7th Avenue
Pompano Beach
(Mr. Author Mintz, Vice-President
and General Manager)

At the end of the third week, each participant was asked to evaluate the entire institute by filling out two survey forms, "REACTIONS OF A PARTICIPANT" and "WORK CHECK SHEET" which follow, in this order.

The reactions and suggestions of the nineteen participants were studied carefully and the results are summarized in italics on both forms.

These will be used as guidelines in formulating plans for similar Workshops which may be instigated later.

REACTIONS OF A PARTICIPANT

INTRODUCTION

Your constructive reactions to this institute are invited on this form. They are needed as a basis for planning similar activities for you and others in the future. Hopefully, they can be made better with your help in identifying strengths which suggest more of the same and weaknesses which call for change and improvement.

This shouldn't take you a great deal of time, but please do it carefully, thoughtfully, and in the spirit of the invitation. Also, please do it without consulting others. Your independent reactions are wanted. Of course, it is not signed. Most meaning will be derived from a composite of the reactions, with the greatest attention given to the points of agreement among some of the participants.

INSTITUTE: *Machine Shop*

LOCATION: *Sheridan Vocational Center*
Hollywood Florida

DATE: *July 15 - 31, 1970*

Summary of
GENERAL REACTIONS AND SUGGESTIONS

1. What activity not in the program would you like to see included?
   6 of 19 participants left this blank.
   6 want more work practice on special machines
   4 more on programming and tape making
   3 perfectly satisfied.

2. What changes would you suggest for the improvement of similar activities in the future? (Such as course content and method of instruction.)
   6 left this blank.
   3 less lectures - more work practice
   More time for NC and EDM
   Not more than half-day lectures

3. Aside from the topics, what did you like best about this institute?
   4 Seminar on ECM and EDM
   9 Shop tours
   5 Good instructors - Good instruction
   1 modern techniques

4. Aside from the topics what did you dislike about this institute.
   8 left this blank
   8 classroom periods too long - too little movement.
   3 limited time on NC and programming.

Reaction Sheet

5. What other suggestions would you make for improving future institute?
8 left this blank
Select and motify participants earlier
Have similar workshop more often
Divide into smaller groups and alternate visits
Less FSU teaching

6. What activities would you suggest adding or deleting from the institute?
10 left this blank
More time for plant visits
More one ECM, EDM and NC

7. What is your overall reaction to the entire institute? (Check one

_____a. It was a complete waste of time.

_____b. Mostly old stuff or of little significance.

_____c. Some of little value, mostly good.

~~1111~~ ~~1111~~ ~~1111~~ d. A valuable experience I was happy to have.

111 e. As good as it could be under the circumstances. (limitation of time, size of group)

~~1111~~ *1* f. Excellent: No criticism.

8. Number of years teaching experience *4 had 1; 1 had 2;* ____.
3 had 3; 1 had 4; 1 had 5; 1 had 6; 2 had 7; 1 had 8; 1 had 9; 1 had 10; 2 had 15; and 1 had 21

9. General comments on the institute.

5 left this blank
4 very worthwhile
Should be conducted yearly
9 very good - very informative
Lectures good but too long.

WORKSHOP CHECK SHEET

WORKSHOP FOR MACHINE SHOP INSTRUCTORS

Sheridan Vocational Center
5400 Sheridan Street
Hollywood, Florida
July 15-31, 1970

Indicate your rating of each of the workshop sessions listed below on the basis of their value to you as an aid in updating your work.

Session	Topic	Check (✓) Poor	Fair	Average	Good	Excellent
1	Basic Principles Involved in Developing a Sound Philosophy and Principle Objectives for Vocational Education Programs		2		10	6
2	Seminar on ECM				3	16
3	Seminar on EDM		1		5	11
4	Developing and Using Performance Objectives		1		9	7
5	Construction, Administration and Evaluation of Testa		1	2	8	7
6	Effective Techniques for Teaching i the Classroom and Shop		1	3	6	8
7	Visits to Plants			1	5	12
8	Seminar on N/C	1	3	1	8	4

Comments *See Attached*

Note: Some instructors did not check all items.

COMMENTS BY ENROLLEES IN WORKSHOP

- "The entire seminar was very instructive, especially to a a new instructor such as I."
- "I believe we should have a 'pro' and 'con' meeting immediately after the shop visits."
- "Very good - well organized."
- "Would like to have seen some N/C equipment demonstrated at Sheridan. Too much time spent on F.S.U. principles."
- "As a whole, this workshop was very worthwhile. The time was better spent than in some of the other required courses. The plant visits were much more worthwhile conducted in a group such as this, rather than individually."
- "The workshop sessions were very informative and educational and will aid me in updating my work."
- "Very helpful to me as a new teacher."
- "Too much time spent on philosophy and objectives."
- "Some work was sketchy, probably due to lack of time. Otherwise, good use of time was indicated."
- "A very valuable experience."
- "Too much time wasted in seminar on N/C covering machining computer that should have been on N/C - someone other than salesman should be the instructor."
- "Less time devoted to teaching philosophy and more time to doing the job.
- "Good - let's have more and in other areas as well."
- "Classroom sessions were a little long and the chairs quite hard."

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VOCATIONAL GUIDANCE SERVICES

July 31, 1970

To Whom it May Concern

This will certify that:

attended the Machine Shop Institute conducted at the Sheridan Vocational Technical Center, Fort Lauderdale, Florida, July 15 through July 31, 1970. This Institute was sponsored jointly by Florida State University and the State Department of Education.

W. L. Newton
Assistant Professor
Vocational Education

WLN:mo

G. M. C.'s FRIGIDAIRE APPLIANCE WORKSHOP

JACKSONVILLE, FLORIDA

June 15 - July 3, 1970

Workshop for Appliance Instructors
Frigidaire Division
General Motors Training Center
9030 Beach Boulevard
Jacksonville, Florida
June 15 - July 3, 1970

PARTICIPANTS

Donald H. Buxton
Polk Vocation Technical Center
3209 Ave I N.W.
Winter Haven, Florida 33880

H. L. Cheatham
W. M. Raines High School
5101 Foxbora Rd.
Jacksonville, Florida 32208

Buck Commander
Pensacola Junior College
4512 Florelle Way
Pensacola, Florida 32505

William C. Hansen
#583 Annie Lythe
12540 Pulaski Rd.
Jacksonville, Florida 32218

Amos T. Hatmaker
Polk Vocational Technical Center
Rt. 1 Box 90R
Bartow, Florida 33830

Workshop Participants

William B. Kelly
Duval County High School
302 Bonnlym Dr.
Orange Park, Florida 32073

Paul Kretzschmar
Miami Jackson High School
4251 N.W. 12St.
Ft. Lauderdale, Florida 33313

James H. Lazenby
Duval County High School
7453 Greenway Sr. South
Jacksonville, Florida 32210

Edward J. Lemcke
Polk Vocational Technical Center
Rt. 1 Box 231-B
Ft. Meade, Florida 33841

William F. Lone Jr.
N. B. Forrest Senior High School
9909 103rd
Jacksonville, Florida 32210

Walter A. Lyons
Miami Senior High School
14545 English Rd.
Miami Lakes, Florida

Mack A. McQuaig
Columbia High School
Post Office Box 933
High Spring, Florida 32643

Andrew Madison
Vanguard High School
Rt. 1 Box 33
Reddick, Florida 32686

Ossie O. Padgett
George Stone Vocational Technical Center
Rt 2 Box 75
Brewton, Alabama

Joseph H. Spencer Jr.
Duval Board of Public Instruction #583
5848 Wending Dr.
Jacksonville, Florida

Warren G. Voegeli
Dixie Hollins High School
5240 47th Ave. N
St Petersburg, Florida

Marcus A. Winsryg
Technical High School
914 Old Hickory Rd.
Jacksonville, Florida 32207

Thomas C. Wynn
Ribault Senior High School
5106-Roanoke Blvd,
Jacksonville, Florida

INTRODUCTION

The Appliance Repair Workshop was conducted in Frigidaire Division of the General Motors Corporation Training Center located at 9039 Beach Boulevard or at the intersection of U.S. Highways 90 South and 1 South in Jacksonville, Florida from June 15 through July 3, 1970. It was planned and conducted in Cooperation with the Vocational, Technical and Adult Education of the State Department of Education and the staff of the General Motors Training Center.

Participants were recommended by their county superintendent or Vocational directors and were selected on the basis of their need for this experience. Those who had to go out of the County were given a stipend and travel allowance to help pay expenses.

Organization and registration for the Workshop were conducted at 9:00 a.m. on June 15, 1970. Fifteen of the eighteen participants wanted to obtain the five quarter hours credit offered for successful completion of the course and were officially registered in Florida State University.

These participants went to the Frigidaire Division's Laboratory where Mr. J. E. Crawford took them through the following program during the next ten days:

General Motors Training Center

Frigidaire Division

Product Information and Service Techniques

A. Basic Electricity and Fundamentals of Refrigeration .....5 days

B. Operation and Service of Frost Free Refrigerators .....2 days

C. Operation and Service and of Laundry Products.....1 day

D. Electric Range Service Techniques .....1 day

E. Review and General Service Procedures and Precautions .....1 day

At the close of the Workshop, The General Motors Training Center provided a steak dinner and an "After Dinner Speaker" for all participants and the staff presented each with an appropriate Diploma.

The third week of the Jacksonville Workshops was devoted to Teacher Improvement. Through intensive study and practice in writing test questions, much progress was made in developing materials which can serve as a basis and guide in constructing a state-wide, standard, competence examination for students graduating from Vocational Industrial courses. Mr. John Sojat, State Division of Vocational, Technical, and Adult Education, Mr. Thomas Carter, Coordinator Vocational Industrial Education, Duval County School Board, and Mr. W. L. Newton, assistant Professor, Vocational Teacher Education, College of Education, Florida State University conducted this phase of the workshops. The participating teachers worked on phases of the examination represented by the following list.

Instructors Who Worked on Automotive Examination

GROUP NO.	SECTION	ROOM
1-A	Engines	D-14
F. (Ford)	Lynn L. Banister	
G. (G.M.C.)	Gernald R. Arney	
F.	Carl Farr.s	
G.	L. R. Lindsey	
C. (Chrysler)	L. A. Sprinkles	
G.	M. B. Dorsey	
G.	W. Robbins	
1-B	Engines	D-17
F.	Threadwell Campbell	
G.	W. L. McElroy	
F.	M. H. Shafer	
F.	Roy Hurst	
C.	P. W. Greiss	
G.	C. R. Atchley	
G.	W. T. Watkins	
2-A	Electrical	D-15
C.	A. L. McClain	
G.	A. Govantes	
C.	L. J. Frektic	
G.	A. J. Burnette	
F.	V. M. Derich	
F.	Bill Horne	
F.	L.A. Perpoll	
2-B	Electrical	D-10
G.	John D. Davis	
G.	J. L. Groover	
G.	T. O. Andrews	
C.	N. J. Reinec	
G.	N. J. Wahington	
G.	Homer Bull	

GROUP NO.	SECTION	ROOM
3-A	Front End Steering & Brakes	D-12
C.	H. L. Hildreth	
C.	Richard McBride	
F.	B. V. Lisle	
G.	A. C. Gonzalez	
G.	E. B. Taylor	
G.	Don Browning	
G.	Walter Basford	
3-B	Front End Steering & Brakes	D-13
F.	John A. McKinley	
G.	Douglas Southworth	
G.	K. G. McCallister	
G.	James Frost	
G.	Wayne Ruper	
G.	Fricker, E. F.	
G.	G. R. Meyers	
4-A	Transmissions and Drive Line	D-11
G.	J. W. Baggan	
C.	John E. Hutson	
F.	D. A. Chorvat	
G.	William Conner	
G.	J. K. Baxter	
G.		
4-B	Transmissions and Drive Line	D-8
F.	Carrol N. Smith	
C.	S. S. Williams	
G.	P. E. Nixon	
G.	C. R. Barr	
G.	N. Mills	
G.	G. H. Stroud	

GROUP NO.	SECTION	ROOM
5-A	Emission System: Tune Up & Air Condition	D-6
C.	H. W. Stobert	
G.	K. J. Burlew	
G.	N. D. Nelson	
F.	G. T. Dumencich	
G.	Ray Wallenthin	
G.	Jose Lopez	
5-B	Emission System: Tune Up & Air Condition	D-9
C.	John E. Meyers	
G.	L. F. Lawson	
G.	G. B. Howden	
G.	Peter Bernado	
F.	E. G. Trumans	
G.	James W. McKinney	

Instructors Who Worked on Appliance Repair Examinations

Donald H. Buxton
H. L. Cheatham
Buck Commander
William C. Hansen
Amos T. Hatmaker
William B. Kelly
Paul Kretzschmar
James H. Lazenby
Edward J. Lemcke
William F. Long Jr.
Walter A. Lyons
Mack A. McQuaig
Andrew Madison
Ossie O. Padgett
Joseph H. Spencer Jr.
Warren G. Voegeli
Marcus A. Winsryg
Thomas C. Wynn

At the end of the third week, each participant was asked to evaluate the entire institute by filling out the survey form, "REACTIONS OF A PARTICIPANT," which follows.

The reactions and suggestions of the eighteen participants were studied carefully and the results are summarized in italics on the form itself.

These will be used as guidelines in formulating plans for similar Workshops which may be instigated later.

REACTIONS OF A PARTICIPANT

INTRODUCTION

Your constructive reactions to this institute are invited on this form. They are needed as a basis for planning similar activities for you and others in the future. Hopefully, they can be made better with your help in identifying strengths which suggest more of the same and weaknesses which call for change and improvement.

This shouldn't take you a great deal of time, but please do it carefully, thoughtfully, and in the spirit of the invitation. Also, please do it without consulting others. Your independent reactions are wanted. Of course, it is not signed. Most meaning will be derived from a composite of the reactions, with the greatest attention given to the points of agreement among some of the participants.

INSTITUTE: *Appliance Repair*

LOCATION *Frigidaire Division*
General Motors Training Center

DATE: *June 15 - July 3, 1970*

GENERAL REACTIONS AND SUGGESTIONS

1. What activity not in the program would you like to see included.

More films - more new technology - more electricity
More effort toward standardizing procedures and methods of teaching.
More trouble-shooting practice
More time in training Center

2. What changes would you suggest for the improvement of similar activities in the future? (Such as course content and method of instruction.

7 to 8 participants left blank
more handouts
Admit only appliance repair teachers and divide into beginners and advanced groups.

3. Aside from the topics, what did you like best about this institute?

3 left these blank
8 quality of instructor and instruction
3 discussions with other instructors
Others complimentary of whole course, facilities, etc.

4. Aside from the topics what did you dislike about this institute?

9 left this blank
5 resented "old timers" and "know-it-alls" disrupting the instruction
2 location for 3 rd. week
2 limited time and work in the center.

Reaction Sheet

5. What other suggestions would you make for improving future institute?

5 left blank
Make smaller groups of homogenious members.
Spend all 3 weeks in training center.

6. What activities would you suggest adding or deleting from the institute?

8 left blank
Industrial electricity
Add solid state
More on controls-electrical and mechanical

7. What is your overall reaction to the entire institute? (Check one

_____ a. It was a complete waste of time.

1 b. Mostly old stuff or of little significance.

_____ c. Some of little value, mostly good.

~~1111~~ ~~1111~~ *11* d. A valuable experience I was happy to have.

~~1111~~ *1* e. As good as it could be under the circumstances. (limitation of time, size of group)

11 f. Excellent: No criticism.

8. Number of years teaching experience *4 had 1; 2 had 2;* .
1 had 3; 1 had 4; 3 had 5; 1 had 7; 2 had 10; 1 had 11; 2 had 16; and 1 had 21

9. General comments on the institute.

Well planned and executed
Excellent instruction
Hope to be back next year.

THE FLORIDA STATE UNIVERSITY
TALLAHASSEE 32306

VOCATIONAL EDUCATION DIVISION

TRADE AND INDUSTRIAL
DISTRIBUTIVE
COOPERATIVE
MANAGEMENT TRAINING
HEALTH OCCUPATIONS
PERSONAL SERVICE
VOCATIONAL GUIDANCE SERVICES

July 3, 1970

To Whom it May Concern

This will certify that:

attended the Appliance Repair Institute conducted at the General Motors Training Center, Jacksonville, Florida June 15 through July 3, 1970. This Institute was sponsored jointly by Florida State University and the State Department of Education.

W. L. Newton
Assistant Professor
Vocational Education

WLN:mo

KIEKHAEFER MERCURY SMALL ENGINE WORKSHOP

SARASOTA, FLORIDA

June 15 - July 3, 1970

Workshop for Small Engines Instructors
Kiekhaefer - Mercury Outboard Motor
Field Service Center
Sarasota, Florida
June 15 - July 3, 1970

PARTICIPANTS

John Bullard
Mays Junior High School
14135 Jackson Street
Richmond Hights, Florida 32806

John D. Carter
Jones High School
392 Domino Drive
Orlando, Florida 32805

Page L. Ford
Liberty County High School
Post Office Box 235
Bristal, Florida 32321

Robert M. Gay
Carrabelle High School
Post Office Box 283
Carrabelle, Florida 32322

Bobby E. Martin
Polk Vocational Technical Center
125 5th J. P.
Winter Haven, Florida 33880

Workshop Participants

James R. Rollins
Ketterlinus Junior High
47 Coguina Avenue
St. Augustine, Florida 32084

Floyd R. Rowan
Lincoln Middle School
3107 - 14 Avenue W.
Bradenton, Florida 33505

Frank G. Ruhle
Orange County School Board
1706 Queens Way Road
Orlando, Florida 32809

Ross W. Smith
Sarasota B. P. I.
3715 Villa France Avenue
Sarasota, Florida 33580

Alvin E. Witt
N. Technical Education Center
1909 Prairie Road
W. Palm Beach, Florida 33406

Student _____ Dealer _____ City _____ State _____ Zip _____ Dealer Code _____

STUDENT EVALUATION REPORT

Service Training Center Location Sarasota Sls. & Se

OUTBOARD			MERCRUISER			SNOW VEHICLE	OTHER
1 Wk	2 Wk	Adv	1 Wk	2 Wk	Adv	1 Wk	Name of Course 1 Wk

Dates Attended: From _____ to _____. Student's Mechanic _____ Other _____ (Specify)

Student Rating Code: ____ Qualified ____ Needs Experience _____ Requires Further Training

	QUALIFIED	NEEDS EXPER.	REQ. TRNG.
1. IGNITION SYSTEM - Test - Repair			
2-Cyl. Standard			
4-Cyl. Standard			
6-Cyl. Standard			
8-Cyl. Standard			
2-Cyl. Thunderbolt			
4-Cyl. Thunderbolt			
6-Cyl. Thunderbolt			
8-Cyl. Thunderbolt			
2. ELECTRICAL SYSTEM - Diagnosis - Test - Repair			
Starter			
Alternator			
Rectifier/Regulator			
Harness - internal/Ext.			
Instruments			
Electrical Switches			
3. TEST EQUIPMENT			
V-O-A Tester			
Magneto Analyzer			
Tachometer Tester			
Tach-Dwell Meter			
4. CARBURETOR/FUEL SYSTEM - Diagnosis - Repair			
Tillotson			
Carter			
Rochester			
Kiekhaefer			
AC			
Primer Bulb			
Filters			
5. TIMING-TESTING-ADJUSTING			
2-Cycle 2-Cyl.			
4-Cyl.			
6-Cyl.			

Timing-Testing-Adj. Cont.	QUALIFIED	NEEDS EXPER.	REQ. TRNG.
4-Cycle 4-Cyl.			
6-Cyl.			
8-Cyl.			
6. GEAR HOUSING			
Disassemble & Reassemble			
Water Pump			
7. DRIVE UNIT			
Disassemble & Reassemble			
Shimming Procedure			
8. SHORT BLOCK			
Disassemble & Reassemble			
Shimming Procedure			
9. INSTALLATION			
Engine/Drive			
Steering			
Remote Controls			
Propeller Selection			
10. HYDRAULICS			
Tilt			
Trim			
11. MISCELLANEOUS			
Tools & Equipment			
Trouble Shooting			
Warranty			
12. CLASSROOM PERFORMANCE			
Understands Manuals			
Interest & Attention			
Attitude & Cooperation			
Participation			

2171

COMMENTS (OVER)

SB2-2 (REV-2-12/68)

INTRODUCTION

This Workshop for Small Engine instructors was conducted in the Kiekhaefer Mercury Outboard Motor Field Service Center, Sarasota, Florida from June 15 through July 3, 1970. It was planned and organized cooperatively by personnel from the Kiekhaefer Mercury Company, the Division of Vocational, Technical and Adult Education, State Department of Education and the Vocational Teacher Education Department of Florida State University.

The ten participants were selected from those recommended by their county superintendent and/or county Vocational directors. Those who had to leave their home county were paid a stipend and a travel allowance to help with the cost of attending. These ten participants also registered for and received the 5 quarter hours of college credit provided by Florida State University.

After registration and orientation, the Kiekhaefer Mercury Small Engine Specialist took charge of the group and presented the three-week intensive treatment of the Service Training Materials outlined in the attached "Student Evaluation Report."

At the end of the third week, each participant was asked to evaluate the entire institute by filling out the survey form, "REACTIONS OF A PARTICIPANT," which follows.

The reactions and suggestions of the ten participants were studied carefully and the results are summarized in italics on the form itself.

These will be used as guidelines in formulating plans for similar Workshops which may be instigated later.

REACTIONS OF A PARTICIPANT

INTRODUCTION

Your constructive reactions to this institute are invited on this form. They are needed as a basis for planning similar activities for you and others in the future. Hopefully, they can be made better with your help in identifying strengths which suggest more of the same and weaknesses which call for change and improvement.

This shouldn't take you a great deal of time, but please do it carefully, thoughtfully, and in the spirit of the invitation. Also, please do it without consulting others. Your independent reactions are wanted. Of course, it is not signed. Most meaning will be derived from a composite of the reactions, with the greatest attention given to the points of agreement among some of the participants.

INSTITUTE: *Small Engines*

LOCATION: *Kiekhaefer - Mercury Outboard Motors*

DATE: *June 15 - July 3, 1970*

Summary of
GENERAL REACTIONS AND SUGGESTIONS

1. What activity not in the program would you like to see included?

2 of the 10 participants left this blank.
4 wanted more practical experience
2 more theory
4 others very good to excellent

2. What changes would you suggest for the improvement of similar activities in the future? (such as course content and method of instruction.)

Shop and classroom should be separate
More handouts
More visual aids
More practical experience

3. Aside from the topics, what did you like best about this institute?

Quality instructor - quality instruction
class size (10)
Discussions and fellowship
Troubleshooting practice

4. Aside from the topics what did you dislike about this institute?

3 left this blank
Classroom and shop together
Outside noise (adjacent to busy airport)

Reaction Sheet

5. What other suggestions would you make for improving future institute?

4 left this blank
More visual aids
Better classroom

6. What activities would you suggest adding or deleting from the institute?

6 left this blank
More work experience - in shop and on adjusting while operating in water.

7. What is your overall reaction to the entire institute? (Check one

____a. It was a complete waste of time.

____b. Mostly old stuff or of little significance.

1111 c. Some of little value, mostly good.

11 d. A valuable experience I was happy to have.

1111 e. As good as it could be under the circumstances. (limitation of time, size of group)

____f. Excellent: No criticism.

8. Number of years teaching experience *3 had 1; 1 had 3; 1 had 5; 1 had 10; 1 had 13; 1 had 15; 1 had 16; 1 had 25*.

9. General comments on the institute.

3 left blank
5 said excellent
1 privilege to attend
1 excellent instructor and instuction

THE FLORIDA STATE UNIVERSITY
TALLAHASSEE 32306

VOCATIONAL EDUCATION DIVISION

TRADE AND INDUSTRIAL
DISTRIBUTIVE
COOPERATIVE
MANAGEMENT TRAINING
HEALTH OCCUPATIONS
PERSONAL SERVICE
VOCATIONAL GUIDANCE SERVICES

July 3, 1970

To Whom it May Concern

This will certify that:

attended the Small Engines Institute conducted at the Mercury Outboard Training Center, Sarasota Florida, June 15 through July 3, 1970. This Institute was sponsored jointly by Florida State University and the State Department of Education.

W. L. Newton
Assistant Professor
Vocational Education

WLN:jw

KIEKHAEFER MERCURY SMALL ENGINE WORKSHOP

SARASOTA, FLORIDA

July 6 - July 31, 1970

Workshop for Small Engines Instructors
Kiekhaefer - Mercury Outboard Motor
Field Service Center
Sarasota, Florida
July 6 - 24, 1970

PARTICIPANTS

Willie L. Baxter
Dixie County High School
Post Office Box 162
Cross City, Florida 32628

Lee M. Crews Jr.
Suwannee - Hamilton Vocational Technical Center
502 Meadow St.
Live Oak, Florida 32060

Frank M. Fogarty
Paxon Senior High School
4845 Wesch Blvd.
Jacksonville, Florida 32207

John G. Hall
Wakulla High School
Post Office Box 265
Sopchoppy, Florida 32358

Linden H. Heston
Technical High School
1670 St. Paul Ave.
Jacksonville, Florida 32207

Eugene C. Poke
Florida School for the Deaf
15 Shevavdoak St.
St. Augustine, Florida 32084

Thomas E. Scott
Trenton High School
Post Office Box 369
Trenton, Florida 32693

Alvin L. Ward
Glades Co. B. P. I.
Box 287
Moore Haven, Florida 33741

Willie R. Young
George Stone Vocational School
1500 East Scott
Pensacola, Florida 32503

INTRODUCTION

The second section of the Workshop for Vocational teachers of Small Engines was conducted in the Mechanic Training Laboratory of the Kiekhaefer Mercury Outboard Motor Field Service Center, Sarasota, Florida from July 6 through July 31, 1970. It was planned and organized by personnel from Kiefhaefer Mercury Company, the Division of Vocational, Technical and Adult Education, State Department of Education and the Vocational Teacher Education Department of Florida State University, Tallahassee, Florida 32306.

The ten participants were selected from Small Engine instructors who were recommended by their respective county superintendents and/or Vocational directors. Each participant who had to go out of his home county was given a stipend and a travel allowance to help pay the cost of attending. Nine participants registered for and earned the 5 quarter hours of college credit offered by Florida State University.

After registration and introductions, the Kiekhaefer Mercury Small Engine Specialist took charge of the group and presented a three week, intensive treatment of the Service Training Materials outlined in the attached "Student Evaluation Report."

Student _____ Dealer _____ City _____ State _____ Zip _____ Dealer Code _____

STUDENT EVALUATION REPORT

Service Training Center Location Sarasota Sls. & Se

_____ OUTBOARD			_____ MERCRUISER			_____ SNOW VEHICLE	_____ OTHER Name of Course
1 Wk	2 Wk	Adv	1 Wk	2 Wk	Adv	1 Wk	1 Wk

Dates Attended: From _____ to _____. Student's Mechanic _____ Other _____ (Specify)

Student Rating Code: ____ Qualified ____ Needs Experience _____ Requires Further Training

	QUALIFIED	NEEDS EXPER.	REQ. TRNG.
1. IGNITION SYSTEM - Test - Repair			
2-Cyl. Standard			
4-Cyl. Standard			
6-Cyl. Standard			
8-Cyl. Standard			
2-Cyl. Thunderbolt			
4-Cyl. Thunderbolt			
6-Cyl. Thunderbolt			
8-Cyl. Thunderbolt			
2. ELECTRICAL SYSTEM - Diagnosis - Test - Repair			
Starter			
Alternator			
Rectifier/Regulator			
Harness - Internal/Ext.			
Instruments			
Electrical Switches			
3. TEST EQUIPMENT			
V-O-A Tester			
Magneto Analyzer			
Tachometer Tester			
Tach-Dwell Meter			
4. CARBURETOR/FUEL SYSTEM - Diagnosis - Repair			
Tillotson			
Carter			
Rochester			
Kiekhaefer			
AC			
Primer Bulb			
Filters			
5. TIMING-TESTING-ADJUSTING			
2-Cycle 2-Cyl.			
4-Cyl.			
6-Cyl.			

Timing-Testing-Adj. Cont.	QUALIFIED	NEEDS EXPER.	REQ. TRNG.
4-Cycle 4-Cyl.			
6-Cyl.			
8-Cyl.			
6. GEAR HOUSING			
Disassemble & Reassemble			
Water Pump			
7. DRIVE UNIT			
Disassemble & Reassemble			
Shimming Procedure			
8. SHORT BLOCK			
Disassemble & Reassemble			
Shimming Procedure			
9. INSTALLATION			
Engine/Drive			
Steering			
Remote Controls			
Propeller Selection			
10. HYDRAULICS			
Tilt			
Trim			
11. MISCELLANEOUS			
Tools & Equipment			
Trouble Shooting			
Warranty			
12. CLASSROOM PERFORMANCE			
Understands Manuals			
Interest & Attention			
Attitude & Cooperation			
Participation			

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COMMENTS (OVER)

SB2-2 (REV-2-12/68)

At the end of the third week, each participant was asked to evaluate the entire institute by filling out the survey form, "REACTIONS OF A PARTICIPANT," which follows.

The reactions and suggestions of the ten participants were studied carefully and the results are summarized in italics on the form itself.

These will be used as guidelines in formulating plans for similar Workshops which may be instigated later.

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REACTIONS OF PARTICIPANT

INTRODUCTION

Your constructive reactions to this institute are invited on this form. They are needed as a basis for planning similar activities for you and others in the future. Hopefully, they can be made better with your help in identifying strengths which suggest more of the same and weaknesses which call for change and improvement.

This shouldn't take you a great deal of time, but please do it carefully, thoughtfully, and in the spirit of the invitation. Also, please do it without consulting others. Your independent reactions are wanted. Of course, it is not signed. Most meaning will be derived from a composite of the reactions, with the greatest attention given to the points of agreement among some of the participants.

INSTITUTE: *Small Engines*

LOCATION: *Kiekhaefer Mercury Outboard Motors*

DATE: *July 6 - July 24, 1970*

Summary of
GENERAL REACTIONS AND SUGGESTIONS

1. What activity not in the program would you like to see included?

   3 of 10 participant left this blank
   More handouts
   Testing, troubleshooting and adjustments while in actual service.

2. What changes would you suggest for the improvement of similar activities in the future? (Such as course content and method of instruction.)

   3 left blank.
   Better seating and classroom
   More films and other visuals
   Less outside noise (adjacent to busy airport)

3. Aside from the topics, what did you like best about this institute?

   The instructor
   Chance to talk with other teachers
   Being able to "do" what was taught

4. Aside from the topics what did you dislike about this institute.

   2 left this blank
   No classroom - poor seating in shop and no air-conditioning
   Outside noise

Reaction Sheet

5. What other suggestions would you make for improving future institute?

2 left this blank.
More handouts
Ouiter place to study
Air-conditioning

6. What activities would you suggest adding or deleting from the institute?

7 left this blank
More time on outboard and no time on stern drive.

7. What is your overall reaction to the entire institute? (Check one)

_____a. It was a complete waste of time.

_____b. Mostly old stuff or of little significance.

_____c. Some of little value, mostly good.

1111 1 d. A valuable experience I was happy to have.

111 e. As good as it could be under the circumstances. (limitation of time, size of group)

11 f. Excellent: No criticism.

8. Number of years teaching experience *3 had 1; 3 had 2;* *1 had 5; 1 had 10; 1 had 18;*

9. General comments on the institute.

4 left this blank
Include lawn mower engines
Very good, satisfactory, time well spent.

THE FLORIDA STATE UNIVERSITY
TALLAHASSEE 32306

VOCATIONAL EDUCATION DIVISION

TRADE AND INDUSTRIAL
DISTRIBUTIVE
COOPERATIVE
MANAGEMENT TRAINING
HEALTH OCCUPATIONS
PERSONAL SERVICE
VOCATIONAL GUIDANCE SERVICES

July 24, 1970

To Whom it May Concern

This will certify that:
attended the Small Engines Institute conducted at the Mercury Outboard Training Center, Sarasota, Florida July 6 through July 24, 1970. This Institute was sponsored jointly by Florida State University and the State Department of Education.

W. L. Newton
Assistant Professor
Vocational Education

WLN:mo

COLLABORATING CONSULTANTS COSMETOLOGY WORKSHOP

Sheridan Vocational Center

Hollywood, Florida

July 13 - July 29, 1970

Workshop for Cosmetology Instructors
Sheridan Vocational Center
5400 Sheridan Street
Hollywood, Florida
July 13, - 29, 1970

PARTICIPANTS

Sybil M. Bishop
Sheridan Vocational Center
6531 Grant St.
Hollywood, Florida 33024

Dario A. Bogni
Brewster Adult Technical School
11719 Marjory Ave.
Tampa, Florida 33606

Mildred R. Cline
Lewis M. Lively Vocational Technical School
Rt. 9 Box 725
Tallahassee, Florida 32301

Katherine B. Cowden
North Technical Education Center
100 Shore Ct. Apt. 214A
North Palm Beach, Florida

Ovida R. Davis
Central Florida Junior College
416 So. E. Fort King St.
Ocala, Florida 32670

Venice A. Ergle
Withlacooche Vocational Technical Center
3631 S. E. 12th Pl.
Ocala, Florida 32670

Thelma N. Farley
Miami Senior High
430 West 33 St.
Hialeah, Florida 33012

Myrtice B. Flora
Tom P. Haney Vocational Technical Center
1906 Chestnut Ave.
Panama City Florida 32401

Margaret C. Foster
Tampa Bay Vocational Technical School
5703 Central
Tampa, Florida 33604

Lonnie M. Hancock
Central Florida Junior College
1305 N.E. Osceola Ave.
Ocala, Florida 32670

Juanita H. Harrison
Sheridan Vocational Center
5495 N.W. 10th Ct.
Ft. Lauderdale, Florida 33313

Jeanette L. Hatch
Swannee Hamilton Vocational Technical Center
Rt. 1 Box 172
Wellborn, Florida 32094

Ethel I. Krizbacker
Southwest Miami Vocational School
13801 N. Miami Ave.
Miami, Florida 33136

Dorothy H. Lane
Sheridan Vocational Center
2522 Lincoln St.
Hollywood, Florida 33020

Louise A. Mitchell
Miami Northwestern Senior High
3280 N.W. 51-St.
Miami, Florida 33142

Mary J. Morgan
Orange County Vocational School
1299 Groveland Ave.
Orlando, Florida 32806

Odessa S. Moses
Vocational Technical Center
Post Office Box 95
Branford, Florida 32008

Ann L. O'Mahony
St. Augustine Technical Center
Post Office Box 192
St. Augustine, Florida 32084

Ruth F. Pyburne
Sheriden Vocational Center
4760 N.W. 2nd Ct.
Plantation, Florida

Lillian E. Reichle
Lee Ct. Vocational Technical School
4020 E. River Dr.
Ft. Myers, Florida 33901

Geraldine Rohnbacker
W. Vocational Technical Center
1767 N.E. 11th St.
Ocala, Florida 32670

Dorothy C. Sawyer
North Technical Education Center
1212 Loxahatchee Dr.
West Palm Beach, Florida 33401

Gertrude F. Shipp
North Technical Education Center
665 W. 4th St.
Tivera Beach, Florida

Gladys W. Sumpter
Stanton Vocational High School
3148 Dandridge Dr.
Jacksonville, Florida 32209

Berenice R. Walker
South Florida Junior College
Rt. 2 Box 787-50
Avon Park, Florida 33825

Fannie C. Williams
Sheridan Vocational Center
16141 N.W. 18th Ct.
Opa Locka, Florida 33054

Betty J. Yates
Lee County Area Vocational Technical School
4777 McGregor Blvd.
Fort Myers, Florida 33902

Harvey M. Zarchin
Sheridan Vocational Center
17520 N.E. 7th Ct. N.
Miami Beach, Florida 33162

INTRODUCTION

The Cosmetology workshop was indeed a practical workshop and a technical seminar, both designed to add the "new" and the "now" to what the 28 Cosmetology teachers already knew and to what the 28 Cosmetology students who "sat-in" are learning. It was conducted in the Cosmetology department of the Sheridan Vocational Center, 5400 Sheridan Street, Hollywood, Florida from July 13 through July 29, 1970. Co-sponsors of the workshop were staff members of the Division of Vocational, Technical and Adult Education, State Department of Education and the Vocational Teacher Education Department, Florida State Univeristy.

Participants in this workshops were selected from those Cosmetology teachers who were recommended by their respective county superintendents and/or Vocational directors. Those participants who had to go out of their home county for the workshop were given a stipend and travel allowance to help defray the cost of attending.

After the organization and orientation meeting, those who wanted to receive the five quarter hours of college credit were officially registered in Florida State University's course VEN-419, Seminar in Vocational Education. 23 of the 28 participants registered for college credit.

Consultants and Specialists were carefully selected to present intensive treatments according to the following outline and schedule:

A. Hair Styling, Herbert (Blackie) Armstrong,
Armstrong University of Beauty
Cartersville, Georgia 30120

B. Chemistry of Cosmetology, Don Sullivan,
Chemistry Consultant, Mahdeen Laboratories
3737 Belt Line Road - P.O. Box 34630
Dallas, Texas 75234

C. Florida Law and Cosmetology,
Mrs. Ruth Campbell, District No. V
and Robert Hopperman, District No. I,
State Board for Cosmetology, Tallahassee, Florida

D. Cold Wave Techniques, Mrs. Dorothy Lane
Cosmetologist and Cosmetology Instructor,
Sheridan Vocational Center,
Hollywood, Florida

E. Color Technology and Techniques - Mrs. Pat O'Neil,
Clairol Color Technician, The Clairol Corporation
Miami, Florida

F. Make-Up, Mrs. Flo Kruper, Clairol Make-Up
Technician, The Clairol Corporation,
Miami, Florida

G. Student Grooming, Mrs. Hilda Papostrat,
Cosmetology Specialist,
Sarasota Technical School
Sarasota Florida

H. Negro Cosmetology - Thermal Pressing,
waving, and curling, Mrs. Fannie Williams,
Consultant Sheridan Vocational Center,
Hollywood, Florida

I. Round Table Discussions - Problems,
Questions, Answers,
Mary Morgan, Moderator, Cosmetologist
and teacher,
Orange County Vocational School,
Orlando, Florida

J. Pacesetter Films - Beauty, Fashion, and Poise
Mrs. Joann Torreta, Executive Producer,
P.O. Box 14203
Tampa, Florida 33609

K. Summarization and Challenge
W. L. Newton, Assistant professor
Vocational Teacher Education
Florida State University
904 Wildwood
Tallahassee, Florida 32306

At the end of the third week, each participant was asked to evaluate the entire institute by filling out the survey form, "REACTIONS OF A PARTICIPANT", which follows.

The reactions and suggestions of the twenty eight participanta were studied carefully and the results are summarized in italics on the form itself.

These will be used as guidelines in formulating plans for similar Workshops which may be instigated later.

REACTIONS OF PARTICIPANT

INTRODUCTION

Your constructive reactions to this institute are invited on this form. They are needed as a basis for planning similar activities for you and others in the future. Hopefully, they can be made better with your help in identifying strengths which suggest more of the same and weaknesses which call for change and improvement.

This shouldn't take you a great deal of time, but please do it carefully, thoughtfully, and in the spirit of the invitation. Also, please do it without consulting others. Your independent reactions are wanted. Of course, it is not signed. Most meaning will be derived from a composite of the reactions, with the greatest attention given to the points of agreement among some of the participants.

INSTITUTE: *Cosmetology*

LOCATION: *Sheriden Vocational Center*
Hollywood, Florida

DATE: *July 13 - July 29, 1970*

Summary of
GENERAL REACTIONS AND SUGGESTIONS

1. What activity not in the program would you like to see included?

12 of 28 participants left this blank
5 more practical work
5 more wig work
6 more teaching techniques, methods, aids.

2. What changes would you suggest for the improvement of similar activities in the future? (Such as course content and method of instruction.)

10 left this blank.
10 more time scheduled to work practice
5 less note taking - have guest artists duplicate and handout materials
More Don Sullivan

3. Aside from the topics, what did you like best about this institute?

2 left blank
15 Exchanging ideas - friendly atmosphere
Don Sullivan
Cooperation of Mrs. Sharron

4. Aside from the topics what did you dislike about this institute?

17 left this blank
Too much theory and not enough practice
Having students from Sheridan Vocational Center made group to large.
Lengthy last day session

Reaction Sheet

5. What other suggestions would you make for improving future institute?

12 left this blank.
More demonstrations and lab work.
More hair coloring - theory and practice
More on hair cutting, shaping, and styling

6. What activities would you suggest adding or deleting from the institute?

18 left this blank
Experience in iron curling
More on wigs and hairpieces
Delete good grooming and hair dressing

7. What is your overall reaction to the entire institute? (Check one)

_____ a. It was a complete waste of time.

1 b. Mostly old stuff or of little significance.

11 c. Some of little value, mostly good.

~~1111~~ ~~1111~~ ~~1111~~ ~~1111~~ *1* d. A valuable experience I was happy to have.

~~1111~~ e. As good as it could be under the circumstances. (limitation of time, size of group)

~~1111~~ ~~1111~~ f. Excellent: No criticism.

8. Number of years teaching experience _____.

9. General comments on the institute.

THE FLORIDA STATE UNIVERSITY
TALLAHASSEE 32306

VOCATIONAL EDUCATION DIVISION

TRADE AND INDUSTRIAL
DISTRIBUTIVE
COOPERATIVE
MANAGEMENT TRAINING
HEALTH OCCUPATIONS
PERSONAL SERVICE
VOCATIONAL GUIDANCE SERVICES

July 29, 1970

To Whom it May Concern

This will certify that:

attended the Cosmetology Institute conducted at the Sheridan Vocational Technical Center, Ft. Lauderdale, Florida, July 13 through July 29, 1970. This Institute was sponsored jointly by Florida State University and the State Department of Education.

W. L. Newton
Assistant Professor
Vocational Education

WLN:mo

VT 012 204
Newton, W.L.
Vocational Instructors Workshop in Cosmetology. Final Descriptive Report.

Florida State Univ., Tallahassee. Dept. of Vocational Education.
Florida State Dept. of Education, Tallahassee. Div. of Vocational, Technical, and Adult Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Aug70 64p.

DESCRIPTORS - *WORKSHOPS; *VOCATIONAL EDUCATION TEACHERS; *TRADE AND INDUSTRIAL EDUCATION; *COSMETOLOGY; COSMETOLOGISTS; HYGIENE; *TEACHER EDUCATION

ABSTRACT - A 3-week vocational teachers workshop, sponsored by Florida State University in cooperation with the Florida State Department of Education, was held to provide 28 cosmetology teachers and 28 students with current and new information. Topics were: (1) Hair Styling, (2) Chemistry, (3) Law and the State Board, (4) Cold Wave Techniques, (5) Color Technology and Techniques, (6) Make-Up, (7) Student Grooming, (8) Thermal Pressing, Waving, and Curling, and (9) a round table discussion of problems and questions. Outlines of the presentations including illustrations and examinations are included. At the end of the workshop, each participant was asked to fill out an evaluation, and these results are summarized. A related document is available as VT 012 203 (also in this issue). (SB)

VT 012 204

ED0 57254

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FINAL DESCRIPTIVE REPORT
VOCATIONAL INSTRUCTORS WORKSHOP

IN

C O S M E T O L O G T

BY
COLLABORATING CONSULTANTS
AND
OTHER SPECIALISTS

DEPARTMENT OF VOCATIONAL EDUCATION
COLLEGE OF EDUCATION FLORIDA STATE UNIVERSITY
IN COOPERATION WITH
FLORIDA STATE DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
TALLAHASSEE, FLORIDA

AUGUST 1970

REPORT BY:

W. L. NEWTON
ASSISTANT PROFESSOR
VOCATIONAL TEACHER EDUCATION

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A C K N O W L E D G E M E N T S

This Workshop required and received the support and assistance of a large number of people in various positions and capacities. Each of them made important contributions which are deeply appreciated. The body of this report identifies most of the contributors with their respective contributions.

Recognition and appreciation go to Florida State University and to the State Department of Education for making these teacher improvement activities available. The State Department of Education, through the division of Vocational, Technical, and Adult Education also provided staff and financial assistance.

Appreciation is expressed for the cooperation of the staff and for the Cosmetology laboratory and other facilities at the Sheridan Vocational Center, 5400 Sherida Street, Hollywood, Florida.

Special recognition and sincere appreciation go to Mrs. Christine Sharron, State Coordinator of Cosmetology Education for an outstanding job of helping to plan, organize, procure consultants and many other things essential to the success of this Workshop.

W. L. Newton
August 1970

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INTRODUCTION

The Cosmetology workshop was indeed a practical workshop and a technical seminar, both designed to add the "new" and the "now" to what the 28 Cosmetology teachers already knew and to what the 28 Cosmetology students who "sat-in" are learning. It was conducted in the Cosmetology department of the Sheridan Vocational Center, 5400 Sheridan Street, Hollywood, Florida from July 13 through July 29, 1970. Co-sponsors of the workshop were staff members of the Division of Vocational, Technical and Adult Education, State Department of Education and the Vocational Teacher Education Department, Florida State University.

Participants in this workshops were selected from those Cosmetology teachers who were recommended by their respective county superintendents and/or Vocational directors. Those participants who had to go out of their home county for the workshop were given a stipend and travel allowance to help defray the cost of attending.

After the organization and orientation meeting, those who wanted to receive the five quarter hours of college credit were officially registered in Florida State University's course VEN-419, Seminar in Vocational Education. 23 of 28 participants registered for college credit.

Consultants and Specialists were carefully selected to present intensive treatments according to the following outline and schedule:

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Workshop for Cosmetology Instructors
Sheridan Vocational Center
5400 Sheridan Street
Hollywood, Florida
July 13 - 29, 1970

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NOTES AND COMMENTS

by

Thelma Farley

July 13 Orientation and Registration

Mr. W. L. Newton, Florida State University

Mrs. Christine Sharron, Coordinator for Cosmetology

I. Assignment:
Research payroll jobs in field of Cosmetology

July 14 Stylist
Herbert "Blackie" Armstrong, Rome Georgia
Author of "Your Move to Better Hairdressing"

I. Discussion on Cram Courses.
II. Psychology in Student-Teacher relationships.
III. Working on the 42% of women needing the Cosmetologist.

A. What a woman wants is the most important factor in the world

1. 3 types of customers.

a. Woman having a large family, wants a hairstyle that is neat, clean and holds a set.

b. Career girls want high style or current trend.

c. Occasional customer who wants a natural or slightly different style for a specific occasion.

B. Goal in life is Happiness.

No one is born with knowledge

1. The three routes to get to our destination

a. Truth, (a liar is a mental murderer)
b. Honesty, (should be practiced at all times)
c. Justice, (result of truth and honesty)

2. Confidence of student is most important factor in teaching.

IV. Basic Fundementals of Hairstyling and How to Teach It.

A. Jet set-multiple combout

1. Teach one set that can have a number of different combout variations.

2. Line of direction-where hair begins and ends.

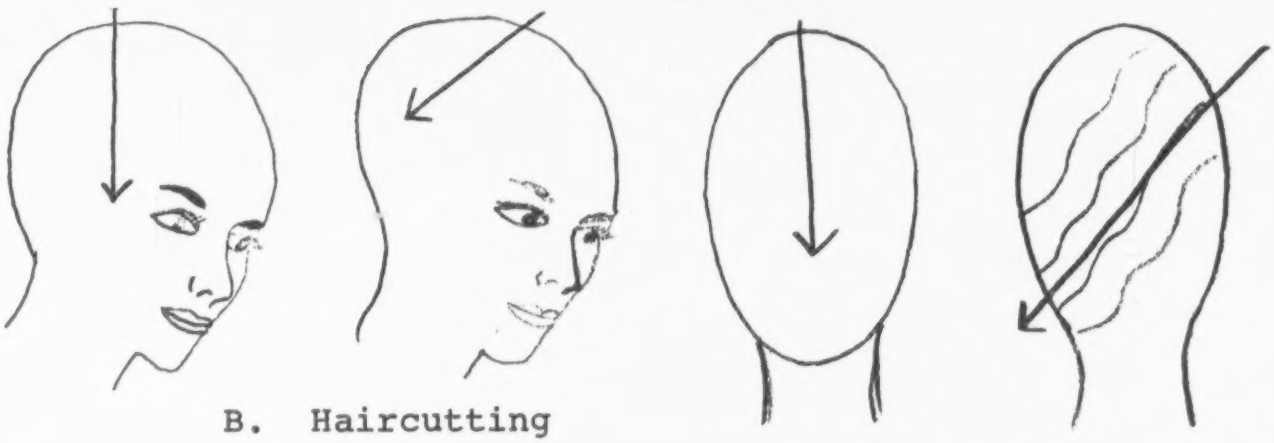
3. Flow of hair is the direction in which you want the hair to go.

   a. If hair is to be combed down, it should be set in a downward motion.

   b. If hair is to be combed at an angle, it should be set in the angle or direction you are going to comb it out.

4. Hold comb correctly.

   a. teeth away from you (brush comb position)
   b. teeth down (open comb)
   c. teeth angle (lock comb)



B. Haircutting

   I. The haircut is the bases of all good styling.

      a. Hold comb and razor in one hand.
      b. Section and cut every half inch at an angle.

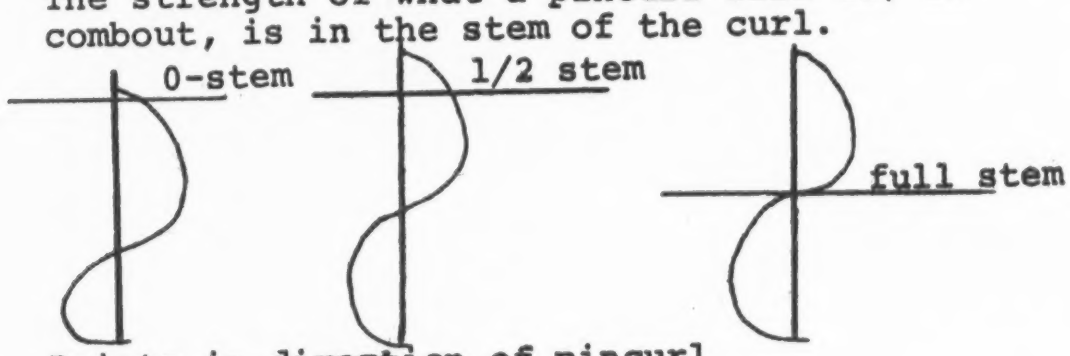
C. Setting

   I. Comb hair in direction of style combout.
   II. Set hair in direction of style combout.
   III. Brushout in direction of style to be completed.
   IV. Have complete control of hair at all times.

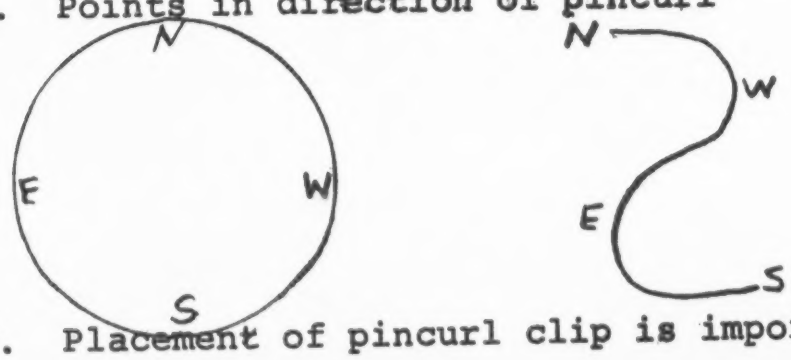
D. Stem direction in Pincurling.

I. First one-half to three-quarters of an inch of hair from the scalp is the most important part of the curl.

II. The strength of what a pincurl will do, in combout, is in the stem of the curl.



III. Points in direction of pincurl



IV. Placement of pincurl clip is important.

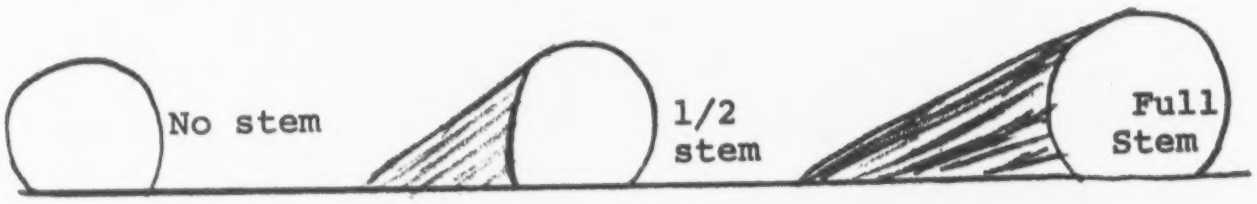
a. Do not place clip completely through to scalp, it disturbs the base direction of the curl.

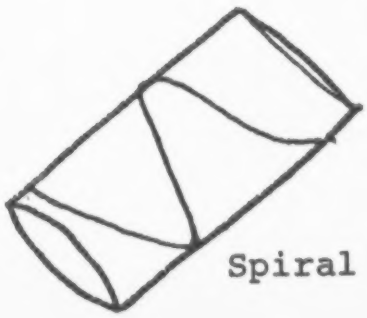
b. All stems have to be over-directed when gravity comes into play.

c. Back-combing has to be more solid.

D. Roller placement

a. For bulk and volume

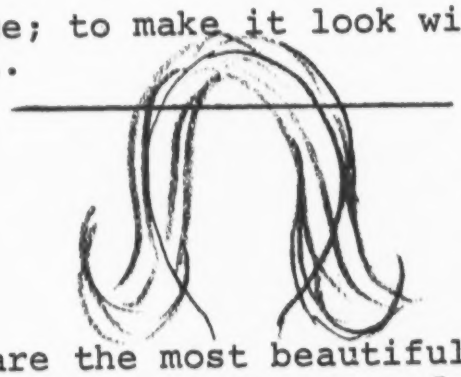




Everything we do to hair depends on light.
Optical illusions bring out dimension in styling and goes opposite to line of direction.

Illustration:

Thin face; to make it look wider. Optical illusion.



The EYES are the most beautiful feature of the body.
85% of all impressions are made by the eyes.

E. Parting Hair-use lock comb position, place finger at place where end of part is wanted, being comb through hair to finger and slide hair off comb with thumb.

I. In testing student, time parting for, haircut, applying color, and permanent waving.

F. Brushing:

I. Brush hair in direction of flow, have complete control of hair.

II. Weaving hair-back combing is out.

Weave hair at 90° angle.
Pull hair through strand as you weave.
Lock sections together, for firmer overall set.
Smooth out top hair.
Hold hair firmly between thumb and forefinger.

French Twist:

I. Hold hair towards center of back of head.
Use brush comb position and smooth hair to the center, hold and spray, brush smooth. Place bobby pin, lock each pin into top of previous pin up the back center of the head.

II. Brush hair from opposite side over pinned section, fold under and pin, twisting pin from left to right.

G. Setting hair in direction pincurls. (ribbon curls)

I. Comb hair straight back.
II. Direct hair in shadow wave effect to left.
III. Lift out strand of hair, grasp with thumb and forefinger, about 1/2 inch above directional base and ribbon comb through hair.
IV. Wind smooth flat circles, clockwise, from end to base and lay in wave, pin.
V. Follow through with each strand overlapping previous curl.
VI. Second row, direct hair to right and place curls in wave.
VII. Place curls going clockwise and counter clockwise in each wave direction.

This type of curl gives a deep arch and high ridge when needed.

Closed circut TV film of Mr. Armstrong working on a model, gave the instructors another version of classroom presentation, on manipulative demonstration for students.

July 15 A. Wigs and Hairpieces

Italian hair most valuable in the world.

Kanekalon, synthentic wig is most popular and easiest to clean and set.

1. Cold water used for cleaning and setting.

2. Dry under cool dryer.

3. Will not fade color or lose set.

Servicing Wigs

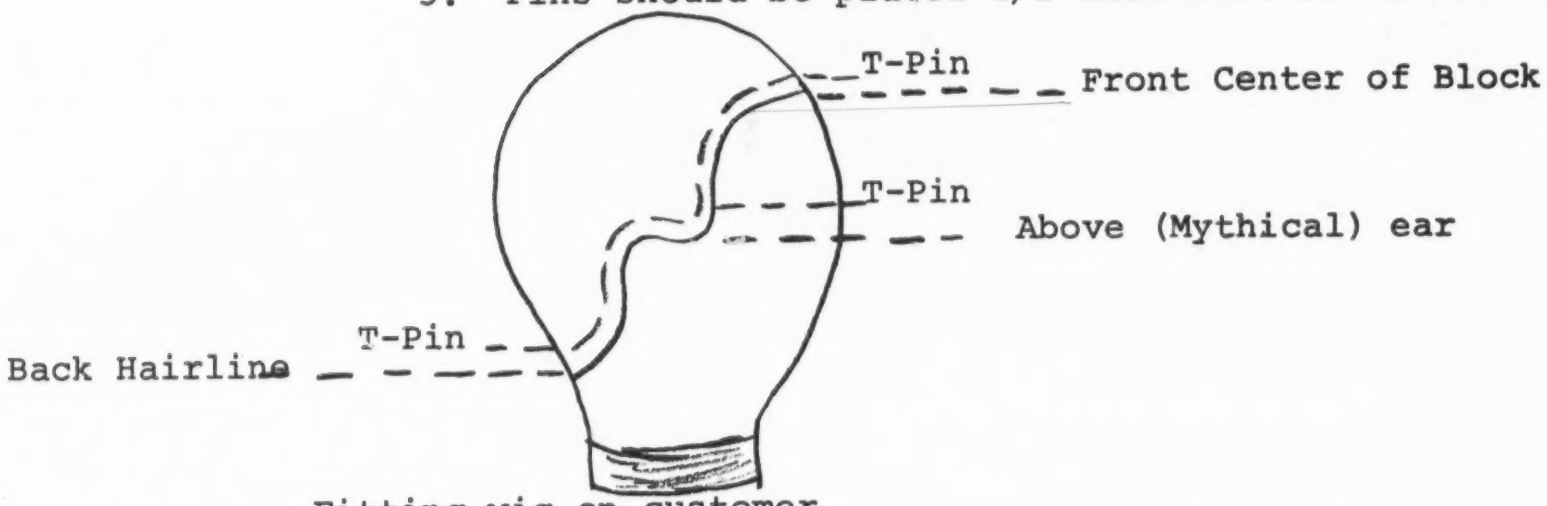
1. Synthetic wig netting is much stronger than human hair wigs.

2. Holds set through cleaning and drying, if if the hair direction is not changed.

3. Pinning the wig to the block in the right position is very important.

4. Block and wig should be the same head size.

5. Pins should be placed 1/2 inch back of hairline.



Fitting wig on customer.

1. Place wig over head of customer to eyebrow, slowly pull back to hairline, holding front of wig, slowly pull down back of head under occipital bone.

2. Wig should not rest on customers ears.

3. Tighten elastic and tie knot. After wig is fitted this knot is taken out and the elastic sewn in place.

4. To get the correct size of wig for customer, take the measurment 1/2 inch back of her hairline around the circumference of head.

Kinds of Wigs.

1. Hand tied-Crochet- Hair is pulled through net with a crochet hook.

2. Wefted-Machine made- Sewed to net by machine.

3. Semi-hand tied- just sewed at front so hair will come forward and hide base, or for bangs.

Human hair wigs should not be tapered at the back, they are usually thinner than synthetic wigs.

Cut dry with razor for best results.

Coloring Wigs.

1. Wigs can be dyed with all shades of RIT and Wella Tone.

   a. Boiling water then add color
   b. Leave wig 10 to 15 minutes
   c. Rinse with cool water

2. Reds are the most difficult to dye, to get an exact color.

3. Place on wig block (same size as wig) to dry or set.

Wig spray is a weaker solution than hair spray.

If a customer is having hair problems, a wig can help her until the hair returns to normal condition.

Haircutting from a central point.

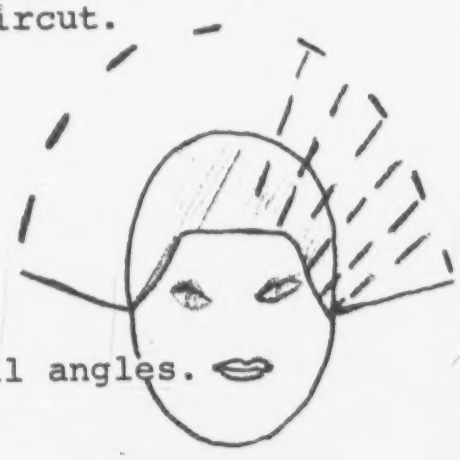
1. Hair must relate from front to back view.

2. Hold hair at a 90° angle from scalp, between forefinger and middle finger, with thumb pressing on knuckle of forefinger. This gives tension and you are able to get a better grip on the hair.

3. Section 1/2 inch guidline all around the head (see illustrations)

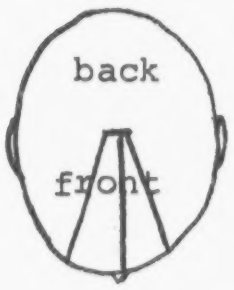
4. Take 1/2 inch partings from central point and cut from guidline, holding hair at 90° angle.

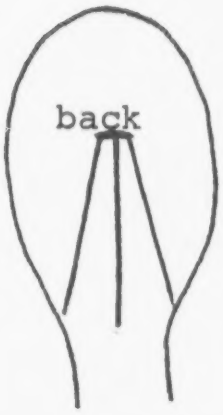
5. All hair needs a certain amount of tapering to have a well designed haircut.



Forms a fan when checked at all angles.

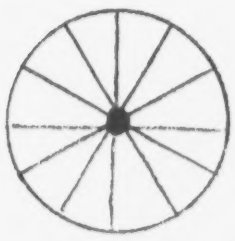
Central point
Back of head
Comb hair forward





1/2 inch guide line
around head

Hair direction



Do not taper naturally curly hair to much, it will bounce up.

Do not close tapering shears completely through hair when taking out hair,

Most hair has natural taper, due to breakage and tinting and ble ching.

Style Design

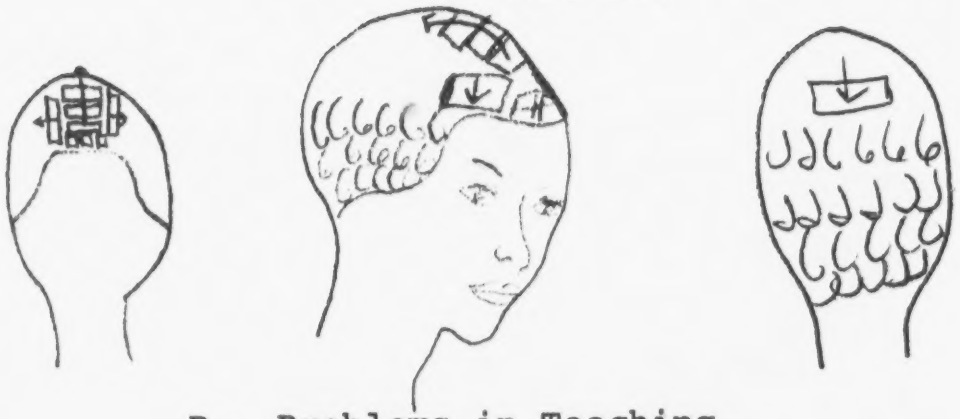
Be prepared to accept change, whether you like it or not.

Every woman basically wants to be different.

Length and leverage comes into play in style and cut.

a. Direction of growth,
b. Motivation of hair.

JET SET



B. Problems in Teaching.

Psychology in teaching, (I can't, I tried, I thought,) are all words used to get out of a situation.

No question is to elementary for a student to ask. A silly question to you, may be quite natural to a student.

Have compassion, respect each student and he or she will respect you.

Do not let one student stand in the way of another getting experience.

Our job is to give knowledge, not to with-hold it.

Never ask a student to do something you would not do yourself.

Discipline begins with the person that issues it.

How do you know you are getting through to the student.

1. Evaluation Tests.

2. Practical Tests.

C. Tinting and Bleaching

There are no color problems, only lack of color know how.

1. Color on color, goes darker.

2. Artificial color will not lift artificial color.

3. The level of color reflected from hair is determined by the amount of light it reflects.

4. When using a machine, it will not open the hair shaft enough to give a good toner.

5. Know the customers hair and test it before making any drastic changes in color. (As from dark brown to light blond.)

COLOR

Natural — Jet Black 1 - 9 — Swedish Blonde — Articicial 10 - 18

1 2 3	4 5 6	7 8 9	10 11 12 13 14 15 16 17 18	White Mink
Blue Silver or ash Colors	Red Beige Colors	Yellow Golden Colors		

To Eliminat Green -Purple- or Gold Casts use-

Gold Toner Will Elimi-nate Purple Cast	Red Will Elimi-nate Green	Violet Rinse Or Based Color Elimi-nates Gold	

Warm Colors

Red
Orange
Yellow

Cool Colors - Ash

Green
Blue
Violet

Neutral Colors

White, Gray, Black

July 16 Mr. Don Sullivan
Mahdeen Laboratories

Chemistry Consultant
Dallas, Texas

CHEMISTRY

Chemistry of salon Products is good only if it can be developed into an action.

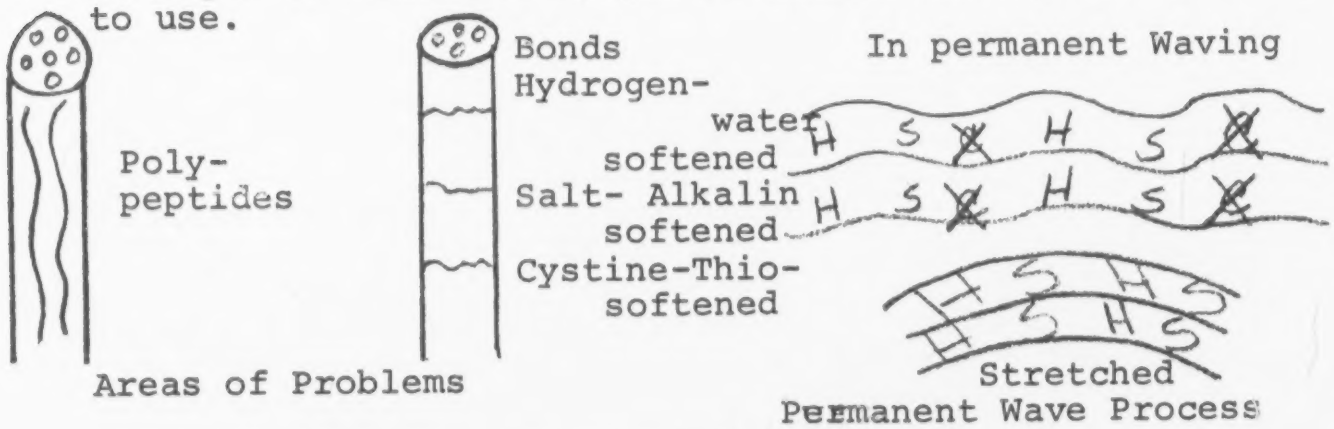
1. Cold wave lotions:
   10% of salon business is from Permanent Waves
   Prior to 1930 heat waves produced the permanent wave.
   1930 to 1970 cold wave (chemical) "Thio"
   pH 8.5 9.4

   a. Permanent Wave liquid
      6% Thio
      2% Ammonium hydroxide
      92% Water

Strength and elasticity of hair, has to be considered in determining the type of permanent wave lotion to use.

Strength - by porosity - drying time.
Elasticity - cystine bonds - how long set lasts.

Strength of hair and length determine timing and formula to use.



Areas of Problems

Permanent Wave Process

1. Hair must be properly cleansed.

   a. Do not use hot water. It swells the hair.
   b. Use light movements.

2. Hair should be conditioned before permanent wave if it is in a poor condition.

3. Extra end papers the length of the hair, if the hair is damaged.

4. Adjust lotion to hair condition.

5. Wrap with directional growth and not much tension.

2. Neutralizer.

20% Peroxide
10% Acedic Acid
70% Water

Towel blot hair, carefully so as not to disturb the formation of the curl.

a. Processing stops when you towel blot, as there is 50% less lotion left on the hair.
b. It is now AIR oxidizing.
c. Neutralize Hair, after test curlers determine the amount of curl that has been reached.

Solid cystine is broken down with permanent wave lotion.
Re-solidifies in different shape on neutralizing.

It is better to prevent damage, then have to correct it. Wear gloves when permanent waving. Solutions swell and soften nails and in time thicken and deform them.

Bleaches and Tints.

Peroxide - urea peroxide - manufactured.

H_2O_2 - 6% u.p. - 94% disstilled water = 20 vol. of Peroxide.

20 volume means volumes of gas released.

Peroxide breaks down from-air, heat, sun, motion, light, and metal.

During bleaching, mix and use at once. Do not let stand, it loses strength.

The general pH for peroxide falls between 4.2 and 5.

Hydrogen peroxide works effectively in acid, neutral or alkaline solutions.

Forms and Uses of Bleaches.

White Henna-magnesium carbonate
Oil Bleaches-sulfonated castor or olive oil.
Ammonium Oleate.
Peroxide Shampoo-shampoo and peroxide
Brightening Rinse-water and peroxide
Skin lighteners and bleach creams.

Permanent hair coloring requires care and professional application.

It should neither weaken, damage or change the hair texture.

3 Types:

1. Natural organic dyes-lived or grew from the soil.

2. Synthetic dyes-amino dyes. pH between 9&10.

3. Metallic dyes-metallic base, coats the hair.

Always throw away left over mixed tint because the color oxidizes and loses strength.

We should always cleanse the hair prior to coloring.

1. Shampoo once with a mild acidified shampoo.
2. Shampoo lightly with no scalp manipulations.
3. Use lukewarm water.
4. Rinse with cool water.

DO NOT dry under dryer, towel blot.

Shampoo Tints-shampoo and color.

Metallic Hair dyes-oxydized metals.

Dye Solvents-remove surface color.

Non-peroxide toners-milder than peroxide toners.

Reference to above can be found in, "The Chemistry of Salon Products" By Don Sullivan

pH

(hydrogen ionization) parts of hydrogen.

acid	Neutral	alkaline
excess hydrogen	7	excess hydroxide

1 ——— △ ——— 14

4.6 - 6.5
hair

The higher the pH the greater swelling of the hair.

July 17
Shampoo:

Bulk shampoo should not be bought until you try it for awhile to see what it will do.

pH 7 - 10 alkaline - weakens hair.
4.5 - 6.5 acid - strengthens hair.

The more foam or lather a shampoo has, the higher the pH. A lower pH or less lather is really a better shampoo, the general public expects more lather, the manufacturers and chemists, in order to please them, make most shampoos with more foaming action. This in fact does not make it a better shampoo.

Always dilute shampoo according to directions.

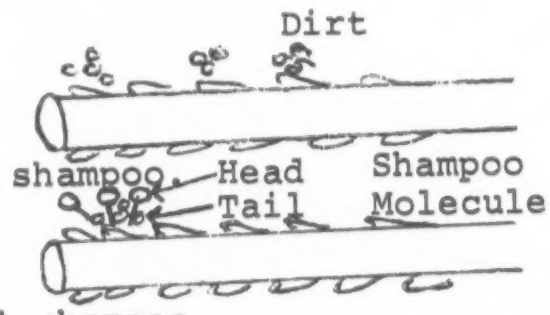
Strong shampoo will cause skin irritation.

A good shampoo should have the following:

1. Adequate suds (stability for 3 minute shampoos)
2. Cleansing action (hair should feel and be clean)
3. Variable pH (function in both hard and soft water)

4. Condition (to compensate for lose)
5. Flexibility
6. Surface action (remove spray, dirt and oil from hair)
7. Non-irritating to the eyes.
8. Clean, fresh fragrance.
9. Viscosity enough to hold hair.
10. Proper pH to acidify and tighten the hairshaft, and leave sheen.

Types:



1. Liquid shampoo
2. Liquid paste or creame shampoo
3. Egg shampoo
4. Herb shampoo
5. Dry shampoo
6. Animal or vegetable oil shampoo
7. Dandruff shampoo
8. Shampoo additives

   a. Opacifying agents
   b. Conditioning agents
   c. Shampoo preservatives
   d. Acidifying agents

Hair Sprays, Fixitives and Setting Lotions

1. Lacquers-stiff fixative-used to hold set longer.
2. Hair sprays-mild stiffining action, to hold set.
3. Wave set-used to set hair to hold for shorter length of time.
4. Jell wave set-water mixed.
5. Beer

All of these products have to be adjusted in consistency, during rainy or humid seasons.

The wetter the hair the better the set.

Dandruff

There is no known cure for dandruff, it can be arrested.

1. Use natural bristle brush or nylon with rounded bristles.
2. Allow scalp to get air.
3. Caused by-improper scalp cleansing and nerves.
4. Excess sebum.

Hair

Composed of 97% keratin protein and grows from an opening in the skin called a follicle.

Keratin-made of amino acids-19 found in hair shaft.

1. In skin, hair, and nails.
2. Is insoluable in dilute.
3. Can be acids or alkali

Myacin

1. Found in blood
2. Is water soluable

Collogen

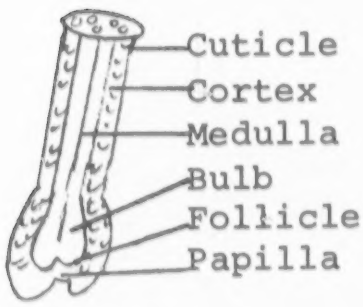
1. Connective tissue

Three layers of hair

1. Cuticle-outer layer.
2. Cortex-second layer.
3. Medulla-inner layer.

The amino acids link together and form polypeptide chains.
These are the vertical chains.
The horizontal links are called bonds.
They are hydrogen, sulphur, and cystine.

These chains and bonds are affected by tints, bleaches. and permenant waving, as well as by most of the products used by the beautician.



Dry Hair	20% Stretch
Wet Hair	40% Stretch
Perm. Wave Lotion	?

In using creams and lotions on the hair, care should be taken not to stretch it beyond its endurance, to return it to its compareable former state.

Skin

Its main function is to protect the body.
It is reproductive-mends or replaces damaged sections.
Secrets it own lubricating liquids.
Adjusts to the size of its owner, weight about 17 lbs.

Epidermis - outer layer

1. Eight layers of cells - continually shed and reproduce.

   a. Has no sensory endings, nor will it bleed.
   b. This is the layer that absorbs the suns rays and darkens the melanin (color pigment).
   c. Sun is very bad in excess. It causes dry wrinkled skin, skin cancer.
      Sun screening agents in cosmetics is becoming a must.
      Creams are better to use than oils.
      Secame seed oil repels suns rays 37%.

Endodermis - inner layer

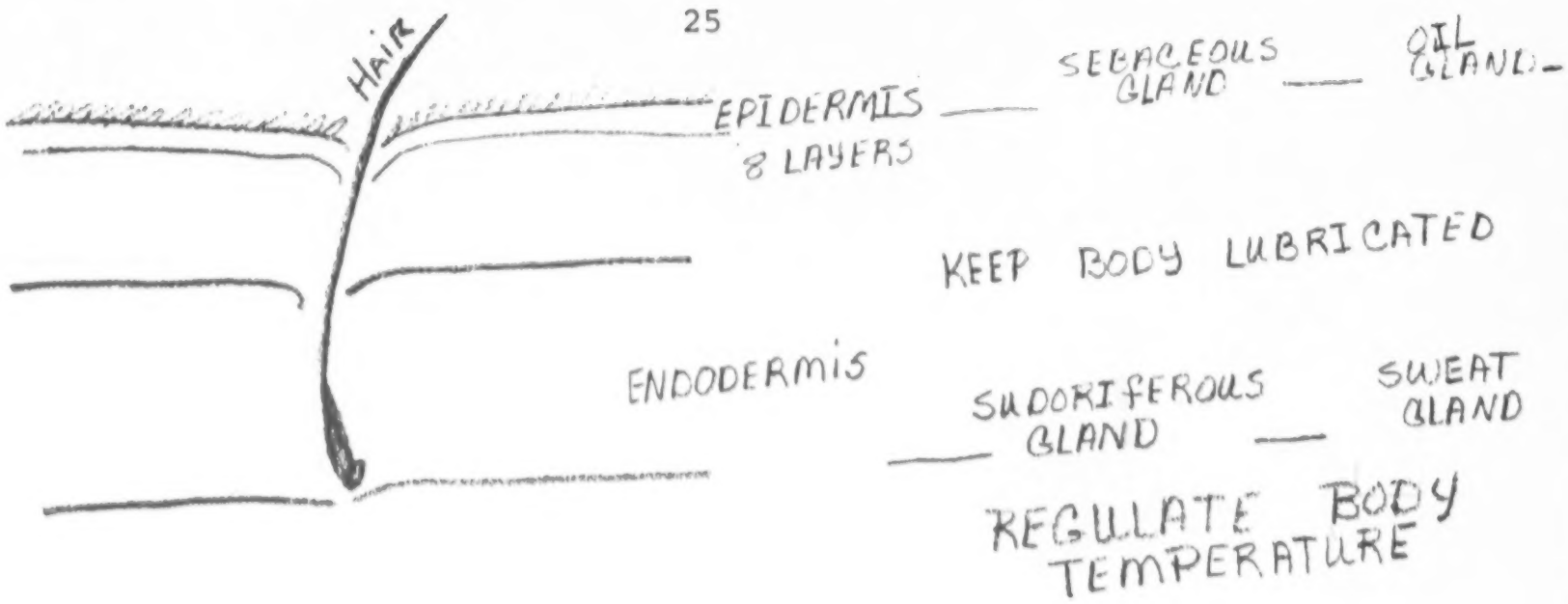
1. Reproductive layer.
2. Nervous blood system.
3. Color producing cells-melanin.

Excessive amounts of sebum causes oily skin.
Lesser amounts of sebum causes dry skin.

1. Protective creams are used to counteract these conditions. They should be used anytime a caustic material touches the skin.

Skin Allergies

50% of all women are allergic to some degree.
Should a customer suddenly show symptoms of being allergic to a product, rinse with abundance of cool water and call a physician.



Hair Conditioning

Hair needs conditioning whether it is natural virgin hair, or damaged. Even in its virgin state, the sun, humidity, salt water, and every day dust makes it dry and lifeless.

Conditioning treatments;

1. 45 min. heating cap.
2. 10 min. after shampoo type
3. protein setting lotion.
4. lotions, creams and tonics.

Healthy hair reflects a healthy scalp. Frequent manipulations, and shampooing will keep the normal hair in good condition.

July 20 Florida Law

Mrs.Ruth Cambell - District 5

Mr. Robert Hoppernan - District 1

Districts:

1-Robert Hoppernan
2-Eilene Carlton
3-Ruth Clefton
4-Frank Mediavilla
5-Ruth Cambell

A Bill has been passed by the Legislature (with the help of Senator Pope) to allow Deaf and Blind students to be able to take their Theory examination at St. Augustine and the Practical test at Winterhaven.

Work permits will be issued when the re-take examination is given, if a subject is failed.

The same rule applies to a person coming from another state.

Re-take examinations will be in the District the student resides.

If student examination date is scheduled at a future time after month completing 1200 hours, the student may stay in school for additional hours. These will be credited to her if needed in the future, for other States additional hours.

Keep PERMIT - Board member will pick it up on next visit.

If Permit is lost, write to Tallahassee for a duplicate.

When applying for a Masters certificate:

1. Work one year and take test at Winterhaven.
2. Work two years, request application B-36 and have all employers fill in time and work experience. Mail with renewal part of license, health card, picture and fee.

Mr. John Cashin, new Secretary of Division of Professional & Occupational Board.

State Board Examination and Problem Areas.

1. In the future there will be no set pattern on what practical work will be given first, ect.
2. The written tests are taken from test questions, sent in by instructors.
3. The same test is not given at each examination.
4. There are 40 students tested in practical and 40 in theory each day. In the a.m. and then reversed in the afternoon.
5. Four examiners are in the practical room and one in theory.
6. Students are fingerprinted, and it is checked with application.
7. In the future the student will be requested to bring a picture and it will also be checked with the one sent with the application.
8. In case of failure in a subject, the retake examination is a different test on the same subject failed.

If grades are desired by the student, she can write to Tallahassee for a copy.

The grades are averaged subject by subject, theory and practical together. Florida Law, Sanitation and Sterilization, with overall test.

There will not be a set pattern in the subject tested. It may start with Facials or Scalp treatments or what ever the Board decides for that testing date.

ALL INSTRUCTORS ARE INVITED TO ATTEND A STATE BOARD EXAMINATION

July 21 Mrs. Dorothy Lane Permanent Waving

Plateaus of Learning:

1. 300 hrs.- Eager to learn.
2. 700 hrs.- Have had basics, some customers, a little advance, begin to lose interest.
3. 900 hrs.- Old hat, sophisticated, have own mind and talent, slow down. Start timing them, it will get them back on the ball.

Cold Waving

The First cold waves used in the beauty salon in the 1930's were used for a short time and then taken off the market. Later, after being perfected, came back and have been used ever since. It was a revolutionary change from heat waves.

In the laboratories where permanent waving lotion is tested, it is shelved for six months after mixing to see if it is stable.

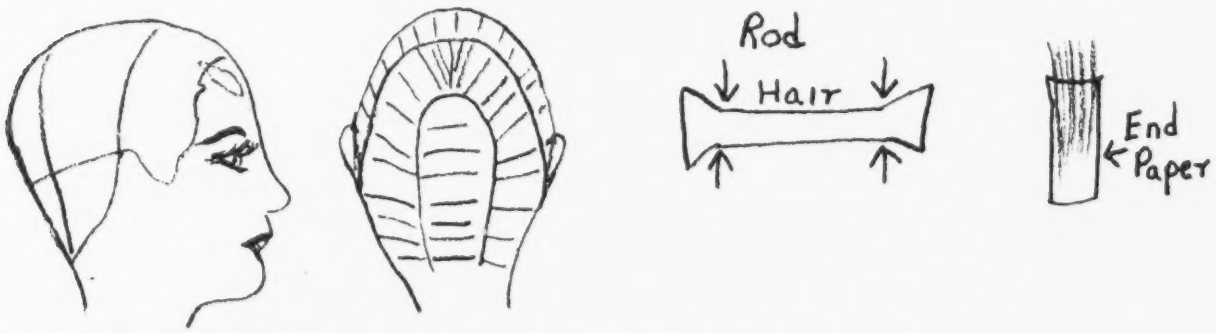
The permanent wave business has been lost in the salon, due to over curly, frizzy waves. It is time to get back to the natural soft looking wave.

Before starting the permanent have the student check the patrons hair texture, tension and tensil strength. Discuss with her what type of a permanent she expects. One that will last for three months or six months. This will help in deciding what strength lotion to use.

Teach the student to cut the hair before the wave, with scissors and ephilate. The razor leaves a end and it will get frizzy.

Start with a clean head, shampoo without scrubbing to hard.

Section the hair, this is for the Horseshoe or Halo blocking.



Select the size rollers for the type of curl you are going to give.

The first part of the wrapping of a curl is the most critical.
Smooth even tension in wrapping is important.
Comb and spread hair between fingers, so it does not form a V

Use one or more end papers to hold the hair.
Do not fold the end paper around the end of the hair.
Hair should be smooth on the rod.
Smaller rods at the nape area support the hair.
Hair should be very wet when wrapping.

Directional wrapping:

First rod should be the largest, - takes longer to process. Last rod the smallest, - if left on to long it will be over-processed.

Always test on a different curl.

Processing:

Place cotton around patrons hairline, if it gets wet, change immediately so as not to get a skin burn from the lotion.

Saturate each curl under and over the hair.
Test every 2 minutes. This is the second most critical point in the wave.
Do not push wave into formation, just let the hair relax to show line.

Towel blot out excess lotion, do not press to hard as it disturbs the curl.

Neutralize: (Follow directions of manufacturer.)

On top and under each curl, leave 5 min.

Be sure to wash rods and get all solution off.

"If the wave is not good, do not blame the customers system, it is generally the hairdressers SYSTEM."

Slides on pH and Permanent Waving aid the instructor in her lecture and demonstration.

When the customer comes in for her first shampoo and set, after the permanent, give a vinegar rinse. This will acidify the hair and help the wave last longer.

Personality, is the greatest asset, to go along with good work.

July 22 Mrs. Pat O'Neil Clairol Color Technician

Discussion on school instruction program, with slides, flip-cards, recruiting students, color application, movies and audio visual aides.

Clairol's new school educational program on color.

Life expectency of product: Dated on bottles.

Born Blond Toner-12 mos.
Clair Fill-12 mos.
Clairoxide-36 nos.
Come Alive Rinses-12 mos.
5 min. color-24 mos.
Loving Care-18 mos.
Miss Clairol #30, 49, 50,-1 yr.
Nice and Easy-30 mos.
10 min. Naturally Blonde-18 mos.
10 min. 408, 410, 411, 412,-24 mos.

Creme Developer-36 mos.
Lady Clairol & all Bleaches-36 mos.
All others unlimited.

Born Blond Lightener-24 mos.
Clair lite-24 mos.
Miss Clairol-24 mos.
Instant Care-24 mos.
Instant Whip-24 mos.
Silk & Silver-18 mos.
Kindness prod.-24 mos.
Salon Formula-12 mos.
36 mos. (9a, 10b ect, 24 mos.)

Picture Perfect: Mainly for bleached hair - vegatable base. No alcohol base - Kindness Protein base - use less than Fanciful Rinse as it is heavier.

Instant Come Alive Grey - made for grey hair.

Instant Come Alive Brown - made for Brown hair.

Loving Care - Give Patch Test - Select shade nearest own color. Oil base. Builds up on hair over a period of time. After a few applications, give root application for 5 mins. & than complete application. If buildup is heavy - use Metalex to remove. Metalex & Creme developer 1/2 and 1/2. Do not shampoo after Loving Care, the after packet rinse is a must, as it is an anti-acid. If the hair is to soft towel blot, it will close the hair shaft.

Silk & Silver - Same process.

If the liquid thickens in the bottle place it in warm water.

Hair Spray - base PVP - Polyvinal - Great Body shampoo will remove, and leave hair color safe.

Green and Blue shampoo - pH good for tinted hair.

Nice and Easy - Permanent color - anilin base. 20 min. product. covers 35% grey - used with White Essence. 20 Vol. very foamy - Develops faster.
Creme Developer not the same - do not use in place of White Essence.

5 minute Color - heavy base - will build up if shampooing is continuous. After 3rd. application, apply to roots first. Used by men.

Radiently Red - used with White Essence - wears well. These colors should not be used over grey hair.

All of the above are Stablilized colors.

Not Stabilized - Creme Toners & Naturally Blonde colors.

Bases:

Miss Clairol: Winter Wheat - Tan base - drab
#20 - Purple base - II shades (lightens)
#30 - Blue base - 9 shades (lightens)

Born Blonde: lotion toner

Silent Snow - blue
Sweet Silver - deeper blue
Blissful Blond - neutral
Beautiful Beige - Mauve
Fair Fawn - Tan
Happy Honey - Gold

Precious Platinum- Purple
Baby Blush- Mauve
Innocent Ivory- neutral
Winsome Wheat- Tan
Moonlite Mink- Tan
Sheer Strawberry- Red, Gold

Drabbers - In using Ermine or other drabbers, use at least 1/4 oz. #49 & #50 & Silver Drops (10 times stronger than Starlite)

Pre-Softening:
1. Shampoo & Silk rinse & dry hair.
2. Topaz & double peroxide on resistant hair, 15 mins
3. Clairolite can be used if very resistant.

Bleaching:
1. Clairolite - #5 purple. #4 blue. 45 mins. bleach time.
2. Lady Clairol Whip Creme Lightener - 7 Stages. plus Boosters.
3. Instant Whip - less alkaline.

4. Ultra-blue - raises porosity value, but not a high porosity bleach. Use up to 3 protinators prolong life of bleach up to 2 hours.
5. Born Blonde Lightener - use up to 3 Tonelettes.
6. 7-State Lightener - does not puff or run. Double drab. 2 Protinators.
7. Powder Bleaches.
8. Frosting Bleach - alkalinity very high.

Toners:

Just lighten to stage needed for toner application.
If hair runs to grey-use Clair Full-for second shampoo.
One part Clair Fill with one part Shampoo-5 min.
If hair is over damaged-Clair Fill treatment.
Rinse out toners (do not shampoo-water added to toner on the head forms lather to shampoo out.
Strand test for color development.
Crystals added to toner, neutralize bleach at roots. Always add to toner.
Apply Toner to toweled dry hair.
Toner can be used with Miss Clairol to give deeper tone.
When working on a black head of hair, after bleaching, use Miss Clairol for Toner.

Clair Fill: For damaged or over porous hair.

Leave on 20 min. Blot and let dry.
Use deeper shade than natural hair.
Be sure to get it off the scalp.

Removzit: (give Metalex treatment for 30 min. first)

Wash thoroughly and dry.
Treatment 24 hrs. before bleaching.
Combine 2 packets with HOT water (use gloves)
Use paint brush to apply.
Wrap with a towel and plastic cap.
Under dryer 30 min.
Rinse-tepid water-10 min. 3 to 4 shampoos.
Dry-wrap in white kerchief as hair will absorb color.
Do not comb or brush before bleach.

Conditioners.

1. Metalex-Reduces coating on hair. Keratin oil. water soluable. Penetrating hair shaft treatment. Good for over-processed permanents, demarcation line at time of color treatment,

and dark ends.
Can be mixed with Permanent Wave lotion-1to2 caps
2. Instant Conditioner-homoginized lotion.
Instant Conditioner-homoginized cremes.
3. Hair Dew-Pink Balsam.

Cream Rinse:
Hair So New - non-strip - no wax base. Less acid content.

Shampoos:
1. Great Body - corn mixture, keratin, color fast.
2. Green and Blue - for tinted and bleached hair.

Spray:
1. Shining Touch-for hair and wigs-gives luster.
2. Hair spray-no PVP clean base-flexation. does not obsorb moisture.

Bleach Application: 7 Stage re-touch with 2 powders.

Demonstrated on one of the instructors present.

July 23 Make-Up Mrs. Flo Kruper Clairol Technician

In the past it was the male that used make-up. It was during the Elizabethean era that women started wearing it. At that time just the women of nobility wore it. It was made of herbs, roots and berries, and was very theatrical.
Men also wore wigs at that time, in the long straight, or curly style. They were very highly decorated, and high styled. The women rebelled and decided they wanted to look more glamorous. The women shaved their heads, to wear the wigs, to be more comfortable.
In the 17th Century, George Washington era, women became more colorful, dry rouge was worn to highlight the face.
The wigs were worn to denote profession.
In the 18th Century, women became more fashionable. They grew their hair longer and started wearing more make-up.
The 19th, and 20th Century are the periods of educated make-up.

The Indians wore make-up to denote status, events and tribe.

Make-up should be worn to coordinate with your clothes.

Hats and gloves are still a must, for the well dressed woman.

1920's Large hats - long hair.
1930's Small hats - short hair.
1950's Brims - short hair.
1970's Picture hats - longer curly hair.

Hats - hair - clothes - make-up should coordinate.

Eye shadow - lipstick, with dress.
White-Black Blue shadow, Pink or Red lipstick.
Pinks-Blues Red or deeper variations of pinks. Blue shadow, Pink,red,mauve lipstick.
Beige-Light to Dark Browns, yellow, orange, light to dark green to olive. Green shadow, Orange to coral lipstick.

Facial

The two fingers used to apply make-up are the ring finger and the middle finger, the thumb is used for blending.

Do not apply a base that has an alcohol or astringent, use skin refresher, this will remove excess dirt from pores.

Skin Tones
Three depths of skin tones.
Light-Pink, light, medium or dark complextion.
Medium-Beige or Ivory-no yellow or pink appearance.
Dark-Olive-Yellow or greenish appearance.

Model used for demonstration had a light, pink skin. Silver hair. Make-up used, Base-gentle peach. Apply to eyelid also and under the chin.
Smooth fine lanuga hair on face, with a downward stroke, to blend in with make-up.

Liquid rouge-peach. 3 dots, high point of eye, middle of ear, high point of cheek. This is applied in this way no matter what shape the face is. Rouge should be worn to highlight the face. Keep above the earlobe. Lower makes a person look older.

Powder-gentle peach. Loose powder should be used for a facial.. Compact powder for touch-up.

Eyes should be made up from top to bottom from brow to lashes. Silver black-eyebrow pencil, worn in upward movement. To cut the length of a long nose, wear penciled brows close. To make a small nose look larger wear brows wider apart.

Eyeshadow-normal eye, light on top, darker on lid. Large eyes, reverse.

Blend away-for dark shadows and baggy pouches under the eyes.

Eyeliner-corner to corner extending just a little outer edge.

Mascara-first on top of lashes and then under. Rolling brush to curl lashes.

Lipstick-use brush, leave on 5 min. blot and reapply. If lips are large, decrease lower lip.

Blush -on to highlight.

Set make-up with wet paper towel.

Specialist Manicuring.

Mens manicure do not cut cuticle, clear polish or highly buffed with powder or cream. Pumis stone is used for stain or smoothing rough cuticle.

Buffing before all manicures will aid in a better manicure.

Woman-cut cuticle in one solid scoop, from one corner to the other.

Polish should be applied in 3 strokes. Roll finger. For long slender look, do not bring polish to the cuticle on the sides.

Manicure and Pedicure colors should coordinate.

Corrective work in Hair Coloring

Loving Care: for build up on hair.

Metalex-on before shampoo, 1/2 hr. under cap or dryer.
Shampoo 2 to 3. Rinse well before applying shampoo

Hair turns green during application or after-remove excess Loving Care with paper towel, apply #80 Auburn - enough to lather full head.
This will bring desired shade. Leave 5 to 10 mins.

The secret is to lather well.

Silk & Silver: eliminate yellow, green, and purple

Metalex if build up,
Yellow-#12 on yellow areas only, cap for 20 mins. blot and apply desired shade, cap 45 mins.
Green-remove excess, apply #12 Silvery Platinum, cap until lifted 5 to 10 mins.
Purple-remove excess, apply #73 Loving Care, Ash Blonde, cap until lifted 5 to 10 mins.

If hair turns to Blue or Purple each time Silk & Silver is applied, add 1 cap Loving Cap #79 Dark Brown, to Silk & Silver.

A regular Permanent Wave can be used on Loving Care and Silk & Silver.

Miss Clairol:
#43 Sun Bronze-double peroxide-removes green 5 to 10 mins.

Creme Toners
To red-use purple base.
Green-use Strawberry Blonde, no peroxide-30 mins.

Blond Toners (Born Blond) - tend to build up

Must be used according to bleach up instructions, if bleached to light, it will turn Silver.
Silver-remove excess-Sheer Strawberry (no crystals) all over hair. Watch closely.
If to light add Sheer Strawberry to formula.

Can be used for refresher rinses. Use without crystals, no cap.

Clair-Fill 7 shades

Used on dry hair--rinse before toner.
#7 Corrective - Platinum.
Virgin bleach - decolorization - leaves shades of gold.
Apply #7 30 mins. apply toner in a Beige tone.
Gold #7 as soap cap.

Tinted Hair - Permanent Waved
Over processed-curly when wet, straight when dry.

Mix white vinegar with Clairol Condition (in a jar) to a paste. Apply to hair like shampoo, 30 mins. Test for S line. Rinse and Neutralize.

Over processed in spots - apply paste to spots.

Extra fine baby hair.

Equal parts, Permanent Wave lotion, & Metalex Wrap hair. Re-saturate with regular lotion.

Extra light or Silver Blonde.

2 parts Metalex-1 part Tinted Permanent
Re-saturate with tinted lotion.

Will take longer to form S pattern.

Loving Care & hot water to tint Wigs (human hair)

Permanent Wave Straight Wigs-wrap with MILK-dry over night-rinse on rods-Neutralize.

Faultless Spray starch - to set Wig - hold longer.

July 24 Student Grooming Mrs. Hilda Papastrat, Sarasota Technical School

Uniform - The criteria in cosmetology dress for the student, is necessary to establish and adhere to.

The well groomed cosmetologist - three students, modeled for the instructors and a questionaire on what was wrong with each, had to be filled out.

When the student enters Cosmetology, we ask them to completely sever their relationship with their peers.

Hair-styled	Loud voice-modified
Shirts-modified	Posture-corrected
Make-Up-decreased	

The Instructor has to set an example.

In order for the student to get a job in the best salon, all of these qualities have to be considered. First impressions count.

Check uniform companies, local if possible, to make it easier for the student to get her own.

Select a style that will compliment each figure, in all sizes. Try to keep the price within range of the student budget. Pick one that needs the least amount of laundry work and drying.

A full white slip should be worn at all times.

When the class is dressed alike, it adds to the continuity of the program.

If a student does not keep in line with the policy, send a letter to the parents or call them on the phone.

Have an Award for the student of the year, it gives them an incentive to work for.

A Clean Skin

Is a basis of good health & beauty routines.
Daily bath is necessary in Florida
Diet has an affect on breath & body odor.

Selection & Care of Clothing

Buy clothes that will last, a better garment will hold up longer, launder, or clean with the minimum amount of care. A style that will go with a number of different accessories. Careful choice of a uniform will be the same.

Shoes - Film available through the State Dept. of Health, Audio Visual Library, P.O. Box 210, Jacksonville, Fla. 32201

Foot-Care Painful feet rank close to the common cold, as one of America's major health problems. This is the cause of backaches, headaches, nerves and fatigue.
Shoes should be worn for hygenic reasons, not for glamour, they should have good support.
Support stockings should be worn, they help slow down the viricous veins developing.
Cosmetology is a very physical profession, this is the reason we should think of comfort and a well supported body.

Exercise the feet, as you exercise the body, to keep them healthy. It is recommended, to have two pairs of shoes, and change them often.

Sheridan Vocational students modeled the uniform and shoes, Mrs. Papestrat advocates for the professional cosmetologists.

A committee was selected to study the possibility of an overall code of dress for the cosmetology student, in the State of Florida.

Panama City Florida - Myrtice Flora
Jacksonville - Gladys Sumpter
Orlanda - Mary Morgan
Tampa - Margaret Foster
Miami - Ethel Krizbacker
Palm Beach - Dorothy Sawyer
Sarasota - Hilda Sawyer
Broward County - Fannie Williams

July 27 Thermal Pressing, Waving and Curling

Fannie Williams, Consultant Sheridan Vocation Center

Refer to attached sheets, on this subject

SHERIDAN VOCATIONAL CENTER

COSMETOLOGY

FOR YOUR INFORMATION

1. Thermal pressing combs and marcel irons are constructed of fine quality tempered blue steel. (German made are recommended.)

2. Pressing combs - electric or non-electric (fine teeth.)

3. Curling irons:
   A. Bobby-smallest in diameter. This iron is recommended for very short hair.
   B. Sizes A&B-recommended for short hair.
   C. Sizes C&D-recommended for medium length hair, depending on the size of curl desired.
   D. Size G-most popular size, has diameter of a penny.
   E. Size H-diameter of a nickle.
   F. Size K-Diameter of a quarter.
   G. Size L-diameter of a half dollar.

4. Types of curls:
   A. Croquignole curl-makes a figure eight. This curl is very lasting, firmer, and gives hair more body.

   B. Spiral curl-makes the figure six. This curl is recommended as a basic or body curl.

   C. Bob or end curl-can be employed to impart a fluffy effect to a hairdress or as a finish for the hair ends. This curl can be turned up or under according to the preference of the desired style.

   D. Round curl-produces a fluffy hairdress and is desirable for very fine hair. It is similar to the corkscrew curl.

   E. Corkscrew, poker, banana or candy curls are called hanging curls. Years ago this curl was very fashionable in the children's world, but today this type of curl is recommended for hair pieces, such as falls and long wiglets.

5. Advantages of thermal curling

   A. Give body to the hair by adding height and bouyance without extensive webbing, back combing, cushioning, back brushing, ruffling or teasing.

B. The hair can be easily combed into waves, ringlets, pincurls, rolls, bouffants or any other illusioned effects.

C. Eliminate drying time on wigs and hair pieces.

D. Change direction of the hair. Relax or enlarge hair by stretching thermal curls that were made too tight.

6. Safety precautions

A. Handles of pressing comb and curling irons should be kept away from heat.

B. Always test irons before use.

C. Avoid overheating irons.

D. Plastic or nylon combs will dissolve, hard rubber combs are recommended. (always)

E. Thorough shampooing and rinsing are a must.

F. Hair must be thoroughly dried to prevent burning the scalp.

G. Remove loose hairs from the comb before it is reheated.

H. Avoid applying an excessive amount of pressing oil to the hair.

I. Do not insert the comb against the scalp, thereby causing burns.

J. Keep a record of the partons' hair and scalp condition.

PIONEERS IN COSMETOLOGY

Walker, "Madame" C. J.

Sarah Breedlane Walker (1869-1919) millionaire cosmetics manufacturer, was born a pauper in Louisana. Her ex-slave parents died when she was six years old. She married C. J. Walker at the age of 14 and was a widow at 20. Taking in laundry to make a living, she experimented in her spare time with a concoction of oils to condition her hair so that she could remove the typical Negro curl. The oil softened the hair but didn't remove the excessive curl. It was in 1905 that she developed a hot iron, or straightening comb, which was designed to remove the tight curls.

For millions of women of African descent, the straightening comb was the answer to their major cosmetic problem; and Madame Walker found herself in business. She opened a school of cosmetology to train her operators, employed agents, to sell her products, and built a factory to produce them.

Today Madame Walker is credited with making it possible to remove the curl from the hair by the uses of oils and straightening combs which will probably be used forever.

Monsieur Marcel is credited with the origin of Marcel Waving. He was born in Chaunigny, France, in 1853. It was his ambition to develop a method of waving that would resemble the natural wave in the hair. At last in 1875, after considerable experimentation, he perfected the instrument and technique for waving hair with heated irons. In recognition of this outstanding contribution to hairdressing, this method of hair waving was called Marcel Waving. The last few years of his life were spent in Normandy where he died in 1936. Today, Monsieur Marcel is honored and remembered by the practice of Marcel Waving in beauty salons.

SHERIDAN VOCATIONAL CENTER

Subject: Introduction to Hair Pressing

Objective: Learner will develop skill in removing curl from over-curly hair by means of comb pressing.

Motivating Device: Slides on comb pressing curly hair.

Materials and Equipment:
- Heating appliance
- Comb, hair brush
- Pomade
- Shampoo cape
- Pressing comb
- Pressing oil
- Scalp oil

Presentation:

1. Show slides on comb pressing
2. Hair Analysis
   a. Texture
   b. Elasticity
   c. Porosity
3. Shades (Tinted, bleached and gray)
4. Condition of hair (normal, brittle and dry)
5. Condition of scalp (oily or dry)
   a. Flexible
   b. Normal
   c. Tight
6. Record card
7. Recommend conditioning treatments.
   a. Fresh Olive Oil or sweet oil
   b. Instant conditioner and steam cap.
8. Proper care of pressing comb.
   a. Use of emery board
   b. Hot soda solution

SUMMARY

1. Temporary remove curl or kink from hair.

2. Student must learn the science and art in hair pressing.

   (a) Science-expert knowing subject thoroughly.
   (b) Art-Skill and technique employed.

3. Knowledge of structure, layers explained, texture, porosity and elasticity.

4. Ability to tell the difference between a normal, flexible, tight scalp.

5. Knowledge of the effect of heat, pressure, pressing oil, and scalp oil on the hair and scalp.

6. Ability to distinguish between normal and abnormal conditions of the hair and scalp.

7. Ability to use skill and good judgment in adapting the pressing treatment to meet the patron's needs.

8. Ability to prevent injury and accident to patrons.

9. Straight hair - round shape
   Wavy hair - - - oval shape
   Kinky hair - - flat shape
   Coarse kinky - desirable qualitites which makes it comparatively easy to press (more heat and pressure)
   Medium curly - (normal with no special problems)
   Fine wooly hair - special care, most difficult to press (less heat)

(Examining should look for:)

10. Form of hair (curly or over curly)
    Length of hair (long, medium and long)
    Texture of hair (coarse, medium, fine or wooly)
    Elasticity of hair (normal or deficient)
    Shade of hair (natural, faded, streaked or gray)
    Condition of hair (normal, brittle, dry or oily)
    Condition of scalp (normal, flexible or tight)

SHERIDAN VOCATIONAL CENTER

SUBJECT	Thermal Curling
OBJECTIVE	To develop within the student the ability to handle irons and their use and precaution on different textures of hair.
MATERIALS & EQUIPMENT	Towels Cape Tissue paper (for testing irons) Neck strips Steel wool for cleaning irons Irons (all sizes-for different lengths of hair) Hard Rubber Combs Hair Pins and Clips Waving lotion Steril Brushes Pomade Stoves (Elec. or gas) Chairs Hair Spray
MOTIVATION	1. Related Information (Theory) Manipulating Skills. 2. Demonstration Methods and students participation 3. Autio Visuals 4. Blackboard demo.
APPLICATION	1. Sterilize hands-prepare patron with neck strip and cape. 2. Examine scalp and hair 3. Section hair (Using basic set.) 4. Pick up section of hair-size of iron (B or D) 5. Insert hair in iron with grove size up, swing hair to handle, roll and manipulate irons, clamp, roll, manipulate untie hair, in roll in basic set. After hair is cool, spray and comb out-in to desired style 6. Demonstrate each type of curl and explain effect for special comb-out
SAFETY PRACTICES	1. Testing irons on tissue paper or damp towels 2. Never leave students alone 3. Don't stand on wet floor 4. Keep all imflamable material away from heat

5. No plastic combs
6. In case of burns use Genital Jelly immediately.
7. Discard used material, put other materials in proper place.
8. Final clean up

TESTING — Oral Exams and written exams

VOCABULARY WORDS — Definition and Terminology of words

Autobiography of Author
1. Cosmetology Standard Book
2. All Vocational materials in Cosmetology field.

Fannie Williams

Subject: Introduction to Thermal Waving and Curling

Objective: Student will learn brief history of thermal waving, parts of irons and how they are used.

Method: Lecture and Demonstration:

Motivating Device: Audio Visuals.

Materials: Curling irons, White paper, Comb and brush, Clips

Preparation:
1. Student read Chapter on thermal curling.
2. Arrange various sizes of irons.
3. Set up projector for slides on Thermal Curling.

Presentation:
1. Introduction
2. Explain parts of thermal iron (Bowl-prong)
3. Temperature of irons
4. Care of thermal irons
5. Proper handling
6. Safety precautions

Application: Practice handling and rolling of iron.

Summary:

1. Re-emphasize the importance of knowing how to use the thermal iron properly.
2. Advantages of its use.

PROCEDURE FOR PRESSING CURLY HAIR

Materials and Implements:

1. Towels
2. Shampoo
3. Comb and hair brush
4. Conditioner (optional)
5. Pressing oil
6. Scalp oil (optional)
7. One steel pressing comb
8. White paper

Preparation:

1. Select and arrange required materials
2. Wash and sterilize operators' hands.
3. Dress patron.
4. Examine hair and scalp.
5. Shampoo, rinse and brush thoroughly.
6. Divide hair into four quarter sections and apply scalp oil.
7. Heat pressing comb to a desired temperature.

Technique:

1. Unpin one section at the time and subdivide into small sections. Begin at the nape of the neck and work toward the crown. After completing the back, begin pressing at the sides and work the front sections.

2. Hold the hair ends upward with thumb and index finger of left hand.

3. Grasp the comb in the right hand and insert it into the hair in a 45° slanting position, being careful not to burn scalp.

4. Make a quick turn of the comb so that the hair wraps itself around the comb.

5. Press the comb slowly through the hair until the ends of the hair pass through the teeth of the comb.

6. Press twice on the top and reverse the comb and press once on the bottom side.

7. Continue, press each section until the head is completed.

8. Optional-apply scalp oil to scalp and massage scalp.

SAFETY PRECAUTIONS

1. Test comb before inserting into hair.
2. Avoid the excess use of pressing oil.
3. In case of burned scalp apply immediately 1% Gentain Violet Jelly directly to the wound.
4. Remove loose hairs from the comb before it is reheated.

SHERIDAN VOCATIONAL CENTER

NAME_____ DATE_____
SCORE_____

MARCEL WAVING, IRON CURLING, AND HAIR PRESSING

Answers

1. Dropping a wave at the crown means to:
   (a) lower the wave (c) discontinue the wave
   (b) match the wave (d) raise the wave _____

2. The required temperature of heater marcel irons depend upon.
   (a) the type of irons selected (c) operator's speed
   (b) Texture & condition of hair (d) size of heater _____

3. A fish-hooked end curl in marcel waving is caused when:
   (a) irons are too hot (c) curl is started to high
   (b) extreme end of the hair are not caught in the irons (d) curl is started to low_____

4. Burnt hair in marcelling:
   (a) may be reconditioned with naptha soap (c) best quality steel
   (b) may be reconditioned with a color rinse (d) cannot be reconditioned _____

5. The temperature of heated marcel irons is tested on a
   (a) strand of hair (c) damp cloth
   (b) piece of white paper (d) wax paper _____

6. The person credited as being the originator of marcel waving was:
   (a) an Englishman (c) a Belgian
   (b) a Hungarian (d) a Frenchman _____

7. The type of curling in which two loops are formed during croquignole winding is called.
   (a) round curling (c) croquignole heat curling
   (b) poker curling (d) shadow marcelling _____

8. Comb hair pressing with heat is commonly known as
   (a) marcel press (c) hard press
   (b) deep press (d) soft press _____

9. The temperature of the pressing comb should be adjusted to the
   (a) cleanliness of hair (c) texture of the hair
   (b) shortness of hair (d) length of the hair _____

10. The best time to give a hair press is
    (a) before the shampoo (c) before hair tinting
    (b) after the shampoo (d) after haircutting _____

11. The least difficult type of hair to give a hair press:
    (a) wiry, curly hair (c) hair with compace cuticle cells
    (b) resistant curly hair (d) corase or medium curly hair _____

12. When pressing gray hair use light pressure and
    (a) more heat (c) medium, curly hair
    (b) moderate heat (d) coarse, curly hair _____

13. The most difficult type of hair to give a hair press
    (a) coarse, kinky hair (c) medium, curly hair
    (b) fine, wooly hair (d) coarse, curly hair _____

14. Never press the patron's hair if one of the following conditions is present:
    (a) Hair dryness (c) scalp injury
    (b) hair oiliness (d) dandruff _____

15. A good hair pressing treatment:
    (a) improves hair texture (c) improves condition of hair
    (b) is not harmful to the hair (d) is harmful to scalp _____

16. A soft press is given with:
    (A) marcel irons (c) cold wave lotion
    (b) a pressing comb (d) permanent wave lotion _____

17. Hair texture refers to its degree of coarseness, fineness and the:
    (a) length (c) feel
    (b) color (d) straightness _____

18. Wiry hair may be recognized by its:
    (a) soft feel (c) hard glassy feel
    (b) silky feel (d) spongy feel _____

19. To avoid breakage in pressing fine, wooly hair the following is required:
    (a) more heat & pressure (c) stronger chemical lotion
    (b) less heat & pressure (d) use no pressing oil _____

20. The shape of a cross-secional view of over-curly hair is almost:
    (a) square (c) flat
    (b) round (d) oval _____

21. Usually the only layers found in fine, wolly hair are the cortex and:
(a) yellow layer (c) medulla layer
(b) cuticle layer (d) dermis layer _____

22. Elasticity of the hair is its:
(a) ability of stretch and return to its normal length (c) inability to grow
(b) inability to stretch (d) ability to break _____

23. Normal healthy hair may stretch about:
(a) one-half of its length (c) one-fifth of its length
(b) one-third of its length (d) twice its length _____

24. Damaged hair contains:
(a) considerable elasticity (c) considerable oil
(b) little or no elasticity (d) extra large medula _____

25. When giving a hair pressing treatment the operator should avoid:
(a) excessive heat & pressure (c) pressing oil
(b) thoroughly drying the hair (d) uniform sectioning of hair _____

26. In case of accidental scalp burn, the operator should apply an antiseptic such as:
(a) warm water (c) color rinse
(b) talcum powder (d) 1% gentian violet jelly _____

27. Too frequent hair pressing treatments can be the cause of
(a) excessive oiliness to the hair (c) hirsuties
(b) progressive hair breakage (d) hypertrichosis _____

28. If the pressing comb is not hot enough the hair:
(a) will press easily (c) will turn lighter
(b) will not be well pressed (d) will become dry _____

29. Burned hair near the scalp:
(a) can be reconditioned (c) can be made oily
(b) cannot be reconditioned (d) grows more rapidly

30. In pressing coarse hair, it requires more heat because:
(a) it has the smallest diameter (c) contains a medulla
(b) it has the greatest diameter (d) has no cuticle _____

31. When hair is pressed, its thickness is:
(a) temporarily decreased (c) remains the same
(b) temporarily increased (d) permanently increased _____

32. When many split ends appear in pressed hair:
(a) repress the hair (c) clip the hair ends
(b) repeat the shampoo (d) dye the ends _____

33. If the shampoo is not through, the pressed hair will appear:
(a) glossy (c) gray
(b) dull (d) fluffy _____

34. Hair pressing treatment between shampoos are called:
(a) touch-ups (c) scalp treatments
(b) reconditioning treatment (d) flat patch tests _____

35. The cross sectional view of straight hair is almost:
(a) round (c) triangular
(b) oval (d) flat _____

36. The use of excess heat on gray, tinted or bleached hair may:
(a) make the hair appear oily (c) add moisture to the hair
(b) discolor the hair (d) make the hair wiry _____

July 28
a.m.

Round Table Discussion - Problems, Questions and Answers.

Moderator - Mary Morgan

Cosmetology students should not be sent out to work as a shampoo girl. They are not trained as such.

Negro and white students, are taught both phases of cosmetology.

Cosmetology in the public schools are not profit making businesses. Prices on work done by students, on clinic day, differ with the Counties, negro and white classes, according to materials used.

Team-teaching depends on the situation involved. The success of team-teaching depends on the teachers working well together.

VICA (Vocational, Industrial Clubs of America) in the school and its advantages.

Student grooming - individual daily check.

Senior and Junior class pins should be worn to classes. Instructor pins, aid to identification.

Timing of students work, essential.

Substitute teachers should be certified teachers of Cosmetology.

Facial work is encouraged in schools.

Projects in school are stimulate interest.

Student teacher government day.

Follow-up tests, after field trips.

Liability Insurance - a MUST.

Patron evaluation of student, a good feedback, on student.

This was a very interesting session, as well as informative, for all of the instructors.

p.m. Pace Setter Films Mrs. Joann Torreta - Executive

Producer P.O. Box 14203 Tampa, Florida 33609

The slides are exclusively dedicated to Beauty, Fashion, and Poise, for the Educational Vocational Field.

Art of Make-Up White and Negro models.

Complete application and outline for a facial. Slides may be updated as models change. Wigs to compliment make-up and clothes.

Visual Poise Students - Operators - Career Girls.

Correct posture, Sitting and standing. How posture can affect our appearance and attitude.

Basic Wardrobe Five Basic Outfits, Twenty changes.

Combining clothes, matching shoes and bags. Inter-change of scarves and belts.

What to wear for a job interview.

July 29 Summarization Mr. W. L. Newton

Be proud of your professions. Never under estimate your position. Know your subject, and act accordingly. A professional knows why and how, and knows she knows. This is the mark of a professional.

The teachers responsibility, is to think first about the student.

Communication is extremely important, be clear and be sure you are understood, when teaching.

Think of your actions and their effect on others. Your student looks to you to set the example.

Discipline is necessary, along with compassion, for each individual. Give directions and see that they are carried out correctly.

Solve your own discipline problems, in the room, unless it is the last resort, to take the student to an official in school.

There is a great deal to be learned in our subject. The professional person takes advantage of all opportunities, to increase her knowledge.

The professional needs to contribute, to the skill of the profession and shares this with others.

Be independent, do not expect others to do it for you.

Refrain from complaining to people not in the field. Take your complaints to the proper person, that can help straighten things out, in the right manner.

Take advantage of your Craft Committee, they are for your benifit.

"Almost right, is wrong." See that they do it right. Good intentions, need to be analized.

Discussion on Teacher Certification, Bachelor and Master Degrees.

The end of a very enjoyable and educational Seminar.

Thelma M. Farley
Miami Senior High School
2450 S. W. 1st Street
Miami, Florida

At the end of the third week, each participant was asked to evaluate the entire institute by filling out the survey form, "REACTIONS OF A PARTICIPANT," which follows.

The reactions and suggestions of the twenty eight participants were studied carefully and the results are summarized in italics on the form itself.

These will be used as guidelines in formulating plans for similar Workshops which may be instigated later.

REACTIONS OF PARTICIPANT

INTRODUCTION

Your constructive reactions to this institute are invited on this form. They are needed as a basis for planning similar activities for you and others in the future. Hopefully, they can be made better with your help in identifying strengths which suggest more of the same and weaknesses which call for change and improvement.

This shouldn't take you a great deal of time, but please do it carefully, thoughtfully, and in the spirit of the invitation. Also, please do it without consulting others. Your independent reactions are wanted. Of course, it is not signed. Most meaning will be derived from a composite of the reactions, with the greatest attention given to the points of agreement among some of the participants.

INSTITUTE: *Cosmetology*

LOCATION: *Sheridan Vocational Center*
Hollywood, Florida

DATE: *July 13 - July 29, 1970*

Summary of
GENERAL REACTIONS AND SUGGESTIONS

1. What activity not in the program would you like to see included?
   12 of 28 participants left this blank.
   5 more practical work.
   5 more wig work
   6 more teaching teachniques, methods, aids.

2. What changes would you suggest for the improvement of similar activities in the future? (Such as course content and method of instruction.)
   10 left this blank.
   10 more time scheduled to work practice
   5 less note taking - have guest artists duplicate and hand out materials
   More Don Sullivan

3. Aside from the topics, what did you like best about this institute?
   2 left blank
   15 Exchanging ideas - friendly atmosphere
   Don Sullivan
   Cooperation of Mrs. Sharron

4. Aside from the topics what did you dislike about this institute?
   17 left this blank
   Too much theory and not enough practice
   Having students from Sheridan Vocational Center made group to large
   Lengthy last day session.

Reaction Sheet

5. What other suggestions would you make for improving future institute?

12 left this blank.
More demonstrations and lab work.
More hair coloring - theory and practice
More on hair cutting, shaping, and styling

6. What activities would you suggest adding or deleting from the institute?

18 left this blank
Experience in iron curling
More on wigs and hairpieces
Delete good grooming and hair dressing

7. What is your overall reaction to the entire institute? (Check one)

_____a. It was a complete waste of time.

__1__b. Mostly old stuff or of little significance.

__11__c. Some of little value, mostly good.

__1__d. A valuable experience I was happy to have.

~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~

~~IIII~~ e. As good as it could be under the circumstances. (limitation of time, size of group)

~~IIII~~ ~~IIII~~ f. Excellent: No criticism.

8. Number of years teaching experience _____.

9. General comments on the institute.

THE FLORIDA STATE UNIVERSITY

TALLAHASSEE 32306

VOCATIONAL EDUCATION DIVISION

TRADE AND INDUSTRIAL
DISTRIBUTIVE
COOPERATIVE
MANAGEMENT TRAINING
HEALTH OCCUPATIONS
PERSONAL SERVICE
VOCATIONAL GUIDANCE SERVICES

July 29, 1970

To Whom it May Concern

This will certify that:

attended the Cosmetology Institute conducted at the Sheridan Vocational Technical Center, Ft. Lauderdale, Florida, July 13 through July 29, 1970. This Institute was sponsored jointly by Florida State University and the State Department of Education.

W. L. Newton
Assistant Professor
Vocational Education

WLN:mo

VT 012 205
Business Office Culture Project. Final Report.

YWCA of the U.S.A., New York, N.Y. National Board.
Manpower Administration (DOL), Washington, D.C. Office of Special Manpower Programs
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Sep69 253p.

DESCRIPTORS - *OUT OF SCHOOL YOUTH; *FEMALES; *BUSINESS EDUCATION; *EMPLOYMENT PROGRAMS; *WORK EXPERIENCE PROGRAMS; EMPLOYMENT OPPORTUNITIES; CLERICAL OCCUPATIONS; VOCATIONAL ADJUSTMENT; COOPERATIVE PROGRAMS

ABSTRACT - This project was organized to test the effectiveness of learning centers set up to improve the employability of young women lacking sufficient skills and work orientation in the business office. The six local projects, in Dallas, Mt. Vernon, Philadelphia, Pittsburgh, St. Louis, and Tacoma, together trained and placed 165 young women in 4- and 5-month programs between July 1968 and April 1969. The project showed that the overall plan could be adapted to local circumstances and coordinated with other agencies to provide a highly successful local employment program for out of school females. (BH)

VT 012 205

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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ED0 57254

YWCA

National Board
Young Women's Christian Association
of the United States of America

BUSINESS OFFICE CULTURE PROJECT

OSMP CONTRACT NO. 42-8-007-34

FINAL REPORT TO THE
UNITED STATES DEPARTMENT OF LABOR

2266

VT012205

National Board
Young Women's Christian Association
of the United States of America

BUSINESS OFFICE CULTURE PROJECT

OSMP CONTRACT NO. 42-8-007-34

FINAL REPORT TO THE
UNITED STATES DEPARTMENT OF LABOR

This report on a special manpower project was prepared under a contract with the Manpower Administration, U.S. Department of Labor, under the authority of the Manpower Development and Training Act. Organizations undertaking such projects under the Government sponsorship are encouraged to express their own judgment freely. Therefore, points of view or opinions stated in this document do not necessarily represent the official position or policy of the Department of Labor.

2267

SEPTEMBER 1969

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  Mrs. Karlyn F. Frazier, *Project Director (BOC)**

**listed in order of succession*

The material which is presented in this volume cannot do justice to the range and variety of work done within the six local programs of the BUSINESS OFFICE CULTURE PROJECT. The reports of these six programs have been integrated into this volume. For those who may be interested in more detailed treatment of the local program experiences, a supplement of local narrative reports, in limited number, has been prepared.

The project's National Headquarters staff, which has carried responsibility for preparation of this report, has directed its efforts toward analysis of the total experience. Its target has been treatment of the findings in ways which would be useful to others who may be interested in pursuing similar courses toward business office training and acculturation.

This National Headquarters staff, which has worked on data compilation, analysis and synthesis; composition, editorial assistance and typography; and other related matters, has included:

Miss Margaret D. Wood, Mrs. Corienne R. Morrow, Miss Beverly J. Newlan, Miss Genoeffa Nizzardini; Miss Elizabeth Eviota, Miss Virginia Jones, and Miss Rose Young.

Cover, graphics and art design were by *Jan Stuffers*. Photo-layout by *E. S. Beckwith*.

The National Project Director, in writing this final report, has benefited from the flow of information from local project personnel as well as from the invaluable assistance of all those listed above.

-- *RHETTA M. ARTER*

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EXHIBITS: Job titles excerpted from proposal

A B S T R A C T

The BUSINESS OFFICE CULTURE (BOC) project was sponsored by the National Board of the Young Women's Christian Association of the U.S.A. and carried out by six participating Community YWCAs in different parts of the country.

The project was organized to test and demonstrate the effectiveness of Learning Centers, designed to simulate business conditions, to:

- familiarize enrollees with the practices, procedures and protocols, i.e., the culture, of the business office;
- improve skills related to their (the enrollees') individually selected clerical occupations; thereby to--
- enhance their employability and on-the-job staying power. This entailed provision of employability services including skills improvement, remedial education, supportive services, attitudinal training, job development and placement, and follow-up services. This training, support and related services were provided directly by the six YWCAs, with the cooperation of 150 volunteers and 138 cooperating community organizations and agencies. Recruitment, screening, and placement were cooperative functions of the YWCAs and units of the DOL--especially the Neighborhood Youth Corps, Youth Opportunity Centers, and the Bureau of Employment Service.

The project was established in order to serve those young women who presented some rudimentary business skills but who seemed to need additional assistance to gain entry into, and to understand and adjust within, the culture of the world of work in ways which would free them to use their own individual abilities and capacities, enjoy work satisfaction, and to maintain jobs and move upward in their selected occupational channels.

The project was conducted in six cities:

Dallas, Texas
Mount Vernon, New York
Philadelphia, Pennsylvania
Pittsburgh, Pennsylvania
St. Louis, Missouri
Tacoma, Washington

It was carried out during the period June 30, 1968 to September 30, 1969. The operational period of Learning Centers, phased in and out at different times, was from four to five months, within the period between July 8, 1968 and April 30, 1969.

The 234 enrollees in this BOC project were young women between the ages of 17 and 25. In five of the six cities, they came primarily through the Neighborhood Youth Corps Out-of-School program which provided the training slots and wages. In the sixth city, Tacoma, these wages were provided through cooperating business firms: enrollment was open and carried out with the cooperation of interested, appropriate, public and private agencies.

FACT SHEET

As of (date) 9/1/69

Source of Information: National Board of the Young Women's Christian
(Name of Contractor) Association of the U.S.A.

Title of Project: Business Office Culture

Start of Project: June 30, 1968 End of Project: September 30, 1969

Authorized Funding: $125,000 Source(s): OSMP

Type of Student: Age Range: 17-25 Sex Composition: Female

Type of Training: Work Experience Demonstration

Cooperating Institutions: Six Community YWCAs under subcontracts

Occupational Skills Taught: Clerical

Location: Headquarters--New York City
Program Units: Dallas, Texas; Mount Vernon, New York;
Philadelphia and Pittsburgh, Pennsylvania;
St. Louis, Missouri; Tacoma, Washington

Statistical Summary*

Enrollees authorized			180 minimum
Enrollees in project			234
Employed		165	
Returned to school		7	
Returned to NYC full-time (some ready for and awaiting job placement)		15	
Moved from city (post-project status not known)		9	
Married (not currently in labor market)		3	
Terminations		35	
Ill health and/or pregnancy	11		
Counseled or voluntarily dropped out	24		

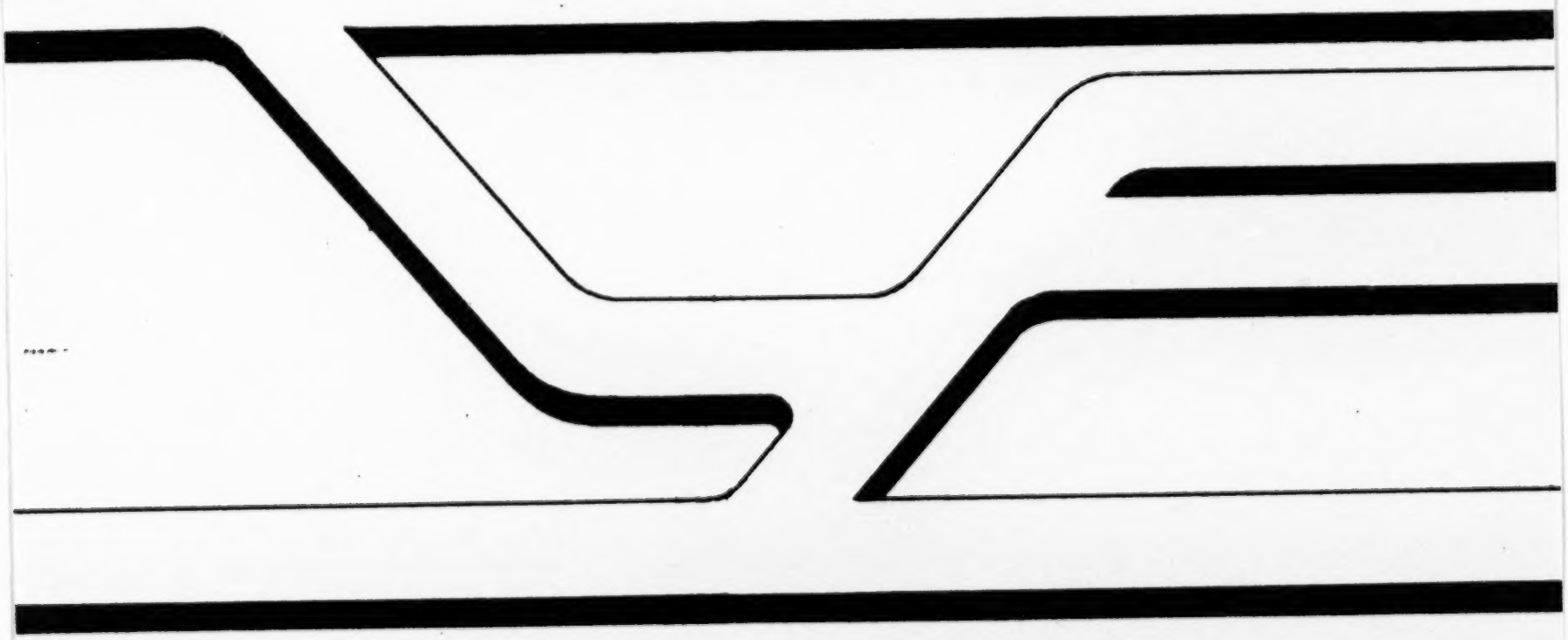
Heads of Families: 57 (24%) Average Education: 11th grade completion

Percent Non-white: 90% (e) Percent on Welfare: 27%

Percent Contributing to Support of Family: 69%

The statistics in this summary are substituted for those requested in the Fact Sheet form, which is not applicable to this project.

BOC results



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R E S U L T S

The BIG TARGET of "BOC"--the Business Office Culture project--was to assist its enrollees to become more ready for, and to secure, stable employment. All of the project's phases, their differing aspects and approaches, were directed to this goal. The efforts of the BOC enrollees, the employed and voluntary BOC and other YWCA personnel, the cooperating individuals, private and public organizational structures--all were in pursuit of this purpose. For this reason, the results of the project, in these terms, are lifted up in this report for review at this time.

234	BOC enrollees* in the
6	Local BOC Learning Centers
165	Employed
7	Returned to school
15	to Neighborhood Youth Corps (full-time)
9	Moved from city
3	Married
11	Terminated: health, including pregnancy
24	Counseled/voluntarily dropped out

It may be pointed out that these results were the focus of the Job Development and Placement aspects of the project's operational phase, as stipulated in the prime contract:

> *"... prepare short and long range placement plans, which will utilize both existing community resources and newly developed opportunities that may result from the YWCA's own placement efforts."*

**exclusive of the 65 additional enrollees who have been/are being served in Continuity Programs in St. Louis and Philadelphia.*

Job Development and Placement

Within this project, job development and job placement are highly interrelated functions: it is not possible to separate them with validity. This is partly because job development as a YWCA function must be distinguished from the technical procedures which are carried out by professionals in this field. Here, job development refers to the use of individual and organizational influence to open up--"develop"--new job openings for young women to whom they may, previously, not have been readily accessible. Reasons for this inaccessibility may have derived from a number of considerations including traditional educational qualifications, standard recruitment and screening procedures, fixed referral and hiring practices with special reference to sex and race, lack of awareness of BOC enrollees and their counterparts as a labor supply source. The interested YWCA typically includes--within its membership and friends--opinion molders with influence within parts of the business community. These individuals, including some of the Association's male Trustees and Associate Members--once their attention is directed to the possibilities, and once these possibilities are cast in reality terms of live, ready job candidates--can and do move to "open"/"develop" new employment possibilities which, otherwise, would not be available to these candidates. The Tacoma YWCA-BOC experience stands forth as an illuminating example in this regard.*

**Detailed description in local narrative report--Tacoma*

At the same time, the organizational channels of the YWCA which traditionally transmit expressions of major concern about the interests and problems of women workers are utilized in this same opening/developing process. BOC has demonstrated the fact that when the prestige of the YWCA is established to be behind the project there is more ready and willing response on the part of some agencies and employers than can be predicted when an individual candidate, regardless of her qualifications, seeks the same position on her own.

In the BOC project, experience with the YWCA power in tandem relationship to the functions and operations of the public agencies--particularly the Employment Service--has varied from local BOC site to site. One outstanding example of constructive cooperation lies in the St. Louis program* where the relationships of these private and public agencies--YWCA, ES and other units of the Department of Labor--were welded in behalf of the enrollees throughout all the aspects of this undertaking, but were particularly effective in opening jobs in which BOC enrollees were placed.

All of the BOC phases--pre-planning; organization; operations, including skills training, remedial education and support services; evaluation and feedback--combined with the job development and placement aspects to achieve the range and variety of job placements which were effected as a result of this project as a whole.

**Detailed description in local narrative report--St. Louis*

TABLE A: POST-PROJECT EMPLOYMENT OF BOC ENROLLEES--BY OCCUPATION

OCCUPATIONAL CATEGORIES	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
A. CLERICAL							
1. Clerk							
-Typist	7	-	7	9	18	5	46
General	6	4	2	1	2	5	20
File	1	7	1	1	7	2	19
Sales	2	-	1	1	1	2	7
-Stenographer	-	-	4	-	-	-	4
Accounting	-	-	2	-	1	-	3
Bookkeeping	-	-	-	-	2	-	2
Ward	1	-	-	1	-	-	2
Actuarial	1	-	-	-	-	-	1
Collection	-	-	1	-	-	-	1
Inventory	-	-	-	-	-	1	1
Operations	-	-	-	-	-	1	1
Payment	-	-	1	-	-	-	1
Stock	-	-	-	-	1	-	1
Subtotal	18	11	19	13	32	16	109
2. Other Clerical							
Secretary	2	2	2	1	-	2	9
Typist	-	4	2	-	2	-	8
Receptionist	-	-	1	2	2	-	5
Office Girl	-	-	-	-	3	-	3
Telephone Operator	-	-	1	1	-	1	3
Bank Teller	-	-	-	-	2	-	2
Cashier	-	-	-	1	-	1	2
Customer Service Representative	-	1	1	-	-	-	2
Telephone Answering Service Operator	2	-	-	-	-	-	2
Teletype Operator	-	-	2	-	-	-	2

TABLE A: POST-PROJECT EMPLOYMENT OF BOC ENROLLEES--BY OCCUPATION (CONTINUED)

OCCUPATIONAL CATEGORIES	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
Other Clerical (con.)							
Adding Machine Operator	-	1	-	-	-	-	1
Billing Machine Operator	-	-	1	-	-	-	1
Flexowriter Operator	-	-	-	-	1	-	1
Mimeograph Machine Operator	-	-	-	-	1	-	1
Grocery Checker	1	-	-	-	-	-	1
Key Punch Operator	-	-	-	1	-	-	1
Messenger	-	-	-	-	-	1	1
Telephone Solicitor	-	-	-	-	-	1	1
Subtotal	5	8	10	6	11	6	46
B. NON-CLERICAL							
Bar Maid	-	-	-	1	-	-	1
Cook	-	-	-	-	-	1	1
Ironer	-	-	-	-	-	1	1
Maid (Motel)	-	-	-	-	1	-	1
Nurse's Aide	-	1	1	1	-	-	3
Power Machine Operator	-	-	-	-	-	1	1
Waitress	-	-	-	1	-	-	1
Military Service	1	-	-	-	-	-	1
Subtotal	1	1	1	3	1	3	10
RECAPITULATION							
A. CLERICAL	23	19	29	19	43	22	155
B. NON-CLERICAL	1	1	1	3	1	3	10
TOTAL	24	20	30	22	44	25	165

Industries These jobs, representing the reported range of occupational titles, were distributed throughout a number of different types of business and industries. These do not lend themselves to the detail to which the occupational identifications have been subject. This is, in part, because treatment of this nature--to be truly revealing--would require some further designations of the types of work done by the industries and identifications of the departments or other units within which these BOC enrollees were located. However, for the purposes of this summary, it does seem desirable to point up the breadth of business and industrial interest represented in the employment of the 165 BOC graduates.

Wages The data on wages (Table C) represent a combination of information elicited at the time of the original placements, and subsequent reports made by some of the enrollees themselves. They pertain to entry wages and do not reflect any increases which may have accrued--and there are some--as the result of successful performance on the job.*

Both the industry distribution and the wage data must be regarded as functions of the respective local economies--the nature of the respective business and industry patterns, levels of employment, and related matters, as well as some of the problem conditions, i.e. hiring practices, disinterest of placement agencies, and relevant social conditions and factors.

**see Evaluation and Feedback*

TABLE B: POST-PROJECT EMPLOYMENT OF BOC ENROLLEES--BY INDUSTRY

INDUSTRY CATEGORIES	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
Retail & Wholesale Trade	9	15	5	6	5	8	48
Finance, Insurance, & Real Estate	1	1	12	-	14	3	31
Public Administration	1	1	1	7	6	4	20
Professional & Related Services	4	2	4	4	4	1	19
Non-Profit Organizations	3	-	2	1	5	6	17
Transportation, Communication & Other Public Utilities	-	-	4	1	2	-	7
Personal Services	1	-	-	-	4	-	5
Chemicals & Allied Products	-	1	-	2	-	1	4
Business & Repair Service	2	-	-	-	1	-	3
Communications	-	-	2	1	-	-	3
Leather & Leather Products	-	-	-	-	3	-	3
Manufacturing	1	-	-	-	-	1	2
Printing, Publishing, & Allied Industries	2	-	-	-	-	-	2
Entertainment & Recreation Service	-	-	-	-	-	1	1
TOTAL	24	20	30	22	44	25	165

TABLE C: POST-PROJECT EMPLOYMENT OF BOC ENROLLEES--BY WEEKLY WAGE

WAGE	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
$20.00 - 29.99*	-	-	-	1	-	-	1
30.00 - 39.99	-	-	-	-	-	-	0
40.00 - 49.99	3	-	-	7	2	1	13
50.00 - 59.99	10	8	-	3	7	8	36
60.00 - 69.99	7	3	13	3	18	11	55
70.00 - 79.99	2	6	13	4	13	4	42
80.00 - 89.99	-	2	2	3	2	-	9
90.00 - 99.99	-	1	-	-	1	-	2
Subtotal	22	20	28	21	43	24	158
Not reported	2	-	2	1	1	1	7
TOTAL	24	20	30	22	44	25	165
MEDIAN $65.30							

**plus tips*

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165 BOC GRADUATES ...

. . . secured their jobs through different channels. There are many ways to read these figures, including recognition of the fact that, although BOC is reported as the direct channel for 41, the project personnel had to be deeply and directly involved in most of the 165 placements. It may be noted also that three of the local programs--Philadelphia, Mt. Vernon and Tacoma tapped into local community resources. In Mt. Vernon, the Chamber of Commerce, Lions and Kiwanis Clubs cooperated with the project in important ways. In two other programs--Pittsburgh and Dallas--BOC representatives were not as free to take part in placements as they would have wished to be. This was because of local manpower agency commitments and practices.

PLACED BY:

DOL UNITS	77
ES ---- 38	
NYC ---- 30	
YOC ---- 9	
BOC PROJECT-Direct	41
"SELF"	29
BLACK COALITION*	8
URBAN LEAGUE*	4
"FRIEND"	3
OTHER**	3

**Philadelphia*

***one each--Manpower Utilization Commission (Philadelphia), Department of Public Assistance and Local OEO (Tacoma).*

It is important to realize that the BOC project included in its training "How to find a job." Thus, it counted as "successes" those enrollees who were able to accomplish this through their own "self" efforts.

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TABLE D: POST-PROJECT EMPLOYMENT OF BOC ENROLLEES--
BY INDUSTRY AND OCCUPATION

INDUSTRY CATEGORIES	CLERKS	OTHER CLERICAL	NON-CLERICAL	TOTAL
Retail & Wholesale Trade	31	13	4	48
Finance, Insurance, & Real Estate	21	10	-	31
Public Administration	16	3	1	20
Professional & Related Services	10	4	5	19
Non-Profit Organizations	8	9	-	17
Transportation, Communication & Other Public Utilities	6	1	-	7
Personal Services	4	1	-	5
Chemicals & Allied Products	3	1	-	4
Business & Repair Service	3	-	-	3
Communications	-	3	-	3
Leather & Leather Products	3	-	-	3
Manufacturing	2	-	-	2
Printing, Publishing, & Allied Industries	2	-	-	2
Entertainment & Recreation Service	-	1	-	1
TOTAL	109	46	10	165

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69 BOC GRADUATES ...

	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS ST	TACOMA	TOTAL
. . . were not at work at the time their programs closed. Some of them:							
Returned to school	-	1	-	3	2	1	7
Beauty College (1)-Tacoma Business College (2)- Mt. Vernon, St. Louis Community College (3)-Pittsburgh School of Nursing (1)-St. Louis							
Returned to Neighborhood Youth Corps full-time.	5	1	1	7	1	-	15
Here it must be noted that some of these returns to NYC were for placement purposes. It may be noted, further, that in the Pittsburgh program these enrollees had remained on half-time in their respective NYC work stations. There, and in Dallas, NYC carried full placement responsibility. Thus, a return to NYC may mean that the enrollee was on her way, by plan, to gainful employment.							

	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
Moved from the local BOC city	1	-	-	2	3	3	9
There are no sound bases for assuming that none of this group is using BOC training in gainful, stable employment. It is possible that--having moved elsewhere--they were able to find jobs and to use the BOC experience to their advantage. (This group comprises only those enrollees who left the city and could not be reached for follow-up purposes.)							
Married.	-	-	-	-	-	3	3
The fact that all of the BOC reported marriages occurred in Tacoma may relate to the proximity of that program to a military base. It is probable that some of the enrollees may become working wives.							

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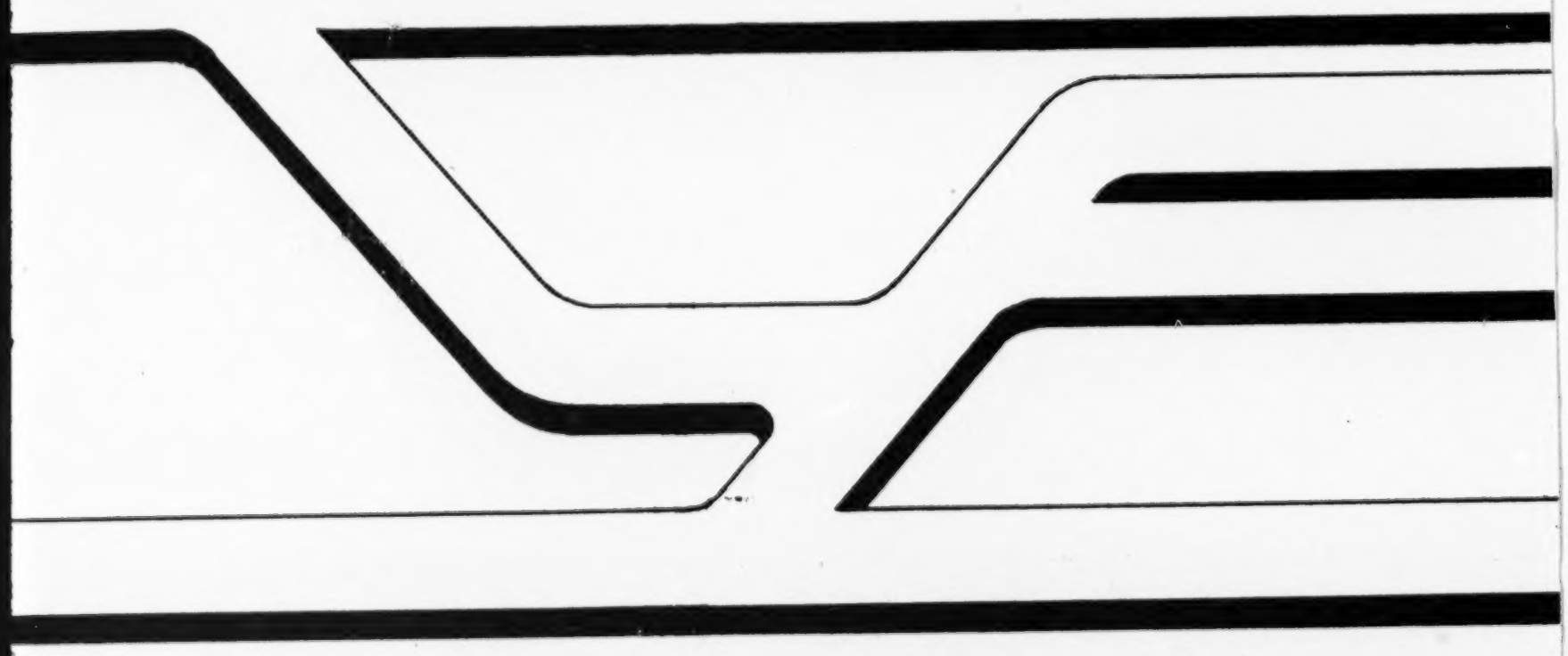
	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
Still other BOC enrollees were:							
Terminated for health reasons, including pregnancy. . . . . These included enrollees who were involved in major accidents, and other serious health problems while the BOC programs were in progress.	4	1	1	1	3	1	11
Counseled out, or dropped from the BOC programs on their own initiative . . . . . Included in this group were BOC enrollees who seemed to have individual or family problems which defied adjustment within this project's time limits. Others were not interested in the type of work, or the "dig-in" requirements which BOC represented.	1	2	-	9	9	3	24

The BOC plan



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THE BOC PLAN

The BUSINESS OFFICE CULTURE (BOC) project, sponsored by the National Board of the Young Women's Christian Association of the U.S.A. and funded by the U.S. Department of Labor, was carried out by Community YWCAs in six different localities:

Dallas, Texas	Pittsburgh, Pennsylvania
Mount Vernon, New York	St. Louis, Missouri
Philadelphia, Pennsylvania	Tacoma, Washington

An aggregate of 234 enrollees (30% above the contractual commitment of 180) flowed through these six BOC local programs.

The project was set up and contractually committed to explore the feasibility of utilizing the expertise and resources of a national service organization and its affiliate branches to plan, develop, implement and evaluate a program for teaching business office skills and business office culture to disadvantaged young girls who are unemployed. The specific objectives of the project were defined to:

(a) determine the proportion of young girls who have had some exposure to office or sales work, either in school or on the job, who are unable to obtain or to hold such jobs and who require a type of assistance not otherwise available to them in existing programs.

(b) assess the potentials for developing learning centers in selected cities which supplement existing work experience and training programs, and which prepare such girls for

existing job vacancies by raising their level of skill and imparting an awareness of the culture of a business office.

(c) explore the usefulness of involving selected YWCA staffs and volunteers in such a program and to draw upon the total resources of the YWCA in each community to provide suitable employment for these girls.

(d) assess the operations and impact of such a program by providing for a continuing evaluation which would identify the strengths, weaknesses and potential for this type of program, and describe its methods and approaches in such a manner as to facilitate utilization by other communities interested in such programs.

The BOC project was designed for concentration on Clerical and Sales occupations, including--

-- Stenography, Typing, Filing and related occupations

-- Computing and Account Recording

-- Material and Production Recording

-- Information and Message Distribution

-- Sales

As the program developed, this concentration was heavily on clerical occupations; considerably less interest in sales possibilities was evidenced by enrollees and potential employers.

This project was planned to be carried out by six or more Community YWCAs some but not necessarily all of which had participated in the 1967 Summer Youth Demonstration (SYD) project. That project, too, was sponsored by the National Board YWCA, funded by the U.S. Department of Labor (OSMP Contract Number 42-7-005-34) and carried out by YWCAs in

Atlanta, Georgia	Pittsburgh, Pennsylvania
Cleveland, Ohio	St. Louis, Missouri
National Capital Area (District of Columbia)	Tacoma, Washington

Note that the three last-named--Pittsburgh, St. Louis and Tacoma--were participants in the BOC project.

Selections of Community YWCAs to carry out the BOC programs were determined by:

1. The individual Association's interest in and capability for carrying out a project of this nature; willingness to comply with requirements of a centrally organized and administered project.
2. Availability of job slots or funds for wage payments for a complement of 10-25 enrollees through local public or private resources. In five of the localities these slots were provided by the Neighborhood Youth Corps Out-of-School programs; in the sixth--Tacoma--a combine of local business concerns provided the wages. It may be noted that the specifications called for provision of these slots <u>with freedom for their utilization under experimental conditions</u>;

that is, free of any existing requirements which might impinge upon the contractual commitments for the BOC project. It was specified further that any waiver of this requirement would be subject to approval by the Office of Special Manpower Programs of the Department of Labor and by the Project National Headquarters staff representing the National Board YWCA.

3. Labor market conditions which gave promise of opportunities for stable employment through entry level placements in Clerical or Sales occupations for which project enrollees could qualify. Generally, these placements were in positions which offered potentials for vertical or lateral advancement for young women who met standard qualifications for such progress.

The above criteria were specified in the contractual agreements relative to the BOC project. In addition, efforts were made to recruit Associations which were dispersed throughout the four geographic regions of the National Board YWCA (rf. map). Meeting all these specifications was not simple: a number of Associations made strong efforts to be included but were not successful usually because of their inability to arrange for job training slots or stipends.

The six Associations which achieved BOC subcontractor status represent considerable difference not only in their respective sizes and organizational structures but in the size of the

communities which they serve. Thus, the YWCAs themselves range from a very small, mini-staff Association--in Mount Vernon--through Associations of differing numbers of members, types and diversities of programs to the largest--Philadelphia--which represents a metropolitan structure operating in a number of different local settings and programmatic constellations. Other variables in the six situations are typified in the fact that the smallest Association is a part of and in many ways draws upon and relates to the nation's largest Standard Metropolitan Statistical Area, i.e., New York. This and selected other varying characteristics come clear when they are summarized as follows:

BOC Locality	Population in 1960	in SMSA with population in 1960	in SMSA with population in 1965*	in National YWCA Region
Dallas, Texas	679 684	1 083 601	1 325 000	Southern
Mount Vernon, New York	76 010	10 694 633	11 366 000	Eastern
Philadelphia, Pennsylvania	2 002 512	4 342 897	4 664 000	Eastern
Pittsburgh, Pennsylvania	604 332	2 405 435	2 388 000	Eastern
St. Louis, Missouri	750 026	2 060 103	2 249 000	Central
Tacoma, Washington	147 979	321 590	343 000	Western

**estimate, Statistical Abstract 1968*

Each of the participating YWCAs established its own BOC Learning Center in which clerical and sales skills were taught or improved under simulated business conditions. This meant that these centers were organized physically in the manner of business offices, utilizing desks, office machines, other appointments, and standard office practices and procedures. Two--in Mount Vernon and Philadelphia--were located in center-city office buildings; the other four were in their respective YWCA buildings, all of which are in or near the downtown sections of their localities. Controls on the Standard Capacity of each of the centers were:

(a) the number of available job-training slots/training stipends; and

(b) the size (cubic footage) of the space available for the Learning Center.

In accordance with the contractual agreement, each of the centers was equipped and utilized for teaching and improving most or all of the skills specified in the original project proposal (rf. Exhibits), either at the introductory level, or at others designed to enable the young BOC women between the ages of 17 and 25 years with limited training to improve their skills and/or to add to them in order that they might thereby become more employable.

This project was conceived in recognition of the importance of the adjustment demands made upon new workers in the business world; it was developed as a Business Office Culture program. Thus, and again in accordance with contractual agreements--the Learning

Centers were used as settings for facilitating the acculturation process wherein the BOC enrollees could be introduced to the social and work expectations of a typical business office. Some of the most interesting and varied programmatic experiences took place within this context. A variety of approaches and methods were employed in relation to:

- the selections of materials used within the programs;
- the actual training for work readiness which focussed on attitudinal variables, including--
  - -- accepting and making constructive use of supervision;
  - -- distinguishing between lines of authority and responsibility and evidences of "discrimination";
  - -- reporting for and leaving work according to schedule;
  - -- taking rest periods, coffee breaks, etc.--leaving and returning to posts on time;
  - -- maintaining "good" office relationships--including respect for the rights and privacy of others;
  - -- learning the "language of business"--written, spoken and machine transmitted;
  - -- adjusting to new situational factors, including interracial or other unfamiliar ethnic mixes;
  - -- adopting modes of dress, grooming and personal hygiene, which are acceptable in the business world;

-- exerting discretion with reference to behavioral patterns such as gum chewing, singing and humming in the office setting, talking loudly and interrupting others at will; and

-- related matters.

The BOC project was planned originally for a twelve-month period--June 30, 1968 through June 29, 1969 Under a Supplemental Agreement, which extended the completion date of the prime contract through September 30, 1969, the project was authorized to be operative for fifteen months. This change was primarily to provide additional enrollee follow-up time, particularly for project units which were last to be phased into the program, and to facilitate assessment of the experience in two localities where the Learning Centers continued, through different funding, beyond the original demonstration period.

The original plan called for division of the project into four major phases; organization, operations, evaluation and feedback. Budgetary resources provided for an individual demonstration-operational phase of four months per center. Since the total calendar covered the above longer period, it was possible to phase in each of the local program units in accordance with the requirements of the individual situations. There was considerable variance in the amount of time required for dealing with the major control factor, i.e., arrangements for job slots/youth wages. Thus, while the National Project operations have covered the entire contractual

time period, the six local programs have had no identical opening or closing dates: there have been consequent calendar overlaps in the various phases. As the efforts have proceeded, a fifth phase--continuity--has been added in two cities, Philadelphia and St. Louis. As of this writing, continuity operations in both of these cities are in progress: these operations represent some adjustments in the BOC original design which are discussed in later appropriate sections of this report.

Each of the BOC programs included the following components--orientation, skills improvement, remedial education, support services, placement, and follow-up. The approaches, methods, and appraisals of these constitute the basic subject matter for this report. The findings in regard to each, and to the combination of all of them, in individual program units and for the BOC project as a whole lay the groundwork for not only the narrative description of the programs in operation, but for recommendations, guidelines and conclusions with respect to model possibilities--to be found in subsequent sections.

The staffing patterns in each of the local BOC programs were generally similar, with some variations in response to standard capacities and local YWCA and community characteristics. There were individual modifications related to the nature and extent of cooperation available through other public and private organizations. All of the personnel complements included volunteers who carried important, responsible assignments within the program operations.

The prevalent pattern included, in addition to these program volunteers, advisory committees comprising representatives of relevant sectors of the community as well as YWCA officers and other members. The relationship of "regular" YWCA staff to the programs varied from city to city, in accordance with the needs of the enrollees, the BOC standard capacity, and the program locations.

Generally, the BOC programs entailed cooperation with local units of the Department of Labor and other public and private structures. Differences in local organizational patterns were reflected in the character of these relationships: however, the cooperation of the Neighborhood Youth Corps (Out-of-School program personnel) and of the local Employment Service was fairly standard. In more than one instance, Regional and/or District Offices were involved in the developing relationships for specific or general decisions. The modal patterns covered involvement of these offices at the times the NYC job slots were arranged, whenever problems arose, and in relation to continuity efforts. It may be noted again that in five of the six localities, NYC not only provided the job slots and consequently the youth wages, but referred youth already in their programs to the BOC Learning Centers. Actually, these youth constituted a heavy majority of the BOC enrollment, with the exception noted above--in Tacoma. The NYC enrollees who were thus referred had demonstrated need for assistance available through BOC which was not provided in other existing programs. In some instances, this posed a dilemma, due to the fact that the

NYC youth adjudged to be "needy" did not meet the minimal BOC requirements, i.e.:

age--minimum 17 years, with exception of disadvantaged high school graduates of younger age; maximum--25 years.

education--This project was designed to serve young women who

- had completed a Business Course in high school, with the proviso that some if not all of this group be established to have been in the lower half of their respective classes, and that all of those included in this group had been unable to find or hold full-time, stable employment in Clerical or Sales occupations;
- had dropped out of a high school Business Course at or beyond the eleventh grade, this group also to include some who had been in the lower half of their respective classes.

employment--BOC was planned for young women who had had unsuccessful work experience but who gave promise of achieving such success if afforded the kind of opportunities to be made available within the project. It was proposed to be open to young women currently engaged in Clerical or Sales Work Experience programs or currently employed, but who seemed to be failing or giving evidence of inability to perform successfully for reasons of personal qualification deficiencies or other needs which could be dealt with within the limitations of the project. Obviously, the project was expected to serve otherwise qualified, currently unemployed candidates.

economic status--According to the original proposal, BOC was to serve primarily young women whose families meet the established criteria for "poverty status." In choice situations, it was proposed that preference be given to candidates who were heads of households, chief wage earners in their families, or in adverse situations.

hard-to-reach--It was anticipated that some recruitment devices for the identification and inclusion of some qualified young women who would be hard-to-reach might be necessary. Arrangements with NYC in all localities except Tacoma eliminated the possibilities of this approach.

skills achievement--BOC was planned as an intensive short-term experience for each individual enrollee. The average length in the Learning Center was projected as four-to-six weeks. This obviously did not make provision for training beginners in skills such as typing. It was planned, therefore, that eligibility for participation would include rudimentary training in at least one of the basic skills prerequisite to entry in the enrollee's chosen occupation.

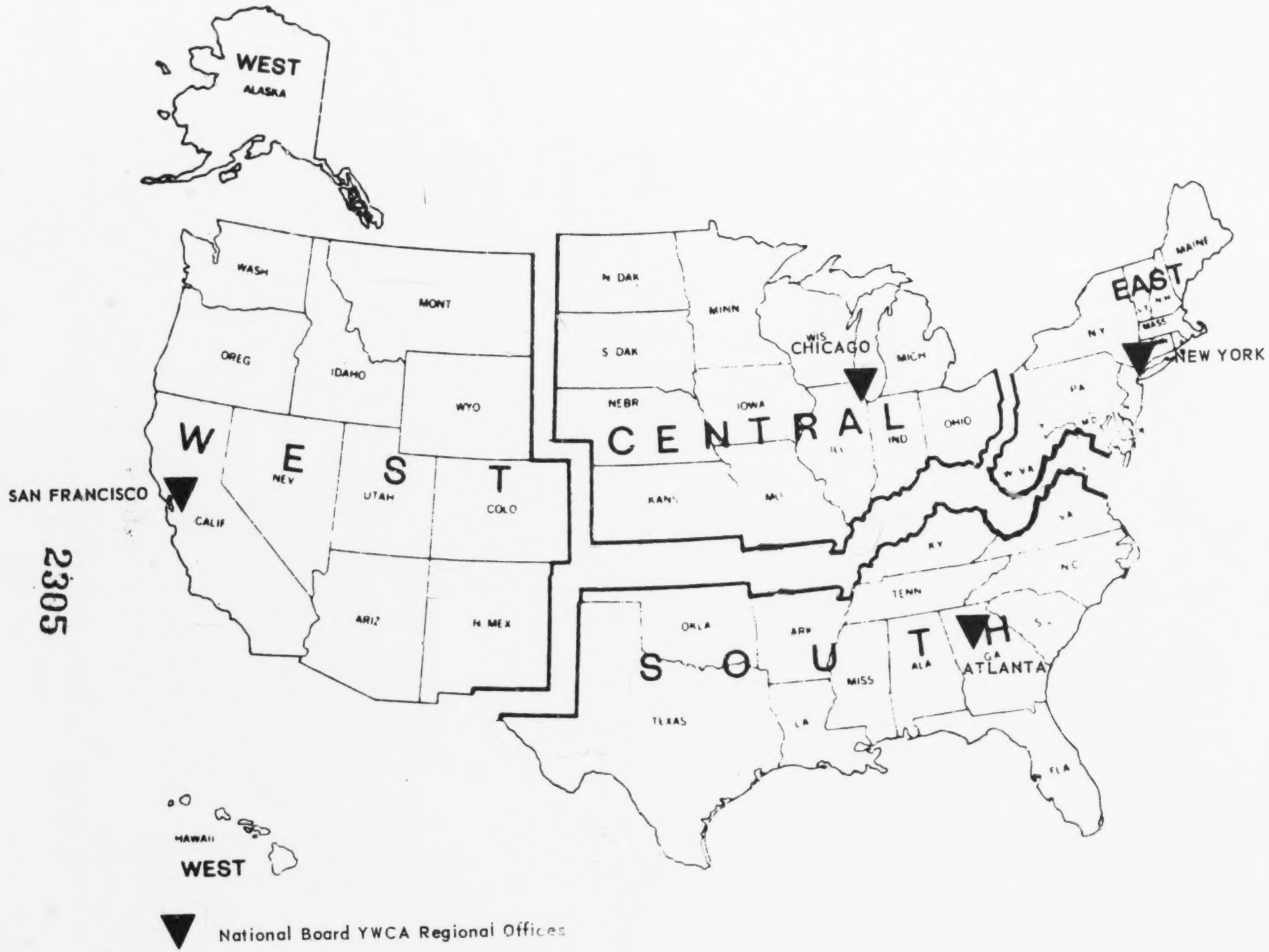
In the course of the project's progress, in response to the exigencies of the local situations, modifications in the eligibility requirements proved essential to the life, health and strength of the programs. These varied with the local situations, especially the status and urgencies developing within the parent NYC programs.

Reference to other sections of this report--enrollee characteristics, discussions of different aspects of the BOC project as a whole, and narrative descriptions of the individual local units--will provide information as to the nature of these adjustments and their consequences for the programs. Particularly relevant are the efforts to continue individual programs, beyond the period for which they were funded through this demonstration project. The two Associations which have been successful in these continuity efforts--Philadelphia and St. Louis--have been and still are going through emergency periods as they have struggled for maintenance of the BOC effort. Neither has assurance for long-range, stable operations.

The prime sponsor--the National Board YWCA--in accordance with its commitments, established a National Headquarters staff for the direction, coordination, technical assistance, consistency control and general administration of the project as a whole. In the interest of accommodation to local requirements, freedom to act in accordance with local specifications--with special reference to job slots and youth wages--and the opportunity to take full advantage of the possibilities and obligations of a demonstration project, reasonable latitude was given to the individual programs to try out and demonstrate a variety of methods and approaches. This freedom has produced a range of experiences, provided for the identification of some universals within the findings, and laid

002303

the groundwork for "how to" guidelines, recommendations and model factors. There are also some unanswered questions. No effort is made to summarize any of these at this point: their products are distributed throughout the appropriate sections of this report as a whole. It should be noted, however, that this report, prepared by the National Headquarters staff, is based on--in some instances draws verbatim from--the detailed progress and final reports submitted by local BOC program staff, as well as on observations, interviews, and other direct procedures employed by this N.H. personnel. All of the project's participants--national and local, enrollees, volunteers, project and other YWCA staff--have been given opportunities to take part in the BOC evaluations.



National Board YWCA Regional Offices

2305

Need for this project

2306

NEED FOR THIS PROJECT

Throughout the pre-planning and action stages of this Business Office Culture project, a number of repetitive questions surfaced. They came from numerous sources, including some of the enrollees themselves. Some of these questions seem to have sprung from "pure curiosity." Some came from knowledgeable persons, professionally alert to "new or different" approaches to manpower training. Some seem grounded in challenge of the validity of the approaches or the selection of the project's target groups. One enrollee indicated that it was a new experience for her to be among those chosen: usually she had found that programs "were not for" her. This had happened so often that she had given up applying, and was very surprised when the "Neighborhood Youth Corps lady" asked her if she would be interested. "I thought you had to be a drop-out," she said, "and I kept wondering why I had stuck to it to graduate [from high school] even though you couldn't call me a shining light when I was there."

The repeated questions clustered:

W *"cream" for high school and upper grade completers?*

focus on women workers?

h *were there so many [racial] minority enrollees?*

set such "low" age limits?

. . .

y *concentrate on clerical and sales occupations?*

emphasize office culture, rather than skills training?

Replies to these questions are drawn from a range of sources, including:

- YWCA experience in more than one hundred years of working with women and girls, during which a body of information and insight into the needs, special problems and potentials of women workers has been accumulated;
- broad and varied experience of a large number of Community, College and University YWCAs in "anti-poverty" employability programs involving young women: these have included Neighborhood Youth Corps programs--out-of-school, in-school, and summer--in which YWCAs have served as sponsors and/or provided work stations; and others including Job Corps, Work-Study and New Careers;
- the specific, concentrated responsibilities of the National Board and the six Community YWCAs which took part in the previously cited 1967 Summer Youth Demonstration project. Here it may be noted that in this project which focussed on school drop-outs, the YWCAs were confronted repeatedly by educationally "over-qualified" SYD candidates in seriously adverse conditions because of their inability to compete for employment.

These, and related experiences, led to the premises which were stated explicitly in the proposal for the BOC project as submitted to the U.S. Department of Labor by the National Board YWCA:

PREMISES

HIGH SCHOOL AND UPPER GRADE COMPLETERS

1. There are significant numbers of young women seeking to enter clerical occupations who have responded to "please remain in school" but who--after completion (12th grade) or near-completion (11th grade) of high school Business Courses--are unable to secure or hold employment. This not only increases the frustration and anger of the individual, it builds up and reenforces a negative image, among their peers, of the "square" who stays in school. Resentment is increased by the availability of work training and experience programs throughout the communities for "drop-outs." The prevalence of such programs, when accompanied by lack of opportunity for those who have continued their schooling, does seem to represent a species of discrimination.

2. Within this group, there are numbers of young women who, although they have completed or near-completed high school Business Courses--

   -- do not have the skills and accompanying competencies required for successful performance in entry clerical positions;

   -- fail in first opportunities, or testing situations, because they are deficient in personal qualifications;

-- are unable to compete in obtaining and maintaining beginning clerical positions--to say nothing of qualifying for promotion--because of their unreadiness for participation in the culture of the business office.

3. These young women may be assisted to upgrade their qualifications and readiness through personalized intensive work training and experiences which are organized to acquaint them with this culture, and permit them to make the transition from classroom to office patterns while they are still in training status.
4. The continued entry into the labor market of such young women before they are ready can have a discouraging effect on employer willingness to accept them.
5. A number of these young women are members of disadvantaged minorities who face possible discriminatory assessments because of their race, creed, color, or national origin.
6. A number of these young women also meet the criteria for inclusion in the group frequently and variously referred to as "hard core."

YWCA experience was not the sole basis for the proposed BOC design which drew upon related information and data shared by other public and private organizations. There is an impressive array of documentary information pertaining to all of the above questions. A very few of their conclusions and/or pertinent data may be pulled out for inclusion here.

WOMEN WORKERS

Women make up 37 percent of the Nation's workers today [June 1969]. They are demanding, and under the law they are entitled to, equal treatment in the job market.

* * *

Statistics document the employment problems of women. In 1968 the unemployment rate for women was 4.8 percent compared to 2.9 percent for men. For nonwhite women 16 years old and over, it was 8.3 percent; for nonwhite teenage girls, it was 28.8 percent.

* * *

Income figures for 1966 show that 68 percent of all women who worked full time year-round earned less than $5,000, compared to 25 percent of men. At the other end of the pay scale, 1 of every 5 male workers earned $10,000 or more, while less than 2 of 100 women workers earned that much.

While many factors contribute to women's less advantaged place in the work force, one of the most prevalent is lack of marketable skills. 1/

1. *"Fashioning Manpower Programs for Women,"* Manpower, *June 1969, p. 22.*

Women workers are here to stay: their numbers and labor force participation rates are clearly on the rise and will continue in that direction for some years ahead.

POPULATION AND LABOR FORCE (EXCLUDING ARMED FORCES OVERSEAS), BY AGE, AND SEX, 2/ 1960 AND PROJECTED 1970 AND 1980

[Numbers in thousands]

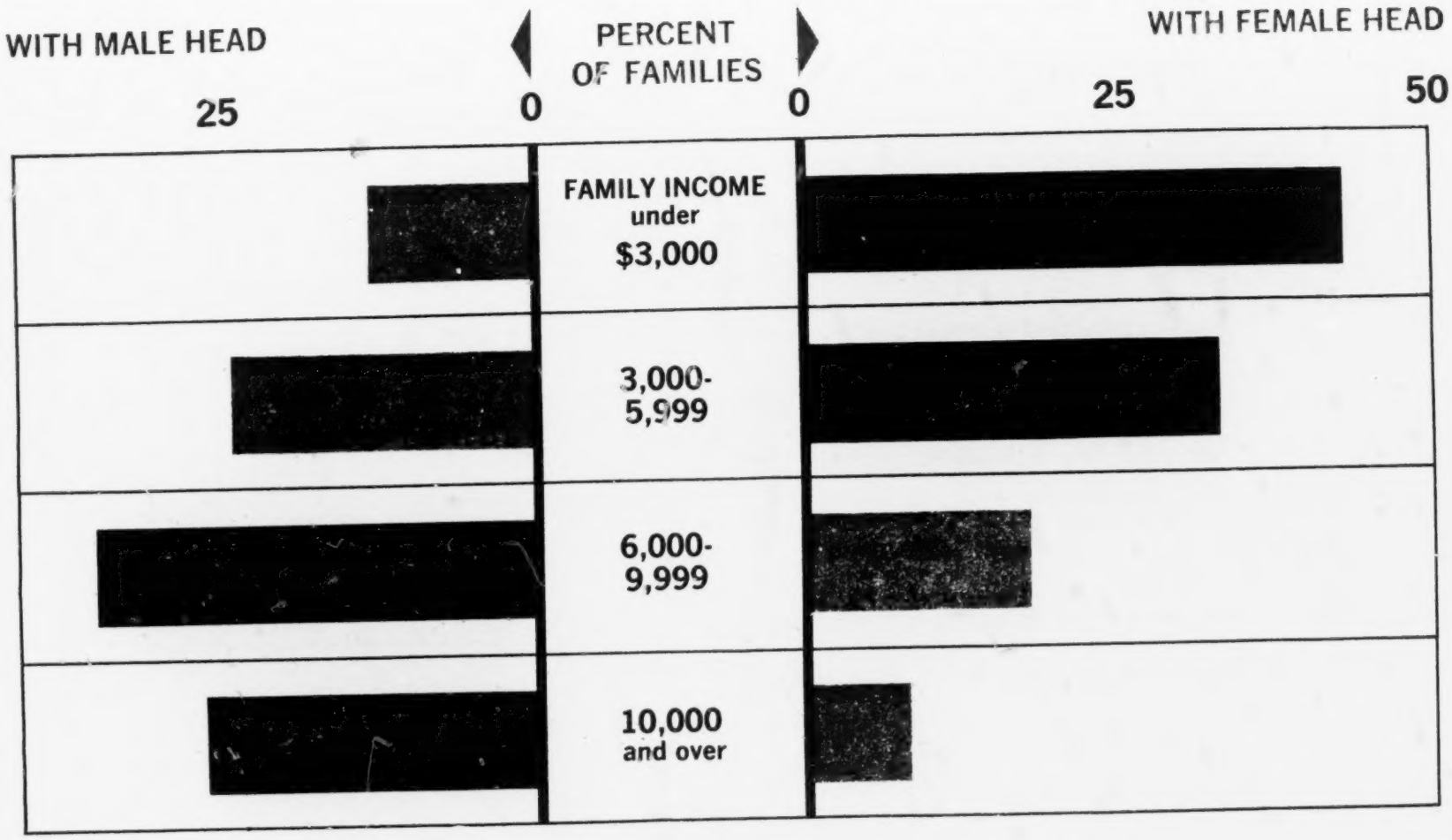
Age, color, and sex	Population (July 1)			Labor force (annual average)			Labor force participation rates (percent)			Percent change			
										1960-70		1970-80	
	1960 (April 1)	1970	1980	1960 (April 1)	1970	1980	1960	1970	1980	Population	Labor force	Population	Labor force
	United States												
ALL CLASSES													
Both sexes, 14 and over	126,277	148,944	173,161	69,877	85,257	100,670	55.3	57.2	58.1	18.0	22.0	16.3	18.1
Male													
Total, 14 and over	61,315	71,795	83,380	47,468	55,105	64,246	77.4	76.8	77.1	17.1	16.1	16.1	16.6
14-24 years	13,385	19,846	22,786	7,643	12,264	14,443	57.1	61.8	63.4	48.3	60.5	14.8	17.8
25-54 years	33,052	34,807	41,212	31,296	33,348	39,524	94.7	95.8	95.9	5.3	6.6	18.4	18.5
55 years and over	14,878	17,143	19,382	8,528	9,494	10,279	57.3	55.4	53.0	15.2	11.3	13.1	8.3
Female													
Total, 14 and over	64,961	77,148	89,781	22,410	30,152	36,424	34.5	39.1	40.6	18.8	34.5	16.4	20.8
14-24 years	13,454	19,779	22,583	4,366	7,670	9,209	32.5	38.8	40.8	47.0	75.7	14.2	20.1
25-54 years	34,471	36,442	42,438	14,277	17,124	20,538	41.4	47.0	48.4	5.7	19.9	16.5	19.9
55 years and over	17,037	20,927	24,760	3,767	5,358	6,677	22.1	25.6	27.0	22.8	42.2	18.3	24.6
NONWHITE													
Male													
Total, 14 and over	6,279	7,769	9,791	4,528	5,761	7,333	72.1	74.2	74.9	23.7	27.2	26.0	27.3
14-24 years	1,607	2,549	3,315	822	1,519	2,010	51.2	59.6	60.6	58.6	84.7	30.0	32.3
25-54 years	3,389	3,729	4,771	3,005	3,432	4,424	88.7	92.0	92.7	10.0	14.2	27.9	28.9
55 years and over	1,283	1,490	1,705	700	810	899	54.6	54.4	52.7	16.1	15.7	14.4	11.0
Female													
Total, 14 and over	6,874	8,616	10,847	2,872	3,910	4,886	41.8	45.4	45.0	25.3	36.2	25.9	25.0
14-24 years	1,689	2,678	3,461	486	974	1,325	28.9	36.4	38.3	58.6	99.2	29.2	36.0
25-54 years	3,793	4,204	5,242	2,092	2,405	2,913	52.8	57.2	55.6	10.8	20.1	24.7	21.1
55 years and over	1,392	1,733	2,144	380	531	648	27.3	30.6	30.2	24.5	39.6	23.7	22.0

2. *Tomorrow's Manpower Needs* (Washington: U.S. Department of Labor, Bureau of Labor Statistics, February 1969), Volume I, Developing Area Manpower Projections, p. 70.

Need 6

Families headed by a woman have less income. 3/

CHART 14



The majority (75 percent) of families headed by a woman have a yearly income under $6,000. Only 8 percent have an annual income of $10,000 or more. But 27 percent of the families headed by a man have a yearly income of at least $10,000. Family incomes under $3,000 are three times as frequent among female-headed families (42 percent) as among male-headed families (14 percent).

In 1962 about 80 percent of the 627,000 widows with children under 18 were receiving survivor benefits under Social Security. The total yearly income of these beneficiary families averaged $3,570. The average benefit ranged from $1,373 for one-child families to $2,253 for those with three or more children. Three-fifths of the mothers worked. The percentage in the labor force was twice that of married women with husbands present.

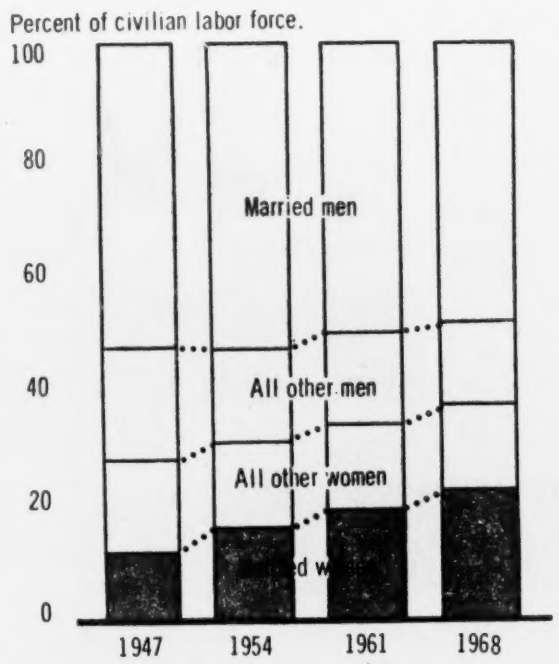
3. *The Nation's Youth (Washington: U.S. Department of Health, Education and Welfare, Social Rehabilitation Service, Children's Bureau and the Population Reference Bureau, Inc., 1968), Chart 14.*

The labor force participation of married women arouses widespread interest because of its social, cultural and demographic, as well as economic effects. Perhaps no other single change in family life has affected so many families in as relatively short a time as has the movement of married women into the labor force....

A large proportion of the married women who work are mothers with young children....

CHART 10

Married women represent a growing proportion of the labor force.



Source: U.S. Department of Labor.

* * *

Women's labor force participation has been a significant factor in the upward climb in family income.... [Between 1961 and 1966] the proportion of families with income below $3,000 decreased by 5 percentage points, while the proportion with $10,000 or more increased by 10 percentage points. The earnings of married women who work have significantly influenced these shifts. [4/]

4. *1969 Manpower Report (Washington: U.S. Department of Labor], pp. 54-55.*

Need 8

TOTEM POLE

JOB OPPORTUNITIES

WHITE MALE College	$8000
WHITE MALE High School	$5500
NON-WHITE MALE College	$4800
WHITE FEMALE College NON-WHITE MALE High School NON-WHITE FEMALE College	$3700
WHITE FEMALE High School	$2200
NON-WHITE FEMALE High School	$1700

ANNUAL SALARIES

. . . WHY SO MANY MINORITY ENROLLEES?

National—1960 Data

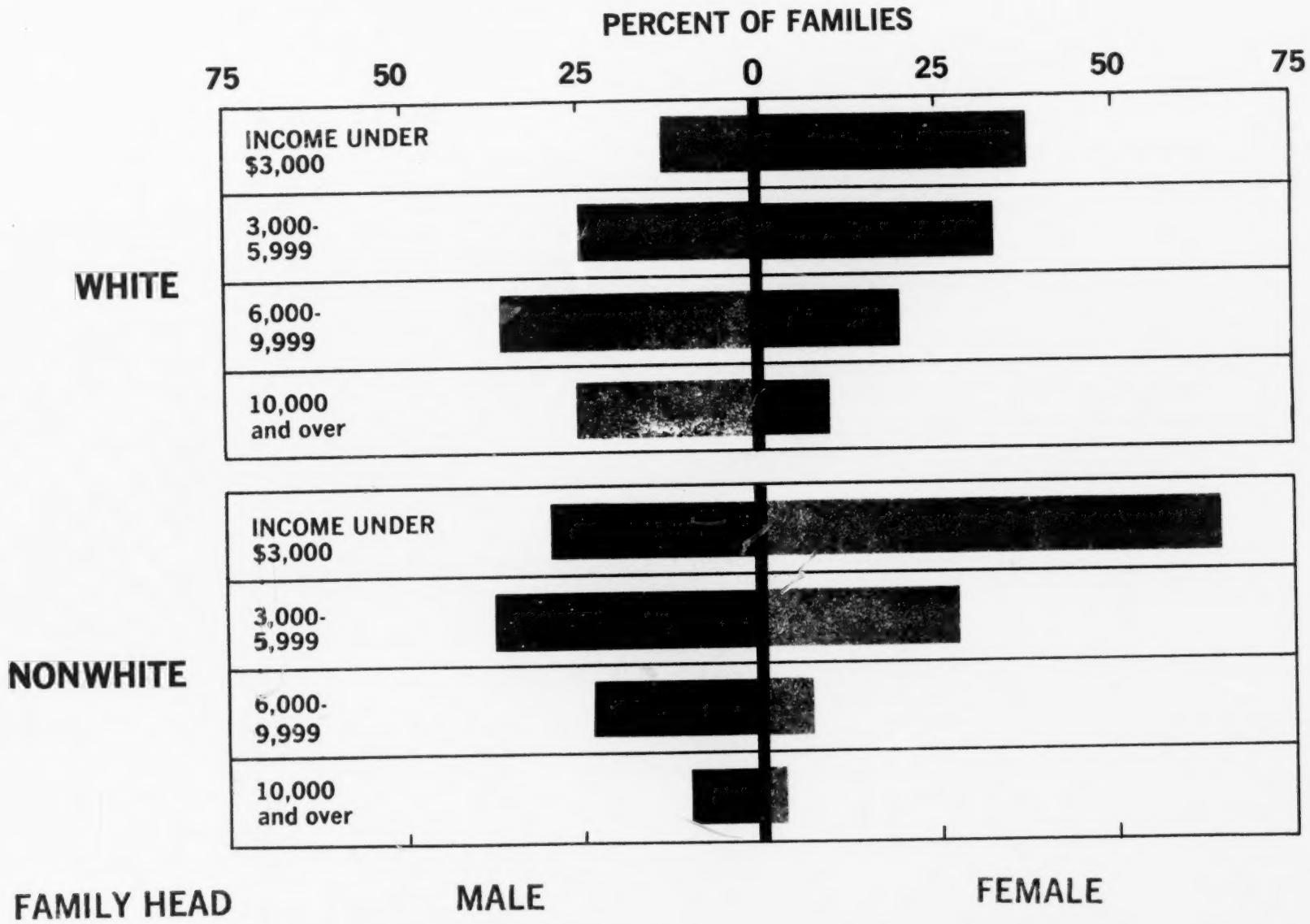
The Bureau of Census reported recently [5/] that half of all the Negro poor were in families headed by a woman. It is further significant that the proportion of Negro families headed by a woman rose from 22 percent in 1960 to 29 percent in 1969. While this proportion more than doubled that of white women in 1960, it is three times as high in 1969.

5. *Current Population Reports (Washington: U.S. Department of Commerce, Bureau of the Census), Series P-20, No. 189, August 18, 1969.*

Need 10

Nearly two-thirds of nonwhite families headed by a woman are poor. 6/

CHART 15



The majority (75 percent) of families headed by a woman have a yearly income under $6,000. Only 8 percent have an annual income of $10,000 or more. But 27 percent of the families headed by a man have a yearly income of at least $10,000. Family incomes under $3,000 are three times as frequent among female-headed families (42 percent) as among male-headed families (14 percent).

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6. *The Nation's Youth, Chart 15.*

BOC enrollees were primarily, though not exclusively, Negro. The significance of discrimination because of race seems an undeniable factor.

The most important data are the figures on Anglo and Negro clerical workers. About two out of every five majority group women are employed in this class; for Negro women, the ratio is about one out of every six. These ratios are a convenient form, but one must return to the actual figures to illustrate how many jobs they represent: of the Anglo women covered in the survey, 2.9 million worked in clerical jobs; for Negroes, the figure is about 113,000.

The clerical occupation is one of the most important, in earnings and in number of employees, as far as women are concerned, and it is the sector in which discrimination against Negro women is most pervasive. 7/

Percentage Distribution of Anglo And Minority Group Employment in The U.S. 8/
By Occupation, And Sex, 1966

	FEMALE				
Occupation	Negro	Oriental	Am. Ind.	SSA	Anglo
Managers, Officials, Proprietors	.68	1.86	2.19	.80	2.64
Professional Workers	1.55	9.48	2.28	1.10	3.03
Technical Workers	4.55	8.75	3.32	2.53	4.35
Sales Workers	3.95	5.92	12.50	6.92	9.25
Clerical Workers	17.52	41.05	21.67	24.05	40.77
Craftsmen	2.43	2.28	5.13	4.81	2.80
Operatives	24.93	11.39	24.18	29.81	21.67
Laborers	14.14	7.04	11.81	17.61	6.39
Service Workers	30.25	12.23	16.92	12.39	9.10
Total No. Employed	639,677	45,177	17,136	198,551	7,155,656
Percent of All Males/Females Employed	7.91	.56	.21	2.46	88.86

---

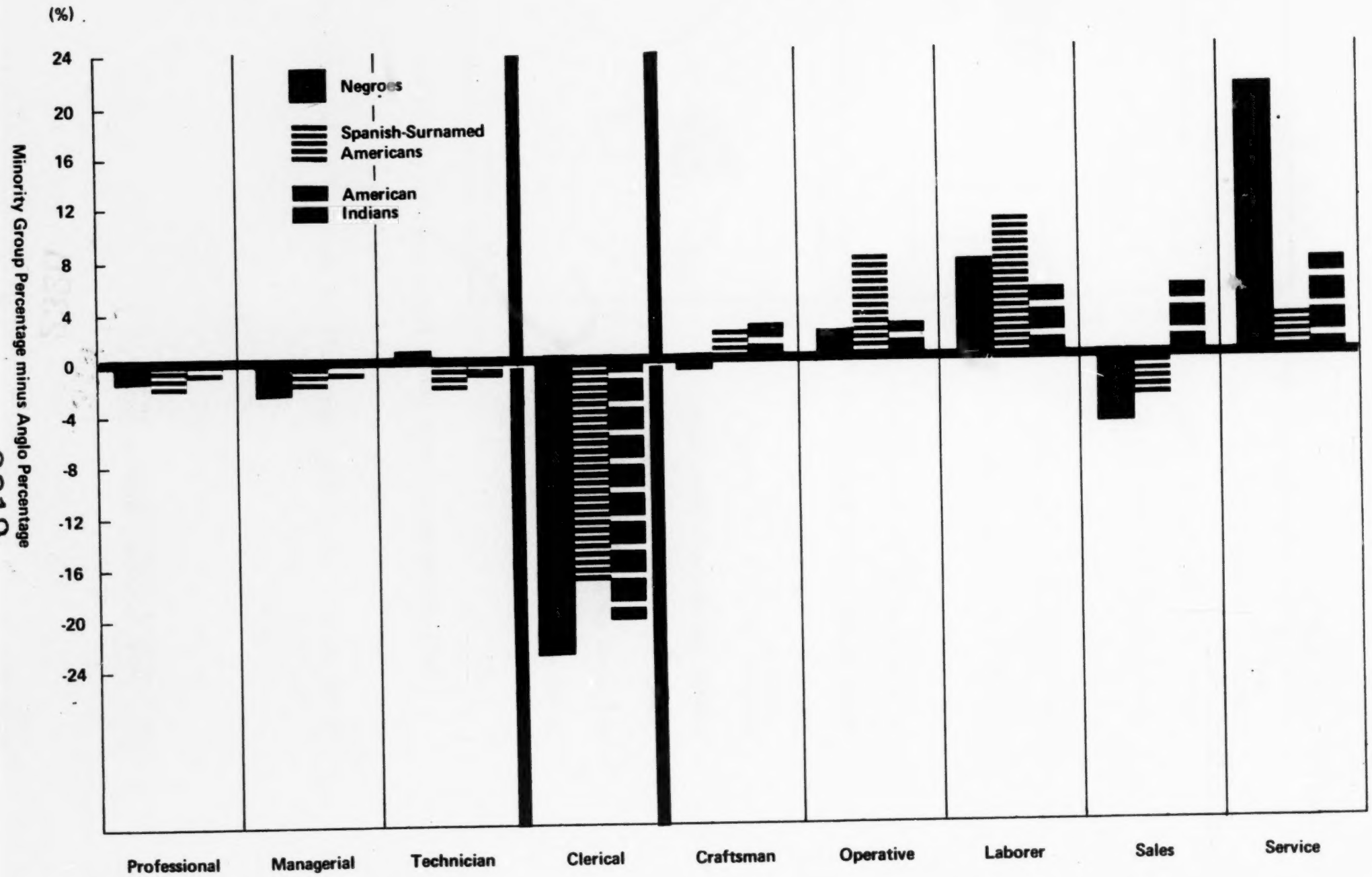
7. *Equal Employment Opportunity Report No. 1 (Washington: U.S. Equal Employment Commission, July 1968) Part I, "Job Patterns for Minorities and Women in Private Industry, 1966," p. 11.*

8. *ibid., p. 10.*

2318

DEVIATIONS OF MINORITY GROUP FROM ANGLO OCCUPATIONAL PATTERNS: FEMALES 9/

(EEOC data)



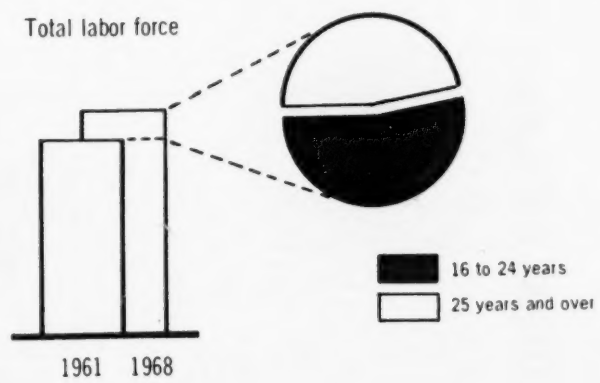
9. *ibid., Chart II.*

"LOW" AGE LIMITS

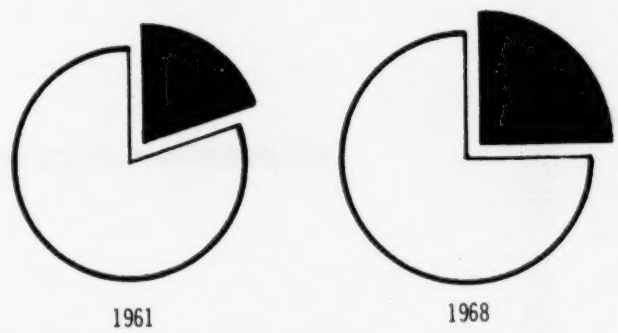
The labor force under 25 years of age numbered 13.3 million in 1961 and 18.2 million in 1968. Almost 1 in every 4 persons in the 1968 labor force was under 25; in 1961, the comparable ratio was about 1 in 5. The relation of the population explosion to these labor force changes is obvious. But there are also strong currents of social change which have been intertwined with the shifting patterns of work and jobseeking among youth during the 1960's.[10/]

CHART 8

More than half of the labor force increase between 1961 and 1968 was made up of young workers.



Therefore, the proportion of the labor force under 25 years of age rose significantly.



Source: U.S. Department of Labor.

Back reference to the Labor Force projections (page 6) will show that significant surging increases in the numbers and participation rates of this age group (under 25) is expected to be constant.

10. *1969 Manpower Report, p. 50.*

Need 14

Young women 16-21 years old experienced greater difficulty than men in finding employment in the summer of 1969. Although almost 1.1 million more male than female youths were in the civilian labor force, about 860,000 girls were jobless compared with 815,000 boys. As a result, the unemployment rate for female youth was 14.3 percent in 1969, compared with 11.5 percent for young male jobseekers....

A disproportionately large number of nonwhites were among the ranks of unemployed youth; they made up almost one-fourth of the unemployed total, even though they accounted for only slightly more than 12 percent of the total youth labor force. The nonwhite jobless rate was 24.6 percent in 1969, more than double the white unemployment rate of 11.2 percent. Both white and nonwhite youth fared somewhat better in their quest for employment in 1969 than a year ago, although the jobless rate for nonwhites showed relatively less improvement. 11/

11. *Employment and Earnings (Washington: U.S. Department of Labor, Bureau of Labor Statistics, August 1969), pp. 5-6.*

Need 15

FOCUS ON CLERICAL AND OFFICE CULTURE

Clerical Workers

Almost 5 million additional clerical jobs are projected for 1975 if the unemployment rate is about 3 percent. This expansion will be a 50-percent increase over the 9.8 million employed in 1960. The greater-than-average increase projected for this group depends in part on the expected greater growth of employment in the service industries (including trade) where about 3 out of 4 of these workers were employed in 1960, and also on their increasing proportion in industries such as wholesale and retail trade, education, and other professional services--industries in which the changing organization of work is increasing the requirements for clerical occupations such as cashier, stock clerk, teacher's aide, bookkeeper, and secretary.

Electronic computers will be a major factor determining employment requirements for some clerical occupations. The number installed, their information storage capacity, and the speed of the machines are growing rapidly. Many accounting, recordkeeping, and data processing clerical jobs in the Federal Government, banks, insurance companies, and a wide variety of other industries are being eliminated. Companies whose volume of data processing does not justify the purchase or direct rental of a machine can obtain use of small blocs of computer time through numerous service centers. Computers will take the place of many accounting clerks, billing and

bookkeeping machine operators, inventory control clerks, and voucher clerks. Additional keypunch operators will be needed. Computers are bringing about faster and cheaper retrieval of data. As a result, management demands more analytical reports and clerical help is needed to prepare data for these reports. This development offsets the displacement of workers caused by the greater efficiency of computers.

Despite the tremendous speedup of data processing and record-keeping that has already occurred as a result of computer installations, the number of clerical workers has continued to grow at a high rate.

Important clerical occupations such as secretaries, stenographers, typists, cashiers, bank tellers, mail carriers, postal clerks, and telephone operators are not expected to be heavily affected by the use of computers, although their employment requirements will be affected by other technological changes. Others, such as bookkeepers and accounting clerks, office machine operators, payroll clerks, and stock clerks, which are affected by computers, continued to show good rates of employment growth in the early 1960's.

Technological change, such as the greatly increasing use of easily operated copying machines, new varieties of dictating equipment, and improved typewriters, does not appear to have slowed the growth in employment of the secretary, stenographer,

and typist group. Employment requirements for this group are projected to increase more than three-fifths between 1960 and 1975. The growth is expected to be greater for secretaries, who generally have a broader range of responsibilities than for typists or stenographers....

Cashiers are expected to double in employment between 1960 and 1975. The increase will occur almost entirely in the retail trade industry which will account for three-quarters of the cashiers employed in 1975....

Salesworkers

Requirements for salesworkers are projected to increase about as fast as total employment. (Less rapidly than total nonagricultural employment.) More than 70 percent of these workers are employed in retail and wholesale trade.... In most of the manufacturing industries, where about 1 salesworker in 8 is employed, they are projected to be an increasing proportion of total employment. 12/

12. *Occupational Employment Patterns for 1960 and 1975 (Washington: U.S. Department of Labor, Bureau of Labor Statistics, December 1968), pp. 20-21.*

Need 18

THE PROBLEM IS PERVASIVE

THE NEW YORK TIMES, FRIDAY, AUGUST 29, 1969

Phone Girls to Get Efficiency Course

By SYLVAN FOX

The New York Telephone Company, stung by mounting criticism of operators who irritate rather than inform, will initiate a pilot training program aimed at increasing the efficiency of the girls it hires to provide directory assistance.

The course will cost the company about $700 a girl, compared with the normal training cost of $150 for each operator.

Douglas W. Bray, a psychologist who is assistant vice president for employment and training at the telephone company, said many of the communications problems encountered by telephone users stemmed from the fact that operators were either not from New York City or were from slum neighborhoods where their experience with the rest of the city was circumscribed.

Telephone company officials said yesterday that the pilot program would begin in mid-September and would run for six or seven weeks, depending on how each prospective operator progresses. Information operators now get about eight days of training.

They said 250 newly hired operators would be trained in Manhattan and another 250 in Brooklyn. In all, the telephone company employs more than 10,000 operators in New York City.

Dr. Bray said the pilot project resulted from both customer complaints about operator service and from his office's own spot checks of the performance of information operators.

"Our own service observations," he said, "indicate there are many instances of misunderstanding between customer and operator. There's a good deal of communication difficulty."

One such spot check a few weeks ago disclosed some kind of "communication difficulty" in 25 per cent of information calls.

Dr. Bray cited a typical example: A woman called information and asked for the number of Korvette's. The information operator, who did not know Korvette's was a department store ,asked the woman for "Mr .Korvette's" first name.

In the pilot program, Dr. Bray said, the telephone company will "attempt to diagnose the operator's weaknesses in voice, language, spelling and local geography."

The training program will include work in English and voice, effective listening, New York City geography and work orientation, Dr. Bray said.

The objective, Dr. Bray said, is not only to improve the efficiency of the operators but also to reduce the high turnover rate the company now experiences. Dr. Bray explained that when communication difficulties arise between subsriber and operator, "it's not only the customer who gets annoyed, but the girl gets sick and tired of it and quits."

According to Dr. Bray, the first operators trained under the pilot program are expected to be at work around Nov. 1. An evaluation of the program, in terms of its effect on service and on job turnover, is expected to be made sometime after Jan. 1.

"If we find that this pays for itself," he said, "we undoubtedly will extend it."

Commenting on the telephone company's personnel problems, Dr. Bray noted that in the first six months of this year, the telephone company hired 14,000 people — 9,000 of them women — throughout the state.

"Certainly," he said, "the majority of the women hired in the downstate area were black" and many were unfamiliar with the city.

In a sample studied by Dr. Bray in Manhattan recently, 50 per cent were not born in New York City.

Dr. Bray explained that the telephone company hired people unfamiliar with New York City because many young girls who were born in the city and who might take jobs with the telephone company had moved to suburban areas with their families.

"They're not going to commute to be telephone operators," he said. "You have to draw on the girls who live in New York — and many come from the South and from Puerto Rico."

The starting salaries of telephone operators is $84.50 a week. Of the 10,100 operators employed by the telephone company in New York City, almost 7,000 are Negroes and Puerto Ricans.

The New York Telephone Company employs 91,300 people throughout the state, 17 per cent of them Negroes and Puerto Ricans. Twenty-five per cent of its 50,000 employes in New York City are Negroes and Puerto Ricans.

Organization

O R G A N I Z A T I O N

The BOC contractual agreement stipulated--in accordance with the proposal--that the first of the four phases of work to be carried out in this project would be organizational, i.e.,

> *a "tooling up" phase (1 to 3 months), covering: preparation of the work statement that defines the scope of each local YWCA's effort; the recruitment of paid staff and volunteers and their training; the organization of the learning center and the assembling of materials; the recruitment and screening of enrollees; the establishment of recording, reporting and evaluation procedures and the expansion of community contacts to facilitate eventual placement.*

In an analytical review of this "tooling up" it is necessary to make some distinctions between the responsibilities carried by the BOC National Headquarters and local program personnel. It is to be recognized, however, that these have been interactive. It may be further desirable to indicate at this point that in the organizational--as well as other BOC phases--the Headquarters personnel received technical assistance from the Division of Program Demonstration, Office of Special Manpower Programs of the Manpower Administration. This National Headquarters personnel, in turn, gave direct technical assistance to the local program units.

Administrative units of the National Board YWCA--other than the BOC National Headquarters--discharged responsibilities in the "tooling up" process primarily for contractual, fiscal, legal and personnel procedures. Generally, in relation to National Board, BOC National Headquarters was comparable to other administrative units: it was responsible to the Executive Director through whose direct or delegated authority it related to all appropriate National Board resources. The accountability of the National BOC Project Director to National Board YWCA was executed through this channel. The procedures related primarily to the Contracting Officer--a Vice President, the Executive Director, the Office of the Comptroller, the Office of National Employed Personnel, and the four Regional offices.

SCHEMA 1

KEY STEP I	*NATIONAL HEADQUARTERS*
Preliminary Planning and Site Exploration; Establishment of Procedures	-- preparation of guidelines; provision of technical assistance re: • National Project requirements (prime contract and project proposal) • work slot/youth wages arrangements • liaison with local manpower agencies and other resources essential to plan -- liaison with Labor Department, national/regional/district re: • resolution of problems relating to establishment of arrangements for assignment of enrollees under conditions required by prime contract -- liaison with National Board YWCA, particularly with Executive Director, Attorney, Comptroller, Regional Correlators re: • legal and fiscal procedures • site exploration *NATIONAL BOARD YWCA* -- complementary liaison as indicated above *COMMUNITY YWCAs* -- exploration in accordance with guidelines, as above

SCHEMA 1 (continued)

KEY STEP II Letter of Intent Execution	*NATIONAL HEADQUARTERS* -- interpretation of requirements, liaison with Labor Department, and technical assistance in all processes *NATIONAL BOARD YWCA* -- Attorney: draft of legal form -- Executive Director: review and approval -- Comptroller: review, approval and issuance of advance -- Contracting Officer: approval and signature *DEPARTMENT OF LABOR* -- authorization of use of Letter of Intent -- review and approval of legal form *COMMUNITY YWCAs* -- Board of Directors: authorization to proceed -- Attorney: review and approval -- President and Executive Director: review, approval and execution of signatures -- Comptrollers/Finance Officers: establishment of project bank account and meeting other fiscal accountability requirements

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SCHEMA 1 (continued)

KEY STEP III Operation under Letter of Intent (Pre-Subcontract stage) This Letter of Intent enabled the Community YWCA to engage the services of the local project director to take part in the development and establishment of the local project unit and preparation of subcontract documents. Participation of the local project director during this period involved her in adaptation of the national project design to local conditions and facilitated her orientation and training.	*NATIONAL HEADQUARTERS* -- technical assistance re: • project unit proposal (work statement) • staffing pattern and budget • procurement: liaison with General Service Administration Regional Offices and Supply Stores, etc. • staff recruitment and orientation/training • selection of training materials • fiscal and program reporting procedures -- final preparation of project unit proposal -- technical assistance re: • completion of subcontract documents -- agreement -- work statement attachment -- budget -- prime contract excerpts -- prime contract general provisions *COMMUNITY YWCAs* -- "tooling up" as indicated above -- Learning Center opening (may occur in subcontract stage)

SCHEMA 1 (continued)

KEY STEP IV Execution of Subcontract Technically, the subcontract stage embraced the period authorized by Letter of Intent; functionally, actual execution of the subcontract took place as soon as feasible after execution of a Letter of Intent. This timing generally depended upon (1) recruitment of Project Director and (2) readiness of facility.	*NATIONAL HEADQUARTERS* -- interpretation of requirements, liaison with Labor Department, and technical assistance in all processes *DEPARTMENT OF LABOR* -- preparation of subcontract form and specifications* -- final approval of all subcontracts *NATIONAL BOARD YWCA* -- Attorney: review and approval -- Comptroller: review and approval -- Contracting Officer and Executive Director: review, approval and signature *COMMUNITY YWCAs* -- Attorney: review and approval -- President and Executive Director: review, approval and signature -- Learning Center opening (may occur under Letter of Intent)

**original form prepared by National Board YWCA attorney; later superseded by Labor Department form.*

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The designation of one to three months for the organizational phase was premised on expectations that:

1. There would be a minimum of one full month between execution of the prime contract and the completion of the first subcontract(s). This in turn rested on the achievement of an optimum date on or before June 1, 1968 for the prime contract.

This proved not to be the case: the prime contract was signed on June 29, 1968; the first Letter of Intent--due to local pressures--had to be completed on or before July 8, the date on which the local BOC program in St. Louis became operational. This required intensive work with that individual Association and near-instant completion of the pre-subcontractual requirements there.

2. At least 10 Neighborhood Youth Corps out-of-school program slots would be readily available for allocation to the BOC program in six different locations: that it would not require a considerable amount of time or exploration to secure these slots, particularly since the YWCAs which had participated in the 1967 Summer Youth Demonstration (SYD) program had established good continuing relationships with local NYCs and since a number of them (NYCs) in those cities had been interested in follow-up of the SYD program. At the same time, there had been requests to National Board YWCA from other interested Community Associations all of which believed that these slots could be secured.

Again this expectation did not jibe with reality: a very considerable proportion of time and effort went into site selection: usually this arose in response to the difficulties in arranging the needed training slots/stipends. These are discussed in this section of this report under "Problems Encountered." At this stage it may be restated that of the six Community YWCAs which finally became operational, five utilized local Neighborhood Youth Corps out-of-school program slots: the sixth--Tacoma, Washington--was unsuccessful in efforts to make this arrangement and was able to participate in the BOC project only because of its ability to enlist the provision of training stipends at the NYC payment level through local business enterprises.

A total of 14 Community YWCAs in different parts of the country entered into specific local explorations relative to participation in this BOC project (rf. Schema 2). Most of the eight which were finally removed from consideration were unable to secure the above slots. All 14 could not be explored at the same time: the maximum number in this stage at any given time was limited by the budgetary provision for subcontracts to six. And here it may be noted that the original number had been set at six to make provision for the possible participation of all of the 1967 SYD local program units, since all of them had contributed to the success of that demonstration and all had expressed interest in follow-up of that experience. The subcontract budget, therefore, was constructed to provide for operation of six local units for approximately four months each. When it became necessary to seek three new locations, exploration

was, of necessity, restricted to that number. After five locations were established, explorations for the sixth were seriatim--one after another. The additional feature of the design which called for dispersion of the six local units "throughout the four regions of the National Board YWCA" added another factor to the selection process. Thus, it may be noted that while three of the programs were located in the Eastern Region this did not represent the full potential in that region which could have absorbed the entire BOC project. At the same time, a considerable part of the time given to site selection was in reference to possibilities in the Southern Region. Altogether, six southern localities were explored. Thus, although it was not specified as one of the specific aspects to be accomplished during the tooling up phase, site selection became one of the most absorbing and demanding activities of the BOC project's organizational phase.

Site selection engaged the attentions and efforts of--

-- the BOC National Headquarters staff;

-- staff of the National Board Regional Offices--Correlators and Field Consultants;

-- volunteers and staff in the 14 Community Associations which explored participation possibilities;

-- the YWCA Board of Trustees and local business concerns (in Tacoma);

-- local, district and regional Neighborhood Youth Corps personnel;

-- in some instances, representatives of other manpower training programs--JOBS and CEP--and of Urban Coalitions, through which training slots/stipends were--unsuccessfully--solicited.

SCHEMA 2

Process	Prior to June 29, 1968	July 1968	August 1968	September 1968	October 1968
Pre-Prime Contract Exploration	2, 3, 4, 5, 6, 7, 8, 9,10, 12,13	xxx	xxx	xxx	xxx
Pre-Subcontract Exploration and Planning	3, 4, 5, 6	2, 3, 4, 5, 6,13	4, 6, 13,14	1	xxx
Letter of Intent and/or Subcontract	xxx	2, 3, 5	6,13	4	1
Removed from Consideration	7, 8, 10,12	9,11	13,14	xxx	xxx

CODE: COMMUNITY YWCAs

No.	Location	No.	Location
1.	Dallas, Texas	7.	Atlanta, Georgia*
2.	Mt. Vernon, New York	8.	Cleveland, Ohio*
3.	Philadelphia, Pennsylvania	9.	Denver, Colorado
4.	Pittsburgh, Pennsylvania*	10.	Greenville, South Carolina
5.	St. Louis, Missouri*	11.	Miami, Florida
6.	Tacoma, Washington*	12.	National Capital Area (District of Columbia)*
		13.	Richmond, Virginia
		14.	Tulsa, Oklahoma

**participated in Summer Youth Demonstration Project, 1967.*

Subcontracts and Work Statements

Of necessity, the prime contract work statement and attendant arrangements were completed prior to June 29, 1968. However, all of this work relative to the seven subcontracts with the Community YWCAs which entered into this status* became intensive as soon as the prime contract was completed. During this phase, it was imperative that the National Headquarters staff work in especially close communication and cooperation with the participating YWCAs. Full attention was required to develop work statements which would be consistent with the prime contract commitments, comparable with each other, and--at the same time--individually distinctive. This individuality reflected the discrete arrangements and local control factors in each of the respective situations: it is described in the narrative reports of the six local programs.

The basis for each of the work statements (local project proposals) was developed with the localities: the final written agreements, including the work statements and budgets, were prepared by the National Headquarters staff, signed by the appropriate representatives of the prime sponsor and the individual subcontractors, and approved by the Department of Labor. The originally projected calendar called for the completion of this work by September 30, 1968. However, because of the situation described above, with respect to site selection and arrangements for slots and stipends, a somewhat longer period was required (rf. Schema 3).

includes Richmond, Virginia, which terminated in Letter of Intent stage.

CONTRACT REVISION

During the month of September, at the request of the Department of Labor, the form of the subcontracts for this BOC project was revised. This entailed reprocessing of three subcontracts, which had been executed, recall and change of one that was ready for issuance, and rewriting of work statements--five of the six subcontractual relationships were involved in this transaction. It was necessary also to interpret the reasons for and implications of these changes to the Associations which had executed subcontracts and to arrange for review by the appropriate national and local YWCA personnel. In addition to some technical changes affecting the dates of some of the contractual documents, the new form established a standard addendum of the Work Statement as an integral part of the subcontract and, in effect, converted this statement into a local program proposal.

SCHEMA 3

Community Association	Date of Subcontract* (1968)
St. Louis, Missouri	July 8
Philadelphia, Pennsylvania	July 8
Mt. Vernon, New York	July 15
Richmond, Virginia	August 1 (withdrew August 22)
Tacoma, Washington	August 12
Pittsburgh, Pennsylvania	September 25
Dallas, Texas	October 21

**Technically, coincides with date of Letter of Intent.*

Since the work statements embraced all of the specifications of the ways in which commitments would be met in the individual localities, they included the results of all of the organizational work pertaining to approaches, staffing, arrangements for the local Learning Centers and the operations involved in the other three phases of the BOC project. The subcontracts, similarly to the prime contract, were cost-reimbursable: thus, the budgets and fiscal policies were established to meet the requirements and conditions for this type of financing. For the completion of all of these aspects and their translations into proper programmatic, fiscal and legal documents a nationwide network of intercommunications was required.

Staff and Volunteer Recruitment

Reference to Schema 4 will show that these local BOC program units carried relatively small paid staff increments. The numbers related to the standard capacity of the individual programs, and to the nature and extent of services provided by other resources, including BOC volunteers and other public and private organizations. Standards set by National Project Headquarters called for a paid staff minimum of three for each project unit.

SCHEMA 4

Community YWCA	Standard Capacity	Number of BOC Employed Staff	BOC Staff/ Enrollee Ratio
Dallas	15	3.6	4.2
Mt. Vernon	15	2.4	6.3
Philadelphia	15	4.0 (e)	3.8
Pittsburgh	16	3.6 (e)	4.4
St. Louis	25	3.0 (e)	8.3
Tacoma	12	3.3	3.6
Total	98	19.9	5.0

e = equivalent

From the above it may be seen that the range in number of employed staff was very small (3-4); that the mode and average were the equivalent of about three persons per program unit.

With reference to the ratios of BOC employed personnel to BOC enrollees at a given time, it may be noted that, as pre-planned, these ratios ranged from 1: 3.6 to 1: 8.3. But these figures are not as precisely revealing as their decimal point format may suggest. A number of additional factors must be considered, including:

- none of the enumerations take into account the nature or extent of responsibility carried by YWCA staff--the Executive Director, the fiscal officer, selected program and other staff for whose service no charge was made against the BOC budget;
- the considerable variation in the service accorded the project by local units of the Department of Labor and other organizations, with special reference to recruitment, screening and testing. Tacoma, for example, carried a heavier job load in that it had full recruitment responsibility whereas a number of the others dealt with Neighborhood Youth Corps and/or Employment Service referrals;
- the standard capacity in Pittsburgh is just a part of the picture--since the arrangement there was for half-time service to two shifts of enrollees--morning and afternoon. Thus, in any given day, this program was established to serve a minimum of 32 BOC enrollees;
- the number and level of additional personnel--volunteers in all cities and--in Tacoma--the students and faculty members from the University of Puget Sound.

When this personnel is added to the employed staff it is not too unusual to find at some points in the program that a 1:1 relationship was established.

Actually, the limitation in the number of employed personnel did bring about some pressure on the recruitment process to seek versatility as well as competence. It was also necessary to look for some specialization relative to the occupational concentrations of the BOC project. It was of prime importance, of course, that these qualifications be coupled with sensitivity, awareness of and readiness to deal with the problems and unrealized potentials of the enrollees which BOC was created to serve. It was necessary also to locate personnel who would be available for short-term assignments. This same personnel carried basic responsibility for other organizational, community and employer contacts. The project itself provided no time for "learning by doing." Thus, the YWCAs made special efforts to recruit or sometimes detail from regular YWCA staff, experienced, trained persons to carry out the paid staff responsibilities.

The recruitment of volunteers in this organizational phase was based on projections of the need for voluntary contributions which, generally, may be classified as:

- direct services to enrollees;
- advisory, consultant responsibilities;
- community interpretations and related contacts;
- employer and other placement contacts; and
- policy- and decision-making responsibilities.

In the organizational phase of the project a majority of the BOC volunteers came from the YWCA administrative volunteer group--presidents, other officers and committee chairmen were very active. In later phases, the volunteer group was expanded to take in other YWCA and non-YWCA voluntary personnel.

A third group--university students and faculty--as indicated above, made strong, important contributions to the Tacoma program. This was a distinctive feature of that program: it is described in the Tacoma narrative report. This represented a significant departure from the standard design, one which was demonstrated to be capable of important contributions to an employability project of this nature. This experience has laid the groundwork for further exploration of the possibilities of this kind of cooperation in a project of this nature.

A review of the experiences of these six programs, especially as they are compared with those within the 1967 Summer Youth Demonstration (SYD) project does raise the question as to what may be established as a sound economic unit, with reference to the size of the enrollee group in an employability project of this nature. Establishment of this criteria must take into consideration the diversity of service needs presented not only by the enrollees, but those required for enlistment of the meaningful array of community resources and support which are essential to the program's attainment of its goal and to really lasting results.

Volunteer and Staff Training

Training of staff and volunteers in this organizational phase moved from value- issue-oriented interpretations of the rationale for the BOC program, through task-analysis and differentiation, to fairly simple briefings with regard to the project's purposes and needs. In general, this training varied with the backgrounds and related experience of the to-be-involved individuals and with the assignments for which they were recruited. Some of it took place through written and oral communication from the National Headquarters to local units. Some of the work at the national and local levels was with small groups: a considerable portion was on a one-to-one basis, especially as individuals were recruited for specific tasks. On one occasion, the national project budget was "tapped" to permit a newly appointed local Project Director to visit another BOC program, to see the program in operation and to have the opportunity for direct briefing by experienced BOC local personnel. The whole process of local project development--from review of the National Proposal and prime contract to preparation of the local work statement--constituted orientation/training for local project personnel. On some occasions, task forces were established and oriented to meet specific needs such as the location and organization of BOC Learning Centers.

The following areas were found to require the greatest amount of interpretation in all of the training/briefing settings:

- the meaning, significance and requirements of a demonstration project;
- the differences between a demonstration project and a continuing, operational program;
- the need for this particular project;
- the reasons for and importance of emphasis on employability, job placement and retention;
- the significance of some "invisible" factors influencing the BOC program's success such as the enrollees' general conditions of living; their unmet needs--with special reference to health problems and child care; discriminatory practices based on race, sex and sometimes age; local problems such as transportation, related matters.

The project calendar did not provide adequate time for deep pre-program training in any of these areas. One of the findings of this BOC experience has been identified as the importance of planning, i.e., building in budgetary resources, for "solid" pre-operational training in any future comparable effort.

BOC Learning Centers

Each of the six participating YWCAs undertook the organization of its BOC Learning Center to meet the specifications of the prime contract--

> *...to establish a learning center in which clerical and sales skills will be taught, under simulated business conditions. [underline supplied] These centers will also be used as settings for facilitating the acculturation process, wherein disadvantaged females between 17 and 25 will be introduced to the social and work expectations of a typical business office. Each of the aforementioned learning centers will be equipped for teaching most or all of the skills described on pages 16 through 23 in the proposal [rf. Exhibits], either at the introductory level, or to enable unemployed girls with limited training to improve their skills, and/or to add to them, in order that they thereby may become more employable.*

In a sense the determination of the cubic footage requirement for each of the proposed Learning Centers represented a "chicken-and-egg" dilemma for the participating Associations. "For how many girls/what standard capacity shall we arrange?" was the question confronted by the YWCA which, at the same time was asked "how many girls can you accommodate?"

Generally, decisions regarding the number of job slots/stipends to be made available to the BOC program determined the standard capacity of the individual Learning Center. Note that the range was 12-25 (rf. Schema 4). Four of the Associations arranged Learning Centers within their own buildings. This required allocation of YWCA space for exclusive occupancy of the BOC project. Unlike the typical space utilization in a YWCA, multi-use was ruled out by the simulated office setting, especially its requirements for office machines and other equipment. These Associations--Dallas, Pittsburgh, St. Louis and Tacoma--made this investment in the project without reimbursement. Two others--Mt. Vernon and Philadelphia--had to look for space elsewhere. This was necessary in the case of the former because its own building was not large enough to accommodate the program. The Philadelphia YWCA was providing space for daytime programs of the Public School system in its central (downtown) building; the only exclusive-occupancy space which could have been provided by this Association was in an outlying area which did not meet the requirement established by the prime sponsor that the Learning Centers be in or near downtown sections of the cities.

This requirement had been set up on the basis of experience with disadvantaged young women, many of whom have been living in social isolation to the extent that they have little or no knowledge of their own localities. They have been found to be unfamiliar with the modes of life in sections outside their own neighborhoods, especially those of the central business areas. They have required

introduction to ways of moving about, planning for punctuality, dealing with the pace of business life, "eating out" at lunch time, and responding positively to other aspects of the world of work in the nonsegregated parts of their own home towns. Thus, movement into and contact with these central areas were considered to be among the most important aspects of the business acculturation process.

In Philadelphia, space in an established office building very near to the central branch, which includes the Metropolitan Headquarters of the Philadelphia YWCA, was rented. The space itself was small, but the enrollees were able to move between the BOC project headquarters and the YWCA with ease and in a very little time. Thus, the YWCA could provide the additional resources needed for some training and for extra-curricular BOC activities. In this way, it really extended the space of free movement for the BOC enrollees. In Mt. Vernon, space in a commercial building, owned by a bank, several blocks from the YWCA was donated without charge. Arrangement for this space was initiated by one of the Mt. Vernon YWCA volunteers with the local branch bank. This effort was reinforced by communication between BOC National Headquarters and the main office of the bank in New York City. One of the determining considerations in this transaction was the client relationship of the National Board YWCA to the bank. At the request of the donor, the contribution was not publicized. The YWCA was not as accessible to this Learning Center, but some programs there were possible, when pre-planned and reasonably timed.

In all of the Associations, BOC enrollees were expected to take part in ongoing YWCA programs which they found attractive. Thus, in the pre-planning for the BOC project, these resources were built into the considerations of the physical facilities. The gymnasium, the swimming pool, the club room and, when needed, the YWCA Residence--all were considered to be important adjuncts to the simulated office settings and were available to the enrollees on individual and/or group bases. The ways in which these were employed are revealed in the descriptions of the local programs.

PROCUREMENT (GSA)

Establishment of these Learning Centers, of course, required intensive effort to assemble the needed furnishings, equipment and supplies. National Headquarters staff devoted maximum attention to facilitating these procedures. And here it seems important to note the high level of cooperation accorded this project by regional offices of the General Services Administration (GSA). Through this channel, the availability and suitability of excess property was explored. Some--in fact a very little--of the excess property proved to be suitable. Some was used, although in one instance the desks and files did not survive transportation and had to be removed from the Learning Center site at the time of delivery. The pattern prevailed, however, for use of whatever excess property that could be deemed suitable for a training program of this nature, and for rental of most of the furnishings and equipment from commercial vendors. And here it may be noted also that vendors--in more than one instance--were extremely helpful.

Not limiting their services to quotation of special government rates, they also gave advice and assistance in layout planning for the simulated business office settings.

Preparation of the Learning Centers, of course, included procurement of consumable supplies--including teaching materials. Some of these were purchased and distributed by the BOC National Headquarters office; but considerable freedom was accorded the local programs to locate, purchase, try out and evaluate the effectiveness of other materials.

Recording, Reporting and Evaluation Procedures

The National Headquarters staff--during this organizational phase--began the planning for recording, reporting, analyzing and evaluating. These processes were to take place while the program was in motion as well as when it was in "ex post facto" status. Forms, instruments and instructions were developed and sent to the local units. The results of these provide the content of this report as a whole. It may be noted that provision was made for the participation of all project personnel in the analytical evaluations of the project. This continued throughout the later phases: findings are reported in the appropriate sections of this report.

Initiation of Expansion of Community Contacts

Because YWCAs are multi-service agencies, established and well-known in their respective communities, they have a broad base of community contacts and a range of relationships. In each of the local BOC units, the YWCA itself carried heavy responsibility for

initiating the community contacts with reference to the BOC programs. Selectively, the further cultivation of these and development of cooperative relationships pursuant to the program's goals were turned over to BOC staff and volunteers, but this was far from unanimous. Typically, YWCA Presidents and other officers, Executives and other staff members participated in these contacts and arrangements. This was essential in view of the fact that the project was grafted onto existing, long-range patterns of cooperation. It was also necessary in order to demonstrate that the BOC project was regarded as an important, integral part of the YWCA's program.

The considerable variation in the nature, extent and patterns of these contacts is revealed in the local reports. Usually, they included the involvement of non-YWCA personnel in voluntary roles, including membership on Advisory Committees or service as BOC program Consultants. A considerable portion of the effort was directed toward community interpretations and laying the groundwork for later job placements. Some pertained to arrangements for direct participation in the BOC program and/or for the provision of services expected to be needed by the BOC enrollees as they pursued their individual and group courses within the local programs. It may be noted that the planning for this range of contacts began during the organizational phase of the BOC program; most of the work and its resultant products went into effect during the operational and follow-up phases.

PROBLEMS ENCOUNTERED IN THE BOC ORGANIZATIONAL PHASE

A number of problems were manifest in this organizational period. Some of them continued into other phases of the project: some were of such nature as to be concentrated within efforts to create the planned six local program units. It is true also that most of these problems interact with each other: there are few hard, definitive lines setting any one completely apart from the others. For ease of discussion, however, they are listed separately here.

Work Experience Slots/Stipends

THE PROBLEM

There can be little question that the difficulty in arranging for the allotment of government-funded slots/stipends represented one of the biggest problems encountered in the efforts to launch this project. Note that seven* of the Community YWCAs which were interested in participation were unable to make such arrangements. Six of this number were actually unable to take part in the program solely for this reason. The seventh--Tacoma--moved through this barrier only because of the Association's ability to interest local businessmen in providing the money for four operational months of stipends for standard capacity of 12 enrollees. This not only made it possible to introduce the project into this locality: it also controlled the size and duration of the Tacoma program.

**Atlanta, Cleveland, Miami, National Capital Area, Richmond, Tacoma, Tulsa*

There were a number of different reasons for this unavailability of slots:

- a number of local OEO programs and Neighborhood Youth Corps out-of-school programs were reported to be out of funds;
- there were reported inconsistencies, changing signals, and other uncertainties about federal funding which made it difficult--in fact--at times, impossible for interested, cooperating Manpower personnel to plan in relation to this project;
- existing potentially available programs were maintained in terms of slots, not people. Within the prevailing situation, there seemed to be a very real danger that slots "vacated," if held for BOC purposes, could be lost to not just the BOC project but the parent program which was trying to cooperate.
- in some locations, other manpower programs were in planning or early launching stages: there was readily expressed fear of competition or duplication of effort.

Not all of the situations were simple, for example:

Richmond, Virginia

The most serious disappointment in the effort to launch the program units of the BOC project occurred in relationship to the YWCA of Richmond, Virginia. In the preliminary, pre-contract stage, a comprehensive planning process was carried out by this Association, in which the cooperation of public officials, members of the business community, and representatives of the United Fund were among the local resources involved. Illustrative of the enthusiasm for the

project was the commitment by Richmond Newspapers, Inc. and the Personnel Department of the City of Richmond to provide training placement opportunities for the project and to employ girls who successfully completed the BOC program.

The Executive Director of the Richmond Association had discussed the availability of Neighborhood Youth Corps job slots with the newly-employed NYC Director as well as with the Richmond CAP Director and special projects staff officer and had an oral commitment for 15 slots. The Association proceeded with the Letter of Intent, employment of a Project Director, and other planning on the assumption that this commitment would be honored. The Virginia Employment Commission initiated recruitment for the project and screened girls eligible for participation, and the Project Director notified the NYC Director that the project was ready to schedule the induction process.

It was revealed then that--

-- the AFL-CIO subcontract with R-CAP, the NYC sponsor, was limited to a total of 75 job slots, only 30 of which were allocated to girls; the remaining 45 to boys;

-- the Field Representative of the Bureau of Work Training Programs for the State of Virginia had instructed the NYC Director to the effect that he could not "hold up" slots for the YWCA program;

-- there were no slots available for the VEC recruits;

-- despite the fact that 21 of the slots reserved for men were not filled, these could not be allocated to girls;

-- it was possible for NYC to make available for the BOC program only those girls already assigned to the existing 30 slots although none met the BOC project qualification standards.

National BOC Headquarters staff met in Richmond with the President of the Richmond YWCA, the YWCA Program Director, the BOC Project Director, the NYC Director, and a representative of the United Fund. This conference elicited further information concerning the situation, including the fact that the AFL-CIO subcontract extended only to October 1, although its further extension was anticipated; that although more than 60 women were backlogged in NYC applications, the sex discriminatory provision of the subcontract appeared to be irrevocable; that the NYC Director was most interested in cooperating to the fullest degree with the BOC program and was extremely embarrassed to find he could not keep the commitment made in good faith to the YWCA.

These circumstances led to the withdrawal of the Richmond YWCA from the BOC program.

POSSIBLE SOLUTIONS

An approach to optimum possible solutions for this particular job slot problem seems to lead toward three possibilities:

1) assignment of job slots for Experimental and Demonstration purposes through the National Office of OSMP which could then allocate these at the time of project approval;

2) increase in funding for Experimental and Demonstration programs in order to provide for budgets which can carry the weight of training stipends;

3) provision of slots at the Regional--or local--level to be assigned for Experimental and Demonstration projects: these to be noncompetitive with "regular" program slots.

Establishing Relationships with Local Neighborhood Youth Corps Programs

THE PROBLEM

In some of the localities it was very difficult to establish meaningful contacts with NYC personnel regarding the BOC program and the possibility for the needed cooperation. Usually this was because there had been no communication about this program from the District or Regional Office to this local personnel. It was found in some situations that, after a memorandum had been issued, at the request of BOC National Headquarters, from the National Bureau of Work Training Programs to the Regional Office, it was still necessary for the BOC National Headquarters staff to intervene with information about the memorandum and to arrange for its transmittal to the appropriate local personnel. Conversely, in some localities which had not been considered for the BOC project, local NYC personnel received the memorandum and became interested in the possibilities. Regrettably this occurred after the allocations had been made to six Associations: consequently there were no resources for meeting the interest of these "new" communities.

POSSIBLE SOLUTIONS

In thinking of possible solutions to this problem, it seems desirable to give consideration to the procedure which was used in the aforementioned SYD 1967 program for which joint decisions regarding locations were made by representatives of the Department of Labor in Washington, D.C. and representatives of the National Board YWCA. This was followed by official communications from each of the national offices to their respective units. An "extra" which made considerable difference in the climate in which the local programs were introduced was a joint meeting--again in Washington, D.C.--comprising representatives of all of the involved national and local units--Department of Labor and YWCA. At that time the purposes, significance and procedures of the proposed project were discussed: it was made clear that the project had "official" status and recognition.

It is recognized that the above joint meeting may be prohibitive from the point of view of costs. However, a substitute possibility does lie in the utilization of high-level, high-status communications from the national office of the funding agency to the involved Regional Offices, with the understanding that this official authorization and approval will be transmitted to the respective local offices. It may be stated at this point that the BOC efforts enjoyed unusually high cooperation and receptivity from Neighborhood Youth Corps personnel, even when they were unable--for all of the above reasons--to comply with the request for slot allocation. However, it was noted that a number of them were responding without prior information, or without intra-agency notification of the "official" DOL position with respect to the proposed project.

Confusion of the BOC Project with "Traditional" Skills Training

THE PROBLEM

The word "culture" did not always make the desired impact in the interpretations of the BOC project. In many ways, it was evident that the project was thought of as "just another typing class for some more disadvantaged girls." In some instances it was seen as competitive with existing skills training courses. This was a handicap in those locations where the--sometimes threatened--other program sponsors regarded the BOC program only as a competitor for job placement potentials.

THE SOLUTION

In some instances it was found that when an opportunity really to explain the purposes of the BOC program was available, this resistance could be dealt with. A few came to recognize that the approach to be tried in this program might yield some further insight into the pervasive problems of job maintenance by prototpyes of the BOC trainees. It seems possible also that DOL agency-wide information about new projects which are being introduced into new localities might--through official sanction--give some status to the project and, at the same time, remove some of the threat.

Time Pressures

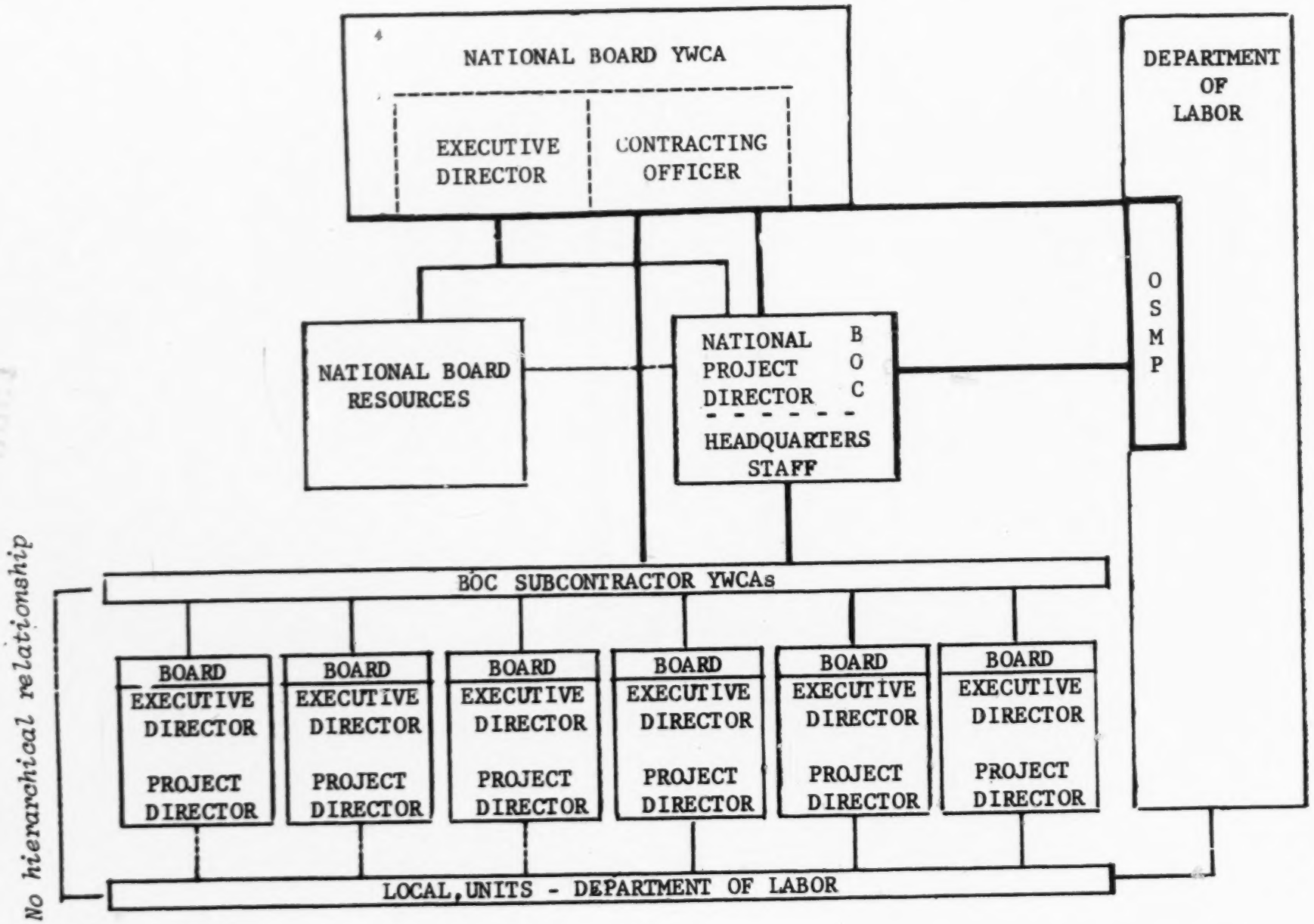
THE PROBLEM

The exigencies of the overall BOC situation resulted in time pressures which were felt in the difficulties of making the necessary arrangements, including staff recruitment and selection. Usually it was not possible to stretch project resources over a sufficiently long period to permit employment of the project staff in meaningful advance of the project opening. This placed

some strain on YWCA staff, and denied the project staff participation in some of the arrangements for which they inherited responsibility. The time pressures exerted for "instant" organization of the Learning Centers came from some of the time limitations on available job slots. Actually this seriously affected just one of the programs. Perhaps the greatest inconvenience of the limited time allowance lay in the unavailability of pre-operations time for adequate staff and volunteer training.

This problem of time pressure maintained throughout the life of the project: some possible solutions are discussed in relation to this and other similar problems in this report within the section devoted to operations.

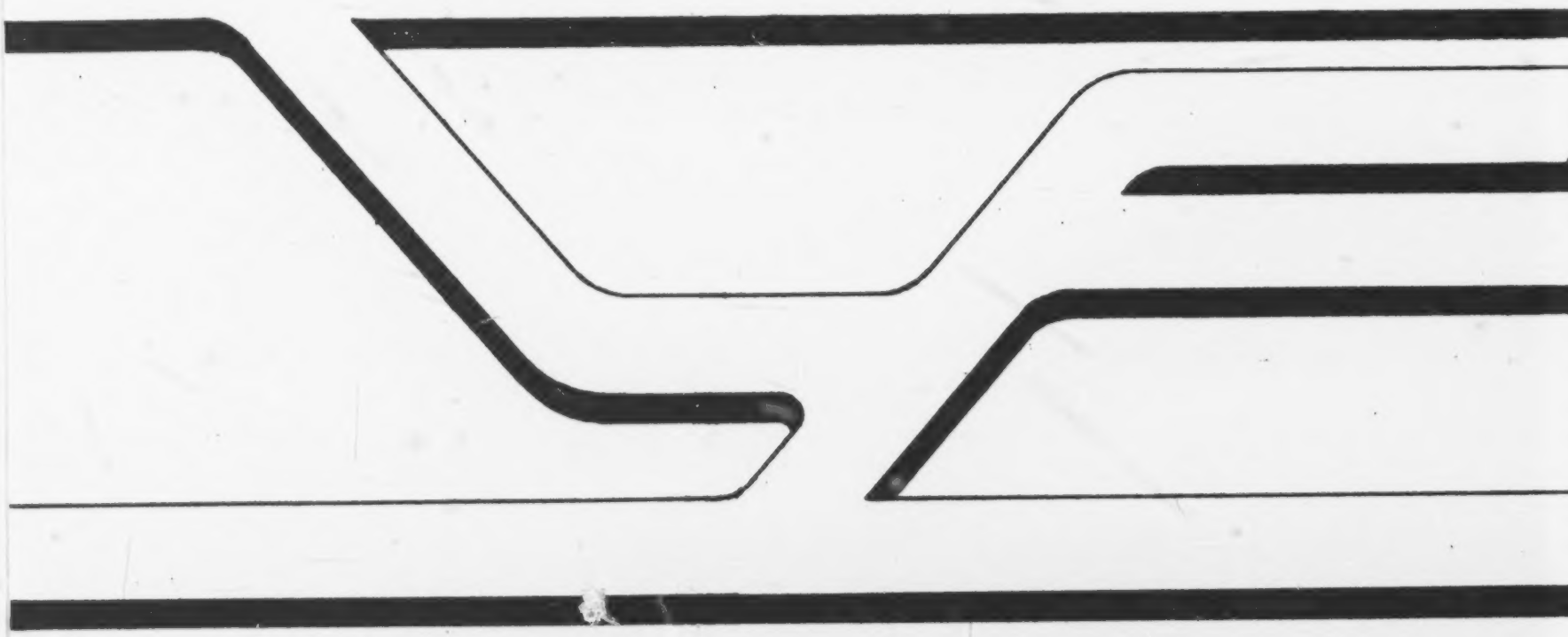
ORGANIZATIONAL COMPLEX



2360

National directorship for this project has been administered by RESEARCH AND ACTION, Inc., which regularly provides consultation to the NATIONAL BOARD YWCA on Government-funded projects.

Enrollees



RECRUITMENT

BOC enrollee recruitment was a continuing process, carrying through the organizational and operational phases of the project and, usually, overlapping with placement and follow-up. This was the result of the revolving input, throughput, and output process. Individual enrollees were recruited, screened, and moved through and out of the BOC programs as individuals: there was, therefore, no one single entry or graduation day.

Much of the organizational phase activity with reference to recruitment has been indicated in the foregoing discussion of site selection. As reported, these selections and possibilities for enrollee recruitment were inseparable. The latter rested usually on the availability of slots/stipends and controlled the selections of the sites in which the local BOC programs would be operative. In the organizational phase, therefore, the emphasis was on arrangements for slots or stipends, recruitment and referral sources and procedures.

Throughout the continual process of enrollee recruitment, five of the six local BOC programs relied heavily on the local Neighborhood Youth Corps out-of-school programs as prime referral sources. Other public and private agencies did refer young women, but usually it was necessary that they--in turn--be referred to the Neighborhood Youth Corps and processed there for determination regarding referral to the BOC program. In Tacoma, the independent arrangements for stipends placed full screening responsibility on

the local BOC staff. In this, of course, they had the cooperation of other organizations--the Department of Public Assistance, Community Action Program, and--in some instances in which the candidates were former NYC enrollees--of that agency. The other five local programs were free to tap sources other than the NYC but none of these was successful in arranging the necessary stipends during demonstration program operations. In Pittsburgh, for example, extensive efforts were made to link the BOC project to the JOBS program conducted by the National Alliance of Businessmen (NAB): these efforts were not fruitful. In Mount Vernon, efforts to recruit through other private and public agency resources were made during a NYC crisis situation (rf. Operations) which interrupted and drastically curtailed NYC referrals. In this situation, the Chamber of Commerce circularized its members to offer BOC as a special training resource for their employees: there was insufficient time to test the real potentials of this approach. For post-demonstration program, St. Louis was funded for job slots as well as operations by the Human Development Corporation (rf. Continuity).

SCREENING

The screening processes varied considerably from city to city (see individual local program reports). In general, it may be said that some aspects of these were carried by the referring DOL or other agency. Income requirements, i.e. "below the poverty line," were established by appropriate agencies. Educational attainment, age, residence--all of these were determined before the candidate

was referred to the BOC program, with the exception of Tacoma. In some instances, skills were tested by the referring agency before referral. These concentrated around typing. In other instances, Employment Service personnel tested the enrollee at the time of her BOC induction. In one situation--Mount Vernon--the agency discussed the choice of possible tests with the National Project Director before the plan was put into motion. ES personnel usually gave standard typing tests: this was designed to initiate the BOC enrollee's acquaintance with the realities of the "world of work." Usually the local BOC staff also tested the enrollee at the time of her induction. Practices varied--from program to program and from enrollee to enrollee. In some cases, it was found to be desirable to test the new enrollee in a reality situation, i.e., through the assignment of real work in order to assess her capacities. This seemed particularly applicable to candidates who seemed initially fearful of any testing situation.

Not all of the ES personnel made formal reports of the test results. Some were transmitted, promptly and systematically, in writing; others were relayed orally. It may be noted here that in some of the local situations testing of BOC candidates had to be "worked in" to heavy BES schedules. Thus, tests were not given uniformly with reference to BOC enrollment dates. The data which are available regarding the results are treated individually within selected local reports: they represent differing relationships to status of enrollees within the discrete BOC programs.

Testing was not a function of screening alone: most of the BOC programs used it to--

-- follow enrollee progress;

-- assist the enrollees in becoming test wise;

-- identify points requiring training "step-up" or emphasis;

-- learn more about the enrollee's response to pressure.

Reference may be made at this point to the unusually high degree of cooperation received from local, district and regional offices of the Neighborhood Youth Corps and other DOL units once contacts were established and the purposes of the BOC project clarified. Certainly this varied from locality to locality and according to individual DOL staff members, but there can be little question that, within the pressures and uncertainties under which many of these programs were operating, there was a surprisingly high degree of effort to contribute to the BOC potentials. This was highly significant to the success of this project.

. . . THE MODAL BOC ENROLLEE . . .

2367

. . . W A S 1 9 Y E A R S O F A G E . . .

2368

AGE OF ENROLLEES

2369

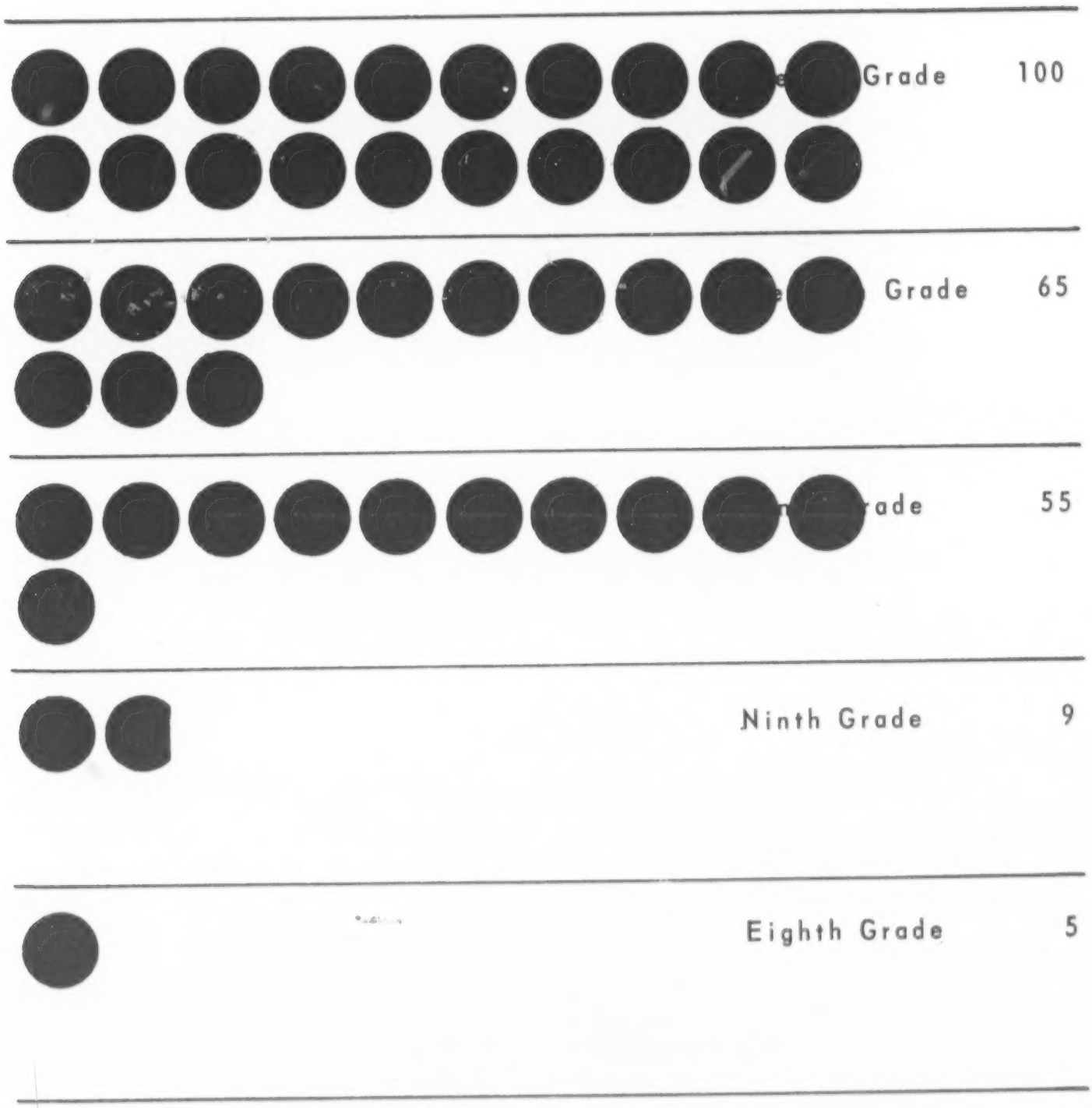
. . . HAD REACHED THE LAST YEAR--

12th GRADE--

IN HIGH SCHOOL . . .

2370

HIGHEST SCHOOL GRADE ATTAINED



Each symbol represents 5 enrollees.

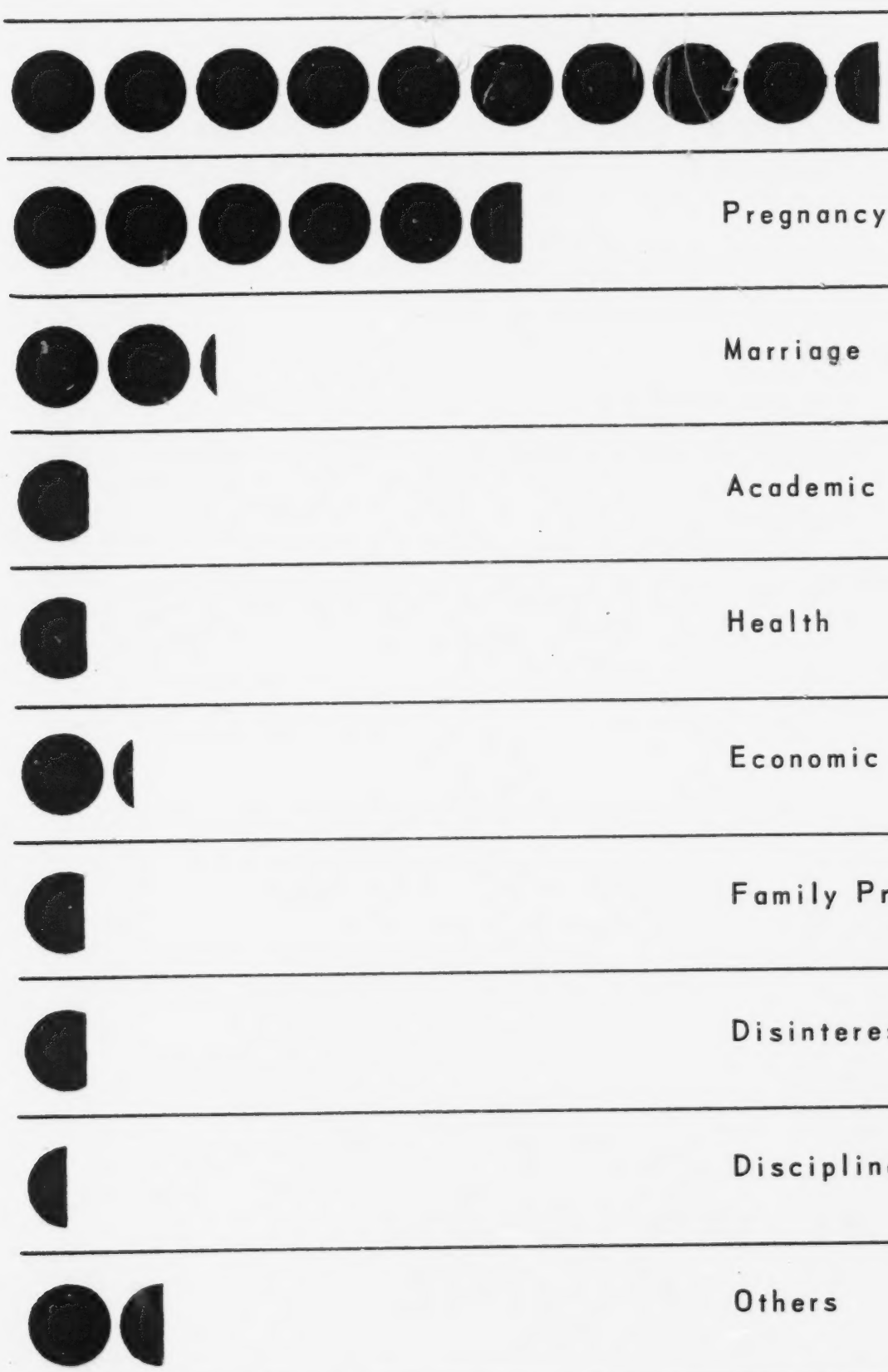
2371

. . . A C T U A L L Y, W A S A

H I G H S C H O O L G R A D U A T E . . .

2372

REASONS FOR LEAVING SCHOOL



	95
Pregnancy	56
Marriage	21
Academic	9
Health	8
Economic	12
Family Problems	7
Disinterest/Boredom	7
Discipline	4
Others	15

Each symbol represents 10 enrollees.

2373

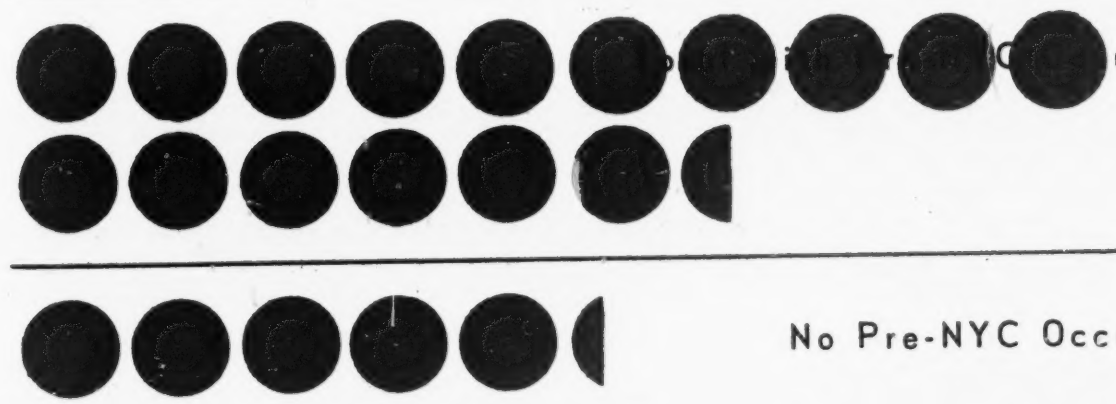
Enrollees 11

. . . HAD HAD SOME PREVIOUS
EMPLOYED EXPERIENCE . . .

2374

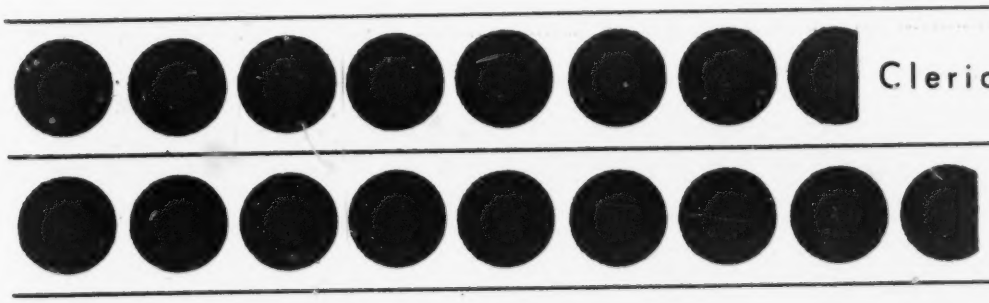
Enrollees 12

OCCUPATION PRIOR TO NYC



Pre-NYC Occupation	165
No Pre-NYC Occupation	52
Not Reported	17

WITH PRE-NYC OCCUPATION



Clerical and Sales	77
Non-Clerical	88

Each symbol represents 10 enrollees.

NON-CLERICAL

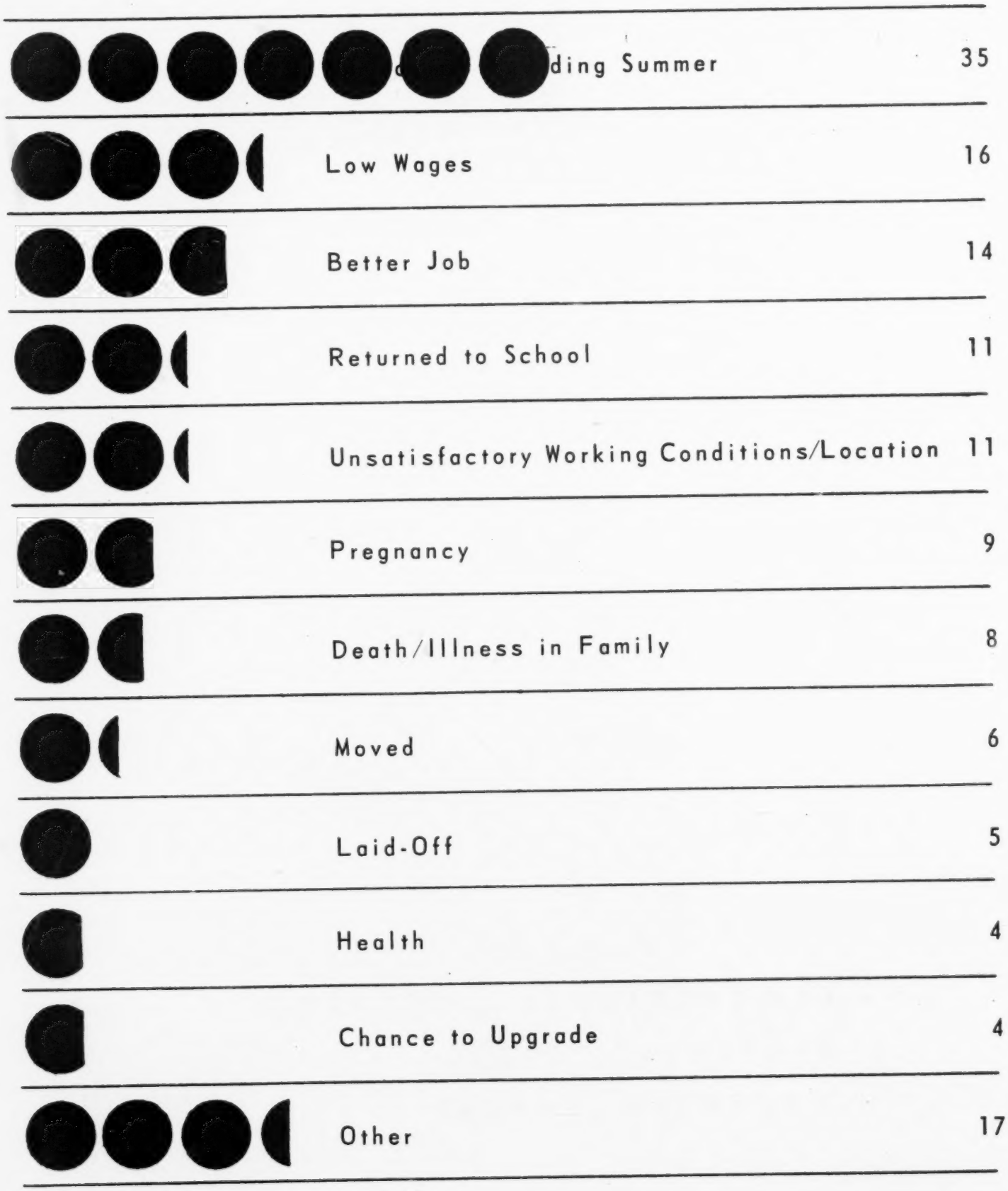
Service	39
Aides	26
Benchwork	9
Processing	6
Miscellaneous	8

2375

. . . P R E V I O U S L Y E M P L O Y E D
W A S I N A
T E M P O R A R Y J O B . . .

2376

REASONS FOR LEAVING PRE-NYC EMPLOYMENT



Each symbol represents 5 enrollees.

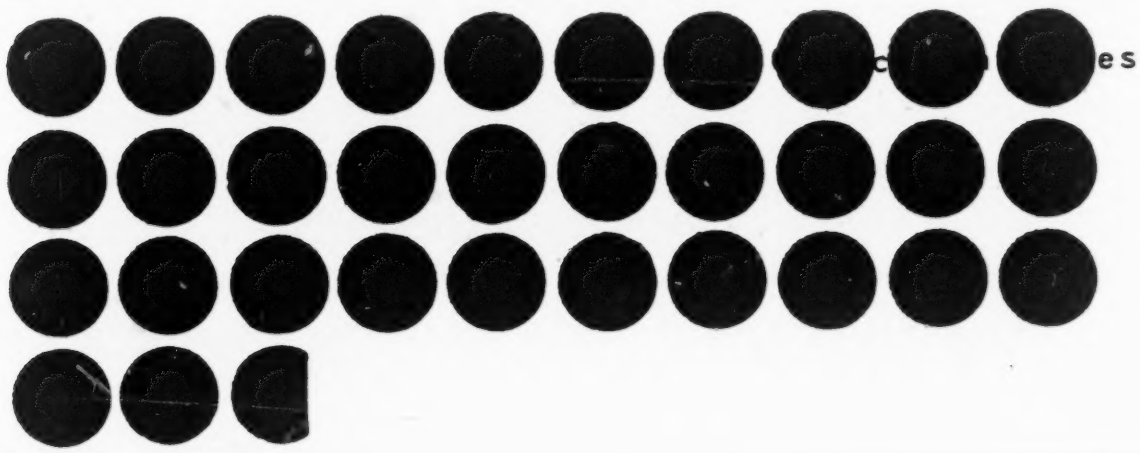
Not Reported – 25

Enrollees 15

. . . HAD EXPRESSED LONG-RANGE
AMBITIONS TOWARD
A CLERICAL CAREER . . .

2378

OCCUPATIONAL GOALS



es 164

Machine Operators 15

Service 11

Professional, Technical, Managerial 17

All Other 8

Each symbol represents 5 enrollees.

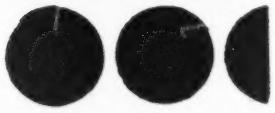
Not Reported – 19

. . . WAS A NATIVE-BORN
RESIDENT OF HER
LOCAL BOC CITY . . .

2380

PLACE OF BIRTH

136



In State of Project 24

Elsewhere in U.S.A. 68

Outside Continental U.S.A. 6

Each symbol represents 10 enrollees.

2381

. . . W A S S I N G L E . . .

2382

Enrollees 20

MARITAL STATUS

Living with Husband 31

Husband in Armed Services 7

Separated 32

159

Divorced 5

Each symbol represents 10 enrollees.

2383

. . . WAS A MOTHER . . .

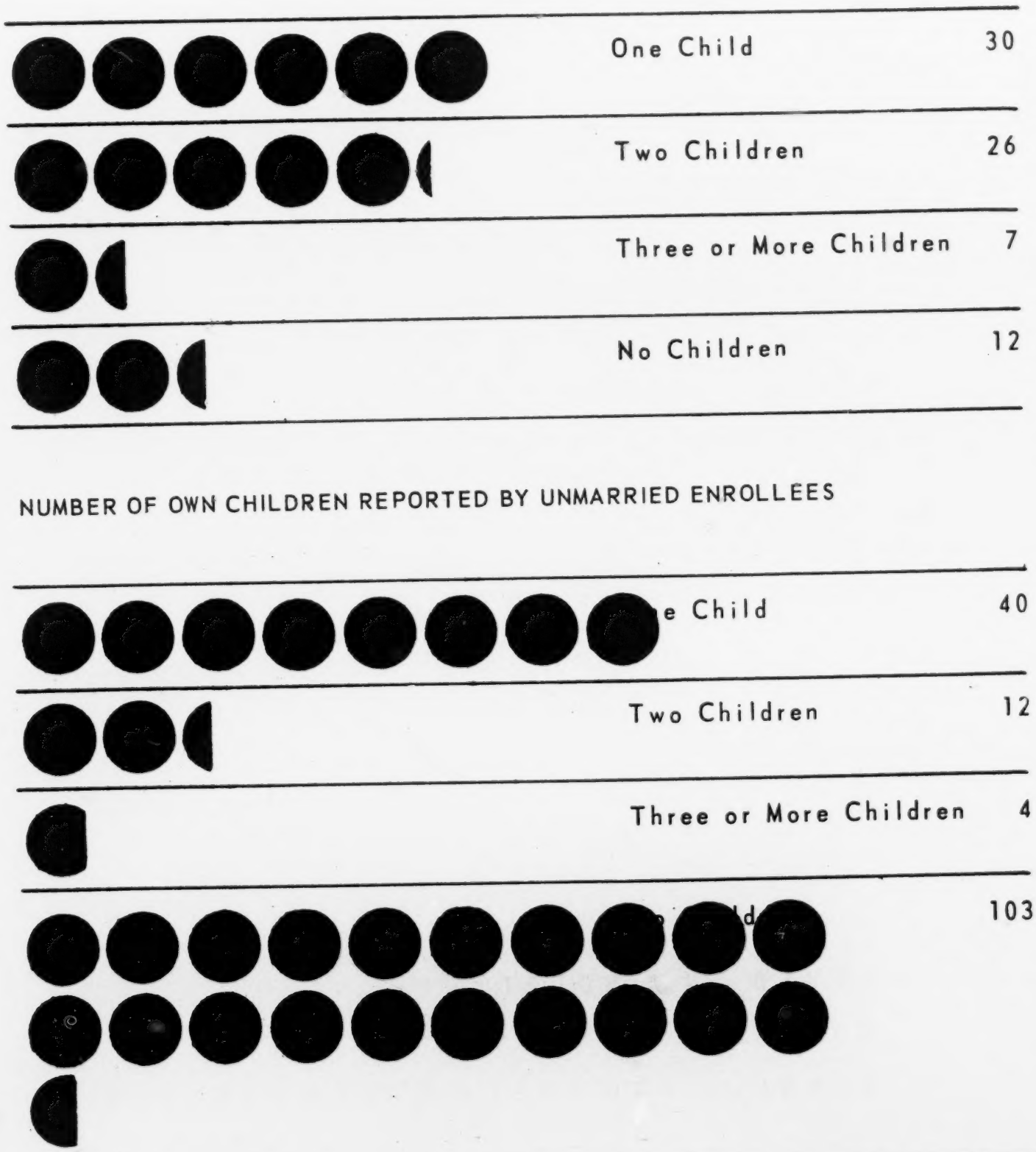
[THE MODAL BOC MOTHER

REPORTED ONE CHILD]

2384

REPORTED NUMBER OF OWN CHILDREN

NUMBER OF OWN CHILDREN REPORTED BY MARRIED ENROLLEES*



Each symbol represents 5 enrollees.

*includes divorced mothers

. . . L I V E D I N A H O U S E H O L D

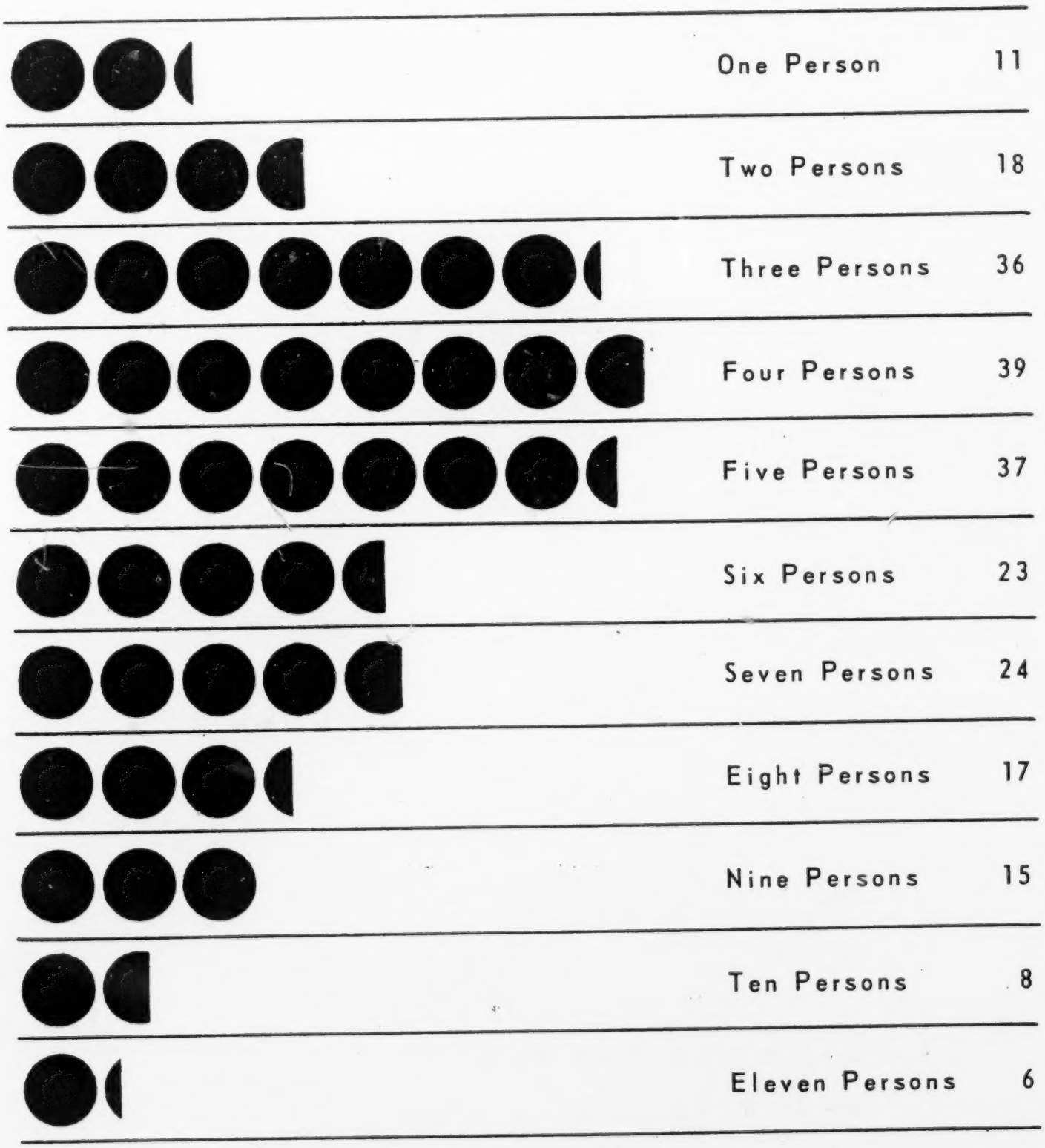
C O M P R I S E D O F

H E R S E L F A N D T H R E E O T H E R P E R S O N S . . .

2386

Enrollees 24

NUMBER IN HOUSEHOLD



Each symbol represents 5 enrollees.

2387

. . . W I T H H E R O W N F A M I L Y

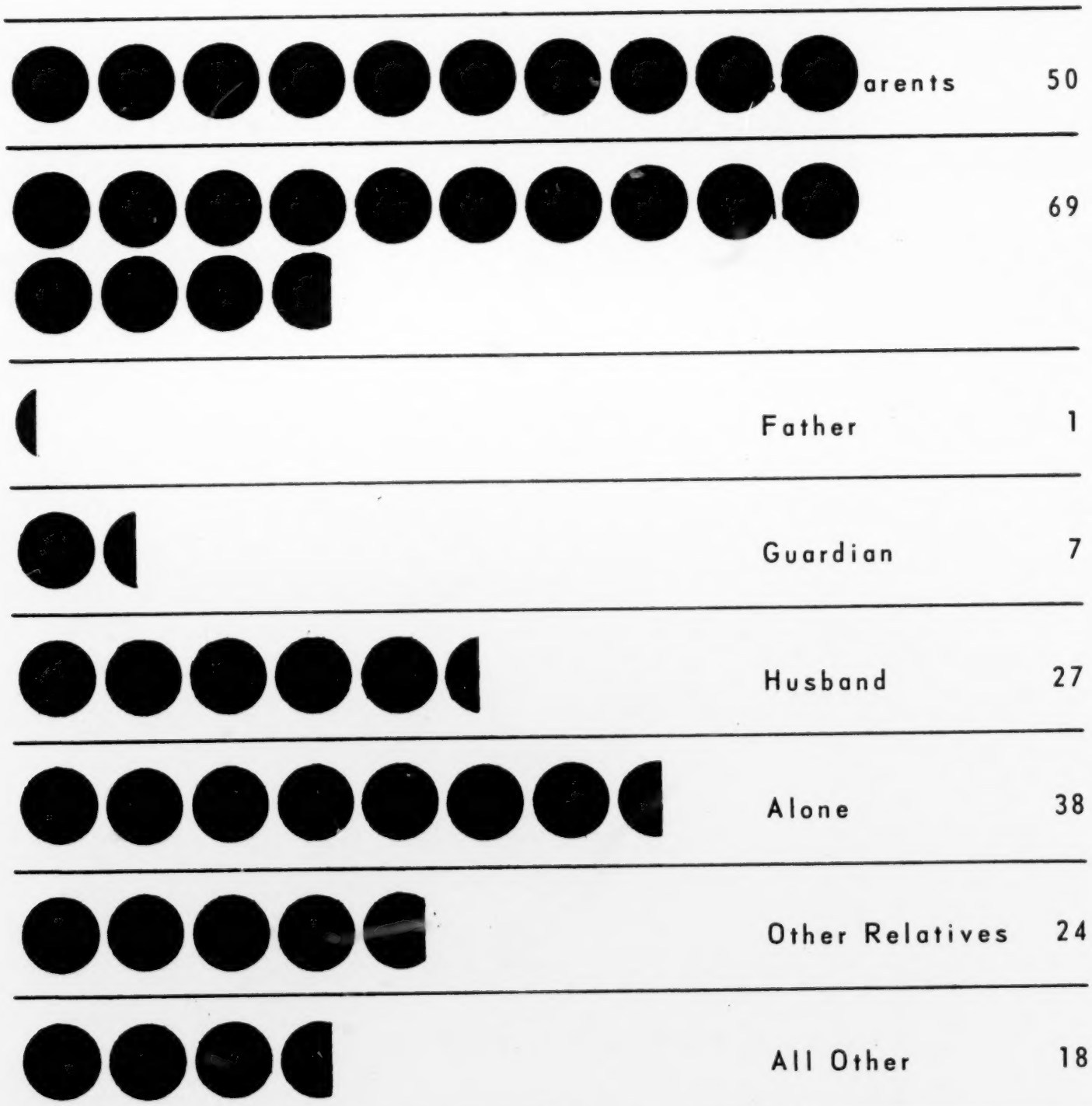
W H I C H W A S

H E A D E D B Y H E R M O T H E R . . .

2388

FAMILY COMPOSITION

YOUTH LIVES WITH • • •



Each symbol represents 5 enrollees.

2389

Enrollees 27

. . . AND HAD A

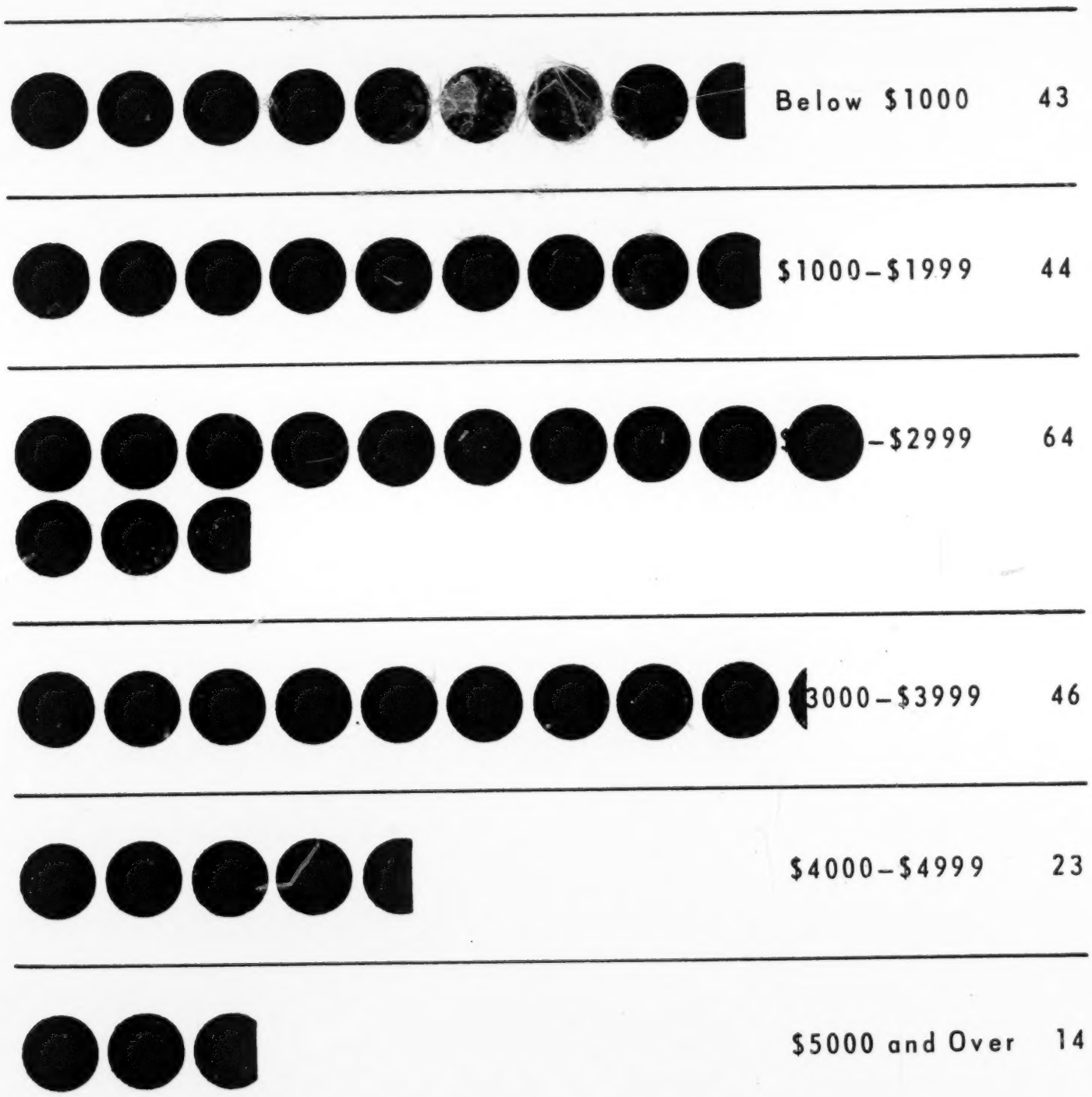
YEARLY FAMILY INCOME

OF

LESS THAN $3,000 . . .

2390

ESTIMATED FAMILY INCOME



Each symbol represents 5 enrollees.

2391

There are not and probably could not be any hard data with

READINESS reference to the BOC candidates' attitudinal variables with respect to their own employability or for the demands made upon individuals by the world of work. Interviewers generally assessed these as "positive," "constructive," and "indicative of eagerness" to become not just economically independent but successful in their chosen fields. There have been reported no evidences of pressures exerted on these enrollees to take part in the BOC programs. The young women, themselves, typically indicated that they had sought this participation voluntarily. Thus, at the beginning of the modal enrollee's BOC experience, she may be identified as interested in taking advantage of an opportunity which she believed would enhance her employability and eager to "get on with" doing whatever was necessary to achieve this. The exceptions to this occurred in a very small minority. It appears that there may have been some relationship between apathy, confusion and initial resistance on the part of the BOC candidate and--

-- the nature of the pre-enrollment project interpretation;

-- the extent of personal problem pressure;

-- the depth and personal meaning of past unsuccessful experience.

It was clear that some of these enrollees were protective against another disappointment: that--for some of this group--the personal and vicarious experience with respect to racial discrimination was of not little significance in this feeling.

2392

PROBLEMS ENCOUNTERED IN SCREENING AND RECRUITMENT

Actually, the problems encountered in the recruitment and screening processes are reflected in the program's operations. These are discussed later in this report. Here they may be listed as--

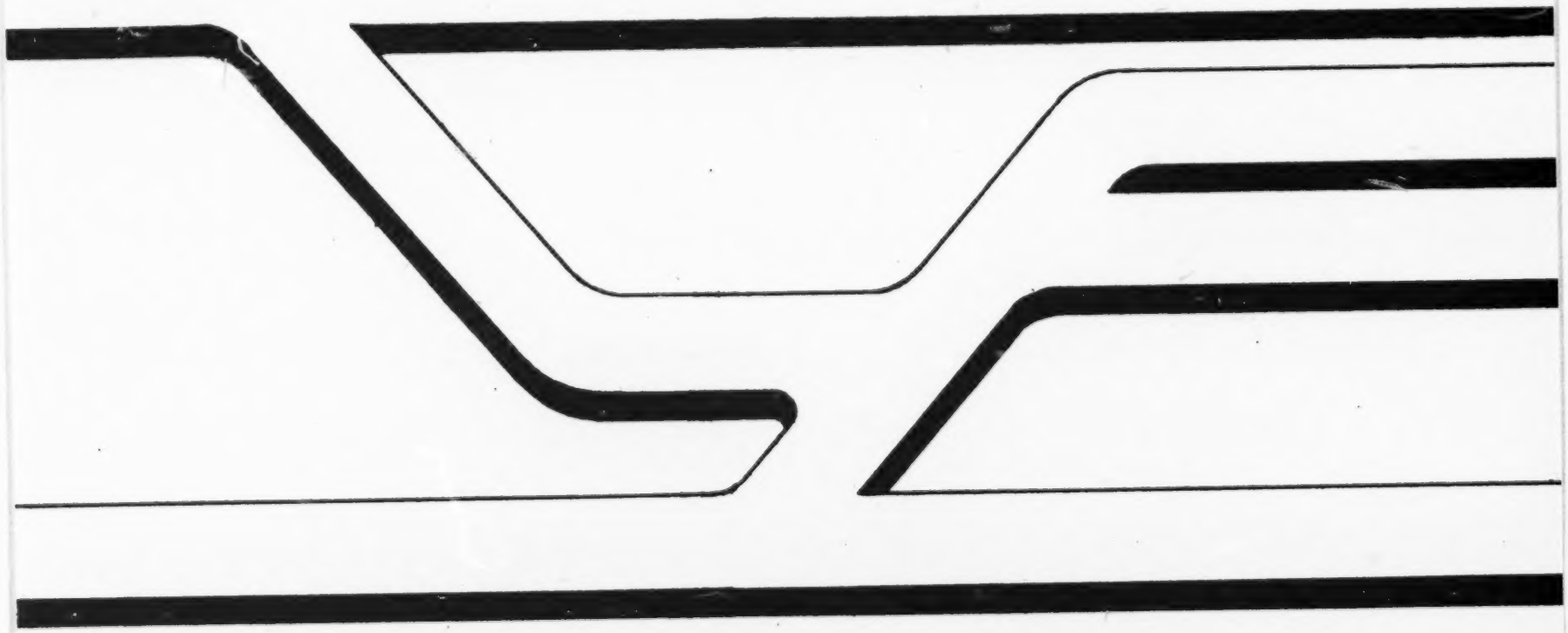
-- requests to take candidates who did not meet BOC qualifications;

-- readiness unevenness--skills vs. interests/ambitions;

-- except for Tacoma, BOC inability to service non-NYC youth.

These, and related problems, are at the heart of the BOC operations, placement and follow-up phases. Their comprehensive treatment, therefore, follows the discussion of all of these phases.

Operations



O P E R A T I O N S

The special provisions of the BOC prime contract specified:

"The operational phase (4 months) will include: orientation of enrollees, skills component training, remedial education, support services, and job development and placement, which are expected to take some four months after each learning center is in operation."

This was in accord with the project proposal, although the contractual language, not unusually, tended to dim some of the nuances of the proposal's intent. This was most striking in reference to skills component training, discussed later.

Each of the Learning Centers was organized, and budgeted, for a four months operational period: and here operations are defined to begin the first day that enrollees actually start training. All activities prior to that time have been regarded as organizational. Reference to Schema 5 will show that the operational period varied from 5+ months to 7+ months: the modal period being 5+ months. The peak operational period--from the point of view of the BOC project as a whole--occurred in November and December 1968 when all six local programs were operational.

SCHEMA 5

LOCALITY	DEMONSTRATION OPERATIONAL PHASE			CONTINUITY OPERATIONAL PHASE
	From	To	No. Weeks	
Dallas	11/11/68	4/7/69	21	None
Mt. Vernon	8/15/68	12/13/68	17	None
Philadelphia	8/19/68	1/15/69	22	1/16/69 - 8/6/69 (period covered in this report)
Pittsburgh	11/4/68	4/30/69	26	None
St. Louis	7/8/68	1/31/69	30	2/1/69 - 8/29/69 (period covered in this report)
Tacoma	9/23/68	2/13/69	22	None

Actually the purposes of this operational phase must be regarded as those of the BOC project as a whole: within the Learning Center settings which simulated business and/or commercial settings to:

familiarize enrollees with the practices, procedures and protocols i.e. the culture, of the business office;

improve the skills which are related to their (the enrollees') individually selected clerical occupations; thereby to enhance their employability and on-the-job staying power.

The crucial task of the BOC project--the direct work with the enrollees--took place during this period, during which a total of 234 young women, 30 percent more than the contractual commitment, took part in the six local programs. Note that this figure is

exclusive of the additional 65 who were/are being served in the two programs--in Philadelphia and St. Louis--which were continued after their respective official BOC cut-off dates.*

It may be noted again that the BOC phases were not mutually exclusive. This meant that the project and YWCA staff and volunteers, during program operations, carried on other phasal activities including enrollee recruitment--input, throughput and output: all were revolving processes within the operational phase. Evaluation was a continuing process, initiated early in the project's activities and carried on throughout. Follow-up began as soon as the first BOC enrollee left the first BOC program: it is continuing even as this report is being prepared. Both of the programs in "continuity" status served BOC enrollees inducted prior to their respective cut-off dates.

It had become apparent in the organizational phase of this project that there was and would continue to be considerable local variation with respect to all of its aspects. Not only were there differences in the recruitment sources and approaches, beginning with the establishment of job slots/wages, but there were others pertaining to the relationships that were to be established and maintained with these sources. It was equally apparent that--as the project moved forward into other phasal activities--still

These dates were fixed when demonstration funds were not sufficient to cover major costs, including staff, and the programs were sustained primarily through supplementary funding.

other patterns of variation would make themselves felt and would impinge upon BOC success in achieving its goals. The National Headquarters staff gave special consideration to the alternative choices which seemed open with respect to the ways the project could proceed:

1-- tight, rigid, packaged--very systematic--operational steps delineated nationally for each local program. This seemed potentially productive of the most precise comparable data about the six different programs and--in some instances--could afford security to project staff.

2-- loose, free operations--assigning to each local program the full responsibility for meeting its contractual commitments and resting subsequent analyses on these choices, their bases, operational experiences and comparative results. This was tempting in view of the many varying situations.

3-- mid-point accommodation between the two foregoing possibilities. This was the course chosen. National BOC staff assisted local staff in dealing with local problems and possibilities; established reporting and other operational procedures; made provision for individual differences; provided some materials and instructions--allowed for latitude of individual staff in selecting and using other. This approach seemed the most efficient and effective within the given situation. This report is based on the findings which it has made available.

SCHEMA 6

	July	August	September	October	November	December	January	February	March	April	May	June	TOTAL
Number of BOC Local Programs in Operational Status	1	3	4	4	6	6	4	2	1	--	--	--	N.A.
Enrollee Input	25	27	22	23	81	34	10	10	2	(2*)	0	0	234
Enrollee Output	3	4	14	27	31	35	50	20	12	31	4	3	234
Enrollee Throughput	22	45	53	49	99	98	58	48	38	7	3	0	N.A.
Number of BOC Paid Staff-- All Local Programs in Operational Status	3.0	9.4	12.7	12.7	19.9	19.9	13.5	7.2	7.2	3.6	0	0	N.A.
						p l	u s						
Other** YWCA Staff	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	N.A.
Volunteers-- All Local Sites***	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	149
Other*** Community Resources	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	see later sections --this report

**reinstated--former BOC drop-outs*

***No effort has been made to count the number involved. Typically, Executive Director and other administrative staff, including Fiscal officers: program staff in greatly varying patterns.*

****statistical account of part-time contributions not feasible*

All figures as of end of respective month; and exclusive of continuity status or enrollment.

ORIENTATION*

At the opening of the Learning Centers, orientation was a group process--the first in the operational process system. As the programs moved forward, it became a mix--of group, sub-group, and individual processes depending upon the differences in the given situations. Whatever its format, the orientation process carried responsibility for introduction of BOC enrollees to:

1. the BOC project--its purposes, possibilities, operational modes. These were interpreted in terms of the enrollees' interests and aspirations, and the significance of what they would do and become to their counterparts in many other places. It was explained that many other girls later might be involved in the applications of what was learned in this project.

2. the BOC sponsor--the YWCA. The interests of the YWCA in this type of project, reasons, backgrounds, hopes and ways of work were interpreted to the enrollees in many different ways. Emphasis was placed on the fact that, although the individual enrollee's BOC experience was expected to be short-lived, it was hoped that it would represent the beginning of a long-time association with the YWCA and/or other community agencies organized to serve women and girls. This related directly to:

3. the Community--its public and private resources, including the funding agency, cooperating public and private structures, other resources, and the range of possibilities for citizen participation in and contribution to community affairs.

4. the World of Work. Since this was the prime target of the entire project, the work relating to it was not a function of the orientation processes alone; however, the work in this area was begun early and--usually--was found to be in accord with the concentrated interests and expectations of new BOC enrollees.

In all of the orientation processes--group, sub-group, and individual--at the beginning and running throughout the entire project a variety of methods and approaches were used. These included small and larger group discussions, individual interviews and conversations, speakers, trips, audio and visual media, role-play, social and other recreational occasions. Orientation called upon not only YWCA, BOC staff and volunteers, it drew upon a wide range of community resources.

**Descriptive detail in local, narrative reports.*

Problems Encountered in Orientation

One-by-one input

Probably the biggest single problem encountered in the BOC orientation process arose out of the project's phase-in of enrollees individually as well as by induction groups. These programs were built around the expectation that enrollees would be recruited, enrolled, moved through in accordance with their individual abilities and readinesses, and moved out on the same bases as soon as they were ready. This plan worked. However, it did mean that if the local program was to maintain its standard capacity, and if the maximum number of girls was to be served within the short time period allowed the operational phase, replacements for "graduates" would need to be enrolled as soon as there were vacancies. It was not feasible to wait until a new group of enrollees could be phased in: it was not possible, therefore, to maintain orientation as a group process at all times, nor was it always possible to devote a major portion of the BOC staff time to this, since they were meeting other important BOC responsibilities at the same time.

Some solutions

Generally, BOC Program Directors used a variety of means for dealing with this problem. The Director liked to meet the new recruit, get to know her, and work with her in relation to her individual interests and potentials. The introductory period allowed for some orientation.

Counselors and trainers followed suit. At the same time--since the total group orientation process could not be completed in any one or two given days--some parts of it usually were in progress while the new enrollee was being oriented: she could thus join the other enrollees, when appropriate. Beyond these, however, and probably lending itself to the most reliable systematization, was assignment of this responsibility to some volunteers and sharing it--to the extent feasible--with "seasoned" enrollees.

Given programs of longer duration, with stable enrollment sources and procedures, it seems likely that a spaced phase-in procedure could be established: one which would lend itself to sub-group processes. This might prove more efficient than the procedures adapted to meet the exigencies of this demonstration situation.

Range of enrollee expectation

It was to be expected that this group of individual enrollees would bring with them their own individualized understandings and perceptions of the BOC project. Some thought of it as a job placement speedup; some saw it as another skills training program; still others regarded it as "just another NYC job slot." A majority of the enrollees had responded to careful descriptions of the program and came with the expectation that it would be helpful to them.

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Unrealistic outlook

Some of the enrollees had unrealistic perception of themselves in relation to the BOC purposes: they had had no opportunity to appraise themselves realistically, with reference to their own job readiness. They thought they were ready; that all they needed was "brush-up" work, or orientation "about the way business does things."

Uneven knowledge of world of work and community

It was inherent in the nature of the recruited BOC enrollee group that some of them would have had little contact with what they tended to call "the outside world." Actually, there were evidences that a number of them had lived in social isolation throughout their school, previous employment, and previous work experiences (NYC). This was indicated in many ways, including lack of comprehension of some of the information that was offered particularly by representatives of business, labor, and the community.

Differing relationships with referral agency

The BOC enrollees who came to the program through the Neighborhood Youth Corps differed considerably in the nature and extent of their contact within that program. There were some who had attained high-level status--one, for example, was the President of a local Neighborhood Youth Corps club. Others, recruited through other sources, and referred to the NYC as the BOC enrollment conduit knew very little about the NYC program. Some saw BOC as an extension of NYC and expected the work experience to be identical: they tended to be surprised by the skills

training and remedial components. Others were disappointed that BOC did not represent a promotion--through wage increases.

Range in BOC information

At a different level was the reality of differing practices regarding the sharing of information about the BOC enrollees. And here the Tacoma program may have been in a stronger position than some of the others, in view of the fact that it was organized to elicit all of the needed information in its enrollment process. Other programs had a dual system--some of this information could be secured from the enrollee; other information came--or was expected to come--from the NYC. Different offices of the latter handled this in different ways. It is not to be denied that, in some instances, needed information was not as available as pre-planning had indicated. Usually this was because of NYC overload, changes in personnel, or real internal crises.

Some solutions

In all of the above, with respect to individual enrollees and/or cooperating agencies, the solid solution lay in intensive work on an individual basis. The individual enrollee, while going through the planned orientation was accorded individualized treatment, with respect to her own interests and potentials. In the NYC and other referral sources, the BOC staff worked

in the same way--meeting situations realistically, and dealing with those problems which arose to interfere with a planned procedure.

This section of this writing pertains to problems in the orientation aspects of the operational phase. It does not, therefore, deal with the reality of the significant number of BOC enrollees who came to the project with a fairly comprehensive knowledge of both its possibilities and its limitations. A number of the BOC enrollees--through vicarious or their own personal experience--had become aware of their need for additional help toward job readiness, and were motivated strongly toward self-improvement leading to economic independence. The fact that these same girls required considerable assistance in their efforts to perform served to validate their own self-appraisals as well as the premises on which the BOC project rested.

EXAMPLES OF ORIENTATION PROGRAMS

A. *This example is a composite, adapted from two similar sessions conducted for two different groups of enrollees phased-in to the BOC unit at different times. It is an intensive, one-day program.*

9:00 A.M.	Trainees greeted by volunteers; registration and name tags; welcome-and-get-acquainted social hour and refreshments
9:30 A.M.	The Project -- its name, purpose, and goals *[presented by the Metropolitan YWCA Executive Director]*
10:00 A.M.	Our Community *[presented by the President of the YWCA]*
11:00 A.M.	The YWCA and Its Concern for Women and Girls *[presented by the YWCA Associate Executive Director for one program; the Branch Executive for the other]*
	Question and Answer Period
12:00 P.M.	Lunch and Tour of the Building
1:30 P.M.	"Kick Off" Speaker -- "Today's World of Work and You" *[presented by the Director of the War on Poverty for one program; the Director of the Neighborhood Youth Corps for the other]*
2:30 P.M.	Assembly -- in Learning Center
	General Discussion -- *[lead by Project Director and Office Supervisor]*
	--"What Do You Want for Yourself"
	--"What the BOC Project Offers"
	--"The Equipment and Its Care"
	--"Where Are We in Typing, Filing, Shorthand"

B. *This example is adapted from the orientation schedule of the BOC unit that conducted the split-shift program in which enrollees were assigned to BOC on a half-time basis and remained in NYC job slots for the remainder of the time. This resulted in a "morning group" and an "afternoon group." Four half-day orientation sessions were provided for each of these two groups.*

<u>First Day</u>

opening half-hour -- Registration, Name Tags, Introductions

half hour -- Tour of YWCA Building

fifteen minutes -- Break

forty-five minutes -- Movie, "How to Keep a Job"

one hour -- Group Discussion

<u>Second Day</u>

opening half-hour -- Personal Inventory, "Preparing Myself for Work"

hour and a half -- Poise Development

fifteen minutes -- Break

hour and fifteen minutes -- The Art of Make-up

<u>Third Day</u>

opening half-hour -- Review of Previous Day (Group Discussion)

one hour -- Typing and Spelling Tests *[presented by representative of Bureau of State Employment Service]*

fifteen minutes -- Break

one hour -- Discussion Groups

<u>Fourth Day</u>

hour and a half -- Joint Staff Meeting: YWCA-BOC personnel and NYC Work Experience Supervisors

one hour -- "The Real Work World and You" *[presented by a counselor]*

fifteen minutes -- Break

hour and fifteen minutes -- Hair Care and Grooming *[presented by a professional beautician]*

SKILLS TRAINING AND REMEDIAL EDUCATION*

Although these are treated separately in most discussions of this project, from a functional point of view they are inseparable. Most of the BOC enrollees had had some previous skills training or work experience; usually this involved typing. It was found that a number of them, including some later proved to have been self-taught, could meet entry level speed requirements of 40 words per minute. However, it was not unusual for this to be reduced or even nullified by the number of errors. Further testing, in more than one situation, revealed that many of these mistakes were not simple typing errors but that they derived from spelling problems. It was discovered also that a number of these enrollees when tested--formally or informally--for vocabulary and word comprehension, needed considerably more than "skills improvement" or traditional "brush-up." Those with entry level computational skills were in the minority. Not all of the BOC candidates read at a level consonant with their reported "highest school grade attained." Speech, diction, the types of communication skills required for survival in the business world were areas to which considerable BOC attention had to be given.

The alternatives presented by this unfolding situation seemed clear:

1. Return the "unqualified" candidates to their respective referral sources with further interpretations of the basic premises of this project and its requirements for participation;

2. Work with those referred, though not completely qualified, but who seemed motivated and willing to carry their share of the effort.

It was the consensus of BOC and other YWCA personnel that the second course must be chosen. It was recognized that these enrollees would require considerably more intensive skills and remedial education than had been planned in the original design. It was apparent, also, that this could jeopardize the YWCA's potentials for success in accomplishing the project's purposes within the BOC time, budget and consequent staff, limitations. Yet there was little debate about the choice: those girls who were looking to BOC to give them the assistance they felt they needed could not be given another rejection if there was the slightest possibility of achieving their targets within the project's limitations.

**Descriptive detail in local, narrative reports.*

The provocative question was laid bare:
What was the interactive nature of skills--education--under- or unemployment--attitude toward work and the culture of the business office? The challenge seemed to lay in--

-- sorting out those candidates for whom the BOC services could not be adequate, referring them to the NYC or other source for further counseling and movement into another training program suited to their needs;
-- identifying those candidates who gave promise of achievement of entry level possibilities, within the time allotted the BOC contractual commitments, and within this group--
-- helping the selected enrollees to make realistic choices of occupational targets. This required the assistance of NYC, BES and others involved in the testing and counseling processes. It entailed also helping the enrollees--at an early stage in their BOC experience--to become aware of the range of clerical possibilities, including those which did not demand typing skills.

This resulted in a selection process which went on throughout the BOC operational phase, of working hard and directly with those enrollees who presented some potentials and who were willing to "dig in" to see what could be accomplished.

These skills and educational requirements demanded some adjustments in BOC program plans. It was essential to develop skills training which would include drills. Project staffs and volunteers evolved this and reliance on reality assignments. They provided this training through simulated office supervisory procedures rather than traditional school-room approaches. The BOC enrollees did real work for YWCAs and other nonprofit organizations. They took tests as these were undertaken to qualify them for promotion: there were no school-room type grades. Training materials--a limited number of which were provided by the National Headquarters staff which "strained" its own budget for this purpose--were utilized for "getting ahead" rather than as classroom assignments. Emphasis was laid on opportunities to learn about a variety of office machines--manual and electric typewriters, dictating machines, stenotype machines, addressographs, cash registers, special telephone equipment (rf. St. Louis), adding machines, calculators, duplicating machines, and light boxes.

In some situations where equipment was too expensive or otherwise prohibitive for provision in the BOC Learning Centers, the enrollees were taken to locations where they could see them in actual operation. Such arrangements, of course, required the cooperation of appropriate training, placement and business offices.

It was found that the reality work assignments were especially effective in this training process. In the different situations, differing approaches were used. BOC enrollees:

- handled some BOC typing, duplicating, telephone and even secretarial assignments;
- prepared some of their own records for the National Headquarters records and reporting systems;
- "published" BOC newsletters--composition, typography, and duplication;
- worked in various offices of the local YWCAs--under nonBOC supervision--with communications regarding their performance and progress between the YWCA supervisors and the BOC project staff;
- prepared work for other nonprofit organizations.

Although it is not possible to document the findings with hard data, it has been reported by some of the BOC personnel that the successful performance of these assignments--and the resultant commendations--contributed in positive ways to the enrollees' self-appraisal, belief in their own abilities to "get ahead," and attitudes toward the world of work in general.

The remedial education work was integrated with skills training. Work on spelling, word comprehension, functional computations, vocabulary and speech in general was built into skills performance. And here it may be noted that a variety of approaches were necessary. One of the programs--to a limited extent--used a Language Laboratory of a cooperating Community College. Telephone equipment was used for more than training in mechanics: it was employed for speech training. Dictating machines, tape recorders and other such equipment permitted enrollees to "hear" themselves and their "enrollee-partners" as they tried to communicate, and--thus--to recognize their deficiencies in this and related areas. This was not always easy. It was found in some instances that enrollees did not wish to "tamper" with their modes of speech: they were "all right," they felt, and necessary if they were to continue in their social situations. Here, successful project staff treated the language of the business world as a second language--identifying it as necessary to comfort and ease in job performance, without judgmental reference to the enrollee's social environmental speech patterns.

In the face of this pervasive situation with respect to the skills and educational needs presented by the majority of the BOC enrollees it is clear that the ultimate success level for the project as a whole was higher than most persons associated with the project would have predicted at its outset or even at mid-point in its operations. A considerable amount of the "credit" for this goes to the enrollees themselves, to BOC staff, <u>and to the many volunteers</u> who made the intensive, individualized work possible (rf. Volunteers section of this report).

Problems Encountered in Skills Training and Remedial Education

The BIG problems in these areas have been delineated in the foregoing. The basic work relative to skills training and remedial education, of course, pertained to the job qualifications which these enrollees were attempting to build up during the very limited BOC time period. Some solutions to the problem of significant deficiencies have been identified. Beyond these are some related factors which contributed other problem components within this aspect of the operational phase.

Tests and Test Results

The Problem

Statements regarding the inadequacies and misleading potentials of traditional tests and testing procedures have become near-cliche in character. It was difficult also to assess the meaning of test results in more than one situation in which the enrollee reported that she had not been able to do her best, for a variety of reasons including pressures of personal problems. It was difficult also, at one and the same time, to select the tests believed to be best suited to the specific BOC situation and to avoid the traps of rigidity and possibly biased results. BOC staff members and cooperating personnel were called upon to remember

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that many of these candidates had come from social situations which led to the desirability of "culture free" tests--not always available.

There were unevennesses in the stability and level of cooperation in sharing of test results by BES, NYC and other personnel. Some of the local BOC programs enjoyed the benefits of a steady, reliable flow of information--received at the time of the enrollee's induction into the project or immediately thereafter and/or at intervals when these results could be most useful. Others waited--and waited--for late returns, if they were lucky, and on some occasions for data which never arrived.

The Solution

BOC personnel worked with BES representatives and others involved in the testing situations to try to develop the best procedures and approaches. In some cases standard Civil Service typing tests were administered; others moved into other test sequences, including GATB. Usually, a combination of more than one typing and educational test was part of the full-BOC enrollee experience--scattered--at induction--later--at "strategic" times--formally--informally. The practice of repeating, in the BOC setting, and sometimes on the same day, a test which had been administered under more formal--possibly formidable--

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conditions revealed the function of fear and impersonality in test results. Typically, BOC enrollees scored higher in the familiar, easier setting. One of the BOC responsibilities then lay in helping these enrollees to become "test-wise"; to get them to the point that they would not "freeze" in testing situations, but--rather--where they would be so familiar with testing formats and requirements that they would be able to face them with equanimity and perform in accordance with their best abilities. Testing was dealt with as a part of "business office culture"--a standard procedure--actually a part of the communications system in the world of work. The unusual cooperation accorded some of the local programs by their local BES offices may be exemplified in Mt. Vernon and St. Louis. In the former, special efforts were made to work out tests which would be appropriate to the BOC situation; in the latter the continuing work in testing was particularly telling.

Sorting Out

The Problem

The difficulty of "sorting out" the hopeless candidates from those who might profit from the BOC experience was highly troublesome. Usually it was related to the girl's attitude toward the total situation--where this could be determined. If she

seemed unwilling to try to overcome her deficiencies it was relatively easy to suggest that she try nonBOC avenues for reaching her goals. The hard problems occurred in relation to the highly motivated girls who wanted "so much to be typists/stenographers/dictaphone operators that it hurt." Aware of the fact that none of them had the kind of wisdom that enabled them to predict with full accuracy, most of the BOC programs leaned toward "giving a girl a chance." It is possible that the ultimate placement potential was reduced by this practice; it is the opinion of those who carried it out that most of the candidates who were admitted on this basis benefited in ways that may have to await later documentation.

The Solutions

The above suggests the solutions that were tried: work with each girl as an individual; give her every opportunity to move toward her goals. This was accompanied by the need to maintain realism: to continue the "sorting out" process after the enrollee was involved in the BOC training. Thus, the data show that some BOC enrollees were "returned to NYC" or referred elsewhere after it was determined to the satisfaction of the BOC staff, usually NYC personnel, and the enrollee herself that BOC was not the best use of her time.

SUPPORTIVE SERVICES*

Actually a project which is directed toward acculturation and which is built around attitudinal goals may be considered in toto as a primary system of supportive service delivery. Everything which is done and experienced in any or all of its phases may be construed to be supportive: this was true within this BOC undertaking. A considerable range of supportive service was integrated into every aspect of each of these phases. Some of this has been discussed or possibly just suggested in earlier parts of this report:

- the interviews and other interpretive work with the candidates who were processed--not all of whom became BOC enrollees--certainly carried heavy counseling responsibilities;

- referrals of some successful and unsuccessful candidates to other agencies for needed services during that phase, and later, represent a significant activity in relation to community resources.

Remedial Education

The list could be continued, but would not be complete without back-reference to the remedial educational work--carried in this report under Skills Training and Remedial Education. Recognition of the work done in relation to the enrollees' educational needs and potentials--integrated as it was with the skills training--is imperative to any review of the complex of supportive service which was available to the BOC enrollees. While it is not reported again in this section, it is considered as vital in its content.

Counseling

All of the local programs pre-planned carefully and gave major attention to the counseling programs within and related to the BOC efforts. As has been indicated, some of this was made available by cooperating units of the DOL--particularly the Neighborhood Youth Corps (NYC), Youth Opportunity Centers (YOC), and the Bureau of Employment Service (BES). Most of the service supplied by these agencies applied, primarily, to vocational guidance. It was delivered in screening, testing and related settings as well as those set up for the specific purpose of candidate/enrollee counseling, per se. BOC personnel complemented this service, as well as carrying major responsibility for the personal counseling which was inherent in the purposes of this project.

**Detailed description in local, narrative reports.*

The BOC counseling was integrated into every aspect of the project's work. It was carried out with individuals, sub-groups and enrollee units as a whole. It was fortified still further by community representatives who came into the programs--as volunteers--and, usually, focussed on some specific aspect of interest and relevance to the "Business Office Culture." And here it may be indicated that, although some BOC staff members carried the title of "Counselor" this aspect of the BOC support was not their responsibility only: other staff--particularly Local Program Directors--carried heavy responsibility for this aspect of the work. It was not unusual for the Project Secretary to carry some supervisory responsibility especially with reference to reality assignments and--in this capacity--to be involved in some aspects of individual and group counseling. This interrelationship was possible and successful to the extent that there were clear understandings about individual roles and responsibilities--communications between the participating personnel--and staff operations as teams. These same requirements were applicable to the successful inclusion of program volunteers in the counseling service.

Community Affairs and Resources

An important part of the BOC responsibility was widening the enrollees' knowledge of and constructive participation in their respective communities. This entailed acquainting them with the resources of those communities--those which could help to meet some of their needs and those to which they could make constructive contributions. It was noted that many of these enrollees had limited knowledge of these resources. It has been noted in more than one BOC local program report that introduction to public libraries and the ways they could be utilized to further the enrollees' aspirations and interests was not only important--but to some of the enrollees--a thrilling experience. A variety of techniques and approaches was used. It has been indicated further that the downtown mid-city locations of the Learning Centers themselves were important assets in these supportive aspects of the BOC program. It was surprising to some of the enrollees themselves, as well as to staff and volunteers, that--despite their previous educational and, for some, employment experiences--so many of them had lived in social isolation prior to the BOC experience: and that these introductions really opened new vistas. Many of the enrollees indicated this aspect to be very important to their success in "understanding more about" the world of work. And here, too, it may be noted that the reality assignments proved immeasurably effective in affording opportunities for these enrollees to learn, functionally, about community agencies.

Consumers

The many ways in which the BOC experience involved the unfolding of the enrollees' roles as consumers are visible in the project reports. The BOC personnel took advantage of the variety of settings and opportunities to present this material in functional ways. Not only did they discuss taxes, costs of living, budgeting and "stretching" the dollar--but they related these matters to enjoyable ways of applying them to fun situations. The subjects here were related to other matters such as the functions of unions in industries in which some of these enrollees would be working. There were discussions and experiences regarding homes and home decoration, menus, and a range of related subject matter. The enrollees were given opportunity to discover the rights as well as the responsibilities, the pleasures as well as the disciplines, of functioning as responsible, independent consumers.

Leisure Time

It would have been impossible to have crammed as much into such an intensive, brief program with any real success if it had had to function without reference to the fun and rewards of constructive use of leisure time. YWCAs offered natural, ready settings for this. There were many occasions--coffee breaks, lunch hours--when these could be demonstrated without much talking about them. The sponsoring YWCAs provided facilities for swims, gyms, cokes, clubs, parties and small talk. Lounges were available to take the pressure off the days which were packed with programs. BOC days were extended into evening hours--when trips could be taken. Small groups and sometimes whole enrollee units were invited to homes of BOC volunteers where interesting, mutually pleasureful and educational exchanges took place. The contact with the YWCA afforded opportunity for enrollees to see other working women using this community resource for clubs, classes, interest groups, sports, family affairs--a range of interesting leisure time activities which could include constructive participation in community affairs and was thus related to the foregoing "Community Resources." Because these enrollees represented different backgrounds--care was taken to acquaint them with other leisure time potentials in their respective localities: this included information about possibilities for the entire family, not just the enrollee herself.

Self-Development

The BOC project was predicated on the importance of the possibilities for developing one's own capacities and interests in the direction of realistic occupational goals. Thus, self-development--similar to other supportive services--was integrated with all other facets of the BOC experience. It included but was not limited to personal grooming, hygiene, office decorum and interrelationships within the business setting. It was found that representatives of business and labor drew great interest as they came to the project and discussed the business world's expectations of the individual worker with respect to these and related matters. The enrollees, in turn, had opportunities to raise questions and to comment about their expectations of the business world, with special reference to their own potentials for development.

It seems of especial importance that, because the BOC program enrollments comprised high proportions of racial minorities, the interests and issues related to their status, expectations, and concerns could be cast freely in these terms. There were many occasions when individual and group sessions were directed toward this aspect of self-development.

Again, it may be said that the entire BOC project was directed toward the self-development of these enrollees who were seeking--in a relatively short time--to move toward self-realization and economic independence through employment in clerical and sales occupations in the business world. It must be repeated that the programs' success lay in their direct, overt efforts to integrate all of these aspects of the project's activities--in all of its phases--into a coherent, meaningful experience which would contribute to the self-development of each of its participants not just as a potential worker but as a whole, healthy, competent, vibrant person.

Problems Encountered in Supportive Services

The problems which posed the greatest difficulties in relation to supportive services grew out of the absence of resources for dealing with so many of the blocking conditions. In a sense, they might be listed most accurately under the heading of unmet needs.

Child Care

119 MOTHERS 183 CHILDREN

The Problem

Although the enrollees who were mothers had made provision for care of their children at the time they enrolled in these programs, most of this was problem in nature. The heavy reliance on relatives, neighbors and friends--even though the enrollee-mothers paid for the service--did not afford optimum reliable situations. Enrollees were absent, late, or called away from the project because of child care problems. A minority of them were found to have stable, supervised, agency arrangements although a number reported having made applications. This situation reflected the well-known condition--prevalent in the urban areas in which these programs were located--of the pressing need for more day care resources.

Number of Mothers	*with*	*= Number of Children*
70	*1 each*	*70*
38	*2 "*	*76*
8	*3 "*	*24*
2	*4 "*	*8*
1	*5*	*5*

The Solution

Here the solution seems simple in the statement but difficult in accomplishment. YWCAs interested in meeting this need usually were constrained by administrative code and other requirements for physical space which could not be met without severe financial demands. And here it may be noted that a number of the Community YWCAs which took part in this project are deeply involved in community-wide efforts to meet the child care needs. The BIG barrier continues to be funding, particularly for facilities.

Health and Health Care

The Problem

These presented a variety of obstacles to reaching the BOC objectives for many of the enrollees. Health problems cited here included physical and emotional difficulties. The BOC project did not provide resources for physical examinations; the data regarding the health conditions of these girls was uneven. Some of the referring sources had current information; some--like BOC itself--had no provision for securing or arranging to get it. In some instances, BOC personnel were able to arrange for examinations and for referrals to treatment sources, but these tended to be the exceptional situations.

The Solution

Actually no satisfactory solutions were found. The programs were affected by the above health problems which interacted with others, especially attendance, to affect BOC performance. The ultimate solution, of course, lies in grappling with one of the major problems of the cities; i.e. the provision of adequate health services. One intermediate step, with reference to a project of this nature, seems to be budgetary provision for initial physical examinations, at the time of the enrollee's candidacy for or entry into the project. Once the health problems have been brought to the attention of project medical personnel the enrollees are in more favorable positions for referral to whatever community resources are available. The limitations of these, with reference to emotional problems, are well-known, but at least it would be helpful to have the above medical personnel assigned officially to the project: they could give assistance in the detection and handling of these problems also.

Family Responsibilities

The Problem

The pressures on the enrollees which accrued from family problems have been cited by all the local program personnel. Many of these enrollees were carrying heavy responsibility within their given family situations. This was true for single, childless enrollees as well as

for those who were married and/or mothers. Sometimes these problems were recognized by the enrollee as impinging on her performance: they were revealed most frequently as the reasons for absence, tardiness, and otherwise interrupted participation in the BOC programs.

The Solution

The really adequately staffed project of this nature would include staff to whom responsibility for initial work in relation to these problems could be assigned. This service would include working with the enrollee and her situation to the point that referral to appropriate community agencies could be accomplished successfully. This is sometimes a complex process, involving a choice of agencies and follow-through to the point that stable relationships with the new services have been established. In instances where the enrollee and/or her family is known to an agency but has not made her problem known, a liaison function could be provided by this project personnel.

Transportation

The Problem

The BOC problems continue to reflect the problems of the cities. Numbers of these enrollees came to the programs from areas which though not necessarily far from the Learning Centers "as the crow flies" were removed in time measurements because of the inadequacy of public transportation. Yet it was clear in most

situations that it was easier for these enrollees to move between their home locations and the downtown program sites than it would have been for them to go to other "neighborhoods" in their localities. This may not be apparent from a simple reference to the maps (rf. local narrative reports) but explorations of the local transportation routes and psychological boundaries support this conclusion.

Movement to and from the project like the coping with other problems cannot be separated from enrollee motivation. This was dramatized in St. Louis where--during a public transportation strike--many enrollees walked to the BOC Learning Center and returned home by the same means at the close of the training day.

The Solution

Within BOC the program staffs worked with the enrollees to help them to know their respective geographic areas: to learn about routes--and time required--not only to and from the BOC Learning Centers but other places including the NYC, BES, other public and private community resources and most importantly for those who were placed--when this was known--the routes between their homes and new places of employment. Stress was laid on timing differentials--e.g. between that required for "rush" and "off-" hours. It was not unusual for BOC personnel to find it necessary to give program attention to the selection of routes in relation to costs as well as time factors.

Community Awareness

With reference to the previously referred to discussions of pressing issues it should be noted that the BOC project was operational at the time when many of the localities were involved in differing forms of unrest. There were strikes--in schools, in reference to welfare allotments, and to other matters, some of them very close to the interests and life-experiences of the enrollees themselves. There was a considerable difference among the enrollee groups and individuals with respect to their interest in and knowledge about these and related issues. The racial composition of the programs, i.e. the preponderance of nonwhites, presented a situation in which it was predictable that there would be interest in and concern about the many developments reported throughout the country having to do with racial problems. The question has been raised with the BOC National Headquarters staff as to "why there were reported no incidences of dissident behavior similar to that reported for so many secondary and higher learning educational settings?"

It must be said that within this project there were individuals who showed and acted out suspicion, reserve and--at least--latent hostility related to race and ethnic background. This seems not to have taken group form or expression, in part because of the generally

highly individualized work-goals of the enrollees. At the same time, if there were barriers to the achievement of these goals, the BOC program, they realized, was organized to help not hinder them in overcoming these barriers.

It seems important also that these programs were conducted in a relatively permissive climate; that the enrollees themselves were encouraged to help create as they were freed within it to participate, formally and informally, in the programs' planning and assessment. The whole range of supportive services and the subtlety of a supportive environment were probably factors in the total response of these young women to the BOC experience.

LENGTH OF ENROLLEE STAY IN THE BOC LEARNING CENTERS

Several factors combined to pose some challenging questions regarding the possible length of stay for an individual BOC girl in any one of the BOC Learning Centers. These included:

- the contractual commitment as to numbers of enrollees to be serviced in the project as a whole--180;
- the varying numbers of BOC slots which proved to be available within the six localities;
- the--also varying--Standard Capacity of the discrete Learning Centers.

When it became clear that a significant number of the candidates would not present those basic qualifications on which the original numbers and time estimates had been predicated, i.e. rudimentary training in at least one of the basic skills prerequisite to entry into her chosen occupation and attainment of at least 11th grade basic educational competencies, it was recognized that this would have serious implications for BOC time requirements. The options were not simple:

1. establish a firm time limit for each of the enrollees at no more than eight weeks, thus assuring an input of twice the Standard Capacity of the respective Learning Center in a four-months Operational Phase;
2. organize a new system, with the understanding that every enrollee would be permitted to remain for four months--the operational period of the Centers: it appeared that this would require some efforts toward amendment of the prime contract--to reduce the commitment of 180.

Within these two alternatives a reasonable compromise was evolved. Without sacrificing individual enrollees, BOC staff and volunteers undertook to maintain careful attention to time allowances. This meant gearing the total operational complex to move every girl at her highest achievement potential through the Operational Phase. It also projected some leeway for slower achievers. It took into consideration the importance of meeting the original contractual commitment. At the same time, it was built around consideration of individual difference and need. It also anticipated that there would be some "unexpected" developments which would impinge upon the carefully planned progress systems. Not unexpected were the interruptions of individual schedules and the many different unavoidable circumstances which combined to slow the progress of some of the highest achievers.

SCHEMA 7

LOCALITY	CALENDAR WEEKS			
	Range	Average	Median	Mode
Dallas	1 -- 21	9.0	8.0	9
Mt. Vernon	1 -- 15	6.5	7.5	2, 4, 8
Philadelphia	1 -- 21	9.5	8.5	7,12
Pittsburgh*	1 -- 25	6.5	10.5	3
St. Louis	1 -- 24	10.5	10.5	8,12
Tacoma	1 -- 9	4.5	5.0	4
Total Project	1 -- 25	7.5	8.5	4, 8,12

**calendar weeks computed at 50% because enrollees were in BOC project half-time.*

As can be seen from the above, the average length of stay in a BOC program for the combined total of 234 enrollees in the six sites--exclusive of Continuity programs--was 7.5 weeks. The range was from 1 -- 25 weeks. The mid-point--median--for this length of stay was one week higher than the average, i.e. 8.5. Note that the pattern for the group as a whole was tri-modal--4, 8, 12 weeks.

In assessing these figures it is desirable to take into consideration some of the following:

1. the interruption of the Mt. Vernon program;

2. the fact that not all of the enrollees were at their optimum readiness at the time the discrete Learning Centers came to their closing dates;

3. the additional fact that in St. Louis and Philadelphia, the Continuity programs served a few of the BOC "regulars" who--for various reasons--could not complete their training in the "regular" time period. This includes at least two who were dropped from the regular programs and permitted to reinstate in the Continuity program. This means that later computations of their "number of weeks spent..." will be necessary;

4. the fact that some of the enrollees returned to the BOC Learning Centers for further help when they were technically in Follow-up status.

JOB DEVELOPMENT AND PLACEMENT

The analysis of the BOC experiences with reference to Job Development and Placement has been "lifted out" of its routine position--within Operations--and carried at the beginning of this report. As indicated there, this position was accorded this material because of its high importance in the BOC undertaking. Discussion of some of the difficulties encountered in these aspects of the Operational Phase was considered premature for that reporting position: it is included here--in the context of the project's total operations.

Problems Encountered in Job Development and Placement

Some of these have been intimated elsewhere--including those related to local agreements and practices which assigned full responsibility for placement to units of the DOL, especially the ES and NYC. It has been indicated that in two of the localities, BOC personnel were not really free to move directly and effectively in matching enrollees to job openings which had been "developed" by the YWCAs. Beyond these problems is another which was found to be near-universal in this BOC project.

Attitudes of Top Management vs. Those of On-the-Job Supervisors

The Problem

It has become almost a cliche, in discussions of Human Relations in Management/Employment, that the success of the introduction of hitherto disadvantaged workers into new hiring situations depends upon the positive attitudes and practices of those who control those situations. "Top management" it is said "must

set the tone and the pace." At the same time, it is equally well-known that these attitudes and their consequent behavioral expectations must be transmitted by that management to those in the lower echelons who will have the daily contacts, sometimes the supervisory relationships, with the new workers. In some of the BOC actual and potential employment situations, the difference in readiness of top management and below-the-top personnel to employ BOC graduates presented real problems. Sometimes, there was difficulty in having the application reviewed: some face-to-face interviews were discouraging and failed to carry out the commitments made by the high-level personnel. There seemed to be a number of operative factors within this problem:

1. "double standards"--with special reference to women, ghetto residents, GED holders, high school drop-outs, unwed mothers, inexperienced workers;
2. hiring practices--standard reliance on standard tests, without reference to the desirability of possible needed adjustments;
3. near-naked racial prejudice.

The Solutions

In some instances, the problem seemed to be resolved when the matter was brought to the attention of the "top management." In some instances, it was necessary to go further--to bring the problem situation to the attention of others--outside the discrete situation--for negotiation. In one of the localities, it was deemed necessary to bring the situation to the attention of the public agency charged with responsibility for handling problems of this nature. It may be pointed out here that, not unusually, problems of this nature were brought to the attention of the YWCA Executive Director who dealt with them through established organizational channels.

It does seem desirable, in a project of this sort, to open the job development and placement doors very wide. The most effective operations in these areas seem to be developed in those situations in which the private agencies work with the public structures, the volunteers with the employed staff, the cooperating organizations with the contracting Association--all in behalf of finding/opening the right job for the qualified enrollee and then pooling their resources to undergird the possibilities for her maintaining it and moving upward in accordance with her ability and interests.

BOC VOLUNTEERS

> *"The personnel of the BOC project as a whole and in each of the individual program units is proposed to include ... volunteers who contribute their services to the project, and representatives of cooperating organizations and of the community at large who may become interested in contributing, without remuneration, to the project's success.**

The BOC project afforded volunteers an optimum set of conditions for the contribution of their interests, energy and talents--

-- a task-oriented potential relating to a pressing problem of social significance;

-- conducted under conditions which could be approached with confidence;

-- in cooperation with experienced, trained, "caring" professionals;

-- together with motivated, constructively functioning maturing enrollees;

-- in a situation which guarded the role differentiation and the dignity of all.

The project attracted a number of voluntary participants, of whom approximately 150 have been identified in the reporting procedures. This is probably an under-count of the real total since it is true, albeit regrettable, that some of the participating YWCAs seemed to have omitted those Board members and officers who--although they did not take an active part in direct program services--were involved, in important ways, in policy- and decision-making roles relative to this project. This same omission applies to YWCA staff--Executives and others--who devoted considerable time to the project but who were not listed as "volunteers." Another--uncounted--group is represented by the BOC staff members themselves, many of whom worked/ are still working with BOC enrollees, reports and records even though they are no longer in payroll status.

The counted volunteers, therefore, represent those who were identified as such in the course of the BOC programs' operations; their work was complemented by still others whose contributions, though noted here, may really be "unsung."

**BOC Proposal, page 42*

Who Were They?

Some descriptive data are available for 75 percent (113) of the above volunteer group. Of this number:

SEX

- one of every six was male

  94 women; 19 men

. . . . . .

AGE

- the majority was between 36 and 65
- there were equal numbers of the "quite young" and the "senior participants"

18 - 25 years old	13	51 - 65	36
26 - 35	12	65+	13
36 - 50	34	age n.r.	5

. . . . . .

MARITAL STATUS

- another manority--83--was married

single	13	divorced	2
widowed	6	n.r.	9

. . . . . .

OCCUPATIONS

- the largest single number--37--were housewives, although some of these had been employed at some previous time

teachers	12	college students	8
retired persons	10	clerical and sales workers	8
business men/women	7	other*	5
other professionals	20	n.r.	8

**one each: beautician, caterer, domestic worker, newspaper photographer, and union official*

(two reported more than one occupation)

. . . . . .

YWCA RELATIONSHIP

- a high proportion were experienced, "seasoned" YWCA volunteers

70	current YWCA Board members
8	past " " "
32	not affiliated with the YWCA
3	n.r.

What Did They Do?

As indicated in a previous section of this report, the roles and functions of these volunteers may be categorized under the following groupings:

Policy- and Decision-Making

This includes those YWCA officers, Board members and other volunteers who functioned in a policy-making capacity relative to YWCA participation in the BOC project and administrative matters pertaining to its operations.

Advisory Committee and Volunteer Consultant Service

Responsibilities of this group spanned a wide range, including:

- assistance with the physical development of the Learning Centers--contacts for furnishings, equipment, materials and space;

Employer and Other Placement Contacts

- opening up community resources for project use--this included referral of BOC personnel to businessmen, professional specialists and others who could assist in placement; leading discussions and helping with overall contacts in and knowledge about the community;

Community Interpretation

- public relations and community interpretation re: BOC objectives, need for community support and cooperation;
- recruitment of other volunteers;
- making community contacts re: funding for BOC slots.

Those who worked in the program included individuals who served on a "one shot" basis as well as those who took part on regular--usually weekly--schedules. A big piece of this work involved individual and small-group tutoring. In addition, program volunteers--

Direct Services to Enrollees

-- planned and hostessed social events with enrollees--in the Learning Centers, at the YWCA, their own homes and other places in the community;

-- participated in follow-up contacts with individual BOC enrollees;

-- led group discussions on a wide variety of subjects;

-- provided individual counseling services;

-- role played in "practice" job interviews;

-- took part in "practice" dictation settings; and

-- aided in test preparations.

Under this heading may be mentioned the service in St. Louis under which volunteers provided telephone practice for enrollees in taking messages, giving information and similar telephone usage and habits. This was outstanding because of the special telephonic equipment installed in the St. Louis BOC Learning Center. Other programs used this technique in a less structured way.

In Tacoma, students in Business Education and their faculty from the University of Puget Sound planned special activities--field trips, tours, films, and equipment demonstrations in the BOC project as part of their classroom assignments.

TABLE E: VOLUNTEER FUNCTIONS

LOCALITY	Direct Program Services	Advisory/ Consultant Services	Policy- and Decision-Making	Community Interpre-tation	Services Related to Job Develop-ment and Placement	TOTAL
Dallas	20	9	5	6	3	43
Mt. Vernon	6	7	12	4	5	34
Philadelphia	10	10	4	4	5	33
Pittsburgh	4	8	5	6	5	28
St. Louis	21	3	4	10	5	43
Tacoma	12	31	16	14	9	82
TOTAL	73	68	46	44	32	263

263 specific functions reported for

150 BOC volunteers--and these complemented

by others, essential and important,

but not recorded.

2435

COMMUNITY ORGANIZATIONS*

A total of 138 organizations and agency structures, exclusive of units of the Department of Labor, were identified by the six participating YWCAs as cooperating organizations.** These may be classified as:

Business and Commercial	54	Social Agencies	12
Educational/Cultural	19	Health/Hospitals	11
Anti-Poverty	16	Communication Media	6
Government (excl. of DOL)	12	All Other	8

With reference to their distribution throughout these six cities, a range and diversity of contact may be noted:

Tacoma	52	Philadelphia	17
St. Louis	22	Mt. Vernon	16
Dallas	20	Pittsburgh	11

It is not possible to detail the extent and nature of this cooperation in all of the cities. Actually, an important aspect of this lay in the spirit of the support accorded the project and its purposes, and the many different practical, tangible ways in which this was evidenced. It becomes apparent, upon analysis, that this cooperation was a function of the interest and readiness of "those at the top." When policy- and decision-makers or other influential representatives of the respective organizations became involved, it usually followed that there was some meaningful contribution of organizational support.

This list** does not represent the total potential of the discrete communities: other organizations expressed interest and willingness to take part in these projects. Within the limits and pressures of time, no specific needs or possibilities requiring the contributions of their respective capabilities arose. It is apparent that a longer project, serving a larger number of enrollees, and really rooted--on long range bases in these communities--would draw upon a still larger number.

**Detailed description of this cooperation in local, narrative reports.*
***List in Appendix*

SCHEMA 8

CONTRIBUTION AND/OR SERVICE	COMMUNITY RESOURCES			
	Business/ Commercial	Voluntary (Social)	Government (Excl. DOL)	Educational/ Cultural
Job Development and Placement	✓	✓	✓	
Support Services: Group and Individual	✓	✓	✓	✓
Community Interpretation/ Public Relations	✓	✓		
Orientation	✓	✓	✓	
Provision of Speakers/ Field Trips	✓	✓	✓	✓
Skills Training	✓	✓	✓	✓
Contributions/Discounts: Educational Materials	✓		✓	✓
Provision of "Real Work"		✓		
Trainee Recruitment and Referral		✓	✓	
Provision of Testing Facilities				✓
Curriculum and Methods Consultation				✓
Donation of Space/ Products/Services/Discounts	✓			
Consultation on Office Layout	✓			
Equipment Demonstrations	✓			
Remedial Education				✓
Promotion for Employer-Paid Trainees				
Funding of Youth Wages	✓			
Funding of Continuity Programs				
Enrollee "Guests" at Meetings				

COMMUNITY RESOURCES				
Voluntary (Civic, Clubs, Etc.)	Health/ Hospitals	Anti-Poverty	Foundations	Communications Media
	✓	✓		
	✓			
✓		✓		✓
✓	✓			
	✓			
✓		✓		
		✓		
✓				
			✓	
✓				

Problems Encountered with Reference to Volunteers and Cooperating Organizations

Actually the problems encountered in these aspects of the BOC project related to the local program's time and resource limitations. It was not possible for all of the six Associations to really "mine" all of these voluntary resources within their own communities to the extent that they--the Associations--would have found satisfactory.

The Problems

Phase-In

The problems encountered in phasing-in individual volunteers and cooperating organizations were similar to those with the BOC enrollees. Volunteer and organizational enlistment was a continuing "open" process. Project personnel was busy: concentrated on direct enrollee-centered tasks. It was not always possible to give the time required for the most efficient and effective phase-in of volunteers who came in one-by-one, or of organizations that came out of interest and/or response to identified project need. This is related to the basic problems--

Limited Time/Resources for Pre-Project Planning

A full-fledged project of this nature would require a solid block of time for briefing of potentially interested individuals and organizations; evolving plans for their involvement to serve not just the enrollees but the project--and its community interest; carrying out volunteer training; and working through a number of possibilities with respect to organizational cooperation. This could result in a wider range of individual and organizational contribution to a project which would be enriched by these advantages.

PROBLEMS ENCOUNTERED--OPERATIONS n.e.r.*

A number of problems encountered during the operational phase of this BOC project have been defined in the preceding pages. There are others which characterized the entire set of operations, without reference to any specific aspect. Those which stand out within most or all of the local experiences are summarized at this point.

1. Maintenance of Enrollment at Standard Capacity

The Problems

This problem has been suggested in other parts of this report. For varying reasons, the Learning Centers were not maintained at 100% capacity throughout the entire project. Usually this derived from problems within the referral sources (rf. "Change" below). A number of the local NYC Out-of-School programs were reduced while the BOC programs were in operation: regardless of the interest and willingness of the DOL personnel, this limiting condition could not be overcome. As a matter of fact, more than one NYC Director strained to meet the BOC enrollee commitment in the face of very difficult pressures. It was inevitable that this should lead to some other--related--problems.

**not elsewhere reported*

2. Pressures to Enroll Candidates Who Did Not Meet BOC Standard Qualifications

When a program like the NYC is "cut" it is predictable that preference will be given to the most economically needy. This sometimes reduced the number of qualified candidates and left the referral source with a preponderance of young women who had left school at lower grades and who had none of the required "rudimentary skills." Some of this group could not be expected to qualify for clerical or sales jobs even if maintained in the project for its maximum, i.e. four operational months. Wherever there seemed to be any hope for success, exceptions were made--with uneven results.

3. Inability to Service Non-NYC Youth

As the programs progressed it became apparent that it would have been desirable to include other non-NYC youth. With the exception of Tacoma, this would have entailed "new" arrangements--with other agencies; different work experience and funding sources; and varied procedures. There was not enough time for this to be achieved, to any significant extent, in any of the localities.

A Demonstration Training Slot "Pool"

Possible Solution

It does seem likely that this program could have benefited from allocations of slots for BOC purposes--to either the local NYCs or to the participating YWCAs. This would have meant that these slots could have been arranged with established, standard requirements; they would not have been vulnerable to unexpected "cuts" and other conditions; they would have lent themselves to stable planning, recruitment, and relationships to referral sources.

Determination of Valid Unit (per enrollee) Costs

The question has been raised regarding the actual per capita costs of this BOC program. There are a number of possible approaches, the simplest of which seems to be to compute the original--planned--cost p/e which may be derived as follows:

$$\frac{\text{total budget}}{\text{180 enrollees}} = \text{approximately \$694.50* p/e}$$

Following this approach it may be found that the BOC per enrollee (p/e) cost was less than projected, i.e.

$$\frac{\text{total budget}}{\text{234 enrollees}} = \text{approximately \$534.00*}$$

A further computation, involving the deduction of direct costs expended in relation to the previously cited Richmond effort reduces this approximate p/e cost to $533.00.*

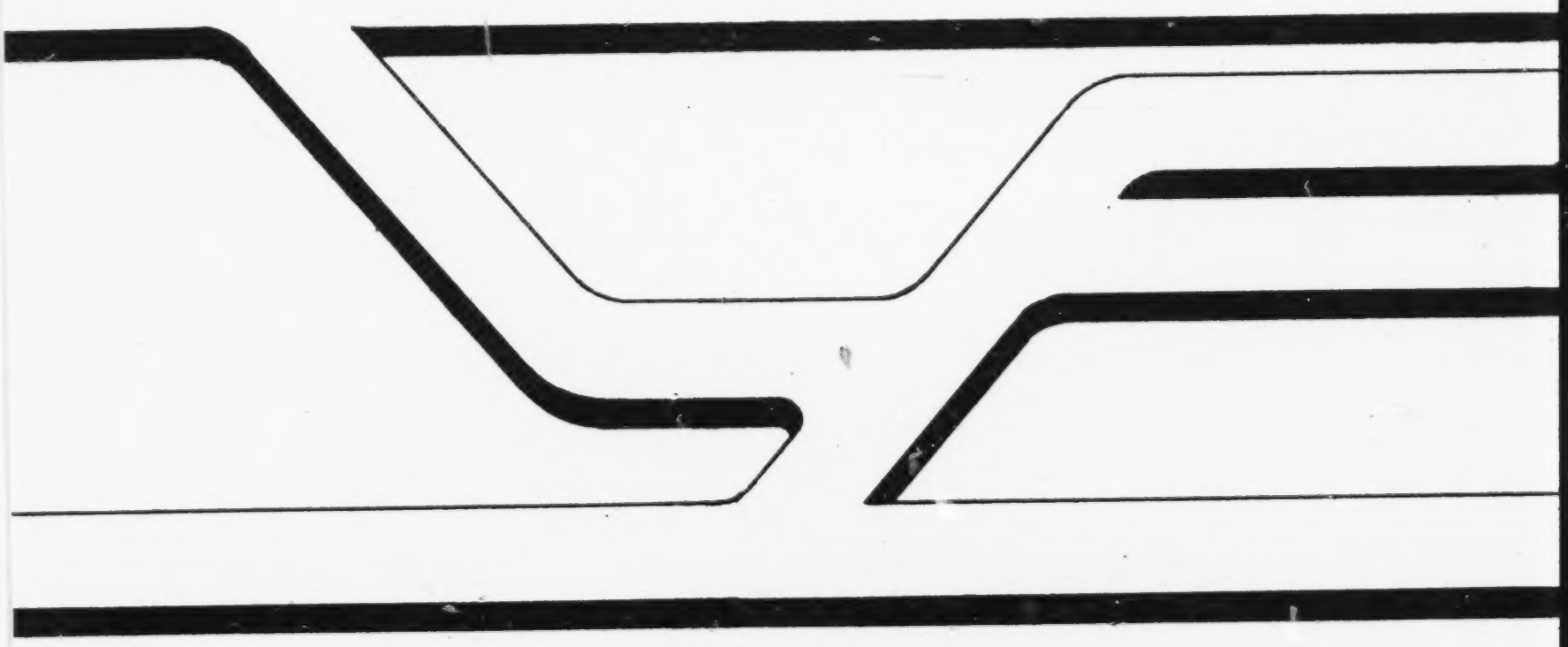
**rounded to nearest $.50*

Any effort to be really precise in this computation would require some--now unavailable--determinations of the extent to which any or all of the "continuity" enrollees have benefited or now are enjoying services derived from the original investment. Such a determination would require cost accounting which has not been undertaken within the two local continuing projects--in Philadelphia and St. Louis.

There are other considerations affecting these figures, including the facts that:

- they do not take into account the dependence of the contracting Associations on referral sources and conditions outside their control. Thus, they are affected by the fact that the programs were not maintained at full strength at all times. In such event, p/e costs would have been lowered.
- the computations make no distinction between the customarily high-cost organizational (tooling-up) phase and the very brief BOC steady state. If the BOC local programs had continued for longer periods in the latter state and if they had been maintained at maximum capacities, there seems no question that the p/e costs would have been lower than those reported above.

Continuity



C O N T I N U I T Y

Beyond the general expressions of interest in permanent employability for women and girls by the Community YWCAs that became BOC subcontractors, the first specific question regarding the feasibility of "continuing" the BOC project was raised by the YWCA of Metropolitan St. Louis. From the beginning, in fact since its participation in the 1967 Summer Youth Demonstration program, this Association sought ways of carrying an Employability Learning Center as part of its permanent program. It demonstrated this determination by the remodelling of the entire fifth floor of its main building to accommodate this activity.

As the BOC project progressed, the prospects of continuing local programs without interruption was considered by all of the participating YWCAs. This posed the greatest problems for Tacoma in view of its inability to obtain Government-funded work experience slots for the BOC demonstration, and the fact that strong demands upon the participation of business enterprise were being made by an Urban Coalition program. It became apparent reasonably early that Mt. Vernon would not be able to follow through on its interest because of the difficulties which were besetting the local NYC sponsor. Explorations of continuing funding possibilities in other cities were colored by the cut-backs in the Neighborhood Youth Corps Out-of-School programs and the reluctance of private funding sources to support programs which they regarded as accepted

governmental responsibility. Finally, these continuity prospects were limited to two local Associations--in St. Louis and Philadelphia.

The interest in and efforts toward continuity were encouraged and assisted by the National BOC Headquarters staff. This grew out of convictions that--

-- the possibilities in these two localities offered unanticipated opportunities to "test" the grounding of a demonstration project as an established operating program <u>without interruption</u>;

-- in this context, the efforts could yield valuable experience in relating this type of voluntary organization program to decentralized governmental employability agencies at the local level under conditions which differed from those which prevailed for the "demonstrations";

-- this experience might contribute to overcoming the barriers to grounding a demonstration as a regular program which had been encountered in relation to the 1967 SYD project. It may be noted that--even to the time of this writing--efforts of the National Board YWCA to interest operating programs in DOL in applications of this admittedly successful demonstration have yielded no results;

-- the integrity of demonstration projects rests ultimately upon their contribution to bona fide operations.

There were other compelling reasons which related not just to the two subject units but to the total significance of moving employability programs to meet the distinctive and pressing need of young women to their highest possibilities. The importance of the BOC results in the actual, real movement of young women from NYC slots into paid employment in the world of work, followed by the upward mobility which some of them already were demonstrating, seemed to provide the bases for hope of success.

St. Louis, Missouri

The Operational Phase of the BOC program in St. Louis was terminated, in effect, on January 31, 1969, when full-scale demonstration funding was no longer available to reimburse the Association for project costs. This program, like the others, was technically under subcontract effective to June 30, 1969 and, therefore, it was eligible for limited funding for follow-up and for maintenance in official relationship to the National project. Specific efforts to secure continuing program funding in St. Louis actually were initiated shortly after the program began there--in July 1968. There were many facets to this effort:

- the Association had the wholehearted cooperation of the Missouri State Employment Service and the St. Louis Neighborhood Youth Corps in approaches to the Regional Manpower offices;
- it was backed by many of the community resources that had been active in various aspects of the program;

- the project was brought to the attention, through publicity and promotion by the YWCA and some of its influential frineds, to public officials at the city, state and regional levels as well as legislative representatives at all governmental levels;
- potential private donors and foundations were approached.

By the end of January 1969, the only results from these efforts was the commitment of a foundation to help the YWCA keep the program "alive" on a temporary basis. "Continuity" on a limited basis was thus carried on until a subcontract was executed with the St. Louis Human Development Corporation for the period from June 1, 1969 to November 30, 1969.

Under these conditions, BOC services were provided to 38 young women, including two former "regular" BOC drop-outs. Generally, the characteristics of this group were similar to those reported for the 234 BOC enrollees. It becomes obvious that the reduced and uncertain funding did not permit the St. Louis BOC Learning Center to operate at its full Standard Capacity throughout this entire period. Nevertheless, between March and September, 18 of the 38 young women were placed as:

Clerks----------	5	One each: Bookkeeper/File Clerk
Clerk Typists----------	4	General Clerk
Telephone Operators---------	3	Receptionist
Mimeograph Operator/Clerks--	2	Unit Clerk

The weekly wages received by these young women range from $58.50 to $76.50 with a median weekly payment of $70.00.

Other young women are receiving employability services in the St. Louis BOC Learning Center as this report is in preparation. Continuity efforts are still underway, but the prospects for this program after the expiration of the above contract--on November 30, 1969--are very uncertain.

Philadelphia, Pennsylvania

The efforts to establish continuity for the BOC program in Philadelphia emerged directly from the success of this operation as it revealed to this Association its undeniable potential for employability services to young women for whom the community provided no other comparable program. As in St. Louis, the Philadelphia Neighborhood Youth Corps shared the enthusiasm of the YWCA and cooperated in the effort to maintain the project. Again, as in St. Louis, an extensive "promotional" campaign was carried out--involving every known possible resource of the community and the government. Appeal after appeal was directed to potential private funding sources--individuals, businesses and foundations. The "calendar" of the results is as follows:

January 16, 1969 (termination of full-scale demonstrating funding)
to
February 16, 1969 -- YWCA-funded with the assistance of a private donation earmarked for this purpose;

February 7, 1969 -- subcontract with the Neighborhood Youth Corps
through
July 5, 1969 of the City of Philadelphia. This funding was "regretfully" terminated when NYC Out-of-School program cut-backs made it impossible for the City to renew this agreement;

July 6, 1969 through August 31, 1969	-- YWCA-funded--again to keep the project "alive"--through the same donor as above;
September 1, 1969 through November 30, 1969	-- funded by the Philadelphia Urban Coalition, for three months pending determination of possibilities for Government-funding.

Under these tenuous and sometimes trying circumstances, the Philadelphia BOC Learning Center has provided employability services to 27 young women. Generally, this group has presented the same characteristics as those reported for the "regular" BOC enrollees. Twenty-three of these young women have been placed, as:

Clerk Typists--------15	Mail Clerk
Directory Operators-- 2	Reservation Clerk
One each:	Statistical Clerk
Data Processor	Teller Trainee
Dictaphone Operator	

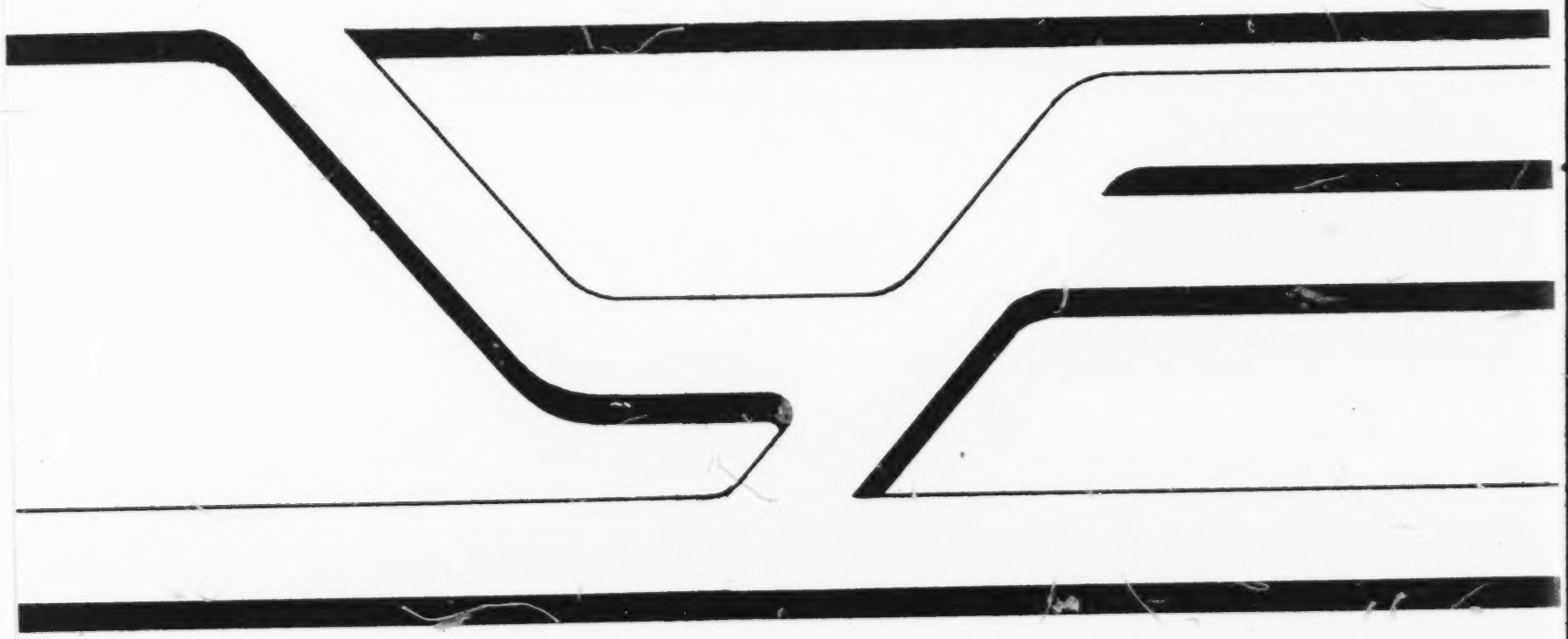
The weekly wages reported by these enrollees at the time they were originally placed were:

$65.00 -- 2	$72.00 -- 3	$84.00 -- 1	$92.00 -- 6
68.75 -- 1	72.50 -- 2		
69.00 -- 6			
69.60 -- 2			

The median weekly wage for these young women is $75.10. Three of these "graduates" have reported weekly wage increases ranging from $8.00 (2) to $18.00.

The Philadelphia BOC Continuity program is still in operation as this report is written. Its prospects for stable, continuing operation are as shaky as those reported for St. Louis.

Evaluation and Feedback



EVALUATION AND FEEDBACK

These last two phases of the BOC project are interlaced. Together they embrace enrollee evaluations carried on throughout this project, follow-up by BOC and other YWCA personnel, as well as the direct mail contacts with each of these enrollees which were undertaken by the National Headquarters staff. Actually, it may be said that the evaluation process carried through every phase of this project. In the pre-contractual stage, when the BOC possibilities were discussed with YWCA volunteers and staff, its potentials were assessed for their power to contribute to the interests of the target-group and for their relevance to important problems. As the programs moved into their organizational and operational phases, BOC participants--enrollees, staff, volunteers--were drawn into appraisals of the validity of the project's approaches, methods and discernible results. The fact that BOC was undertaken, that 234 enrollees moved through its regular channels, and that an additional 65* have moved/are moving in Continuity programs in two of the participating localities attests to the positive findings of the early evaluations. The project experience, as a whole, has sustained these earlier projections, i.e. that it would be productive, significant, and relevant.

As the local programs moved through their operational aspects, BOC participants identified the factors which hindered and those which helped progress toward its basic goals. As adjustments became desirable, or necessary, they too were assessed on these bases.

**inclusive of the two reinstated "regular" enrollees who were included among those who voluntarily dropped out of the regular program.*

The evaluations which flowed through the follow-up and feedback phase reflected tests of BOC operations and results in reality settings. In essence, the question at these points was not just *"What is your opinion of the effectiveness of the BOC project while you are still involved in it?"* It had become: *"How has the BOC project helped you to find and hold employment; how has it been of assistance to you in your performance and in your job satisfaction?"*

Not all of the evaluation and feedback was verbal. It seems important to take into consideration that evidence which was behavioral. *"What are the BOC girls known to be doing, with reference to their occupational training, at given periods?" "What are the indications, if any, that the project has made a positive difference?" "What are some of the conclusions that may be adduced from their actions as well as their words?"* These questions were threaded throughout the looking ahead, looking at, and looking back at the complex of the BOC activities.

In all of this it is to be noted that this short-term intensive project was not expected to change the total life-styles of all of its participants. In fact there is no reason to assume that such changes would be necessary or desirable for the total group. BOC was a limited commitment, a complex of specific efforts directed toward feasible, concentrated goals. The evaluation and feedback have been addressed to, and remained within, these objectives.

THE ENROLLEES' EVALUATIONS

Throughout the operational phase of the local programs, as the enrollees were encouraged to assess what was happening to them, they seemed to focus on specific aspects of the experiences. Usually this was on problems pertaining to skills improvement or to what some of them considered to be constrictive requirements, e.g. "No Smoking." After the individuals "graduated" and moved into jobs or other post-project status, a growing number remained in contact with BOC/YWCA personnel: they tended to review the local BOC programs in highly individualistic terms. Some of the enrollees have formed "BOC Clubs" which meet weekly or at other intervals. They have developed different types of programs but, typically, these include some discussion of the project and its results.

The National Headquarters staff, in accordance with the contractual commitment, sent a mail questionnaire directly from New York to each of the 234 enrollees. This was directed toward the questions:

"What are you doing now?"

"In what ways, if any, have you found BOC to have been helpful?"

"What changes/improvements would you recommend for a new project of this nature, or for continuation of this one?"

At this point, the BOC project ran headlong into another major urban characteristic--mobility:

- 82 completed responses were received: this required two rounds of mailing, the second to new addresses ferreted out by BOC/YWCA personnel in the respective localities;
- 46 whose mail was returned by the Post Office marked "Moved--No Address"--still have not been located;
- 9 are known to have moved away from the BOC site cities.

Most of the other 97 enrollees have been reached through individual and group contacts made by BOC/YWCA personnel. However, it is not possible to determine, with real accuracy, whether the two groups--those who responded to the questionnaire, and those who were interviewed--are really mutually exclusive:

1-- not all of the responding enrollees identified themselves in the mail returns; this was optional;

2-- some of the enrollees who--at the time of the personal contact--indicated that they had not replied seem now to be included in the written returns, although this cannot be "proved" because of point 1 (above);

3-- it does seem that some of those who "thought" they had "sent it back" have confused actions with intentions.

Locating these former enrollees through personal contacts is not easy particularly when it is undertaken by persons who do not know them by sight and who are not familiar to the enrollees' families and neighbors. In many of these neighborhoods, caution is not only the

mode, it is essential to survival. Thus, questions about the residence of an individual, coming from a stranger, could not be calculated to elicit free and full information. It is to be remembered also that many of these enrollees live(d) in areas where mail thefts are common and high: the BOC questionnaire envelope carrying not only the instrument but a stamped return envelope, could have carried a check. The combination of these and other circumstances makes it possible that some of the 234 enrollees never did receive the questionnaire. Selectively, a few were sent to places of employment or other efforts to locate the enrollees were made in this way. However, this was not deemed a desirable widespread practice.

Because of the questionable results in efforts to identify duplications, no statistical analysis of the interviews and small group discussions will be undertaken here. In view of the fact that the written returns were almost identical with the statements reported from these face-to-face situations, it seems more valid to use these 82 written questionnaire responses as representative of those of the total group--the 234.*

Sixty-two of the 82 responding enrollees were employed at the time of their replies; 12 were awaiting employment--some of these were still on NYC rolls. Of this 62, 37 had had wage increases and/or promotions in the jobs in which they had been placed at the time they left BOC. These had taken place within an average three-month interval (between placement and reporting date).

**Multiple responses are given in this analysis; therefore, the number of replies will not be identical with the number of respondents for all of the questions.*

The range in these wage increases was from $1.30 to $30.00 per week. The average was $12.91 per week. Fifteen of the 37 reporting these increases were Philadelphia enrollees. All of the promotions were from entry-level to higher-type clerical postions. Other wage information included in these returns has been reported in previous sections of this report.

With reference to the specific evaluations of the BOC experiences--

-- 75 of the reporting 82 indicated that it had been helpful

-- 5 of the reporting 82 indicated that it had not been helpful

(These five were not working at time they completed questionnaire)

. . .

-- 74 of the reporting 82 would recommend BOC to their friends

-- 4 of the reporting 82 would not recommend BOC to their friends

. . .

-- changes/improvements were recommended by 35 respondents:

Longer BOC time period	8
More instruction/supervision	5
Less instruction/supervision/classroom atmosphere	4
More machines	4
More individualized instruction	3
Longer hours*	2
Better job placement	2
Better screening (eliminate disinterested)	2

**Pittsburgh--suggesting full rather than half-day.*

One each--

"More businesslike"

"Less organization"

"Same/steady teachers"

"Better personality/instructors"

"Two class groups--Beginners and Advanced"

"Group phase-in rather than individual"

These enrollees were asked "<u>What helped you most?</u>"

They replied:

The courses	45	"Preparation for employment"	3
The instructors/instruction	10	"Resource people"	2
The machines	10	"Help with G.E.D."	2
Social relationships	5	"Whole program"	2

The following were identified by one respondent each:

"Discovering that I still had a lot to learn"

"Experience of office conduct"

"Improving my appearance"

"Learning better self-control"

"The opportunity to get what I had missed"

"Talks gave self-confidence"

General, non-categorized comments carried in these returns are reported in the respective local, narrative reports.

The same group replied to the question "What did you enjoy most?"

The courses	24	Whole program	8
Social relationships	23	Helpfulness of staff	2
Instructors/instruction	10	Machines	2

The following were identified by one each:

"Chance to improve myself"

"Discussions"

"Exchange of ideas"

"Friendly atmosphere"

"Learning to become efficient"

"Meeting other people from different fields"

"Shows"

"Small classes"

"Surroundings"

THE VOLUNTEERS' ASSESSMENTS

The contacts with BOC volunteers for the purpose of evaluating the project have been carried on chiefly through conversations, individual interviews and pre-structured small group interviews. Some of these volunteers' assessments have been voluntary and spontaneous. No formal statistical analysis of these responses can be achieved.

The BOC volunteers, in general, agreed with the BOC enrollees: BOC has been a provocative, stimulating, productive, constructive, relevant undertaking. It has achieved its major purposes--its enrollees have secured--and are moving upward and forward on--jobs. In addition, volunteers have referred to the mutual respect, among differing BOC participant groups, which has been fostered by the project. Program volunteers have been most vocal about this: they have specified the ways in which the face-to-face contacts have been "beneficial to all." They have pointed up the fact that some of the BOC values have lain in its organizational patterns which made it possible for a heterogeneous group of volunteer participants to work together as peers. They have stated that this has been possible, and successful, to the extent that the roles of staff and volunteers have been differentiated with sufficient clarity for all of the participants to understand and accept.

A number of the volunteer participants have taken part in a variety of functions--decision-making, enabling, i.e., funding of not only the youth wages in the one situation but--in substantial

amounts--of the Continuity programs in the two cited localities. Some of these same persons have served as hostesses, made contacts with employers, worked with public agencies, and--through their own prestige--contributed significantly to community understanding and acceptance.

Perhaps the clearest statement of the general volunteer assessment was made by one of the most active and involved unpaid BOC workers who stated:

> *"Serving as a BOC volunteer has not been easy: it has been a learning experience for me as well as the girls: and perhaps the best part of it is that it has definitely* <u>*not*</u> *been a 'charitable contribution' on my part: we, the staff, and the girls have helped each other."*

A small number of volunteers, in a group interview, identified the following as <u>insignificant</u> factors:

AGE Although younger volunteers started out, they believed, in more favorable positions than their elders for acceptance by the young BOC enrollees, this advantage often dissipated. They could cite more than one instance in which an older person won and held the confidence of the enrollees and related to them in needed, meaningful ways for which "we did not have the experience." Some of the younger volunteers went further to state that they, too, had learned from the older, more "seasoned" volunteer

participants. Note: the older participants reciprocated and the experience was judged, unanimously, to have been mutually "beneficial to all" despite some of the hang-ups which threatened to snarl progress at times.

RACE Although racial identifications were conceded to have been significant factors in enrollee acceptance of some volunteers in initial contacts, it was reported to have been demonstrated repeatedly that integrity, mutuality of purpose, and respect for the worth of all individuals worked together as barrier-breaking forces. Usually, race appeared to be forgotten "in the clinches" and by the end of the individual enrollee's stay, to have given way to more important considerations.

SOCIAL CLASS Social class, as such, was not seen as a lasting block to "good" relationships between enrollees and volunteers. Some of the discussions here crossed racial lines. It was reported that enrollees had verbalized--to volunteers--their feeling that it has been helpful to see, work with, and really come to know persons of all classes who could and would join them in this type of effort.

A number of these volunteers are taking part in the follow-up contacts with BOC enrollees. They are involved in these at this time: evaluations would be premature.

THE STAFF ANALYSES

BOC staff members have used varying means to appraise the local programs. Conscious as they are of this project's purposes, they tend to focus on those things which were troublesome, or which--on hindsight--they feel could have been accomplished more efficiently and/or effectively. They agree, generally, that the project hit its target more accurately than they had expected in earlier stages. Most of the staff, however, seems to be concentrating on analytical appraisals of why they were unable to "really reach and help every girl." Directors raise the question, "Did we attempt too much in too little time?"

There is general agreement that more staff was needed: that this is germane to the answers to some of the crucial questions. This applies especially to the need for personnel who could be assigned to work with the personal and family problems which so often interfered with enrollee progress. They are aware of the need, in projects of this nature, for time for staff and volunteer training before and during its active phases.

Actually, staff appraisals are reflected throughout this report, particularly in the sections headed "Problems Encountered." Most of the responsible, concerned BOC staff have given considerable time to this project after their payroll status ended. They have been locating girls, writing reports, providing information for closing accounts, helping individual enrollees who continue to look to them

as sources of strength and guidance, not because they are paid but because they care. Most of the Local Program Directors especially are concerned with the big problems of when and how the findings of this demonstration project can and will be applied in other situations. All seem to agree to one conclusion which may be reported in the words of one:

"We just got going when the end came..."

. . . . . .

BOC staff, volunteers, and enrollees all come together in one concern: How can ways be found to continue this project in the six demonstration cities and in others where it is needed? There is consensus around the opinion that girls who need such services, communities which have not found ways of providing them, employers who are just finding out about their possibilities and who would use them if they continued to be available...all would benefit from the establishment of "more BOCs" in continuity and in applied-finding programs in many more than six cities. They are concerned about the crucial problem of cutting off a service of this nature in those six localities, just at the point when their impact was beginning to be felt. These concerns unite them in their overall evaluation of the BOC project and its accomplishments.

BOC as a National YWCA Project

Projects sponsored by the National Board YWCA are embraced as a part of the entire organization, even though their operations--of necessity--may be limited to the direct participation of selected Community Associations. These projects are approved by action of the National Board which, in various ways follows their progress with the same responsibility, interest, and concern that is accorded all other aspects of YWCA program. The purposes of these projects are interwoven with the purposes of the YWCA, and the operational methods used for them reflect the experience and commitment of the YWCA as an organization that has specialized for over 100 years in working with women and girls.

It follows that deliberate measures are taken whenever feasible to identify these projects and their participants with the national movement. This identification is built into the projects at their local operational levels in many ways. Complementary to these, however, were two occasions which arose during the administration of the BOC project to provide special opportunities for participation of the BOC enrollees directly in National Board activities.

The October 1968 Board Meeting

The October 30-31 meeting of the National Board was planned to include participation of youth representing program units serving teenagers, students and special youth projects. At the invitation of the Board, arrangements were made for the attendance of four BOC enrollees at this meeting. With their age peers, these young women took part in discussion groups and social activities as well as in the assembled sessions of the Board. At these sessions the set-up was planned so that the youth participants were seated at tables with Board members (volunteers) in small clusters. Lunch and other casual events encouraged informal, personal communication. The written report that one of the BOC enrollees made to her colleagues in her local program unit, contains her assessment of the meeting and her feelings about the other young women in BOC.

"...the topic discussed dealt with the improvement of the YWCA all throughout the country and the Changing of Times and Ideas.... The 'youth' had an opportunity to speak and give its gripes and ideas...they explained that they wanted a more active part.... I admired the girls who got up and said what they felt.

"Though I am not directly an active member of the YWCA, I can understand exactly how these girls feel because this situation is not only present in the Y but almost everywhere. For instance, I know for a fact that every girl in the BOC Project is trying to make something of

themselves [sic]. They have that get-up-and-go which is becoming more apparent in the youth of today. Though we face stumbling blocks dealing with the older generation, we manage to come bouncing back. We realize that we have weaknesses in some areas and that a great many of us don't go about gaining our goals in the right manner, but there are a lot of us who have the intelligence and know-how, if given a chance, to become fine-successful adults.... To sum up, I must say that I really enjoyed myself and it was enlightening to see that someone is finally listening to the voice of youth...."

The President and the Executive Director of the National Board YWCA sent a letter to each of these BOC enrollees, expressing appreciation for the contribution made to the meeting. Many individual Board members expressed their appreciation for the opportunity to meet and talk with these youth.

Employability Consultation

Another and entirely different kind of occasion occurred February 6-7, 1969, when the National Board YWCA conducted an "Employability Consultation" in New York City. This was, in effect, an over-all assessment of the current status and future direction of the participation of women and girls in employability programs funded by the Federal Government. Participants included top officers and staff representing seven national women's organizations and more than 20 Community YWCAs engaged in these

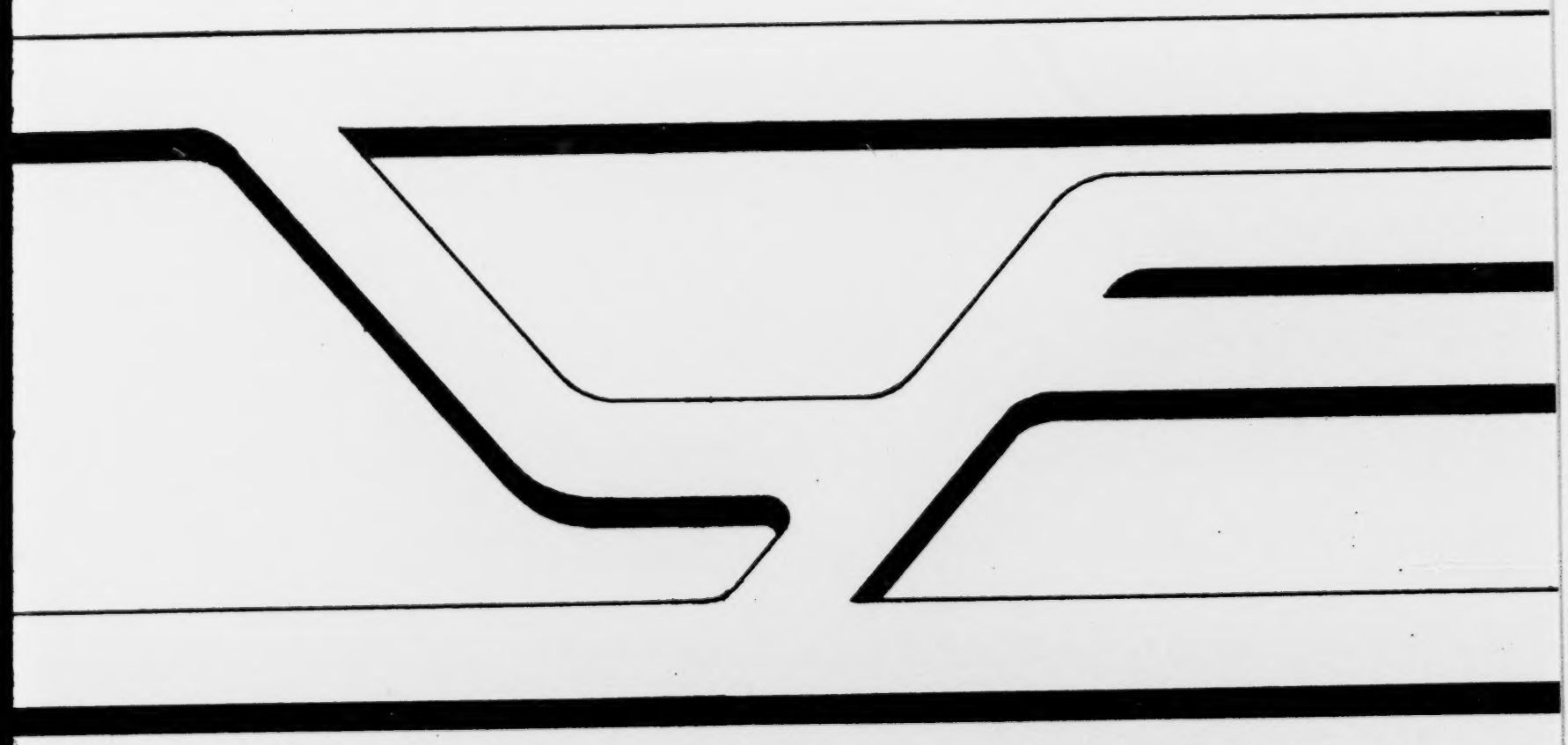
programs. The dinner meeting presented as guest speaker, Mrs. Elizabeth D. Koontz, who had just been designated as Director of the Women's Bureau of the Department of Labor.

One of the features of this Consultation was a panel participated in by eight young women selected from among enrollees and graduates of employability programs. Three of these represented BOC.

The youthful panelists discussed the needs and aspirations of themselves and their prototypes, expressed their opinions as to how these were related to the employability programs, indicated what they liked about these programs and--even more emphatically--the changes they believed would enable these programs to be more helpful to more young people in need of their services.

This meeting also was attended by Presidents and other volunteers, Executive Directors and other staff, representing some of the BOC local program units. Their formal and informal comments are reflected in the over-all evaluation and/or other appropriate parts of this report.

Change



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C H A N G E

No report of the Business Office Culture project, funded by the U.S. Department of Labor, sponsored by the National Board of the Young Women's Christian Association of the U.S.A. and carried out by the six participating Community YWCAs in their respective localities would be complete without reference to the unusual set of conditions which characterized the setting for all of its phases. These were distinctively and dramatically related to CHANGE: CHANGE in major factors, setting off and reacting to forces which affected this project in many different ways.

It should be noted that this project moved forward during the time that the national administration changed hands. There were ensuing questions and concerns about the meaning of this for operational practices, procedures and philosophies. Few of these were answered while the project was underway.

The social climate of the country as a whole--and, therefore, within the six participating cities--was affected by the processes which led to that changed administration, and by other events and developments which impinged upon social values and objectives. The country's youth was becoming more vocal--in some cases dissident--and considerably more verbally and behaviorally expressive at younger and younger ages. BOC enrollee peers were directly involved.

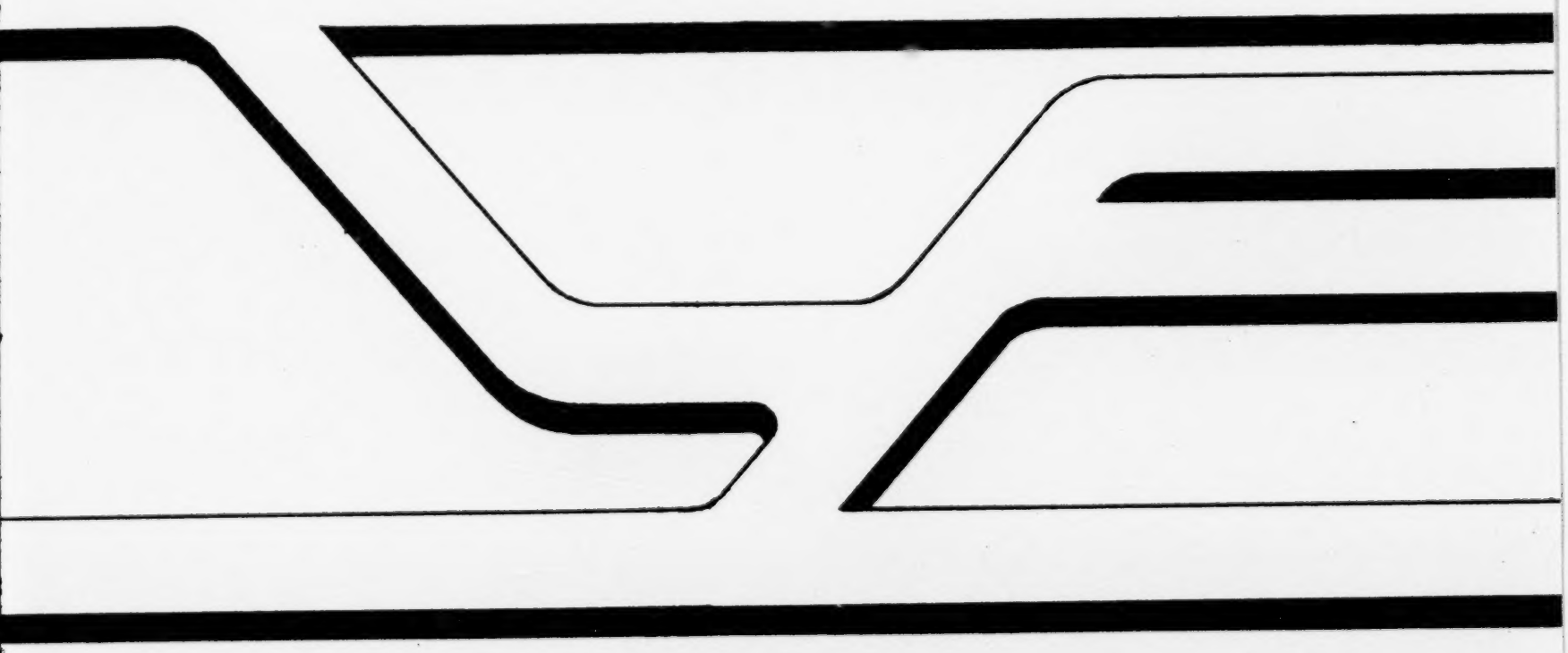
The Department of Labor was moving through internal reorganization and restructuring that affected personnel, planning, and the extent to which reliable stable commitments which seriously affected local programs could be made and maintained.

The stance and emphases of the Manpower Training Programs were being modified in important ways. Perhaps none was more significant to the success of the BOC project than the cut-backs and changes in the very program through which its lifeblood flowed, i.e. the Out-of-School Neighborhood Youth Corps. The reality impacts of these cuts and changes were serious: the insecurity, uncertainty, and in some cases real inability to carry out commitments cannot be ignored in any responsible review of the BOC processes.

The unfavorable publicity about some parts of the NYC program -- for example in New York City which affected not only the credibility of its neighboring programs in Westchester County (embracing Mount Vernon) but seemed to spill over in ways which eventually brought that program, in Mt. Vernon, to a premature closing.

In the face of these changes and their consequent doubts and uncertainties, the work carried on in the local programs by the participating YWCAs in cooperation with the directly-affected units of the Department of Labor, and with the cooperating individuals and organizations <u>in behalf of an undeniable pressing social need</u> i.e. <u>employability services for women and girls</u>, may be seen to have attained new proportions of significance and new dimensions of demonstration of long-range potentials.

Guidelines



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The Guidelines which are set forth here pertain to a national programmatic effort which is established and administered through a national organization which enjoys the opportunity to work with and through its local affiliates to carry out an undertaking of this nature.

A. A NATIONAL ORGANIZATION WITH ITS LOCAL AFFILIATES TAKES THE LEADERSHIP AND CONTRIBUTES ITS--

CONCERNS

1. Interest in helping women and girls understand and benefit from the new dimensions of work--in a society of rapid technological change--by exploring the possibilities for the great variety of work and career opportunities which are available; by joining in efforts to open further employment and training;

2. Provision of opportunities not otherwise available for women and girls to continue their education and training at every level of ability;

3. Preparation of women and girls for the multiple roles they carry, with full realization of the fact that these roles are overlapping and interwoven;

4. Help in relating socially isolated girls and young women to the life of their communities through programs and services, with special emphasis on those who--because of economic deprivation--do not have full access to the range of available resources;

5. Provision of opportunity for the economically privileged and the economically deprived to work toward eliminating barriers which separate them and to raise the standards of life and living.

EXPERIENCE

The National Organization musters its combined leadership--volunteers and staff to--

1. Identify the problem
2. Explore need and feasibility
3. Develop plan
4. Make decisions, in accordance with commitments

KNOWLEDGE

The National Organization builds on its knowledge accumulated through its many years of specialization in the interests, potentials, problems and needs of women and girls by--

1. Recognition of the need for supportive services as integral parts of the total undertaking;
2. Realization that the learning process takes place when the program is relevant to the learner's life experience, and associated with realistic goals;
3. Understanding the importance of providing a means through which the individual may be a participant in the program's development, through both group and individual processes.

RESOURCES

The National Organization draws from its experience in community relations in coordinating a web of involvement and participation from different sectors of these resources through--

1. Identification of those community resources that may be related to the program;
2. Definition of the roles and functions that these respective resources may be able to fill;
3. Design of a course for inter-intra related teamwork situations;

4. Specification of a broad spectrum of such resources relating to

   - community interpretation of the program
   - development of the learning centers
   - referral and recruitment sources
   - testing and related reference sources
   - program development and program
   - volunteer services
   - job development and placement
   - follow-up
   - evaluation and feedback

5. Deliberate inclusion of a range of resources, including appropriate

   - business and industry
   - communications media
   - educational and cultural organizations
   - health services
   - indigenous organizations
   - labor organizations
   - religious institutions
   - social agencies
   - other public and private structures, having relevant functions and responsibilities

B. *COOPERATION BETWEEN PUBLIC AND PRIVATE AGENCIES*

A cooperative project involving a public and a private agency has been demonstrated to be feasible and desirable, especially under the conditions that prevailed in this project. A cursory analysis of this joint venture indicates that there are certain elements which have contributed to the success of its outcome in spite of the superficial fact that differences in the basic design of the agencies exist. Apart from the fact that public agencies are created and thus limited by legislative acts, the limitations do not preclude the cooperations sought by either party to this effort. Whether public or private, when two agencies set out to work together toward a desirable end, there are techniques and principles which should obtain. Although these principles are "common sense" in nature, they are set out below to emphasize their simplicy--

1. Agreement on the stated goals of the project;

2. A common or equivalent stake in the successful completion of the project;

3. Clear delineation and acceptance of their respective responsibilities and functions;

4. Recognition that there will be times and circumstances when re-statements of the project's meaning may become necessary and a tacit agreement to respond responsibly to such needs;

5. Overt and specific sanction for the spirit and letter of the project from the administrative and/or policy-making heads of the agencies involved.*

**Identical statement in the report for the SUMMER YOUTH DEMONSTRATION PROJECT, OSMP Contract No. 42-7-005-34, November 1967, Volume One, pp. IV-1, 2.*

C. PROJECT OBJECTIVES

In moving toward a project of this nature, it is imperative to recognize that accomplishment within the world of work entails overcoming a number of different, related barriers, for example:

THE CULTURE of the BUSINESS OFFICE

The practices, procedures and protocols of the business office often represent modes of behavior, styles of communication, types of interaction, and success criteria which are new--and sometimes formidable--to inexperienced workers, especially those who have been disadvantaged through exclusion from the mainstream of society.

Attainment of the goals of a Business Office Culture project, therefore, requires opportunities to learn about, understand, practice and develop capacities for dealing with these cultural requirements.

SKILLS IMPROVEMENT

Although the above emphasis on the office culture is imperative, it cannot be transmitted as a separate, isolated body of experience or knowledge. To be effective it must be interrelated with training in the fundamentals of work and work performance.

The training for accomplishment within the culture of a business office is most readily achievable in programs which give high priority to and meaningful, practical help in clerical skills improvement. This may include but should not be limited to typing. It should embrace the full complement of skills which are required of the "typical" clerical worker--including telephone usage, filing and related tasks--and which lay the basis for promotion potentials.

RELATED SERVICES

Beyond cultural adjustment and skills improvement are additional essential program components, including

- remedial education
- supportive services
- attitudinal training
- job development and placement
- follow-up services
- continuing feedback and evaluation

D. PROJECT ORGANIZATION

NATIONAL HEADQUARTERS

For the establishment and conduct of a national project of this nature, provision of a central project-wide headquarters operational structure is essential to--

1. Carry basic responsibility for pre-planning including work relating to local site selection and arrangements;

2. Provide technical assistance to the local programs for proposal development, staff standards and training, and procurement;

3. Serve as a communication channel between the local programs and the national sponsoring organization (prime contractor);

4. Provide a fixed responsible point of contact with the federal funding agency;

5. Coordinate legal and fiscal procedures, including development of subcontracts and budgets, monitor contract compliance.

LOCAL PROGRAMS

In a project of this type, conducted under national sponsorship and affording opportunities for selection--among numerous possibilities--of sites for local programs, it is important to consider--

1. The local organization's interest in and capability for carrying out the respective local program; its willingness to comply with the requirements of a centrally contracted, organized, and administered project;

2. Availability of manpower training slots--or other-source funds--to provide stipends for a rotating complement of no less than 15 enrollees per local program and, once the project is in steady state, to be made available with freedom for their utilization under the project's conditions and requirements;

3. Local labor market conditions which give promise of opportunities for stable employment of successful project trainees, through entry level placements which--in turn--offer potentials for vertical or lateral advancement;

4. The demonstrated interest and readiness for cooperation and project support, of

   - appropriate related government agencies,
   - business and labor,
   - relevant community organizations;

5. The availability of space in or near the center-city, i.e. the "heart" of business locations, for the conduct of the programs, preferably this space to be in or near the local sponsor's headquarters to permit project-sponsor interaction and to facilitate moving the project into the mainstream of the local sponsor's operations.

E. PROJECT OPERATIONS

LEARNING CENTERS

The conduct of the local programs in Learning Centers which are organized to simulate business offices is important to success. This means that the centers--

1. Are organized physically in the manner of offices--utilizing office-type desks, office machines, and other appointments in avoidance of any classroom atmosphere;

2. Are conducted in accordance with standard office practices and procedures;

3. Are organized in settings which facilitate the acculturation process, wherein the enrollees may be familiarized with the operations and expectations of the "typical" business office;

4. Meet the standard local requirements for a business office with special reference to cubic footage per person, accommodations and conveniences.

VOLUNTEERS

One of the most valuable components of an undertaking like the BOC project is that afforded through volunteers, who can contribute to its progress in a number of different ways--at the national and local level--including:

1. Participation in project policy- and other decision-making;

2. Assistance with the physical development of the Learning Centers, including some of the work required to secure furnishing, equipment, materials, and space;

3. Contacts with a broad range of community resources--individual and organizational;

4. Provision of information about the community as a whole;

5. Assistance in community interpretation of the project;

6. Recruitment of other volunteers;

7. Direct service to project enrollees including

   - tutoring,
   - varied role-enactments in simulated business situations,
   - leading discussion,
   - selected, appropriate participation in personal counseling,
   - individual enrollee follow-up.

8. Contacts related to various possibilities pertaining to expanding job placement potentials;

9. Participation in project-related, extra-curricular leisure-time activities;

10. Contribution of special skills, selected professional and related services;

11. Participation in project feed-back and evaluation.

ENROLLEES

In establishing the qualifications for enrollee participation in a project of this nature, it is and probably will continue to be necessary to accomodate to any requirements of the slot-funding sources. Where freedom of choice is available, it seems desirable to give preference to candidates who--

Qualifications

1. Present one or more rudimentary clerical skills;

2. Have completed a minimum of tenth grade education or its equivalent or who can demonstrate reading, spelling and mathematical ability at that level;

3. Are available for participation on a full-time basis: the BOC project has demonstrated the hazards and negative effects of "split" schedules;

4. Meet the minimum local age requirements for full-time "regular" employment;

5. Present no unusual/serious physical or emotional problems; and

6. Are interested in a program of this nature, that is, do not enter reluctantly or against their will.

Recruitment Screening and Testing

The training slot/funding source of any given program may influence, sometimes determine, the recruitment and screening processes. The extent of freedom in these matters may vary. For optimum results, it seems desirable to--

1. Arrange for recruitment to flow through more than one source, through clean-cut, standardized procedures. This seems to be the most effective possibility for maintenance of enrollment at the respective Learning Center's standard capacity;

2. Arrange for testing as a part of the screening process to determine the candidate's qualifications; however, it is important also to include arrangements for further testing at the time of the enrollee's entry into the local program by program personnel. Such testing seems most effective when it is related to performance of program-related work;

3. Build tests into the training program in such ways as to help the trainees to become "test-wise" and thus, better able to handle their later experiences as job applicants.

4. Establish training status on a "conditional" basis, with fixed time limits, when qualifications are relaxed for any given candidate.

TRAINING CONTENT

It is to be noted that the short-term program which follows the BOC pattern cannot undertake responsibility--within its limited time allowance--for full skills training for clerical occupations. Thus, it is recommended that in the area of skills, the training be concentrated around--

Skills

1. Skills improvement--with special reference to speed, accuracy, and neatness of work;

2. Multi-skills approaches, i.e., inclusion of training for general office work at the clerk level, with special reference to handling of office machines, communications, equipment, and related functions;

3. The Culture of the Business office--the project's real "target" --with emphasis on on those practices, procedures and protocols which characterize life in the business world at the levels at which the trainees will be expected to function.

Orientation

Program orientation may be most effective when it is regarded as not only an opportunity to introduce the new trainee to the project, the sponsor and the world of work but when it is seen as a transition period during which peers can be mutually helpful.

Remedial Education

The BOC program shares with others having comparable goals and populations, the finding that remedial education may be carried on most effectively when it is related functionally to the project's basic operations. This is to say that traditional classroom approaches are not recommended. Remedial education can take place throughout every facet of project life: as this is put into practice, it is important that it be carried out in a relaxed, accepting, understanding, caring climate.

SUPPORTIVE SERVICES

Supportive Services are essential to the success of a program of this nature. They fortify the success-potential, as well as contribute to, climate which is conducive to the skills improvement and other learning processes. Supportive services here refer to:

1. Counseling. This includes personal and vocational guidance: it is most effective when it is provided in both individual--one-to-one--and group settings. It is essential that counseling pertain to personal as well as work problems. Counseling provided under conditions comparable to those of this project may be made available through more than one source, i.e., the Employment Service, other appropriate community agencies, and the sponsoring agency. It is important that these services be coordinated and provided through clear, economical, efficient non-competitive delivery systems. It is important also that these services be integrated into all aspects of the training program.

2. Knowledge of and experience with relevant Community Resources. The enrollee who is being trained to function competently as a self-sustaining individual will be helped in significant ways through information about, and widened contact with, the resources and potentials of the community in which she is to function. This aspect of supportive services is most effective when developed to include considerations of constructive participation in and contribution to community affairs as well as utilization of its resources.

3. Consumer Interests--which represent important supportive possibilities for enrollees range over a broad spectrum of such interests including but not limited to taxes, budgets, personal and family economics. These interests include the rights, responsibilities, and rewards of broad-scale functioning as well-informed consumers.

4. Leisure-Time. The importance of the inclusion of constructive use of leisure time in a program of this type must be stressed. Enrollees indicate that this entails not only experience with "new," extra-curricular activities while they are in the program, but also help in planning and broadening their use of leisure time after they have become self-supporting wage earners. A truly effective program in this area includes family and other small-group, as well as individualized sessions.

5. Self-development. Although the entire program is devoted to the growth of the participating enrollee, it is important to plan deliberately for assistance in the development of individual potentials and interests. This embraces such aspects as grooming, hygiene, behavioral patterns and office interrelationships. It is broader than these, however, and makes provision for working with the individual enrollee in the context of her self-chosen realistic goals and aspirations in efforts to develop herself in accordance with these objectives.

6. Attitudinal Training. In a sense, the entire program which is directed toward training in the culture of the business world is to be regarded as attitudinal training. However, it is important that provision be made for dealing specifically with questions, problems and concerns pertaining to the complexities of individual and group attitudes which the enrollee may take into, as well as encounter in, the business world. This aspect is particularly important to the potential success of women workers who may encounter discriminatory patterns based on sex in addition to those some may encounter on the bases of race, religion or other ethnic factors.

JOB DEVELOPMENT AND PLACEMENT

Although job development may be regarded as a technical-professional area, it is to be noted that representatives of voluntary organizations can and do have a special function relative to opening doors to occupations or specific placement possibilities which may have been closed to project enrollees and their counterparts. In this area, the project representatives really serve as opinion molders and influencers: they may be effective in arranging placements for which no technical or professional service may be needed. The optimum situation in a project of this nature seems to be the one in which the voluntary organization is free to bring its influence and capacities in these areas to bear; where there is freedom for them to arrange placements and open new job opportunities for enrollees without restriction to "tight" referral and other procedural requirements which can result in delay or failure of placement efforts. In this situation, it is important that clear understandings and mutual confidence between the project and the official placement agencies be worked out in advance of the job development and placement phase of the program.

RETURN TO SCHOOL

Even though "return to school" may not be built into a project of this kind as an achievement target, it is highly desirable that the sponsors be mindful of the importance of this for any of the young women who may be interested in continuing their education. The setting of the project in an organization that facilitates contact with women who are, in effect, models of educational and professional accomplishment, often inspires and stimulates the project enrollees in goals which are beyond the immediate objectives of an entry-level job. Project staff and volunteers should remain alert to any evidences of enrollees' aspiration to improving their education and be prepared to help and encourage them in this direction.

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FOLLOW-UP

Post-placement follow-up of project enrollees can make the difference between mere short-term gains and lasting effectiveness. It is important to build into original project designs budget and other in-project resources--including facilities and equipment--for the continuing skills improvement of those enrollees who may need this for adjusting and competing in their respective new work situations. It is important, also, to make provision in follow-up for transitional services relative to such problems as child care, health, family problems, transportation, and related matters in order to help the newly-placed enrollees toward more than original placement, i.e. to job stability, job maintenance and upward mobility.

FURTHER EXPERIMENTATION AND DEMONSTRATION

Further study is needed to determine

- the most efficient time span for such follow-up transitional services; and
- the most effective methods and techniques for phasing the enrollee out of direct training and follow-up operations.

F. FEED-BACK AND EVALUATION

It is urgent that feed-back and evaluation be built into all aspects of a project of this type. It has been found equally important to provide resources for spaced face-to-face contacts for this purpose and to design these in such manner as to reenforce and complement procedures which rely on written responses of participants.

An Action-Research approach, which permits immediate applications of the findings of such feed-back and evaluation into the project while it is still operational, has been found to be highly desirable.

Appendix

TABLE I: AGE OF ENROLLEES

AGE	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
16	1	-	-	-	-	-	1
17	4	-	1	2	1	3	11
18	8	4	6	12	14	8	52
19	10	7	14	12	19	7	69
20	5	9	6	12	17	8	57
21	5	5	2	6	8	2	28
22	2	-	3	-	3	1	9
23	-	-	-	-	-	2	2
24	-	-	-	-	-	3	3
25	-	-	-	-	-	1	1
26	-	-	-	-	-	1	1
TOTAL	35	25	32	44	62	36	234

BOC

TABLE II: HIGHEST SCHOOL GRADE ATTAINED

GRADE	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
7	-	-	-	-	-	-	-
8	2	-	-	2	1	-	5
9	4	-	2	3	-	-	9
10	19	2	11	14	5	4	55
11	8	8	14	13	11	11	65
12	2	15	5	12	45	21	100
TOTAL	35	25	32	44	62	36	234

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TABLE III: REASONS FOR LEAVING SCHOOL

REASON	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
Graduated	1	15	5	11	43	20	95
Pregnancy	15	3	12	13	7	6	56
Marriage	8	1	1	6	-	5	21
Academic	1	1	3	4	-	-	9
Health	-	-	1	1	4	2	8
Economic	1	-	6	2	2	1	12
Family Problems	2	2	1	1	-	1	7
Disinterest/Boredom	3	1	-	-	2	1	7
Discipline	1	1	-	2	-	-	4
Others	3	1	3	4	4	-	15
TOTAL	35	25	32	44	62	36	234

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TABLE IV: OCCUPATION PRIOR TO NYC

CATEGORY	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
A. With Pre-NYC Occupation							
1. Clerical and Sales							
Clerk	-	3	3	-	6	1	13
Cashier	2	1	-	5	1	2	11
Sales Clerk	1	-	-	6	2	1	10
Clerk-Typist	-	-	-	-	4	6	10
Typist	-	1	-	-	7	-	8
General Office Worker	-	1	1	-	3	2	7
File Clerk	-	-	1	-	3	-	4
Desk Clerk	1	-	-	-	-	1	2
"Office and Sales Clerk"	-	1	-	-	-	1	2
Telephone Solicitor	-	-	1	-	1	-	2
Telephone Operator	-	1	-	-	1	-	2
Other*	1	1	2	-	1	1	6
Subtotal	5	9	8	11	29	15	77

* *1 each: Accounting Clerk, Key-Punch Operator, Pay-Roll Clerk, Stock Clerk, Adding Machine Operator.*

* *NOTE: This table contains enrollees' descriptions of their employment before they entered NYC job slots, with exception of enrollees in Tacoma, whose employment is reported prior to induction in BOC. Quotation marks are used for the descriptions given by the enrollees which could not be converted to formal titles.*

(continued)

TABLE IV: OCCUPATION PRIOR TO NYC (CONTINUED)

CATEGORY	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
2. Non-Clerical							
a. Service							
Kitchen Helper	4	1	1	1	-	3	10
Domestic	4	2	1	-	-	-	7
Waitress	3	-	1	2	-	1	7
Laundry Hand	1	-	-	2	1	-	4
Dressing Room Attendant	1	-	-	-	2	-	3
Porter	-	-	-	2	-	-	2
Other*	1	2	1	1	-	1	6
Subtotal	14	5	4	8	3	5	39
* *1 each: Baby-Sitter, Elevator Operator, "Maintenance," Cosmetologist, Stock Girl, Grocery Checker.*							
b. Aides							
Nurse's	3	1	2	4	1	4	15
Dietary	-	-	-	-	4	-	4
Child Care	1	-	-	-	1	1	3
Other*	-	-	-	2	1	1	4
Subtotal	4	1	2	6	7	6	26
* *1 each: Teacher's, Counselor, Laboratory Assistant, "Group Leader."*							
c. Benchwork							
Milliner	1	1	-	-	-	-	2
Assembler	-	1	-	-	-	1	2
Other*	-	-	1	2	-	2	5
Subtotal	1	2	1	2	0	3	9
* *1 each: Shoe Fabricator, Electronics Worker, "Trimmer" Hand, Polisher, Seamstress.*							
d. Processing							
Packer	-	3	-	-	-	-	3
Factory Worker	-	-	1	-	-	1	2
Other*	1	-	-	-	-	-	1
Subtotal	1	3	1	0	0	1	6
* *1: "Meat Processor."*							
e. Miscellaneous							
Transportation Worker	3	-	-	-	-	-	3
Other*	-	1	1	3	-	-	5
Subtotal	3	1	1	3	-	-	8
* *1 each: Machine Operator, "Cleaned Stalls," Relief Operator, "Survey Canvasser," "Dancing School Teacher."*							

RECAPITULATION

1. Clerical and Sales	5	9	8	11	29	15	77
2. Non-Clerical	23	12	9	19	10	15	88
A. Total with Pre-NYC Occupation	28	21	17	30	39	30	165
B. None	5	1	14	11	16	5	52
C. Not Reported	2	3	1	3	7	1	17
TOTAL	35	25	32	44	62	36	234

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TABLE V: REASONS FOR LEAVING PRE-NYC EMPLOYMENT*

AS REPORTED BY ENROLLEE...	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
Temporary including summer	3	3	2	11	9	7	35
Low wages	2	3	-	2	5	4	16
For better job	6	2	2	1	2	1	14
Returned to school	-	2	3	2	2	2	11
Unsatisfactory working conditions/location	2	1	1	2	3	2	11
Pregnancy	5	1	1	1	1	-	9
Death/illness in family	2	-	1	2	1	2	8
Moved	1	-	1	1	1	2	6
Laid-off	2	2	-	-	-	1	5
Health	-	2	1	1	-	-	4
For chance to upgrade**	1	1	2	-	-	-	4
Marriage	1	-	-	-	2	-	3
Hours too long	1	-	-	2	-	-	3
Accident	-	1	-	-	1	1	3
Disagreement (resigned)	-	-	2	1	-	-	3
Enlisted in military service	-	-	-	1	-	1	2
Part-time	1	1	-	-	-	-	2
Discharged	-	-	-	-	-	1	1
SUB-TOTAL	27	19	16	27	27	24	140
Not reported	1	2	1	3	12	6	25
TOTAL	28	21	17	30	39	30	165

Listed in rank order of total number within category
***Entered BOC*

TABLE VI: OCCUPATIONAL GOALS

OCCUPATION*	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
CLERICAL AND SALES	(27)	(19)	(26)	(26)	(42)	(24)	(164)
Secretary	17	8	10	12	13	11	71
Clerk-Typist	1	5	5	3	11	2	27
Clerk	6	-	3	-	8	6	23
General Office	1	-	8	5	3	2	19
File Clerk	1	3	-	-	-	1	5
Receptionist	-	3	-	-	1	1	5
Typist	-	-	-	-	4	-	4
Stenographer	1	-	-	1	1	-	3
Accountant	-	-	-	1	1	-	2
Cashier	-	-	-	-	-	1	1
Medical Records Librarian	-	-	-	1	-	-	1
Office Manager	-	-	-	1	-	-	1
Sales Clerk	-	-	-	1	-	-	1
Switchboard Operator	-	-	-	1	-	-	1
MACHINE OPERATORS	(3)	(1)	(1)	(3)	(4)	(3)	(15)
Key-Punch Operator	1	-	1	3	1	1	7
IBM Operator	2	1	-	-	1	1	5
Data Processor	-	-	-	-	2	-	2
Computer Operator	-	-	-	-	-	1	1
SERVICE	(2)	(2)	(-)	(5)	(2)	(-)	(11)
Nurse	1	1	-	3	2	-	7
Beautician	1	-	-	1	-	-	2
Airline Stewardess	-	-	-	1	-	-	1
Medical Assistant	-	1	-	-	-	-	1
PROFESSIONAL, TECHNICAL, MANAGERIAL	(-)	(1)	(-)	(7)	(6)	(3)	(17)
Teacher	-	-	-	1	3	1	5
Model	-	1	-	1	-	1	3
Social Worker	-	-	-	1	1	-	2
"Business Field"	-	-	-	-	1	-	1
Clinical Psychologist	-	-	-	1	-	-	1
Dietician	-	-	-	-	1	-	1
Fashion Illustrator	-	-	-	1	-	-	1
Interior Decorator	-	-	-	1	-	-	1
Orchestra Conductor	-	-	-	1	-	-	1
Sociologist	-	-	-	-	-	1	1
ALL OTHER	(2)	(-)	(-)	(3)	(-)	(3)	(8)
N.R.	(1)	(2)	(5)	(-)	(8)	3	(19)
TOTAL	35	25	32	44	62	36	234

**Listed in rank order of total number within category*

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TABLE VII: PLACE OF BIRTH

	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
In City of Project	20	9	17	37	43	10	136
In State of Project	10	3	1	2	3	5	24
Elsewhere in U.S.A.	5	13	10	5	16	19	68
Outside Continental U.S.A.	-	-	4	-	-	2	6
TOTAL	35	25	32	44	62	36	234

BOC

TABLE VIII: MARITAL STATUS

	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
A. MARRIED							
Living with Husband	5	6	6	7	6	1	31
Husband in Armed Services	2	-	-	2	2	1	7
Separated	8	1	1	8	6	8	32
SUBTOTAL	15	7	7	17	14	10	70
B. SINGLE							
Never Married	19	18	25	27	48	22	159
Divorced	1	-	-	-	-	4	5
SUBTOTAL	20	18	25	27	48	26	164
TOTAL	35	25	32	44	62	36	234

BOC

TABLE IX: REPORTED NO. OF OWN CHILDREN

A. Number of own children reported by married enrollees *

	One	Two	Three or More	None	Total Married
Dallas	8	7	1	-	16
Mt.Vernon	4	2	-	1	7
Philadelphia	4	3	-	-	7
Pittsburgh	6	5	-	6	17
St.Louis	4	4	2	4	14
Tacoma	4	5	4	1	14
SUBTOTAL	30	26	7	12	75 *

B. Number of own children reported by unmarried enrollees

	One	Two	Three or More	None	Total Unmarried
Dallas	7	2	4	6	19
Mt.Vernon	5	-	-	13	18
Philadelphia	7	2	-	16	25
Pittsburgh	9	3	-	15	27
St.Louis	8	4	-	36	48
Tacoma	4	1	-	17	22
SUBTOTAL	40	12	4	103	159
TOTAL	70	38	11	115	234

**for the purpose of this classification, divorced mothers are categorized as married (rf. Table VIII)*

BOC

TABLE X: NUMBER IN HOUSEHOLD

NUMBER	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
One	1	4	1	1	2	2	11
Two	1	5	2	6	2	2	18
Three	4	6	5	8	5	8	36
Four	8	1	5	10	12	3	39
Five	3	6	7	9	7	5	37
Six	3	1	4	3	10	2	23
Seven	6	1	4	3	7	3	24
Eight	4	-	2	-	6	5	17
Nine	3	-	2	2	7	1	15
Ten	2	-	-	2	1	3	8
Eleven	-	1	-	-	3	2	6
TOTAL	35	25	32	44	62	36	234

BOC

TABLE XI: FAMILY COMPOSITION

Youth lives with...	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
...Both parents	7	1	11	9	13	9	50
...Mother	11	2	10	13	27	6	69
...Father	-	-	-	-	-	1	1
...Guardian	1	1	1	-	2	2	7
...Husband	5	4	5	8	4	1	27
...Alone	6	7	3	9	3	10	38
...Brother/Sister	1	6	-	-	3	4	14
...Grandparents	-	-	-	-	2	1	3
...Aunt/Uncle	1	3	1	-	1	1	7
...Other	3	1	1	5	7	1	18
TOTAL	35	25	32	44	62	36	234

BOC

TABLE XII: ESTIMATED FAMILY INCOME

INCOME	DALLAS	MT. VERNON	PHILADELPHIA	PITTSBURGH	ST. LOUIS	TACOMA	TOTAL
Below $1000	14	6	1	2	12	8	43
$1000-$2000	8	8	1	8	11	8	44
$2000-$3000	5	7	14	10	22	6	64
$3000-$4000	6	3	12	11	8	6	46
$4000-$5000	1	1	2	6	6	7	23
Above $5000	1	-	2	7	3	1	14
Not Reported	-	-	-	-	-	-	-
TOTAL	35	25	32	44	62	36	234

BOC

COOPERATING ORGANIZATIONS AND AGENCIES

ALLEGHENY COUNTY COMMUNITY COLLEGE, Pittsburgh
AMERICAN CANCER SOCIETY, Dallas
AMERICAN PLYWOOD ASSOCIATION, Tacoma
AMERICAN RED CROSS, Dallas Chapter
AMERICAN RED CROSS, St. Louis Chapter
AMERICAN RED CROSS, Tacoma Chapter
ANTI-POVERTY ACTION COMMITTEE, Philadelphia
ART MUSEUM OF ST. LOUIS
ATLAS FOUNDRY, Tacoma

BELL TELEPHONE COMPANY, Pittsburgh
BLACK COALITION, Philadelphia
BLAKE, MOFFETT AND TOWNE, Tacoma
BLUE CROSS OF ST. LOUIS
BOARD OF EDUCATION, Mt. Vernon
BOARD OF EDUCATION, Philadelphia
BOARD OF EDUCATION, St. Louis
BOY'S CLUB OF TACOMA
BOY SCOUTS OF AMERICA, Mt.Vernon
BRITTANICA ACADEMY, Pittsburgh
BROWN AND HALEY CANDY COMPANY, Tacoma
BUSINESS AND PROFESSIONAL WOMEN'S CLUB, Mt. Vernon

CAMPFIRE GIRLS COUNCIL, Tacoma
CARIBOU PACIFIC, Tacoma
CARNEGIE MELLON UNIVERSITY, Pittsburgh
CASCADE ASPHALT PAVING COMPANY, Tacoma
CENTRAL EMPLOYMENT SERVICE, Tacoma
CHAMBER OF COMMERCE, Mt. Vernon
CHEMICAL BANK AND TRUST COMPANY, Mt. Vernon
CHENEY LUMBER COMPANY, Tacoma
COMMITTEE ON INTER-CITY POVERTY PROGRAM, Dallas
COMMUNITY ACTION GROUP, INC., Mt. Vernon
COMMUNITY ACTION PROGRAM, Dallas
CONCRETE TECHNOLOGY CORPORATION, Tacoma
CONSUMER EDUCATION, St. Louis

DAILY ARGUS, Mt. Vernon
THE DALLAS MORNING NEWS
DANFORTH FOUNDATION, St. Louis
DENTAL SCHOOL, Dallas
DEPARTMENT OF AGRICULTURE, Dallas
DEPARTMENT OF PERSONNEL, State of Washington
DEPARTMENT OF PUBLIC ASSISTANCE, Pittsburgh
DEPARTMENT OF PUBLIC ASSISTANCE, State of Washington
A.B. DICK COMPANY, Philadelphia

COOPERATING ORGANIZATIONS AND AGENCIES (2)

FAMILY AND CHILDREN'S SERVICE, St. Louis
FAMILY COUNSELLING SERVICE, Tacoma
FAMOUS BARR DEPARTMENT STORE, St. Louis
"FASHION 220," Pittsburgh
FEDERAL HOUSING ADMINISTRATION, Dallas
FEDERATION OF JEWISH AGENCIES, Philadelphia
FOOD AND DRUG ADMINISTRATION, Dallas
FOREST PARK COMMUNITY COLLEGE, St. Louis
FORT LEWIS LOGISTIC CENTER, Tacoma
FRANCIS PRESS, Mt. Vernon
FURNITURE RENTAL COMPANY, Mt. Vernon

GENERAL AMERICAN LIFE INSURANCE COMPANY, St. Louis
GENERAL SERVICES ADMINISTRATION, Tacoma
GLOBE DEMOCRAT NEWSPAPER, St. Louis

H.J. HEINZ COMPANY, Pittsburgh
HILLTOP MULTI-SERVICE CENTER, Tacoma
HOOKER CHEMICAL COMPANY, Tacoma
HOSPITAL, Philadelphia
HOUSEHOLD FINANCE COMPANY, Tacoma
HUMAN DEVELOPMENT CORPORATION, St. Louis
HUNT AND MOTTET, Tacoma

INDEPENDENT SCHOOL SYSTEM, Dallas

JEWISH EMPLOYMENT AND VOCATIONAL SERVICE, Philadelphia

KIWANIS CLUB, Mt. Vernon
KNAPPS BUSINESS COLLEGE, Tacoma

LIFETIME FEDERAL SAVINGS AND LOAN ASSOCIATION, Tacoma
LIONS CLUB, Mt. Vernon

MANPOWER UTILIZATION COMMISSION, Philadelphia
MARCH OF DIMES, Tacoma
MAYOR'S CONSUMER EDUCATION BUREAU, Philadelphia
MAYOR'S COUNCIL ON YOUTH OPPORTUNITY, St. Louis
METROPOLITAN LIFE INSURANCE COMPANY, St. Louis
MONROE CALCULATORS, INC., Tacoma
MORE, INC., Tacoma

NALLEY'S FINE FOODS, INC., Tacoma
NATIONAL BANK OF WASHINGTON, Tacoma
NATIONAL CASH REGISTER COMPANY, Dallas
NATIONAL CASH REGISTER COMPANY, Tacoma

COOPERATING ORGANIZATIONS AND AGENCIES (3)

NATIONAL SECRETARY'S ASSOCIATION, Mt. Ranier Chapter, Tacoma
NEGRO EMERGENCY EDUCATION DRIVE (NEED), Pittsburgh
NEW AGE SAVINGS AND LOAN, St. Louis
NEW YORK TELEPHONE COMPANY, Mt. Vernon
A.T. NORMAN COMPANY, Tacoma
NORTHWEST CHAIR COMPANY, Tacoma

OPERATION MAINSTREAM, Tacoma
OPPORTUNITY DEVELOPMENT INC., Tacoma

PACIFIC FIRST FEDERAL SAVINGS AND LOAN, Tacoma
PACIFIC NORTHWEST BELL, Tacoma
PENNSALT CHEMICALS CORPORATION, Tacoma
PENNSYLVANIA SAVINGS FUND SOCIETY, Philadelphia
PHILADELPHIA GAS WORKS
PLANETARIUM OF ST. LOUIS
PLANNED PARENTHOOD ASSOCIATION, Dallas
PLANNED PARENTHOOD ASSOCIATION, Philadelphia
PLANNED PARENTHOOD ASSOCIATION, ST. LOUIS
PORT OF TACOMA
THE POST TRIBUNE, Dallas
PUBLIC LIBRARY OF DALLAS
PUBLIC LIBRARY OF MT. VERNON
PUBLIC LIBRARY OF ST. LOUIS
PUBLIC SCHOOLS, Tacoma
PUBLIC SCHOOL SYSTEM, Pittsburgh
PUGET SOUND NATIONAL BANK, Tacoma

RALEIGH, MANN AND POWELL, Tacoma
REMINGTON RAND OFFICE SYSTEMS, Dallas
RETIRED TEACHER'S ASSOCIATION, Mt. Vernon

ST. PAUL'S CHURCH, Mt. Vernon
ST. REGIS PAPER COMPANY, Tacoma
SEARS AND ROEBUCK COMPANY, Dallas
SECRETARIAL SERVICE, St. Louis
SOCIAL HYGIENE SOCIETY, St. Louis
SOUTH TACOMA CHEVROLET
SOUTHWESTERN BELL TELEPHONE COMPANY, Dallas
SOUTHWESTERN BELL TELEPHONE COMPANY, St. Louis
SYMPHONY WOMEN, Tacoma

TEMPLE UNIVERSITY MENTAL HEALTH CENTER, Philadelphia
THE TIMES HERALD, Dallas
THRIFTWAY DRUGS, Tacoma

COOPERATING ORGANIZATIONS AND AGENCIES (4)

TRI-MART MULTI SERVICE CENTER, Tacoma
TRI-MART NEIGHBORS, Tacoma

UNITED FUND, Mt. Vernon
UNITED PACIFIC INSURANCE COMPANY, Tacoma
UNITED STATES STEEL CORPORATION, Pittsburgh
UNITED STATES TREASURY DEPARTMENT, Philadelphia
UNIVERSITY OF PITTSBURGH
UNIVERSITY OF PUGET SOUND, Tacoma
URBAN COALITION, Philadelphia
URBAN LEAGUE OF PHILADELPHIA
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TRAINING MATERIALS

The BOC concept was that training materials would serve as "tools of the trade" for a work-oriented training program where the environment and supportive climate were conducive to the skills development and the acculturation process. This concept reversed the approach which enrollees identified with a school classroom experience and provided for --

-- realistic and clear assignments communicated through supervisory channels;
-- expectations that were compatible with trainees stage of development;
-- meaningful activities (work assignments) which enhanced the trainees' exposure to the business world;
-- standards of performance which served as an incentive for further development;
-- recognition of achievements and guidance for improvement.

Each of the local units developed a training program which gave consideration to individual differences in skill levels, aptitudes and stage of development of the trainee. Group training sessions were supplemented with individualized instruction/supervision.

Subjects included business math, business English and grammar, spelling, abbreviations and punctuation; vocabulary; office practice; filing; typing; stenography and office machines.

Training materials included standard traditional textbooks, programmed instruction materials, films, and other resources made available through business firms, etc. Varied techniques and/or methods were used which would enable the trainee to progress at her own rate. Materials were reproduced and/or supplemented with additional work sheets, tests and practice material. Materials supplied through the National Project Headquarters were used in different ways and found useful to different degrees by the six local units. These included materials made available through the U.S. Department of Labor:

Business Speech, A Second Language for Vocational Use, developed by the Adult Education Department of St. Mary's Dominican College under a Contract with the U.S. Department Labor, Office of Manpower Policy, Evaluation and Research Contract No. 82-17-75 and Contract No. 82-20-67-12.

TRAINING MATERIALS--(2)

Secretarial Training with Speech Improvement, developed by St. Mary's Dominican College under a Contract with U.S. Department of Labor, Office of Manpower Policy, Evaluation and Research Contract No. 82-17-75. (Final Report July 31, 1965 - August 31, 1966.)

All of the materials were used as guidelines, for practice materials, and for reference purposes. All of these reinforced the actual work being done with innovative methods of instruction supplied within each local project.

A bibliography of materials used, as reported by the six local projects follows:

ENGLISH

English Grammar and Composition, J.E. Warrimer (Harcourt Brace and World, New York, N.Y.)

English, The Easy Way, Second Edition, Norman Schacter (South-Western Publishing Co., New Rochelle, N.Y.)

New Dictionary of Synonyms (G. and C.Merriam Co., Springfield, Mass.)

Practical English, Vols. I and II, M. Semmsimeyer (Career Institute: Grollier Publishing Co., Mundelein, Ill.)

Reading, Spelling, Vocabulary and Pronounciation, Vols. I, II, and III (AMSCO School Publishing Co., New York, N.Y.)

Webster's New World Dictionary of the American Language (The World Publishing Co., New York, N.Y.)

OFFICE PRACTICE - PROCEDURES

Charm for the Business Woman, H. Whitcomb and R. Lang (McGraw Hill Book Co., New York, N.Y.)

Clerical Record Keeping, Harold Baron and Solomon Steinfeld (South-Western Publishing Co., New Rochelle, N.Y.)

"Today's Secretary", a magazine published by Gregg Division (McGraw Hill Book Co., New York, N.Y.)

The Secretary's Manual, J.H. Stroman (Signet Books, New American Library, Inc., New York, N.Y.)

TRAINING MATERIALS--(3)

FILING

Business Filing and Records Control, Peter Agnew and Ernest Bosset (South-Western Publishing Co., New Rochelle, N.Y.)

Gregg Quick Filing Practice, G. Kahn, Stewart and Yerian (McGraw Hill Book Co., New York, N.Y.)

BUSINESS MATH

Applied Business Mathematics, Problems and Drills, Eighth Edition, E.B. Piper and Gruber (South-Western Publishing Co., New Rochelle, N.Y.)

Gregg's Programmed Business Mathematics, Second Edition Huffman and Schmidt, (McGraw Hill Book Co., New York, N.Y.)

Mathematics Made Simple, Abraham Sperling and Monroe Stuart (Doubleday, New York, N.Y.)

SPELLING

Correct Spelling,Second Edition, Charles G. Reigner (H.M. Rowe Co., Baltimore,Md.)

Gregg's Spelling Drills and Exercises, Leroy A. Brendel and Dorothy Near (McGraw Hill Book Co., New York, N.Y.)

TYPING

Gregg's General Typing I, 191 Series, Second Edition, Rowe, Lloyd and Winger (Gregg Division, McGraw Hill Book Co., New York, N.Y.)

Gregg Typing, A Gregg Text Kit in Continuing Education, Vols. I and II, Winger, Rowe and Lloyd (Gregg Division, McGraw Hill Book Co., New York, N.Y.)

SHORTHAND - SPEEDWRITING

Gregg Notehand Book, Leslie Louis (McGraw Hill Book Co., New York, N.Y.)

OTHER

Intensive Clerical and Civil Service Training, Robert Fisher (South-Western Publishing Co., New Rochelle, N.Y.)

Money Management, A series of 10 booklets on various aspects of budgeting (Institute of Household Finance Corp., Prudential Plaza, Chicago, Ill.)

Preparing for GED Exams (OEO-Job Corps)

Office Encyclopedia, Editors M.H. Mager and S.K. Mager (Pocketbook, Simon & Schuster, Inc., New York, N.Y.)

Office Machines Course, Third Edition, Peter Agnew and Nicholas Cornelia (South-Western Publishing Co., New Rochelle, N.Y.)

The Telefunken 707 Transcription Instruction Kit, designed by firm of Telefunken.

MATERIALS SUPPLIED BY NATIONAL PROJECT HEADQUARTERS

Business Speech, A Second Language for Vocational Use, developed by the Adult Education Department of St. Mary's Dominican College under a Contract with the U.S. Department of Labor, Office of Manpower Policy, Evaluation and Research Contract No. 82-17-75 and Contract No. 82-20-67-12.

Quick Forms Typing, A Survey Course In, Edward G. Blendon and Barbara H. Nalepa, Facsimile Edition 05891 (Gregg Division, McGraw Hill Book Co., New York, N.Y.)

Secretarial Training With Speech Improvement, developed by St. Mary's Domincan College under a contract with U.S. Department of Labor, Office of Manpower Policy, Evaluation and Research Contract No. 82-17-75.

Spelling Drills and Exercises, Programmed for the Typewriter, Leroy A. Brendel, Doris Near (Gregg Division, McGraw Hill Book Co., New York, N.Y.)

AUDIO-VISUAL MATERIALS
(supplied by Bell Telephone Company and other business firms, local units of the Department of Labor, public libraries and schools.)

"Are You Ready for Marriage" (film)

"Developing Friendship" (film)

"Drug Addiction" (film)

"For Immediate Action" (film)

"How To Get Along With Others" (film)

"If an Elephant Answers" (film)

"Job Interviews" (film)

"Job Opportunities" (film)

"Social Hygiene" (film)

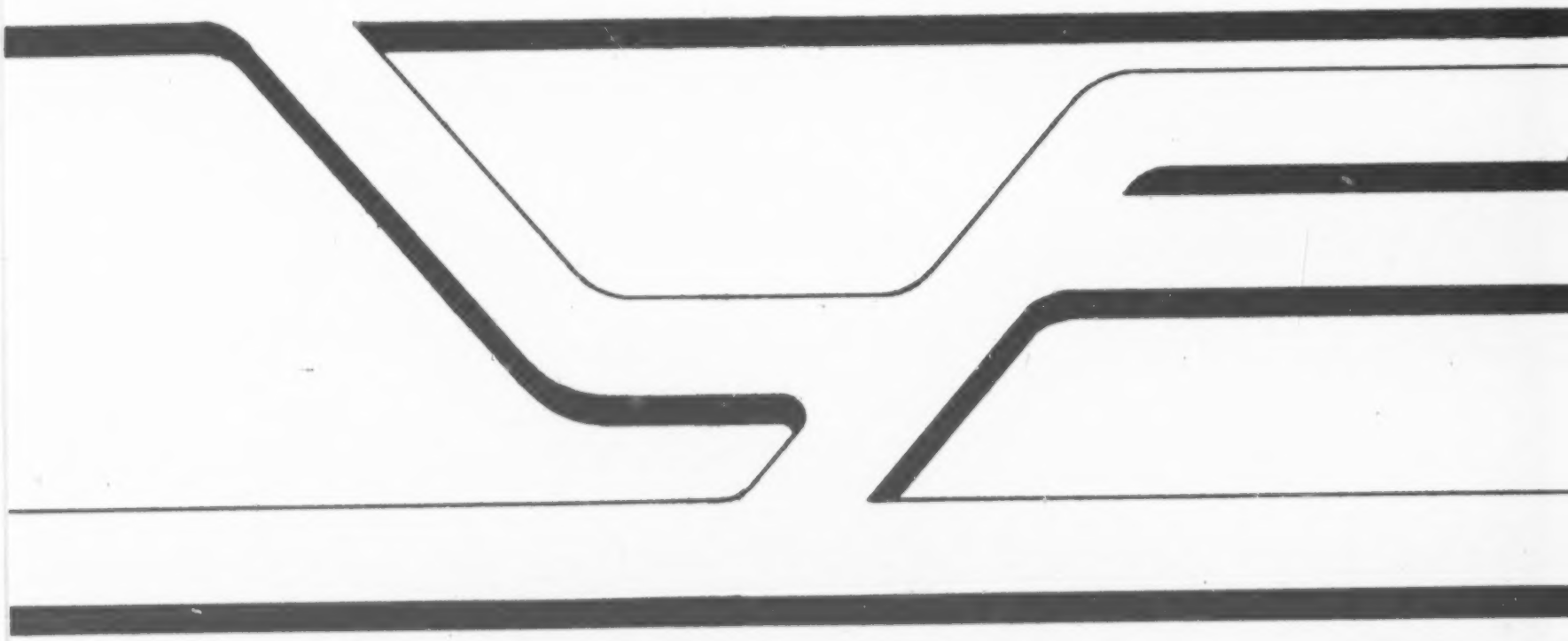
"Telephone Training" (film)

"The Road Makes the Difference" (film)

"The Voice of Your Business" (film)

"Whom Would You Hire" (film)

Exhibits



CLERICAL OCCUPATIONS

"This category includes occupations connected with preparing transcribing, systematizing, and preserving written communications and records; collecting accounts; distributing information..." *

Stenography, Typing, Filing and Related Occupations

Job Title	Code No.*	Usual Duties Toward Which Training Will Be Directed
Stenographer	202	Concerned with taking shorthand or speedwriting noted by hand or machine.
includes:		
Stenographer (clerical)	202.388	Takes dictation in shorthand, transcribes dictated material, using typewriter. May transcribe from sound recording instead of shorthand. Performs variety of clerical duties, except when in stenographic pool. May perform duties in professional office and be designated as Legal, Medical or Technical Stenographer.
Stenotypist	202.388	Takes dictation of correspondence, reports, and other matter on machine that writes contractions or symbols. Transcribes stenotype notes on typewriter, or dictates notes into recording machine for typist to transcribe.

Typist	203	Concerned with recording data by means of a typewriter.
includes:		
(Typist clerical) (Statistical Typist) (Tabular Typist) (Stencil Cutter)	203.588	Types letters, reports, stencils, forms, addresses or other straight-copy material from rough draft or corrected copy. May verify totals on report forms, requisitions or bills. May operate duplicating machine to reproduce copy.

* Source: *Dictionary of Occupational Titles:* 1965

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Job Title	Code No.	Usual Duties Toward Which Training Will Be Directed
File Clerk	206	Concerned with classifying, sorting, and filing correspondence, records and other data.
includes:		
File Clerk (clerical) (Embraces a range and variety of classifications and possible specialized assignments)	206.388	Files correspondence, cards, invoices, receipts, and other records in alphabetical or numerical order, or according to subject matter, phonetic spelling, or other system. Reads incoming material and sorts according to file system. Locates and removes material from files when requested. Keeps records of materials removed, stamps material received, traces missing file folders, and types indexing information on folders.

Duplicating Machine Operator	207	Operates machines to reproduce handwritten, typewritten or other types of material. These include Copy Machines--of which five different processes are most widely utilized on a national basis, i.e. Diazo, Dye-Transfer, Infra-Red, Electrostatis, and Silver-Photography-Transfer; and Basic Duplicating Processes--three, i.e. Spirit Hectograph, Stencil, and Offset--Manual Offset, Automated Offset, and Small Offset.

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Job Title	Code No.	Usual Duties Toward Which Training Will Be Directed
Miscellaneous Office Machines Operator	208	This group includes occupations, not elsewhere classified, concerned with machine recording.
includes:		
Transcribing Machine Operator	208.588	Transcribes letters, reports,or other recorded material, using transcribing (voice reproducing) machine and typewriter.
Embossing Machine Operator	208.782	Operates machine to emboss names and addresses on metallic and nonmetallic plates for use in duplicating or addressing machines, or for use as name plates and tags.
Collator Operator	208.855	Tends machine that assembles pages of printed material in numerical sequence. Adjusts controls, places paper to be assembled in proper sequence, and removes assembly from machine.

Other--Related or Combined Occupations		
Clerk-Typist	209.388	Performs general clerical work requiring use of typewriter in majority of duties. Compiles and types reports, bills, applications and other matter from clerical records. Files, posts information, sorts and distributes mail, answers telephone and performs similar duties.

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Job Title	Code No.	Usual Duties Toward Which Training Will Be Directed
Other--Related or Combined Occupations (continued)		
General Clerk	209.388	Performs any combination of following and similar clerical tasks not requiring knowledge of systems and procedures: Writes or types bills, statements, receipts, checks or other documents, copying information from one record to another; Proofreads records or forms; Counts, weighs or measures material; Sorts and files records; Receives and deposits money; Addresses and stuffs mail by hand or machine; Answers telephone, conveys messages, and runs errands; Stamps, sorts and distributes mail; Stamps or numbers forms by hand or machine; Operates office duplicating equipment.

Closely related to the above stenographic, typing and filing occupations are other common functions. Not unusually, stenographers, typists and clerks, as well as duplicating and other machine operators are called upon to perform one or more. These include:

Binding-Punching-Stapling . . . . . using small office equipment such as plastic punch and bind units as well as various types of staplers.

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Folding and Cutting	using small office type folders, and hydraulic knife-clamp cutters with safety controls.
Collating	employing hand and machine methods--single station collator and sorter utilized in tandem with offset duplicators.

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Computing and Account-Recording Occupations

Job Title	Code No.	Usual Duties Toward Which Training Will Be Directed
Cashier Note: includes Toll Collector (Government Service)	211	Concerned with receiving and disbursing money in establishments other than banks. Usually involves use of adding machines, cash registers and change makers.
Billing Machine Operator	214	Concerned with operating billing machines with or without computing devices to keep accounts and prepare statements, bills, and invoices.
Bookkeeping Machine Operator	215	Concerned with operating bookkeeping machines to copy and post data, make computations, and/or compile records of transactions.

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Job Title	Code No.	Usual Duties Toward Which Training Will Be Directed
Computing-Machine Operator	216	Concerned with operating adding or calculating machines to perform arithmetic operations.

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Material and Production Recording Occupations

Job Title	Code No.	Usual Duties Toward Which Training Will Be Directed
Stock Clerk	223.387	Receives, stores, and issues supplies and equipment in a storeroom.
Stock-Control Clerk	223.387	Compiles records concerned with ordering, receiving, storing, issuing and shipping materials, supplies and equipment. Posts information; releases orders; compiles inventory records; verifies accuracy of requisitions and shipping orders; reviews files to recommend disposal of excess stock. May perform any combination of above.

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Information and Message Distribution Occupations

Job Title	Code No.	Usual Duties Toward Which Training Will Be Directed
Mail Clerk	231	Prepares incoming and outgoing mail for distribution. Includes time stamping, reading and sorting incoming mail; sealing, weighing and stamping outgoing mail or packages.

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Job Title	Code No.	Usual Duties Toward Which Training Will Be Directed
Mail Preparing and Mail Handling Machine Operator	234	Operates machines to prepare plates for addressing machines; to print names, addresses, and similar information such as on envelopes, accounting forms, and advertising literature; to address, fold, stuff, seal, and stamp mail; and to open envelopes.

Telephone Operator	235	Concerned with telephone switchboard operations.
includes:		
Telephone Operator:PBX	235.862	Operates cord or cordless switchboard to relay incoming, outgoing, and interoffice calls. May supply information to callers and record messages. May keep record of calls placed and toll charges. May perform clerical duties, such as typing, proofreading, and sorting mail. May operate system of bells or buzzers to call individuals to phone.

Receptionists and Information Clerks	237	Answer telephone and information requests regarding such matters as activities carried on in the establishment, locations of offices, and general information pertaining to the firm, other firms, and/or the locality. Keep records of callers and nature of their business. Make appointments, and elicit information according to instruction.

SALES OCCUPATIONS

Job Title	Code No.	Usual Duties Toward Which Training Will Be Directed
Saleswoman and Salesperson, Commodities (This title limited to retail trade)	260	Concerned with selling commodities when knowledge of the commodity is required.
Sales Clerk	290.478	Receives payment for merchandise selected by customer. Keeps shelves stocked. May keep record of sales, prepare inventory of stock, or order merchandise.
Cashier-Checker	299.468	Itemizes and totals customer's purchase in self-service grocery or department store, using cash register. Reviews price sheets to note price changes. Records price on cash register. Collects money from customer and makes change. May stock shelves, bag merchandise, and issue trading stamps.

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111 FIFTH AVENUE . . . NEW YORK, N. Y. 10003
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VT 012 208
Lerman, A., And Others
The Development of Measures of Vocational Interests and Relevant Aptitudes for the Deaf. Final Draft.

Lexington School for the Deaf, New York, N.Y.

Social and Rehabilitation Service (DHEW), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
RD-2453-S
PUB DATE - Aug69 97p.

DESCRIPTORS - *DEAF; *INTEREST TESTS; *APTITUDE TESTS; *TEST CONSTRUCTION; *PERSONALITY STUDIES; VOCATIONAL INTERESTS; VOCATIONAL APTITUDE; PICTORIAL STIMULI; VOCATIONAL ADJUSTMENT; PERFORMANCE TESTS
IDENTIFIERS - *MOLECULAR PREFERENCE THEORY

ABSTRACT - This report describes the development of a battery of vocationally relevant measures of interests and aptitudes for use with deaf clients. A sample of 195 deaf students from two schools was rated by peers and teachers, and completed a battery of performance tests. The rating procedure indicated that certain personality traits can be adequately measured by both students and teachers. However, the performance tests showed that short written tests are inadequate to assess vocationally relevant personality traits. Assessment of vocational interest by means of a pictorial interest inventory proves the notion of interest "fields" to be inadequate, and provides tentative support for an alternate theory, the Molecular Preference Theory, which implies that people respond to elements of a job rather than the total job. (BH)

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The Development of Measures of Vocational Interests and Relevant Aptitudes for the Deaf

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George Guilfoyle, Ph.D.
Jules Greenstein, Ph.D.
Laura Katz

Final Report of research supported by The Lexington School for the Deaf and the Social and Rehabilitation Service, Department of Health, Education, and Welfare (RD-2453-S)

LEXINGTON SCHOOL FOR THE DEAF
NEW YORK CITY
1969

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VT012208

The Development of Measures of Vocational Interests and Relevant Aptitudes for the Deaf

(Final Draft)

RD-2453-S

by

Lerman, A., Guilfoyle, G., Greenstein, J., and Katz, L.

This investigation was supported, in part, by Research Grant No. RD-2453-S from the Division of Research and Demonstration Grants, Social and Rehabilitation Service, Department of Health, Education, and Welfare, Washington, D. C., 20201.

August 1969

Lexington School for the Deaf
26-26 75 Street
Jackson Heights, N. Y. 11370

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FORWARD

The activities described in this report are the result of a convergence of the various individual interests of the authors. The Project Director, Dr. Alan Lerman, became interested in this field much earlier with his work on a survey (Rosenstein and Lerman, 1963) of the attitudes of former students (female) towards their earlier school and later vocational experiences. His doctoral dissertation, which dealt with certain aspects of the pre-vocational behavior of deaf adolescents, was stimulated in part by that survey. Subsequently, with Dr. George Guilfoyle (who did his doctoral dissertation on lipreading), he wrote a book (Vocational Development of Deaf Adolescents, New York: Teachers College Press, in press) describing the development and validation of an inventory of vocational maturity for deaf adolescents. Together with Dr. Jules Greenstein, whose interest is primarily in test construction, and Miss Laura Katz, an able graduate assistant with an interest in developmental psychology, they carried out the bulk of the research plan. This alliance of differing interests was fortunate in that it very often stimulated the ability of the research team to look at many of the problems encountered in diverse ways.

PREFACE

We have attempted here to establish a battery of vocationally relevant measures of interests and aptitudes for use with deaf clients. In the course of our work we were confronted with several vexing problems. Some were expected, some were not. All of them are treated in detail in the report itself. Solving these problems consumed a great deal of time, much more time than had been anticipated for a project of only two years duration. Consequently, while our results represent the best efforts of our research staff, some of our original goals have been achieved only partially. Because of our commitment to these goals, however, special efforts are being made to continue this research to its conclusion.

The structure of the report varies from that suggested in the Guide for Preparing Final Reports (September 1968), for two reasons. First, the project was not oriented towards hypothesis testing, but towards test construction. This demands, in the case of the Vocational Interest Inventory at least, a different pattern of exposition from the one suggested by the guide. Secondly, the fact that the development of the Interest Inventory was independent of the development of the other tests, made it seem wiser to break the report into two major parts and develop each separately.

ACKNOWLEDGMENTS

In carrying out this project, the authors are indebted to the Superintendent of the Lexington School for the Deaf, Dr. Leo Conner, for his continuous encouragement and support of our work. We would like to extend our sincerest thanks to the administration and staff of the Marie Katzenbach School for the Deaf (New Jersey) and of the North Carolina School for the Deaf, for the unstinted cooperation and gracious hospitality they extended to us.

In particular, we would like to thank the Superintendent of the Marie Katzenbach School, Dr. Charles Jocem, and the Superintendent of the North Carolina School, Mr. Ben E. Hoffmeyer, for their generosity in making their staffs and students available to us. Special thanks, also, to the Assistant Superintendent of the Marie Katzenbach School, Miss Elizabeth Titsworth, and the Director of Education of the North Carolina School, Mrs. Jane C. Williams, not only for the efficient way in which they solved many logistical problems associated with testing large numbers of students, but for the gracious way in which they voluntarily became participants in the testing program itself. A word of thanks, also, to Mr. H. G. Royall, Jr., Principal of the North Carolina School, for his invaluable assistance.

In addition, we would be remiss in failing to thank the staff members (teachers and counselors) of both schools, too numerous to identify, for the time and energy they devoted to our project, both in supervising the students and in completing our rating forms.

Many thanks to the members of the state and regional offices (New York) of the Division of Vocational Rehabilitation, particularly Mrs. Roberta DeMar and Mr. Louis Saltzman, for making their time and records available to us.

Finally, we wish to thank our colleagues of the Research Department of the Lexington School for the Deaf for their constant support and advice. To Miss Teresa Maddalena who helped us organize, develop, and prepare many parts of this project, including this report, we are especially grateful.

I. General Introduction

A. Background Information

Ideally, the goal of all vocational rehabilitation is to assist a client in securing a job (a) which he performs competently, and (b) from which he receives some measure of satisfaction. Probably this ideal is not always achieved. In the case of deaf clients, one of their chief complaints has been the lack of relationship between their school training and their actual work experience, leading in some cases to poor vocational adjustment. An amelioration of this state of affairs requires, however, that we know more about vocational adjustment; that is, more about job satisfaction and job satisfactoriness (competence).

Vocational adjustment is only one stage of a two-stage process of vocational development. The first stage, the pre-vocational, consists of all behaviors associated with the world of work short of actually seeking and obtaining employment. The second or vocational stage is concerned with vocational adjustment (job satisfaction and job satisfactoriness). It is further hypothesized that the kinds of pre-vocational and vocational behaviors exhibited by a person are the result of certain individual and social factors (Figure 1). Chief among the individual factors are the person's vocational interest pattern and his ability to deal with certain demands imposed by work.

Regarding these individual factors, in a previous study on the vocational development of deaf adolescents (Lerman and Guilfoyle, in press), the authors had occasion to examine a variety of interest inventories for possible use. The majority were rejected because of the generally high level of language competence demanded of the respondent. Only two of these were acceptable: The Geist Picture Interest Inventory and the California Picture Interest Inventory, and the latter was finally chosen. Subsequent use of the test, however, raised several questions (e.g., the apparently arbitrary classification of certain jobs, and the fact that the norms of our deaf sample differed from those of the standardization group) which collectively made it seem worthwhile to produce an inventory for use with language deprived groups, providing the counselor with more specific information than is currently available.

Another consequence of our earlier work was the realization that few measures of vocationally related aptitudes are available; we were forced to rely upon two: spatial and clerical ability. Again, it seemed worthwhile to develop more specific measures of vocational abilities.

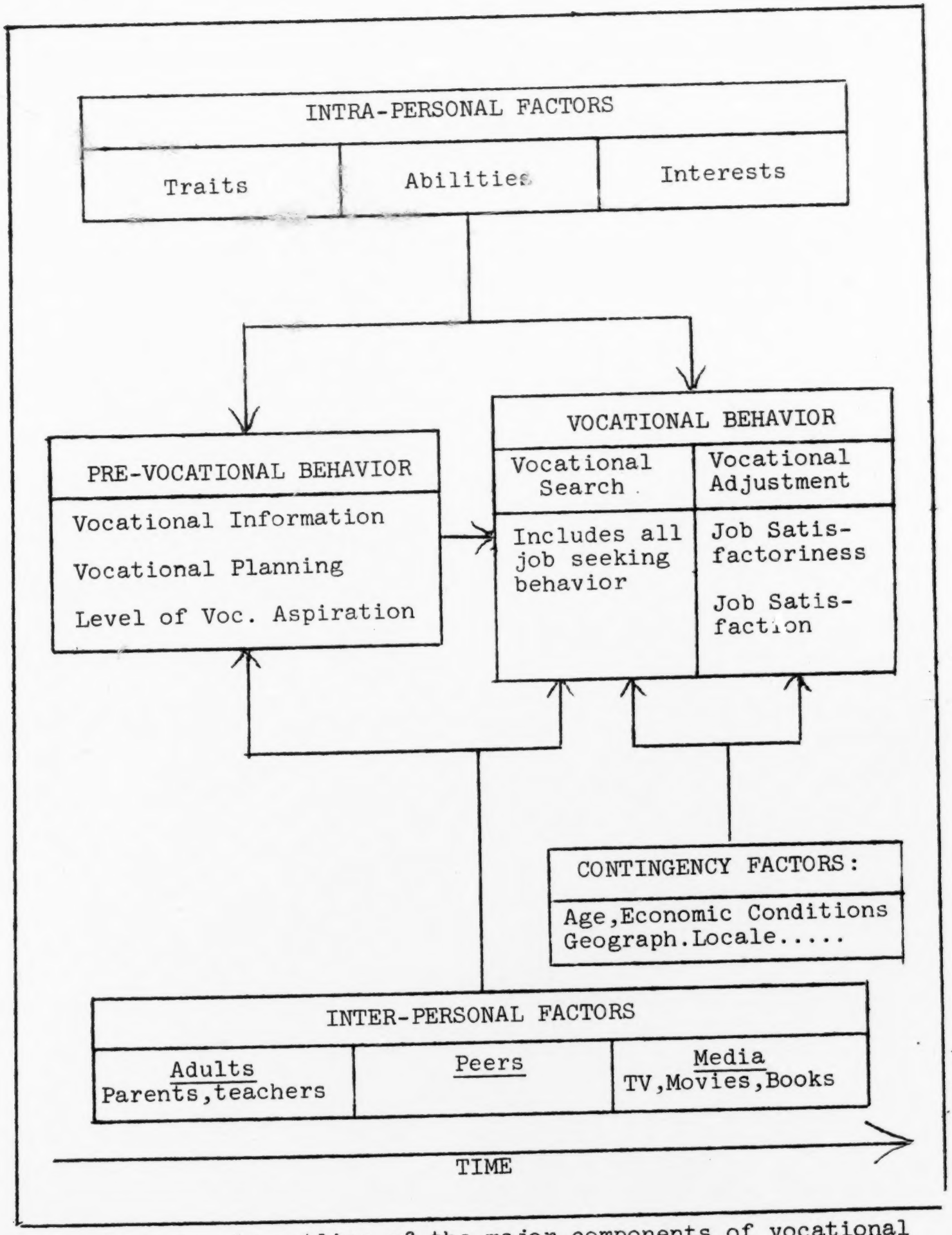

Fig. 1. An outline of the major components of vocational development.

B. Statement of the Problem

The purpose of the present project is to determine the feasibility of developing performance-type measures of certain vocationally relevant personality traits and of developing a pictorial interest inventory more suitable for language-deprived clients.

C. Review of Relevant Literature

There appears to be little in the literature on the deaf that relates directly to the development of vocational choice and the variables associated with it. Much of the research has been surveys of the status and adjustment of deaf adults, and follow-up studies of specific groups of graduates of schools for the deaf. These surveys have attempted to identify the major classification of deaf workers to obtain a general impression of how deaf adults function as workers, and to isolate some variables which differentiate various groups within the deaf. The National Survey (Lunde & Bigman, 1959) is one of the more recent ones and encompasses a very large sample. A comparison of this survey with earlier ones (Best, 1943; Bruce, 1960; England & Lofquist, 1958; Martens, 1936) shows that there have been increases in the average number of years of school attendance, and shifts to more skilled occupations. In most of the areas surveyed, the economic and vocational changes found in the deaf adult population parallel, but do not equal, those of the general population.

Studies of graduates of specific schools (Peterson & Brown, 1933; Railing, 1943; Hirsch, 1952; Mog, 1954) report findings similar to those of Lunde and Bigman, but they differ in specific areas. Peterson and Brown indicate that their respondents placed a greater emphasis on oral communication with hearing people and had a strong feeling of isolation from hearing co-workers.

Railing's study found that the majority of girls do not follow the trades taught in schools (except for those in the sewing trade), that the graduates feel their communication skills are lacking, and that their job training is not in keeping with the job opportunities available. Similarly, the Hirsch study results show a lower percentage of individuals who did not follow the occupations they had been trained for in schools, than noted by other studies. In addition, very few of the respondents surveyed reported that they worked for friends or relatives. Finally, Mog's study indicates that a higher percentage of former students had obtained additional training after leaving school, and while salaries for deaf workers were found to be generally lower than their hearing counterparts, both men and women reported high satisfaction with their jobs.

Jacobs and Gunderson (1957) found that there is a high concentration of women in the clerical field and almost none in the traditional field of domestic helpers and sewing machine

operators. The survey of their employers indicates that the deaf workers were generally considered to be extremely satisfactory workers.

Both Bruce (1960) and Nett (1960) emphasize the importance of socialization to work adjustment. Bruce's study deals with the interactions between the deaf graduates, their co-workers, and their employers. Both authors state that difficulties in communication on the job were related to work adjustment rather than attitudes toward hearing workers.

In a study by Geist (1963) the interest profiles of deaf workers were found to be quite similar to profiles of analogous occupational groups of the hearing. A disproportionate number of the deaf hold low status, low paying, and generally less desirable manual jobs.

A report by Dunn (1957) indicates that the deaf have levels of employment that are similar to the national average, although only fewer than half completed their vocational school training. Sixty-one percent of this group indicated that they held a job that was not related to the training they had received.

In a recent study, Boatner, Stuckless and Moores (1964) found that deaf individuals, although generally satisfied with their jobs, have the potential to increase their vocational opportunities with further technical training.

A similar study by Kronenberg and Blake (1966) confirms many of the results of the Boatner study, with reference to the inferior position of the young adult deaf in employment, occupational level, wages, and opportunities for advancement. While both studies are open to serious methodological criticism, as well as criticism pertaining to the way they present comparisons with the general population, they do point up the need for changes in the general educational programs for the deaf and the need for new vocational training resources.

Most of these researchers agree that deaf workers make satisfactory adjustments, with the exception of a small group of maladjusted individuals who appear to have poor ability for establishing interpersonal relationships, are unable to communicate, and have no awareness of social expectations (Coats, 1959; Shinpaugh, 1956; Zabell, 1955; Farber, 1959; Vernon, 1962). This group becomes a special problem for vocational rehabilitation agencies, as well as for the schools. There is no information regarding development of these individuals, and they remain an enigma to the guidance counselors and to the educators.

In some studies, evaluations have been made on small samples of deaf subjects in terms of their specific vocational interests and abilities. Troop's (1962) study found that only 22 of the 50 choices made by clients were realistic. The judgment of the reality of the preferences was based on an evaluation of the

Intelligence Quotient, vocational aptitude and interest testing, speech discrimination scores, and language ability.

Myklebust's (1960) evaluation of the scores received by deaf students on the Kuder Interest Inventory, as they compare with the vocational choice of older adolescent girls, is that an extremely limited range of vocational choice exists. It is his feeling that his subjects' choices may reflect an unconscious awareness that opportunities are limited or that deafness imposes a major limitation as far as many types of work are concerned.

Bluett (1939, 1945), in testing and interviewing eleven members of a graduating class of the California School for the Deaf, reports the results of mental, mechanical, manual, personality, and vocational interest tests. The sample is extremely small, so that no clear inferences are made about the functioning of deaf students.

While research in the general field of vocational choice and development has been concerned with the overall process of such development, none of the studies of the deaf are part of a larger design to obtain information about the status and adjustment of deaf adults. They indicate that deaf workers appear to have adjusted, but a large number of these individuals are not following the training they received at school. In addition, some small group studies, relating to testing of some characteristics of deaf students, have been completed. Due to the nature of the research that has been done, professionals in the field have been unable to utilize this information in terms of developing new school programs, remedial services or more appropriate vocational rehabilitation services.

D. Setting

The development and evaluation of test materials were carried out in the Research Department of the Lexington School for the Deaf, which consists of a library and seminar room and a series of offices. Administration of the materials was carried out in the auditoriums and libraries of the Marie Katzenbach School for the Deaf (West Trenton, N. J.) and the North Carolina School for the Deaf (Morganton, N. C.).

II. Personality Traits

A. Introduction

1. The Development of Performance Tests of Personality

a. Theoretical considerations. The measurement of personality traits or needs, which may be relevant to vocational adjustment of the deaf, poses numerous problems. Even with hearing populations, the conventional self-report inventories are subject to response biases (e.g., acquiescence or social desirability) which raise questions of their validity, while the conventional projective measures are subject to ambiguities of scoring and interpretation. With the deaf, the dependence of both these conventional approaches to personality measurement on verbal ability render them practically useless.

For these reasons, it was decided early in the development of the current project to attempt, wherever possible, the measurement of personality dimensions by means of non-verbal performance measures. Such an approach seemed promising for several reasons. To begin with, conventional distinctions between personality traits, on the one hand, and intellectual capacities, on the other, have always been somewhat arbitrary. Characteristic personality "traits," such as persistence or frustration tolerance, are probably no less related to intellectual task performance than are such "capacities" as spatial ability or abstract reasoning. Second, on practical grounds, the development of such non-verbal performance measures might provide useful, job-relevant information to a vocational counselor from clients whose ability to read or write is limited if not totally absent.

Wallace (1966) has, in fact, proposed that all personality traits may be defined as abilities or response capabilities:

> In conceiving of situations in which social needs or traits are presumed operative, it seems difficult to think of any in which capability statements appear less justified than predisposition statements. For example, consider the individual who may be described as gregarious or high in need for affiliation. Rather than describe such an individual as possessed of a strong need to "draw near and enjoyably co-operate or reciprocate with an allied other," could we not describe him equally well in terms of his utter inability to withstand social isolation or that he is quite incapable of independent effort? Turning to essence conceptions, in terms of traits, might we not describe a "shy" person as one who is incapable of making assertive responses in certain situations (p. 133)?

It was decided then, following the Wallace conception of personality traits as "abilities," to attempt the adaptation or construction of a set of non-verbal performance measures of such personality traits as might be vocationally relevant. Since the purpose of the project was to develop measures which could be administered by a vocational counselor to a deaf client who might be unable to read or write, further constraints on test construction were that the tests require little in the way of instructions which could not be easily signed and that they be amenable to small group testing.

Unfortunately, these constraints eliminated many potentially useful tests immediately. Although a considerable amount of research in the past decade has been devoted to cognitive styles or controls (Gardner, Holzman, Klein, Linton & Spence, 1959), which reflect the influence of personality characteristics upon perception, many of the measures require complex verbal instructions. In addition, the vocational relevance of such dimensions as "scanning" or "leveling-sharpening" is not clear. Cattell and his co-workers in Illinois and elsewhere have also championed the development of objective tests of personality; however, their tests are "objective" in the sense that the subject is unaware of the purposes of the test. Although Cattell and Warburton (1967) have compiled descriptions of over 400 such test procedures, most are highly dependent on language ability for either instructions or response. Others have no known predictive or factor validity, while a small remainder have loadings (often small) on factors obtained by Cattell (1957) by oblique rotations to simple structure. The meanings of these factors remain far from clear and have yet to be systematically related to such external criteria as job performance.

It soon became apparent that simple adaptation of performance tests having demonstrable reliability and validity was not possible and that the task of developing ability definitions of vocationally relevant personality traits and test measures of these abilities would have to begin anew.

Following the guidelines suggested by Wallace (1966), an effort was made to transform standard personality dimensions such as Murray's (1938) <u>needs</u> system into response capabilities or tolerances. A <u>tolerance</u> was defined as the ability of an individual to maintain effective functioning in the face of an environmental press which might impair such functioning. Thus, Murray's definition of <u>n</u> Defendance as the need "to defend the self against assault, criticism, and blame" was translated into <u>tolerance for criticism</u> and defined as "the ability to maintain effective functioning in the face of blame or criticism."

It was soon found that such tolerances fell readily into two categories. The first, <u>social tolerances</u>, consisted of abilities to cope with pressures from the social environment; the second, <u>task tolerances</u>, comprised abilities to function effectively on tasks whose very nature produces stress.

Among those social tolerances which seemed obviously vocationally relevant were the following. In each case, the tolerance may be defined as "the ability to maintain effective functioning in the face of (the environmental stress in parenthesis)...."

1) Social Tolerances

Authority (orders or control by supervisors)
Criticism (blame or criticism by others)
Hostility (insult or hostility from others)
Isolation (working alone or being isolated from others)

Among the task tolerances deemed relevant to job satisfactoriness were the following:

2) Task Tolerances

Routine (monotonous, repetitive work demands)
Detail (painstaking or attention-demanding work)
Distraction (interruptions or interferences with work)
Frustration (tasks involving unexpected delays or obstacles to reward)
Novelty (continually changing task sets)
Ambiguity (confusing, unclear tasks or instructions)

Although it was anticipated that other tolerances might be defined which were job relevant and that redifinitions might be required, the above list provided the initial model for test construction.

Although redefining personality needs or traits as abilities along lines suggested by Wallace provided few difficulties, practical constraints made test construction for many of the tolerances, particularly the social ones, practically impossible. For example, the measurement of tolerance for hostility, in an ideal sense, would require the measurement of efficiency on a relatively simple task before and after the subject was insulted or made a target for hostility. However, it is difficult to see how such operations could practically be performed on a client by a vocational counselor without serious repercussions beyond the immediate test situation. Similarly, tolerance for isolation would require the subject's working by himself for lengthy periods of time, and yet a major aim of the project was the development of short, group tests.

For the above reasons it was decided to confine the performance measures to task tolerances. Here, too, the practical testing problems were difficult to surmount. Tolerance for routine and detail are unlikely to be sampled by short tests and the arousal of frustration without destroying the testing relationship is difficult. Still another constraint on test development appeared. Ideally, the measurement of each tolerance would require a painstaking process of test development in which a large number of tests would be constructed for each

tolerance; tests would be given to small groups and periodically revised or modified many times. Such a process would, however, require several years of research and development. Since the current project was limited to two years, this procedure was impracticable. The alternative was to attempt to develop a few brief measures of each tolerance which might then be administered to a large group of subjects. The large group testing procedure has the advantage of providing a crude, but relatively quick, way of assessing the tenability of the tolerance model itself. Reliabilities of each test could be obtained; sex and other population differences in performance could be assessed and methods of factor analysis could be employed. This last was a decisive consideration, since factor analytic techniques, which require large samples, could provide an answer to a crucial question: Do these tolerances really measure independent aspects of personality or are they highly correlated measures of a single dimension of "coping ability?" It was therefore decided to try a broad, general attack on the problem rather than the more cautious one. That is, a number of brief measures were constructed which seemed to offer representative ways of measuring task tolerances and these were administered to large groups of subjects of both sexes at two large schools for the deaf.

b. Test measures.

(1) Tolerance for Detail. The measurement of tolerance for detail demands tasks which require the subject to make fine perceptual and/or cognitive distinctions. Four measures are employed.

(a) Mark the Numbers Test. This test requires the subject to scan lines of numbers for every number 2, 5, or 8, and to cross them out. The test consists of 5 pages of random numbers arranged in 22 rows with 20 numbers to a line. Ss were allowed 2½ minutes per page. (It was determined beforehand that this time span was sufficiently brief to make it all but impossible to complete a page.) Total test time was 12½ minutes. Total number of correct responses on pages one and five is the measure.

(b) Circle the Same Test. This test is similar to the previous one, in that it requires the subject to scan several pages of alpha-numeric combinations for those exactly the same as the one presented at the head of each page. The test consisted of 4 pages, each containing a set of 9 character combinations arranged in 20 rows and 6 columns. Ss were allowed 2½ minutes per page for a total time of 10 minutes. The number of correct identifications is the measure.

(c) Clerical Skills Test. In this test, the subject is presented with a set of standard stimuli (20 lines of names, addresses, and amounts of money) and a corresponding set of comparison stimuli. The subject's task is to scan, line by line, the comparison stimuli, for any deviations from the standard (e.g., Mr. for Mrs., John for Joan). It thus differs from the preceding tests in requiring the subject to focus on differences rather than similarities.

(d) Follow the Instructions Test. Of the four tests measuring tolerance for detail, this is cognitively the most demanding, since it involves short-term memory in addition to scanning. Briefly, the subject is first instructed to go to a particular page, column and row. Arriving there, he is given fresh instruction, and so on, until he is finally asked to enter a three-letter code on his answer sheet. Total time is 15 minutes. The number of correct three-letter codes entered is the measure.

(2) Tolerance for Routine. Measurement of this tolerance requires tasks of a relatively simple nature, requiring little in the way of intellectual ability, so as to be repetitious and monotonous. Any performance decrement over time can then be attributed unambiguously to the routine nature of the task. Decrement of accuracy scores (essentially second page accuracy minus last page accuracy; performance on the first page is contaminated with practice effects) for four tests are used. Two of them have already been described: Mark the Numbers Test and Circle the Same Test. (The general independence of total test scores and difference scores makes this procedure defensible.)

(a) Mark the Numbers Test. As noted previously, this test requires a total time of 12½ minutes. Although this is a very brief period of time, to obtain a measure of Ss' ability to tolerate monotony, it was hoped that any performance decrement that might emerge would do so during this period, since a longer test would probably prove impractical in a counseling situation.

(b) Copy the Numbers Test. This measure represents an alternative approach to the problem. While the Mark the Numbers Test is simple and repetitive, sustained attention or vigilance over a long period is not required. To assess this aspect of performance on routine tasks, a set of 180 slides of randomly selected eight-digit numbers is flashed on a screen at a constant rate of one every five seconds. The S's task is to simply copy the numbers he sees on an answer sheet. Since a five-second interval is just long enough for most Ss to copy a single eight-digit number, the task requires constant attention and continued effort over a 15-minute time period. Again, an accuracy score is obtained by counting the total number of errors and a performance decrement score is obtained by subtracting the number of errors during the last 1½ minutes from the first 1½ minutes.

(3) Tolerance for Distraction. Two measures of this tolerance designed by Messick and Fritsky (1963) as variants of the Stroop Color-Word Interference Test (Stroop, 1935) are employed. In each, the S is required to perform a task under control and interference conditions. In the Speed of Summation Test the S counts tallies (e.g., 111 + 11 = 5) in the control condition, and letters which spell numbers (e.g., one + two = 6) in the interference condition. In the Word Direction Test the S must indicate the direction in which a standard word (round) is printed (e.g., left to right, top to bottom) in the control condition, and of a word spelling a direction (e.g., "down")

in the interference condition. Since scores under the two conditions are highly correlated, regressed scores are obtained by subtracting the S's predicted score (i.e., predicted from his score under the control condition) from his actual score under the interference condition.

(4) Tolerance for Ambiguity. This tolerance was measured by two tests, both essentially aimed at assessing the tolerance through response styles. The well-known research of Adorno, Frenkel-Brunswick, Levinson, and Sanford (1950) has indicated that Ss who are intolerant of ambiguity tend to choose extremes and avoid nuances in their judgments. In the Design Preference Test, Ss are asked to rate essentially meaningless designs on a five-point scale, ranging from "beautiful" to "ugly." In the Picture Meaning Test, a pictorial adaptation of the standard type of Semantic Differential, Ss are required to rate a set of pictures of everyday objects on six seven-point scales: soft-hard, alive-dead, weak-strong, fast-slow, small-large, and true-false. Measures of the tendency to take extreme positions, and to take a neutral position are used as measures in both tests.

(5) Tolerance for Frustration. The general procedure for obtaining a measure of a Ss tolerance for frustration is to present him with an insoluble or near insoluble task in which particular kinds of "easy" solutions or options are available. The general measure of his tolerance is taken either from the incidence of his use of these options, or the time taken to choose one of them. Three measures were initially employed: an Embedded Figures Test (Frustration Form); an Insoluble Problems Test; and an Instant Insanity Test. This last measure was a commercially available puzzle, involving four cubes whose sides were painted with one of four colors. The task is to reproduce a pattern where no visible adjacent sides have the same color. Some initial work with the puzzle led us to believe that the task would be far too difficult for more than a few of our subjects, even with prior experience. It was subsequently dropped from the analysis, however, because a surprising number of subjects succeeded in solving it within the time limit.

(a) Embedded Figures Test. The Frustration Form consists of 10 geometrical patterns which a S is told may or may not contain a test figure ( ) of the same size. For each pattern the S is required to decide whether or not the figure is present. If he decides that it is not, he checks off a "NO" and proceeds to the next pattern. If he decides that it is there, he checks off a "YES" and then traces the test figure in the pattern. Actually, all patterns contain the test figure, but previous research indicated that these particular patterns were very difficult even for hearing adults. Thus, the S may avoid the frustrating demands of the test situation by checking off the "NO" response and proceeding on to the next problem. The number of "NO" responses and the number of incorrect "YES" responses (which in every case were clearly inaccurate) are to be taken as measures of the S's tolerance (since both responses represent an easy solution).

(b) Insoluble Problems Test. This test is similar to the previous test in that it presents an S with a series of geometrical patterns to be reproduced without lifting his pencil from the paper. Some of the problems are easy, some are moderately hard, and two are insoluble. The total number of attempts at all items is taken as the measure.

(6) Tolerance for Criticism. Only one test was employed here for the simple reason that no other feasible way of measuring this tolerance was found. Each S is given the WISC Coding Test. At the completion of the test, the S is asked to score his responses and enter them on a score sheet containing fake norms (designed so that even the fastest possible performance is rated low). The S is then given a coding test similar to the first, and his performance is recorded. A decrement in performance or an improvement below the level to be expected as a result of practice is taken as indicating low tolerance for criticism. Thus, a regressed difference score is obtained by subtracting the S's predicted score on the second test (based on regression with the first test) from his actual score.

(7) Tolerance for Novelty. Measures of this tolerance are obtained by giving the S parts of the following tasks: Circling Identities, Word Direction, Clerical Skills, Crossing Out Numbers, and Counting Letters. The S was required to switch from one task to another, and his performance of the five tasks under this condition is compared with his performance under the regular test conditions by subtracting his standard (Z) score for each task under the novelty condition from that under the regular condition. Theoretically, intolerance for novelty should be reflected by a performance decrement in each task when it is taken under conditions of rapidly changing sets.

(8) Field Independence. In addition to the tolerance measures, two other performance tests are included in the battery: the Thurstone Hidden Figures Test and a group Embedded Figures Test (Regular Form). Although it is not clear whether performance on these tests is related to any task tolerance as here defined, they have been labelled as measures of "field independence" by Witken, Dyk, Faterson, Goodenough, and Karp (1962). Partly in order to assess the relevance of Field Independence, so frequently implicated as a stable personality trait, to the other measures of tolerances employed, these two tests are included. The Embedded Figures Test (Regular Form) is the same as the one mentioned earlier (even to the extent of using the same test figure), except that in this form the S knows in advance that all patterns contain the test figure. His task is simply to find them. In the Hidden Figures Test, the S is presented with a series of test figures, each with four patterns. His task is to check off those patterns in which the test figure occurs. In both cases, the S's score is the number of correct identifications made within the time limits.

2. The Development of Personality Trait Rating Scales

The difficulties encountered in developing performance measures of social tolerances require that the tests developed be supplemented by an alternate procedure. In fact, the practical problems of applying the Wallace (1966) abilities model to actual test construction soon demanded that it be supplemented by one of the more conventional trait models. Thus, while the measurement of social and trait tolerances by means of objective tests was considered the ideal way of measuring vocationally-relevant personality dimensions among the deaf, it was obvious that the current project could make only a beginning step in the direction of defining and measuring such tolerances. Consequently, an alternate strategy was adopted by supplementing the theoretical approach, upon which the tolerance model was based, with a more empirical one.

a. The preliminary study of DVR records. This empirical approach began with a perusal of case records of deaf clients of the New York Division of Vocational Rehabilitation who had made satisfactory or unsatisfactory vocational adjustments. The case records of all such clients active with this agency during the period 1964-1967 were divided, by agreement of two psychologists, into categories of "satisfactory" and "unsatisfactory" vocational adjustment. The purpose of this procedure was not formal investigation but rather the development of hypotheses about the dimensions along which the two groups differed.

As expected, the obvious dimensions of Language Competence and Educational Background were clearly present. Poor vocational adjustment was much more common among those who had difficulty communicating or those having limited education or intelligence. Since measuring these dimensions has posed few problems in the past, attention was centered upon personality differences between the two groups. At least three dimensions were noted:

(1) Social Agreeableness. Inability to get along with co-workers or employers was common among the poorly adjusted. Extreme suspiciousness, egocentricity, paranoid tendencies and chronic hostility were among the reasons often given for a client's leaving or being unable to hold a job.

(2) Social Assertiveness. Unsatisfactory employees were frequently extremely dependent, lacking in initiative, unwilling to accept responsibility, and low in motivation to achieve. Often, this was associated with the self-concept of a child rather than an adult and the client seemed unwilling to surrender the protection of parents or social agencies.

(3) Emotional Stability. Extreme impulsivity, low frustration tolerance, and overt or near-psychotic behavior were also found frequently among the clients making poor vocational adjustment.

b. The Norman personality trait model. A striking feature of this preliminary model of vocationally relevant characteristics is the similarity of several of the dimensions to factors identified by Norman (1963) as recurring repeatedly in factor analytic studies of peer nomination ratings of personality. Starting with Cattell's (1957) "standard reduced personality sphere" derived from Allport and Odbert's (1936) list of adjectives implying personality traits, Tupes & Christal (1958, 1961) and Norman (1963) were able to identify five orthogonal factors which were replicated with remarkable consistency in several studies. These factors were: (1) Extroversion or Surgency; (2) Agreeableness; (3) Conscientiousness; (4) Emotional Stability; and (5) Culture. In comparing these factors to the dimensions characterizing the poor vocational adjusters, the following parallels could be drawn. Norman's Extroversion-Surgency factor, composed of such scales as Talkative-Silent, Frank-Secretive, Adventurous-Cautious, and Sociable-Reclusive, may just as well be defined as an Assertiveness factor, since the term Assertiveness implies both outgoingness or extroversion and high initiative and energy level (surgency). So defined, this factor seems similar to the dimension of Social Assertiveness suggested in the preliminary model. Norman's Agreeableness factor, composed of scales measuring Goodnatured-Irritable, Not Jealous-Jealous, Gentle-Headstrong, and Cooperative-Negativistic, was a clear parallel to the Social Agreeableness dimension suggested in the DVR study. Similarly, Norman's Emotional Stability factor, comprised of the scales Poised-Nervous, Calm-Anxious, Composed-Excitable, and Not Hypochondriacal-Hypochondriacal, was a direct parallel for the same dimension appearing in the DVR cases. Of Norman's other two factors of Conscientiousness and Culture, the former at least is of obvious vocational relevance while the latter is probably more relevant for college populations than for the deaf. In a later study (Norman, 1967), using inventory scales rather than peer ratings, this fifth factor virtually disappeared on rotation and only the first four emerged. On this basis it was decided to develop measures of the following four vocationally relevant personality traits: (1) Assertiveness; (2) Agreeableness; (3) Conscientiousness; and (4) Emotional Stability.

c. The rating scale approach. In view of the highly experimental nature of the personality tests, it became essential to obtain supplementary measures of the personality dimensions for which no tests could be constructed as well as to find a criterion by which test validity could be judged. Personality trait ratings appeared to be the most suitable procedure; however, the well-known problems inherent in rating scales (halo effect, rater bias, etc.) required a validity check on these procedures as well. Consequently, two rating procedures were adopted. The first was by means of obtaining conventional ratings from teachers and counselors; the second was by means of obtaining peer nomination ratings directly from the subjects. The two procedures have complementary assets and liabilities. Teachers, counselors, and peers view the subject in different contexts and possibly by means of different standards and processes of social perception.

The peer nomination procedure had resulted in recurrent personality factors which seemed vocationally relevant. In addition, through its use of a forced choice procedure, rater bias is eliminated. However, it must be assumed that all peer groups are equal to each other on all traits. The conventional procedure, used for teachers and counselors, does not control rater bias but does not require assumptions of the equality of peer groups. Thus, the correlation between peer and teacher ratings on each trait would represent a conservative measure of the concurrent validity of the two procedures and both could be used as criteria for measuring test validity. A factor analysis of the two kinds of ratings would provide a way of detecting whether deaf adolescents perceive each other along the same broad factors as the hearing Ss reported by Norman and others. A comparison of factors derived from the two procedures could provide information as to whether teachers and peers used similar or different social perception processes. Furthermore, Norman (1963) used the peer nomination procedure as a basis for both constructing and validating a self-report adjective checklist and personality inventory. If deaf subjects could reliably and validly report on the personality traits of their peers, then the possibility is opened of developing a self-report procedure which could be validated against the peer rating criteria. Such a self-report measure, if it were free of response sets such as social desirability or dissimulation, might completely eliminate the need for the complicated and difficult-to-construct performance tests. Recently, Norman (1963) has proposed a technique for developing such self-report techniques.

d. Construction of the peer rating scale. There is no way of avoiding language in the construction of a peer nomination rating scale. An effort was therefore made to construct items which were linguistically relatively simple and which could be conveyed by means of the standard American sign language by a skilled interpreter. The Descriptive Adjective Inventory, constructed by Norman (1963) and based on factors obtained from peer nomination ratings, provided an initial pool of trait adjectives for translation. In consultation with two highly experienced interpreters, Norman's 193 adjectives were reduced to 60, which could be rendered into simple, signable sentences about which reliable ratings could be anticipated. To these were added ten linguistically more complex sentences aimed at obtaining direct ratings of the tolerances being measured by the performance tests. Of the 60 items, 16 were presumably related to Agreeableness, 19 to Assertiveness (Norman's Extroversion or Surgency factor), 15 to Conscientiousness, seven to Emotional Stability, and three to Intelligence (the nearest equivalent to Norman's "Culture" factor).

B. Methodology

1. Project Program and Professional Staff

It became apparent at the outset of the project that the participation of all staff members in all aspects of the project was too unwieldy. Accordingly, the project was divided into two parts: construction of an interest inventory, and construction of a test battery of personality measures, including construction of rating scales. Dr. George Guilfoyle was assigned the responsibility of constructing the interest inventory. He was aided by two graduate assistants, Miss Bonnie Stone (whose assistance was required only for the first year) and Miss Laura Katz. Dr. Jules Greenstein, aided initially by Mr. Joseph Snyder, was given the responsibility of producing the performance and rating measures. In this he was given some assistance by Dr. Guilfoyle. Dr. Alan Lerman, the Project Director, worked with Drs. Guilfoyle and Greenstein on all phases of the project. All staff members, augmented by several assistants, participated in the administration of the tests.

In the case of the test battery, work began simultaneously on both the rating scales and the battery of tolerance measures. An extensive discussion of the individual steps taken in each would be prohibitively long. In any case, the major steps are discussed in other parts of the report. An outline of the steps is presented below.

Peer (PRS) and Teacher (TRS-1, 2) Rating Scales

a. Initial selection of relevant adjectives (Norman, 1963).
b. Insertion of adjectives into short statements.
c. Modification of statements, in consultation with two experienced interpreters--one deaf, one hearing.
d. Construction of item (statement) slides.
e. Development of instructions for students (in consultation with interpreters) and for teachers.
f. Construction of instructional slides (students) and sheets (teachers).
g. Preliminary testing of instructions and items (PRS).
h. Modification of PRS instructions and items.
i. Construction of TRS-1 and TRS-2.
j. Construction of peer groups.
k. Assignment of students to teachers and counselors (on basis of familiarity).
l. Administration of rating scales.
m. Scoring and analyzing rating scale results.

Tolerance Battery

a. Review of the literature.
b. Selection of commercially available tests: Thurstone Hidden Figures Test; WISC Coding Test.
c. Modification of existing experimental tests: Word Direction Test; Speed of Summation Test; Picture Meaning Test; Design Preference Test.

d. Creation of new tests: Copy the Numbers; Mark the Numbers; Circle the Same; Follow Instructions; Embedded Figures (Regular and Frustration Forms); Insoluble Problems.
e. Creation of detailed instructions for each test(in consultation with interpreters).
f. Construction of visual aids (posters with practice problems).
g. Preliminary testing of instructions and instruments.
h. Modification of tests.
i. Administration of tests.
j. Scoring and analyzing of tests.

2. Population and Sample

The population for which our tests were designed consists of all students (male and female) enrolled in residential schools for the deaf in the United States, between 15 and 18 years of age, who are capable of understanding our test instructions. Considerations of such parameters as extent of hearing loss, age of onset, and presence of secondary handicaps, were ignored on the grounds that the ability to properly grasp the test instructions was a perfectly adequate screen. Students, who for whatever reason failed to demonstrate understanding of test instructions, were simply dropped. In any event, an inquiry into the reasons for these failures is beyond the scope of this project.

A sample of this population was obtained by using all students meeting the above requirements, from two geographically distinct residential schools; one in North Carolina and one in New Jersey. Both are state operated institutions with relatively large student populations, and with large vocational training programs. Furthermore, both use the "combined" method of instruction (i.e., lipreading augmented with fingerspelling and signing).

3. Administration of Scales

a. Construction of peer groups. Since the administration of the Peer Rating Scale requires that all Ss in a peer group know each other, Ss first checked off on a list of students at the school those whom they kenw. Peer groups of equal size (N = 13) were then constructed for each sex in order to maximize mutual familiarity of Ss within a group and to insure that no S was unknown to another S in the same group. In general, the peer groups consisted of Ss of approximately the same age, grade or residence hall. This procedure permitted the formation of 7 male and 8 female peer groups of 13 Ss each, yielding a total sample of 195 subjects.

b. Peer rating scale (PRS). Each item of the PRS consisted of two sentences, one positive (e.g.,"They are neat.") and one negative (e.g.,"They are not neat.") presented sequentially. Items were presented simultaneously in two ways: (1) in sentence form, projected by slides on a large screen; and (2) in sign language, by an interpreter. For each sentence Ss checked the

names of the three Ss in their peer group who were most closely characterized by each sentence. Ss were instructed not to choose themselves and not to choose the same persons for sequential sentences (positive and negative poles). Thus, of the 12 Ss other than the subject in each peer group, 25% were rated high on each trait (scored 2), 25% were rated low (scored 0), and 50% were omitted (scored 1). The Ss score on each of the 70 items consisted of the sum of his ratings by the other 12 S in his group.

c. Teacher rating scales (TRS-1,2). Each S in the sample was also rated by two teachers and one counselor on two rating scales. The first scale (TRS-1) consisted of 60 of the same items used in the PRS which were to be rated along a 9-point scale ranging from "never true of S" to "always true of S." This rating scale served the purpose of providing a validity check on PRS items and also permitted an examination of whether the same factors of social trait evaluation were present in both teachers and students. The second scale (TRS-2) consisted of 27 items relating to social and task tolerances, also to be rated along a 9-point scale (e.g., "How does this student deal with routine work?"). This scale served two purposes: it provided a criterion for evaluating the performance tests constructed to measure these tolerances; and provided a means for determining which of these tolerances were related to the broader personality dimensions being measured by the PRS and TRS-1.

d. Administration procedures. The rating scales and the performance battery were administered at different times. The rating scales were administered first. Prior to going to both schools, rating materials and instructions for the teachers and counselors were mailed ahead. School staff members distributed the materials, and they were returned at the time the peer rating scales were administered. The procedure for administering the scales was as follows: On the first testing day, all students were assembled in the auditorium according to a prearranged seating plan (designed to keep members of the same peer group from sitting too near each other, since in preliminary tests it was noticed that students were observing each other's responses). When all students were in place, an interpreter on the stage first asked each group to stand up (each peer group had a differently colored front cover on their answer booklets) so that each member knew who the other members were, and, more importantly, what their written names were, since some deaf students apparently know each other only by their personal signs. (A better alternative to this procedure, although a more expensive one, would have included a photograph of each student). Following this, the interpreter, with the aid of a sample answer sheet projected on a screen beside him, signed the instructions. In giving the instructions, one member of the staff acted as a prompter, calling the instructions out to the interpreter, who merely converted them into sign language.

The instructions were repeated and the items were administered. Each one was flashed on the screen and the interpreter signed the item. Since there were many items, the item number (appearing above the item on the screen) was enclosed by a geometrical figure:

The numbers on the answer sheet were coded in the same manner to help prevent the subject from making entries in the wrong column.

Several proctors were available at all times to assist individuals with particular items. Three sessions, each one approximately 100 minutes long, were required at each school to complete the ratings.

At a later time, a group of staff members visited each school in turn to administer the performance battery. Small groups of students (15-20) were administered the complete battery in four sessions (one session per day). As with the rating scales, a skilled interpreter, prompted by a staff member, delivered the instructions via sign language. All instructions were accompanied by large blow-ups of sample problems. Thus, the interpreter supplemented his signed explanations with an actual demonstration of the correct procedure. As a further precaution, each test was preceded by a series of practice problems, including the ones used by the interpreter. The students were allowed to do the practice problems. Proctors then checked all work. Only when all students demonstrated adequate understanding of the test did the actual testing begin. In addition to an interpreter, there was an assistant who set up and removed the visual aids, a prompter who directed the interpreter, a timer, and several proctors.

C. Results

1. Peer Nomination Ratings

a. Internal consistency of peer ratings. Reliability estimates of peer nomination ratings are difficult to obtain since many sources of variation are present. The most satisfactory method has been developed by Willingham (1959) as a simple adaptation of the conventional alpha coefficient (Cronbach,1951) used for measuring test homogeneity or internal consistency. In effect, this measures inter-subject consensus in the rating of their peers. Disagreement (low degree of consensus) may be due to several factors: (1) difficulty in understanding the sentences; (2) variations in interpretation of the sentence; (3) the "true range"of variation of the trait in the peer group (i.e., homogeneity with respect to the trait lowers consensus, heterogeneity raises it); and (4) genuine (i.e., reliable over time) disagreements in social perception of specific peers. Since only the first two represent true error variance for an item, the internal consistency measures must be viewed as underestimates of true item reliability.

In spite of these difficulties, the critical question of whether peer nomination rating procedures can yield reliable

results among deaf adolescents seems to have received a positive answer. Using the Willingham procedure, and averaging reliability estimates across the 15 peer groups, the distribution of item reliabilities is indicated in Table 1.

TABLE 1

Distribution of the Internal Consistencies of 70 Peer Rating Scale Items

Reliability Estimates	Number of Items
.900 - .999	1
.800 - .899	3
.700 - .799	12
.600 - .699	18
.500 - .599	13
.400 - .499	6
.300 - .399	3
.200 - .299	10
.100 - .199	4
.000 - .099	0
	70

As expected, the linguistically most complex items received the lowest reliabilities. Unfortunately, the ten items designed to measure the tolerances (e.g., "Can't stand work that is always the same.") were among the 14 items having reliabilities below .30. Of the 34 items having reliability estimates of .60 or more, 11 were designed to measure Agreeableness, 10 Assertiveness and 10 Conscientiousness.

b. Factor analysis of peer rating scale. To determine whether the social perception of their peers by the deaf adolescents parallels that of hearing college students and hearing adults, as reported by Tupes and Christal (1958,1961) and Norman (1963a), the rating scale scores of the 195 Ss for each of the 70 items were intercorrelated and a factor analysis performed using a centroid method of factoring and a normalized varimax rotation procedure.

In his analysis, using a similar factor analytic procedure, Norman reports approximately equal percentages of the total item variance distributed among five factors. "By no means is there any indication of a large general factor, for instance, one attributable to general evaluative tendencies or social desirability present anywhere in these results (p.579)." These findings were not replicated with the current deaf sample. The initial centroid analysis indicated that 66% of the total

TABLE 2

Loadings of items associated with agreeableness on Peer and Teacher Rating Factors, together with reliabilities of Peer Rating Items and their correlations with equivalent Teacher Rating Items. (Based upon a sample of 195 peers and 59 teachers)

Items Associated with Agreeableness	Factors								Correlations	
	Peer Rating				Teacher Rating					
	1	2	3	h^2	1	2	3	h^2	r_{pp}	r_{tp}
Not Rude	89[1]			81	85			75	57	50
Polite	86			81	84	31		80	66	55
Kind	85			76	83			74	62	47
Not Disparaging	85			78	81			69	69	50
Not Stubborn	86			80	76			60	61	49
Complimentary	82			76	78			64	69	46
Not Hostile	75			67	80			68	65	45
Trusting	78			69	78			69	66	34
Cooperative	70	43		70	79	34		75	59	44
Unselfish	70	33		64	75			58	56	31
Friendly	73	46		75	68		31	57	65	26
Helpful	72	31		64	68	32		57	62	42
Not Jealous	80			70	62			40	61	29
Well-Liked	80	32[2]		75	58	30	45	64	56	45
Mature	68	33		61	60	58		69	60	51
Generous	48	46		46	74			64	39	21
Uncomplaining	72			63	76			65	59	38
Not Argumentative	67		37	61	78			66	43	44
Cheerful	60	40		54	61		42	59	56	44

[1]Decimals omitted.
[2]Loadings less than .30 are not included.

common factor variance could be attributed to a first factor and 14% to a second. Varimax rotation for four factors, which tends to equalize the contributions of factors, still resulted in 58% and 29% contributions to the total common factor variance by the first two factors and only 9% and 4% by the next two. Loadings of the peer rating items, grouped by their a priori scales, on the four rotated factors are presented in Tables 2,3,4 and 5.

To a considerable extent, the recurrent factors described by Norman are replicated. Of the 19 a priori Agreeableness items (Table 2), 18 have factor loadings of .60 or higher on Factor 1, and only 8 have loadings higher than .30 on any other factor. The salients of "not rude," "polite," "not stubborn," and "kind" clearly indicate this to be the expected Agreeableness factor. Similarly, a clear but somewhat weaker Assertiveness factor

TABLE 3

Loadings of items associated with assertiveness on Peer and Teacher Rating Factors, together with reliabilities of Peer Rating Items and their correlations with equivalent Teacher Rating Items. (Based upon a sample of 195 peers and 59 teachers)

Items Associated with Assertiveness	Factors								Correlations	
	Peer Rating				Teacher Rating					
	1	2	3	h^2	1	2	3	h^2	r_{pp}	r_{tp}
Not Timid		82[1]		70			64	43	75	33
Talkative		76		65	-31		44	34	62	20
Not Diffident	31[2]	75		66		40	62	55	60	32
Not Acquiescent		75		65		36	55	45	44	18
Convivial		66		53			53	30	79	51
Not Shy		64		44			67	48	71	32
Leader		65		52		58	59	69	57	39
Sociable	49	71		75	57	36	51	72	73	41
Creative	44	72		72		76	35	71	71	47
Self-Initiating	44	70		70	33	84		82	58	43
Important	35	62		58	43	52	42	63	49	30
Not Ignored	65	51		73	40	40	59	67	68	35
Confident	65	49		67		84	25	81	69	49
Influential	75	35		73	31	57	49	67	61	44
Respected	75		31	72	55	59	33	76	56	54
Not Submissive	53			35	32	71		63	27	16
Not Dependent	-49			32		76	30	70	20	-13
Self-Reliant				07		77		73	14	11

[1]Decimals omitted.
[2]Loadings less than .30 are not included.

emerged (Table 3). Eleven of the 18 a priori Assertiveness items have loadings above .60 on this factor and only five of these have loadings above .30 on other factors. Six, however, have higher loadings on Factor 1 than on Factor 2, although three of these have reliabilities so low as to be useless. The Conscientiousness factor is also present in that the a priori Conscientiousness items (Table 4) are the salients for Factor 3, as in Norman's study, but no item has a factor loading of .50 or higher. Eleven of the 15 items of this scale have loadings higher than .30 on this factor. The items with the highest loadings ("perservering," "not sloppy," etc...) suggest Conscientiousness, but there are no items having higher loadings on this factor than on Factors 1 or 2. This strongly suggests that social desirability or general evaluative tendencies play a much greater role among deaf adolescents than among hearing college students. One interpretation is that peers tend to rate each other along a general evaluative dimension and that this general

TABLE 4

Loadings of items associated with conscientiousness on Peer and Teacher Rating Factors, together with reliabilities of Peer Rating Items and their correlations with equivalent Teacher Rating Items. (Based upon a sample of 195 peers and 59 teachers)

Items Associated With Conscientiousness	Factors								Correlations	
	Peer Rating				Teacher Rating					
	1	2	3	h^2	1	2	3	h^2	r_{pp}	r_{tp}
Persevering	65[1]	30[2]	42	69	48	72		75	53	56
Not Easily Bored	66		39	67	60	44		55	68	48
Not Sloppy	66	32	39	70	51	61		63	59	53
Attentive	77		38	81	65	58		76	80	66
Diligent	73		38	78	59	63		77	74	65
Tidy	61		38	54	55	48		58	45	40
Not Quitting	39	39	36	46	40	65		62	37	38
Hard Working	73	40	34	82	62	59		74	74	51
Industrious	67	43	34	79	56	67		77	72	55
Not Lazy	74	28	33	75	66	40		61	79	46
Fast Working	33	69	30	68		70		59	69	36
Neat	66	32		60	46	46		42	83	59
Ethical	62	31		50	52	44		48	44	37
Honest	88			84	69	43		66	80	59
Truthful	88			81	67	40		62	72	54

[1]Decimals omitted.
[2]Loadings less than .30 are not included.

dimension is positively related to all factors. An alternate interpretation is that peers considered highly agreeable tend to be rated highly on all positive traits. In either case, the varimax solution seems to be a poor fit to the actual data and the factors do not appear to be completely independent of each other. It is also interesting to note that certain moral scrupulousness dimensions (e.g., "honest" and "truthful"), which had loaded highly on Conscientiousness in other factor analyses, are among the salients for the Agreeableness factor in the current study. No Intelligence factor could be separated out. The trait "smart" (Table 5) upon which there was the greatest inter-subject agreement (r = .91) had multiple loadings on the first three factors. The fourth factor, insofar as it is interpretable, does tend to be related to Emotional Stability in that "worry" and intolerance for authority or criticism were among the salients. All of these items have such low reliability, however, that the meaningfulness of this factor must be questioned.

In any case, the data strongly suggest that Agreeableness appears to be akin to a general Social Desirability factor and that Assertiveness is an important, although secondary, factor of social perception, largely independent of social desirability.

TABLE 5

Loadings of items associated with intelligence and emotional stability on Peer and Teacher Rating Factors, together with reliabilities of Peer Rating Items and their correlations with equivalent Teacher Rating Items. (Based upon a sample of 195 peers and 59 teachers)

Items	Factors								Correlations	
	Peer Rating				Teacher Rating					
	1	2	3	h^2	1	2	3	h^2	r_{pp}	r_{tp}
Intelligence										
Smart	58[1]	54	30[2]	75		83		76	91	69
Studious	79	30	35	85	35	83		82	80	65
Versatile	58	63		77	31	82		82	70	57
Emotional Stability										
Not Worrying[3]		31		35			61	42	32	14
Not Irritable	54			50	35		61	55	42	27
Not Nervous		68		52			46	35	51	27
Not Fearful		74		59		39	58	49	57	30
Patient		35		16	47	40	36	51	27	22

[1]Decimals omitted.
[2]Loadings less than .30 are not included.
[3]Not Worrying also loads .42 on a Peer Factor 4.

To check on this, a Social Desirability score was obtained by summing for each S his scores on the items considered on an a priori basis to be positive in value, minus those deemed to be negative. Only on one item, "Needs help from others," was there a reversal of the hypothesized value. Not needing help from others is apparently considered to be an undesirable trait by deaf adolescents. Each item was correlated with this total Social Desirability (SD) score. In general, correlations with SD paralleled Factor 1 loadings. Of the 36 items having Factor 1 loadings above .60, all had correlations with SD of .50 or more. In contrast, the items with Factor 2 loadings above .60 and Factor 1 loadings below .30 had correlations with SD ranging from .24 to .51. It would seem, therefore, that deaf adolescents judge their peers almost entirely on the basis of two factors: Social Agreeableness (or Desirability) and Assertiveness.

2. Teacher Ratings

a. Internal consistency of teacher ratings. While all Ss were rated by two teachers and a counselor, some teachers rated many Ss while others rated few. Consequently, the intraclass correlation coefficient was used as the measure of reliability for the teacher ratings. This procedure does not adjust for rater bias (systematic tendencies of raters to rate high or low) and therefore represents a conservative reliability estimate. Adjusting each Ss rating by the systematic bias of each rater was too cumbersome, however, and an S's rating on each item was taken as the simple sum of his three ratings.

b. Factor analysis of teacher ratings. Intercorrelations of TRS-1 and TRS-2 indicated no need for separate factor analyses, and the two scales were combined into a single 87-item scale. Again, factors were extracted by the centroid method and rotated to normalized varimax solutions. Three factors emerged which contributed 42%, 43% and 14% of the total common factor variance respectively. Referring to Table 2, the salients on the first factor ("not rude," "polite," "kind") clearly indicate this to be an Agreeableness factor. In fact, of the ten TRS-1 items loading highest on this factor, six equivalent PRS items are among the ten having highest loadings on Peer Factor 1. Similarly, Factor 3 (Table 3) emerges as an Assertiveness factor equivalent to Peer Factor 2. Of the 12 TRS-1 items having their highest loadings on this factor, nine of the equivalent PRS items loaded highest on Peer Factor 2.

In strong contrast to the Peer Ratings, a clear Intelligence factor emerged (Table 5). Items loading highly on this factor include many designed to measure Task Tolerances along with such items as "is smart," "appears intelligent," and those items designed to measure Conscientiousness or Assertiveness but which represent traits associated with academic efficiency or success. A large number of items had multiple loadings on Factors 1 and 2, suggesting that here too a general evaluative tendency, or "halo" effect, is operative. It is, of course, not surprising that teachers and counselors would be more sensitive to academic efficiency as distinct from Agreeableness or Assertiveness as a basis of social perception. As can be seen from Table 4, items designed to measure Conscientiousness load highly on Factors 1 and 3 of the Peer Ratings but on Factors 1 and 2 of the Teacher Ratings. It is also interesting that items designed to measure Emotional Stability tend to load highly on the Assertiveness factor. In both Teacher and Peer Ratings, what is here being called Assertiveness suggests a kind of freedom from fear or inhibition.

3. Factor Scores

In order to reduce the correlation between factors, factor scores were obtained for the two main PRS and three TRS factors by summing the scores of each S on those four or five items of each scale having high loadings on one factor and negligible loadings on other factors. The five factor scores obtained were as follows:

P-1 (Peer: Agreeableness): Not Rude; Not Stubborn; Not Jealous; Truthful; Kind

P-2 (Peer: Assertiveness): Not Timid; Not Shy; Convivial; Talkative; Leader.

T-1 (Teacher: Agreeableness): Not Rude; Not Hostile; Not Stubborn; Trusting; Kind.

T-2 (Teacher: Intelligence): Conceptual Ability; Intelligent; Confident; Smart.

T-3 (Teacher: Assertiveness): Not Timid; Not Shy; Not Worrying; Convivial.

Correlations among the five factor scores are given in Table 6.

TABLE 6

Intercorrelations of Peer and Teacher Rating Factors

	(T-2)	(T-3)	(P-1)	(P-2)
(T-1)	.41	.11	.58	.02
(T-2)		.23	.47	.32
(T-3)			-.04	.43
(P-1)				.20

4. Performance Measures of Personality

In order to demonstrate the validity of any of the approaches to the measurement of task or social tolerance, it is necessary to demonstrate that the measures designed to assess tolerance for routine, detail, frustration,etc., correlate at least moderately with each other and with ratings of these tolerances by the teachers.

a. Tolerance for routine. Tolerance for Routine was assessed through measures of performance decrement on four tasks: Copying Numbers, Marking Numbers, Adding Tallies (i.e., 111 + 11 = 5) and Circling Identities. In each instance, a decrement score was obtained by subtracting a measure of the S's efficiency on the last part of the test from his earlier or best efficiency on the test.

Correlations of decrement scores among the four tests range from -.04 to +.13, clearly indicating that there is no general

factor of Tolerance for Routine on these four tests. Correlations of performance decrement with teacher ratings of Tolerance for Routine range from -.03 to +.15. It seems likely, then, that if a tolerance for routine task exists as a dimension of work satisfactoriness, it is not measured by the procedures used. The most likely explanation is that the tasks were all too short (the longest was 15 minutes) for mental fatigue from the task monotony to play a significant role in the S's performance.

b. Tolerance for novelty. Tolerance for novelty or change was measured by giving the S five tasks (Circling Identities; Word Direction; Clerical Skills; Crossing Out Numbers; Counting Letters) under conditions where the S was required to switch rapidly from one task to the other. The S's performance of the five tasks under this condition was then compared with his performance on these five tasks under the regular test conditions by subtracting his standard (Z) score for each task in each condition.

Correlations of the difference in relative performance (Z scores) of the five tasks under the two conditions range from -.06 to +.15. Summing across the five tasks yields an overall Tolerance for Novelty score, but this yields an r of only +.23 with the teacher rating of this tolerance. Again, the lack of intercorrelation among the measures and with the teacher rating indicates that the measures used were probably invalid. Here, too, it seems likely that the brevity and artificiality of the testing conditions precluded finding such a factor.

c. Tolerance for frustration. Two frustrating situations were designed. In the Embedded Figures Test, the S could avoid the frustration of looking for the concealed figure, a difficult and frustrating task, by checking off a "NO" response, indicating that the figure was not present. This permitted him to go on to the next item and to complete the test sooner. In the Insoluble Problems Test, the S was asked to perform an impossible task (drawing a figure without lifting his pencil), which could only be accomplished by cheating. In both instances, persistence was considered to be indicative of high tolerance for frustration, while the avoidance response was indicative of low tolerance. Since the S's ability to extract embedded figures is also a determinant of the task's difficulty, the S's performance on the regular form of this test was partialed out of the correlations.

Again, the results were disappointing. The correlation between performance on the two tasks was only +.07 and the correlations between the tasks and two teacher ratings of frustration tolerance ranged from -.07 to +.14. It is likely that the restraints of attempting to design tests which would produce only mild frustration so as not to interfere with the testing conditions resulted in the failure to measure this tolerance.

d. Tolerance for ambiguity. Tolerance for Ambiguity was measured through two tests, both essentially aimed at assessing the tolerance through response styles: the Design Preference Test, and the Picture Meaning Test.

The correlation between the tests was taken using several indices of extreme response sets: each of the two extreme positions separately and combined, and combined with the intermediate position. For each scoring procedure, the correlations between the two tests ranged from only +.18 (tendency to choose intermediate categories) to +.24 (tendency to choose the left extreme). Correlations with teacher rating of tolerance for ambiguity were negligible.

e. Tolerance for distraction. Two measures of this tolerance designed by Messick and Fritsky (1963) as variants of the Stroop Color-Word Interference Test (Stroop, 1935) were employed. In each, the S is required to perform a task under control and interference conditions. In the Speed of Summation Test, the S counts tallies (111 + 11 = 5) in the control condition, and letters which spell numbers (one + two = 6) in the interference condition. In the Word Direction Test, the S indicates the direction of a standard word ("round") in the control condition, and of a word spelling a direction ("down") in the interference condition. Since scores under the two conditions are highly correlated, regressed scores are obtained by subtracting from the S's score under the Interference condition his expected performance, given his score under the control condition.

Although scores under the two interference conditions correlate +.44, the regression scores correlate only +.04, indicating that the tendency to be distracted by the interfering set is essentially uncorrelated under the two procedures. The teacher rating of tolerance for distraction correlates +.26 with the regressed Word Direction Score but only +.03 with the regressed Speed of Summation Score.

f. Tolerance for criticism. The S's performance following criticism by authority was measured by giving the S a simple Coding task, informing him by means of a table of fake norms that he performed poorly, and then giving him an alternate form of the Coding task. Presumably, a sharp decrease in speed or accuracy should be the consequence of an intolerance for criticism. Again, a regression score was necessary to secure a measure free of base ability on the task. However, the correlation between this score and the teacher rating of tolerance for criticism was only +.21.

g. Tolerance for detail. Four measures were chosen to assess Tolerance for Detail: Marking Numbers; Circling Identities; Following Instructions; and Clerical Skills. While these tests are indeed intercorrelated and also correlate with teacher ratings of tolerance for detail, it is difficult to justify these relationships as measuring a tolerance for detail rather than a more conventional general ability factor.

TABLE 7

Loadings of three factors (varimax rotation) on 12 performance measures

Performance Measures	Factors			
	1	2	3	h^2
Copying Numbers (Accuracy)	76[1]			63
Speed of Summation (Interference)	75			63
Crossing Out Numbers	72			55
Speed of Summation (Control)	72	40	32[2]	78
Hidden Figures		88		78
Embedded Figures (Regular)		67		57
Reading Level			85	74
Word Direction (Interference)	46		68	71
Clerical Skills	48	30	63	71
Following Instructions	52		61	64
Word Direction (Control)	48	35	60	71
Circling Identities	50		52	56

[1]Decimals omitted.
[2]Loadings under .30 are not included.

5. Factor Analysis of Performance Measures

The complete battery of performance measures was subjected to factor analysis (an analysis of principal components followed by a varimax rotation to produce orthogonal factors). The results are shown in Table 7 (factor loadings of less than .30 are omitted).

It is clear that the resulting factor structure is at variance with the one initially postulated; that instead of a group of factors representing the various tolerances, what emerges is a smaller structure organized along completely different lines. The results were not totally unexpected, however, inasmuch as the measures used for the various tolerances were of the paper-pencil type, which in many cases exerted time pressure upon the subject. A closer inspection of test loadings suggests that the first factor is essentially a scanning-processing efficiency factor (i.e., rapid detection of fine differences, and rapid transformation of these differences into some other form). The second factor is one which has emerged in many research studies under a variety of labels: "analytic ability," "cognitive style," or "field independence." Essentially what this cognitive style factor refers to is the ability to respond to the essential elements of a problem (perceptual or cognitive) and to ignore or suppress the irrelevant elements. The third factor seems to be a linguistic-interpretive ability (i.e., the ability to process essentially linguistic data).

Aside from the correlations between rating factors related to intelligence, the teacher and peer ratings were essentially uncorrelated with test performance. In fact, taking Teacher Rating Factors 1 and 3 as those measures most free of confounding intellectual ability, not a single test measure correlated higher than +.20 with either of these factors.

D. Discussion

1. Performance Measures

The failure to develop valid performance measures of various job related tolerances can be interpreted essentially in two ways: (1) the notion of a job tolerance is not valid; or (2) the notion is valid but the tests used are not, in fact, measuring the postulated tolerances. It is impossible, at this stage, to state categorically which of these possibilities is correct, although the results shown in Table 7 suggest the latter interpretation. Considering the relationship between the testing situation and the hypothesized job situation, the ability to tolerate work that is routine, detailed, frustrating, etc., may very well be critical to satisfactory job performance, but almost all of these tolerances involve a building up of stress over time. It is possible that, given minimum job qualifications, a person may be able to tolerate almost any job for a brief period of time, but even this brief period is longer than the maximum time which may be alloted to an objective test administered in a counseling situation.

Nevertheless, to say simply that we have failed to achieve our initial objectives is to overlook some very important positive results. The first of these is the strong suggestion that the use of short paper-and-pencil tests suitable for counseling, to measure tolerances is, if not impossible, at least highly impractical. It is conceivable, of course, that a different battery of tests might produce different results. Nevertheless, considering the difficulties experienced in generating the present battery, the likelihood of generating an even more refined battery is quite remote. In all probability the type of demands made by paper-and-pencil tests, in general, is different from the type demanded by the work situation.

What the test battery did achieve was the uncovering of three relatively distinct cognitive skills: scanning-processing efficiency, cognitive style, and linguistic-interpretive efficiency, all of which may prove to have relevance to job competence in certain restricted areas, apart from the whole tolerance structure (e.g., key-punching, bookkeeping).

Granted that tolerances are unlikely to be tapped by a battery of this type, how can one measure them? The answer lies in the formulation of the notion of tolerance itself. In each case a tolerance was considered from the point of view of an actual job situation. That being the case the only feasible way of measuring these tolerances is to construct an artificial work situation in which tasks can be chosen and manipulated in such a

way as to produce the demands associated with each tolerance. One need only to construct suitable output or performance measures to detect the various tolerance levels. In other words, a subject will be required to perform a routine task, for example, for an extended period of time (e.g., 3 hours) or will be asked to cope with a vocationally meaningful task beyond his competence (to induce frustration), and so on. Only in this kind of simulated "real life" environment (in a vocational training program, for example) can we expect to obtain suitable measures for predicting his later vocational success.

Furthermore, only this type of approach will allow us to examine the nature of the tolerances themselves. Not all routine tasks are the same, and individuals having high tolerance for one type of routine operation may have low tolerance for another. The same may be true for all of the tolerances. Or the intercorrelations between tolerances obtained in this way may show, as they did with the paper-and-pencil battery, a general task competence.

2. Teacher and Peer Ratings of Personality

In contrast to the performance battery, the rating procedures developed did prove to be highly promising. In spite of the language problems and the social desirability or "halo effect" response sets associated with trait ratings, both teachers and subjects were able to give ratings with a relatively high degree of consensual agreement.

From the initial rating scales involving many traits and items, it was possible to derive ten to fifteen traits which can be rated by teachers and which provide reliable information about the vocationally relevant traits of Agreeableness, Assertiveness, and Intelligence. Similarly, a small number of parallel items can be communicated to non-literate deaf adolescents and responded to reliably on the same dimensions.

3. Suggestions for Future Research

a. Development of self-report measures. A major finding of the study was that deaf adolescents can reliably and validly rate personality characteristics of their peers via the nomination procedure, providing that the traits to be rated are not linguistically too complex to be unambiguously communicated by formal signs. Norman (1963b) has described a procedure for constructing forced-choice self-rating inventories which yield results correlating highly with peer-nomination criteria and simultaneously provide a 90% effective method for detecting dissimulation or "faking." Since the self-rating inventories developed by Norman were based on the same Descriptive Adjective Inventory as provided the initial item pool for the current study, and since the peer nomination procedures which served as criteria were identical to those of the current study, the steps to be taken in constructing such a self-report measure should prove to be no great problem. Essentially, the inventory would involve a series of forced-choice items matched for general social desirability in which the S responds with which of two statements is "more true" of himself.

For example, an Agreeableness factor statement such as "I am kind" might be matched with an Assertiveness factor statement such as "I am a leader." It should then be relatively simple to obtain self-rating scores for a variety of vocationally relevant personality traits which could be validated, using as criteria the Peer and Teacher Rating Scales developed in the present study. If such an inventory could be constructed and validated, it would of course meet a great need in that it would permit an alternative to both rating scales and objective tests of personality and provide the vocational counselor with a relatively easy-to-administer instrument.

b. Correlation of trait and interest patterns. The present study separated the problems of trait and interest measurement for methodological rather than for theoretical reasons. In fact, there is every reason to believe that patterns of vocational preference may emerge from the same motivational sources as personality traits. It would be interesting to determine to what extent, among our deaf Ss, preferences for particular types of occupations are related to personality traits either perceived by the self or by others. The completion of the interest inventory and the development of the self-report inventory described above will permit a systematic investigation of the relationships between the factors measured by each instrument. It might then be discovered, for example, that individuals high in Assertiveness tend to show systematic preferences for occupations which are active, indoor, and involve a high degree of social interaction. Such findings would provide further validating evidence for both instruments as well as a means for clarifying unresolved questions in personality theory.

c. Correlation of traits with job performance. A crucial unresolved question is the extent to which job satisfactoriness is a function of some general competence factor as opposed to a combination of more specific tolerances or traits. Ultimately, this question can only be resolved by devising criteria for measuring satisfactory job performance, discovering the factors responsible, and then determining to what extent the measures developed in this and subsequent studies correlate with these factors. In devising a questionnaire for employers or supervisors to measure satisfactoriness, it would be useful to include items aimed at determining the relevance to supervisors of both the personality trait factors uncovered in the present study and the task and social tolerances initially hypothesized to be relevant. A sharper focus upon the factors employers consider relevant to satisfactory job performance would lead to further modifications in our measurement procedures, enabling us to come closer and closer to our eventual goal of early and accurate prediction and remediation of the factors responsible for poor work adjustment.

E. Summary

The assessment of vocationally relevant personality traits was approached in two ways. The first involved the translation of conventionally defined personality characteristics into abilities to tolerate certain social and task demands placed upon the individual by the work situation. Brief non-verbal measures, of the type that could be administered by a vocational counselor to deaf clients in a small group setting, were constructed. The second approach involved the rating of deaf students by their peers and by their teachers on several conventionally defined personality traits. A sample of 195 deaf students from two residential schools for the deaf, between the ages of 15 through 18, were administered (at different times) a peer rating scale and a battery of performance tests (groups of teachers and counselors were also asked to rate the students). Separate factor analyses were performed on these data. In the case of the rating scale procedure, the results indicate that certain personality traits can be adequately measured with this technique by deaf students as well as by teachers. In the case of the performance battery, the results indicate that short paper-and-pencil, non-verbal tests are inadequate for measuring the kinds of tolerances postulated by the author's model of vocational development, although these tests can be used to obtain other types of coping behavior. Extensions of the present study, particularly the development of a work-sample approach to the measurement of task tolerances, were discussed.

III. Interest Inventory

A. Introduction

1. Current Status of Vocational Interest Tests

Most, if not all, vocational interest tests are organized into fields. This is true of the seven inventories examined by the authors.[1] In essence, what these inventories do is to offer the subject a wide variety of occupations arranged, according to some scheme, into a set of categories often referred to as fields of vocational interest. The subject's preferential responses to individual occupations are then compressed into field scores and examined. For example, a large number of preferential responses to occupations classified under the same field is taken to mean a strong interest in that field, while a relatively uniform distribution of preferences over all fields suggests the absence of any clear occupational interest.

The notion of the occupational field is an implicit recognition of the fact that many jobs appear to share a certain communality of elements. A common element is some aspect or feature common to two or more jobs (e.g., outdoor work, working with people). An occupational field is created by first establishing a decision rule by writing a verbal description of the field in which the common elements are either explicitly identified or are capable of being inferred, and then applying the rule successively to each member of a pool of occupations. The resulting exemplars are those possessing the common elements.

Creating these decision rules is apparently a purely empirical affair; there are no theoretical guidelines for determining what a field should or should not be. Consequently, little if any attention has been given to the question of the number of common elements needed to adequately define a field. There appears to be no consistency in the number of common elements defining a field, either between tests or, in some cases, within the same test. In one case a field may be defined by a single element, and in another by two or more elements. For example, when the Geist Interest Inventory and the California Occupational Preference Survey (COPS) are compared on their descriptions of the Outdoor Field, the Geist lists only one common element (outdoor activities) while the COPS lists several (out-of-doors, cultivation and accumulation of crops and natural resources). Similarly, in the Kuder Preference Record, the Computational Field is defined in terms of one

[1]Brainard Occupational Preference Inventory, Form R; California Occupational Preference Survey; The Geist Picture Interest Inventory: Deaf Form: Male; Gordon Occupational Check List; Kuder Preference-Form C (Vocational); Strong Vocational Interest Blanks; Thurstone Interest Schedule.

element (working with numbers) while the Outdoor Field, like the previous example, is defined by several elements.

Are these descriptions comparable? Are decision rules based upon a single common element as valid as those based upon several common elements? Consider the following example. In the Geist Inventory (and in the Kuder, as well) the Literary category is defined in terms of an interest in reading books and other written materials and possibly in writing, as well. Exemplars of this field include author, editor, reporter, teacher of English and foreign languages, and librarian. Considering these occupations in relation to the field description it would appear that the single element common to all of these occupations is language. If one assumes that these jobs represent a valid sample of literary occupations, it seems reasonable to expect that a subject who shows a high interest in this field will be more interested in literary occupations than in occupations from a field of lesser interest. Theoretically, at least, one would expect a person interested in teaching English, for example, if forced to make an alternate choice, to choose an occupation like editor or librarian, rather than to teach some other subject, sociology, for example. Yet this presumably would occur <u>only</u> if the subject were responding to the <u>linguistic</u> aspect of the occupation, and not to the <u>teaching</u> aspect.

Apparently, the authors of these inventories, while recognizing the fact that probably all jobs share at least one element in common with at least one other job, either ignore or overlook the equally valid fact that these same jobs in all probability have other elements in common with other jobs. Thus the librarian, while admittedly sharing the linguistic element with the editor, nevertheless shares elements with other, non-literary jobs; with the museum curator, for example (since both are concerned with collecting, cataloguing, and displaying things), and with the social worker (since both provide services to the public, in this case information). Clearly, to categorize this occupation as <u>representing</u> literary interest, one must make two assumptions: (1) the linguistic element, if not the only common element, is the most important one; and (2) the subject will respond to the linguistic element only, and to no others. Since it is highly debatable whether either of these assumptions is tenable, we must conclude that groupings based upon single elements cannot be considered valid fields.

Regarding the use of multiple element groupings, obviously the more elements shared by jobs in the same field the greater the likelihood that the subject will be responding to these elements in indicating his preferences. Nevertheless, this is at best only a partial solution, since the subject may still conceivably be responding to non-common elements. In any event, with no theoretical guidelines the test constructor will be faced with the difficult task of empirically solving the problem of deciding how many common elements are necessary for establishing a valid field of interest. But these empirical solutions are,

by their nature, arbitrary. Being arbitrary, they will vary from one inventory to the next. A comparison of the seven inventories mentioned previously bears this out.

In addition to inconsistencies between tests regarding the number of elements used in defining a field, there are differences of opinion regarding the manner in which the universe of occupations should be partitioned. The Picture Interest Inventory and the Brainard Occupational Preference Inventory use six major fields; the California Occupational Preference Schedule uses eight; the Kuder Preference Record, the Geist Interest Inventory and the Thurstone Interest Inventory use ten; and the Strong Vocational Interest Blanks uses 11 fields for males and nine for females. Such differences imply different category widths. For example, what is merely an Aesthetic Field in the PII becomes, in another inventory (Kuder), three separate fields: literary, musical, and artistic.

Under the circumstances, it is difficult to talk meaningfully about one's "true" interest profile, when so much depends upon the inventory being used. This is true whether the inventory is verbal (e.g., Kuder) or pictorial (The Picture Interest Inventory; the Geist Interest Inventory). What is needed instead is some formulation of vocational interest which dispenses with the notion of the vocational interest field.

2. Molecular Preference Theory

The Molecular Preference Theory is a theory of vocational interests which maintains that occupations rarely evoke preferential responses in their entirety. Rather, it is some favorable aspect or combination of aspects of the occupation to which a person responds, hence the designation "molecular" (as opposed to the more molar concept of interest field). The primary function of the theory is to provide a framework for creating a vocational interest inventory (in a verbal and a non-verbal form, for both normal and language-impaired populations) capable of providing a more accurate and a more detailed profile of vocational interests than is currently available.

The Molecular Preference Theory (MPT) makes the following assertions:

(a) Any Job can be analyzed into a rationally ordered, finite set of elements.

(b) People are cognizant of many, though perhaps not all, of these elements, even though they may be unable to articulate this awareness.

(c) The number of elements of which a person is cognizant follows a developmental pattern. Beginning in childhood, where few elements are perceived, the number of salient elements increases with increasing vocational maturity.

(d) People generally exhibit preferences for certain elements over others.

(e) A preference for a particular job is determined by the presence of one or more preferred elements.

In asserting that any job can be analyzed into a finite set of elements, the MPT assumes that these elements are simply variations of a smaller set of necessary features of any job. That is to say, every job must take place somewhere. Furthermore, every job must involve doing something to something. These are necessary features of any job because if you remove any of them you are no longer discussing the concept of "job." Accordingly, in its most abbreviated form the theory conceives of every job as occurring in some environment and involving some type of operation acting upon some object. It further assumes that when a person exhibits an interest in a particular job it is because he is predisposed towards one or more of these features of that job.

In its complete form the theory specifies that each of the three parameters be subdivided into several elements. There are a total of 39 in the present model and, theoretically at least, each one of these elements is capable of exerting some measure of influence upon the person's preferential responses (either positive or negative). In actual fact, however, only a few of these elements will prove to be critical for any particular subject.

B. Methodology

1. Project Plan and Professional Staff

A description of the staff involved in this part of the project has been given in a previous section (II. B. 1). Regarding the program plan, an outline of the major steps taken in this phase of the project is listed below. Many of these steps are treated elsewhere in greater depth.

(a) Initial discussion on the original state of the model.

(b) Modification of parameters and elements of the original model.

(c) Creation of a pool of operationally significant words and phrases from several sources.

(d) Sorting of words into operation type categories.

(e) Establishing a final set of operational types.

(f) Creation of a matrix of jobs taken from the seven interest inventories sampled.

(g) Final selection of a pool of high and low socio-economic status jobs (20 in each pool).

(h) Creation of rating scales for each element in the model.

(i) Rating all jobs in both pools on all elements.

(j) Creation of the two "indirect" forms of the inventory.

(k) Creation of items for the direct inventory.

(l) Creation of scoring templates and summary score sheets for all forms.

(m) Administration of all forms to a sample of hearing adults.

2. Population and Sample

There are two populations for which the interest inventories can be used. The verbal form of the inventory can be used by any adolescent or adult with sufficient language competence to comprehend both the instructions and items. The pictorial form is designed for the language deprived; in particular, for the deaf. However, validation procedures require the exclusive use of hearing adults. There are two reasons for this. First, subjects must have sufficient language competence to respond to the direct form of the inventory. Thus, it makes it impossible to use a deaf sample for purposes of validation. Second, adults rather than adolescents were used, since they are more likely to have clearer vocational interest patterns. It should be noted also that the actual occupations of these adults are of no consequence, although attempts have been made to select subjects from different occupations, since it is the internal consistency of the subject's preferences which is critical here, not the actual preferences themselves.

3. Development of the Molecular Preference Inventory

a. Initial stage.

(1) Original Model. The model currently being used is not the one presented in the original proposal, nor was the theoretical exposition in the proposal. Both were subsequent developments. The model as it originally appeared is shown in Figure 2.

Thus, in the early stages of the project it became quite clear that what was being attempted was much more ambitious than had previously been realized; that a great deal more work, both theoretical and empirical, was required before we could offer the deaf client a valid and reliable vocational interest inventory. For one thing, it seemed imperative that a more detailed, theoretical exposition of our position was necessary, not only to more clearly distinguish our approach from that of competing approaches, but to help further clarify the structure of the molecular preference model. A second, no less important, task involved the re-evaluation and restructuring of the original model to conform more closely with the final theoretical formulation. A great deal of staff time and activity was devoted to

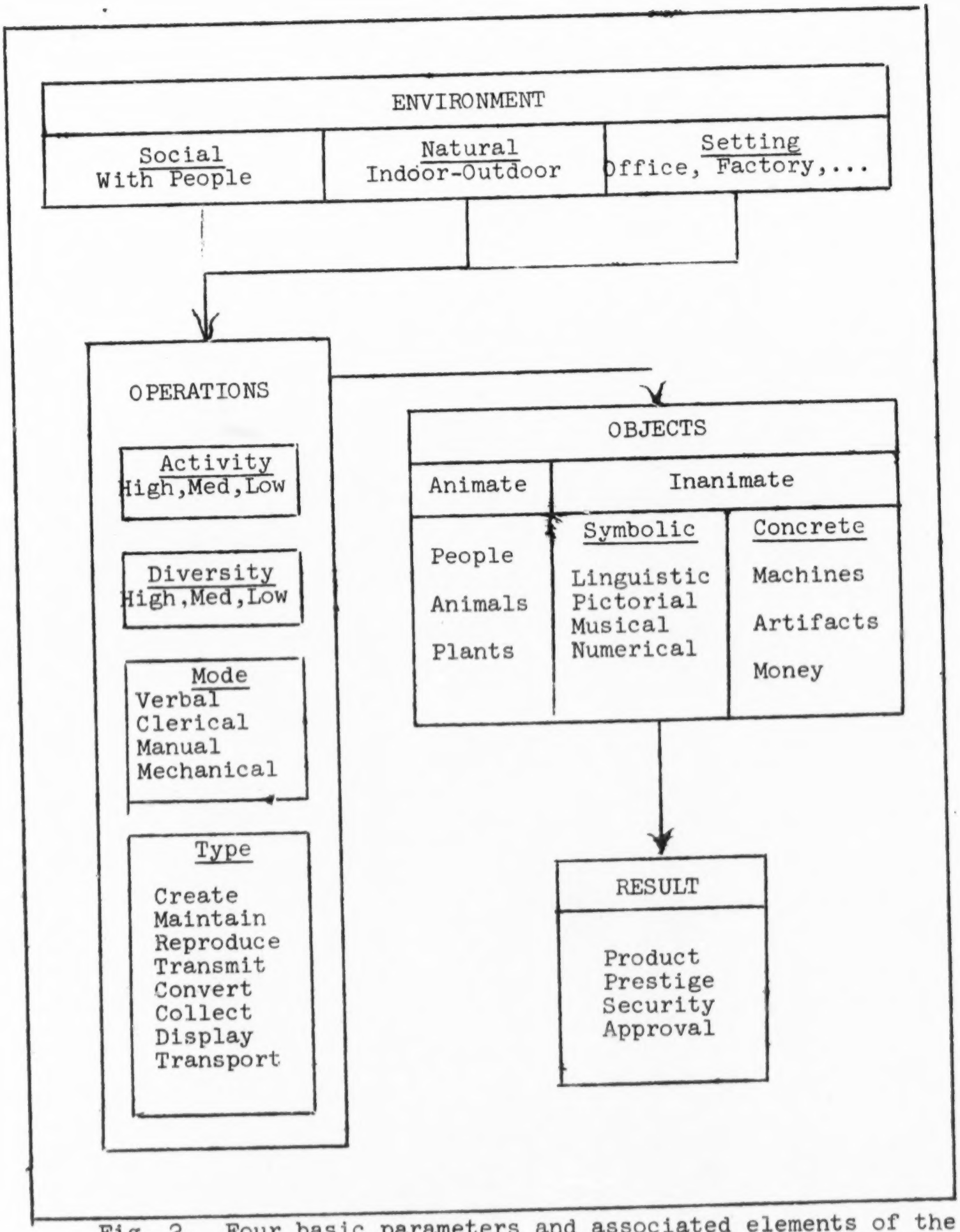

Fig. 2. Four basic parameters and associated elements of the original preference model.

this task. The end result was an extensive number of deletions, additions and modifications of elements.

(2) Deletions. Certain Elements were removed entirely from the model. The most striking case involves the reward component. It was the final consensus of the staff that while the theory could be accommodated to include the reward component, its relationship to the other components (environment, operations, objects) was neither necessary (the theory, after all, was attempting to isolate vocational interests independent of money or prestige) nor, for that matter, particularly clear. (Were money and prestige the only important rewards? What about intrinsic rewards? Are extrinsic rewards contaminated with unconscious needs and drives?) For these and other more technical reasons it was felt that further work on rewards as a separate system should be deferred to a later time.

(3) Additions. In its initial form the model was felt by many of the staff to be too abbreviated; that at best it represented only a first approximation. It was argued that in the interests of completeness as many elements as possible should be included initially with the proviso that they be dropped if they elicited no clear-cut preferences. Some of these additional elements were subsequently removed because of scoring difficulties. For example, a locale element (rural, suburban, urban) was included under Physical Environment, but soon dropped because of difficulties encountered in classifying jobs into these categories. The term "locale" was eventually used to refer to a different aspect of the environment (indoors-outdoors).

(4) Modifications. All three major components underwent some structural modifications. Thus Environment was changed from a three-part structure (social, natural, setting) into a two-part structure (social and physical), subsuming all elements appearing in the earlier version and some new elements as well. In addition, some elements were shifted from one component to another. For example, Display of Self was shifted from an Operational Type to an Operational Mode and relabelled Dramatic.

Another important reorganization took place with the Object Component. Here, a classification scheme suggested by the one employed in the Dictionary of Occupational Titles (DOT) was substituted for the original scheme. This meant, for the most part, a reclassification of elements from the earlier model into a new Object Scheme, together with a set of new elements.

While all of this was going on, considerable activity was devoted to the task of refining the notion of operational type. Operational types refer, in general, to the things a person does to some object. Two questions were asked: Are the present set of operational types exhaustive? Are they at approximately the same level of abstraction? The approach used to answer these questions was simply to collect a large number of operationally suggestive words and phrases (i.e., words and phrases describing "doing something" with objects) and attempt to classify them into several types. Accordingly, a large pool of relevant words was

taken from Roget's Thesaurus, and a Q-sort was performed independently by several staff members. The results proved inconclusive. A second pool of words, consisting of 372 operational type words, was then obtained from job descriptions given in the Occupational Outlook Handbook (1966-1967 edition, U. S. Department of Labor, Bureau of Labor Statistics). Analysis revealed, however, that the bulk of these words (223) occurred only in connection with one job, and only 11 of them occurred with 15 or more jobs. In the end, we were forced to rely upon our collective intuitions regarding the number and level of abstraction of the operational types included. This is perhaps the weakest feature of the model. In a very real sense the classification of operational types has all of the drawbacks associated with field classifications. It should be pointed out, however, that unlike vocational fields, operational types represent only one feature of a larger interest model. If errors exist here they create fewer distortions of the overall profile than do those associated with field classifications.

(5) Final Model. The final model is presented in Figure 3. It is of course only a schematic; the elements and parameters are merely listed. Exactly what they mean will now be discussed. As noted earlier, every job takes place somewhere. Thus, we may talk of the environment of a job. Now, the concept of environment can be classified in a large number of ways. After a great deal of discussion, it was decided that the simplest scheme was to consider the social and physical aspects of the environment. In considering the social aspect, the element which seemed the most important was the amount of social contact involved in the job. That is to say, it seemed highly likely that some people would prefer to work essentially alone, while for others the presence of people in the work environment would be an important factor in selecting a job. A further distinction was made between the public (people not associated with the job itself) and co-workers. Whether the distinction is a meaningful one is not yet clear.

Another dimension of contact included involved "feedback." People make contact with the public in many different ways. A TV announcer, for example, makes contact with the viewing audience, but only in a very remote way. Certainly his contact is different from that made by the door-to-door salesman, where the feedback he receives is immediate. Again, as in the case of the distinction between the public and co-workers, this dimension may prove to be, if not non-existent, then possibly very highly correlated with the amount of contact with people in general (i.e., people who prefer to work alone, if forced to choose between immediate and remote feedback situations, may possibly choose the latter).

Several aspects of the physical environment were considered. It seemed desirable to consider as many ways as possible to classify these parameters, since they could always be discarded if no consistent pattern of preference were ever found. Only three elements remained, the others being discarded because of

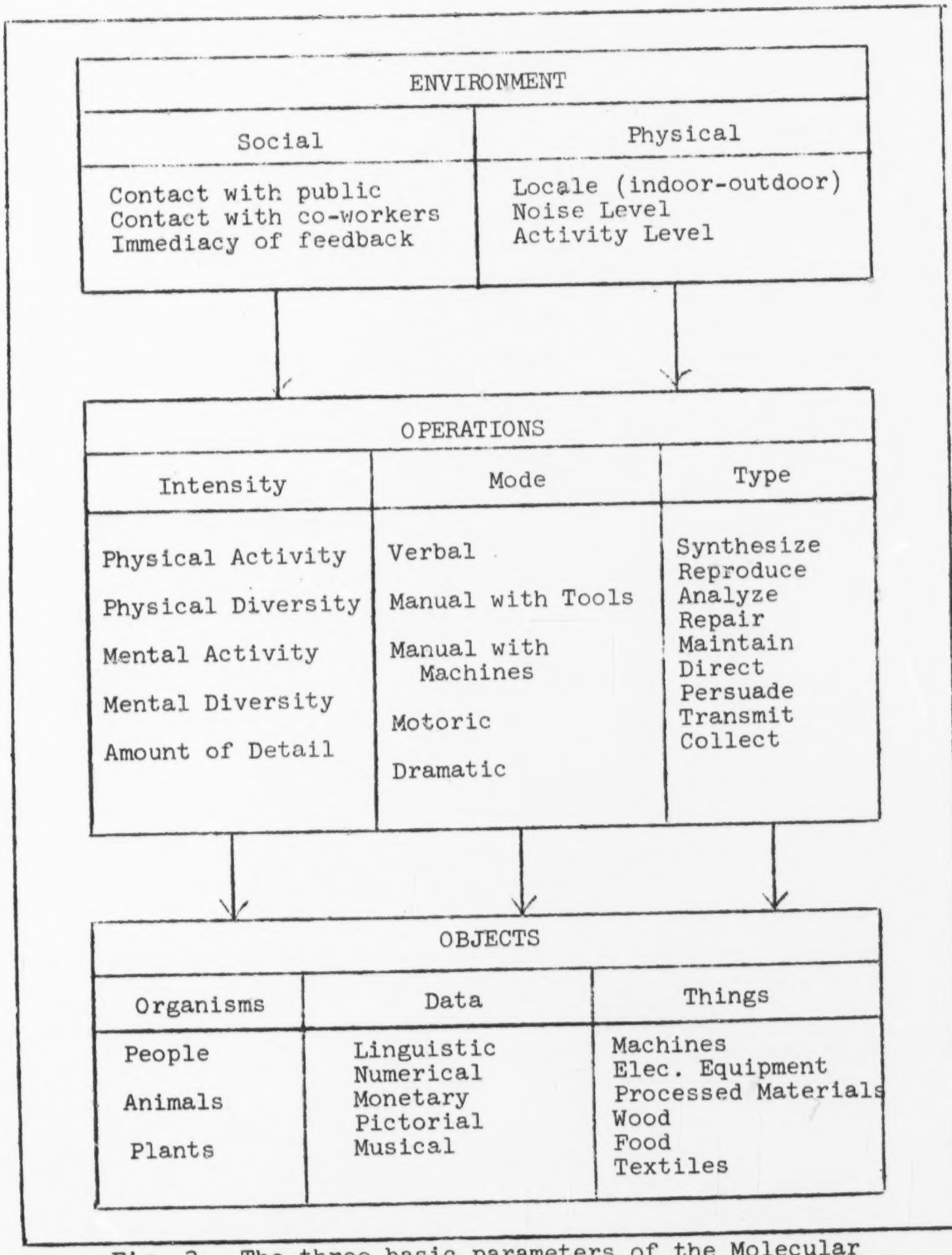

Fig. 3. The three basic parameters of the Molecular Preference Model and their associated elements.

difficulties encountered in rating them: locale, noise level and activity level. In the case of locale, jobs are classified as being essentially indoors or outdoors. That is to say, while there are many jobs that are always performed indoors, many jobs entail some outdoor activity. In rating a particular job for locale, therefore, the criterion is whether the element is present "generally" or "most of the time." The same is true for outdoor jobs, as it is for all elements in the model.

Another aspect considered a possibility was noise level. Of course, a preference for a high noise level is not expected, but it is possible that while most people would avoid a high noise level, some people may indeed be indifferent. Activity level refers to the amount of "bustle," or movement, surrounding a job (not necessarily related to noise per se). It is possible that some people do indeed prefer the stimulation afforded by this kind of activity; hence its inclusion in the model. At the present time, these are the only aspects of the physical environment we have considered. It is possible, however, that other meaningful ones will be discovered.

Not only does every job take place somewhere, but it involves doing something. This is the operational parameter. How many ways can one analyze this notion of "doing something?" In the present model, three ways were finally selected: intensity, mode, and type. Intensity refers to both the sheer activity level (physical or mental) at which the job is performed, as well as the diversity (either physical or mental) involved (i.e., doing many things or few things). It also includes a special category which is concerned with the amount of detail or precision required. Mode refers roughly to the parts of the body used: verbal, manual, motoric (the whole body) or dramatic (displaying the self). These modes are not mutually exclusive; a dancer can be rated as being both motoric and dramatic, an actor as vocal and dramatic. (Another mode, not in the present model but under serious consideration, is cognitive, where the activity is purely mental.)

The last aspect of the operational parameter, and perhaps the most difficult to classify, is the operational type. The notion of "type" is associated with the question, "What do you do to the object?" One of the chief problems in creating a class of types involves level of abstraction. On the one hand you could talk about "picking up" an object. This is, of course, much too specific. At this level there would be literally thousands of potential types. On the other hand, one can choose a level too general for any practical use (i.e., as a type, "processing" would be useless since almost any kind of activity can be classified in this way). In general, our efforts were directed at achieving a middle level of abstraction, not so high as to be trivial and not so low as to be impractical. At the present time there are nine operational types.

Synthesize. This refers to the process of putting things together in new ways. It corresponds roughly to Guilford's (1959) concept of "divergent thinking," and as such is not simply a label for artistic creativity.

Reproduce. Unlike the previous type this is essentially a "cook book" operation, involving the carrying out of some predetermined plan. It includes any kind of routine procedure which may be carried out.

Analyze. This refers essentially to the process of breaking down, or taking things apart, or discovering things.

Repair. This is somewhat similar to Analyze except that here the emphasis is on remediation rather than on understanding.

Maintain. This could be called the status quo type, and refers to all activities bent upon "keeping things going."

Collect. This operation refers to activities associated with the collection and storage of things.

Direct. This operation is reserved exclusively for people and refers to all executive, command, or managerial activities.

Transmit. This type is concerned with the transmission of information (e.g., teaching).

Persuade. This, like Direct, is concerned only with people, and subsumes all activities directed towards changing attitudes and opinions (e.g., salesman, clergyman, lawyer).

These nine types seem to account for most activities associated with jobs. It is always possible, of course, that later research may result in the discovery of new types. In that case they will simply be appended to the current list.

The last operational parameter involves objects. They have been classified as Organic (people, animals, plants), Data (linguistic, numeric, monetary, pictorial, and musical), and Things. This last category, unfortunately, has resisted all attempts to date at creating a meaningful and exhaustive breakdown. Since the category could not be ignored completely a compromise was arrived at by choosing a set of categories which seemed to give some promise of yielding preferential patterns. They are: machinery, electrical equipment, wood, food, textiles, and processed materials.

b. Final stage. Following the reorganization of the model, work was begun on the construction of items. Two types of inventories were envisioned: direct (verbal only) and indirect (verbal and pictorial). The direct form was to be composed of items designed to test a subject's preferences (or lack of) for each element in the model. The indirect form, on the other hand, was to be composed of a series of jobs to which a person would indicate his order of preference. Each job would have an associated model-derived profile (i.e., each job would be analyzed

in terms of the presence or absence of each element in the model). A person's preferences for each element could then be inferred from the pattern of his rankings of the job by examining these jobs in terms of their constituent elements.

(1) Direct Inventory. Construction of items for the direct inventory was both a laborious and time consuming affair. The chief difficulty lay in creating items in which all but the critical element were kept relatively constant. The task was in general a function of the number of statements per item; items involving only two (pair comparisons) were, in general, easier to control than those involving three or more statements. These latter items required the subject to rank the item statements in order of decreasing preference. Notable exceptions to this were the items involving operational types. After several unsuccessful attempts at creating these items, the procedure of using two relatively broad types of occupation (law and medicine) was adopted. Both are sufficiently diverse so that one can, without too much artificiality, create a representative of each operational type. The advantage of this procedure is that one is able to exert a reasonable amount of control over the remaining elements in the model, in addition to the problems imposed by considerations of salary and prestige.

(2) Indirect Inventory. The indirect inventory presented a completely different set of problems. First, there was the question of the number of jobs to be included. Related to this was the method of presentation. The method of pair comparisons was finally agreed upon since it has the advantage over rating procedures of avoiding response styles (e.g., tendency to avoid extreme ratings). This, in turn, placed a ceiling upon the number of jobs under consideration, since with only twenty jobs the number of comparisons to be made is 190, whereas with 30 jobs the number is 434. The number finally agreed upon was 20. Two forms were constructed; one involving relatively high socio-economic status (SES) occupations, and one involving low SES occupations.

The problem of selecting 20 "representative" occupations at two SES levels was yet another laborious, time consuming, and essentially fruitless endeavor. Jobs from all of the interest inventories reviewed by the staff were pooled in order to cull from them a smaller core list of occupations representing a variety of fields and appearing on a majority of tests. Unfortunately, out of a pool of 1099 occupations, 861 of them appeared on only one test, and only 47 of them occurred on more than four tests. Furthermore, when these were examined it was found that too many of them were too closely related to provide a broad spectrum of occupations. In the end, jobs were selected so as to represent as closely as possible a heterogeneous configuration of underlying elements. Each one of these jobs was then rated independently by two senior staff members. Differences in ratings were resolved, item by item, through discussion. Elements producing wide variations in ratings were re-examined, and in many cases discarded.

Attempts at constructing an indirect pictorial form began with an assessment of the degree to which pictures of jobs elicit similar verbal descriptions or labels. Five naive raters were presented with a series of pictorial representations of jobs appearing in the Picture Interest Inventory and were asked to name the jobs depicted. Table 8 gives the breakdown of agreements on various pictures, where agreements are defined both narrowly and broadly. (A narrowly defined agreement is one specified by

TABLE 8

Distribution of labelling agreements (broadly and narrowly defined) among five naive raters for 129 pictorial representations of occupations.

No. of Raters Agreeing	Narrow Definition			Broad Definition		
	No. of Pictures	Percent Pictures	Cumul. Percent	No. of Pictures	Percent Pictures	Cumul. Percent
5	64	40	40	88	56	56
4	44	28	68	30	19	75
3	18	11	79	9	5	80
1 and 2	33	21	100	32	20	100

by the Dictionary of Occupational Titles (DOT) which, for example, classifies "farmer" and "chicken farmer" as different occupations. Broadly defined agreements, on the other hand, gloss over such distinctions. The interesting point about these results is that it apparently makes little difference how the agreements are defined, since under both definitions at least three out of five raters agreed on roughly the same percentage of pictures (79% and 80%). The important point to bear in mind is that by judiciously selecting only those occupations for graphic display which elicit 100% agreement, we should be able to produce a valid, indirect pictorial inventory.

(3) Current Status. Because of the considerable amount of time spent in the theoretical and empirical development of both forms of the MPI, the administration of the tests for purposes of validation is still going on. Subjects are being given experimental forms of both the direct and indirect inventories. The indirect forms represent samples of jobs from high and low SES levels, respectively. The jobs used in both are listed in Table 9.

TABLE 9

Twenty high and low Socio-Economic Status occupations (SES) used in the indirect forms of the Molecular Preference Inventory (MPI).

High Socio-Economic Status	Low Socio-Economic Status
1. Airline Captain	1. Auto Body Repairman
2. Architect	2. Bus Driver
3. Banker	3. Carpenter
4. Baseball Player	4. Cashier
5. Chemist	5. Chauffeur
6. Dentist	6. Chef
7. Doctor	7. Door-to-door Salesman
8. Forest Ranger	8. Electrician
9. Gentleman Farmer	9. Laboratory Technician
10. Head Librarian	10. Lumberjack
11. Insurance Underwriter	11. Masseur
12. Judge	12. Photographer
13. Marriage Counselor	13. Postman
14. Mathematician	14. Poultry Farmer
15. Mechanical Engineer	15. Printer
16. Minister	16. Secretary
17. Movie Director	17. Shoemaker
18. Novelist	18. Tailor
19. Police Commissioner	19. Toolmaker
20. Sculptor	20. Watchmaker

The direct inventory is in two parts. Part I is composed of 120 pair comparison items; Part II of 19 items requiring the subject to rank a series of statements (3, 4, ... 7). Each element of the model, with the exception of the operational types, is measured by four items. Items pertaining to operational types are more numerous, inasmuch as each type is paired against all others, creating a total of 36 pairs. These comparisons are made in both a medical and a legal setting, with the result that there are 72 operational type pair comparisons. In both parts items are presented randomly.

(4) Scoring Procedures. For the two indirect forms, scoring templates have been constructed for each of the 20 jobs, to facilitate the counting of preferences. The number of times each job is preferred over its companion is read off directly from the template and entered on a score sheet. These frequencies (maximum 19, minimum 0) can be used in two ways, to yield an element preference profile. The first procedure is to use the frequency of preference as a weight. That is, each job's element profile is multiplied by its frequency of preference, and the resulting products are summed across elements. One need only to establish a sampling distribution of similar products, obtained by scoring the inventory randomly a large number of times, to test whether the products resulting from a given subject's responses can or cannot be attributed to chance.

The second scoring procedure is simpler than the preceding one, although probably not as precise. First, the jobs are ranked in order of preference, then comparisons are made (via difference scores) between jobs in the upper and lower quartiles of the preference distribution, element by element, in order to establish which elements are associated with high and low preferences. Note that this procedure has the advantage of revealing the presence of element avoidance (i.e., elements which the subject avoids).

For the direct form of the inventory, element scores in Part I are read directly off the answer sheet using scoring templates and entered on a score summary sheet. In the case of Part II, the rankings are entered directly onto a score sheet and averaged.

C. Discussion

Once the validation of the theory is completed (essentially by correlating responses to the direct and indirect forms) activity will be directed towards the following objectives: (1) developing an indirect pictorial inventory; (2) compiling a reference manual; and (3) applying MP Theory as a research tool.

1. Pictorial Inventory

The methods of presentation, scoring, and evaluation will be the same as those now used in current indirect verbal forms. Occupations will be selected which are capable of being unambiguously displayed.

2. Reference Manual

The reference manual is an indispensable part of the inventory. It will contain a large number of jobs arranged according to their constituent elements (i.e., according to particular aspects of the environment, operations, and objects). Once a person's element preference profile has been established, one need only to refer to the manual for those jobs with that particular element configuration.

3. Research Activity

Apart from its usefulness in assessing interest profiles, the MP Theory has considerable potential as a research tool. Thus, one possible line of research lies in the exploration of the nature of job satisfaction. One plausible hypothesis is that job satisfaction is partially a function of the degree to which a person's molecular preference profile agrees with the actual profile of his job. Another promising area of research involves the exploration of the relationship between unconscious behavior patterns and overt vocational interest patterns. Put another way, it is possible to ask whether measurable, unconscious behavior patterns manifest themselves either positively or

negatively as preferences for particular environments, operations, or objects. It should be noted that questions such as these cannot be formulated using traditional interest inventories.

D. Summary

Assessment of the vocational interest of deaf clients by means of a pictorial interest inventory proceeded essentially in the following way. The notion of the interest "field" was considered and shown to be inadequate, in many respects, as a predictor of vocational interest. An alternate theory was advanced. This theory (Molecular Preference Theory) asserts that all jobs take place in some environment and involve some type of operation upon some object. It further asserts that a person's preference for certain jobs is the consequence of preferences for particular elements of the environment, the operations, and the objects.

As an extension of the theory, a Molecular Preference Model, generalizable to any job, was created. Essentially, it subdivided the three basic parameters (environment, operations, and objects), into a smaller series of elements. Following this, two MPI's were constructed: a direct and an indirect form. The direct form contains a series of items which attempt to measure the S's preference for each element of the MP Model. The indirect form consists of two sets of 20 jobs (high and low SES, respectively), in which each job is systematically paired against all others. Each of these jobs receives an MP Profile by having raters evaluate each job on all elements of the model. S's preferences are arranged in order of frequency of preference and his interest profile is inferred from this pattern.

Because of the considerable amount of time spent in the preparation of these inventories, the final validation of the MP Theory (i.e., correlation of responses to the direct and indirect forms) is still being conducted. However, from an inspection of a few cases, it appears that people do seem to be responding to elements of jobs rather than to the total jobs themselves. The need for further work, including the creation of a pictorial form of the indirect inventory and a Reference Manual, was discussed. The possibility of using the MP Theory as a research tool was also considered.

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APPENDIX

Insoluble Problems Test

Coding Test

Design Preference Test

Picture Meaning Test

Circle the Same Test

Follow the Instructions Test

Embedded Figures Test

Word Direction Test

Clerical Skills Test

Hidden Figures Test

Mark the Numbers Test

Speed of Summation Test

Vocational Interest Inventory
(Experimental Form 1) Part I

Vocational Interest Inventory
(Experimental Form 1) Part II

Molecular Preference Inventory
Indirect Form A

Molecular Preference Inventory
Indirect Form B

Peer Nomination Ratings

Teacher Rating Scale 1

Teacher Rating Scale 2

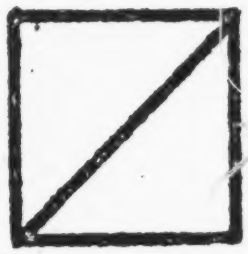
2583

INSOLUBLE PROBLEMS TEST

NAME_____ DATE_____

SCHOOL_____

1



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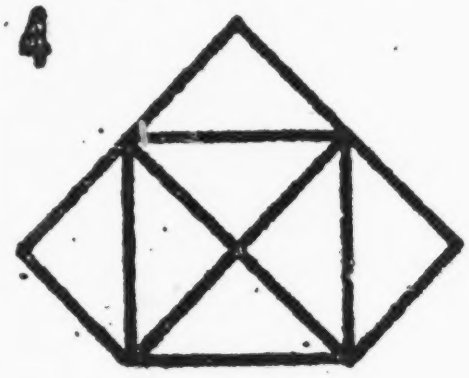

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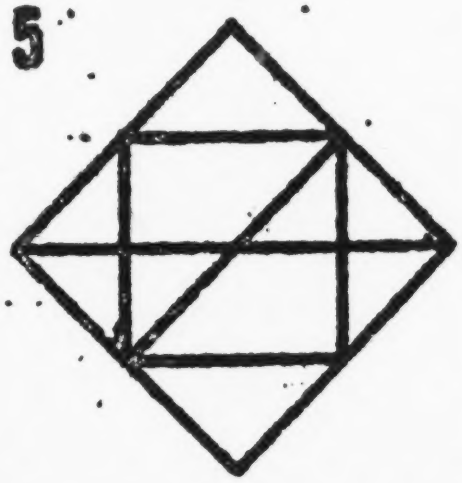

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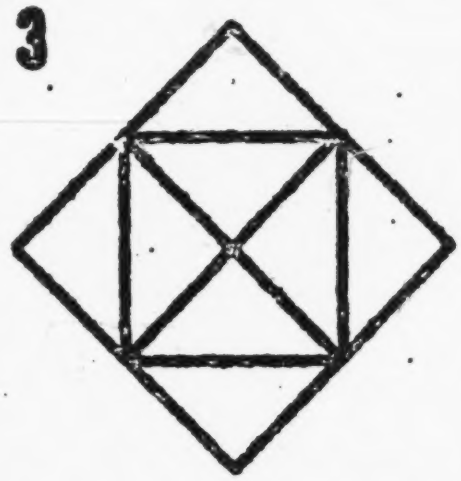

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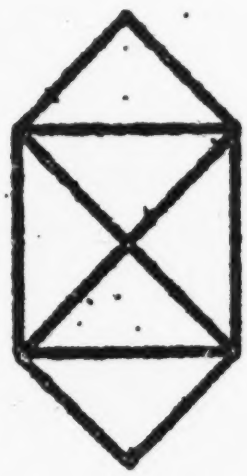
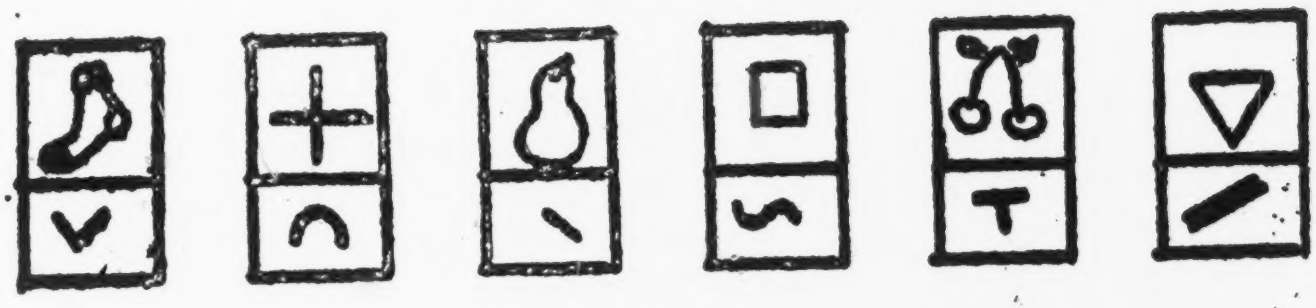
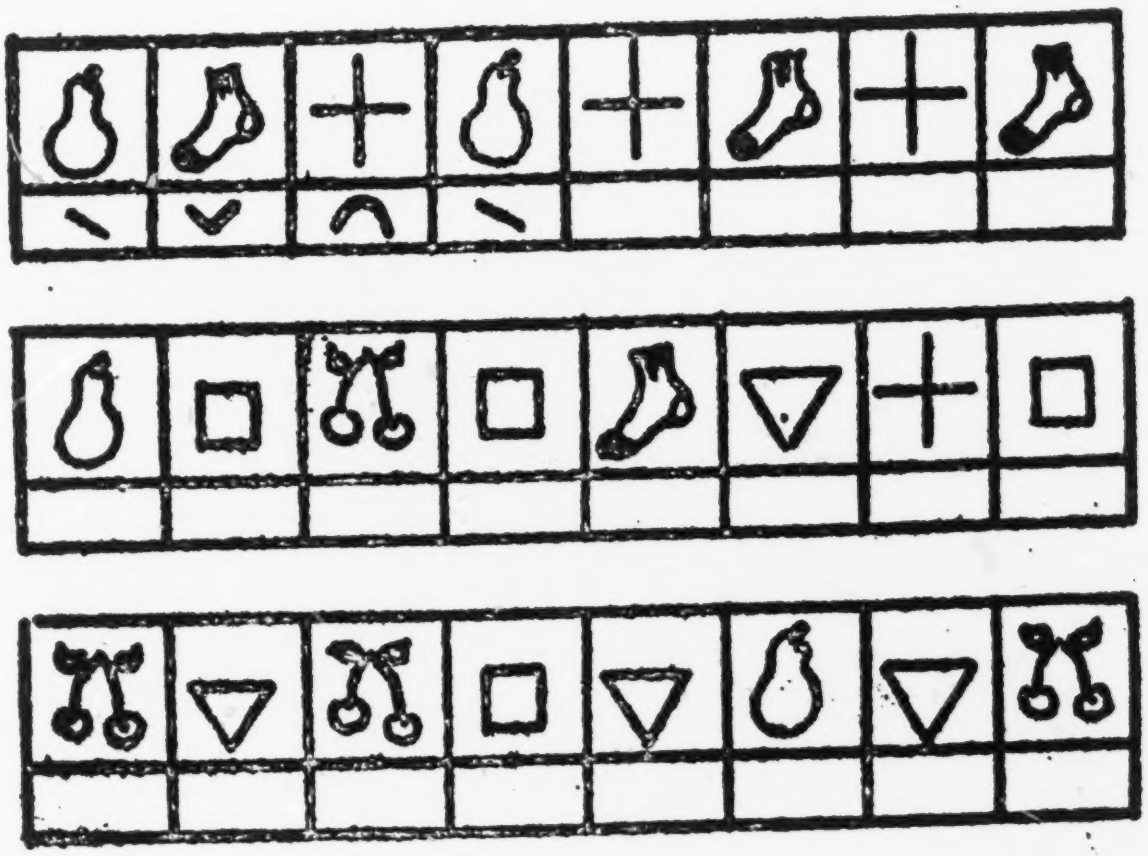


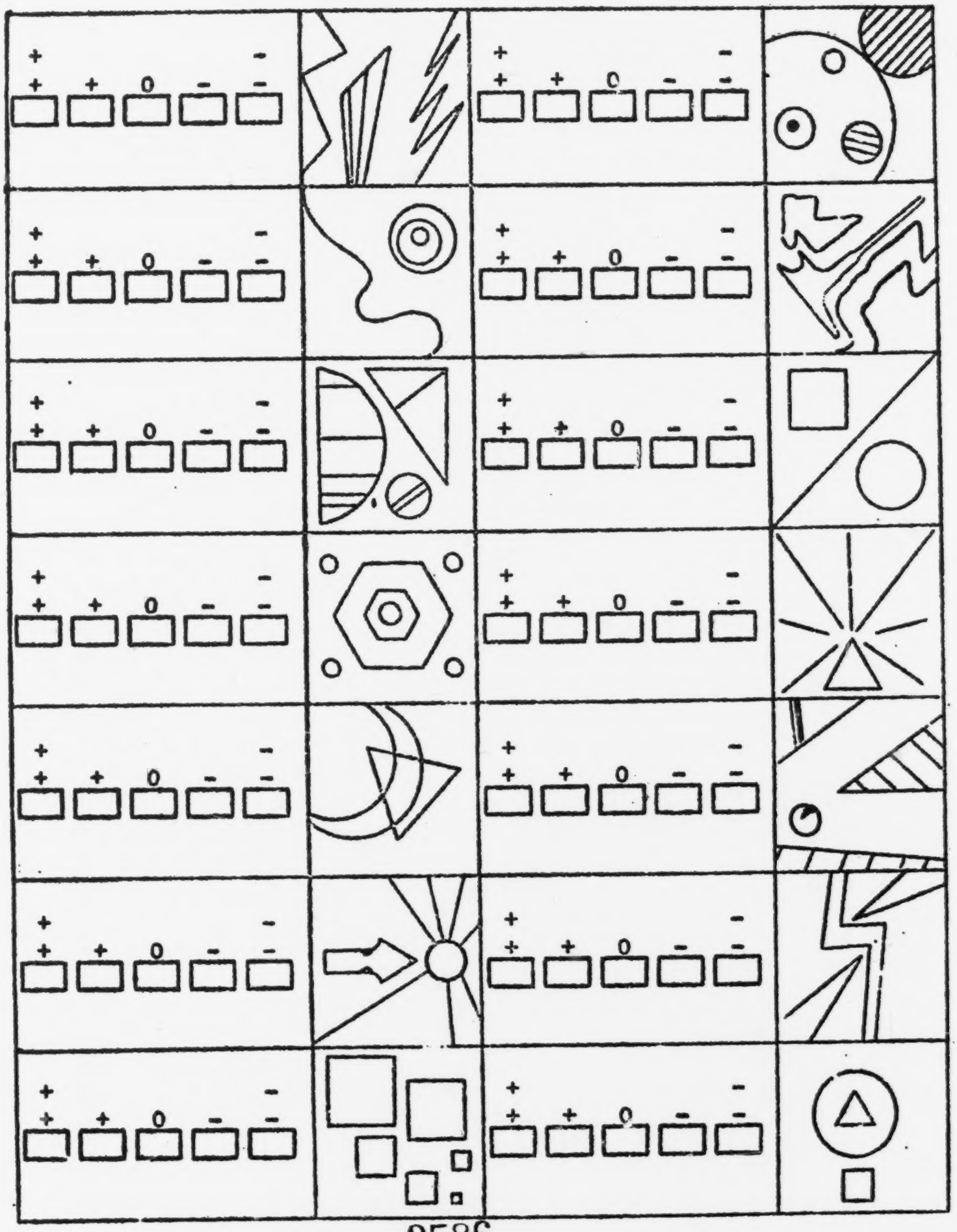
2584

CODING TEST



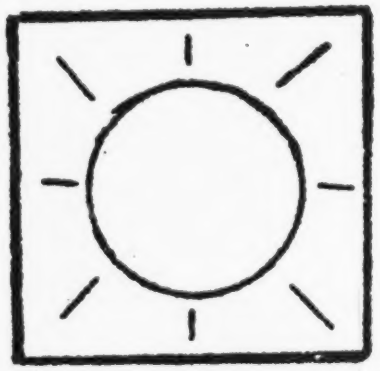


DESIGN PREFERENCE TEST



PICTURE MEANING TEST

Name_____ Date_____ School_____



Hot ☐☐☐☐☐☐☐ Cold

Hard ☐☐☐☐☐☐☐ Soft

Cold ☐☐☐☐☐☐☐ Hot

Soft ☐☐☐☐☐☐☐ Hard

STOP!! DO NOT OPEN.

2587

CIRCLE THE SAME TEST

Put a circle around those that look exactly the same as the one in the box:

A6BF3J2Z4

A6FB3J2Z4	AB6F3J2Z4	ASBF32524	AF6B3J2Z4	A6BF23J24	A6BZF32J4
A6BF23ZJ4	A5BF35Z24	A6BF3ZJ24	A6BF3J2S4	A6B3FJ2Z4	A6BFJ32Z4
A63F2Z354	A6BF3J2Z4	A6BF3J2Z4	A6BFZ3524	A6BFJ32Z4	A6DF23JZ4
A6BFZ3J24	A6BF3JZ24	ASBFZ23J4	A6BF3J2Z4	A6B3F2JZ4	A6B2F3JZ4
A6B3F72J4	A5BF2ZJ34	A63BFJZ24	A6B3FJZ24	A6D3F52Z4	A6BJF3Z24
A6B2F3ZJ4	A6BF3J2Z4	A6RFJZ234	A6BF3J2Z4	A6BFZ32J4	A6BFZ3J24
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A6BF3J2Z4	A6B2FJ234	A6BF3J2Z4	ASBF3J2Z4	A6BFZJ234	A6B2FJ324
A68FZ32J4	A6BF3J2Z4	A6B2F3JZ4	A6BF32ZJ4	A6BF3J2Z4	A6BFJ32Z4
A6BZF2J34	A6BF23JZ4	A6BF3J2Z4	A6BF3J2Z4	A6B3FJ2Z4	A26BF3J24
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A6BJF3Z24	A6BF3JZ24	A6DF23J24	A6B3FJ2Z4	A6BF23J24	A6BZF23J5
A62BF3J24	A6BF32J24	A6BF32ZJ4	A6BFZ2J34	A6BF3J2Z4	ASBFZ23J4

STOP! DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO!

FOLLOW THE INSTRUCTIONS TEST

Page 1

1._____Begin on Page 5 Column 2 Line 8

2._____Begin on Page 3 Column 2 Line 6

3._____Begin on Page 2 Column 1 Line 5

4._____Begin on Page 3 Column 3 Line 12

5._____Begin on Page 4 Column 3 Line 8

6._____Begin on Page 4 Column 2 Line 14

7._____Begin on Page 3 Column 1 Line 6

8._____Begin on Page 5 Column 1 Line 13

9._____Begin on Page 2 Column 3 Line 8

10._____Begin on Page 5 Column 2 Line 3

11._____Begin On Page 2 Column 1 Line 3

12._____Begin on Page 3 Column 3 Line 10

13._____Begin on Page 4 Column 2 Line 4

14._____Begin on Page 5 Column 2 Line 9

15._____Begin on Page 2 Column 3 Line 11

16._____Begin on Page 3 Column 1 Line 5

17._____Begin on Page 4 Column 2 Line 3

18._____Begin on Page 2 Column 3 Line 8

19._____Begin on Page 5 Column 1 Line 12

20._____Begin on Page 4 Column 3 Line 9

Vocational Interest Inventory
(Experimental Form 1)
Part I

1. a. Lecture in a law school
   b. Improve electoral laws

2. a. Work on a new theory of law
   b. Prepare legal contracts

3. a. Walk a beat
   b. Drive a patrol car

4. a. Diagnose a patient's disorders
   b. Keep case histories on patients

5. a. Keep case histories on patients
   b. Give talks on dangers of smoking

6. a. Lecture in a medical school
   b. Run a hospital

7. a. Look at works of art
   b. Appraise works of art

8. a. Do plastic surgery
   b. Work to prevent epidemics

9. a. Drive an oil truck
   b. Drive a trailer truck

10. a. Prepare a case for court
    b. Improve electoral laws

11. a. Prepare legal contracts
    b. Prepare a case for court

12. a. Paint with water colors
    b. Fingerpaint

13. a. Prepare a case for court
    b. Work on a new theory of law

14. a. Waiter
    b. Counterman

15. a. Operate a calculator
    b. Proofread a manuscript

16. a. Be a judge
    b. Argue a case in court

17. a. Improve electoral laws
    b. Prepare legal contracts

18. a. Be an animal trainer
    b. Be a bareback rider

19. a. Run tests on a patient
    b. Diagnose a patient's disorders

20. a. Work on a committee to maintain legal ethics
    b. Lecture in a law school

21. a. Keep files on important legal cases
    b. Improve electoral laws

22. a. Argue a case in court
    b. Work on a new theory of law

23. a. Repair clocks
    b. Collect clocks

24. a. Improve electoral laws
    b. Be a judge

25. a. Type letters
    b. File letters

26. a. Be a tumbler
    b. Be a magician

27. a. Build furniture
    b. Catalogue furniture

28. a. Be a judge
    b. Prepare a case for court

29. a. Diagnose a patient's disorders
    b. Lecture in a medical school

30. a. Tailor
    b. Weaver

31. a. Argue a case in court
    b. Lecture in a law school

32. a. Keep files on important legal cases
    b. Argue a case in court

33. a. Repair cabinets
    b. Repair clocks

Vocational Interest Inventory
(Experimental Form 1)
Part II

1. a. Write texts on dentistry
   b. Operate a dental practice
   c. Give lectures in a dental school

2. a. Public Health Officer
   b. Stock Broker
   c. Fish and Game Warden
   d. Food and Drug Administrator
   e. Forest Ranger

3. a. Have a friend over
   b. Listen to music
   c. Read a book
   d. Talk on the telephone

4. Work as a helper in a:
   a. library
   b. restaurant
   c. hospital
   d. department store
   e. school
   f. newspaper

5. Do research on:
   a. marine plants
   b. diving equipment
   c. naval heroes
   d. sea ballads
   e. dolphins

6. a. Check account books
   b. Work as a bank teller
   c. Tune a piano
   d. Finish furniture
   e. Proofread manuscripts
   f. Frame paintings

7. a. Give first aid to a kitten
   b. Restore a damaged painting
   c. Remove a broken limb from a tree
   d. Repair a T.V. set
   e. Treat a swollen arm

8. Sell:
   a. pianos
   b. antiques
   c. books
   d. art supplies
   e. computers
   f. stocks

9. a. Do private marriage counseling
   b. Give radio talks on marriage counseling
   c. Give lectures on marriage counseling

10. Sell:
    a. wooden utensils
    b. leather goods
    c. bakery goods
    d. typewriters
    e. radios
    f. toys

11. a. Write a novel
    b. Do a series of murals
    c. Create a new theory of numbers
    d. Develop a system for winning at roulette
    e. Compose a symphony
    f. Design a clothing collection

12. Teach:
    a. zoology
    b. mathematics
    c. psychology
    d. literature
    e. botany

13. Sell:
    a. Hi-Fi sets
    b. jewelry
    c. fine furniture
    d. furs
    e. wines
    f. cameras

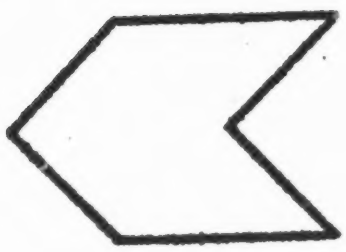
14. a. Play solitaire
    b. Play checkers
    c. Do crossword puzzles
    d. Play bridge

15. a. Be a news photographer
    b. Be a portrait photographer
    c. Be an astronomical photographer

16. a. Sell cosmetics over the counter
    b. Sell cosmetics door-to-door
    c. Operate a small mail order cosmetic business

EMBEDDED FIGURES TEST

A

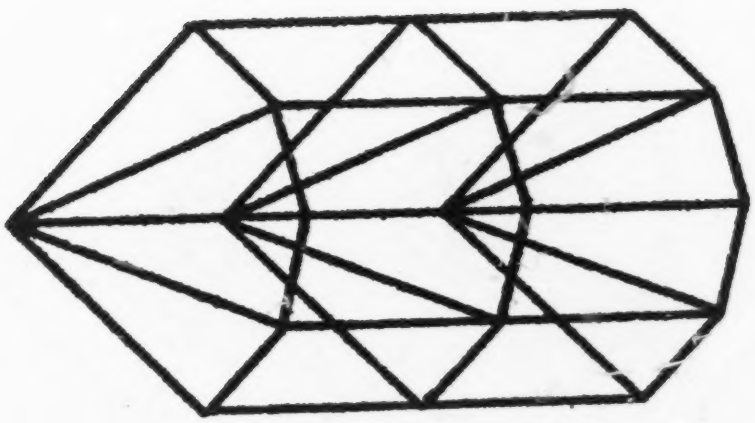


Is A in B?

Yes ___ *(Draw A in.)*

No ___

B



Word Direction Test

NAME _____ DATE _____

SCHOOL _____

FIND THE WAY THE WORDS GO.

THIS IS THE WAY THEY GO.

GIRL → LRIG ← L R I G ↑ G I R L ↓

YOU MUST WRITE THE LETTER UNDER THE WORD.

GIRL	LRIG	L R I G	G I R L
R	L	U	D
(right)	(left)	(up)	(down)

Practice:

GIRL L R I G LRIG G I R L LRIG L R I G GIRL G I R L GIRL L R I G LRIG

ORIGINAL

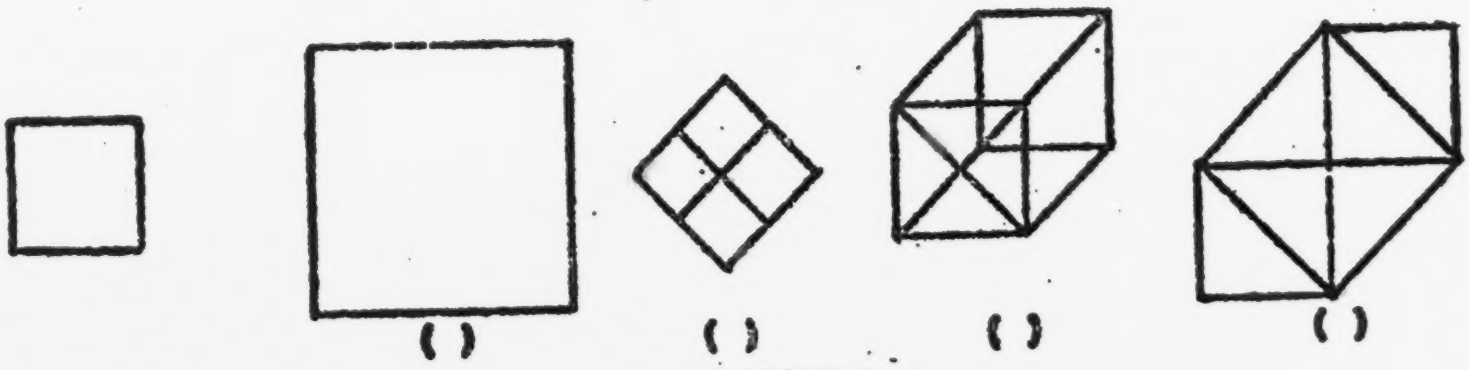
Name	Address	Amount
Mr. Paul Randig	Butler, Pa.	$8865.53
Miss Marilyn Mathis	Houston, Texas	2763.98
Dr. Edd Corroll	Wheeling, W. Va.	4264.09
Mr. Everett Dezell	Seattle, Wash.	2780.44
Mrs. F. A. Gusman	Knoxville, Tenn.	4284.61
Prof. Paula Golding	Portland, Maine	1765.21
Miss J. L. Myers	Columbus, Ohio	3273.06
Mrs. Marie Dillow	Decatur, Ill.	3475.11
Dr. Donald Mac Afee	Hannibal, Mo.	7215.06
Rev. Ronald Vajen	Marion, Ohio	5023.16
Mr. Drew B. Anthon	Pueblo, Col.	1996.10
Mr. Victor Steil	Key West, Fla.	2551.63
Miss Mary Gollotte	Baton Rouge, La.	4001.23
Dr. John J. Foley	Ogden, Utah	1641.50
Mr. Denzel Gibbens	Lancaster, Pa.	5164.99
Mrs. Lee Osbourne	Lake George, N. Y.	2076.32
Prof. Ronald Orloff	Casper, Wyoming	9015.73
Rev. Harold Frankel	Santa Monica, Calif.	3265.19
Miss Beth Landwirth	Rome, Ga.	6502.10
Dr. Carl G. Utley	Providence, R. I.	6971.77

COPY

Name	Address	Amount	Number of Errors
Mr. Paul Randig	Butler, Pa.	$8856.53	———
Miss Marilyn Mathes	Houston, Texas	2763.98	———
Dr. Edd Caroll	Wheelling, W. Va.	4264.90	———
Dr. Everett Dezell	Seattle, Wisc.	2780.44	———
Mrs. F. A. Guaman	Knoxvile, Tenn.	4248.61	———
Prof. Paul Golding	Portland, Maine	1765.12	———
Dr. J. L. Myers	Columbus, Ohio	3273.06	———
Mrs. Marie Dillon	Decature, Ill.	3475.11	———
Dr. Donald Mc Afee	Hanniball, Mo.	7215.60	———
Rev. Donald Vajen	Marien, Ohio	5003.16	———
Mr. Dean B. Anthon	Publo, Colorado	1996.10	———
Mr. Victor Steel	Key Biscayne, Fla.	2515.63	———
Miss Marie Gollott	Bacon Rouge, La.	4001.23	———
Dr. John J. Foley	Ogden, Utah	1641.50	———
Mr. Denzel Gibbens	Lancaster, Pa.	5164.99	———
Dr. Lee Osbourme	Lake George, N. Y.	2076.32	———
Prof. Ronald Orloffe	Casper, Wyoming	9015.73	———
Rev. Harold Frankel	Santa Monica, Calif.	3265.19	———
Mrs. Beth Landwirth	Roma, Ga.	6502.10	———
Dr. Carl G. Utley	Providence, R. I.	6971.77	———

HIDDEN FIGURES TEST

Name_____ Date_____ School_____



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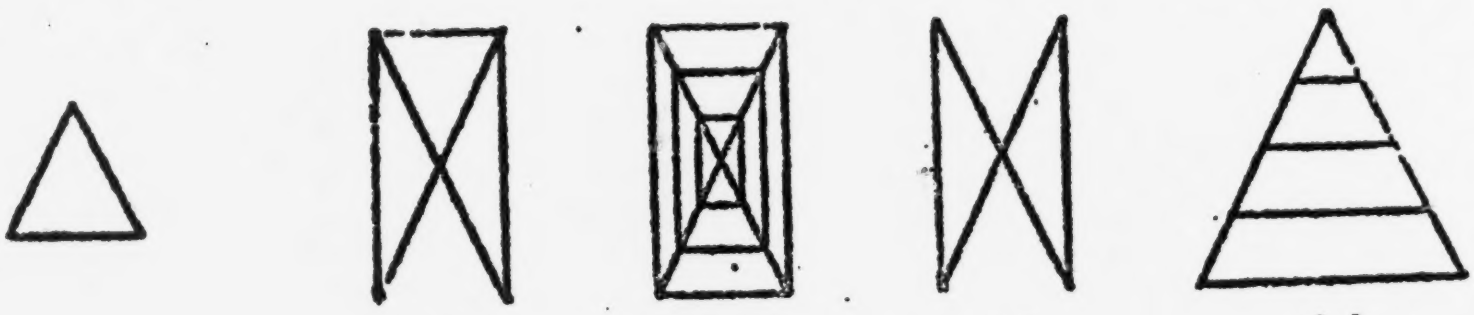

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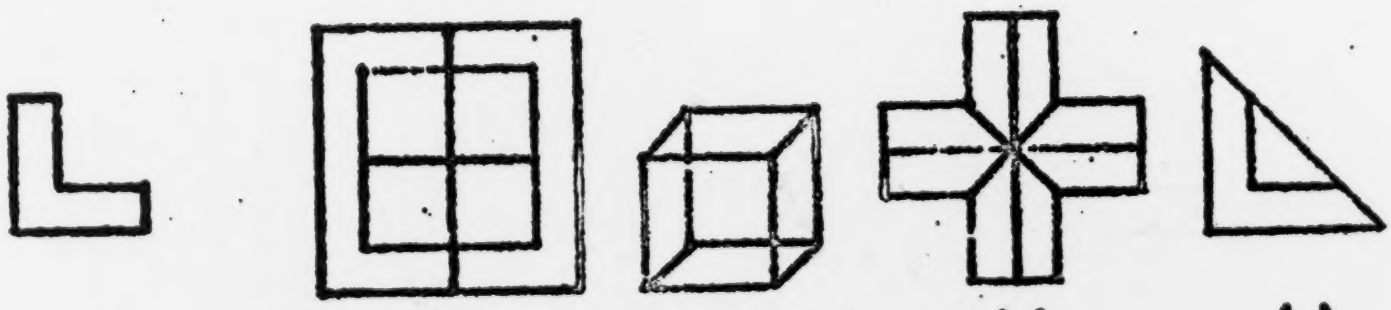

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MARK THE NUMBERS TEST

PUT A LINE THROUGH EVERY 2, 5, or 8 you can find.

Here are some examples:

1 3 ~~2~~ ~~2~~ ~~8~~ 7 3 9 7 ~~5~~ ~~5~~ 9 0 7 6 6 ~~2~~ 7 ~~2~~ ~~8~~

Work as quickly as you can.

1	5	0	0	9	7	7	9	3	7	2	6	3	7	6	6	0	5	4	1
2	6	1	1	8	4	0	6	0	2	1	5	3	7	5	9	3	7	7	6
6	8	2	7	5	3	5	7	1	8	0	7	9	0	4	1	5	0	1	0
5	1	0	4	6	8	1	8	2	9	1	0	3	0	3	8	5	1	8	2
4	0	1	4	6	8	2	6	7	9	4	0	1	6	7	4	6	3	0	0
0	7	1	8	0	0	7	8	1	4	1	5	0	1	1	0	8	2	6	2
1	1	7	9	0	6	2	9	5	6	2	7	3	4	2	6	0	8	7	0
6	7	4	0	5	4	0	2	2	6	2	3	1	2	3	7	8	1	0	8
1	9	6	0	7	1	5	0	1	2	9	9	0	2	9	2	6	0	5	2
6	9	8	0	0	8	5	8	6	2	2	8	4	2	2	5	9	3	6	4
3	7	4	3	1	5	3	0	2	9	5	5	7	0	0	1	5	0	7	1
3	4	6	8	8	1	8	9	0	3	5	1	2	0	8	5	9	7	2	0
0	6	0	9	5	2	7	1	9	3	6	0	6	9	3	7	0	8	2	1
5	3	0	3	4	9	4	1	4	7	6	7	9	5	3	9	7	9	0	0
5	2	9	8	2	7	4	6	0	6	2	6	2	6	4	5	3	9	8	8
8	2	4	6	4	7	2	5	7	4	1	3	3	5	1	5	3	0	4	6
9	2	7	0	1	1	1	0	3	3	6	2	3	2	7	6	7	6	5	5
9	1	6	2	0	0	9	3	2	3	2	9	5	6	8	5	4	6	6	4
0	3	0	1	1	6	0	0	8	1	5	3	0	5	3	7	4	1	2	2
0	5	2	8	0	3	8	8	4	3	2	8	0	1	3	3	5	5	8	7
6	1	5	2	6	9	2	9	5	7	6	3	9	2	1	0	0	9	7	7
6	7	4	2	1	5	3	0	6	1	1	1	7	2	5	3	5	6	7	4

Speed of Summation Test

NAME _____ DATE _____

SCHOOL _____

HOW MANY? 111 + 11 = ?

COUNT THEM: 111 + 11 = 5

11 + 1111 = ?

11 + 1111 = 6

1 + 11 = ?

1 + 11 = 3

Practice:

11111 + 111 = ___ 1111 + 1111 = ___ 111 + 111 = ___ 111 + 111 = ___

11111 + 11111 = ___ 111 + 11111 = ___ 111111 + 111111 = ___

MOLECULAR PREFERENCE INVENTORY
Indirect Form A

1. A. Marriage Counselor
   B. Movie Director

2. A. Sculptor
   B. Chemist

3. A. Mathematician
   B. Airline Captain

4. A. Dentist
   B. Sculptor

5. A. Mechanical Engineer
   B. Gentleman Farmer

6. A. Banker
   B. Baseball Player

7. A. Baseball Player
   B. Minister

8. A. Architect
   B. Doctor

9. A. Police Commissioner
   B. Chemist

10. A. Mathematician
    B. Sculptor

11. A. Baseball Player
    B. Airline Captain

12. A. Police Commissioner
    B. Novelist

13. A. Judge
    B. Movie Director

14. A. Minister
    B. Police Commissioner

15. A. Gentleman Farmer
    B. Minister

16. A. Baseball Player
    B. Mechanical Engineer

17. A. Forest Ranger
    B. Novelist

18. A. Marriage Counselor
    B. Dentist

19. A. Mechanical Engineer
    B. Marriage Counselor

20. A. Novelist
    B. Minister

21. A. Banker
    B. Architect

22. A. Forest Ranger
    B. Movie Director

23. A. Head Librarian
    B. Movie Director

24. A. Architect
    B. Judge

25. A. Gentleman Farmer
    B. Doctor

26. A. Judge
    B. Police Commissioner

27. A. Airline Captain
    B. Dentist

28. A. Forest Ranger
    B. Mechanical Engineer

29. A. Doctor
    B. Police Commissioner

30. A. Mathematician
    B. Police Commissioner

Research Department

LEXINGTON SCHOOL FOR THE DEAF 4/69

MOLECULAR PREFERENCE INVENTORY
Indirect Form B

1. A. Chauffeur
   B. Tool Maker
2. A. Electrician
   B. Printer
3. A. Poultry Farmer
   B. Tailor
4. A. Shoemaker
   B. Electrician
5. A. Watchmaker
   B. Postman
6. A. Masseur
   B. Auto Body Repairman
7. A. Auto Body Repairman
   B. Laboratory Technician
8. A. Cashier
   B. Photographer
9. A. Door-to-Door Salesman
   B. Printer
10. A. Poultry Farmer
    B. Electrician
11. A. Auto Body Repairman
    B. Tailor
12. A. Door-to-Door Salesman
    B. Bus Driver
13. A. Secretary
    B. Tool Maker
14. A. Laboratory Technician
    B. Door-to-Door Salesman
15. A. Postman
    B. Laboratory Technician
16. A. Auto Body Repairman
    B. Watchmaker
17. A. Chef
    B. Bus Driver
18. A. Chauffeur
    B. Shoemaker
19. A. Watchmaker
    B. Chauffeur
20. A. Bus Driver
    B. Laboratory Technician
21. A. Masseur
    B. Cashier
22. A. Chef
    B. Tool Maker
23. A. Lumberjack
    B. Tool Maker
24. A. Cashier
    B. Secretary
25. A. Postman
    B. Photographer
26. A. Secretary
    B. Door-to-Door Salesman
27. A. Tailor
    B. Shoemaker
28. A. Chef
    B. Watchmaker
29. A. Photographer
    B. Door-to-Door Salesman
30. A. Poultry Farmer
    B. Door-to-Door Salesman

Research Department

LEXINGTON SCHOOL FOR THE DEAF 4/69

PEER NOMINATION RATINGS (Form 768)

1. THEY ARE VERY TALL
2. THEY ARE VERY SHORT
3. THEY HAVE DARK HAIR
4. THEY DO NOT HAVE DARK HAIR
5. THEY LIKE PARTIES
6. THEY DO NOT LIKE PARTIES
7. THEY ALWAYS SHARE THINGS
8. THEY NEVER SHARE THINGS
9. THEY ALWAYS PAY ATTENTION
10. THEY NEVER PAY ATTENTION
11. THEY ARE ALWAYS SURE OF WHAT THEY ARE DOING
12. THEY ARE NEVER SURE OF WHAT THEY ARE DOING
13. THEY ALWAYS TRUST OTHER PEOPLE
14. THEY NEVER TRUST OTHER PEOPLE
15. THEY ARE ALWAYS NEAT
16. THEY ARE NEVER NEAT
17. THEY ARE LEADERS
18. THEY ARE FOLLOWERS
19. THEY ARE ALWAYS FRIENDLY
20. THEY ARE NEVER FRIENDLY
21. THEY ARE VERY SMART
22. THEY ARE NOT VERY SMART
23. THEY ARE ALWAYS SHY
24. THEY ARE NEVER SHY
25. THEY ALWAYS SAY BAD THINGS ABOUT PEOPLE

PEER NOMINATION RATINGS (FORM 7-68)

26. THEY NEVER SAY BAD THINGS ABOUT PEOPLE
27. THEY ARE ALWAYS CAREFUL ABOUT THEIR WORK
28. THEY ARE NEVER CAREFUL ABOUT THEIR WORK
29. THEY ARE ALWAYS AFRAID OF PEOPLE
30. THEY ARE NEVER AFRAID OF PEOPLE
31. THEY ARE ALWAYS JEALOUS
32. THEY ARE NEVER JEALOUS
33. THEY ARE VERY GOOD STUDENTS
34. THEY ARE NOT VERY GOOD STUDENTS
35. THEY HAVE MANY FRIENDS
36. THEY DON'T HAVE MANY FRIENDS
37. THEY ARE ALWAYS RUDE
38. THEY ARE NEVER RUDE
39. THEY ARE ALWAYS LAZY
40. THEY ARE NEVER LAZY
41. THEY ARE ALWAYS HAPPY
42. THEY ARE ALWAYS SAD
43. THEY ARE ALWAYS HONEST
44. THEY ARE NEVER HONEST
45. THEY GET BORED EASILY
46. THEY DON'T GET BORED EASILY
47. PEOPLE ALWAYS PAY ATTENTION TO THEM
48. PEOPLE NEVER PAY ATTENTION TO THEM
49. THEY ARE ALWAYS ANGRY
50. THEY NEVER GET ANGRY

PEER NOMINATION RATINGS (FORM 7-68)

51. THEY ARE ALWAYS BUSY
52. THEY ARE NEVER BUSY
53. THEY CAN DO MANY THINGS WELL
54. THEY CAN NOT DO MANY THINGS WELL
55. THEY ARE ALWAYS SELFISH
56. THEY ARE NEVER SELFISH
57. THEY ALWAYS TALK A LOT
58. THEY NEVER TALK A LOT
59. THEY ALWAYS WORK HARD
60. THEY NEVER WORK HARD
61. THEY ALWAYS NEED A BOSS
62. THEY NEVER NEED A BOSS
63. THEY ARE ALWAYS HELPFUL
64. THEY ARE NEVER HELPFUL
65. THEY ALWAYS TELL THE TRUTH
66. THEY NEVER TELL THE TRUTH
67. PEOPLE THINK THEY ARE IMPORTANT
68. PEOPLE DON'T THINK THEY ARE IMPORTANT
69. THEY ARE ALWAYS STUBBORN
70. THEY ARE NEVER STUBBORN
71. THEY WORRY ALL THE TIME
72. THEY NEVER WORRY
73. THEY ALWAYS NEED HELP FROM OTHERS
74. THEY NEVER NEED HELP FROM OTHERS
75. THEY ARE ALWAYS COOPERATIVE

PEER NOMINATION RATINGS (FORM 7-68)

76. THEY ARE NEVER COOPERATIVE

77. THEY ALWAYS WORK FAST

78. THEY ALWAYS WORK SLOW

79. THEY HAVE MANY IDEAS OF THEIR OWN

80. THEY HAVE NO IDEAS OF THEIR OWN

81. THEY ARE KIND

82. THEY ARE NOT KIND

83. LITTLE THINGS ALWAYS BOTHER THEM

84. LITTLE THINGS NEVER BOTHER THEM

85. THEY ARE ALWAYS AFRAID TO TELL YOU WHAT THEY THINK

86. THEY ARE NEVER AFRAID TO TELL YOU WHAT THEY THINK

87. THEY ALWAYS SAY NICE THINGS ABOUT OTHER PEOPLE

88. THEY NEVER SAY NICE THINGS ABOUT OTHER PEOPLE

89. THEY ALWAYS PUT THINGS AWAY

90. THEY NEVER PUT THINGS AWAY

91. PEOPLE ALWAYS LISTEN TO THEM

92. PEOPLE NEVER LISTEN TO THEM

93. THEY ALWAYS ACT LIKE A GROWN-UP

94. THEY NEVER ACT LIKE A GROWN-UP

95. THEY ALWAYS COMPLAIN

96. THEY NEVER COMPLAIN

97. THEY KNOW HOW TO START WORK OR PLAY BY THEMSELVES

98. THEY DON'T KNOW HOW TO START WORK OR PLAY BY THEMSELVES

99. THEY ARE ALWAYS POLITE

100. THEY ARE NEVER POLITE

PEER NOMINATION RATINGS (FORM 7-68)

101. THEY ALWAYS DO SLOPPY WORK

102. THEY NEVER DO SLOPPY WORK

103. PEOPLE RESPECT THEM

104. PEOPLE DO NOT RESPECT THEM

105. THEY ALWAYS FINISH THEIR WORK

106. THEY NEVER FINISH THEIR WORK

107. THEY ARE ALWAYS NERVOUS

108. THEY ARE NEVER NERVOUS

109. THEY ARE ALWAYS AFRAID TO DISAGREE

110. THEY ARE NOT AFRAID TO DISAGREE

111. THEY ALWAYS KNOW WHAT IS RIGHT AND WHAT IS WRONG

112. THEY NEVER KNOW WHAT IS RIGHT AND WHAT IS WRONG

113. THEY ARE ALWAYS SCARED OF THINGS

114. THEY ARE NEVER SCARED OF THINGS

115. THEY ALWAYS NEED PEOPLE TO TELL THEM WHAT TO DO

116. THEY NEVER NEED PEOPLE TO TELL THEM WHAT TO DO

117. PEOPLE LIKE THEM

118. PEOPLE DO NOT LIKE THEM

119. THEY GIVE UP EASILY

120. THEY DON'T GIVE UP EASILY

121. THEY CAN SIT STILL A LONG TIME

122. THEY CAN NEVER SIT STILL

123. THEY ALWAYS ARGUE WITH THE TEACHER

124. THEY NEVER ARGUE WITH THE TEACHER

125. THEY CAN'T STAND WHEN OTHERS GET ANGRY AT THEM

PEER NOMINATION RATINGS (FORM 7-68)

126. THEY DON'T MIND WHEN OTHERS GET ANGRY AT THEM

127. THEY CAN'T STAND BEING TOLD WHAT'S WRONG WITH THEM

128. THEY DON'T MIND BEING TOLD WHAT'S WRONG WITH THEM

129. THEY CAN'T STAND TAKING ORDERS

130. THEY DON'T MIND TAKING ORDERS

131. THEY CAN'T STAND WORKING ALONE

132. THEY DON'T MIND WORKING ALONE

133. THEY CAN'T STAND WORK THAT IS ALWAYS THE SAME

134. THEY DON'T MIND WORK THAT IS ALWAYS THE SAME

135. THEY CAN'T STAND WORK THEY MUST WATCH ALL THE TIME

136. THEY DON'T MIND WORK THEY MUST WATCH ALL THE TIME

137. THEY CAN'T STAND WORK THEY DON'T FULLY UNDERSTAND

138. THEY DON'T MIND WORK THEY DON'T FULLY UNDERSTAND

139. THEY CAN'T STAND WORK THAT MUST BE PERFECT

140. THEY DON'T MIND WORK THAT MUST BE PERFECT

141. THEY CAN'T STAND WORK THAT THEY HAVE TROUBLE WITH

142. THEY DON'T MIND WORK THAT THEY HAVE TROUBLE WITH

143. THEY CAN'T STAND BEING BOTHERED WHEN THEY WORK

144. THEY DON'T MIND BEING BOTHERED WHEN THEY WORK

TEACHER RATING SCALE I.

School:_____ Date: Month_____Day____Year_____

Student's Name: _____ Rater's Name:_____

Teacher?_____ Counsellor?_____ Other (specify)_____

TO THE RATERS

In the attached rating scale, each row is a sentence which may or may not be true of the student you are rating. Next to each sentence are nine columns representing varying degrees of applicability ranging from "always true" to "never true". You are to place a check in one of the nine columns best describing how true each sentence is of the student being rated. For example, the first sentence reads, "He (or she) likes parties." If your best judgment is that this statement is "always true" of the student being rated, your check for sentence 1 would go in the first column; if your judgment were that the statement is "usually true", your check would go in the third column. If you judged the statement to be somewhere between "always true" and "usually true" in applicability, you would check the column intermediate between the two (the second column). The intermediate columns may be used as freely as the columns with headings. When in doubt, use your best judgment. Before returning this rating scale, make sure that you have just one check in each row and that you have checked each of the 60 rows.

Thank you.

2606

RESEARCH DEPARTMENT
LEXINGTON SCHOOL FOR THE DEAF

HOW TRUE OF THE PERSON IS THIS STATEMENT?

HE (OR SHE)	ALWAYS TRUE		USUALLY TRUE		ABOUT HALF TRUE		RARELY TRUE		NEVER TRUE
1. likes parties									
2. shares things									
3. pays attention									
4. is sure of what (s)he is doing									
5. trusts people									
6. is neat									
7. is a leader									
8. is friendly									
9. is smart									
10. is shy									
11. says bad things about others									
12. is careful in his(her) work									
13. is afraid of people									
14. is jealous									
15. is a good student									
16. has many friends									
17. is rude									
18. is lazy									
19. is happy									
20. is honest									
21. gets bored easily									
22. is ignored by others									
23. is angry									

HOW TRUE OF THE PERSON IS THIS STATEMENT?

HE (OR SHE)	ALWAYS TRUE		USUALLY TRUE		ABOUT HALF TRUE		RARELY TRUE		NEVER TRUE
24. keeps busy									
25. can do many things well									
26. is selfish									
27. talks a lot									
28. works hard									
29. needs a boss around									
30. is helpful									
31. tells the truth									
32. is important to others									
33. is stubborn									
34. is a worrier									
35. needs help from others									
36. is cooperative									
37. works fast									
38. has many ideas of his(her) own									
39. is kind									
40. is bothered by little things									
41 is afraid to say his ideas									
42. says nice things about others									
43. puts things away									
44. is listened to by others									
45. acts like a grown-up									
46. complains a lot									

HOW TRUE OF THE PERSON IS THIS STATEMENT?

HE (OR SHE)	ALWAYS TRUE		USUALLY TRUE		ABOUT HALF TRUE		RARELY TRUE		NEVER TRUE
47 can start work by himself									
48 is polite									
49. does sloppy work									
50 is respected by others									
51. finishes his (her) work									
52 is nervous									
53. is afraid to disagree									
54. knows right from wrong									
55. is scared of things									
56. needs to be told what to do									
57. is liked by others									
58. gives up easily									
59 can sit still a long time									
60 always argues with teachers									

TEACHER RATING SCALE 2

School:_____ Date: Month____Day____Year____

Student's Name:_____ Rater's Name:_____

Teacher?_____ Counsellor?_____ Other (specify)_____

TO THE RATERS

You are being asked to rate several students whom you know, on 27 different items of behavior. For each item there is a nine point scale. For each student, on each item, place a check in the box (scale point) you think is appropriate. If you cannot decide between two worded boxes (for example, between "Never can do routine work," and "Rarely can do routine work," use the intermediate box. Also, if you are in doubt on any of the items use your best judgement, and check off all items. When you have finished, please go back and check to make sure that YOU HAVEN'T MISSED ANY ITEMS.

Thank you.

2610

1. How does this student deal with routine work?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never can do routine work		Rarely can do routine work		Can do routine work about 1/2 the time		Usually can do routine work		Always can do routine work

2. How does this student organize his work?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never organizes his work		Rarely organizes his work		Organizes his work about 1/2 the time		Usually organizes his work		Always organizes his work

3. Can this student synthesize new concepts from information that he already has?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never able to concept-ualize		Rarely able to concept-ualize		Able to concept-ualize about 1/2 the time		Usually able to concept-ualize		Always able to concept-ualize

4. How well does this student understand the feelings of those in authority?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never understands		Rarely understands		Understands about 1/2 the time		Usually understands		Always understands

5. Can this student lead or control others in formal situations?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never leads		Rarely leads		Leads about 1/2 the time		Usually leads		Always leads

2612

6. Can this student lead or control others in informal situations?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never leads		Rarely leads		Leads about 1/2 the time		Usually leads		Always leads

7. Can this student work (or study) alone?

▱ Never can work alone	▱	▱ Rarely can work alone	▱	▱ Can work alone about 1/2 the time	▱	▱ Usually can work alone	▱	▱ Always can work alone

8. How well does this student understand his peers' feelings?

▱ Never under-stands	▱	▱ Rarely under-stands	▱	▱ Under-stands about 1/2 the time	▱	▱ Usually under-stands	▱	▱ Always under-stands

9. How does this student react to changing and varying work?

▱ Never able to work	▱	▱ Rarely able to work	▱	▱ Able to work about 1/2 the time	▱	▱ Usually able to work	▱	▱ Always able to work

10. How well does this student work under pressure?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never can work under pressure		Rarely can work under pressure		Can work under pressure about 1/2 the time		Usually can work under pressure		Always can work under pressure

11. How does this student react to hostility from others?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never gets angry		Rarely gets angry		Gets angry about 1/2 the time		Usually gets angry		Always gets angry

12. Does this student act in a way that leans towards pleasing those in authority?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never tries to please		Rarely tries to please		Tries to please about 1/2 the time		Usually tries to please		Always tries to please

2614

13. How does this student work in the face of frustration?

Never works well		Rarely works well		Works well about 1/2 the time		Usually works well		Always works well

14. Can this student work on detailed, meticulous tasks?

Never can work		Rarely can work		Can work about 1/2 the time		Usually can work		Always can work

15. Is this student well-liked by those in authority?

Never well-liked		Rarely well-liked		Well-liked about 1/2 the time		Usually well-liked		Always well-liked

16. Can this student accept blame and responsibility for actions?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never can accept responsibility		Rarely can accept responsibility		Can accept responsibility about 1/2 the time		Usually can accept responsibility		Always can accept responsibility

17. How intelligent does this student appear?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never appears intelligent		Rarely appears intelligent		Appears intelligent about 1/2 the time		Usually appears intelligent		Always appears intelligent

18. How does this student react to authority or control by others?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never emotional		Rarely emotional		Emotional about 1/2 the time		Usually emotional		Always emotional

19. Does this student initiate action for himself?

▱ Never initiates action	▱	▱ Rarely initiates action	▱	▱ Initiates action about 1/2 the time	▱	▱ Usually initiates action	▱	▱ Always initiates action

20. How altruistic is this student? (does he put aside his own needs for the progress or ends of his group?)

▱ Never altruistic	▱	▱ Rarely altruistic	▱	▱ Altruistic about 1/2 the time	▱	▱ Usually altruistic	▱	▱ Always altruistic

21. Does this student act in a way that leans towards pleasing his peers?

▱ Never tries to please peers	▱	▱ Rarely tries to please peers	▱	▱ Tries to please peers about 1/2 the time	▱	▱ Usually tries to please peers	▱	▱ Always tries to please peers

22. How does this student react in the face of conflicting information and/or instructions?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never can work independ-ently		Rarely can work independ-ently		Can work independ-ently about 1/2 the time		Usually can work independ-ently		Always can work independ-ently

23. How does this student work in the face of frustration?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never gets upset		Rarely gets upset		Gets upset about 1/2 the time		Usually gets upset		Always gets upset

24. Can this student make his own decisions?

▱	▱	▱	▱	▱	▱	▱	▱	▱
Never can make decisions		Rarely can make decisions		Can make decisions about 1/2 the time		Usually can make decisions		Always can make decisions

2618

25. How does this student react to authority or control by others?

Never works efficiently		Rarely works efficiently		Works efficiently about 1/2 the time		Usually works efficiently		Always works efficiently
▱	▱	▱	▱	▱	▱	▱	▱	▱

26. Is this student well-liked by peers?

Never well-liked		Rarely well-liked		Well-liked about 1/2 the time		Usually well-liked		Always well-liked
▱	▱	▱	▱	▱	▱	▱	▱	▱

27. How is this student affected by sudden change and distraction?

Never adjusts		Rarely adjusts		Adjusts about 1/2 the time		Usually adjusts		Always adjusts
▱	▱	▱	▱	▱	▱	▱	▱	▱

VT 012 217
Robon, Nancy C.
The Effectiveness of Teaching Beginning Typewriting with Television Monitors, Selectric Typewriters, and an Open-Access Laboratory.

MF AVAILABLE IN VT-ERIC SET.
PUB DATE - May70 79p.

DESCRIPTORS - *BUSINESS EDUCATION; *TYPEWRITING; *TEACHING METHODS; COMPARATIVE ANALYSIS; *MASTERS THESES; *LEARNING LABORATORIES; ACADEMIC ACHIEVEMENT; EDUCATIONAL TELEVISION; SCHEDULING

ABSTRACT - The purpose of this study was to determine if there is a significant difference in typing achievement between students who learned to type in a traditional typing class and those who learned using television monitors, selectric typewriters, an open-access labroatory, and a shorter time of actual instruction. A comparative and statistical analysis of student achievement under these two sets of conditions revealed that comparable typing speed can be developed under both. However, since there is no significant difference in typing achievement under these two sets of conditions, there is no reason for college classes and possibly senior high school classes in beginning typewriting to meet every day. This M.A. thesis was submitted to the University of Toledo. (Not recommended for hard copy reproduction due to marginal legibility of original.) (Author/JS)

VT 012 217

ED0 57254

A Project

entitled

THE EFFECTIVENESS OF TEACHING BEGINNING TYPEWRITING WITH TELEVISION MONITORS, SELECTRIC TYPEWRITERS, AND AN OPEN-ACCESS LABORATORY

by

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as partial fulfillment of the requirements of
the Master of Education Degree in
Business Education

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The University of Toledo
Toledo, Ohio
May, 1970

VT012217

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CHAPTER I

THE PROBLEM

The skill instructors of the Business Technology Division of the Community and Technical College of The University of Toledo have changed from having classes conducted in the traditional manner to having a class situation in which the lessons are given during a shorter period of time over closed-circuit television by an instructor who is in the room with the students and who then assigns work for the student to do during laboratory periods. The University of Toledo has spent considerable money to develop a business laboratory, equipped with Selectric typewriters and closed-circuit television, that is available to students on an open-access basis. It is of interest to learn whether the results obtained from a method of teaching that employs such new media and equipment as television monitors and Selectric typewriters are significantly different from results obtained from the traditional method of instruction.

The purpose of this study is to determine if there is a significant difference in typing achievement between those students who learned to type using television monitors, Selectric typewriters, an open-access laboratory,

and a shorter time of actual instruction and those students who learned to type on manual typewriters and under the traditional classroom method of instruction.

Specific answers to the following questions provide a basis for determining whether or not there are any significant differences between these two groups of students learning to type under different conditions:

1. Is there a significant difference in typing ability as measured by speed and accuracy between beginning typewriting students taught five 50-minute periods a week in the traditional manner and students taught two 50-minute periods a week with the aid of television monitors, Selectric typewriters, and an open-access laboratory?

2. Is there a significant difference in the ability to produce mailable letters between beginning typewriting students taught five 50-minute periods a week in the traditional manner and students taught two 50-minute periods a week with the aid of television monitors, Selectric typewriters, and an open-access laboratory?

Definition of Terms

Closed-Circuit Television - a technique that permits the transmission of television signals via coaxial cables to viewing screens in other rooms in the same

building or in the same general area.[1] For the purpose of this study, closed-circuit television is regarded as the originating and viewing of a television picture within the same room.

Mailable Copy Rate (MCR) - a standard of measure of production of mailable copy. It is a quality-quantity index of performance. The method is as follows:

Grade	% of Words Received by Student	Definition of Grade
M+	100	Without error of any kind. Very few corrections, all neatly made.
M	90	Slight deviations from perfection, such as: a. Enclosure notation omitted b. Less than perfect placement c. Minor deviations from directions given d. Neat but excessive number of corrections necessary
NM	10	Errors due to lack of knowledge (excluding errors of spelling, grammar, and punctuation.)
F	0	Errors due to carelessness or lack of certain knowledges, such as: a. Uncorrected typographical errors b. Uncorrected, obvious strikeovers c. Misspelled words d. Essential punctuation violations e. Basic grammar violations f. Omissions from typed copy which are obvious when proofread

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[1]Allien R. Russon and S. J. Wanous, Philosophy and Psychology of Teaching Typewriting (Cincinnati: South-Western Publishing Company, 1960), p. 280.

[2]Esther Anderson, "Mailable Copy Rate."

Open-Access Laboratory - a laboratory available for individual student use from 8 a.m. to 4 p.m. and from 5 p.m. to 10 p.m. (72 hours per week).

Open-Circuit Television - a technique of visual transmission, operated exactly like commercial television with the exception that there are no commercials and the programs are telecast on UHF (ultra high frequency) rather than VHF (very high frequency).[3]

Selectric Typewriters - the model of IBM typewriter that has the rotating sphere (element) rather than type bars.

Standard Word - the basic method of measurement of stroking keys in typewriting--five strokes equal to one word.

Syllable Intensity (SI) - the average number of syllables per word, which measures the ease or difficulty of the copy to be typed.[4]

Telestudent - a student taught with the medium of television.

Television Monitor - a television receiving set that the student views.

Timed Writing - a typewriting test consisting of straight-copy material administered for a predetermined number of minutes (See Exhibit 1).

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[3]Russon, Op. Cit., p. 280.

[4]D. D. Lessenberry, S. J. Wanous, and C. H. Duncan, College Typewriting, 8th Ed. (Cincinnati: South-Western Publishing Company, 1969), p. 18.

Traditional Method of Teaching Typewriting - the method of teaching typewriting in which the instructor conducts class by means of oral presentation, blackboard use, and typewriter demonstration.

Delimitations

Because of the involved nature of such a procedure and the length of time such a procedure would take, the degree to which the televised instruction, the Selectric typewriters, and the availability of the open-access laboratory affects the results is not attempted.

Basic Assumptions

It is assumed that the instructor is equally proficient in teaching all sections involved in this study.

It is assumed that the 3-minute timed writing is a valid measure of straight-copy typing ability.

It is assumed that the Mailable Copy Rate is a valid measure in rating mailable letters.

It is assumed that the data in the two samples are adequate for statistical treatment.

It is assumed that any generalizations may apply to other samples only if such samples show the same pattern of pertinent properties which have been shown to exist in the incidental samples of this investigation.

Basic Hypothesis

The hypothesis tested is that there is no significant difference between the typing achievement of those students learning typewriting in a course taught two days a week with the use of television monitors, Selectric typewriters, and an open-access laboratory and of those students taught five days a week in the traditional manner.

CHAPTER II

NEED FOR THE STUDY

Television may be able to help solve two acute educational problems found in the teaching of typewriting: 1. shortages of qualified teachers brought about by an inefficient use of teacher time and 2. inefficient use of existing equipment. If this study gives some evidence that students can learn as much attending class two 50-minute periods a week and working on their own instead of attending class five 50-minute periods a week, much valuable classroom space and teacher-instruction time can be saved. Other classes can be scheduled into the released classrooms and on the available equipment. Also, the released rooms can be used on an open-access basis for those students who need additional practice. The saving of teacher-instruction time also frees that classroom teacher three additional hours a week to teach other classes or to prepare better for those classes that he is now teaching.

By means of television monitors, large groups of students can be taught by one instructor with the aid of assistants. Such a procedure, too, would result in a more efficient use of teacher-instruction time. Even though

this study will not attempt to answer the question of whether large groups can learn as much as small groups during the same period of time, the instructor will be using the same techniques in conducting the televised class that would be used in conducting a large class; lecturing and demonstrating from a fixed station, preparing visual aids that the camera transmits to the four monitors, having an aide present in the classroom while instructing to help with any malfunctioning of the typewriters, and assigning typewriting homework from the first day. If it is determined that this small group can learn as much in two 50-minute classes as in five 50-minute classes, then additional studies can be conducted to determine whether or not a large group taught by the same method can do likewise.

A distinction between television teaching and teaching with monitors needs to be made here.

When teaching entirely with television, the expert teaches from a television studio to students not only in classrooms but also directly in the home by using UHF (ultra high frequency). Teacher aides or participating teachers usually are present in the classroom receiving the telecast to answer questions, to observe and help the student at work, to collect papers, and to perform other administrative duties. The student in the home-viewing audience is left on his own to comprehend the instruction. The major drawback of this type of

instruction is that, if a student asks a question of one of the aides or has his typewriter malfunctioning, the televised instruction continues and the student falls behind. Also, the student feels the lack of personal contact with the instructor.

When teaching with the aid of monitors, the teacher and the students are in the same classroom. The television monitors are so positioned in the classroom as to enable every student to get a "bird's-eye" view of the demonstration. The student gets the impression of being taught individually if the monitors are placed, as they should be, no farther than 15 feet away from the student (See Figure I, page 9).[5] The teacher can answer questions

FIGURE I

VISUAL MAGNIFICATION of the keyboard is particularly desirable in the beginning typewriting class, even Johnny in the back row can see which machine part is being referred to. (Although the videotape machine is visible in the background, it is not being used for this function. The visual image is transmitted electronically directly from the camera to the monitor.)

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[5]Robert N. Hanson, "How You Can Use Videotape," Business Education World, Vol. 49, No. 9 (May, 1969), p. 7.

that arise without fear of interrupting what is being said on TV; he can adapt the speed of the presentation to the group; and he can emanate the warmth that is missing when using only television.

CHAPTER III

RELATED STUDIES

Television has been used for educational purposes since the early fifties. These early applications of television to education, many of which were doneby the military, tested the effectiveness of traditional classes matched against televised classes. The military concluded that television was an effective medium to use in teaching.[6] From that time forward, the uses of television in the various areas of education have multiplied many times over.

Schramm, of the Institute of Communications Research, Stanford University, in 1962, concluded that of 393 comparisons in schools and colleges using the usual tests to measure progress of students, 65 percent of the studies reported no significant difference between televised instruction and traditional instruction, 21 percent reported that students learned significantly

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[6]Robert T. Rock, Jr., James S. Duva, and John E. Murray, "The Effectiveness of Television Instruction in Training Naval Air Reservists," United States Department of the Navy, Technical Report SDC 476-02-52 (Fort Washington, New York: Office of Naval Research, April, 1951), p. 43.

more from television, and 14 percent reported significantly less learning from television.[7]

As it would be very difficult to analyze all 393 studies plus those that have taken place since 1962, the research on this study dealing with television has been limited to only the applications of television to typewriting instruction from the first study completed in 1956 until the present.

Because this study is also concerned with whether electric typewriters contribute significantly to the learning of typewriting as compared with manual typewriters, the last part of this chapter analyzes the results of studies which have investigated the value of electric typewriters and the medium of television in teaching typewriting.

Teaching with Television

Michigan State University

Pasewark's study in 1956 at Michigan State University matched 22 students taught in a conventional classroom with 22 students taught by means of television. When he was teaching with television, he did have six students in the studio, but these students were not part of his study. The experimental group was divided into six sub-groups that met in six separate rooms. These sub-groups

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[7]Wilber Schramm, Educational Television, The Next Ten Years (Stanford University: The Institute for Communications Research, United States Office of Education, 1962), pp. 52-54

did not have a teacher or aide present in the rooms while instruction was being received. None of Pasewark's students had previous formal typewriting instruction, and they were not required to enroll in beginning typewriting but elected the course. He gave a series of nine 5-minute timed writings and one combination letter and tabulation test to both groups.

His findings showed the following: First, telestudents' typewriting performance on a timed-writing test at the conclusion of the course was superior to the conventional students' performance on an identical test; secondly, telestudents' pattern of learning to typewrite tended to be similar to conventional students' pattern of learning to typewrite; and thirdly, there was no significant difference between telestudents' and conventional students' ability to use typewriting skills to complete a production test at the end of the course.[8]

Indiana University

Another study that was conducted in 1956 was done by Crawford at Indiana University in which two control groups taught in the conventional manner were compared to an experimental group of a television class at Indiana University and a large home audience. The televised instruction, which was received simultaneously by the

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[8]William Robert Pasewark, "The Effectiveness of Television as a Medium of Learning Typewriting" (unpublished Doctor's dissertation, New York University, 1956), p. 6.

television class, the home-viewers, and one conventional class, was given by Crawford; the other conventional class was conducted by Seymour, Crawford's associate.[9] Crawford's conclusions were:

1. Students learned to type--and to type well. Those taught by television showed impressive skill for the time invested.

2. There was commendable skill developed by post-retirement-age students as well as by the younger students.

3. Techniques, however, were not so well developed by television students as by non television students.

4. Students taught by the teachers personally did better on all of the tests than those taking instruction via television.

5. Television students reporting to the campus for testing did not do so well as those mailing in their tests. This conceivably could have been influenced by the fact that there were no controls exercised over the tests submitted by mail.

6. Results achieved by television students were reasonably comparable to those realized in the regular classrooms in the same period of time. It was difficult, however, to determine the amount of practice time invested by television students. This conceivably could have influenced the outcomes.[10]

Grosse Pointe, Michigan

Although this study, which was conducted by Barzych during the 1966-1967 school year at Grosse Pointe, was

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[9]Russon, Op. Cit., pp. 276-280.

[10]Ibid.

not scientifically controlled, several advantages of using television were discussed. At Grosse Pointe, typewriting, which had been taught to classes of 35 students in the traditional manner, was changed to teaching using televised instruction. Eighty students were taught by three teachers--one teacher on camera in the studio and two teachers in the classroom. This change actually decreased the teacher-student ratio. The reported advantages of this change were that the instruction was given in the same length of time, the student-teacher ratio was reduced, the classroom interruptions were minimized, all students were able to observe the demonstrations clearly and closely during the first presentation, and the classroom teachers were able to offer individual assistance immediately when needed.[11]

Michigan State University

Poland used closed-circuit television at Michigan State University in 1965 to provide instruction to a large number of people with few instructors. All beginning typewriting was taught by closed-circuit television during 1964-1965. A questionnaire was then distributed at the end of the winter and spring quarters in 1965 to determine student opinion of the typewriting course.

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[11]Marie Onest Parzych, "Team Teaching of Typewriting Through Television," The Journal of Business Education, Vol. 43, No. 3 (December, 1967), pp. 105-106.

The conclusions that were drawn from this questionnaire were the following: Students taught by television believed that they learned more by a class taught by television than a class not taught by television. A majority of the students felt that there was about the same personal, individual contact in a class taught by television as compared to a class not taught by television. Students felt that they were prepared for the television class about the same or a little more as compared with a class not taught by television. A large majority of the students who completed the questionnaire stated that they would choose a typewriting class taught by television over a class not taught by television.[12]

Teaching with Electric Typewriters

University of Wisconsin

Schmale's study in 1956 at The University of Wisconsin was done to determine whether electric typewriters made a significant contribution to typewriting achievement. Timed-writing records of 15 beginning typewriting classes were used to compare achievement of classes using electric and manual typewriters at the end of 12-, 24-, and 36-week periods. The comparisons were based on gross speed and accuracy scores and on gross speed percent of error point scores. Comparisons were

[12]Robert P. Poland, "The Use of Televised Instruction in Typewriting," National Business Education Quarterly, Vol. 34, No. 3 (Spring, 1966), pp. 27-30.

also made on the achievement of a number of pairs of students matched on the basis of IQ.

Schmale found that, at the end of 12 weeks, students using electrics attained a higher achievement in both speed and accuracy than did students using manuals. His results also showed that students with higher IQ's attained higher speeds and had fewer errors than the students with the lower IQ's and that girls at the end of one year's instruction type significantly faster than did the boys.[13]

Boston University

DiLoreto in a study done in 1956 at Boston University used students enrolled in typewriting classes in three high schools to determine the effectiveness of the electric typewriter as compared with the manual typewriter in typewriting straight-copy material, numbers, fill-in forms, and tabulations. The groups were equated by a series of five tests, a pretest, and a typewriting technique check sheet. During the experiment, eleven straight-copy tests, three business letter tests, two number tests, two tabulation tests, three fill-in form tests, and three end-of-the-year straight-copy tests were given. Based on an analysis of variance, the differences in typewriting

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[13]Verne E. Schmale, "A Comparison of Achievement of Students Using Electric and Manual Typewriter," The National Business Education Quarterly, Vol. 27, No. 1 (Fall, 1958), p. 64.

achievement of the control and experimental groups were not significant on any group of tests administered. While the differences in achievement of the two typewriting groups were not statistically significant in the tests used in this experiment, a comparison of the results indicated that the electric group achieved slightly higher gross and net speeds in most of the tests administered. The electric group exceeded the manual group in seven of the eleven straight-copy tests, the manual group exceeded the electric group in two of the three end-of-the-year tests, and the groups tied in the other tests.[14]

Milwaukee, Wisconsin

A study conducted by Missling during the 1955-1956 school year at Nicolet High School in Milwaukee, Wisconsin, compared the typing achievement of 22 students. From September to March these students began their learning of typewriting on electric typewriters; they then were transferred to manual typewriters for one month; and then they were returned to the elctric typewriters to finish out the school year. The mean speed at the end of the first seven months was 45.2 gwam; at the end of the next month, 39.5 gwam; and at the end of the school year, 50.4 gwam. An analysis of the errors made during these three periods

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[14]Antonnette Eleanor DiLoreto, "An Experimental Study to Determine the Effectiveness of the Electric Typewriter as Compared with the Manual Typewriter in Typing Straight-Copy Material, Numbers, Fill-in Forms, and Tabulations," National Business Education Quarterly, Vol. 26, No. 1 (Fall, 1957), pp. 21-22.

revealed that during the month that the students were on the manual typewriters all students except four, who equaled their previous number of errors, typed with a high average number of errors. When the students were returned to the electric typewriters, two students typed with the same number of errors as on the manuals, six students wrote with more errors than they had on the manuals and sixteen students typed with fewer errors than on the manuals. When the results of the first and third periods were compared, seven students typed with the same number of errors, two students typed with more errors in the third period than in the first, and seven students typed with fewer errors in the third period than they did in the first period. Missling's results seemed to indicate that speeds on the electrics exceeded the manuals and errors were higher on the manuals than on the electrics.[15]

Summary

The studies examined showed that television, as a teaching tool, is used in many ways. Televised instruction may be done by recording, by "live" performances, or by a mixture of the two and may be broadcast or presented on a closed-circuit basis. In closed-circuit transmission, the instructional program usually appears

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[15]Lorraine Missling, "Electric Vs. Manual Typewriters." The Balance Sheet, Vol. 38, No. 7 (March, 1957), pp. 300-303.

on monitors situated within the institution. Using television and/or electric typewriters helps in learning to typewrite.

Some of the features of the reported research, which examined the effectiveness of television and electric typewriters in the achievement in typewriting, are:

1. Researching the value of television as an aid in learning beginning typewriting has mainly been done in Michigan.

2. Televised instruction in typewriting is usually done on a closed-circuit basis with the studio centrally located and the lessons received within the same institution.

3. Usually the teacher has not been in the classroom. In only one of the television studies was the regular teacher in the room while the experimental class was being conducted. Even in this case, the teacher could not interrupt his lesson to help the students having trouble as the lesson was being broadcast on open-circuit television and the teacher had to keep up with the split-second timing.

4. All of the studies that related to the comparisons of electric and manual typewriters indicated that students using electric typewriters typed significantly faster and had fewer errors than the students on the manual typewriters.

The following features, which are lacking in the studies examined, have been included in this project:

1. Permission to interrupt the televised instruction to ask questions or to gain help. The instructor conducts the class in the same classroom with the students so that the students can interrupt the presentation with questions.

2. The combined use of closed-circuit television, Selectric typewriters, and an open-access laboratory.

3. A shortened period of time for presentation of the material to the experimental group. This study covers, for the televised group, identical material in two-fifths of the normal time.

CHAPTER IV

PROCEDURE

Time and Place

This study of two groups of students in beginning typewriting took place during the spring and fall quarters in 1969 at The University of Toledo, Toledo, Ohio.

Description of Sections

The group taught in the Traditional manner met during the spring quarter of 1969 in Room 444 of University Hall. This group, identified in this paper as the traditional group, met once a day, Monday through Friday for 50 minutes each day. (Total time 41 2/3 hours). The students typed on manual Royal typewriters; they had instruction by the instructor in the classroom each day; and, as very little homework was assigned, they did practically all of their typewriting during the 50-minute class period. The main visual aids in the class were the demonstration typewriter, the blackboard, and a keyboard wall chart.

The group taught with television monitors met during the fall quarter of 1969 in Room ASC 221 at the Scott Park Campus. This group, identified in this paper

as the televised group, met once a day on Tuesday and Thursday for 50 minutes each day, and they were responsible for 150 minutes of open-access laboratory work, which could be done when they had time to budget it into their schedules. (Total time: 41 2/3 hours of which 16 2/3 hours was spent in class instruction.) The students typed on IBM Selectric typewriters; they had instruction by the instructor at each class meeting; and, as class time was devoted to demonstration and testing, they did practically all of their typewriting practice during the open-access laboratory time. In her demonstration, the instructor used four closed-circuit television monitors strategically located in the room (See Figure II, page 24). The television camera was operated by the instructor by means of remote-control switches that enabled her to zoom in or out on a particular demonstration.

Selection of Students

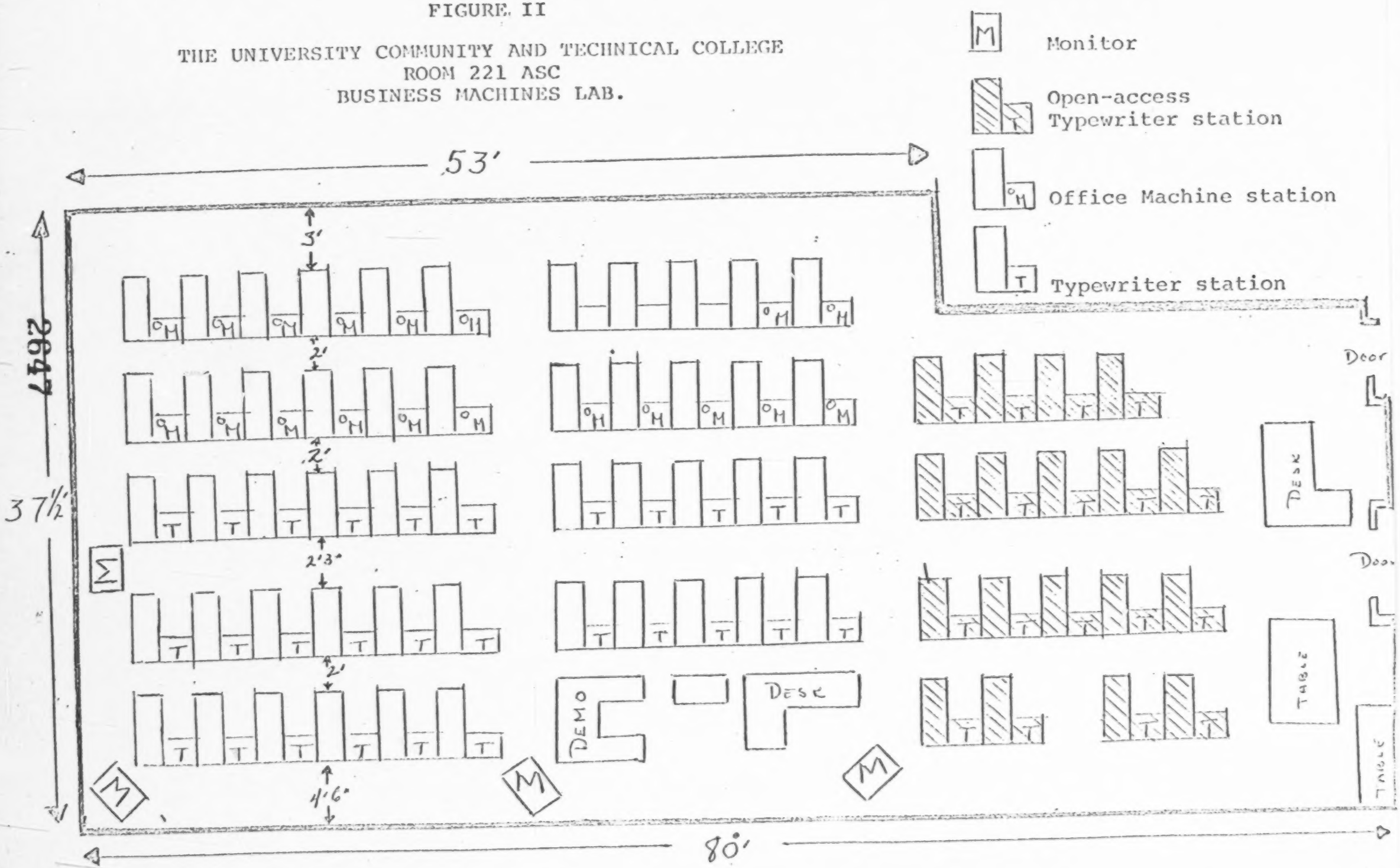
Both samples of students studied developed in the same manner.

First, since ComTech has an open-door policy, the class standing of the high school students entering the two groups was eliminated as a selective factor.

Second, since all ComTech students must achieve a minimum typewriting proficiency by graduation, they must either take a typewriting proficiency test or take

FIGURE II

THE UNIVERSITY COMMUNITY AND TECHNICAL COLLEGE
ROOM 221 ASC
BUSINESS MACHINES LAB.



Typewriting I to gain this skill. The students in each group were those who did not take a typewriting proficiency test and, consequently, were placed in these courses.

Reliability of the Samples

The two groups of students studied are what Guilford has termed incidental samples. According to Guilford, "The term incidental sample is applied to those samples that are taken because they are the most available."[16]

> Generalizations beyond any sample can be made safely only when we have defined the population that the sample represents in every significant respect. If we know the significant properties of the individual sample well enough and can show that those properties apply to new individuals, those new individuals may be said to belong to the same population as the members of the sample.[17]

The reliability of a sample makes possible the assumption that future samples, if drawn under similar conditions as those which produced the incidental sample, will exhibit a pattern of pertinent properties similar to that of the incidental sample. It can be expected that the results obtained from future samples would not be too unlike the samples in the study.

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[16]J. P. Guilford, Fundamental Statistics in Psychology and Education, 4th Edition (New York: McGraw-Hill Book Company, 1965), p. 142.

[17]Ibid.

The reliability of the two samples was tested by determining whether the televised group were like the traditional group with respect to two pertinent properties--high school rank and amount of previous high school typing experience. The high school rank was determined by checking the high school records at the Registrar's Office, and the amount of previous typing experience was ascertained by asking each student on a questionnaire (Exhibit I, page 57) how much previous typing experience they had. A comparison was then made by means of a statistical test to determine whether the televised students and the traditional students were alike with regard to high school class standing and previous typing experience.

The K-S Test. According to Guilford, the K-S Test is generally used when the

> . . . two distributions compared are both samples. The hypothesis (H_o) is that the two distributions arose by random sampling from the same population. . . . The measurement scale need not have equal units: ordered categories are sufficient refinement for the purposes of the K-S Test.[18]

In the treatment of the first pertinent property of high school rank, the categories are ordered from first to fourth quartile. In the treatment of the second pertinent property, the categories are ordered from two years high school typing experience to no high school typing experience.

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[18]Ibid., p. 262.

The K-S Test also lends itself to samples of uneven size and to samples when each N is less than 40, which is the situation that is present. The first hypothesis being tested is that there is no significant difference between the two samples with regard to high school class standing. If the hypothesis is accepted, it is reasonable to assume that the differencesbetween the two sections are merely sampling errors. If the hypothesis is rejected, then the differences which exist between the two sections are assumed to be real differences and not just sampling errors. A two-tailed test is appropriate because the alternative to the H_o is merely that differences do exist between the two groups being investigated.

APPLICATION OF THE K-S TEST TO TWO GROUPS OF STUDENTS OF UNEQUAL SIZE--THE TRADITIONAL AND THE TELEVISED GROUPS--WITH RESPECT TO THEIR QUARTILE STANDING IN THEIR HIGH SCHOOL GRADUATING CLASS

H. S. Quartile	f		cf		cp		d_c
	Trad	Tele	Trad	Tele	Trad	Tele	
First	5	3	21	28	1.000	1.000	.000
Second	6	7	16	25	.762	.893	.131
Third	8	10	10	18	.476	.643	.167
Fourth	2	8	2	8	.095	.286	.191

D = .191

The steps followed in applying the K-S Test are: (1) To prepare a frequency distributuion (f), (2) To develop a cumulative frequency distribution of each (cf), (3) To produce a cumulative distribution of proportion, and finally (4) to determine the category differences, (d_c), between the two groups of data. "The signs of the differences are unimportant; we are concerned only with their sizes."[19] The largest difference, which is .191, is the needed statistic D. This statistic is necessary to determine whether it is sufficiently large to lead to rejection of the null hypothesis.

To decide whether or not to reject the null hypothesis, it is necessary to determine what size of D is needed to be significant at the .05 level. To do this, the N's involved in the samples, N_1 and N_2, need to be taken into account. The following formula for the .05 level of significance is used.

$$1.36 \sqrt{\frac{N_1 + N_2}{N_1 \quad N_2}}$$

Applying the formula to the respective N's, the .05 critical value is determined.

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[19]Ibid., p. 265.

$$\text{Critical value} = \sqrt{\frac{21 + 28}{(21)\quad(28)}}$$

$$= \sqrt{\frac{49}{588}}$$

$$= \sqrt{.0833}$$

$$= (1.36)\ (.2887)$$

$$= .393$$

Since the obtained D of .191 is not equal to or greater than .393, the null hypothesis that there is no significant difference between the two samples with respect to high school quartile is therefore accepted. The incidental samples are considered reliable with respect to this pertinent property.

The second hypothesis being tested is that there is no significant difference between the two samples with regard to previous high school typing experience. Again, this is a two-tailed test of difference between two populations from which these samples were drawn

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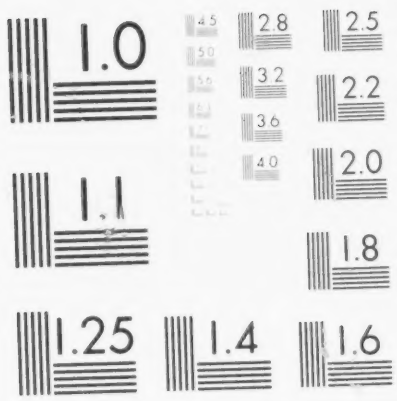

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

APPLICATION OF THE K-S TEST TO TWO GROUPS OF STUDENTS OF UNEQUAL SIZE--THE TRADITIONAL AND THE TELEVISED GROUPS--WITH RESPECT TO THEIR PREVIOUS HIGH SCHOOL TYPING EXPERIENCE

Previous H. S. Type. Exp.	f		cf		cp		d_c
	Trad	Tele	Trad	Tele	Trad	Tele	
2 years	1	3	21	28	1.000	1.000	.000
1 year	9	4	20	25	.952	.893	.059
1 sem.	2	4	11	21	.524	.750	.226
Less than 1 sem.	4	5	9	17	.429	.607	.178
None	5	12	5	12	.238	.429	.191

D = .226

The .05 critical value of D is again used. Since the obtained D of .226 is not equal to or greater than .393, the null hypothesis that there is no significant difference between the two populations from which the samples were drawn with respect to previous high school typing experience is accepted. Therefore, the incidental samples are considered reliable with respect to this pertinent property.

Description of Instruction

The instructor followed closely the same pattern of instruction when teaching the televised and the traditional groups. Exhibits V and VI (pages 61 and 67) show an outline of the instruction week by week throughout

the two quarters. The two courses could not be identical because the textbook was changed at the end of the spring quarter. At approximately the end of the second week of instruction, the first 3-minute timed writing was given to both groups. Each succeeding week, another timed writing was given until nine timed writings were given to each group. The timed writings given to both groups were comparable in their syllabic intensities. A comparison of the syllabic intensities is given in Table I (page 32).

Once the initial instruction on the keyboard was finished, the instructor taught some of the basic applied learnings such as letters, outlines, manuscripts, and tabulations. Because of the changing of the textbook and the shortened period of instruction in the televised group, the teaching of these other basics could not be so easily correlated as the timed writings. For instance, the presentation of the modified block letters was given a week earlier in the televised group than in the traditional group.

Selection of Statistical Tests Used to Test Speed

Since it was possible to use the computer at ComTech, the formulas for ungrouped data were used as these data are considered more precise than formulas for grouped data.[20] The formulas used to determine the

[20]Guilford, Op. Cit., pp. 45-46.

TABLE I

COMPARISON OF SYLLABIC INTENSITY
ON NINE 3-MINUTE TIMED WRITINGS

Timing No.	Televised Group		Traditional Group	
	Page No.[21]	Syllabic Intensity	Page No.[22]	Syllabic Intensity
1	18	1.0	22	Unknown
2	29	1.2	31	Unknown
3	30	1.2	41	1.15
4	45	1.2 (paragraph 1) 1.4 (" 2) 1.5 (" 3)	50	1.15
5	30	1.2	60	1.30 (paragraph 1) 1.16 (" 2)
6	45	1.2 (paragraph 1) 1.4 (" 2) 1.5 (" 3)	50	1.15
7	45	1.2 (paragraph 1) 1.4 (" 2) 1.5 (" 3)	60	1.30 (paragraph 1) 1.16 (" 2)
8	48	1.3	114	1.35
9	30	1.2	50	1.15

[21] D. D. Lessenberry, S. J. Wanous, and C. H. Duncan, College Typewriting, 8th Ed. (Cincinnati: South-Western Publishing Co., 1969).

[22] D. D. Lessenberry, S. J. Wanous, and C. H. Duncan, College Typewriting, 7th Ed. (Cincinnati: South-Western Publishing Co., 1965).

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arithmetic mean, median and the standard deviation of the population are shown in Table II (page 33).

TABLE II

FORMULAS FOR MEAN, MEDIAN, AND STANDARD DEVIATION OF THE POPULATION

Arithmetic Mean[23]	$= \frac{\Sigma x}{n}$
Median[24]	$= \frac{X_{1(n/2)} + \bar{X}_{2[(n+2)/2]}}{2}$
Standard Deviation[25]	$= \sqrt{\frac{\Sigma(X - \bar{X})^2}{n}}$

Arithmetic Mean. The mean is generally "the most reliable or accurate of the three measures of central tendency"[26]--the arithmetic mean, the median, and the mode. What this quote is saying is that from sample to sample from the same population, the mean ordinarily fluctuates less widely than either the mode or the median. The mean is also better suited to further arithmetical computations because deviations of single cases from the central value give important information

[23]Lawrence J. Kaplan, Elementary Statistics for Economics and Business (New York: Pitman Publishing Corporation, 1966), p. 42.

[24]Ibid., p. 46.

[25]Robert D. Mason, Statistical Techniques in Business and Economics, Rev. Ed. (Homewood, Illinois: Richard D. Irwin, Inc., 1970), p. 117.

[26]Guilford, Op. Cit., p. 56.

about any distributuion. One property of the mean is its sensitivity to the size of extreme measurements. Another property of the mean is that it uses continuous data as compared with the median which uses discrete data.

Median. The median is defined "as that point on the scale of measurement above which are exactly half the cases and below which are the other half."[27] By comparing the mean and the median it can be determined if there is any skewness within a sample. If the mean and the median are the same point, the distribution is considered reasonably symmetrical. Negative skewness indicates that there are extreme low scores which are causing the mean to be low. Positive skewness indicates that there are extreme high scores that are causing the mean to be abnormally high.[28]

Standard Deviation.

> The standard deviation can be considered a unit of measurement. It measures variation in a population just as the ton is a unit of measurement for coal production. Thus, based on samples from two comparable populations, the standard deviations are used as a common denominator to compare the representativeness of the two means. The assumptions are that the two means are about equal, and the data are expressed in the same units. The smaller of the two standard deviations indicates that

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[27]Ibid., p. 49.

[28]Ibid., pp. 60-61.

> the distribution to which it belongsis more homogeneous. Conversely, the larger of the two standard deviations signifies that the distributuion to which it belongs is spread out more, and therefore the population is not so homogeneous.[29]

<u>t-Test of Difference Between Uncorrelated Means in Two Samples of Unequal Size</u>. After the standard deviations were computed for each timed writing by the computer, the $\sum x^2$ were calculated from it by using the formula

$$\sum x^2 = (s)(n)$$

The sum of the deviations squared was then used in the application of the t-test to a test of differences between uncorrelated means in two samples of unequal size. The formula used for this t-test is

$$t = \frac{M_1 - M_2}{\sqrt{\left(\frac{\sum x_1^2 + \sum x_2^2}{N_1 + N_2 - 2}\right)\left(\frac{N_1 + N_2}{N_1 N_2}\right)}}$$

> The complete numerator should read $M_1 - M_2 - 0$, to indicate that it represents a deviation of a difference from the mean of the differences, The denominator as a whole is the SE of the differences between means, as the t ratio requires. . . . In the first term under the radical we have combined the sums of squares from the two samples (in the numerator) and the degress of freedom (in the denominator) that comes from the two samples. . . . The effect of the second expression under the radical is to give the SE of the mean difference.[30]

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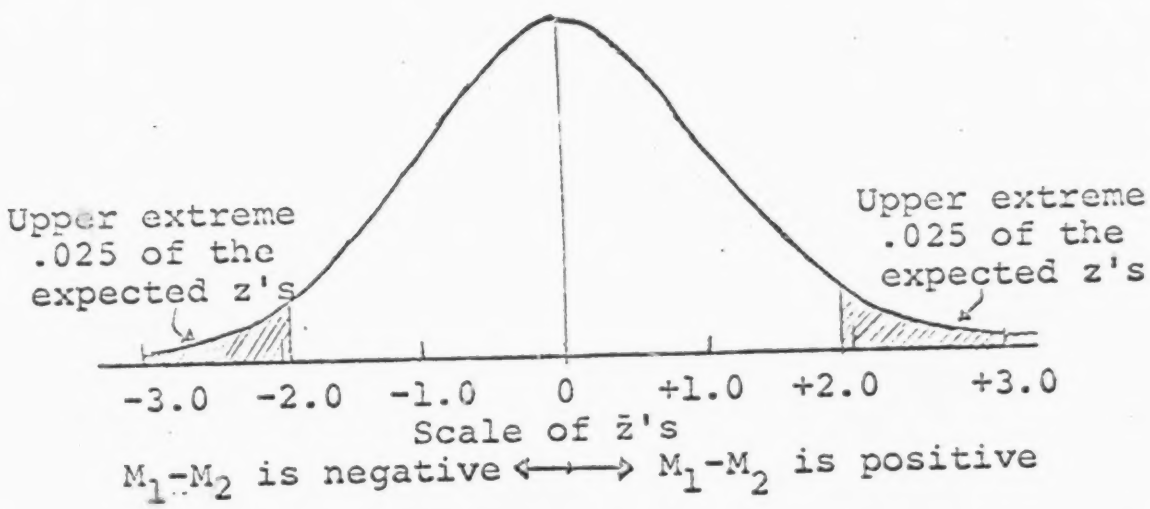
[29]Mason, Op. Cit., p. 119.

[30]Guilford, Op. Cit., pp. 183-184.

If the sample sizes are large, in accordance with the usual null hypothesis, a sampling distribution of differences has a mean of zero. The deviation of each sampled difference is given in terms of a standard measure called a $\bar{z}$ value. The following diagram shows such a distribution.



The shaded areas in the tails represent the critical regions of the extreme $\bar{z}$'s, which lead to rejection of the null hypothesis at the .05 level of significance.[31]

Student's t-test was used rather than a test for a normal curve because each of the sample sizes is less than 30 (N_1 = 21 and N_2 = 28). Because the samples are considered small, random samples of similar size drawn from the same population cannot be assumed to be normally distributed. The means of small samples distribute themselves in accordance with the t-distributuion, which

[31]Ibid., pp. 175-176.

depends upon degrees of freedom. A different t-distribution is available for each number of degrees of freedom.[32]

Degrees of Freedom. Since the shape of the distribution curve for small samples varies with the number of cases, or the degrees of freedom, statistical calculations in this study use the formula N - 1 (number of cases in the distribution, less one) instead of N (number of cases in the distribution).[33] The degrees of freedom for the mean speed then becomes (21 - 1) + (28 - 1), which equals 47 degrees of freedom. According to Guilford, the closest degrees of freedom indicated on Table D are 45.[34] The .05 level of significance is 2.014.

A Test of Significance. A test of significance is one which indicates whether a difference between a sample statistic and a population parameter, or between two sample statistics, may or may not be attributed to chance.

> If the difference is so large that it cannot be ascribed to chance, then the difference is significant. This means that differences actually exist. The null hypothesis, which states that no difference exists, is rejected. If the difference is so small that it may be

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[32]Kaplan, Op. Cit., p. 128.

[33]Guilford, Op. Cit., p. 146.

[34]Ibid., p. 581.

> attributed to chance, it is not statistically significant. The differences may be attributed simply to sample variation, and the null hypothesis is not rejected.[35]

A .05 level of significance is selected for this study, which means that the probability of rejecting a hypothesis which is indeed true is only five chances out of a hundred. Therefore, if the obtained values do not exceed the critical values at the 5 percent level of significance, it can be considered that there is no significant difference between the populations from which the samples were drawn. If the obtained values do exceed the critical values, the null hypothesis would be rejected. There would be only five chances in a hundred that the decision to reject the hypothesis is not correct and the conclusion could be considered incorrect.

The Null Hypothesis. The null hypothesis asserts that no true difference exists between two samples.[36] If the null hypothesis is rejected, it means that the difference between the two sections can result from "A host of other possibilities and each has to be tested in turn."[37] If the null hypothesis is retained, there is reason to believe that the two sections differ only by sampling errors.

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[35]Kaplan, Op. Cit., p. 132.

[36]Guilford, Op. Cit., pp. 171-173.

[37]Ibid., p. 173.

Selection of Statistical Test Applied to Errors

The Median Test of Chi Square. When the data consist of frequencies in discrete categories, the median test of chi square may be used to determine whether there is a significant difference between the two incidental samples with respect to some characteristic. The median test first involves finding a common median for the combination of the two samples. Second, the number of cases above and below the common median are counted in each sample and cast into a fourfold contingency table.[38]

DATA CAST INTO FOURFOLD CONTINGENCY TABLE

4 ≤	fo = 11	fo = 18	29
4 >	fo = 10	fo = 10	20
	21	28	49

In this test the observations are not paired or correlated, and the N may differ in the two samples. The hypothesis tested is that the median is the same for both populations.

When chi square is applied to a problem with one degree of freedom and when any cell frequency is less than 10,

[38]Guilford, Op. Cit., p. 257.

> . . . a modification known as Yates correction for Continuity should be applied. This correction consists of reducing by .5 each obtained frequency that is greater than expected and in increasing by the same amount each frequency that is less than expected. This has the effect of reducing the amount of each difference between obtained and expected frequency to the extent of .5. The result is reduction of the size of chi square.
>
> The correction is needed because of the fact that a computed chi square, being based on frequencies, which are whole numbers, varies in discrete jumps whereas the chi-square table representing the distributions of chi square, gives values from a continuous scale. When frequencies are large, this correction is relatively unimportant, but when they are small, a change of .5 is of some consequence.[39]

The formula[40] used is

$$\chi^2 = \frac{N\left(|ad - bc| - \frac{N}{2}\right)^2}{(a+b)\ (a+c)\ (b+d)\ (c+d)}$$

Selection of Statistical Test Applied to MCR Scores

To determine whether or not the televised sample had significantly different MCR scores than the traditional group, a test and then a retest on letters was given to each group. The higher score for each test was then recorded for each student (See Exhibits IX and X, pages 72 and 73).

Since both distributions are samples, are of uneven size, are considered small, and are uncorrelated, the

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[39] Guilford, Op. Cit., p. 237.

[40] Ibid., p. 240.

K-S Test is again used. As stated previously, the K-S Test can be used when the two distributions being tested are samples, when the samples are of uneven size, when each N is less than 40, and when the data are uncorrelated.[41] Since the H_1 is whether the televised group had significantly different MCR scores than the traditional group, a two-tailed test is appropriate.

[41]Guilford, Op. Cit., p. 262.

CHAPTER V

RESULTS, CONCLUSIONS, AND DISCUSSIONS

Results

After the nine 3-minute timed writings were given to each group, they were organized into four tables (See Exhibits VII, VIII, IX, and X, pages 70, 71, 72, and 73 respectively), which show the gross scores and errors made by each student on each timed writing. The mean, median and standard deviation of both the speeds attained and the errors made are shown for each of the timed writings in Tables III, IV, V, and VI, (pages 43 and 44). Figure III (page 45) shows a comparison of the mean speeds attained by the students on each timed writing. Figure IV (page 46) shows a similar comparison of the mean errors made by the traditional and televised group on each timed writing.

Results of t-Test on Mean Speed

By applying Student's t-test to the differences between the mean speeds on the ninth timed writing, a t-score of .017 was obtained. This t-score with 45 degrees of freedom does not exceed the .05 level of significance of plus or minus 2.014. The null hypothesis

TABLE III

STATISTICS ON SPEED OF TIMED WRITINGS
FALL, 1969

Timing	Mean	Standard Deviation	Median
1	29.25	14.96	25.50
2	30.67	14.14	29.00
3	32.78	14.03	32.50
4	32.46	13.75	33.00
5	35.35	13.38	35.00
6	34.53	13.61	34.00
7	36.25	13.89	35.00
8	37.57	13.21	39.00
9	39.60	14.15	39.00

TABLE IV

STATISTICS ON SPEED OF TIMED WRITINGS
SPRING, 1969

Timing	Mean	Standard Deviation	Median
1	28.76	13.04	26.00
2	35.52	13.00	35.00
3	33.42	11.14	30.00
4	34.66	10.55	32.00
5	37.52	11.07	35.00
6	38.38	10.47	38.00
7	39.04	9.74	42.00
8	38.95	10.44	39.00
9	39.66	8.55	43.00

TABLE V

STATISTICS ON ERRORS OF TIMED WRITINGS
FALL, 1969

Timing	Mean	Standard Deviation	Median
1	5.03	4.27	4.00
2	4.32	2.75	4.00
3	3.78	2.46	3.00
4	3.96	2.98	3.00
5	3.64	3.24	3.00
6	3.64	2.86	3.00
7	3.82	2.56	4.00
8	4.92	2.81	4.50
9	4.39	2.99	4.00

TABLE VI

STATISTICS ON ERRORS OF TIMED WRITINGS
SPRING, 1969

Timing	Mean	Standard Deviation	Median
1	5.95	4.55	4.00
2	3.90	2.48	3.00
3	4.09	1.89	4.00
4	4.23	1.65	4.00
5	6.28	3.49	6.00
6	5.47	4.15	4.00
7	6.33	3.62	5.00
8	4.80	2.30	5.00
9	5.14	2.74	4.00

FIGURE III

COMPARISON OF MEAN SPEEDS
ON NINE 3-MINUTE TIMINGS IN TYPEWRITING I
BETWEEN THE SPRING AND FALL QUARTER GROUPS

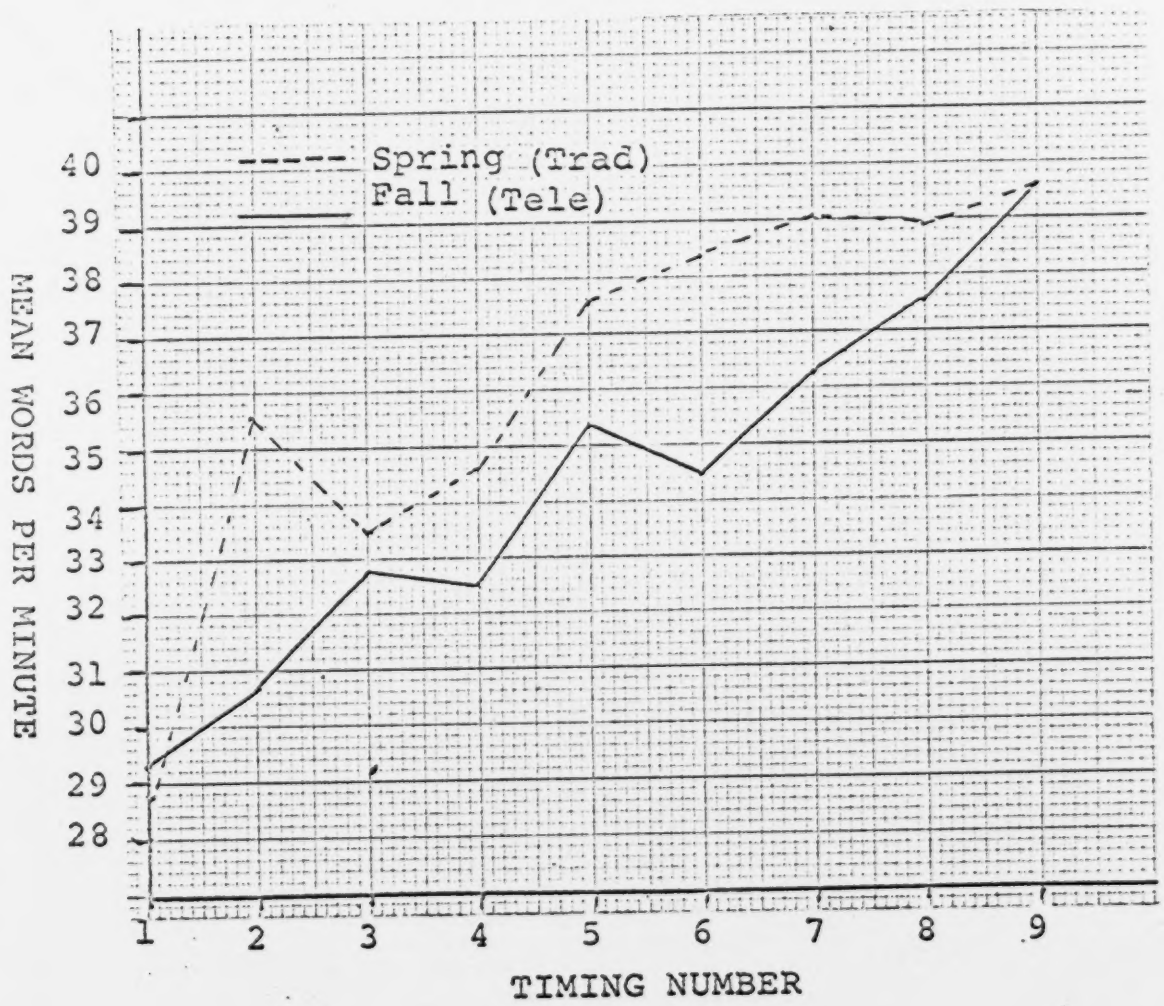
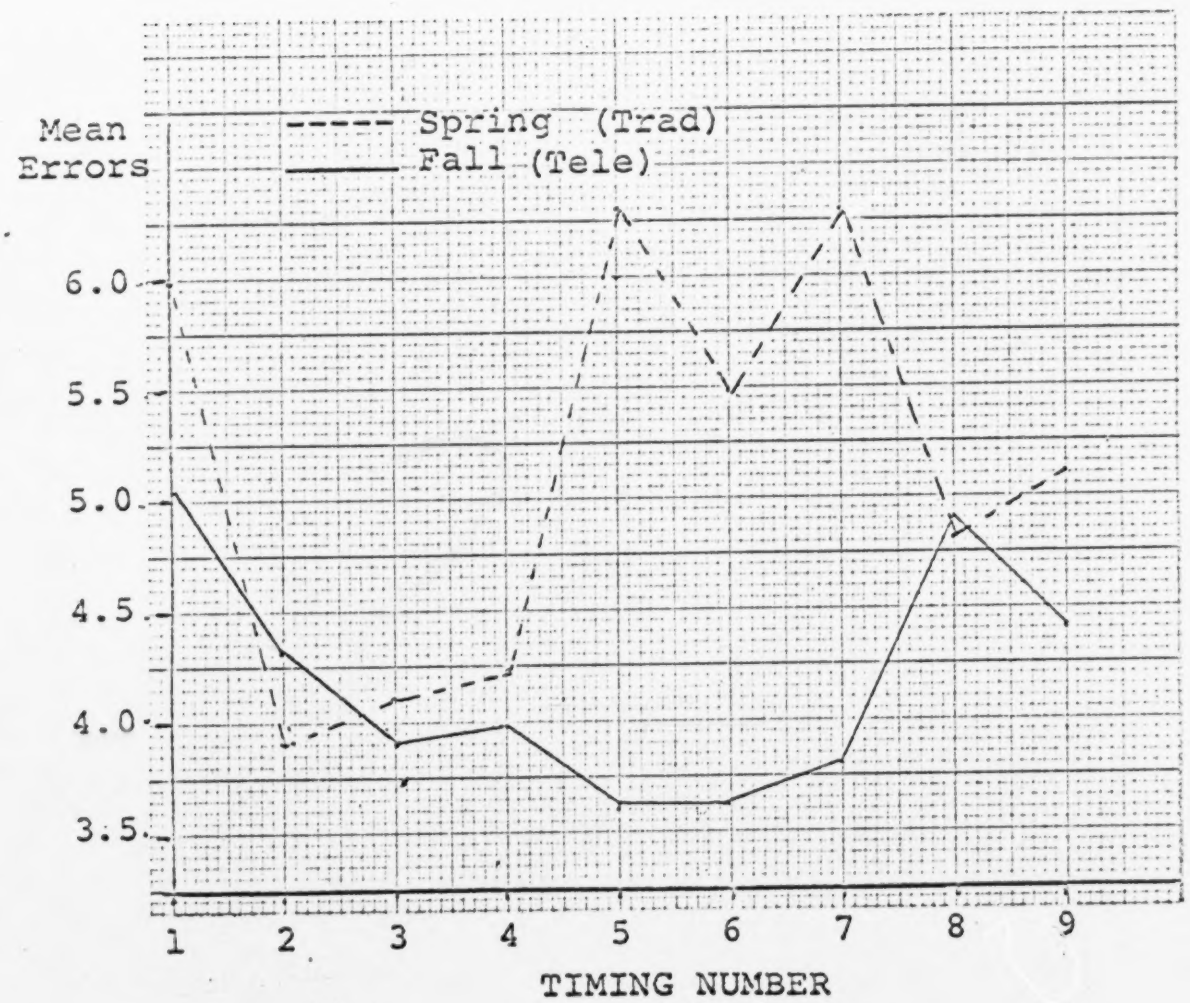


FIGURE IV

COMPARISON OF MEAN ACCURACY
ON NINE 3-MINUTE TIMINGS IN TYPEWRITING I
BETWEEN THE SPRING AND FALL QUARTER GROUPS



can therefore be accepted that there is no significant difference between the mean speeds attained by the two incidental samples on the ninth 3-minute timed writing.

Results of Median Test on Errors

To apply the median test of chi square to the average errors made by both samples of students on the ninth timed writing, it is necessary to first compute the median of both groups. The obtained median of 4.0 was then used to cast the data into a fourfold table as shown on page 39. The chi square formula for a 2 x 2 contingency table is computed below.

$$\chi^2 = \frac{N\left(|ad - bc| - \frac{N}{2}\right)^2}{(a+b)\ (a+c)\ (b+d)\ (c+d)}$$

$$= \frac{49\left(|180 - 110| - \frac{49}{2}\right)^2}{(29)\ (28)\ (21)\ (20)}$$

$$= \frac{414.05}{1392}$$

$$= .297$$

Once the first number is inserted into the 2 x 2 contingency table, the other numbers are not free to vary; consequently, on a 2 x 2 table there is only one degree of freedom. The chi square value at the .05 level of significance with one degree of freedom is 3.841. Since the obtained chi square of .297 does not exceed the critical value, the null hypothesis is therefore accepted that there is no significant

difference between the median errors made by the two incidental samples on the ninth 3-minute timed writing.

Results of the K-S Test on MCR Scores

The first step in the treatment of the MCR scores is to rank them into ordered categories. The next step is to arrive at a frequency distribution (f), then a cumulative distribution (cf), and finally a cumulative distribution of proportion (cp), from which differences (d_c) are found. The largest difference, which is .143 is the needed statistic D.

APPLICATION OF THE K-S TEST TO TWO GROUPS OF STUDENTS OF UNEQUAL SIZE--THE TRADITIONAL AND THE TELEVISED GROUPS--WITH RESPECT TO THEIR MCR SCORES

MCR Scores	f		cf		cp		d_c
	Trad	Tele	Trad	Tele	Trad	Tele	
16.6-18.5	2	1	21	28	1.000	1.000	.000
14.6-16.5	1	2	19	26	.905	.929	.024
12.6-14.5	3	6	18	20	.857	.714	.143
10.6-12.5	1	0	15	20	.714	.714	.000
8.6-10.5	3	3	14	17	.667	.607	.060
6.6- 8.5	5	6	11	11	.524	.393	.131
4.6- 6.5	1	1	6	10	.286	.357	.071
2.6- 4.5	1	0	5	9	.238	.321	.083
0.0- 0.0	4	9	4	9	.190	.321	.131

D = .143

The hypothesis being tested is that there is no significant difference between the two incidental samples with regard to MCR scores. This hypothesis calls for a two-tailed test. To decide whether or not to reject the null hypothesis, the critical value of D at the .05 level of significance needs to be ascertained. The critical value, .393, was computed on page 29. Since the largest difference of .143 does not exceed the critical value of .393, the null hypothesis is therefore accepted that there is no significant difference between the two incidental samples with respect to MCR scores.

Conclusions

Since the t-score of .017 was so slight and well within the area of acceptance, it can be concluded that televised students meeting two 50-minute periods a week, using Selectric typewriters, and having the use of an open-access laboratory can achieve speeds equal to traditional students that meet five 50-minute periods a week.

Since the computed critical value of .297 is well within the area of acceptance, it can be concluded that the televised group achieved the same degree of accuracy as the traditional group. Any slight difference in accuracy can be attributed to sampling errors.

Since the critical value of D, .143, is well within the area of acceptance, the Mailable Copy Rate of the

televised group is equal to that of the traditional group. Any slight difference that resulted can be attributed to sampling errors.

Therefore, on the basis of the results obtained in this study, it can be concluded that there is no significant difference in typing achievement between those students who learned to type using television monitors, Selectric typewriters, an open-access laboratory, and a shorter time of actual instruction and those students who learned to type on manual typewriters and under the traditional classroom method of instruction.

Discussions

The writer feels that the results obtained from the tests on speed and accuracy are very valid. As a result of these conclusions, there is every indication that there is no need to have college classes and possibly senior high school classes in beginning typewriting meet every day. Having the classes meet every day results in monotony and much absenteeism. The results obtained seemed to indicate that students need the same length of time, ten weeks, to assimilate the material, but they do not need to be compelled to sit through additional hours of actual class. The students seem to be mature enough to realize that they need practice, and they should be given the opportunity to budget this practice into their schedules at their convenience.

The writer does not feel that the MCR results are as reliable a finding as the speed and accuracy results because the MCR tests could not be as closely correlated as the timed-writing tests. The writer does feel, however, that similar MCR results would be obtained if the experiment were conducted again and the tests given to both groups were identical and given at the same time.

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Newspaper

Poley, Dorothy and Nancy Pline, "Televised Typewriting Instruction. Sincerely Yours, No. 22, March, 1967, p. 3.

Interview

Stephenson, Alan, ETV Consultant for Cleveland Public Schools. May, 1968.

APPENDIX

2679

EXHIBIT I

TYPING QUESTIONNAIRE

Name _____ Sex M F Age _____

Check the line that comes closest to the amount of typing you have had before taking this course:

_____ Two years of high school typing

_____ One year of high school typing

_____ One semester of high school typing

_____ Summer school after eighth grade

_____ One semester of college typing (this course before)

_____ Taught myself to type

_____ No prior typing

_____ Other. Please list

If you have had a formal course in typewriting before, what was your approximate gross-word-a-minute rate?

_____ GWAM

_____ Not sure

I am presently enrolled in:

_____ ComTech College

_____ Business Administration

_____ Education

_____ Arts & Sciences

_____ Other. Please list

If in ComTech, in which program are you enrolled?

_____

If enrolled in a baccalaureate college, what is your area(s) of specialization?

_____ Major _____ Minor

EXHIBIT II

TIMED WRITING[42]

Make up your mind to put first things first; 9
and if you try to mix work and fun, be quite sure 19
you do the work first; then do what you wish, for 29
you did first that which was first. 36

When you work, work as hard as you can; when 45
you play, you can do just what you wish. Do both 55
with zest to be at your best. Right now let your 65
work come first, and you will learn to type well. 75

---

[42]Lessenberry, Op. Cit., p. 42.

EXHIBIT III

HISTORICAL DATA ON STUDENTS
FALL, 1969

Student	Sex	Age	Previous Typing	Previous Speed	ComTech Prog. in which Enrolled	Standing in H. S. Grad. Cl.	Quartile
1	F	18	None	--	Gen. Stud.	220/356	3
2	M	19	None	25	Data Proc.	397/464	4
3	F	51	2 yr. H.S.	--	Lib. Asst.	6/36	1
4	M	19	None	--	Gen. Stud.	185/196	4
5	F	30	None	--	Fd. Ser. Mgt.	--	(2)
6	F	19	2 yr. H.S.	50	Leg. Sec.	151/166	4
7	M	18	None	--	Gen. Stud.	426/434	4
8	F	20	1 yr. H.S.	30	Gen. Stud.	122/183	3
9	F	19	None	--	Lib. Asst.	136/409	2
10	F	32	2 yr. H.S.	50	(Audit)	--	(1)
11	M	18	None	--	Gen. Stud.	302/356	4
12	F	44	1 yr. H.S.	--	(Audit)	--	(3)
13	F	20	None	--	Secretarial	355/500	3
14	M	24	None	--	Electronics	460/689	3
15	F	18	Self taught	--	Secretarial	254/780	2
16	F	19	1 sem. H.S.	--	MOA	116/134	4
17	F	17	1 yr. H.S.	--	Secretarial	65/102	3
18	F	19	None	20	MOA	--	(3)
19	M	20	None	--	MOA	185/343	3
20	F	17	4 wks. sum.	30	Secretarial	1/480	1
21	F	20	Sum. Sch. 8th	--	MOA	59/183	2
22	M	19	None	--	Electronics	--	(3)
23	F	25	1 sem. H.S.	30	Gen. Stud.	--	(2)
24	M	19	1 sem. H.S.	--	Data Proc.	319/422	4
25	F	18	1 sem. H.S.	40	MOA	290/476	3
26	F	19	6 wks. N.S.	--	MOA	114/356	2
27	F	18	1 yr. H.S.	36	MOA	98/115	4
28	M	19	Sum. Sch. 8th	40	--	197/464	2

*Enrolled in Col. of Bus. Adm. ( ) Estimated quartile as none given on H.S. record

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EXHIBIT IV

HISTORICAL DATA ON STUDENTS
SPRING, 1969

Student	Sex	Age	Previous Typing	Previous Speed	ComTech Prog. in which Enrolled	Standing in H. S. Grad. Cl.	Quartile
A	M	21	None	--	Mid. Mgt.	263/393	3
B	M	21	1 sem. H.S.	52	--*	193/377	2
C	M	19	1 yr. H.S.	34	Mid. Mgt.	180/675	2
D	F	19	1 yr. H.S.	--	Leg. Sec.	175/308	3
E	F	19	Self taught	--	MOA	151/268	3
F	F	21	None	--	Leg. Sec.	44/640	1
G	M	21	None	--	--*	146/625	1
H	M	22	1 sem. H.S.	--	Mid. Mgt.	422/471	4
I	F	20	1 yr. H.S.	35	Gen. Stud.	219/295	2
J	M	19	Self taught	--	--*	21/196	1
K	M	22	1 yr. H.S.	25	Retailing	206/289	3
L	F	20	1 yr. H.S.	--	MOA	190/433	2
M	F	18	2 yrs. H.S.	--	MOA	184/354	3
N	M	19	None	--	Gen. Stud.	141/308	2
O	F	19	1 yr. H.S.	25	Gen. Stud.	404/464	4
P	M	20	None	--	Gen. Stud.	290/500	3
Q	M	20	1 yr. H.S.	--	Gen. Stud.	46/71	3
R	M	19	1 yr. H.S.	30	Gen. Stud.	79/129	3
S	M	22	Self taught	--	--**	84/489	1
T	F	20	1 yr. H.S.	30	Gen. Stud.	53/253	1
U	M	21	Self taught	--	Retailing	71/179	2

*Enrolled in College of Bus. Adm.
**Enrolled in College of Education

EXHIBIT V

DAILY LESSON GUIDE
FALL, 1969

Week	Date	Lesson	Material Covered	Homework
1	Thurs., Sept. 25 (Day)	1 - 2	Intro. to typewriter Posture Home Row H and E keys Shifting for caps	1E, 1F, 1G 2B 2x each line 2C 2x each line 2D
	Mon., Sept. 29 (Eve) Tues., Sept. 30 (Day)	3 - 4	T, I, C and period Shifting for right caps	3E 2x each line Self Imp. Prac. p. 9 4C 2x each line 4E 2x each line Self Imp. Prac. p. 10
2	Wed., Oct. 1 (Eve) Thurs., Oct. 2 (Day)	5 & 7 Skip 6	R, O, Z, N, W, U, B Comma	5F 2x each line Self Imp. Prac. p. 13 6B 2x each line 6C type twice 6D 2x each line Self Imp. Prac. p. 14 7E type twice Self Imp. Prac. p. 17
	Mon., Oct. 6 (Eve) Tues., Oct. 7 (Day)	8 - 10	First timing Tabulation Para. typing Y, X, P, V	8C type twice 9A 2x each line 9B 2x each line 9C 2x each line 9E 3x each line Type para. twice

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DAILY LESSON GUIDE - FALL, 1969 (Cont'd)

Week	Date	Lesson	Material Covered	Homework
				Self Imp. Prac. p. 21 10A 2x each line 10B 2x each line 10C 2x each line 10D 2x each line
3	Wed., Oct. 8 (Eve) Thurs., Oct. 9 (Day)	11 - 13	Q, M, G, ? Paragraph practice Discussed 50- and 60-space lines	11E 2x each line Type para. twice 12A 3x each line 12C 3x each line 12E 3x each line 13A 3x each line 13B 3x each line 13C type twice 13D type twice
	Mon., Oct. 13 (Eve) Tues., Oct. 14 (Day)	14 - 16	Second Timing Nos. 1, 5, 8	14C 2x each line 15A 2x each line 15B type 3x 15C 3x each line 16A 3x each line 16B 5x each line 16C type 3x
4	Wed., Oct. 15 (Eve) Thurs., Oct. 16 (Day)	17 - 18	Nos. 2, 0, 3, 6 Colon Diagonal Tabulation	17A 3x each line 17B 3x each line 17C type 3x 18B type 3x 18D3x each line 18E 3x each line Type para. twice

2685

DAILY LESSON GUIDE - FALL, 1969 (Cont'd)

Week	Date	Lesson	Material Covered	Homework
	Mon., Oct. 20 (Eve) Tues., Oct. 21 (Day)	19 - 20	Third Timing Nos. 4, 9 Shift lock Statistical typing	19B 3x each line 19C type 3x 20C 3x each line Self Imp. Prac p. 39 Common Proofreader's Marks p. 39
5	Wed., Oct. 22 (Eve) Thurs., Oct. 23 (Day)	21 - 22	!, ", -, ', $, &, ( )	21C type 3x 22A 3x each line 22D 3x each line 22F make corrections
	Mon., Oct. 27 (Eve) Tues., Oct. 28 (Day)	23 - 24	Fourth Timing # , %, *, ¼, ½, @ ¢	23C 3x each line 24A 3x each line 24D 3x each line 25A 3x each line 25C 3x each line Self Imp. Prac. p. 48 On separate sheet type corrected copy 23D 24E 24F Lines 4, 5, 6 25D
6	Wed., Oct. 29 (Eve) Thurs., Oct. 30 (Day)	26 - 33	Centering Block-Style Memo	Stat. Typing Sheet 26C 3x each line 31A 3x each line Circle errors on: 31C Prob. 2 32C Prob. 2 33B Prob. 2 & 3

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DAILY LESSON GUIDE - FALL, 1969 (Cont'd)

Week	Date	Lesson	Material Covered	Homework
	Mon., Nov. 3 (Eve) Tues., Nov. 4 (Day)	35 - 37	Fifth Timing Postal Cards Review Vertical Centering	Each on separate sheet of paper 34C Prob. 1 & 2 35B Prob. 1 (manu) 36C (memo) 37C Prob. 1 & 2 Practice Material 27D type 3x 35A 2x each line 35D 2x each line 36A 2x each line
7	Wed., Nov. 5 (Eve) Thurs., Nov. 6 (Day)	38 - 39	Quiz on centering and memorandums Reading position Block Style letters	Each on half sheet 38C Prob. 2 39B Prob. 1 & 2 Stat. Typing Sheet
	Mon., Nov. 10 (Eve) Tues., Nov. 11 (Day)	40 - 44	Sixth Timing Mod. block style let. Erasing Envelopes Folding of letters	40C Prob. 1 & 2 42B Prob. 1 & 2 43C Prob. 3 & 4 44D Prob. 1 & 2 Self Imp. Prac. p. 39 21A 2x each line 22A 2x each line 22D 2x each line 23A 2x each line

2687

DAILY LESSON GUIDE - FALL, 1969 (Cont'd)

Week	Date	Lesson	Material Covered	Homework
8	Wed., Nov. 12 (Eve) Thurs., Nov. 13 (Day)	45 - 47	20-min. quiz on Mod. Block Style letters Tabulation	45C Prob. 2 46D Prob. 1, 2, 3 47C Prob. 1 & 2
	Mon., Nov. 17 (Eve) Tues., Nov. 18 (Day)	48 - 50	Seventh Timing Word Division Horizontal & Vertical lines Manuscript style	49C Prob. 1 & 2 44D Prob. 1 & 2 48C tabulation with hor. & vert. lines 50C Prob. 1 & 2
	Wed., Nov. 19 (Eve)	51 - 54	Requiz on letters Columnar headings Enclosure notations Manuscript style Typed from script copy	51C Tab. with columnar headings 52C Prob. 3 53C Prob. 1 & 3 54C Prob. 1 & 4
9	Mon., Nov. 24 (Eve) Tues., Nov. 25 (Day)	56 - 63	Eighth Timing Carbon copies Erasing on car. copy cc notations Outlines	57C 2cc 56C 2cc 57D Prob. 1 & 2 61C Prob. 2 (2cc) 62D Manuscript on outlining (no cc) 63D Prob. 3 (no cc)
	Thurs. Wed.		THANKSGIVING VACATION	

DAILY LESSON GUIDE - FALL, 1969 (Cont'd)

Week	Date	Lesson	Material Covered	Homework
10	Mon., Dec. 1 (Eve) Tues., Dec. 2 (Day)	65 - 67	Ninth Timing 16-min. quiz on tabulation Manuscripts Guide Sheets	65C Outline 67D 2-page manuscript
	Wed., Dec. 3 (Eve) Thurs., Dec. 4 (Day)	67	Footnotes Bibliography Title page	2-page manuscript due

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EXHIBIT VI

DAILY LESSON GUIDE
SPRING, 1969

Week	Day	Lesson	Material Covered
1	Tues., April 1	1	Homerow, h, e
	Wed., April 2	2	t, i, period, left shift key
	Thurs., April 3	3	r, o, n
	Fri., April 4	4	w, u, c, right shift key
2	Mon., April 7	5	Review and practice
	Tues., April 8	6	g, p, m
	Wed., April 9	7	q, y, x
	Thurs., April 10	8	z, b, comma, tabulation
	Fri., April 11	9	First Timed Writing. v, ?
3	Mon., April 14	10	Improve speed
	Tues., April 15	11	" "
	Wed., April 16	12	" "
	Thurs., April 17	13	" "
	Fri., April 18	16	Second Timed Writing. 15D
4	Mon., April 21	17	Improve speed, 17D
	Tues., April 22	18	" "
	Wed., April 23	19	" "
	Thurs., April 24	20	20A, 21A, 21B, 21C Third Timed Writing, 20E
	Fri., April 25	22	22A, 22B, 22C, 22E, 20E

0690

DAILY LESSON GUIDE - SPRING, 1969

Week	Day	Lesson	Material Covered
5	Mon., April 28	23	Typed memo twice, retyped it
	Tues., April 29	24	42B and other symbols Typed memorandum twice (25D)
	Wed., April 30	30	Typed memorandum twice Improved speed
	Thurs., May 1	31	Quiz on Memorandum 42D Centering, 31D
	Fri., May 2	32	Fourth Timed Writing, 32D
6	Mon., May 5	33	Speed building, block style letter, 33E
	Tues., May 6	34	Speed building, block style letter, 34C, Centering on odd-size paper
	Wed., May 7	35	Postal cards
	Thurs., May 8	37	37D
	Fri., May 9		Fifth Timed Writing, p. 60 Quiz on Memo, 37D Prob. 1 Postal card, 35D, Prob. 1
7	Mon., May 12	38	Block style letter
	Tues., May 13	39	Block style letter, envelope
	Wed., May 14	41	Manuscript, 42C
	Thurs., May 15	44	44C Problem 1 & 2
	Fri., May 16		Quiz on 41D Prob. 2, 40D Prob. 1 Sixth Timed Writing, p. 50.

DAILY LESSON GUIDE - SPRING, 1969

Week	Day	Lesson	Material Covered
8	Mon., May 19	45	Modified block style letter Envelopes
	Tues., May 20	46	Mod. block style let. & env.
	Wed., May 21	48	Mod. block style letter in rough draft form, folding let.
	Thursday, May 22		Quiz on Mod. block style letters Seventh Timed Writing, p. 60
	Fri., May 23	51	Tabulation
9	Mon., May 26	51	51D Prob. 2, 52C Prob. 1, 52D Prob. 2, 53C Prob. 1,3. Complete letters for homework
	Tues., May 27	54	54B Prob. 2, 55D Prob. 1, 55D Prob. 2 (56D Prob. 1, extra credit)
	Wed., May 28	56	Carbon copies, 56D (57D Prob. 3, 57E, extra credit)
	Thurs., May 29		Eighth Timed Writing, p. 114 Quiz on tabulation, manuscript, and carbon copies
	Fri., May 30		MEMORIAL DAY
10	Mon., June 2		Requiz of modified block style letters, 50D Prob. 1 & 2. 20 min.
	Tues., June 3	62	Outline 62 & 63
	Wed., June 4		Honors Day. Title page for 30 min. Dismissed class early
	Thurs., June 5	64	Ninth Timed Writing. Footnotes
	Fri., June 6	67	Typed manuscript in class. Finished it at home for a quiz grade.

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EXHIBIT VII

TYPEWRITING I
GROSS SPEED SCORES ON 3-MINUTE TIMINGS
MCR SCORES ON LETTERS
FALL, 1969

Stud.	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	MCR
1	15	15	14	16	19	18	18	18	19	0.0
2	16	18	20	20	20	19	21	22	22	0.0
3	41	44	42	47	48	51	48	54	51	14.1
4	15	17	20	19	22	19	21	23	25	0.0
5	24	25	27	24	28	30	29	33	35	6.6
6	45	47	51	44	45	46	54	50	50	6.8
7	11	14	16	15	19	19	19	21	23	0.0
8	54	47	50	54	52	51	49	55	55	8.7
9	12	16	19	18	24	20	23	26	30	8.7
10	60	55	62	57	65	58	64	63	67	13.5
11	11	14	15	17	20	18	19	22	23	0.0
12	36	46	48	44	48	47	52	50	50	0.0
13	24	26	29	28	30	31	30	37	40	13.4
14	12	13	18	14	17	18	19	19	20	8.8
15	27	26	33	34	37	37	39	41	47	7.6
16	22	30	34	34	36	33	35	34	36	6.7
17	29	29	27	29	33	34	35	34	40	12.7
18	19	18	23	20	27	26	25	24	31	0.0
19	11	17	17	19	20	22	23	24	29	0.0
20	33	33	36	38	40	34	42	42	46	14.5
21	45	40	46	45	51	46	47	50	51	15.1
22	12	13	14	17	24	22	23	25	27	0.0
23	45	51	52	45	44	58	56	55	56	13.3
24	38	36	37	37	38	38	40	44	41	5.7
25	39	35	36	37	42	36	42	45	55	16.9
26	55	61	56	62	64	62	62	55	73	15.0
27	44	44	44	43	43	43	45	44	49	6.6
28	24	29	32	32	34	34	35	42	38	6.6

EXHIBIT VIII

TYPEWRITING I
GROSS SPEED SCORES ON 3-MINUTE TIMINGS
MCR SCORES ON LETTERS
SPRING, 1969

Stu.	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	MCR
A	31	35	24	32	34	38	42	36	40	10.0
B	26	37	39	39	44	45	50	52	47	8.2
C	43	48	46	45	44	45	43	40	44	9.2
D	41	41	40	46	48	50	45	51	45	15.0
E	25	27	28	31	34	36	38	39	43	12.2
F	3	17	18	19	20	23	26	26	26	0.0
G	15	22	22	25	26	31	33	28	30	13.5
H	17	23	24	26	36	35	29	28	37	2.8
I	49	65	53	49	57	61	55	54	52	8.3
J	24	32	25	29	33	34	36	36	35	7.6
K	26	33	29	23	30	26	30	33	33	0.0
L	50	50	49	49	51	52	46	57	56	13.0
M	37	49	38	46	51	50	47	46	45	8.5
N	9	14	16	17	15	18	18	18	23	0.0
O	24	36	34	33	33	39	43	41	43	0.0
P	12	18	21	21	21	23	24	24	25	7.7
Q	21	27	27	28	35	36	35	33	35	5.0
R	40	53	52	48	46	40	47	43	45	9.2
S	30	31	30	32	35	34	34	36	38	13.8
T	47	47	45	45	50	46	54	49	46	18.3
U	34	41	42	45	45	44	45	48	45	16.8

EXHIBIT IX

ERRORS ON 3-MINUTE TIMINGSIN TYPEWRITING I
FALL, 1969

Stu.	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
1	3	4	5	3	1	1	1	1	1
2	12	9	7	4	2	1	4	6	9
3	1	2	0	2	1	0	0	0	2
4	15	9	3	0	3	2	1	3	1
5	4	2	1	1	1	2	3	3	2
6	9	3	8	2	5	10	6	6	13
7	4	5	9	1	4	5	6	4	3
8	1	5	5	5	6	6	7	8	4
9	2	0	1	2	0	3	0	3	5
10	0	0	1	3	2	2	4	4	1
11	3	2	3	3	4	5	2	5	3
12	2	6	3	4	6	1	5	4	4
13	5	3	5	4	3	3	4	5	7
14	1	2	3	4	3	3	3	3	3
15	9	9	8	7	8	3	6	9	4
16	8	4	2	3	7	3	8	6	5
17	1	3	2	3	0	2	2	3	3
18	16	11	3	7	14	6	7	7	10
19	1	3	2	5	2	8	6	5	4
20	8	3	1	1	4	8	4	6	3
21	7	5	4	1	4	1	2	4	3
22	7	6	9	13	11	10	3	15	5
23	7	8	5	10	3	1	6	5	9
24	5	4	2	3	2	3	1	2	4
25	3	4	5	10	2	4	10	6	5
26	0	5	3	3	0	2	0	4	1
27	1	1	3	2	0	2	4	3	1
28	6	3	3	5	4	3	2	8	8

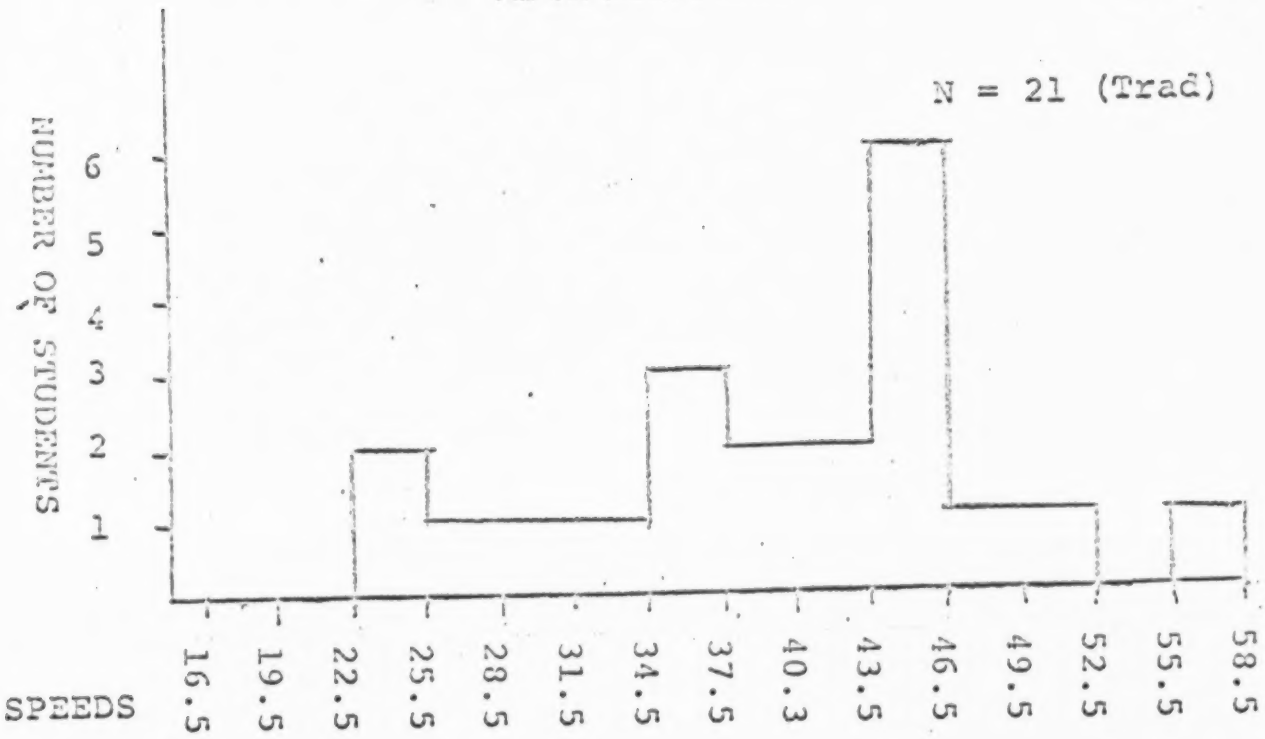
EXHIBIT X

ERRORS ON 3-MINUTE TIMINGS IN TYPEWRITING I
SPRING, 1969

Stu.	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
A	9	10	3	5	5	6	6	8	5
B	6	3	3	6	2	5	11	1	5
C	3	6	4	3	1	3	6	3	3
D	2	2	2	2	3	5	4	3	3
E	12	1	2	5	8	3	4	7	7
F	3	4	5	6	7	4	4	8	18
G	4	4	4	3	3	3	2	0	3
H	21	7	3	3	4	3	8	7	4
I	6	10	9	2	10	19	11	9	2
J	5	3	6	4	13	6	11	5	2
K	4	4	3	2	6	8	6	3	2
L	4	4	4	4	4	4	12	5	9
M	2	3	6	3	11	6	8	7	6
N	3	2	4	7	14	2	4	6	4
O	2	5	2	3	4	2	4	4	4
P	3	4	4	5	6	2	3	5	4
Q	13	1	8	6	6	9	4	6	6
R	6	2	2	5	7	4	5	3	4
S	9	3	6	8	10	13	15	3	7
T	5	1	3	3	3	8	1	4	10
U	5	3	6	4	13	6	11	5	2

EXHIBIT XI

FREQUENCY DISTRIBUTION OF THE
SPEEDS OF TIMING NO. 9
SPRING, 1969



FREQUENCY DISTRIBUTION OF THE
SPEEDS OF TIMING NO. 9
FALL, 1969

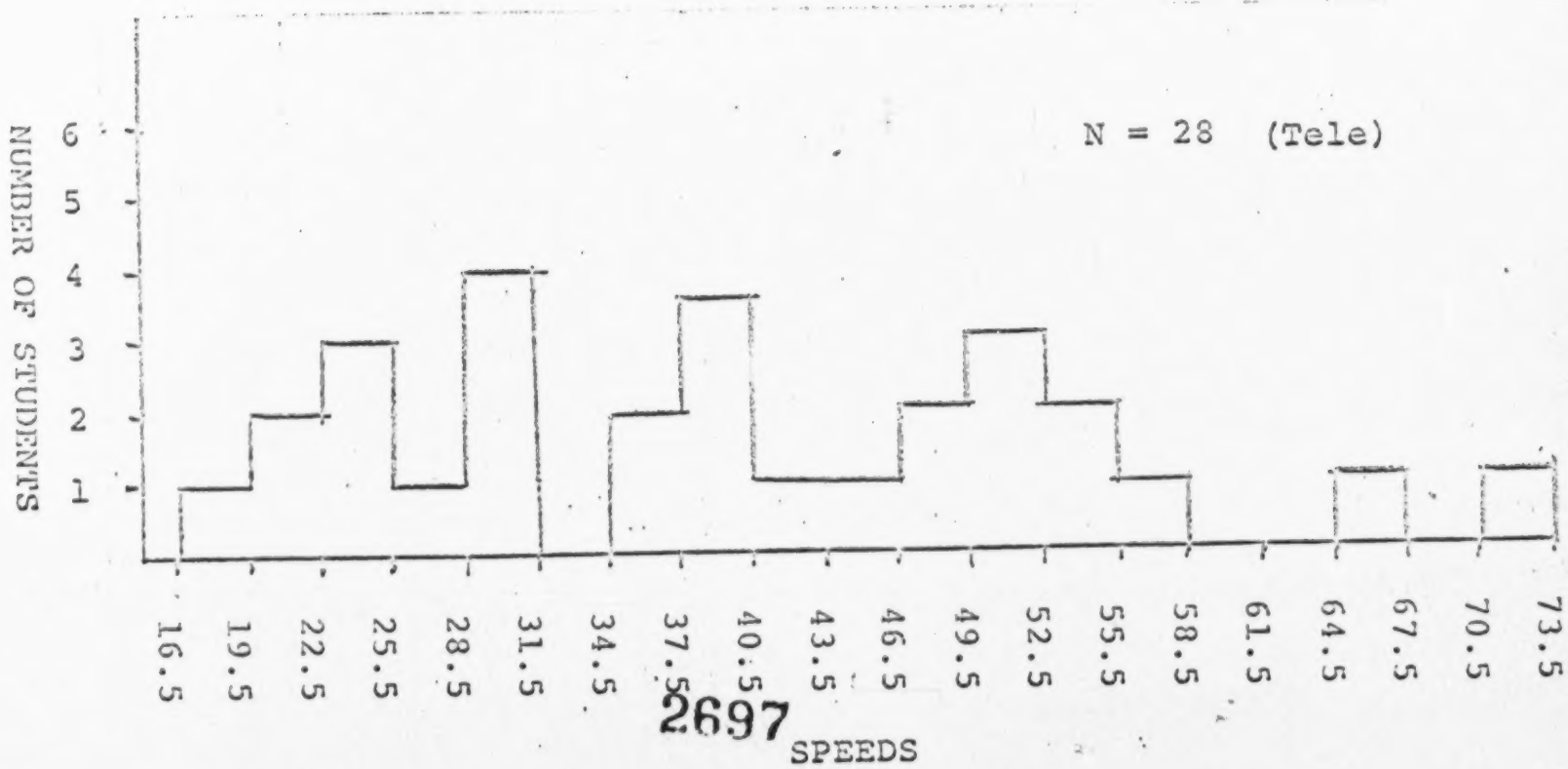
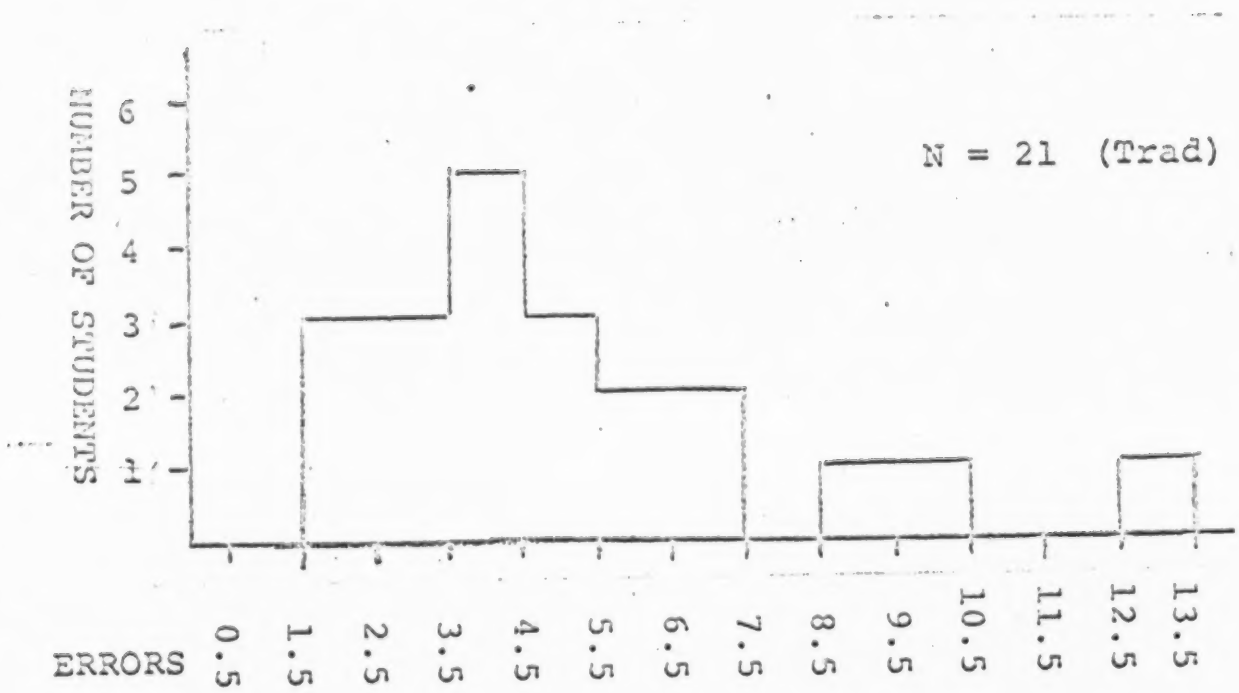


EXHIBIT XII

FREQUENCY DISTRIBUTION OF THE
ERRORS OF TIMING NO. 9
SPRING, 1969



FREQUENCY DISTRIBUTION OF THE
ERRORS OF TIMING NO. 9
FALL, 1969

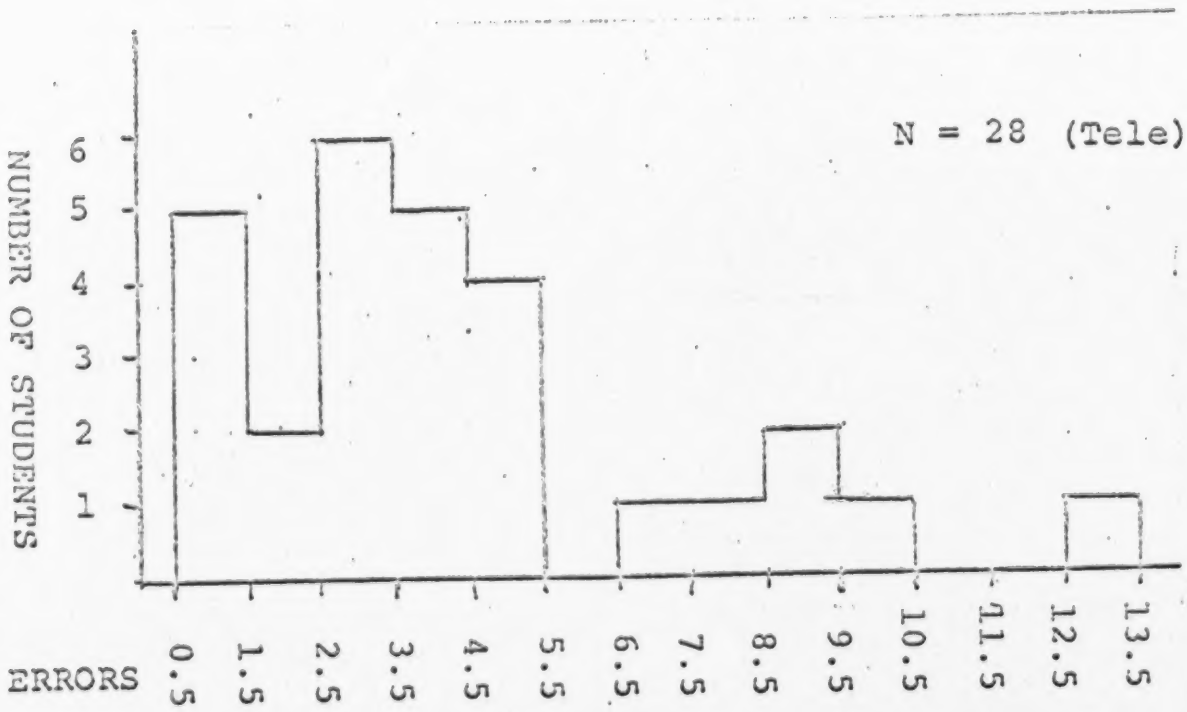
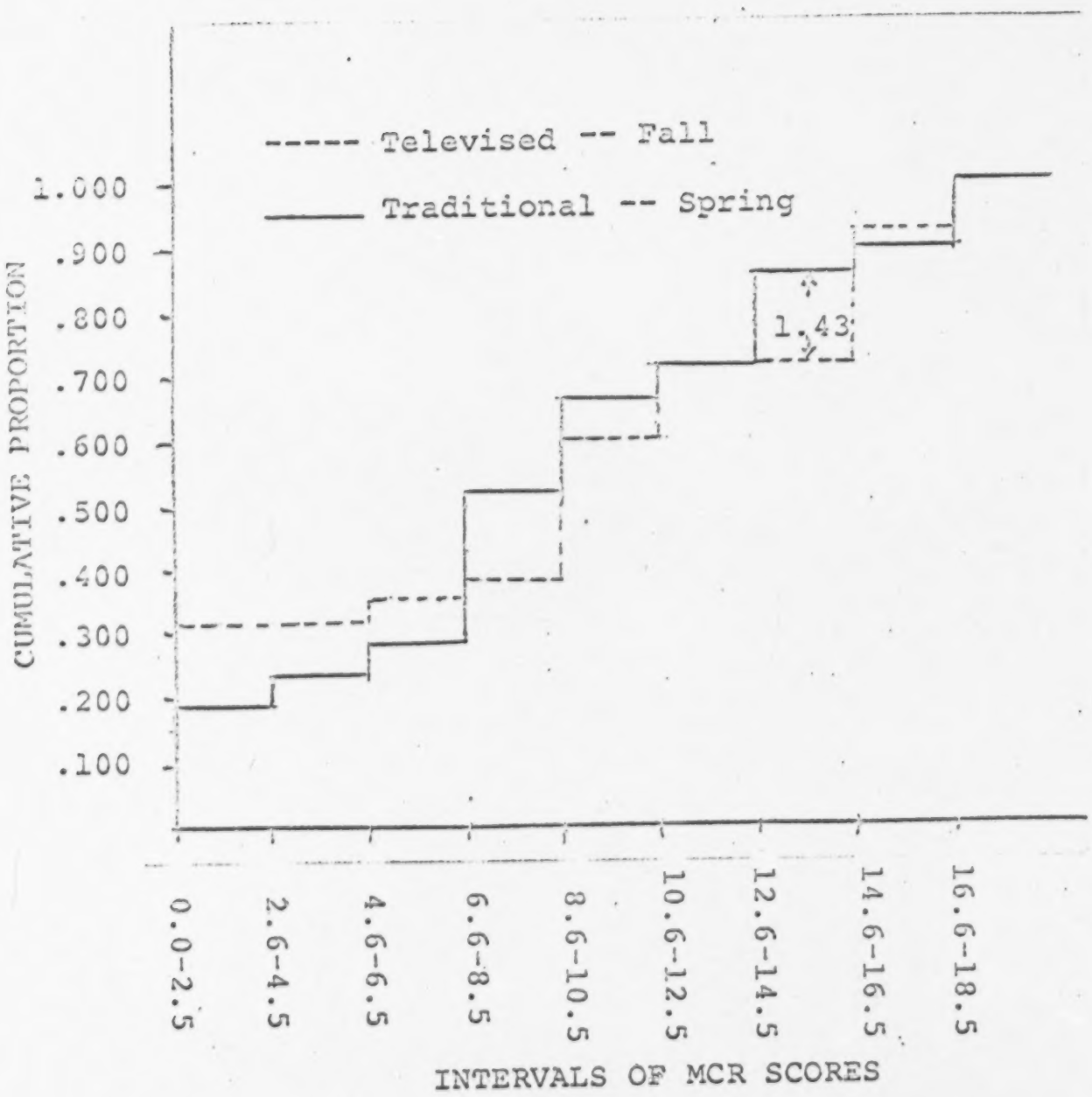


EXHIBIT XIII

APPLICATION OF K-S TEST TO
CUMULATIVE PROPORTION HISTOGRAMS
MAILABLE COPY RATES



VT 012 224
Report of the Minnesota State Advisory Council for Vocational Education--1970.

Minnesota State Advisory Council for Vocational Education, St. Paul.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 20p.

DESCRIPTORS - *ADVISORY COMMITTEES; *PROGRAM EVALUATION; PROGRAM IMPROVEMENT; GENERAL EDUCATION; *VOCATIONAL EDUCATION; INDIVIDUAL NEEDS; *SKILL DEVELOPMENT; *EDUCATIONAL NEEDS; EDUCATIONAL POLICY

ABSTRACT - The findings and recommendations of the evaluation of vocational education programs by the Minnesota State Advisory Council are contained in this report. All education must meet the needs, interests, and abilities of the individual, and occupational education must be built upon a firm foundation of basic education, starting with reading, writing, and arithmetic. Skill development for occupational competency is not "extra educational" and must be in concert with all other education programs normal to the process and progress for the individual. It is evident that Minnesota's total education system is falling short, if not failing, in serving individuals as evidenced by failure to give such basic skills as reading to high school graduates and by the large number of high school dropouts. There is a need to redirect Minnesota's educational policy and to consolidate the policy into a single basic policy which provides direction from, and accountability to, the people. Several illustrations augment the text of the report. (SB)

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report of the minnesota state advisory council for vocational education — 1970

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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recommend

While the Minnesota Constitution, in Article VIII, Se
specific in charging our state Legislature with establish
public policy for education, your Minnesota State Advis
cil for Vocational Education feels that Minnesota is in
restatement of the state's basic public education po
Council, therefore, strongly and urgently recommends

The Minnesota Legislature give priority to a review and redirection of our state's public policy for education to better serve "people needs."

Further, this Council recommends that –

Minnesota's Educational Code, Minnesota Statute Chapters 120 to 127, and other provisions of law – including, but not limited to Chapters 136, 136A and 137 – be reviewed and, as needed, revised responsive to such new public policy.

This Council is of the view and recommends that the resulting restatement of public policy and resulting additions, amendments and/or deletions in statutes must recognize –

Public education must equitably serve every citizen. Public education must serve to assist each individual in determining his "needs, interests and abilities," and in developing his intellectual, civic, social and work competencies essential to human self-fulfillment.

This redirection of educational policy is mandated by the principle of compulsory attendance. This Council, therefore, recommends that –

The Legislature provide appropriate statutory require-

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ecommendations

While the Minnesota Constitution, in Article VIII, Section 1, is specific in charging our state Legislature with establishing basic public policy for education, your Minnesota State Advisory Council for Vocational Education feels that Minnesota is in need of a restatement of the state's basic public education policy. This Council, therefore, strongly and urgently recommends that –

The Minnesota Legislature give priority to a review and redirection of our state's public policy for education to better serve "people needs."

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islature provide appropriate statutory requirements to assure that every child, during the years of required attendance, receive services which include survey of, and orientation to, the world of work and occupational opportunities.

Finally, this Council is of the view that –

Every citizen has the right and privilege to public education based on his "needs, interests and abilities."

This need is magnified by the obvious and growing demands on the adult individual, as the by-product of technological advancement, for changing skills – through the updating, upgrading or total retraining for work competencies. Public education must no longer be regarded as primarily for the child and young adult. This Council is of the view and recommends that –

The Legislature, in establishing a basic public policy, assure educational opportunities to all citizens, regardless of age, in light of the guarantees assured every citizen in Article I, Section 2, of the Minnesota Constitution.

The United States Congress in 1968 amended the law
to support vocational education programs in the states and

The same act, Public Law 90-576, abolished the tradit
tional instruction by occupational category. The new basi
"people need" categories: elementary, high school, post-
minority and disadvantaged populations. The law literall
gram offerings based on the "needs, interests, abilities .
pated opportunities for gainful employment."

Towards this end, the Congress created a national adv
quires each state to have its own advisory council if the
to receive federal support – dollars – for vocational edu
specified the membership of these councils, state as well
resentatives of the general public, business and industry,
handicapped, minority groups and – of course – educatio
voice to all "people needs" served.

Governor Harold LeVander appointed your Minnesota
1969. The first meeting of the Council was April 28 of th
cil organized itself, electing a chairman and vice-chairm
usually the second Thursday of each month. The Counc
financed by federal funds provided in the enabling law.

Outlined, too, in the federal law are the objectives
charge is to review and evaluate present vocational ed
against the measure of the needs of the people of Minnes
then, is to recommend policies and programs to better s
that the Council shall serve to so advise the State Boar
sible for vocational education in our state. The Minnesot
pare an annual evaluation report on the status of p
information of the national advisory council and – i
states – the Congress.

Equally important, the Council has a mandate to giv
mendations so that all concerned are apprised of the n
cally required are periodic public reports addressed to th
legislature, responsible state agencies, local school distr
prepared and submitted by your Minnesota State Adv
cation.

Congress in 1968 amended the law which provides federal dollars education programs in the states and local school districts.

blic Law 90-576, abolished the traditional federal funding of voca- occupational category. The new basis for federal funding focuses on gories: elementary, high school, post-secondary, adult, handicapped, antaged populations. The law literally mandates planning and pro- d on the "needs, interests, abilities . . . in light of actual or antici- for gainful employment."

the Congress created a national advisory council. The law also re- have its own advisory council if the state is to be eligible to continue upport – dollars – for vocational education. The Congress has also ership of these councils, state as well as national. Each must have rep- general public, business and industry, labor, the disadvantaged, the ity groups and – of course – education. Thus, each council gives a needs" served.

LeVander appointed your Minnesota State Advisory Council early in ing of the Council was April 28 of that year, at which time the Coun- electing a chairman and vice-chairman. The Council meets monthly, Thursday of each month. The Council has its own offices and staff, funds provided in the enabling law.

the federal law are the objectives of the Council. Generally, the and evaluate present vocational education and related programs of the needs of the people of Minnesota. The Council's responsibility, end policies and programs to better serve our state. The law provides all serve to so advise the State Board of Education, which is respon- education in our state. The Minnesota Council is also required to pre- valuation report on the status of programs in Minnesota for the e national advisory council and – in composite with the other 49 ess.

nt, the Council has a mandate to give voice to its findings and recom- t all concerned are apprised of the needs and program goals. Specifi- periodic public reports addressed to the people, the governor, the state sible state agencies, local school districts. This is the first such report mitted by your Minnesota State Advisory Council for Vocational Edu-

COU

John A. Butler, director, Dunwoody Industrial Institute, Minneapolis . . .
"familiar with the vocational needs and the problems of management and labor in the State"

Mrs. Mabel Cason, associate director, Intercultural Education, Saint Paul Public Schools . . .
"representing school systems with large concentrations of academically, socially, economically, and culturally disadvantaged students"

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"person representative of and knowledgeable about the poor and disadvantaged"

Dr. Duane R. Lund, superintendent, Staples Public Schools, Staples . . .
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Thomas Mangan, director of special education, Anoka-Hennepin Independent School District No. 11 . . .
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"person representing state industrial and economic development agencies"

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Charles Nichols, principal, Minneapolis Area Vocational High School and Technical Institute, Minneapolis . . .
ex-officio member of state council as member of National Advisory Council

needs, interests

Why, what is vocational education?

Vocational education, as we recognize it, has existed for over half a century. Congressional concern in 1917 established it nationally to provide a means of supplying trained people to fill jobs vital to American agriculture, home economics, and industry during the prosecution of World War I. This was with the enactment of the famed Smith-Hughes Act. This law, the first of many to provide federal support for job training within education, gave dollars to encourage states and local school districts to offer occupational training. In 1917, responsibility for education was exclusively local. Vocational education, as fostered by the federal government, therefore, was born "extra educational."

Since then, vocational education in many ways has remained outside the mainstream of education. Contributing to this appearance has been its preoccupation with training by occupational category; federal funding on

needs, interests & abilities

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In Minnesota, these factors have been evidenced by the growth of and reliance upon post-secondary vocational-technical institutes. These institutes reflect, too, the belief of many that a longer period for education – at least some post-secondary education for 85 out of every 100 high school graduates – is essential for the individual before entering the world of work and adult living. Just as colleges are designed to serve those seeking degree credentials, vocational

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institutes are seen by many as necessary to most, if not all, occupational training not associated wi
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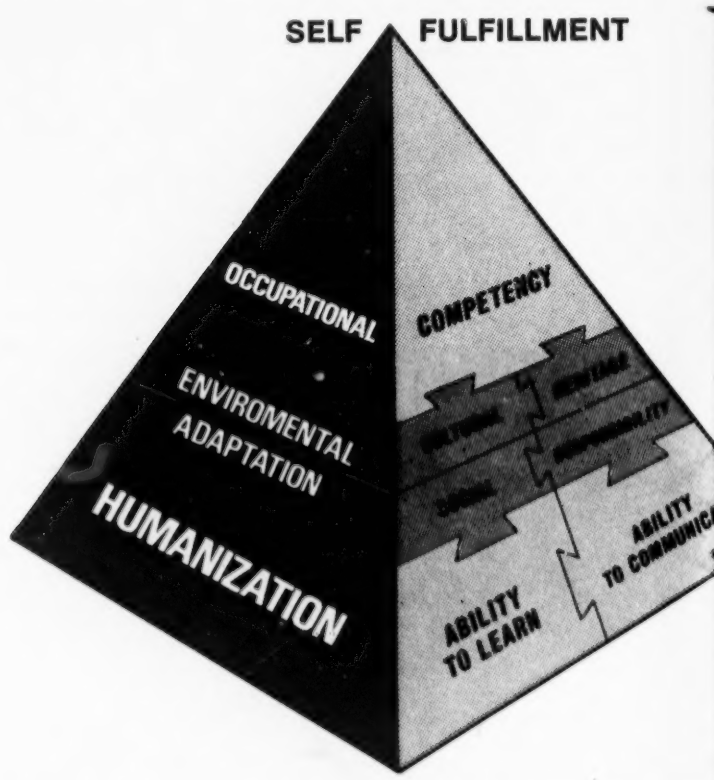

INDIVIDUAL'S EVOLUTION TOWARD SELF-FULFIL

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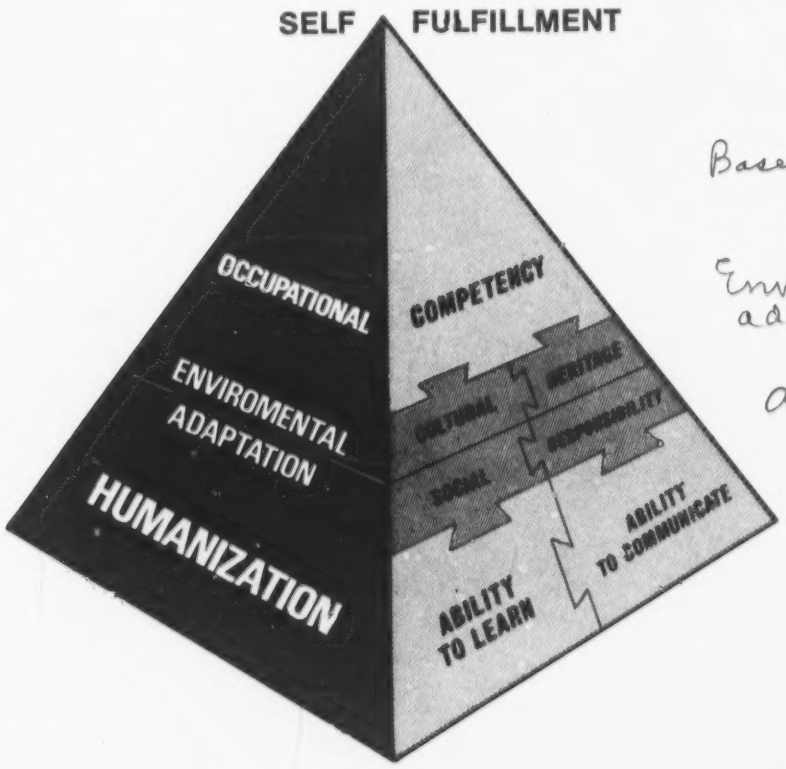
ssary to most, if not all, occupational training not associated with degree programs. The question is the The charge is to determine if these traditions are, in fact, best answering the need for vocational edu- ss, in enacting the Vocational Education Amendments of 1968, ended one such tradition. Eliminated was l education by occupational – or educational discipline – categories. No longer are federal dollars provided ulture, distributive (sales and marketing), health, home economics, office, technical, and trade and indus- xception is continued funding for nonoccupational home economics programs to serve tomorrow's thers.) At the same time, the new law suggests the challenge to provide vocational edu- o the "needs, interests and abilities" of those being served in light of "actual or anticipated oppor- ful employment." Significant is the new emphasis on meeting the needs of the individual, pirations for his place in the world of work, providing him the opportunity for self-fulfill- Your Minnesota State Advisory Council for Vocational Education has approached its this in mind. We have striven to give voice and definition to the process of self-sulfillment ans of measuring the effectiveness of and recommending changes for vocational educa- This has meant – and means – looking not exclusively at vocational education, as sug- ted by any effort to pictorially present the process for the individual. Coincidentally, uch analysis speaks to fundamental questions. Can vocational education exist – or be evaluated – as "extra educational" when, in fact, it must function dependent upon other education? Is not the achievement of occupational



Base: Humanization ability { to learn and ability to communicate

Environmental adaptation — cultural heritage — Social responsibility

apex - occupational competency

INDIVIDUAL'S EVOLUTION TOWARD SELF-FULFILLMENT

competency the result of pyramiding experience? Training for employ- ment is impossible unless, and until, the individual has been given the chance o develop his unique and basic human abilities to learn and to communicate in the y best suited to him. He, too, must have the opportunity to appreciate his heritage, cul- and society in which he lives and personal responsibilities before he can choose a or occupation best suited to his "needs, interests and abilities" for self-fulfill- In such a context there is little, or no, room for abstract debate over "liberal" versus education. Both are as one if viewed from the eye of an individual. Both are subservient to ic criteria of the individual's right and desire to attain from education the tools for self-satisfac- ess. But, is not that the real purpose of all education, liberal as well as vocational? Does it not on of educational function suggested by the combined statements of the philosophers? "Edu- o develop the characteristic excellences of which men are capable and its ultimate ends are human lfare of society." Recognition of this basic purpose of education to provide the foundation – y and secondary programs – allows for a closer look at the process of acquiring occupational competency. , as required by its interpretation of its responsibility, is from that of the individual. It is built upon an as- lividual to the point at which he becomes aware that the attainment of occupational competency – the satisfac- a necessity and contributing force to self-fulfillment. When presented in a diagram, this "point of aware- ecognition of the need to select a vocation which may span years – as in the case of the boy or girl growing through

adolescence – or a few hours or days – as dictated by the need of a job to support a family by a bread winner suddenly unemployed. Integral to this awareness is "survey" – a looking around to see what career opportunities there are.

Accompanying the looking around is "exploration." This is the individual's reaction to the opportunities he sees. It is the selection of those most interesting. In every case this is influenced by personal values and abilities, as well as past experiences and the people around the individual. Family, educational experience to date, a recognition of the variety of career opportunities – all come into play. For the unemployed father, the urgency and availability of employment, measured against his available job skills, may dominate. It is in this selection process that the "needs, interests and abilities" of the individual, recognized in the 1968 law, have the most weight.

The result is an "area of focus," a tentative – if not final – decision of a career goal. This selection may be as narrow as a decision to follow one's father into accounting or as broad as a desire to work in the field of electronics.

The bridge from se
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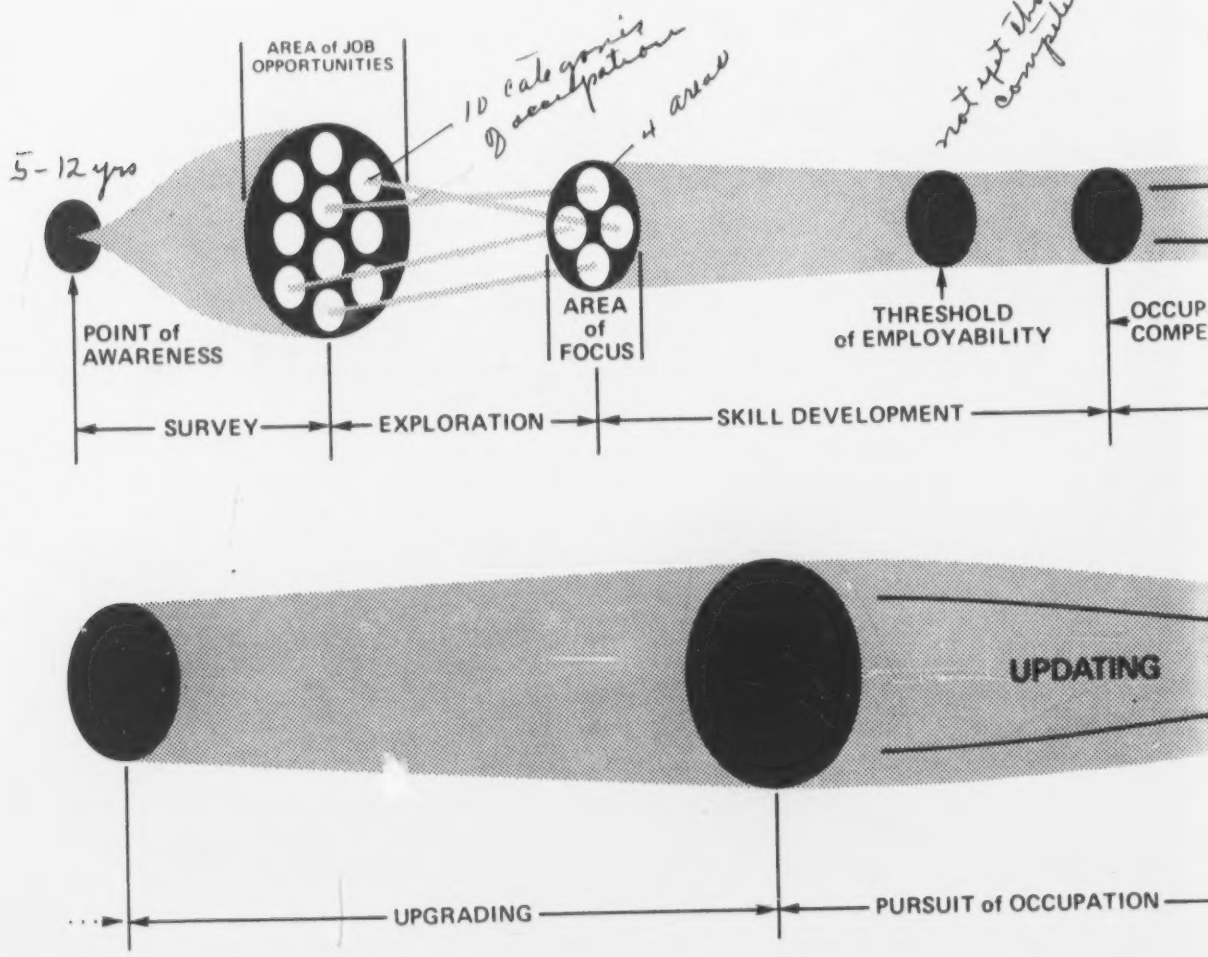

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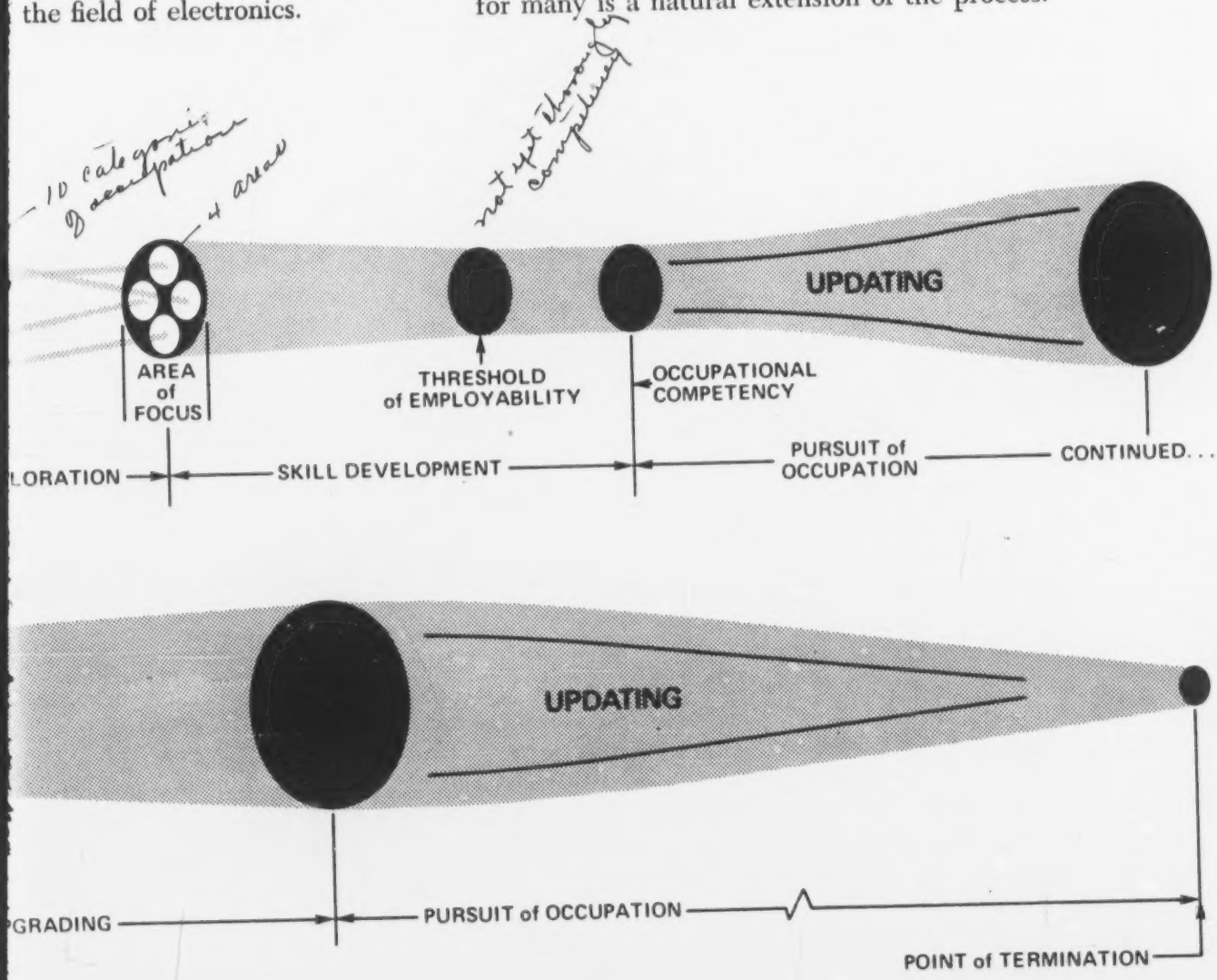
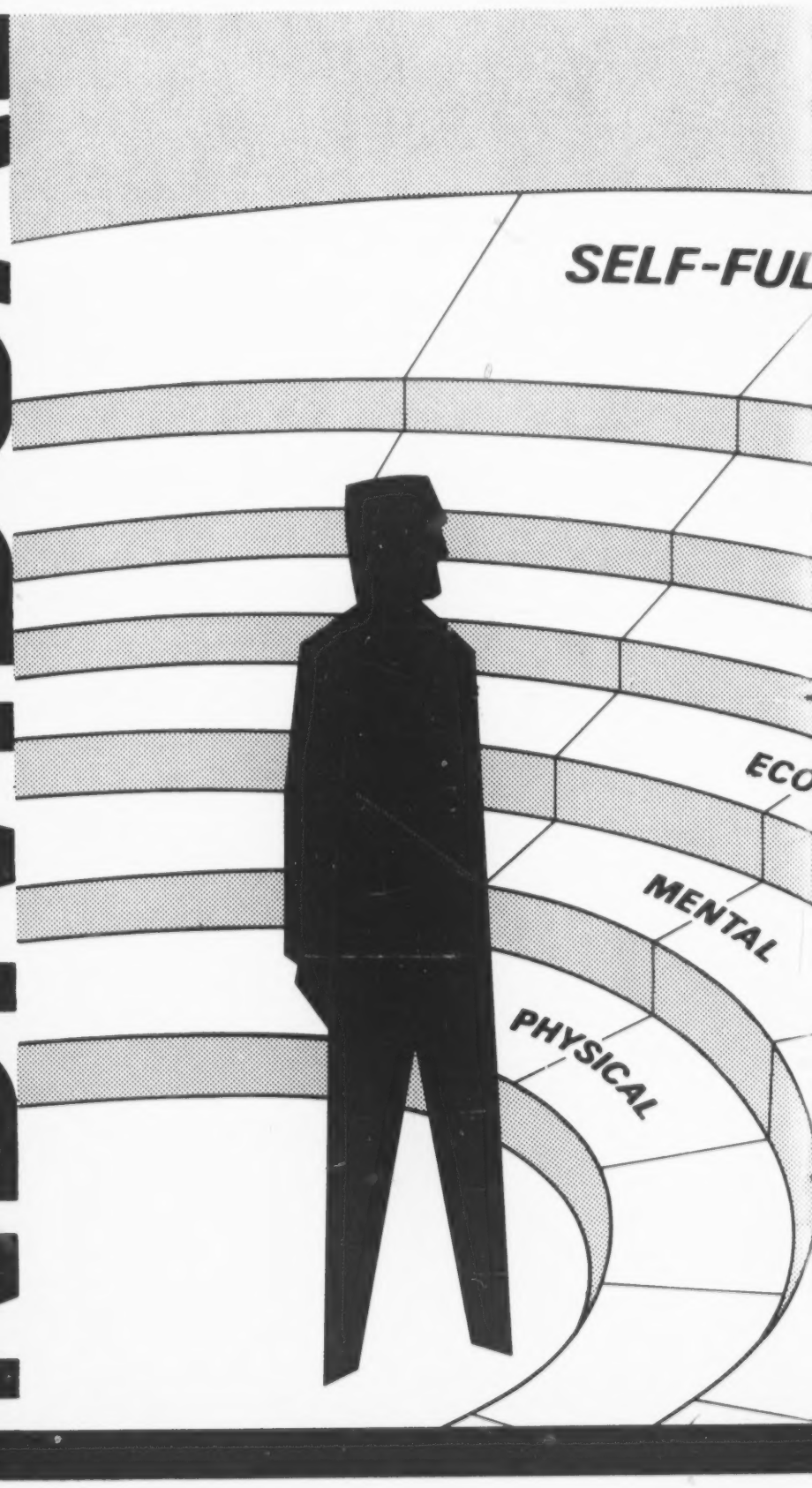
The bridge from selection to occupational competency – and self-fulfillment – is skill development. Education, be it vocational or liberal, serves to assist in providing skills for job entry. Growing importance is placed on pre-employment training in our society; many of the trades require specialized vocational training, in addition to a high school education, before accepting applicants for apprenticeship. On-the-job training and experience through employment also contribute to skill development, which is a continuing process. Thus, skill development is seldom, if ever, total at the time of employment.

And, even having once acquired occupational competency, there is a need for a continual updating of skills. Nothing has magnified this fact more than the volatility of technology in this century. This "updating" process is one of keeping abreast of changing methods and techniques.

Self-fulfillment for the individual may also mean the need to "upgrade" his occupational competencies. The opportunity for advancement – from production worker to foreman, from employee to employer as part of management – for many is a natural extension of the process.



LIMITED INDIVIDUAL



The process of personal self-fulfillment – and career happiness – may not be, however, the same accepted road for all. Our society – and the 1968 law – identifies what it considers "the limited individual." He is the physically handicapped, the mentally retarded or disturbed, the economically or socially disadvantaged. To these must be added the educationally disadvantaged individual who leaves formal education without tools for self-fulfillment. The designation of "limited" or "disadvantaged" is not the individual's; it is society's.

The individual falling into any of these categories actually has the same aspirations for self-fulfillment as everyone else. His criteria are his personal "needs, interests and abilities." Such individuals are faced with the same need to recognize and apply their talents and abilities in striving for self-fulfillment. If there is a difference, it is that our systems – educational, economic and social – serve a norm.

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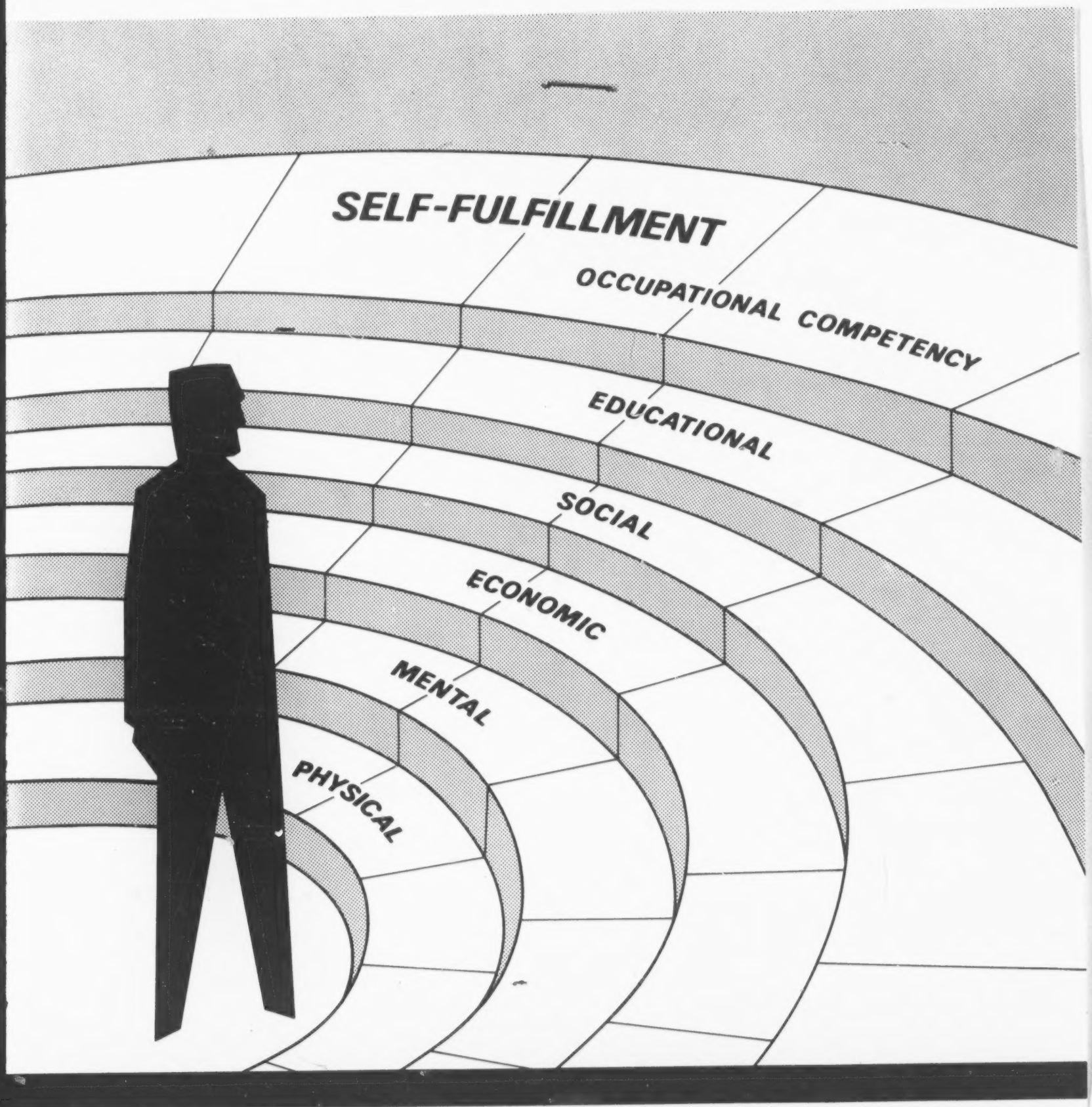

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The term "limited" or "disadvantaged," as applied to the individual, speaks more to the ability or inability of programs and services to meet the needs and serve the interests and abilities of all people, not just a category of people. It suggests the need – the challenge – to serve all considerations faced by the individual, limited or otherwise, in seeking self-fulfillment.

This, then, is the process by which the individual strives for self-fulfillment. It is the implied dimension of the 1968 law mandate to look at vocational education in terms of its responsiveness to serving "needs, interests and abilities. . ." in light of "actual or anticipated opportunities for gainful employment." Suggested is that the specifics of training for skill development – generally the area of function for vocational education – are but part of a larger picture. It is shortsighted, if not impossible, to measure only that small part which is skill development.

factors: Over 8,500 students dropped out of Minnesota high schools during the 1968–69 school year.

The dropout rate for the economically and socially disadvantaged in high schools has been as high as seven times that for other students in the same school district.

230 youngsters dropped out of one metropolitan suburban school district in 1968–69 – a loss equal to the total enrollment of the average size six-year high school in our state.

45 out of every 100 high school graduates in 1968 went on to college; half never completed their studies; four out of ten left college within the first year.

Less than one in three high school graduates complete post-secondary programs – collegiate and vocational combined.

One out of ten students at one of Minnesota's major private vocational institutes fails – because he lacks needed reading skills.

73 per cent of courses offered in secondary schools are general in nature; only 26 per cent meet the requiremnts to be financed as providing vocational training towards job skills.

Minnesota invested only $4,705 to provide elementary and secondary education – 12 years of schooling – for the high school graduate of 1965, but invested between $2,880 and $4,320 to provide that same graduate with a baccalaureate degree as a public college graduate in 1969. The investment for a 1965 high school graduate taking two years of vocational-technical training was $1,623.59.

Over 16 out of every 100 students – 16.2 per cent – enrolled in public post-secondary vocational institute education programs in Minnesota during the 1968–69 school year failed to complete their courses.

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The responsibility of your Minnesota State Advisory Council for Vocational Education is to measure the responsiveness of vocational education to the individual process of acquiring occupational competencies and self-fulfillment. There is a more basic question: What is the responsibility and the function of education – vocational and liberal – to serve the individual? On the surface, the answer would seem to be obvious – particularly in light of the challenges presented in the 1968 vocational law amendments. A closer look, however, suggests Minnesota is faced with a major and unresolved policy question.

Minnesota's commitment to provide public educational opportunities for everyone goes back to our state Constitution. It provides, under Article VIII:

> *The stability of a republican form of government depending mainly upon the intelligence of the people, it shall be the duty of the legislature to establish a general and uniform system of public schools.*

Our state statutes, as well as the Constitution itself, augment and implement this commitment. The law requires all to go to school until age 16. State aids are designed to assure every boy and girl an equal opportunity in elementary and secondary schools. In addition, state law provides for special programs, such as the special education and vocational rehabilitation services and vocational-technical education.

Minnesota's recognition of the need for vocational education has, in fact, predated federal action. Our State Board of Education was charged to serve in a duo capacity of a state board for vocational education in 1916, a year before the Congress acted. The thrust of the federal Vocational Education Act of 1963 – to give emphasis to post-secondary institutions – was predated by 18 years when, in 1945, our Legis-

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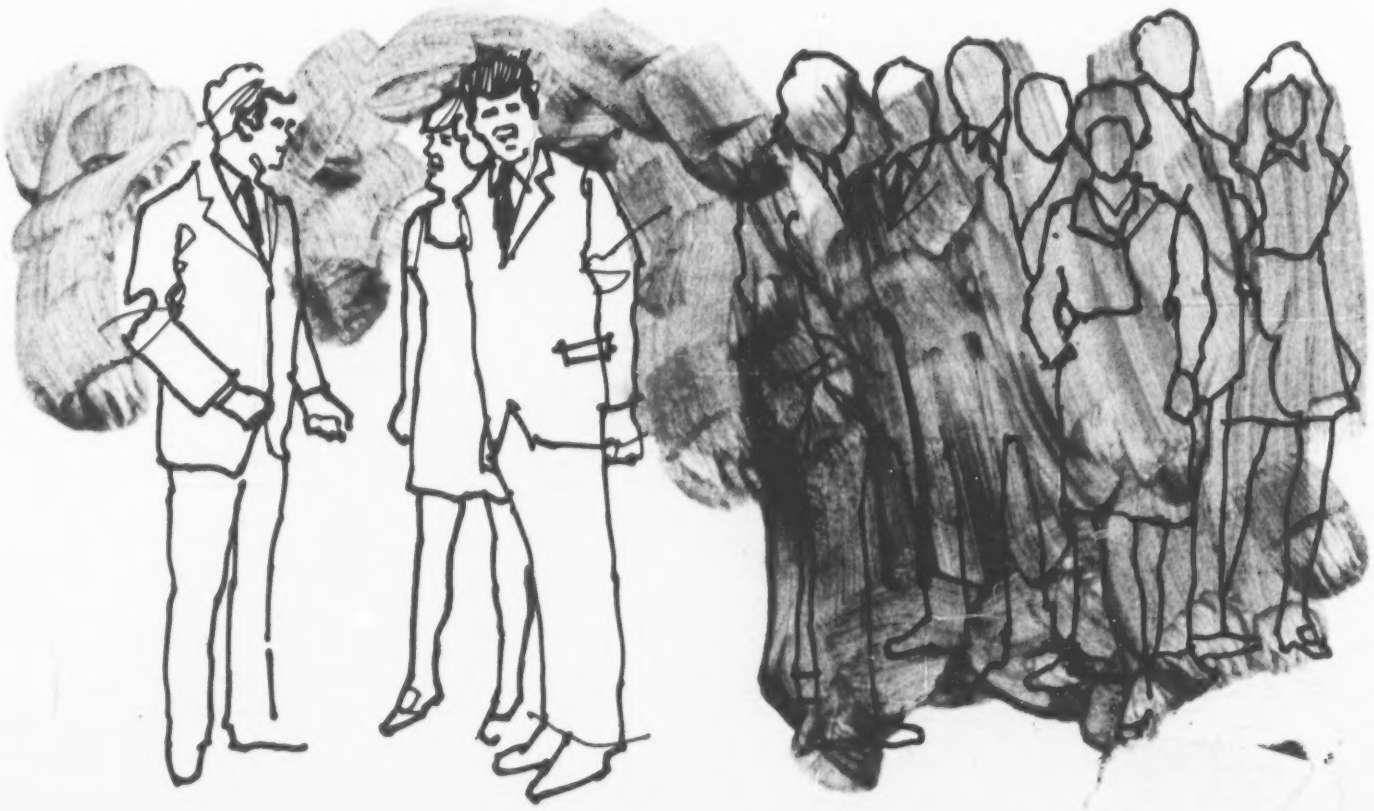
lature authorized the establishing of area vocational-technical schools to provide job training for high school graduates as well as non-high school graduates.

The result, by the way, is a network of area institutes in Minnesota which federal authorities point to as a model for others to emulate. It is a system in which we can all take pride. Based on criteria of educational systems, our post-secondary vocational-technical schools are among the leaders. The students they serve are served well.

Likewise, our state offers those interested in higher education – degree-oriented programs beyond high school – one of our nation's leading universities, state colleges, state junior colleges, and renowned private colleges and universities. Actions of the Legislature to create the State Junior College Board, State College Board and the Minnesota Higher Education Coordinating Commission reflect a goal of providing every Minnesotan with access to educational experience beyond high school. On face value, Minnesota's commitment to assisting the individual in gaining education and self-fulfillment would seem absolute.

Based on performance – statistical fact – it is obvious that the mere establishing of facilities, offering of curricula, and option to the opportunity for education are not necessarily meeting the "needs, interest and abilities" of the individual. It must be quickly added that this is not to imply a criticism of education. It must – and is – responding to established public policy; a public policy which requires attendance in educational institutions through an arbitrarily set age – 16 years – and, beyond that, serves to select out only those most academically qualified.



Such has been the tradition of education and public policy in America. Basic education skills – reading, writing and arithmetic – have from early days been seen as essential educational experiences in the era of the one-room schoolhouse, just as they are today. Curricula focusing on our history, our laws and society have been added. But, beyond this – a recognition of meeting minimum needs of the individual – education is "liberal" in our elementary and secondary system. Testing of the student is measured against, and most counseling is directed towards, the goal of a college degree. This is mirrored in the fact that, based on criteria for state and federal dollar payments, 73.3 per cent of enrollments in high school were in general courses; only 26.7 per cent were in the category of vocational – job skill – training during the 1967–68 school year.

This view is supported by other facts, such as in the financing of education. Let's look at the investment made in the high school graduate of 1965 and the college graduate – with a baccalaureate degree – of 1969. For the first 12 years of education – elementary and high school – the investment in the 1965 graduate was $4,705. For those continuing on to receive a degree from college, $2,880 was invested in four years ($4,320 if the student stayed on campus of a public institution). The 1965 high school graduate undertaking a two-year post-secondary program prompted an investment of $1,623.59.

The selectiveness of the process is documented in the statistics of college attendance. In 1968, slightly more than 45 out of every 100 high school graduates – 45.2 per cent, to be exact – entered college. Four out of each ten entering college dropped out within the first year; only half starting college programs – or 22.6 per cent of all high school graduates – actually completed. In fact, only one out of three high school graduates actually complete post-secondary programs, liberal and vocational combined. During the 1968–69 school year, 16.2 per cent of the students enrolled in post-secondary vocational-technical institutes failed to complete their courses – were dropouts – because they felt unable to meet the educational performance criteria.

Thus, education in Minnesota today functions in the tradition of serving those most qualified, those whose "needs, interests and abilities" can mold to the capabilities of existing curricula that build the educational experience to acquiring degree credentials – baccalaureate, master's and doctorate. Vocational education, through its post-secondary institutes, is also contributing to the sophistication of selection. In at least one area school, applicants for training in major trades must wait up to three years to get into class.

But, what of those individuals – the two out of three who do not seek, or achieve, post-secondary educational success? More importantly, what of those who fail to achieve the minimum education implied by the completion of high school? What of those who complete high school without really receiving the basic education that is taken for granted?

The State Junior College Board earlier this year pointed to this latter group – those graduating from high school without basic skills – when it stated:

Two-thirds of the students who enroll (in two-year post-secondary institutions) will be in need of remedial programs.

This Council has received testimony that perhaps one out of ten students at one of our state's major private vocational-technical institutes fails – for the lack of reading skills.

Dropout rates give voice to those who fail – or reject – secondary education: over 8,500 students – a population equal to more than that of Alexandria, Chisholm, East Grand Forks, Grand Rapids, International Falls, Little Falls, Marshall, St. Peter or Stillwater in 1960 – dropped out of high schools in Minnesota during the 1968–69 school year. In one metropolitan suburban school district in 1968–69, 230 dropped out of school – a loss in one district equal to the total enrollment of the average size six-year high school in Minnesota. The dropout rate for the economically or socially disadvantaged in high school has been as high as seven times that for other students in the same school district.

There are also those who are never allowed access to our educational system. Noticeable in looking at serving the handicapped is a seeming preoccupation with "case closure," suggested as a measure of the efficiency in using tax dollars. It is an expression of the debate over where – and how – best to spend limited dollars. Should it be on cases where relatively quick results can be attained or should it be a longer term investment in individuals with more serious problems? As an example, it is a question of priority to assist the individual who will earn ten thousand dollars a year or the one who will make only three thousand. Forgotten is the fact that the individual earning less might otherwise be a tax consumer, demanding far more dollars than paid by the taxes on a ten thousand dollar annual income. This is a debate, too, which currently gives weight to the selection and service to the most qualified.

The 1968 Vocational Amendments pay specific attention to serving the handicapped and disadvantaged. It does so by requiring that 25 cents of every federal dollar paid Minnesota under this law be spent to serve these two population groups – ten cents of each dollar on programs for the handicapped, 15 cents of every dollar for the disadvantaged – this latter category includes programs to meet the needs of those who have dropped out of school before gaining skills for occupational competency.

There seems to be a contradiction, particularly in serving the educationally disadvantaged. Monies are earmarked for remedial services to those who have already failed in or rejected the basic educational system. While there is obviously a need to give such service, is there also not the need to review and evaluate the policies and functions of all education to minimize, if not eliminate, future needs for remedial education? Cannot – and must not – the same challenge be given in light of the numerous other remedial programs of the 1960's and 1970 – such as those programs fostered by the Manpower Development and Training Act, Office of Economic Opportunity, Concentrated Employment Program, Work Incentive Program, On-the-Job Training, etc.?

Needed to be studied, too, is our traditional commitment of education as a service to the adolescent, to training before entry into the adult world and the world of work. The individual has a need for the opportunity to update and upgrade his knowledge and skills – as suggested by an understanding of the process of self-fulfillment. This, magnified by unemployment by virtue of skill obsolescence, has prompted numerous federal programs – as listed above – to fill the void. What is education's role? Liberal as well as vocational?

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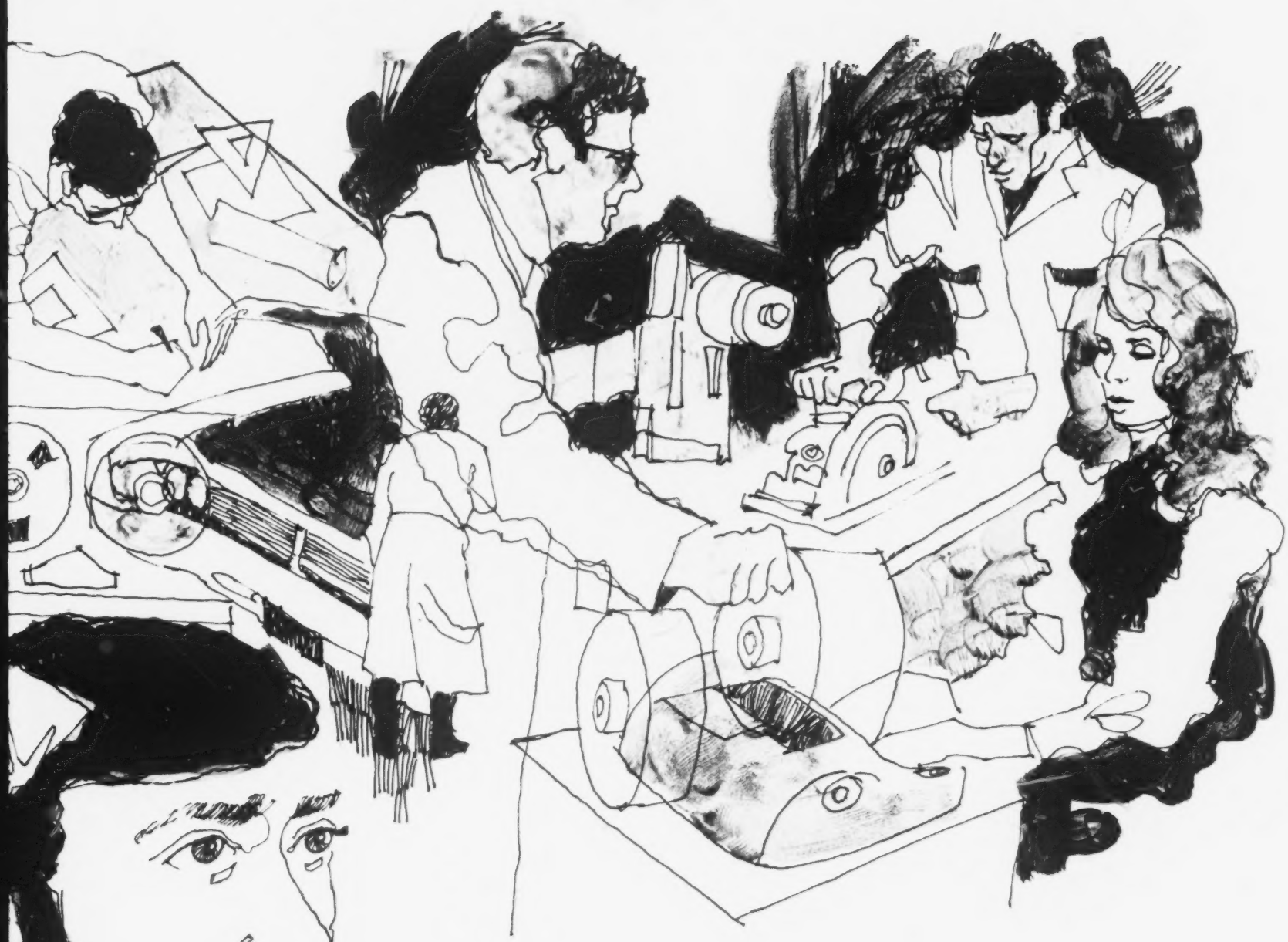

All of this leads back to the policy question: What is the responsibility and function of education – liberal and vocational – in meeting the "needs, interests and abilities" of the individual seeking self-fulfillment? Is it its responsibility to select out and serve fully only the college bound? Or, is there a need to re-evaluate the charge to education and our public policy commitment? Is education's role exclusive to providing preparatory services prior to adult life and employment? Or, does the change in the demands suggest a restructuring to provide for lifelong service to those who, by displacement or opportunity for growth, seek supportive educational programs?

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This report – and the 1968 Vocational Education Amendments – give This does not ignore the equally obvious fact that education must also of our state. On the contrary, serving the individual "in light of actual o ties for gainful employment" responds to the needs of our society. T trained individual who cannot find employment is just as frustrated in as the school dropout with no skills or talents.

Earlier this year – in June – this was documented for some 2,800 o with the professional degree credentials that have qualified them to te interests and abilities" in conflict with the actual opportunities for g Minnesota and elsewhere.

It is a fact mirrored in Minnesota's role as a supplier of degree train virtual "brain drain" – simply because we overproduce, by at least a t need for baccalaureate degree people. Yet, at the same time, Minnesota our labor market – some 7,000 each year. Many come, drawn to our state its quality of life, ultimately to fail in their dream of self-fulfillment consumers, rather than taxpayers, in Minnesota.

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conclusions

Skill development for occupational competency – vocational education – is not, cannot be "extra educational." The charge of the Vocational Education Amendments of 1968 – Public Law 90-576 – to meet the "needs, interests and abilities" of people "in light of actual or anticipated opportunities for gainful employment" is a statement of responsibility for all education, not just vocational education. Further, occupational education – be it professional (degree based) or vocational – requires, and must be built upon, a firm foundation of sound basic education, starting with the three "r's" of reading, writing and arithmetic. Skill development for occupational competency – and self-fulfillment – must be in concert with all other education programs normal to the process and progress for the individual.

It is evident that Minnesota's total educational system is falling short, if not failing, in serving a substantial – and growing – number of individuals in our state. Giving voice to this is the indicated failure to give such basic skills as reading even to those who have graduated from high school and seek entry into post-secondary programs. It is shown in the number of high school dropouts who fail in or reject education. In post-secondary programs, the process of serving only the most qualified is evidenced by those failing to complete programs – vocational as well as liberal.

While there is no rationalization for the failure to give basic skills, there is little, or no, question that the "select out" effect of education is in the context of the traditions of our public policy. This is a policy which recognizes a responsibility to provide facilities, programs and curricula so that all have the *opportunity* for as much education as society can afford to offer, but puts the *obligation* on the individual to meet the qualifications and performance criteria of education – in addition, of course, to meeting the legal requirements of attendance until age 16.

It is a policy, too, philosophically committed to the "liberal" educational thought: educate the individual through adolescence and to entry into the world of adult life and work, providing him with the capability to adjust to changing demands and opportunities. For all but the most qualified – if even for them – this is impossible.

This basic commitment to "liberal" education is reflected in the traditional and popular implication that vocational education is a remedial program for only those who cannot successfully complete "liberal" curricula. It is reflected in the suggestion of the '68 federal law that vocational education is a solution to serving the disadvantaged and handicapped. These assumptions ignore both the "interests, needs and abilities" of the individual seeking self-fulfillment, and the need of our society for trained, highly skilled workers in a technological era.

This is a tradition – a policy – responsive to the demands of a less complex, less demanding era than that of today. It is of a time when the individual independent of education could find employment – and, yes, self-fulfillment. That this is not true today is evidenced by the fact that we acknowledge and are concerned about "dropouts" and "disadvantaged." And, as we look to the future, the evidence is that the more sophisticated our economy and technology, the greater will be our problem. It is a policy which has required, and will increasingly require, services to remedy the shortcomings rather than support of a basic educational system which should be vibrantly responsive to the practical demands of the individual and our state. Unemployment – prompted by job obsolescence by virtue of technological change – has already triggered many tax-supported programs to assist in retraining individuals, mostly outside of traditional education.

Equally important, it is a fragmented policy. Minnesota does not now have – has never had – a single blanketing policy for education purpose and function into which all the liberal and vocational parts – elementary, secondary, post-secondary and adult – must fit. A number of reasons for this fact can be cited: constitutional and statutory provisions, organizational structuring, and the historical evolution of educational programs in Minnesota to serve specific needs or interests with little, or no, definition given to the whole of educational process.

The result is a lack of continuity – from the view o in performance – that finds demands in post-seconda dial courses because of the shortcomings of the elem system. This fragmentary policy is indicated by the n Higher Education Coordinating Commission to provi plies for the activities of institutions governed by fou concerned with post-secondary education but provid elementary and secondary education.

Finally, the feeling that there is a need for a basi cation is obvious to organizations such as your Mi Council for Vocational Education. Recognition of t vocational training to give job skills – mirrored agai of individual self-fulfillment – requires questions su bility is it, and how well are they providing the foun survey of career opportunities and assistance to th these opportunities? The answers to such questions ommendations for the establishing of programs – an suggest whether or not vocational education, per s function to fill a void. They speak to the very defini tion.

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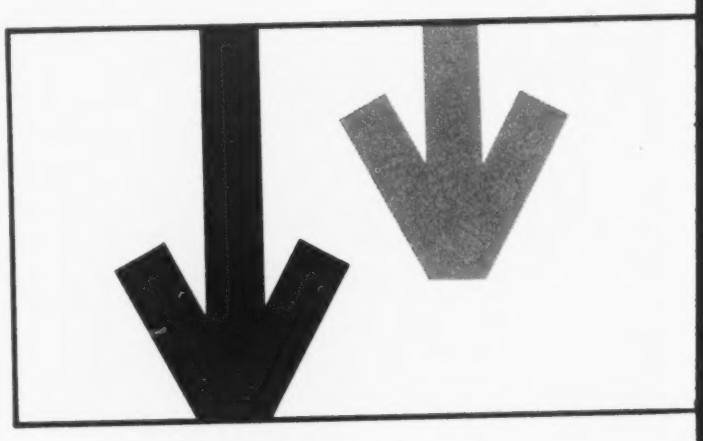

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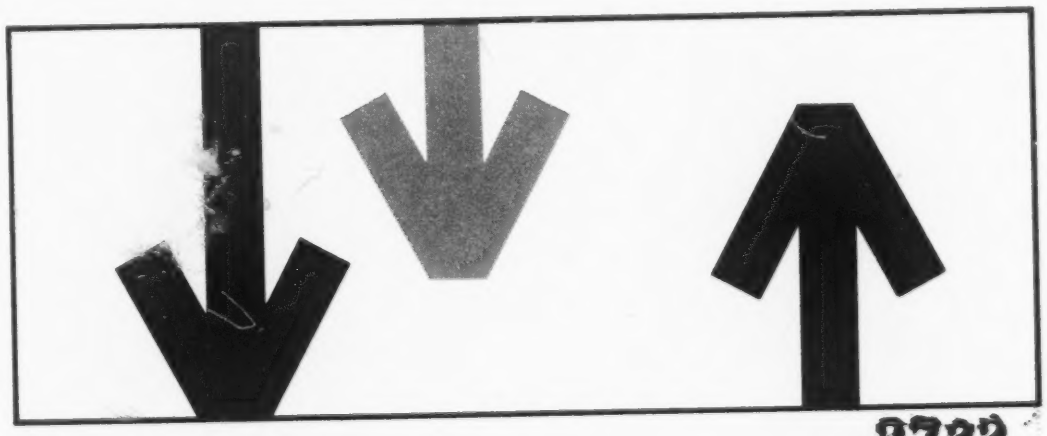
The result is a lack of continuity – from the view of the individual, if not in performance – that finds demands in post-secondary programs for remedial courses because of the shortcomings of the elementary and secondary system. This fragmentary policy is indicated by the necessity of a Minnesota Higher Education Coordinating Commission to provide what the name implies for the activities of institutions governed by four separate state boards concerned with post-secondary education but provides no real bridge with elementary and secondary education.

Finally, the feeling that there is a need for a basic public policy in education is obvious to organizations such as your Minnesota State Advisory Council for Vocational Education. Recognition of the primary purpose of vocational training to give job skills – mirrored against the broader process of individual self-fulfillment – requires questions such as: Whose responsibility is it, and how well are they providing the foundational education, the survey of career opportunities and assistance to the individual to explore these opportunities? The answers to such questions affect, and effect, recommendations for the establishing of programs – and allocation of dollars; suggest whether or not vocational education, per se, needs to broaden its function to fill a void. They speak to the very definition of education function.

In summary, it is the view of your Minnesota State Advisory Council for Vocational Education that there is a need to redirect Minnesota's educational policy – against the measure of the demands on, and of, the individual and the people of Minnesota. Further, needed is a consolidation into a single, basic policy, a statement of function and purpose for all of education – a policy which provides direction from, and accountability to, the people.

We, the citizens of Minnesota, owe this to education. As has been said earlier in this report – and is acknowledged here again for emphasis – Minnesota's educators have produced what is recognized nationally as a leading educational system. They have done this in the context of trying to meet ill-defined people needs. Given definition, education has shown the capability to do the job.



The Minnesota State Advisory Council for Vocational Education wishes to acknowledge reports and testimony it has received as the basis for this publication. Specific appreciation is due the Minnesota Department of Education, Vocational-Technical Education Division and the Minnesota Higher Education Coordinating Commission. Documentation is on file at the Council office, Room 201, 555 Wabasha, Saint Paul, Minnesota 55102.

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Towne, Douglas C., Comp.;
Rees, S. Laurie, Comp.
The Disadvantaged and Jobs.

Tennessee Univ., Knoxville.
Office of Education (DHEW), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Jul69 20p.

DESCRIPTORS - *CULTURALLY DISADVANTAGED; *MANPOWER DEVELOPMENT; MANPOWER UTILIZATION; *GOVERNMENT ROLE; FEDERAL LAWS; *COOPERATIVE PROGRAMS; TECHNOLOGICAL ADVANCEMENT

ABSTRACT - There is a great need for public and private support for efforts to remove people from poverty in a society characterized by changing educational needs brought on by technological change. It is the responsibility of those who are helped by the changing economic structure to assist those who are hurt by the change; self-help is no longer a sufficient answer to poverty. The problems, the background, and some of the possible solutions to helping the disadvantaged are discussed in this brochure. (BH)

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EDUCATION & WELFARE
OFFICE OF EDUCATION
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THE DISADVANTAGED and JOBS

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"Give me your tired, your poor,

Your huddled masses yearning to breathe free,

The wretched refuse of your teeming shore,

Send these, the homeless, tempest-tossed, to me:

I lift my lamp beside the golden door."

Emma Lazarus, The New Colossus:
Inscription for the Statue of Liberty
New York Harbor

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American history is replete with stories of the "tired", the "poor", the "huddled masses", and the "wretched refuse" who have helped make the dream of a better life in America come true. They came when the country was relatively young and unsophisticated. There was opportunity, but little else by today's standards--especially in such areas as legislation to protect this "wretched refuse" from exploitation. But they came anyway. They overcame staggering odds and as a result they helped make America the most affluent nation in the world.

Despite the unparalleled economic status of our country, the disconcerting fact remains that although immigration is rigidly controlled, America still has far too many of the "tired" and the "poor". Except today they are native-born--they aren't "just off the boat". Hundreds of thousands of them exist in the city ghettos, the mountains, the sweltering Mississippi delta, the flat farmlands of the South and Far West. In fact, no state is without them.

In a country where the expression "self-help" is almost a second national motto, the question invariably arises: Why can't today's poor help themselves just like those off the boat did less than a hundred years ago? Certainly there are more opportunities now! Certainly social

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-introduction

and economic changes in the last 50 to 75 years have opened many new doors and made life easier, the argument almost always goes. The opportunities are here, bigger and better than ever before, if they just had enough "get up and go to go out and get them" is the stock comment made when the nation's disadvantaged persons come up for discussion.

But are they really?

That is what this brochure is all about. It seeks to show why self-help alone is beyond many of the disadvantaged, often because of the nation's vast success in technological advances. And it will provide for your consideration some of the major ideas and approaches presently being put forward by various segments of society who are trying to help the nation's disadvantaged realize the American dream.

As representatives of business, industry, education, or civic leadership, you are in the best position to contribute to the efforts now underway to combat disadvantagement. As a businessman or an industrialist you can appreciate the economic and social gains to be achieved by turning disadvantaged persons into productive, contributing members of the labor force: an employed person contributes to the tax structure rather than collecting from it, an employed person is a paying customer for your products, and a person with basic skills and training is more likely to be a potential employee than a participant in some civil disorder.

Educators also realize that their efforts are enhanced when disadvantagement is replaced by success. Programs designed with adequate consideration of the disadvantaged person are more likely to reduce the school dropout rate. Such programs often

attract early leavers back to school and improve other aspects of the general educational effort. Schools today are closer than they have ever been to accomplishing the goal of providing an education to each individual which matches his capacity. Yet there is often something missing in the present system--especially for the disadvantaged student--which should be provided if the goal is to be reached.

Civic leaders and those working in community agencies are confronted daily with the problems of disadvantaged persons. Their concern is two-fold in that their efforts are oriented at community improvement and improvement of individuals within the community. Dealing with the disadvantaged involves great potential for community improvement through upgrading the citizens within, as well as improvements of the individuals through improving tne conditions of the area.

Even with these rather concrete and specific gains to be accomplished, there remains a more basic reason for concern with disadvantagement which is purely humanitarian. In an affluent nation such as ours, should we allow some of our people to be barred from full participation?

At a time when living standards are rising for the rest of society, the disadvantaged person lives with failure, with ignorance of ways to correct his situation, and with despair, thus creating the same self-defeating environment for his children and perpetuating the cycle of futility. Competition between the disadvantaged and the affluent is thus strangely analogous to the plots in

adventure movies in which a man finds himself in a primitive, alien country surrounded by hostile natives. To earn his right to live, he must win a local contest, competing with the strongest, most skilled and experienced natives. In the movies, the hero wins in spite of the odds; but in reality, in the current American contest for success, jobs, and health, the odds so defeat the disadvantaged competitor that he gives up before the contest begins.

The remainder of this brochure attempts to provide a basic orientation to the problems and possible solutions of overcoming disadvantagement. It hopefully will illustrate that no simple solution is available, but rather that many persons from many areas (business and industry, education, community agencies and others) need to cooperatively join in efforts to bring this portion of our population through the "golden door".

To be disadvantaged is to be different.

It is a relative term, but still very real. It refers to the minority at the bottom of the economic heap, whether they have TV sets or whether they lack shoes. Their jobs are the lowest on the job ladder, whether they are seasonal farm laborers or janitors.

But to be disadvantaged does not mean simply that the individual is suffering from a lack of money, although that is one of his problems. Rather, disadvantagement is a way of life, a multi-faceted pattern repeated by each generation, broken by too few.

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A deprived family transmits to its children a sense of helplessness in coping with the system or a suspicion of the practical value of school, in the same way that a middle-class child unconsciously absorbs from observing his family's daily life a sense of potential competence or a habit of reading books and magazines. The disadvantaged person is an almost inevitable result of the adverse experiences of his life, experiences never known by most Americans.

Self improvement is a fundamental concept to the American middle-class, many of whom may be led to the conclusion that a disadvantaged person's misfortune is his own fault. But the cumulative effects of deprivation trap him in a life style that prevents him from helping himself. He is handicapped medically, socially, educationally, or psychologically, as well as economically.

The handicaps begin before birth, with inadequate prenatal care and quite often birth complications. This child will probably suffer from malnutrition, if not real hunger, most of his life. This gives him a weak constitution and low resistance to disease, and later causes him to miss more school than other children. The lack of a balanced diet affects his nervous system and lessens his learning potential.

His father may abandon the family in frustration over mounting problems and an inability to shield his loved ones from the hard life he has known. Even if his father stays, his mother tries to get a job to boost their small income. He learns independence very early. The money doesn't go far enough--his mother had no one to teach her to budget or shop wisely. And neighborhood merchants often

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disadvantagement

take advantage of her inability to "shop around" by offering inferior goods or charging inflated prices. His way of life gives the disadvantaged child a feeling of inferiority which affects his behavior, his self-confidence, and his ambition, and consequently it affects the attitude of others toward him.

It is unlikely that either parent has finished high school. They are anxious for him to do well in school, but are not clear about how to help him. His teacher may not easily understand his accent and his colorful vocabulary, much of it slang. Perhaps he speaks English only as a second language, as in the case of the Spanish-American population of Florida, the Southwest, and New York City.

He does not have a quiet place to study--his large family is crowded into a small apartment or cabin. At night too many children in one bed means little rest for any of them and inattention in class the next day.

The material in his school books is strange to him. Dick and Jane have no relation to "real" life as he knows it. His teacher may expect him to be a dull student, which inhibits his performance further. The likelihood of nonpromotion is high.

He becomes unhappy and alienated. His self-image of failure is reinforced, and expectations for future success are diminished. School becomes a punishing experience and it is not surprising that he drops out as soon as he reaches the legal age.

With little education and an established pattern of failure, this handicapped youth turns to the job world. He is qualified only for menial jobs and is among the first to be laid off in labor cutbacks. Past experiences have taught him to expect only additional failure.

This negative attitude gives him low incentive and frequently contributes to personality conflict on the job. What his foreman sees as laziness is more likely a feeling of futility. He is caught in the interaction of poverty and unpreparedness

for jobs. The cycle is complete when he seeks reassurance and emotional security in marriage and has a child to repeat the pattern.

Disadvantagement is not a simple subject. The disadvantaged have long ranging and multiple problems. It follows that solutions are not as simple as finding the man a job. Effective programs should include remedial academic training, job skill training, and counseling. The first step toward solution of the problem is identifying the people to be reached.

Although there are many definitions of disadvantagement, for the present purpose it is appropriate to use the one established by federal manpower programs. A person is identified as disadvantaged if he is presently in an unsatisfactory economic situation (poor and without suitable employment) and if he also possesses a personal characteristic (lack of education, minority group membership, youth or advanced age, or a physical or mental handicap) which tends to hinder his ability to alter this unsatisfactory economic situation.

To explain further, a disadvantaged person is poor. The family income is below the poverty level established by federal standards, e.g., a farm family of 6 with annual net income less than $3,100, or non-farm, $4,400. Members of a family receiving cash welfare payments are also included.

The definition further requires that the individual be unemployed, underemployed, or hindered from seeking work. An example of the last category is a woman who would look for a job if she thought there would be someone to stay with her children.

If, in addition to the above two conditions, an individual possesses at least one of the following four characteristics, then he is competitively disadvantaged.

Lack of education. A school dropout is not likely to have the skills and basic education needed to get and hold a good job.

Minority group membership. Minority groups (e.g., the Irish, Orientals, and Jews) have traditionally encountered difficulties in becoming integral parts of this society. Other minorities which have just begun to join the mainstream of American life are still facing the same problems, and thus are less likely to be able to improve their conditions.

Age. Statistics indicate that individuals less than 22 or more than 45 years of age have greater difficulty becoming employed than do those in the 22 to 45 age group.

Handicapped. The physically, mentally, or otherwise handicapped person by definition has added difficulties in living, working, and finding a suitable job.

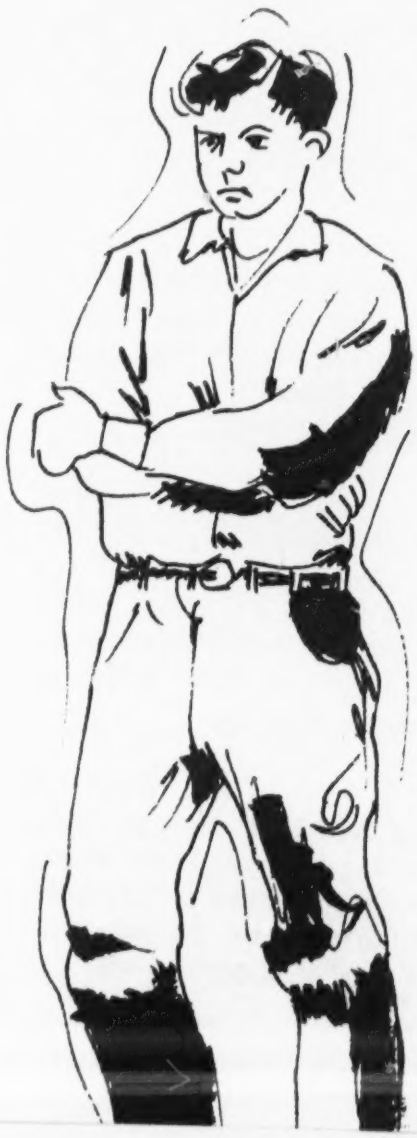
Because the majority of Americans are middle class and our society is geared to that life style, either the disadvantaged person must be changed to function more like that norm, or the society must be modified so that it recognizes his potential contributions and helps him to develop himself.

The goal is self-help

The high level of unemployment in the late 1950's and early 1960's coincided with the rapidly developing civil rights movement to focus America's attention on the plight of its poor and disadvantaged. A specific result of the new sensitivity to these old problems was the increased activity of the federal government in programs to enhance employment prospects and individual employability.

These programs were not the first federal manpower operations, but they marked a new approach in federal policy. The traditional approach had been to consider manpower as an economic resource, and to emphasize the development of scientific and technical work forces. Manpower legislation for the disadvantaged involved income maintenance programs, notably minimum wage protection, which did not attack the underlying causes of destitution and unemployment.

The new government effort has become one of halting the transmission of poverty from one generation to another. The fundamental theme is self-help. Thus, federal manpower policy has shifted from finding the best man for a job to equipping each man for a job. Legislation reflecting this point of view had beginnings early in this decade.



Current manpower policy can be traced to AREA REDEVELOPMENT ACT of 1961 (ARA), which included a program to reduce unemployment of the competitively disadvantaged.

That small part of ARA, training for the unemployed, was expanded to become the MANPOWER DEVELOPMENT AND TRAINING ACT of 1962. MDTA was aimed at unemployed family heads, but included a youth section which was enlarged in 1963 in response to the continued rise in youth unemployment.

Meanwhile, federal support for VOCATIONAL EDUCATION was quintupled. By 1964, the "war on poverty" had been declared.

A series of programs designated as the ECONOMIC OPPORTUNITY ACT of 1964 (EOA) and costing some $800 million constituted the initial attack. Included in this poverty package were the Neighborhood Youth Corps (NYC), the Job Corps, adult basic education, work experience programs, "work-off" programs for relief recipients, and the Community Action Program (CAP), which was the heart of the bill.

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federal support

AMENDMENTS to the EOA in 1965, 1966, and 1967 introduced Operation Mainstream, employment and training of chronically unemployed in community improvement projects; New Careers, training of disadvantaged adults for entry level jobs in critically undermanned human service fields with career advancement possibilities (e.g., nurse's aide or social work aide); and the Special Impact program for job development in concentrated areas of poverty.

At the same time, PREVIOUS MANPOWER PROGRAMS were expanding and adjusting to the new policy. The Vocational Rehabilitation Administration broadened its definition of handicapped to include the competitively disadvantaged (distinguished from those disadvantaged by physical handicaps), and its budget was tripled to handle the enlarged program. The United States Employment Service (USES) expanded to provide outreach, training, job development, and supportive services for the disadvantaged. (cf. Definitions below)

The 1961-1967 era was largely an experimental, trial-and-error time, producing confusion, duplication, gaps, and overlaps. But there were also a number of positive contributions. The experience provided valuable lessons, probed needs, and identified services which could best overcome the obstacles to employment and retention of the disadvantaged. Current federal policy, then, seeks to promote a comprehensive range of services:

1) <u>outreach</u> informs people of available services and programs and encourages use of them;

2) <u>adult basic education</u> remedies the lack or obsolescence of earlier schooling;

3) <u>entry level skill training</u> offers courses for individuals who are not prepared to take normally more advanced training;

4) <u>advanced skill training</u> provides upgrading and retraining and accepts graduates of lower training courses;

5) <u>training allowances</u> provide support and incentive for training, and residential facilities for youth whose home environments hinder successful rehabilitation;

6) work experience accustoms inexperienced individuals to the discipline of the work place;

7) job development solicits job openings suitable to the abilities of the disadvantaged job seeker;

8) relocation and transportation assistance brings the worker to the area;

9) supportive services including counseling and guidance, job coaching, health services, and day care for children of workers take care of personal problems that may hinder the worker's best performance;

10) creation of public service jobs provides work tailored to the needs of job seekers who are not absorbed in the competitive market.

These services are available through 34 federally supported programs which are related to job training and which reach the disadvantaged. A few of the programs offer no actual training, but provide valuable linking services; for example, the Neighborhood Facilities Program refers eligible people to employment opportunities or to the appropriate federal training center. In some other programs, such as the Migrant and Seasonal Farm Workers Program which also works to improve housing, day care and sanitation, job training is only one part of the total activity. In many, the job training is not operated directly by the federal agencies. In fact, nine of every ten dollars of the total manpower budget is spent on grants-in-aid and contracts for encouraging state and local governments or private groups to provide the training.

Each of the 34 is funded by (and in all but one case administered by) one or more of eight federal agencies--principally the Departments of Labor (DOL) and Health, Education, and Welfare (HEW), and the Office of Economic Opportunity (OEO), and additionally the Departments of Housing and Urban Development (HUD), Commerce, Justice, and Interior, and the Veterans' Administration.

Each of the federally supported training programs has its own funding procedures, offerings, and approach, aimed usually at broadly defined groups, generally the low income/low education sector. Projects include any one or combination of the services listed above as federal policy. Some form of trainee allowance, varying in amount and duration, is provided in all programs except Adult Basic Education and Vocational Education. Funding is always annual. Many projects require the local sponsor to put up matching funds of 10 to 50 per cent.

The information is incomplete, but evaluation thus far indicates that some programs are successful and that expansion is greatly needed--only some ten per cent of the eligibles are being reached by federal manpower programs. There is an urgent need for wider involvement and cooperative effort on the local level to reach the other ninety per cent in the interest of the individuals and the communities in which they live.

Self-help begins with learning how.

The quality of present occupational training will determine the nation's ability to meet future economic demands for highly skilled workers and social demands for preparing every individual for meaningful and rewarding employment. As major users of work skills, private employers can provide invaluable leadership in making vocational education in the public schools more relevant to manpower needs. Since they are also a major supplier of work skills, private business and industry are capable of exerting a great influence on the extent and effectiveness of job training today.

Training supplied by employers may be classed as "formal" or "informal". According to a survey conducted by the Department of Labor in 1962, 20% of U. S. companies, mostly the larger ones, give formal training (organized classes or apprenticeship programs). A 1963 DOL survey showed that 30% of the respondents learned their current jobs through formal training. Most adult workers in the study, however, said they had "just picked up" skills in the process of working. Informal training is largely a matter of experience on the job, of "learning the ropes".

Many companies are finding, however, that these casual arrangements are inadequate. A tight labor market for several years and a shortage of qualified personnel in specific jobs have demonstrated the need to take positive steps toward more and better job training.

In expanding their training efforts, many companies have directed their programs toward disadvantaged populations, a relatively undeveloped source of labor. They are encouraged in their plans by local governments, the National Alliance of Businessmen, and community agencies. They are also motivated by social unrest among deprived urban minorities. The federal government, in the form of the Task Force on Occupational Training in Industry, has also expressed support for private job training and has recommended financial reimbursement and technical assistance to such programs.

A study made by E. F. Shelley Associates in 1968 on hiring and training of minority group members provides information on the nature of many of these programs. In general, training programs that include work and skills orientation, counseling, and various other services appear to be the most successful. The most common program components of private industrial training for disadvantaged are similar to the comprehensive federal policy described in the preceding section.

Recruitment of minorities is primarily through state employment services. Outreach into the ghetto has some success, but often suffers from lack of credibility among ghetto residents.

Screening standards have been revised. A personal interview and subjective assessment of the recruit's attitude is the most important factor. Testing is used more for placement than for hiring. (Health standards have not been changed, and serve to eliminate many applicants.)

Training has been improved by use of local technical assistance available from schools, employer associations, government agencies, unions, and professional societies. Firms using similar skills have benefited from group arrangements. The success of remedial education depends on whether it is linked with the promise of an adequate job.

industrial efforts

Supportive services have consisted mainly of referral counseling. Most firms find effective the greater the use of available community resources in the form of clinics, psychological counseling, and legal aid. Company staff training has occasionally been required to combat resentment by co-workers. Supervisors need understanding of the disadvantaged person's special problems and behavior. Upgrading is only recently becoming common.

Some additional factors of success are the involvement and commitment of one or more high level corporate officials, labor union participation if possible, and the use of DOL funds.

Learning how involves working together.

A significant gap in communication between employers and the schools is finally being acknowledged in a number of communities throughout the nation. Businessmen have often complained that school job training is producing graduates which business and industry cannot use. The schools, in turn, have pointed out that business and industry have done little themselves to correct the situation. But after complaints are brought into the open, it is recognized that employers and the school have a mutual need to identify potential skills in the largest single undeveloped labor pool--disadvantaged youth--and to adapt them to changing situations. Moreover, the establishment of closer working relationships between employers and schools can produce outstanding advantages for both parties.

Research conducted by the University of Tennessee identified and studied 64 job training projects in which schools and business or industry cooperated. The schools involved report that they now have a more realistic and varied vocational curriculum; up-to-date courses, methods, materials, and facilities; and a greater flexibility in scheduling and policy. New opportunities to advertise the schools' other offerings result in increased use of their facilities.

The companies cite advantages of a formal training program as: (1) the supply of better trained employees, (2) an enhanced corporate image in the community, (3) improved relationships with dissident minorities, and (4) reduced turnover.

As a result of operating with the schools, companies have available to them trained teachers, classrooms, teaching materials, and professional counselors and administrators. They are better able to communicate their needs to the schools, and in return, they learn about other school programs that they can use in upgrading and

retraining present employees. Also, the schools prove to be the most effective recruiter for the program and thus for the company. Another advantage that accrues to everyone in the community is a better educated citizenry.

The evaluation also reveals some disadvantages, although it is significant that half of the companies and 64% of the schools could think of none. The school's most common complaint is simply "not enough." They have trouble persuading enough companies to offer enough positions for everyone who wants to participate in the program. Also mentioned is some conflict of the schools' aims with the companies' profit motive. A few schools report dissension among academic and vocational staff.

Companies frequently cite loss of production while trainees are new on the job, particularly with students in their first job; slowness of school administration; and ill will if more trainees complete the course than jobs are immediately available. A few firms experience resentment from regular employees.

The schools also encounter problems which by no means are disadvantages, but which should be considered for the benefit of the program. There is a need for:

- more supervisors and co-ordinators to handle program administration;
- more funds for staffing, instructional materials and facilities, and special services;
- more flexibility in scheduling and policy;
- more teachers sympathetic to disadvantaged problems;
- and more effective "sales" channels to reach employers with program ideas at the outset.

Problems with health, transportation, housing, attendance, law violation, communication with teachers, and other things are encountered by trainees. How well they are handled could determine the success of the project. In most cases the company or the school or both can counsel trainees, refer them to local social agencies or take positive action to reduce the problems. However, 41% of the schools and companies report no significant problems with trainees.

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Details of specific cooperative programs will be given elsewhere, so it may be helpful to note here some overall characteristics and trends of the programs in general. Forty-four per cent of the programs aid disadvantaged in-school youth, especially potential dropouts; the rest aim at other groups which are mainly adult--school dropouts, the hard-core unemployed, regular company employees, prospective employees (other than dropout or hard-core), and school counselors.

More than 70% of the jobs given to program participants are already available, but summer jobs are created for students and others are divided into parts more easily mastered by the new worker. An estimated 77% of all trainees who begin a program complete it. The reasons they most often give for leaving are loss of interest, personal problems, dismissal, and taking another job. Three-fourths of the participants of a program go on to become regular employees of the firm that trained them. The companies report a lower turnover rate among trainees in 47% of the programs. An additional 38% of the companies report no change in turnover rate, while only 15% of the firms experience higher turnover among program employees than among regular employees.

Fifty per cent of the programs receive all of their financial support from the company involved, 16% receive all funds from the schools, and 9% receive total support from the federal government. The rest are supported from combinations of the above and state and local governments. Other agencies also involved are, in order of frequency, the state employment agency, the NAB, the Urban League, the local welfare agency, federal anti-poverty agency, the Urban Coalition, and others.

The average number of participants in a given program is fifty. Twenty per cent involve ten or fewer trainees. The largest ones are cases of a firm "adopting" a school. Two-thirds of the programs reported on are training all participants for the same type of job; most of the others list two to four job titles. The average training period is 30 weeks. In most, the trainee spends four hours a day in class and four hours on the job, but some programs finish all of the classwork before beginning the job training or experience phase. Eighty per cent of the on-the-job training programs pay participants while they learn. Six per cent of the programs employ an advisory committee which typically consists of school administration and company personnel. Some include union representatives, teachers, and members of civic groups.

Most training programs for the disadvantaged are located in the nation's largest cities. Fifty per cent of the programs surveyed are conducted in cities with populations of 500,000 or more, and only seven per cent in towns of 50,000 or less. Cooperative programs are badly needed in smaller towns, however, to build opportunities in rural regions and thus avoid intensifying the urban problem with a flood of rural workers.

These cooperative efforts are generally quite new. Nearly half were less than one year in operation at the time of the survey (October 1968). Only 14% were five or more years old. It is a worthwhile comment on the success of cooperative job training that 97% of the programs expect to continue. And most of the 3% discontinuing are doing so only because the schools no longer need them.

And now . . .

If you still have unanswered questions in mind, then good, so do we all. This brochure has stated the problems, but only some of the possible solutions. Some of these problems exist in your community--some of the suggested solutions may well be appropriate to your unique situation. In other cases new solutions will be needed to match the special needs and resources which exist in a particular area.

Hopefully this brochure has stimulated you enough to take the next step of interacting with others to bring about some efforts to change the disadvantaged individual into a productive and successful member of our society. Hopefully, it has illustrated the benefits to be gained by cooperative activities. And hopefully it has illustrated that no simple solution is available, but rather that many persons from many areas, business and industry, education, community agencies and others, need to cooperatively join in efforts to bring the disadvantaged of our population through the "golden door".

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■a challenge

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July, 1969

This handbook was prepared pursuant to a contract with the Office of Education, U. S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official Office of Education position or policy.

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VT 012 259
Outlook for Computer Process Control:
Manpower Implications in Process Industries.

Bureau of Labor Statistics (DOL), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
Bull 1658
Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (L2.3:1658, $.70).
PUB DATE - 70 78p.

DESCRIPTORS - *ELECTRONIC CONTROL; *MASS PRODUCTION; AUTOMATION; INDUSTRIAL TECHNOLOGY; MEASUREMENT INSTRUMENTS; *MANPOWER NEEDS; *BLUE COLLAR OCCUPATIONS; EDUCATIONAL NEEDS; EMPLOYMENT TRENDS; *MANUFACTURING INDUSTRY; EMPLOYMENT PROBLEMS

ABSTRACT - To assess the manpower impact of computerized monitoring of production, this report analyzes computer operations in the following process industries: electric power, industrial chemicals, steel, petroleum refining, paper, and cement. The data come from field visits at 12 plants and informal interviews with government and union officials and experts from computer companies, and trade and technical journals provide secondary source materials. Although high initial costs previously have limited application of the equipment, the report predicts that the favorable cost/benefit ratio will result in significant growth by 1975. The report notes that employment and industrial relations problems have not materialized because the major effects have been in the required skill mix, with employee upgrading preventing mass layoffs. (BH)

VT 012 259

ED0 57254

OUTLOOK for COMPUTER PROCESS CONTROL

Bulletin 1658

U.S. DEPARTMENT OF LABOR
Bureau of Labor Statistics

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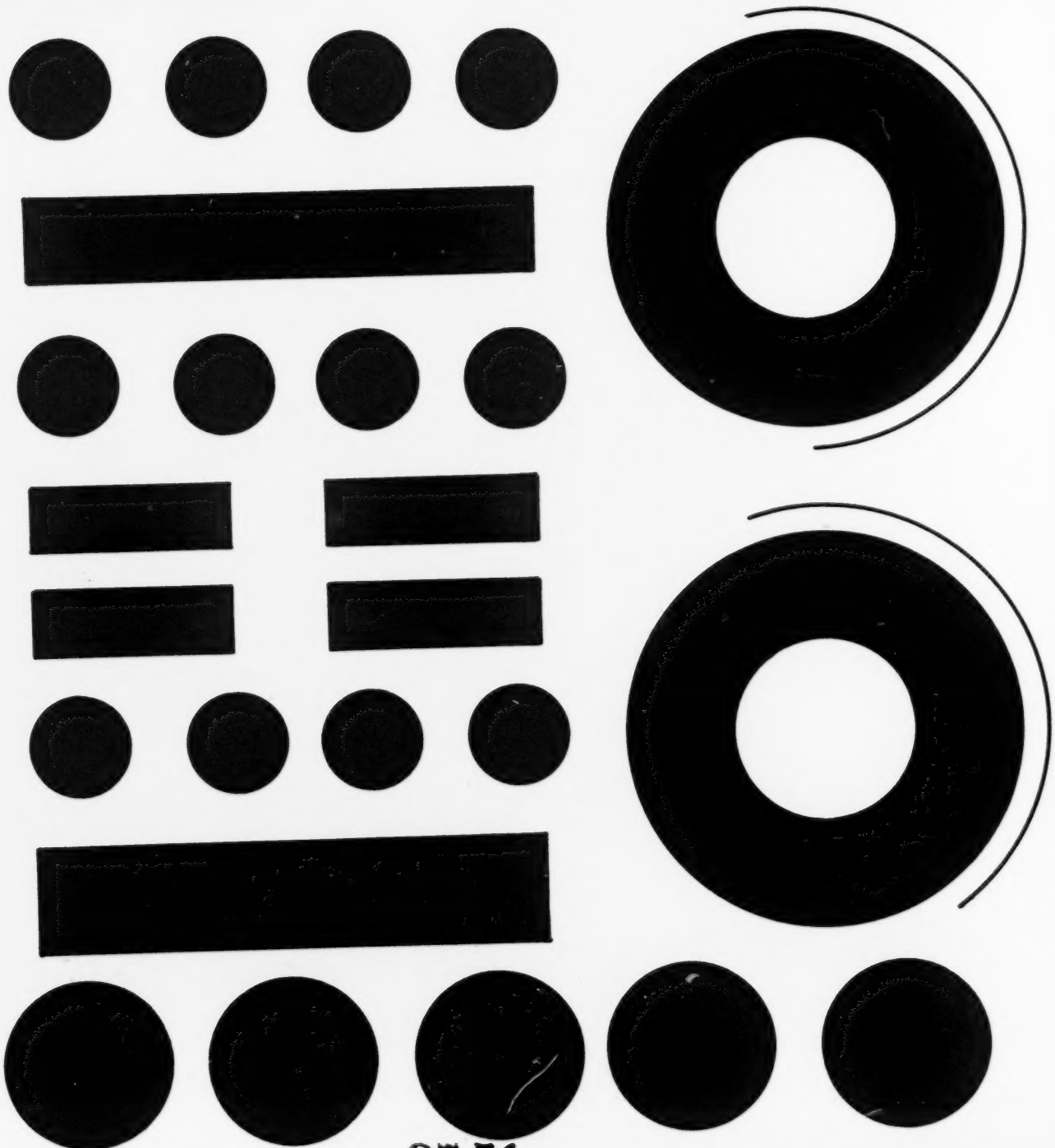

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OUTLOOK for COMPUTER PROCESS CONTROL:

Manpower Implications in Process Industries

Bulletin 1658

U.S. DEPARTMENT OF LABOR
George P. Shultz, Secretary

BUREAU OF LABOR STATISTICS
Geoffrey H. Moore, Commissioner

1970

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For Sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price 70 cents.

PREFACE

The Manpower Development and Training Act of 1962 directs the Secretary of Labor to establish techniques and methods for detecting in advance the potential manpower effect of automation, technological change, and other innovations that may result in changes in the structure of production. This type of early warning system could be of great assistance to management and union leaders, educators, government officials, economists, and others in planning policies to cushion the effects of change.

This bulletin focuses on effects of computer control of production processes. The number of installations of process computers is expected to increase substantially over the next decade, and this trend will have significant implications for productivity, occupational requirements, training programs, employment, and industrial relations in many major industries.

This study is one of a series prepared by the Bureau of Labor Statistics on technological developments and their effect in different industries. Our earlier studies include a survey on the use of computers for business data processing in government and industry, and a study that focused on the manpower implications of numerical control of machine tools in the metalworking industries. This bulletin provides firsthand information on manpower and economic implications of computer process control through study of applications in user plants.

The study focuses mainly on the effect of computer process control on employment, occupations, skills, training, and labor-management relations. Emphasis also is placed on the outlook for the future of this important innovation, the extent of its utilization by industry, and its impact on production and productivity. An account of the procedures that some companies used in planning and effecting changes may suggest to management and employee organizations measures that might be useful elsewhere.

The primary source of information presented in this study is data collected by BLS representatives during field visits to plants with significant applications of computer control. Additional information was obtained from discussions with union and government officials and experts employed by major manufacturers of computers and related equipment, and by reviewing secondary source materials, particularly trade and technical journals. The Bureau of Labor Statistics is grateful to the many individuals who provided useful information and reviewed the draft of this report. We also wish to thank American Cement Corporation, American Electric Power Service Corporation, American Oil Company, Bethlehem Steel Corporation, F.L. Smidth and Company, General Electric Company, International Business Machines Corporation, National Steel Corporation, and Westinghouse Electric Corporation for providing us with photographs.

This bulletin was prepared by Arthur Herman and Robert Ball assisted by Richard Lyon, under the direct supervision of Richard Riche. The study was made in the Office of Productivity, Technology, and Growth under the general direction of John J. Macut, Chief of the Division of Technological Studies. The report is part of the Bureau's research program on productivity and technological developments.

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CHAPTER 1. INTRODUCTION

One of the most significant technological developments in U.S. industry has been the introduction of electronic computers. Their phenomenal speed, remarkable versatility, and large storage capacity have transformed dramatically data processing operations in offices, banks, research laboratories, engineering firms, and other organizations, and have had widespread manpower effects. Although much research has been conducted into the employment effects of computers on office employees, relatively little is known about these effects on blue-collar and technical workers in factories and plants where computers now are being introduced to control production processes.

In an effort to assess the manpower impact of this emerging technology, this study undertakes to provide answers to the following questions: How extensively are process computers being used, and how many will be installed in the future? What factors, such as costs and benefits, govern the rate of adoption? What type of manpower is required to implement computer process control? How has employment been affected by this innovation? What changes in occupational requirements are brought about? What are the training needs for computer process control? What industrial relations problems arise?

This bulletin deals with the use of the computer as part of the operations of 12 plants in 6 process industries: electric power, industrial chemicals, steel, petroleum refining, paper, and cement.[1] Plants in these industries depend upon the monitoring of instrumentation and control devices to maintain process operations within precise limits. The computer represents a significant advance over conventional control devices since it can receive and store information about process conditions, perform calculations on this information to see if process conditions should be changed, and send out signals to process control equipment to make corrections when necessary.

The application of computers to industrial process control is growing rapidly in number and complexity. In many early installations, process computers were used primarily to accumulate and print out data on processing conditions, which assisted the operator to control the process using the same instrumentation and equipment as before. As experience broadened and technology improved, the operator increasingly was removed from direct involvement, and in the frequently used "closed-loop" mode of today, operators often only monitor process equipment while many control actions are taken automatically by the computer.

A significant segment of the Nation's work force is employed in process industries, which lead all other major industry groups in the application of process control computers. About 2 million workers, approximately 10 percent of the total work force in manufacturing, are employed in the six major process industries covered in this report. (See appendix B-1.) Thousands of employees in these industries work in production units with functions that have potential for computer control.

[1] Detailed information on scope and method is presented in appendix A.

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CHAPTER 2. SUMMARY

Current use of process control computers is limited but outlook is for significant growth. By mid-1968, nearly 1,700 process control computers were installed or on order for a variety of applications in process and other industries throughout the United States. Process control computers were introduced first in industries with processes that require precise control over many variables, such as in petroleum refining, steel, chemicals, and electric power. Functions of process computers include collecting and recording operating data, providing information to guide operators in controlling the process, warning in case of impending equipment malfunctions, and undertaking automatic control of parts of the production process. Specific applications observed at survey plants included control of ammonia and ethylene processes in chemical plants; catalytic reforming and crude distillation units in petroleum refineries; electric generating equipment in electric power plants; basic oxygen and hot strip mill operations in steel mills; a papermaking machine in a paper mill; and a rotary kiln in a cement plant. Applications of process computers already have spread to many other areas, including automobile manufacturing, mining, research, and medicine. Advances in process computer technology, such as more reliable and greater capacity computers, specialized computer languages, and standardized programs and process models should accelerate computer use, with an estimated 5,900 installations in the United States forecast by 1975.

Adoption was encouraged by favorable cost benefit balance. The costs of introducing process computers were considerable, ranging from $200,000 to $1,500,000 at survey plants. Costs depended upon numerous factors including the complexity of the process to be controlled, the type of computer to be used, the amount of auxiliary equipment purchased, the amount of new instrumentation added, and the degree of control desired.

The major management objectives for installing computers were to decrease raw material and fuel costs and to optimize or increase production. A reduction in manpower requirements was a goal in only a few plants, since labor costs in operations to be placed under computer control at most survey plants were reported to be a relatively small part of total production costs.

Most plants achieved the gains that they anticipated, and benefits were substantial in some cases. Gains were achieved by reducing fuel and raw material costs, increasing output, producing products of higher dollar value, reducing equipment and process malfunctions, and decreasing labor costs.

Implementing computer process control required a substantial amount of technical manpower for a period generally exceeding 2 years. At survey plants, engineers, technicians, and supervisors from the plant staff were assigned to project groups for the purpose of applying computer process control. Working closely with this staff were systems analysts, programers, and technicians from the firm supplying the computer. In general, the plant installing the computer provided staff who were familiar with the process, while the firm manufacturing the computer supplied personnel experienced in computer operations, systems capabilities, and programing. This computer group worked on the following four major phases of implementing computer process control: Feasibility study; planning, systems design, model building, and programing; installation; and operational and system refinement. A range of from 2 to 21 man-years were required to complete computer projects at individual survey plants.

Impact upon plant employment has been slight, although job duties of employees working with computer control have been altered significantly. Employment levels at survey plants were affected more by factors other than computer process control, such as shifts in market demand, changes in general economic conditions, and adoption of other technological changes. Within computerized units, relatively little employment change occurred because most operating crews already were at a minimum consistent with the safe operation of the process. Although the computer assumed some of the manual tasks of the operators, the crew size was generally maintained at its previous level to cope with emergencies that might arise or possible computer failure. Consequently, no layoffs occurred and only 20 employess at 2 of the 12 plants visited were displaced because of changes attributed to the computers. All of the displaced employees who were available for work were reassigned to other jobs within their plants at no reduction in wages.

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The most significant effect of the introduction of process computers was changes in job duties. A total of 352 workers, based on information from 11 survey plants, had their jobs modified. Operators in computerized units made up the largest occupational group affected. Job changes encompassed a shift from manual to automatic data logging and manipulation of dials, levers, and other control devices. Process operators generally were trained to operate the computer console and gained responsibility for the additional computer equipment installed in the control room.

Another occupational group significantly affected was instrument maintenance technicians. These employees generally were trained to service the additional process instrumentation needed for computer control and in some cases also were trained to provide normal service for the computer and auxiliary equipment.

The growing use of process computers probably will reinforce a number of divergent employment trends underway in the process industries. Employment of workers such as control and systems engineers, electronic and instrument technicians, and programers, is expected to increase. On the other hand, fewer operators may be needed.

Occupational structure generally was upgraded. A total of 68 new jobs were required to implement and operate process computer systems in survey plants. Systems analysis, programing, and related occupations made up about two-thirds of the new jobs; the other one-third consisted of supervisory, computer console operation, and instrument development, installation and maintenance occupations. Employees assigned to new computer-oriented jobs generally were upgraded in title and salary. Most of the new jobs were staffed by employees who already were working for the user firm in other positions and had a thorough knowledge of the process to be put under computer control.

A large majority of the employees selected for the new jobs were college graduates with a degree in engineering or a related field. A small number of new jobs, however, were staffed by personnel without college degrees. Particularly noteworthy were the upgrading of clerical workers and technicians to positions involving computer programing. A technical assistant at a petroleum refinery and a powerhouse fireman at a papermill, for example, received training and were advanced to computer programing positions with substantial increases in salary.

Fairly extensive training was needed to introduce and operate process control computers. A total of 638 survey plant employees, an average of 53 per plant including supervisors, engineers, programers, operators, and technicians, received classroom or on-the-job training. Computer manufacturers provided training both at the plant and at schools located elsewhere. This training, which consisted for the most part of formal classroom instruction in computer concepts and theory, and programing and maintenance techniques, was provided mainly to supervisors, process engineers, instrument engineers, and electronic and instrument technicians. The period of training depended greatly upon the type of instruction provided; the average time was almost 5 weeks per employee and ranged from a 4 hour onsite orientation session in computer basics and system usage, given to dispatchers in a steel plant, to a 1-year course combining onsite and offsite training in programing and computer technology provided to a programing maintenance technician in a chemical plant.

Process operators in computerized units received relatively short periods of onsite instruction, generally from plant engineers and supervisors. The training period for operators ranged from 4 to 120 hours; about two-thirds received 20 hours or less of formal training. Operator training consisted mainly of on-the-job sessions dealing with the operation of the computerized equipment, although some classroom training was given at a few plants. A small number of instrument maintenance technicians also received short periods of onsite training provided by user personnel.

The selection of persons to be trained for the new computer-related programing and maintenance jobs most often was determined by an individual's educational background, work experience, job performance, aptitude, and interest. Tests and interviews sometimes were used as a screening device. On the other hand, operators and supervisors working in the affected production unit when the computer was installed automatically received appropriate training.

Process computers were introduced in survey plants with a minimum of industrial relations problems. Special union-management negotiations or grievances related to the introduction of process computers were reported at only two plants. At a petroleum refinery, a union negotiated for jurisdiction over all computer maintenance and gained jurisdiction for repair of minor difficulties. At a power plant, a union unsuccessfully filed grievances about the normal abolition of two extra operator's jobs, claiming that operation of the computerized unit was unsafe without the extra workers.

Workers were represented by unions at 9 of the 12 plants. Collective bargaining agreements at survey plants generally contained provisions which protected workers against the adverse affects of technological change. These provisions covered advance notice to employees,

procedures for staffing new jobs, establishment of wage rates, eligibility for training, and procedures for layoffs, downgrading, and transfers.

Formal advance notice of impending installation of process computers was provided at most plants from 4 months to 2 years in advance of installation during meetings between company and union officials. In addition, employees learned about these pending changes through articles published in company newspapers and announcements placed on bulletin boards.

In general, local union officials interviewed felt that the introduction of process computers was part of the normal technological evolution in their industry and indicated that workers faced no serious problems in their adaption to computer control. Some officials were more concerned with the manpower impacts of technological changes other than computers. However, several union representatives foresaw that the potential of computers for adverse manpower effects would increase as the level and scope of their control is extended.

CHAPTER 3. ROLE OF THE COMPUTER IN PROCESS CONTROL

The electronic digital computer is the culmination of a series of major developments in process control allowing more automatic control of many different types of production processes. This chapter discusses the characteristics of computer process control and describes some of its technical forms.

Characteristics of Computer Control Systems

The adoption of electronic digital computers for process control is part of the evolutionary trend toward more continuous processing and less dependence on manual control in the process industries.

Prior to the introduction of the digital computer, equipment such as automatic controllers—which automatically make adjustments to keep process variables near preset values; automatic data loggers—which are connected directly to the process to provide a permanent record of operating conditions; and analog computers—which provide automatic control over a limited number of process variables, were in widespread use in the process industries.

As processes became more complex and instruments more numerous, operators frequently were inundated with large volumes of information. The number of instruments, the complexity of variable interactions, process time lags, and the short time allotted for analysis and decision making made it extremely difficult, even with analog computers and advanced intrumentation, to incorporate all the available information into accurate and consistent control decisions. These problems, in addition to anticipated economic gains, led to the application of digital computers to industrial processes.

One eminent authority summarizes the potential of electronic digital computers for process control in the following statement:

> Because of the key role of information in control. . . .the computer is a logical tool to be applied: the outstanding characteristic of a digital computer control system is the ability to acquire, assimilate, analyze, and disseminate large amounts of information with great speed, accuracy, and flexibility.[2]

Computers originally were developed for engineering and scientific calculations and later were adapted to business data processing and control functions. The development of industrial process control computers parallels that of scientific and business computers. Modern computers are in their "third generation;" the first used vacuum tubes, the second used transistors, and the third uses integrated circuits. Process control computers differ from business and scientific computers, however, in that they are smaller, less expensive, more rugged, and designed for trouble free operation under adverse conditions. Moreover, they are capable of receiving input directly from the process. They depend on a number of rapidly advancing technologies including electronics, data processing, control engineering, operations research, and systems engineering, and, therefore, require a great deal of advanced engineering and other skills for design, installation, programing, and maintenance.

Since 1958, when the first industrial control computer was introduced, the price and size of these machines have declined while their speed and reliability have increased. Recently, computer manufacturers introduced smaller and lower-priced models which increase the prospective number and type of control applications, since they can be used where large computers would be uneconomical.

In the most elementary control applications, the computer is not connected directly to the process and functions as an extension of instrumentation, collecting and recording data about the process which is entered manually and interpreted by the operator. In its more advanced functions, however, the control computer is connected directly to the process and is part of a total system of control. These advanced functions of computer control range from printing out explicit instructions for an operator to follow, to complete automatic control of the process.

Control computers are being applied to large sections of plants as well as unit operations such as catalytic cracking in petroleum refineries and hot strip mills in

[2] Emanuel S. Savas, *Computer Control of Industrial Processes* (New York: McGraw-Hill Book Company, 1965), p. 4.

steel plants. They may be used eventually in integrated, companywide control and information systems, in which economic decisionmaking as well as engineering factors would be considered in controlling production. When computers are linked together in a plantwide system of control, those computers at the top of this hierarchy determine the level of production of the computers controlling individual processes. They also coordinate many plant operations such as raw material requirements, maintenance of the size of inventory, scheduling of materials, future orders, and equipment capacity. For the first time, the problems of operating complicated and interrelated units and processes close to optimum production and integrating their operation with that of the entire plant can be resolved.

The components of a process control computer system indicated in chart 1 are basically the same as those of a business or scientific computer system: A memory unit in which data are stored; a control unit which directs computations and switching; an arithmetic unit which calculates; and input-output units which provide communication with the computer (such as typewriters, paper tape readers, manual keyboards, etc.). The control and arithmetic units sometimes are called the central processing unit.

Unlike a business and scientific computer system, however, a control computer system is connected directly to sensing devices which measure product qualities, raw material characteristics, temperatures, flows, pressures, and other process conditions. Various signal converters change the signals from these sensing devices into a digital form usable by the computer. Signals from the computer are often relayed through analog controllers to devices or positioners in the process. These control devices regulate the temperatures, flows, or other variables at the desired operating conditions. In another form of process control, called direct digital control (DDC), the analog controllers are omitted, and the computer is connected directly to the control devices or actuators.

1. Components of a process computer system, including main frame, disc memory, card punch and reader, printer, printout typewriters, and signal terminal cabinets.

The operator communicates with the computer through input-output equipment. He can supply information to the computer through pushbuttons, switches, knobs, typewriter keyboards, and punched paper tape or cards. The operator receives information from the computer by alarm buzzers, horns or lights, digital indicators, typewriter printouts, and video displays. However, he can bypass the computer entirely by taking direct readings from sensors and entering changes in the process through the analog controllers or by adjusting control devices manually.

Functions of the Computer

Of the 24 applications surveyed, 7 involved the simple form, called open-loop control, in which the computer monitors instruments, gathers data, makes calculations used by the operator in making control decisions, and activates audio or visual alarms in case of malfunctions. (See table 1.) Seventeen of the applications involved a more advanced form, referred to as closed-loop control, in which the computer calculates the exact control measures to be taken and performs the control automatically, in addition to performing open-loop functions.

To undertake these automatic closed-loop control functions, the computer is connected directly to process instruments; this procedure allows the computer to make control decisions and adjust controls automatically, thereby assuming some functions which previously were done by the operator. The interrelationship of the operator to the process and the computer in these two main categories of control is presented in chart 2.

Advanced Forms of Control

Optimizing control, used at all five survey chemical plants and petroleum refineries, is one of the most advanced forms of computer control. This form of control can incorporate the functions of a closed-loop

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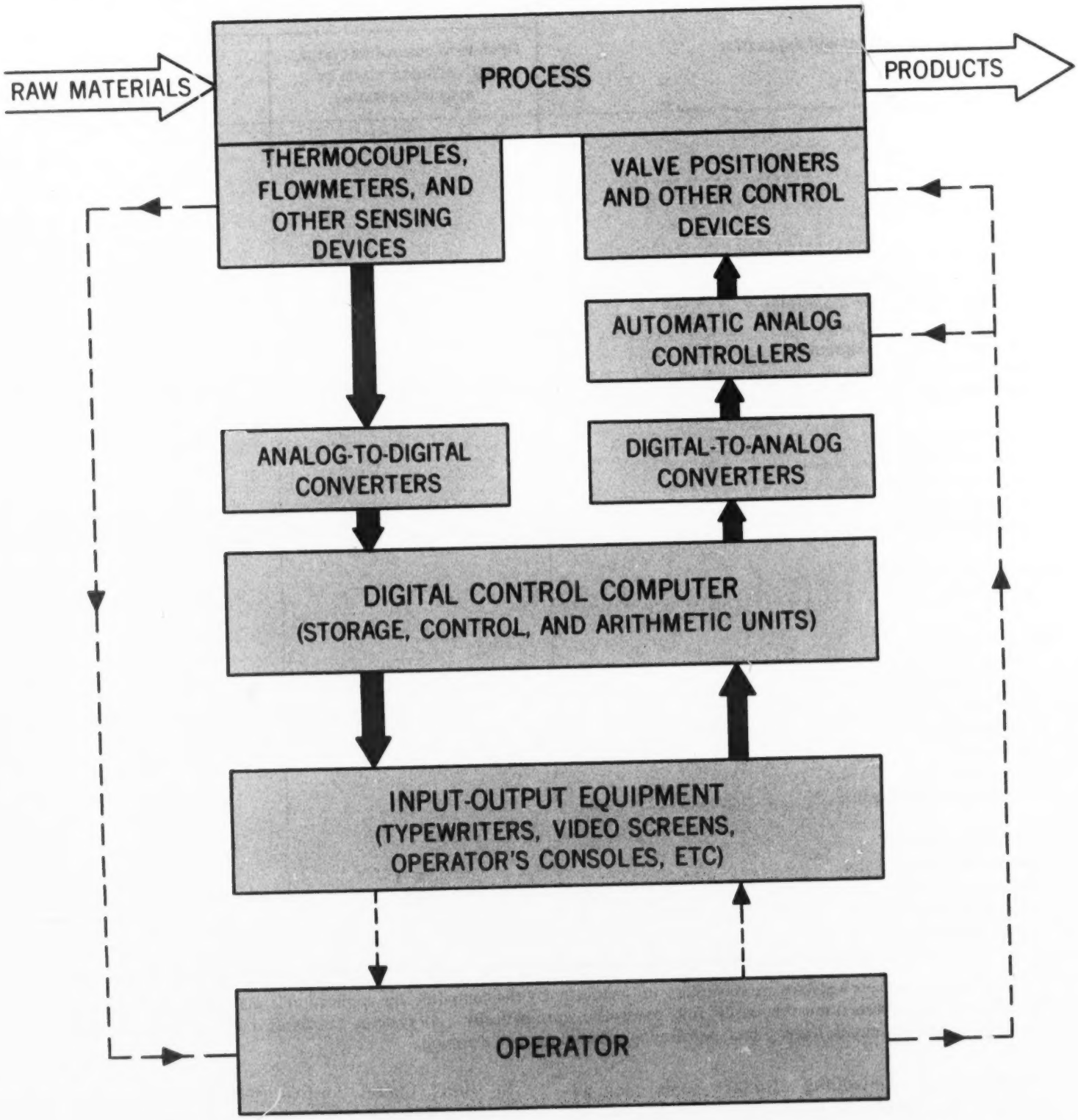
CHART 1. A DIGITAL COMPUTER CONTROL SYSTEM [1]



[1] ADAPTED FROM THOMAS M. STOUT, "MANPOWER IMPLICATIONS OF PROCESS CONTROL COMPUTERS IN THE PROCESS INDUSTRIES," THE OUTLOOK FOR TECHNOLOGICAL CHANGE AND EMPLOYMENT, VOL.1, TECHNOLOGY AND THE AMERICAN ECONOMY, THE NATIONAL COMMISSION ON TECHNOLOGY, AUTOMATION, AND ECONOMIC PROGRESS, FEBRUARY 1966, p. I-266.

NOTE: SOLID LINES INDICATE AUTOMATIC SIGNAL AND DATA TRANSMISSION; BROKEN LINES INDICATE MANUAL OPERATIONS.

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Table 1. Level of control for computer applications in survey plants

Plant and application	Highest level of control attained [1]	
	Open-loop control (monitor, log, calculate, alarm or instruct operator)	Closed-loop control (automatic control of variables)
Papermill:		
Paper machine		X
Chemical plants:		
Styrene plant	X	
Ethanolamine (DDC)		X
Corporate research laboratory		X
Multiplant production monitoring	X	
Plant control (4 computers)		X
Detergent (DDC) (2 computers)		X
Analytical laboratory	X	
Ammonia		X
Petroleum refineries:		
Crude distillation		X
Catalytic reforming		X
Polymerization		X
Catalytic cracking		X
Hydraulic cement plant:		
Rotary kiln		X
Steel mills:		
Multiplant fuel and utilities utilization and power prediction	X	
Basic oxygen furnace	X	
Hot strip mill		X
Tinning line		X
Tinning line		X
Continuous annealing line		X
Electric powerplants:		
Generating station	X	
Generating station	X	
Generating station		X
Generating station		X

[1] If one or more process variables are controlled automatically by the computer, the application is classified as a closed-loop system although the process is not necessarily fully controlled automatically. All systems so classified also perform functions such as monitoring instruments, logging data, performing calculations, and alarming.

system while also controlling ultimate goals such as production costs, yields, or efficiencies. The objective is to achieve the best or most desirable operating conditions. The computer takes into consideration all significant variables, calculates the best process conditions, and applies the integrated control changes necessary to achieve the most desirable performance. This type of control is particularly appropriate for continuous processes in which many variables interact simultaneously. Optimizing control, for example, can be used to achieve the most profitable product mix from a given input of raw materials.

In direct digital control (DDC), another advanced form of computer control studied at two survey plants, analog controllers and other equipment used in conventional control are eliminated, and the computer itself receives instrument signals and produces control signals which are sent directly to the process. An advantage of this system is that, for some types of installations, the cost of the computer control system can be offset by the elimination of conventional instruments and control equipment. A disadvantage, however, is the difficulty in reverting to manual control in case of computer malfunction.

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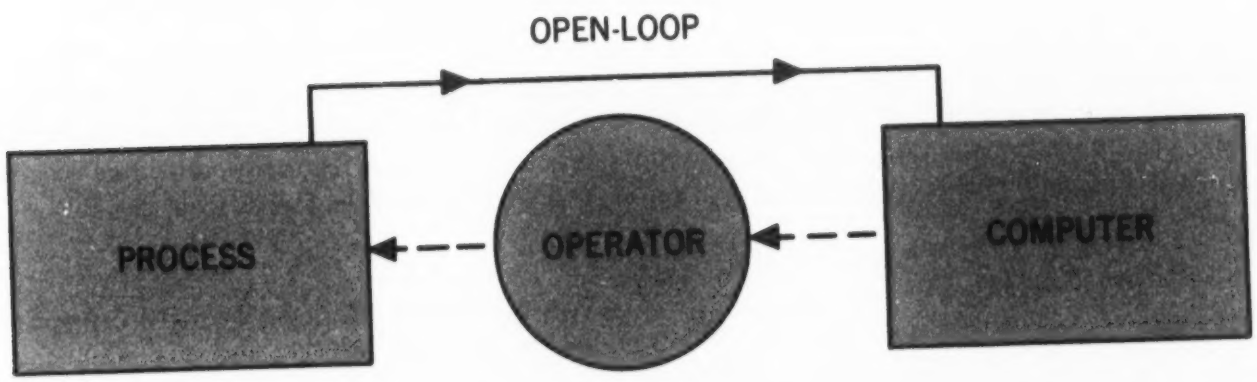
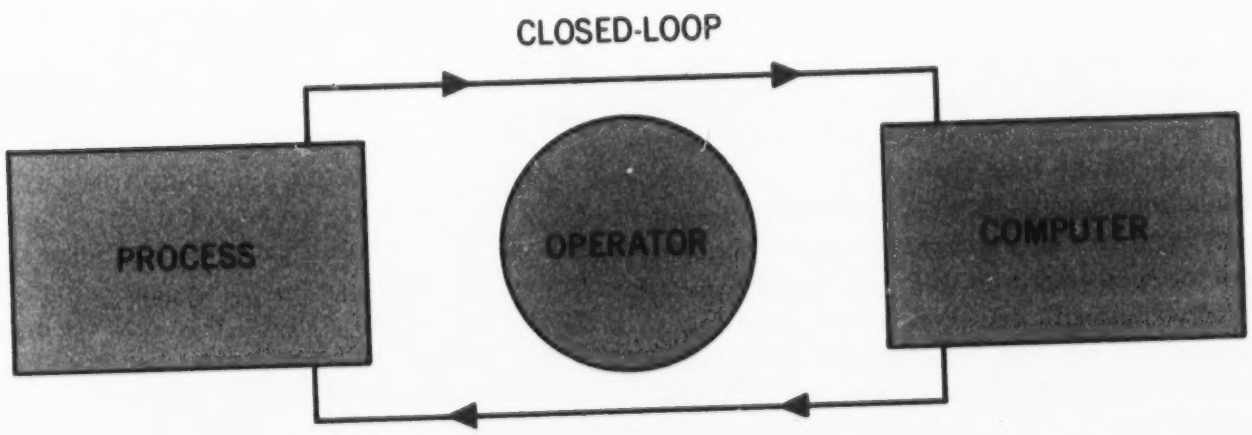
CHART 2. BASIC RELATIONSHIPS IN OPEN-LOOP AND CLOSED-LOOP CONTROL [1]



IN OPEN-LOOP CONTROL, THE COMPUTER RECEIVES INFORMATION ON PROCESS CONDITIONS DIRECTLY FROM PROCESS INSTRUMENTS. THE OPERATOR, HOWEVER, STILL INTERPRETS COMPUTER COMPUTATIONS AND UNDERTAKES CONTROL ACTIONS MANUALLY.



IN CLOSED-LOOP CONTROL, OPERATOR INTERVENTION THEORETICALLY IS ELIMINATED. THE COMPUTER RECEIVES INFORMATION DIRECTLY FROM THE PROCESS INSTRUMENTS, PERFORMS CALCULATIONS ON THE DATA, AND APPLIES THE RESULTING CONTROL DECISIONS AUTOMATICALLY THROUGH INSTRUMENTS TO PROCESS EQUIPMENT. HOWEVER, AN OPERATOR GENERALLY IS REQUIRED TO OVERSEE OPERATIONS AND TO MAKE SOME MANUAL ADJUSTMENTS, PARTICULARLY IN THE EVENT OF MALFUNCTIONS.

[1] ADAPTED FROM EMANUEL S. SAVAS, COMPUTER CONTROL OF INDUSTRIAL PROCESSES, NEW YORK: MCGRAW-HILL BOOK COMPANY, 1965, pp. 4-6.

NOTE: BROKEN LINES INDICATE MANUAL HANDLING OF INFORMATION; SOLID LINES AUTOMATIC TRANSMISSION.

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CHAPTER 4. STATUS AND APPLICATIONS OF PROCESS COMPUTERS

Process computers have been introduced gradually, but the outlook is for their more widespread adoption. This chapter presents information on extent of use and trends in installation, and includes examples of applications in survey plants.

Extent of Use

As of July 1968, at least 1,674 digital process computers were reported installed or on order in the United States; this figure is based on information contained in trade journals, technical publications, and survey field visits. The number installed in the U.S. accounts for more than 50 percent of the world total. (See chart 3.) Installations counted encompass all applications of process control computers, including those outside of process industries, and those that are used for applications other than for control of a production process.

The electric power industry, a process industry included in the study, is the leading user of process control computers in the United States, with 292 installed in this industry as of July 1968. Next in importance among major categories of users, as indicated in table 2, is aerospace with 252 installations; followed by discrete manufacturing industries with 178; and research, medicine, and education with 166 process computers. Industrial chemicals and iron and steel, two process industries also included in the study, reported 156 and 132 installations, respectively.

Trends in Installation

The first on-line application of a digital process computer was at an electric power generating station in March 1958. This application, however, involved calculating station efficiency rather than actual process control. The first on-line process computer application to incorporate a control function became operational in March 1959 at a catalytic polymerization unit in a petroleum refinery. Since early process computer systems were experimental and very costly, relatively few were reported installed until about 1963. As information about the technology and advantages of computer process control and more reliable equipment became more widely available, the number of installations expanded rapidly. From September 1963 to July 1968, digital process computers reported installed or on order in the United States increased more than sevenfold.

Applications of Process Control Computers in Plants Surveyed

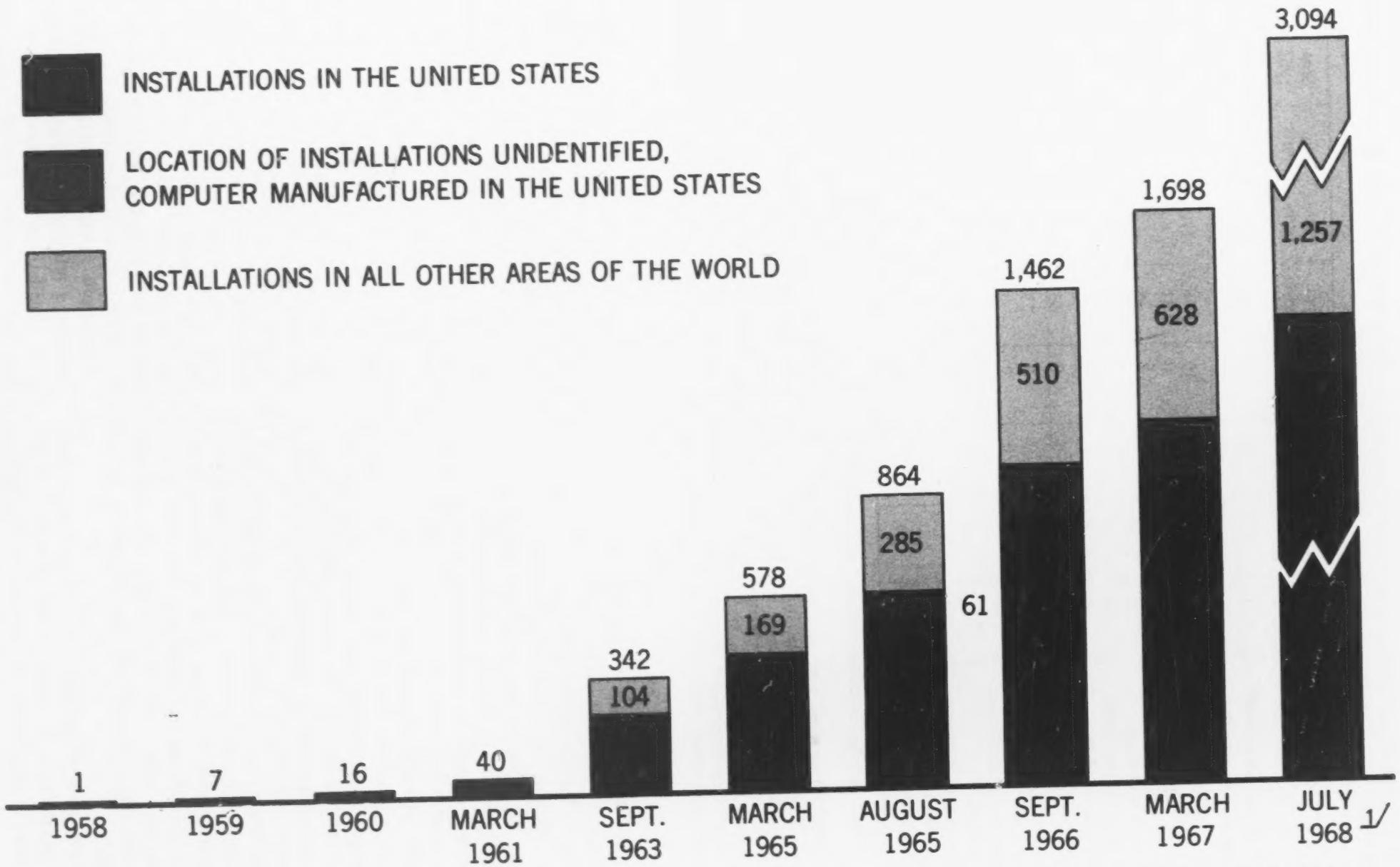
Electric power plants. All of the electric power plants visited for information were using process computers to assist in the operation of electric generating equipment. Computer functions included data logging, alarming, and equipment performance monitoring; these operations consisted of scanning numerous instrument readings, recording process information periodically, preparing performance reports, and alarming the operators when problems are sensed. (See table 3 for a list of applications in survey plants and appendix B-2 for distribution of computers by major applications in the six industries surveyed.)

At a survey electric power plant, for example, the computer logs all key variables and prints out a record of plant equipment performance, such as boiler efficiencies, heater and pump performance, and turbine operating ratios. The system is designed to discover malfunctions rapidly and can detect problems that, prior to computer control, might not have been observed until equipment failure.

Industrial chemical plants. A large chemical plant, whose major product is ethylene, uses a complex multicomputer system to provide operator guide control over almost all operations in the plant. The system monitors and collects data on over 1,500 plant variables, alarms in case of dangerous trends, and prepares calculations which are used to economically balance operating conditions.

Another computer system application is control of the operation of analytical instruments in production control laboratories. In this type of system, a computer is connected directly to chromatographs and other laboratory instruments, and replaces tedious manual operations by preparing results of chemical analysis almost instantaneously. In one survey chemical plant, for

CHART 3. NUMBER OF DIGITAL PROCESS COMPUTER INSTALLATIONS REPORTED IN THE U.S. AND THE WORLD, SELECTED PERIODS, 1958-68



1/ Includes computers installed and on order.

SOURCE: SEE TABLE 2.

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Table 2. Installations of digital process computers reported in the United States, by major categories of users, cumulative totals, 1958-68

Category	1958	1959	1960	Mar. 1961	Sept. 1963	Mar. 1965	Aug. 1965	Sept. 1966	Mar. 1967	July 1968 [1]
United States, total ..	1	7	15	37	238	409	518	792	907	1,674
Process industries studied ...	1	7	15	37	175	293	340	445	496	738
Electric power	1	1	1	10	78	110	130	169	171	292
Industrial chemicals	0	0	5	8	31	60	72	90	120	156
Iron and steel	0	1	3	9	24	62	69	102	104	132
Petroleum refining	0	5	6	10	29	36	43	51	68	110
Pulp, paper, and board ..	0	0	0	0	10	17	17	19	19	28
Hydraulic cement	0	0	0	0	3	8	9	14	14	20
Other industry groups	0	0	0	0	63	116	178	347	411	936
Aerospace	0	0	0	0	13	15	23	101	125	252
Discrete manufacturing..	0	0	0	0	8	24	34	56	60	178
Research, medicine, and education	0	0	0	0	19	26	45	69	72	166
Oil and natural gas production and pipelining..	0	0	0	0	9	20	36	53	69	118
Miscellaneous	0	0	0	0	14	31	40	68	85	222

[1] Total includes computers installed and on order.

SOURCE: Basic data used to compile the totals were obtained from *Control Engineering*, "Process Computer Scorecards," 1961-68. Dates used in the table, from March 1961 to July 1968, correspond to the dates of these "Scorecards." The *Control Engineering* data were supplemented and adjusted by using additional information from *Oil and Gas Journal*, "Computer Control in the Oil Industry," 1963-67; "Westinghouse, Installation List of Process Computers," 1966; *Iron and Steel Engineer*, "Process Computers—Their Place in the Steel Industry," 1965; "Manpower Implications of Process Control Computers in the Process Industries," a study prepared for the National Commission on Technology, Automation and Economic Progress, 1966; and information from survey field visits. (For more detail about most of these sources, see the selected annotated bibliography p. 63.)

example, such a system is leading to better control over operations in the total plant. Another survey plant is planning to install a similar system with the addition of remote stations connected to instruments in operating units in the plant so that results of analysis could be used immediately to adjust operating processes.

Control of ammonia production was another important computer task illustrated at a survey plant, where a computer provided closed-loop control over key portions of the process. The computer is used to control variables such as temperatures, pressures, flow rates, and gas and catalyst activity. The system also adjusts instruments to compensate for changes in weather and keeps the process operating economically.

Direct digital control (DDC) was in use at two chemical plants visited. In one facility, this advanced type of computer control was being used on an experimental basis for production of a detergent. The other facility, however, was using DDC for a larger operating unit. Both users reported significant improvement in control with DDC.

Iron and steel. Computers have been applied to many major operations in the cycle of making steel, from the initial steps of preparation of raw materials for the blast furnace to the final production of finished steel shapes. The use of process control computers in the basic oxygen steelmaking process, for example, is one of the most important applications. At a survey steel plant, the function of a computer system which is not connected directly to the process is to calculate and transmit to the furnace operator instructions about how much scrap, molten iron, flux, and oxygen to use for a specific heat.

Another important application, control of significant operations at a hot strip mill, was observed at a survey plant. Functions of the computer system included tracking the location of steel slabs being processed through the mill, controlling the rate of processing and the temperature and dimensions of the slabs, and collecting and recording production data. A different survey plant was using computers for control of electrolytic tinning lines. The system at this plant regulates the amount of tin deposited, based upon manually entered order data, and provides complete records for production, accounting, and quality control purposes.

Petroleum refining. Computer control of catalytic cracking, a refining operation that has numerous computer installations, was observed at one survey plant. The computer system is used to regulate temperature

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Table 3. Computer applications in survey plants

Industry	Applications	Number of computer systems in survey
Electric power	Steam electric generating station	4
Industrial chemicals	Styrene process	1
	Ethanolamine process	1
	Ammonia process	1
	Multiplant production monitoring	1
	Control of all major processes in plant including manufacture of ethylene, benzene, other petrochemicals; steam generation; and plant utilities	[1]1
	Soft detergent process	[2]1
	Laboratory instruments (chromatographs) in production laboratory	1
	Laboratory instruments (chromatographs) in research laboratory	1
Iron and steel	Fuel and utilities utilization and power demand	1
	Basic oxygen furnace	1
	Hot strip mill	1
	Continuous annealing line	1
	Electrolytic tinning line	2
Petroleum refining	Crude distillation process	1
	Catalytic reforming process	1
	Polymerization process	1
	Catalytic cracking process	1
Pulp, paper, and board	Papermaking machine	1
Hydraulic cement rotary kiln	Rotary kiln	1

[1] 4 computers.
[2] 2 computers.

SOURCE: Plant visits.

and flow rates, thereby allowing the unit to operate closer to equipment limits. In addition, the system logs automatically 130 instrument readings per minute, a task that would be impossible to do manually.

Another primary application observed at a survey plant was control of a crude distillation unit. The computer, by means of an optimizing program, adjusts process instruments automatically to increase the proportion of high valued products in relation to low valued products, taking into account variables such as changes in raw materials, process balance, and external temperature. The system also logs data and alarms operators in case of malfunctions.

Pulp, paper and board. Control over a papermaking machine, the major computer application in the paper industry, was observed at a paper mill included in the study. The computer control system informs the crew when selected process variables are out of limits, and automatically adjusts the settings of instruments for changes in paper grade, weights, and moisture content. Both operator guide functions and automatic control functions are involved.

Hydraulic cement industry. Kiln control, which consists of the operation of a long rotating tube in which the blended raw materials for the manufacture of cement are heated, the most widely used computer application in the cement industry, was illustrated at a survey plant. The computer at this plant maintains automatic control over several key kiln variables, including kiln speed, and logs separate readings from 58 instruments in the kiln; over 500 readings are made every minute.

Application of Process Computers in Industries not Studied

Oil field control is a major computer application in the production of petroleum. A computer, linked to a large number of operating oil wells in a field, provides automatic pumping, sampling, and monitoring; prepares production reports; and indicates problem wells. Similar computer control systems are in use in natural gas fields.

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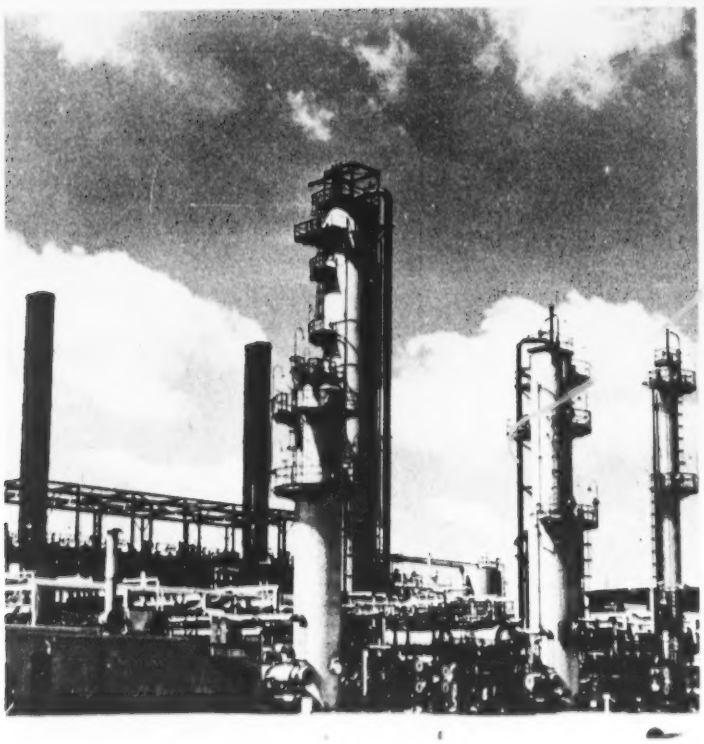
Some Typical Control Rooms and Units Under Computer Control in Industries Studies



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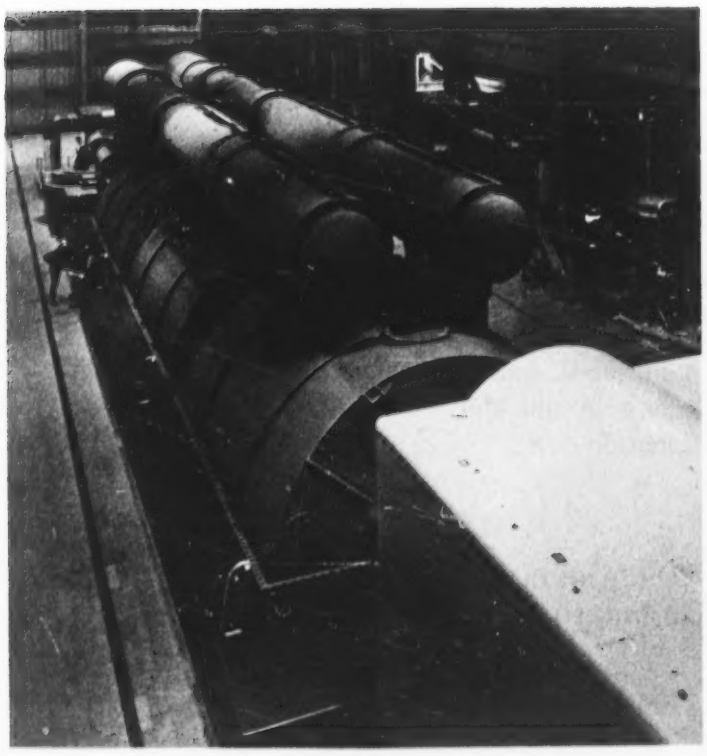
3

Catalytic Reformer in a Petroleum Refinery



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Turbine – Generator in Electric Generating Station

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Some Typical Control Rooms and Units Under Computer Control in Industries Studies

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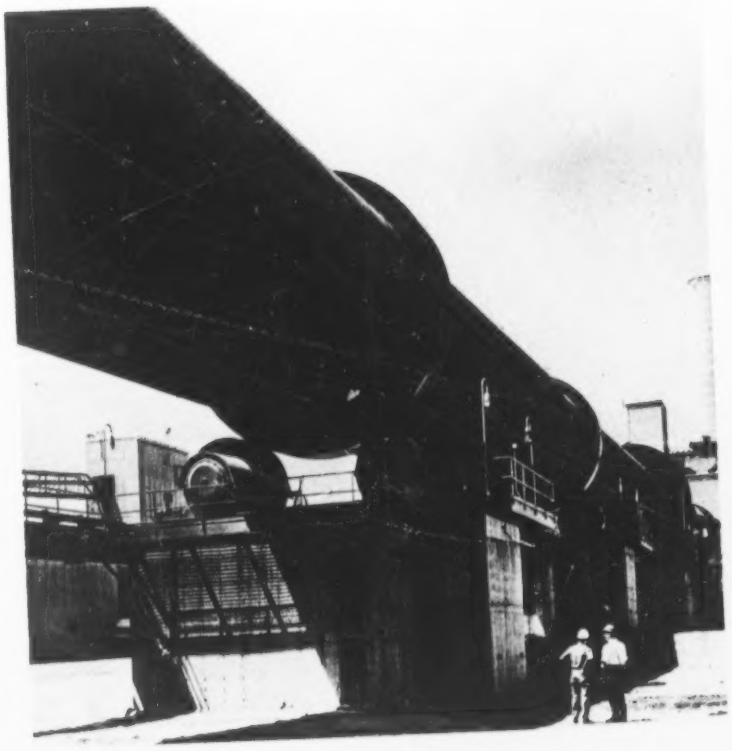
Basic Oxygen Furnace in Steel Plant



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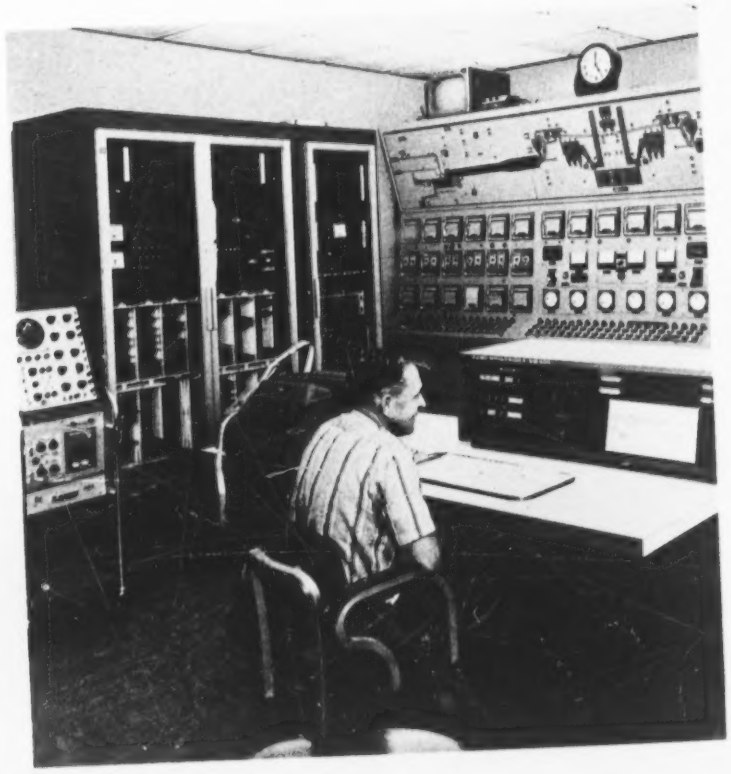

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Kiln in Cement Plant

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In the gas transmission industry, the key computer application is pipeline control.

The automobile industry is using an increasing number of process computers for applications such as quality control and parts matching on auto assembly lines, testing of subassemblies and completed autos, and control over drafting machines. Some computer applications in other durable goods industries are control over the manufacture of electronic components and the operation of banks of machine tools.

Process computers are used in the aerospace industry for applications such as missile launch and tracking, simulation studies of spacecraft and airplane operation, and static firing tests of jet and rocket engines.

Other computer applications include patient monitoring in hospitals; control of aluminum and copper refining operations and aluminum rolling mills; control over dyeing processes in the textile industry; traffic control; railroad car classification; and control of bakeries, warehouses, and mining operations.

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CHAPTER 5. COSTS AND BENEFITS OF INSTALLING PROCESS CONTROL COMPUTERS

Management's decisions to adopt the new technology are affected greatly by the cost of installing process computer systems and the expected benefits to be gained. This chapter discusses the costs, benefits, and problems reported at survey plants.

Costs at Survey Plants

The computer and auxiliary equipment in survey plants were purchased, leased, or rented from system vendors. Costs of process computer systems at survey plants ranged from $200,000 to $1,500,000. (See tables 4 and 5 which provide information about the costs of purchasing, leasing, or renting selected process computers and other system costs.) One important factor determining the amount expended was the stage of development of the innovation. Early, pioneering installations had high costs due to the experimental nature of the technology. Time and technical effort involved tended to be greater than comparable, more recent installations. Numerous equipment and programing problems occurred with early installations. Some of the costs of the earlier projects, however, were underwritten by computer vendors in an effort to gain experience with process control computers and to gain a foothold in the industry.

A second factor affecting costs was the complexity of the installation. A system designed specifically for control over a small portion of a simple process, for example, especially one superimposed upon a preexisting, highly instrumented analog control system, cost much less than a highly complex, multicomputer system designed specifically for complete control over a newly-built major facility.

The degree of control of the system was a third determinant of its cost. Installations that were designed for fairly simple control functions, such as data logging, usually required less time, effort, and instrumentation than more highly sophisticated computer operations, such as automatic control, and therefore cost less to implement.

Replacement systems tended to be lower in cost than original installations largely because some of the programing and plant instrumentation could be carried over to the new system. Also, the cost of the replacement computer usually was appreciably less than the original unit, despite its increased speed, computing power, and reliability.

Objectives

The companies surveyed reported a number of major objectives for introducing computer process control. (See table 6.) Cost savings through lower raw material and fuel requirements was the most frequently cited objective, followed by the desire to optimize product mix and yield to produce a combination of products with the greatest market value. Other goals included increased production, expanded process knowledge, improved operating efficiency, and more experience in computer process control. Lowering manpower costs was an objective in only 4 of 12 survey plants, primarily because labor costs in units to be placed under computer control made up a relatively small proportion of total production costs at most survey plants. (However, in several instances, plants reported increased productivity, i.e., decreased unit labor requirements, as a result of increased output with the same size labor force.)

Benefits of Computer Control

Process control computers brought about significant operating improvements; the result was that the objectives cited in the preceding section generally were realized. The nature and extent of these improvements were influenced by factors such as market demand, degree of computer control, efficiency of preexisting conventional controls, and nature of the process controlled. Since these factors may vary over time and between and within plants, the case examples of achievements presented below should be considered as illustrative only. They could be significantly different in plants not surveyed or in survey plants at different times.

Examples of achievements at survey plants. Although computer installations at several survey plants were not fully operational, significant operating economies and

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Table 4. Costs of selected process computer systems in survey plants with purchased computers

Type of application	Total cost	Computer and auxiliary equipment[1]		Programing and systems analysis[2]		Installation and additional instrumentation[3]		Training[4]	
		Amount	Percent of total system cost	Amount	Percent of total system cost	Amount	Percent of total system cost	Amount	Percent of total system cost
Multicomputer system controlling all major processes in large chemical plant	$1,500,000	$1,125,000	75.0	[5]$225,000	15.0	$150,000	10.0	-	-
Complex system for control of an electric generating station	850,000	400,000	47.1	190,000	22.4	250,000	29.4	10,000	1.2
Operator guide control over a major process in a steel plant	810,000	290,000	35.8	300,000	37.0	200,000	24.7	20,000	2.5
Operator guide control of electric generating station	720,000	300,000	41.7	140,000	19.4	275,000	38.2	5,000	.7
Direct digital control of a chemical process	500,000	275,000	55.0	75,000	15.0	150,000	30.0	-	-
Control over a key portion of a chemical process (early installation)	453,000	258,000	57.0	75,000	16.6	110,000	24.3	10,000	2.2
Control of analytical instruments in chemical plant laboratory	235,290	160,000	68.0	58,820	25.0	16,470	7.0	-	-
Experimental direct digital control system using 2 computers in a chemical plant	222,000	157,000	70.7	50,000	22.5	10,000	4.5	5,000	2.3

1 Central processor, auxiliary memory, analog/digital signal converters, and input/output equipment such as operator console, typewriters, and tape equipment.
2 Analysis of process, preparation of process model, programing for process control, and system operation.
3 New instrumentation needed for process control installation of computer equipment, and instrumentation including site preparation.
4 Instructing employees in programing, computer technology, maintenance, and system operation.
5 Includes training.

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Table 5. Costs of selected process computer systems in survey plants with rented or leased computers

Type of application[1]	Rental or lease costs for computer and auxiliary equipment[2]	Programing and systems analysis[3]	Installation and additional instrumentation[4]	Training[5]
Control over key process in a paper plant	$14,000/mo.	$150,000	$200,000	$100,000
Control of a petroleum refining process (early installation)	7,500/mo.	250,000	100,000	2,000
Control over a complex petroleum refining process	7,500/mo.	250,000	200,000	5,000
Control over a key process in a paper plant (replacement computer)	7,000/mo.	80,000	30,000	30,000
Control over major portions of a cement manufacturing process	5,750/mo.	170,000	65,000	-

1 These applications involve varying levels of automatic control.
2 Rental or lease costs usually include costs of maintenance.
3 Analysis of process, preparation of process model, programing for process control, and system operation.
4 New instrumentation needed for process control, installation of computer equipment, and instrumentation including site preparation.
5 Instructing employees in programing, computer technology, maintenance, and system operation.

Table 6. Management's objectives in introducing computer process control

Objective	Number of times mentioned at survey plant[1]
Reduce raw material and fuel costs	9
Optimize production	6
Increase production	5
Increase process knowledge	4
Improve plant or unit operating efficiency	4
Improve product quality	4
Gain experience with computer process control	4
Reduce manpower requirements	4
Provide better or more rapid analysis	3
Increase equipment availability	2
Other[2]	5

1 Several objectives generally were given at each survey plant.
2 These objectives include the desire to improve data gathering procedures, reduce equipment damage, improve plant safety, achieve process stability, and increase information available to operators.

other benefits subject to measurement were reported at most plants.

Fuel and raw material savings were achieved at seven plants and anticipated at another; for example:

A chemical plant producing ammonia reduced raw material and fuel costs by 2 percent each.

A steel plant using process computers to optimize and predict fuel and power needs lowered fuel oil requirements by 4 percent and purchased power consumption by 6 percent.

At another steel plant, computer control of basic oxygen furnace operations for charge calculations, analysis, and data logging lowered oxygen costs by 5 percent, since fewer adjustments or corrections to the heats were needed.

Labor savings were achieved at three plants and expected at two others:

At a large petrochemical complex, a process control computer used for chemical anaylysis in an analytical laboratory brought about savings of $20,000 a year and displaced seven laboratory analysts due to more rapid and more accurate analysis of samples.

At a steel plant, savings from computer control of a hot strip mill resulted, in part, from lower unit labor requirements as throughput tonnage increased while the work staff increased proportionately much less. The higher throughput rate was brought about by faster slab processing and the ability to more quickly reset the mill for processing different steel products, enabling an extra 20 to 30 slabs to be produced per shift.

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At the steel mill with the computer controlled basic oxygen furnace, labor requirements were lower by 5 percent because fewer manual operations were needed.

Production increased at 5 plants and was expected to increase at two others, for example:

At a paper plant, use of computer control and extensive new instrumentation on a paper machine reduced grade change time by 20 percent, increased speed by 15 percent, and improved machine efficiency 2 percent for a net increase in production of 19 percent.

A petroleum refinery achieved a 3 percent increase in the production of a polymerization unit with no increase in the amount of raw material used.

At a cement plant, computer control of a rotary kiln greatly reduced fluctuations from desired values and resulted in a more uniform product and 10 to 13 percent greater output.

Savings from computer control were quite substantial in some cases:

In a large new chemical plant, savings were estimated to be about $400,000 annually, based on comparison with an equivalent plant without computer control. Reduction in initial staffing saved $224,000, process improvements due to quicker access to data saved $120,000, and increased engineer and technician productivity saved $56,000.

At a petroleum refinery, the computer adjusts the control devices to compensate for sudden changes in the process more rapidly than was possible under manual control. Major sources of savings were higher yields of more valuable products and lower raw material and fuel costs. Another saving source was reduced maintenance costs, since the computer alerts personnel to conditions that could result in operating problems or malfunctions. In general, the process operated closer to theoretical optimum levels than under conventional control, and product specifications were met more consistently. Net annual savings were estimated at about $100,000 per computer.

In some cases achievements could not be measured precisely:

At a steel plant, the computer system used in a hot strip mill made possible more precise and more consistent control of mill operations, resulting in improved metallurgical and dimensional uniformity, fewer rejects, and higher quality end-products.

At an electric generating station, operating savings as a result of computer control were nebulous. Benefits such as improved engineering knowledge of the steam power-plant cycle, more accurate and up-to-date records, and better data to guide the operator in controlling the plant could not be measured in dollar terms.

At an electric generating station, temperatures and pressures were allowed to run slightly higher when using the computer system for monitoring the process. This permitted operating boilers and generators at the upper limit of capacity and, in effect, increased capacity.

In many of the installations, unanticipated benefits resulted from the introduction of a computer control system:

In a paper plant, the computer control system helped engineers to track down process and instrument problems by pinpointing the malfunction and defining it as one of production or instrument performance.

At a steel mill, use of computers on tinning lines improved quality of finished product by a greater degree than anticipated.

At a cement plant, improvement in the performance of the kiln operators was an unexpected benefit. During computer control, the kiln speed increased from the usual rate of 70 to 90 revolutions per hour. By working under these conditions, the kiln operators gained confidence in themselves and the equipment so that even when the computer was not controlling the process, they were able to operate the kiln at the higher speed.

In an electric generating station, engineers involved with applying computer control acquired additional knowledge about general plant engineering and operating conditions, control mathematics, computer maintenance, and trouble-shooting.

In another electric generating station, data quality and alarm system reliability were higher than anticipated, and the computer proved useful to laboratory technicians for precision testing and special analysis.

Problems at Survey Plants

Almost every installation reported some type of equipment malfunction, but usually these problems were

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relatively minor, such as an output typewriter not operating properly. The less frequent serious problems resulted from defective and unreliable instruments and computer components. A problem found in a number of early installations was the commercial unavailability of specialized instruments that were needed for computer control. Some of these devices, therefore, had to be designed individually and custom made. At a steel mill, for example, a special gage to measure continuously the hardness of steel strip had to be developed before the continuous annealing line operations could be controlled by computer.

The kinds of equipment problems experienced by survey plants are illustrated by the following examples.

At a pioneering installation in a petroleum refinery, a substantial amount of instrumentation was found to be unsuitable for computer control. All of this instrumentation had to be replaced. Morever, numerous failures of computer components caused complete, but temporary, shutdown of the computer control system. Satisfactory operation was attained only after much repair work by the computer manufacturer.

A chemical plant that had installed a multicomputer system also reported poor equipment reliability, especially during the first year of operation. Problems were reported with components such as computer air conditioners, magnetic tape circuitry, drum memory circuitry, input/output equipment, paper tape reader, and typewriters. Many of the problems with this installation were attributed to the early state of technology, since the system was designed around early model computers. Plans are to replace the present computers with more advanced and reliable equipment.

Programing difficulties were reported at a large number of survey projects. Many of these problems were due to insufficient technical knowledge of the process to be placed under computer control. Since many of the processes involved were very complex, programing effort was extensive. Moreover, even when the technical aspects of the process were understood, the problem of translating this knowledge into a working set of instructions for the computer had to be resolved. In some early installations, the vendor lacked sufficient technical knowledge of the process, and the user had to perform detailed investigations of the process to obtain suitable data for programing. At a steel mill, where a computer was installed to control a basic oxygen furnace, programing difficulties were reported and some aspects of the programing, which were the responsibility of the vendor, had to be assumed by user staff.

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CHAPTER 6. MANPOWER FOR PLANNING AND IMPLEMENTING COMPUTER PROCESS CONTROL

Installation of computer process control required a large amount of technical, administrative, and manpower effort over a period generally exceeding 2 years and usually required considerable participation of vendor staff. This chapter discusses the characteristics of the project group, the manpower required by major phases of implementation, and the significance of prior EDP experience.

Characteristics and Function of the Project Group

Composition. Installation of computers at survey plants usually required considerable technical staff work. A project group consisting of managers, engineers, programers, and technicians was set up at each plant to plan and implement the installations. This group consisted of joint user and vendor staff for most installations. However, for a few projects, technical assistance was acquired from additional sources such as an outside consultant or contractor. The number of man-years of technical effort involved in implementing computer systems ranged from less than 2 for a relatively simple project involving replacement of an existing computer by a more powerful unit, to about 21 for a complicated electric generating application. (See table 7.)

User firms usually supplied the technical staff who knew the process, and the computer manufacturer usually supplied the personnel familiar with computer equipment operation, system capabilities, and programing. User technical staff assigned to the project group included managers, unit supervisors, process engineers, chemical engineers, electrical engineers, instrument engineers, and instrument technicians. These employees usually were drawn from process control and instrumentation departments at the plant level, and research and engineering departments at the corporate level. The computer vendor assigned systems engineers, statisticians, mathematicians, computer engineers, computer technicians, and programers to assist user staff in implementing the installations. As user technical personnel gained knowledge in computer operating technology, systems analysis, and programing, they assumed tasks that previously were performed by vendor personnel.

Number and type of employees involved. The size and composition of the project group at a survey plant depended upon the individual member's experience in process computer technology, the relative technical sophistication of the computer system to be installed, and the complexity of the computer application. At 23 installations surveyed, the project group varied in size from 3 to 23 members. Frequently, a member was involved in more than one stage of installation. Early installations at survey plants tended to have large project groups because vendor and user personnel lacked process computer experience. As technical staff gained experience with computer control, the size of the project group tended to reflect the complexity of the installation. Replacement systems at survey plants usually required a smaller project group than the original installation because some of the instrumentation and programs were carried over from the old system. Within individual projects, the size of the project group expanded or declined according to the phase of the work and the need for technical support. This point is illustrated in table 8, which provides information about the type and numbers of workers involved in planning and implementing computer applications at four survey plants.

Manpower Requirements by Major Installation Phases

The major phases in the installation of process control computer systems at survey plants and the manpower required for each phase were found to be difficult to enumerate and categorize, since project teams worked on different aspects of an installation during the same period and, therefore, steps overlapped. Despite this limitation, identification of the four major phases is possible at survey plants.

Feasibility study. The feasibility study, the first phase in most projects, usually was carried out by a relatively small group of employees, sometimes working with one of two computer vendor representatives. This step consisted of making a detailed study of the technical and

Table 7. Man-years required to implement computer process control at survey plants

Type of facility	Control application	Number of man-years required to reach operational phase	Months elapsed between installation and operational phase [1]
Papermill	Papermaking machine	-	21
	Papermaking machine [2]	-	[3] 6
Chemical plant	Styrene process	14.4	3
	Ethanolamine process	9.5	1
	Multiplant production monitoring	[3] 12.0-15.0	[3] 6
Chemical plant	Multicomputer operation of most of the processes in the plant	15.8	6
	Biodegradable linear alkylate	13.3	11
	Laboratory chromatograph analysis	6.1	5
Chemical plant	Ammonia process	7.5	-
	Ammonia process [2]	8.0	7
Petroleum refinery	Crude distillation process	20.0	6
	Catalytic reforming process	20.0	4
Petroleum refinery	Polymerization process	13.4	[4] 1-[5] 12
	Catalytic cracking	12.9	14
Cement plant	Rotary kiln	[3] 17.8-18.8	1
	Rotary kiln [2]	1.6	4
Steel mill	Fuel utilities utilization and power demand	-	6
	Basic oxygen furnace	5.1	7
Steel mill	Hot strip mill	-	-
Steel mill	Continuous annealing line	-	11
	Electrolytic tinning line	-	23
	Electrolytic tinning line	-	30
Electric powerplant	Coal-fired steam-driven electric generating station	20.8	24
	Coal-fired steam-driven electric generating station	15.4	9
Electric powerplant	Coal-fired steam-driven generating station	14.9	[3] 6
	Oil-fired steam-driven generating station	14.9	[3] 5

1 The relatively long period between installation and operational phases reported at some survey plants generally resulted from unforeseen problems with computer components, programing, and instrumentation.
2 Replacement computer for preceding application.
3 Approximate.
4 Partial control.
5 Full control.

economic feasibility of applying computer control to a particular process, which involved (1) a detailed analysis of the process including material and energy flows, and (2) an estimate of potential benefits and costs. At a paper plant, for example, the feasibility study was accomplished over a period of 5 months by three relatively high-level employees—the managing director of research, the associate director of research, and the director of information services. In a chemical plant, the feasibility study for the first of four computer installations was conducted by the section head of the process laboratory and the section head of the computation lab. These employees worked for 2 months on this phase of the installation.

The time required to complete the feasibility study ranged from 2 months at one plant to 12 at another. However, a time span of 6 months or less was reported for about 3 out of every 4 computer installations studied.

Systems design, model building, and programing. The project group was expanded to accomplish system design, preinstallation planning, model building, and programing. At many installations, the group working on these steps consisted of 8 to 10 persons and reached a

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Table 8. Personnel involved in planning and implementing process control computer systems at selected survey plants

Type of facility	Phase	Employees involved (user and vendor)		Implemented by	Duration of phase	Total number of man-months worked
		Type	Number			
Chemical plant	Feasibility study	Systems engineer	1	User and vendor	3 months	9 man-months
		Process engineer	1			
		Plant superintendent	1			
	Planning (including systems engineering and programing)	Systems engineer	2	User and vendor	12 months	96 man-months
		Process engineer	2			
		Instrument engineer	2			
		Plant programer	1			
		Plant superintendent	1			
	Installation	Systems engineer	2	User and vendor	1 month	5 man-months
		Process engineer	1			
		Programer	1			
		Plant superintendent	1			
	Operational	Systems engineer	1	User	Continuing	-
		Plant superintendent	1			
Petroleum refinery . . .	Feasibility study	Process engineer (user)	2	User and vendor	6 months	24 man-months
		Engineers (vendor)	2			
	Systems engineering	Process engineer (user)	2½	User and vendor	6 months	33 man-months
		Instrument engineer (user)	1			
		Engineers (vendor)	2			
	Programing and program checkout	Process engineer (user)	2	User and vendor	12 months	36 man-months
		Engineer (vendor)	1			
	Installation and checkout of computer equipment	Process engineer (user)	2	User and vendor	4 months	20 man-months
		Instrument engineer (user)	2			
		Engineer (vendor)	1			
	Checkout of system instrumentation	Instrument technician (user)	2	User	24 months	48 man-months
Steel mill	Systems planning	Process engineer	1	User and vendor	6 months	9 man-months
		Systems engineer	2			
	Preparation of mathematical model	Process engineer	1	User	18 months	18 man-months
	Programing (including some training)	Systems engineer	2	User and vendor	11 months	22 man-months
	Installation	Electrical engineer	2	User and vendor	6 months	12 man-months
	System refinement and modification	Systems engineers	2	User	Continuing	-
Electric generating plant.	Planning and detailing specifications including feasibility study	Engineers (user)	8	User	4 months	9 man-months
	Basic programing	Programers	5	Vendor	6 months	30 man-months
	Application and support programing	Engineers	7	User	20 months	82 man-months
	Installation	Contractor personnel	10	Outside contractor	4 months	40 man-months
	Instrument calibration	Technicians	3	User	4 months	12 man-months
	Checkout of system	Engineer	1	User	3 months	6 man-months
		Engineering assistant	1			

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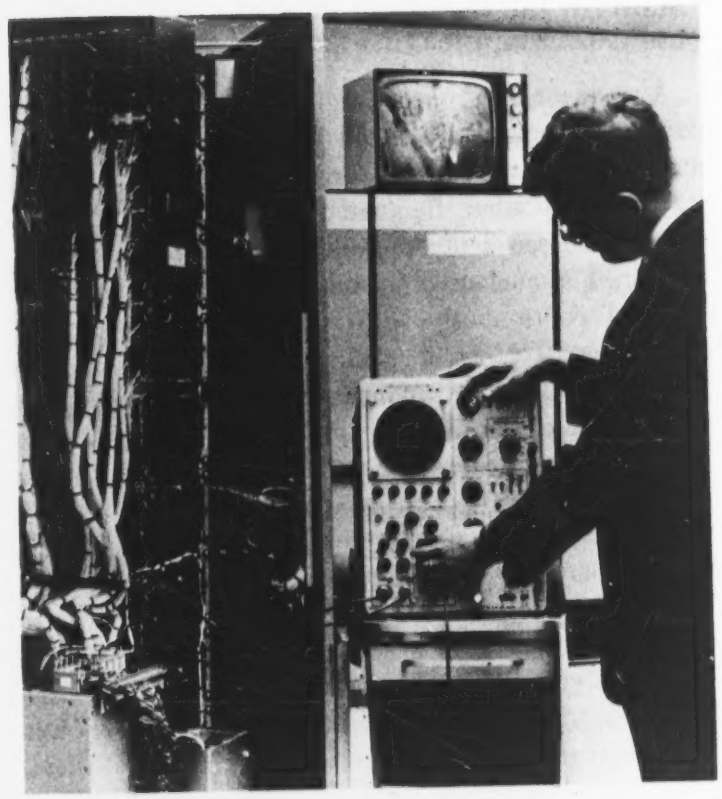
high of 23 people at one plant. Vendor participation was quite extensive, representing as much as half the project team in one case.

These steps consisted of developing computer equipment specifications, determining the type and degree of control desired, and planning the computer site and installation procedure. Specifications were determined for items such as the central processor, computer memory, and input/output equipment, and computer site. Existing instrumentation was surveyed to determine which instruments were suitable for computer control and what modifications to instrumentation were needed. Requirements for additional instrumentation were developed and orders placed with vendor firms. Plans for operating the computer, auxiliary equipment, and instrumentation as an integrated control unit were accomplished.

The necessary technical information about the process was gathered and consolidated to prepare a mathematical model of the process. Operating instructions for computer equipment and process control strategies were developed, and programs were written by translating the process model, control strategies, and computer operating instructions into a series of discrete arithmetic and logical statements. These programs were stored in the computer memory and carefully tested for malfunctions. The time required to complete this phase ranged from 12 to 43 months.

Installation. During the installation phase, the project group declined in size; most often it averaged from about 5 to 7 technicians and engineers. This phase consisted of installing the computer and auxiliary equipment at the process site. Existing instruments were modified, new instruments installed, and system components connected. The equipment, instrumentation, and wiring were checked carefully to prevent malfunctions. At a survey cement plant, for example, a process engineer, two systems engineers, and two electrician/instrument technicians accomplished the installation. In cases where problems arose, checkout of equipment after installation required considerable technical effort. At a petroleum refinery, for example, instrument checkout required more than twice the number of man-months than was needed to install the computer and related equipment. Vendor employees were involved in the installation of computer equipment in nearly all survey plant systems. Installation in survey plants was accomplished during a period of 1 to 6 months; equipment check-out usually took longer, up to 24 months in one case.

Operational and system refinement. The size and composition of the project group for the operational and system refinement phase depended mainly upon the



10. Engineer checks computer circuitry during installation at user plant.

degree of control desired. This phase consisted of the shift from manual to computer control of the process and lasted from 1 to 30 months after installation. (See table 7.) In most cases, the shift was accomplished gradually. Simple computer operations, such as data monitoring, were undertaken first, and more complex tasks, such as operator guide or closed-loop control, were accomplished later. In a cement plant, the shift from open-loop to closed-loop control involved eight people; an engineer, a process engineer, a program/systems engineer, and four electrician/instrument technicians who were assisted by a systems engineer from the vendor staff. Altogether, the project group spent 72 man-months in implementing a more advanced degree of computer control. System refinement, a continuing task at some survey plants, generally involved advancing the degree of control.

Once a computer system was operating satisfactorily and the desired degree of control was attained, one or two engineers who were plant employees and members of the project group usually remained with the system to assure that it continued to function smoothly. In a number of cases, however, the unit supervisor was the only member of the project team assigned to work permanently with the computer system. As a general rule, after the computer system became operational, vendor personnel were called upon only in emergency situations.

Status of the User Process Control Computer Group

A permanent group of employees worked on process computer applications in all but one survey plant. In most cases, this group was formed at the plant level, and its overall number fluctuated according to the complexity and scope of the project. Each group, however, contained a nucleus of technical employees who were involved continuously with some aspect of computer process control. In a plant with four systems, for example, a high level engineer was assigned permanently to the task of coordinating process control computers. This engineer augmented the size of the project team for each installation by borrowing personnel from relevant plant departments; after the installation was completed, these employees were reassigned.

A central process control computer group was formed at the corporate level in a number of the larger firms visited. In very large companies, as the number of installations in their plants increased, these companies often brought together key personnel at the corporate level who were experienced with computer control. These centralized groups consisted of employees with a knowledge of systems engineering, programing, computer technology, and process operation. The functions of these groups of employees were to develop new applications of process computers in corporate plants, to do research into advanced forms of computer process control, and to serve as a source of primary members for project teams in specific plant installations. At the two survey electric power companies, for example, a corporate computer group rather than a plant group was involved directly with programing and implementing process computers at company plants.

Staffing Problems

A lack of trained personnel experienced in applying control computers to industrial processes was cited as a serious problem by most survey plants. A number of specific problems were attributed to this scarcity of trained manpower. For example, at a cement plant, the lack of trained engineers with process computer knowledge was considered a handicap to its process control projects. A petroleum refinery had a large turnover in experienced technical personnel between the installation of its first and second process computer systems. This turnover necessitated using personnel inexperienced in computer technology for the second installation and required additional training sessions.

Significance of Prior EDP Experience

Extent of experience. Ten of the 12 plants visited either had been using business or scientific computers prior to the installation of process control computers, or had staff members with previous scientific or business computer experience. Applications of scientific computers at these plants included solving technical problems, performing simulation studies, and processing large volumes of operating data. Business computers were used for tasks such as accounting and payroll preparation. The two remaining plants had no computer experience prior to the installation of process control computers.

Transferability of skills. Six of the 10 plants that reported prior business or scientific computer experience indicated that personnel associated with these applications were of some help in the installation of process computers. At a chemical plant, for example, a knowledge of FORTRAN is considered useful in learning to program process computers. A steel plant found that prior experience with programing and systems design for business computers was useful but not of significant importance in its process computer projects. In a paper plant, some corporate level personnel with prior EDP experience were assigned to work on the process computer project. In general, however, these and other examples indicate that programing and computer skills are transferable only to a limited extent.

At a petroleum refinery, however, work with technical computers led directly to one of the earliest computer control installations in the industry. First, simulation studies of the process were performed on a technical computer, and then an offsite computer was connected to the process via data transmission lines. Finally, an onsite process computer was installed. The project team for the computer installation was expanded from a nucleus of employees who worked with the technical computers.

The remaining four plants with prior computer experience indicated that no transferability of skills was apparent between business or scientific computers and process computers. Those interviewed at these plants indicated that techniques needed for work with process control computers differed completely from those needed for work with business and scientific computers. Moreover, management at a power company preferred that project group engineers have no prior computer programing experience that could interfere with learning the company's special programing methods.

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CHAPTER 7. IMPACT ON EMPLOYMENT AND JOBS

Although installation of process control computers resulted in practically no change in employment or displacement of individual workers, significant changes in job duties of operators, technicians, and other employees were reported at survey plants.

Changes in Employment

The installation of process computers had little immediate effect on employment in survey plants. Over the period that computers were installed, changes in general economic conditions, product demand, and the introduction of other forms of technology were the major factors that influenced the level of total plant employment. Except for one plant where all major processes are under computer control, workers in units using process computers made up a relatively small proportion of total plant employment, ranging from 0.1 percent in a steel mill to about 6 percent in a chemical plant. (See table 9.) The employment changes in survey plants varied greatly. At 6 of the 11 survey plants that provided data on employment, total plant employment increased over the period 1 year prior to the first computer installation to 1 year after the most recent installation; at the five other plants, employment declined.

Total employment in production units over the same period also was relatively unaffected by the introduction of process computers. Employment in 7 of the 12 computerized production units for which data were provided remained unchanged; employment increased at three other units, and declined at the remaining two units.

Table 9. Employment in computerized units as a percent of total employment in survey plants[1]

Plant	Total plant employment	Unit employment	
		Total	Percent of total plant employment
Papermill	740	35	4.7
Chemical facility	8,004	42	.5
		16	.2
Chemical facility	727	(2)	(2)
Chemical facility	470	3 26	5.5
Petroleum refinery	2,775	17	.6
		21	.8
Cement plant	359	17	4.7
Steel mill	18,945	386	2.0
Steel mill	12,375	214	1.7
Steel mill	13,973	19	.1
		23	.2
		27	.2

1 Most recent year available was used for those units for which employment data were provided. Comparable employment data not available at 3 survey plants.

2 Since all major production units at this plant are computer controlled workers in these units constitute a high but unspecified proportion of total employment.

3 Total for 2 units.

Displacement

According to management and union officials interviewed, no layoffs and little displacement took place in units with operations placed under computer control. Since labor costs made up a small proportion of total costs in most processes studied, the objectives for introducing computer control frequently were to increase or optimize production rather than to reduce manpower. Another reason for the relatively small displacement was that operating crews in the highly instrumented control rooms generally were at a minimum consistent with efficient operations prior to the introduction of the computer. Moreover, even though the computer eliminated some duties of these employees, the same size crew generally was retained to cope with any emergency arising from the malfunction of the computer or process equipment. In some cases, for example, operators were required to perform manual operations which duplicated automatic computer operations to retain skills needed for emergency manual control. In other instances, such as the computerized hot strip mill, operations normally shifted between manual and computer control, and, therefore, crews of the same size were needed and retained for both operations.

A few instances of displacement and reassignment to other plant units were reported. At a large chemical plant, for example, the jobs of 7 out of a total of 57

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laboratory analysts were eliminated when a process computer system was introduced in a control laboratory to perform much of the computational, analytical, and data-logging operations formerly done manually by the analysts. The computer system automatically provides quick and accurate chemical analysis of a large volume of samples and produces finished laboratory reports. Of the seven laboratory analysts displaced, five were transferred and upgraded to higher-paying technician jobs elsewhere within the plant, one analyst died, and the other analyst went on military leave.

In another example of displacement, the jobs of three employees per shift at a petroleum refinery, a stillman and two stillman helpers, were eliminated as a result of the advanced forms of instrumentation installed as part of two computer control systems. A total of 13 employees in the two units were reassigned to jobs elsewhere in the plant.

One technique for measuring the displacement effect of computer process control is to compare manpower requirements of new plants designed for computer control with manpower requirements of plants of the same type and capacity using conventional control. Officials at a large survey chemical plant built with computer control estimated that about 20 employees more than the current complement of 300 production workers probably would be needed if the plant were not computer controlled. Fifteen of these employees would have been operators needed to log information and perform some control tasks; the other five would have been accounting clerks required to prepare summaries of operating data and other reports for management.

Changes in Job Duties and Skills

The single most important effect on employees in production units was the change in job duties. As indicated in table 10, process operator positions made up the majority of modified positions. The changes in their duties generally were caused by the shift from manual to automatic computer adjustment of instruments and related devices. The survey plants reported that the computer generates information not previously available on process conditions which the operator can use to "fine tune" the process and performs many calculations which were formerly done manually. Moreover, improved alarm systems incorporated in computer systems installed in survey plants in some instances greatly assisted the operator to perform monitoring duties. Some examples of changes in duties resulting from computer control are presented in table 11.

Table 10. Distribution of modified jobs at survey plants

Category	Modified jobs				
	Total number	Percent of total	In affected production units	In other units	Example of job titles used at survey plants
Total, all categories	352	100.0	249	103	
Managing or supervising	27	7.7	11	16	Production superintendent, general foreman, performance supervisor, shift foreman.
Systems engineering and related work	25	7.1	9	16	Plant test engineer, control engineer, results engineer, research engineer, instrument engineer.
Process operation	216	61.4	216	0	Machine tender, head operator, cracker operator, kiln burner, BOF operator, annealing line operator, boiler-turbine operator, clerk.
Laboratory analysis and related work	55	15.6	0	55	Laboratory technician, laboratory analyst.
Instrument maintenance and related work	29	8.2	13	16	Instrument technician, electronics repairman, electrician.

SOURCE: Data from 11 survey plants.

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Table 11. Changes in major job duties of selected unit employees caused by computer process control

Job title	Unit	Description of major duties	
		Before computer control	After computer control
Machine tender	Paper machine in papermill.	Responsible for paper machine crew, and all paper made on machine. Checks papermaking equipment and customer order. Sets flows, temperatures, pressures and speeds at own discretion. Manually adjusts basis weight and moisture controls. Prints samples and checks paper for defects.	Computer sets flows, temperatures, pressures, and speeds and monitors these operations. Computer controls basis weight by changing stock flow, and controls moisture by changing steam flow. Machine tender performs some control and monitor duties as before and is available in case of emergency.
Clerk	Styrene unit in chemical plant.	Calculates operating ratios, manually logs gage readings, and prepares weekly plant reports.	Operates computer console and input/output equipment, translates information to and from machine language, feeds data into computer, operates off-line program to perform calculations, and interprets computer output. Compiles reports on a daily basis and calculates more operating ratios than before because computer makes more information available.
Head operator	Ethanolamine unit in chemical plant.	Controls unit by operating 40-foot control panel on plant floor with 40 to 60 different controls and gages. Manually adjusts analog controllers, reads and logs data, and performs simple chemical analysis.	Computer monitors, records, alarms, and manipulates process control mechanisms automatically. Operator sits in a minaturized control panel in air conditioned room and makes only a few manual adjustments to process variables, performs chemical analysis, and manually logs some data though the latter is not needed except to keep alert and abreast of process conditions.
Lab analyst	Control laboratory in chemical plant.	Performs numerous calculations for interpreting chromatograph charts to obtain chemical composition of process samples. Manually logs data and prepares reports.	Puts samples into chromatograph and adjusts setting on computer console while system automatically carries out analysis. Computer provides quick, accurate chemical analysis of sample data and finished reports for management use. The system eliminates human errors in calculation, and relieves lab analyst of monitoring functions. Lab analyst is free to perform nonroutine analysis.
Senior operator	Ammonia chemical plant.	Makes adjustments to process set points using manually-adjusted automatic controllers. Adjustments consist of minor changes in instrument settings to keep temperatures and gas composition within predetermined limits, and major changes to compensate for uncontrolled variables such as changes in weather.	Computer now makes most adjustments automatically; however, if major upset occurs, computer alarms operator and automatically shifts to manual control. Operator still performs many manual operations such as startup and shutdown of plant, and still writes out logging reports though computer automatically logs most important variables.
Operator	Polymerization unit in petroleum refinery.	Manually adjusts set points and controls unit using automatic controllers. Logs data manually, filling out data sheets by hand every 2 hours. Not able to log all data needed to run process at best levels.	Computer controls key temperatures, pressures, rates of flow, and catalytic process. However, it cannot cope with emergencies. Operator determines extent of problems, although computer assists by alarming and takes each loop or whole process off computer control if necessary. He performs numerous manual control operations.
Operator	Fluid catalytic cracking unit in petroleum refinery.	Manually adjusts automatic analog controllers at control console. Monitors automatic data logging equipment.	The computer controls a large part of process, although the operator still performs much manual control. The operator can take any part or the whole process off computer control in case of emergencies. The computer does most logging.

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Table 11. Changes in major job duties of selected unit employees caused by computer process control—Continued

Job title	Unit	Description of major duties	
		Before computer control	After computer control
Kiln burner	Kiln department in cement plant.	Monitors and adjusts instruments manually or by adjusting set points on automatic analog controller to control variables such as kiln temperature, speed, raw material feed rate, etc., relying mainly upon experience as guide. Maintains records manually.	Computer scans process and automatically makes adjustments of key variables, including kiln speed. Computer monitors numerous other variables, reads instruments, compares and analyzes data, and prints out reports. Kiln burner uses these reports to make changes manually or to adjust set points on controllers.
BOF operator	Basic oxygen furnace in steel mill.	When computer not operating:[1] Operates and monitors numerous levers, dials, and other devices in controlling the furnace. Refers to set of charts to derive proper quantities of scrap, hot metal, lime, and oxygen to use for specific heat.	When computer operating:[1] Operates computer which calculates and transmits instructions on amount of scrap, molten iron, lime, and oxygen to use in preparing specific heat. Adjusts control devices so that predetermined additives will be fed into furnace. Prepares production reports using computer-supplied data. Has option of making adjustments to the computer-generated instructions and occasionally verifies computer instructions by manually making computations based on data in sets of charts.
Plater operator	Tinning line in steel mill.	Checks and makes corrections in process to maintain strip quality. Selects group of plating cells to be used for specific order, uses efficiency formula to determine amount of current to be sent through plating cells for specific line speed and coating weight, and manually adjusts plating current accordingly. Responsible for production equipment; establishes plating, current, and line speed practices; and all required records.	Selects plating cells to be used in the same manner as before, but computer automatically adjusts current for specific line speed and coating weight based on incoming order data and an efficiency formula which are manually dialed into the computer memory. Still monitors instruments and, if necessary, overrides system and adjusts current flow manually. Relieved of some monitoring duties because computer monitors and alarms in case of trouble.
Annealing line operator	Continuous annealing line in steel mill.	When computer not operating:[1] Manually set dial to desired temperature for each of eight furnace zones based on formula which considers strip thickness, line speed, and temperature. Sets production schedules, maintains line speed, furnace temperature, and related variables, and monitors control panels.	When computer operating:[1] Computer monitors and operates some controls. Operator oversees computer output equipment and modifies computer program to improve control of annealing line. Other duties same as before.
Boiler-turbine control operator	Electric generating station.	When computer not operating:[1] Operates boiler and turbine control panels to maintain proper steam temperature and pressure, fuel supply, and efficient combustion conditions. Starts up and shuts down turbine-generator unit, synchronizes generators, and regulates load voltage and frequency. Performs switching operations by remote control to maintain continuity of service and keeps extensive manual data logs.	When computer operating:[1] Operator performs many of the same duties as before, since computer operates primarily as a data logger. With the aid of the computer, operator controls boiler and turbine operations through dials and gages located on central control console and decides what pressures, temperatures, speeds, etc., should be changed and to what degree. Keeps only small log sheet since computer does most logging. Previously teletyped information to load dispatching, but now computer sends data automatically.
Results engineer	Electric generating station	When computer not operating:[1] Responsible for overall operation and performance of controls and instruments. Makes performance calculations, insures water purity, checks coal quality, etc. Studies long-term trend data and uses it to reduce losses and improve equipment, raw material and fuel use, and other operating efficiencies.	When computer operating:[1] Uses computer to aid in making performance calculations more frequently and more accurately. Computer, though not fully operational, reduces time spent on calculations and allows more time for analyzing data and making recommendations for better plant performance.

[1] Unit built with computer control.

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11. Operator checks computer analysis of crude oil distillation unit in a petroleum refinery.

The installation of process computers, in addition to resulting in a modification of existing jobs, required a number of new positions as discussed in chapter 8.

How jobs are modified in a unit where computer control is installed is illustrated by the experiences at an 80-inch hot strip mill in a steel plant. This mill was operating approximately 75 percent of scheduled production runs under computer control when visited by BLS staff, and conventional control the remaining 25 percent of the time. Computer control will be extended, however, when programs are written to handle certain types of steel which presently are processed under conventional control.

The most distinguishing advantage of the computer-run 80-inch mill is its greater speed in producing uniform products within specifications. Under conventional control, operators make settings from reference tables based on standard width and rolling resistance specifications of various steel grades. Operators need about 2 minutes under normal conditions to reset a mill for processing a slab order that varies from the preceding slab rolled; the computer resetting time is only 6-8 seconds for the entire mill. During rolling operations under manual control, operators make adjustments to the standard settings, but the speed of the mill is limited by the ability of the operators to react to changing mill conditions. In comparison, the computer reacts almost instantaneously.

Of 33 existing occupations in the hot strip mill, duties of only 9 were modified by computer control while the remaining 24 were unaffected. Forty employees, or 19 percent of the total mill work force, were employed in these nine occupations at the time of visit. The extent to which the computer modifies each of the nine preexisting positions is shown in table 12.

Table 12. Extent of job modifications in hot strip mill

Occupation title	Total number of major duties	Major duties automated by computer [1]	
		Number	Percent
Total	84	26	31.0
Recorder	10	5	50.0
Assistant roller	12	5	41.7
Coiler operator	8	3	37.5
No. 1 rougher operator	13	4	30.8
No. 2 rougher operator	12	3	25.0
Speed operator	8	2	25.0
Crop shearman	9	2	22.2
Roll hand	6	1	16.7
Assistant speed operator	6	1	16.7

1 Performed automatically when mill is under computer control.

SOURCE: Company records.

Job duties of the three positions affected most by computer control—recorder, assistant roller, and coiler operator—are shown in appendix B-3. This information, taken from company job descriptions, shows that the duties performed automatically by the computer are crucial to the operation of the mill. Consequently, in many computer installations, operators continue to log data and adjust variables even after the computer assumes these functions. If the computer should fail or prove inadequate to cope with certain situations, the operator is called on to perform these duties. Therefore, he must retain his proficiency at controlling the process.

A list of the 26 major job duties performed automatically under computer control, by functions, is provided in table 13.

A number of employees outside of units using process computers also experienced changes in job duties and skills in survey plants, as indicated in table 11.

At a petroleum refinery, for example, nine instrument men were given training in computer and instrument maintenance and were assigned to perform normal maintenance and repairs on the computers and related instrumentation installed in two units. These workers

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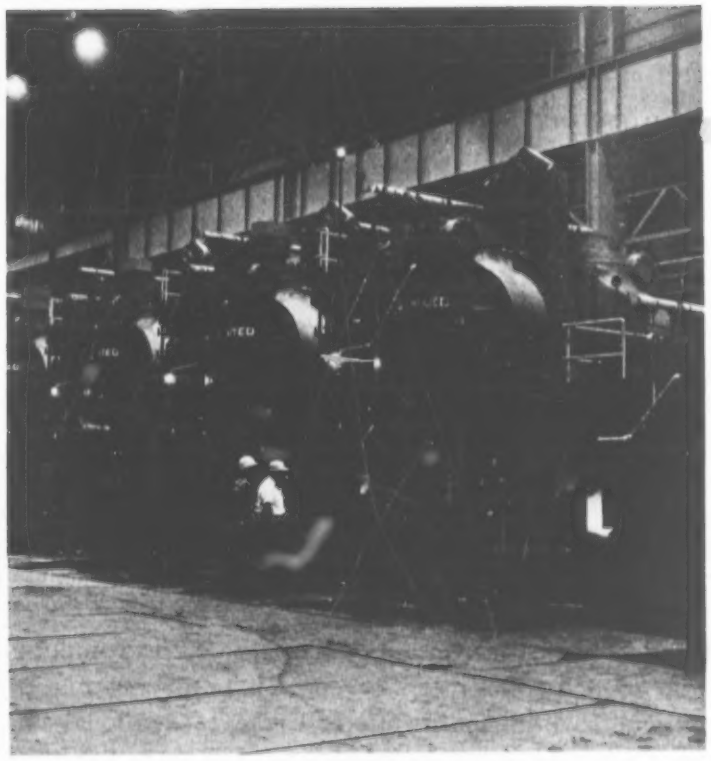
Computer Process Control System in a Hot Strip Mill in a Steel Plant

12. Computer Center



14. Hot Strip Mill
Finishing Stands

13. Control Pulpit

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Table 13. Type of job duties performed by computer in hot strip mill

Function	Number of major job duties involving this function performed automatically under computer control	
	Number	Percent of total[1]
Total	26	100.0
Operate or set controls	14	53.8
Record data	5	19.2
Receive and/or communicate information	5	19.2
Operate equipment	2	7.7

1 Because of rounding, the sums of individual items may not equal 100.

required greater skill and ability than instrument men working on conventional equipment. These men were selected from employees who had received additonal electronics training previously; however, their job classifications and wages were not changed.

Changes in Grade Status

Most of the production workers in the affected units did not experience a change in grade status due to computer process control. Although some jobs were modified, these changes, for the most part, encompassed only a portion of the total duties of these positions and were not sufficient to result in a higher wage classification. In at least one instance, changes in job duties which may have resulted in upgrading were offset by substantially improved working conditions, a factor also considered in wage determination. Moreover, job descriptions were general in content, allowing considerable changes in jobs without reclassification.

In a few instances, however, employees were upgraded because of the change. The installation of a process computer at a large chemical plant, for example, resulted in the upgrading of four operators by one rate step. A formal job evaluation study indicated that these operators had assumed additional responsibilities. In the new system, operators had to interpret a significant amount of data provided by the computer and, as a result, were expected to run the plant closer to operating limits. However, physical working conditions, a factor in the job evaluation system, remained essentially the same.

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CHAPTER 8. NEW JOBS REQUIRED FOR COMPUTER PROCESS CONTROL

New occupations are required as a result of the introduction of computers. In the survey plants, most of these occupations were professional and technical positions requiring persons with a college degree in engineering and related fields and a knowledge of the process to be controlled.

Type and Description of New Jobs

Substantial technical manpower is required to accomplish the various tasks involved in introducing computer process control. A total of 68 new jobs were needed in survey plants to plan, program, operate, and maintain the new computer control systems.

The new computer jobs can be classified into five major occupational categories. As shown in table 14, programing and systems analysis, design, or related work constituted about two-thirds of all new jobs; each of these two occupational groups included about the same number of jobs. The operation and maintenance of the computer equipment provided relatively small proportions of the new jobs, since these were among the functions that were included in existing jobs without changes in job title.

15. Systems engineer programing a process control computer system.

Table 14. New computer jobs at survey plants

Category	New jobs		Example of job titles used in survey plant
	Number	Percent of total	
Total, all categories	68	100.0	
Managing or supervising	12	17.6	Coordinator of refinery computer system, technical superintendent, chief systems analyst, senior process engineer.
Systems analysis, design, or related work	24	35.3	Senior design engineer, project scientist, systems analyst, process control engineer, senior research engineer.
Programing	22	32.4	Programer, programing technician, technical analyst, procedures analyst.
Operating computer consoles and related equipment	5	7.4	Computer console operator.
Instrument development, installation, maintenance, or related work	5	7.4	Instrument technician, electronic specialist, assistant test engineer.

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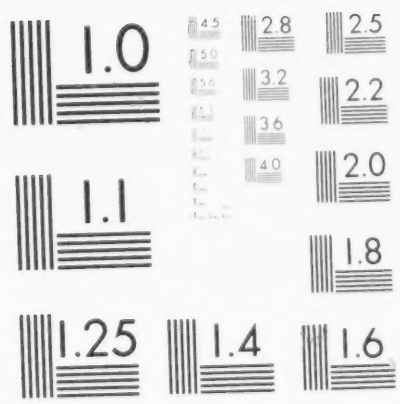

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Because computer control is a relatively new and emerging technology, the title and content of new jobs within the major functional job categories vary significantly between survey plants. An employee whose major job duty is programing is classified as a technical analyst at a petroleum refinery, a procedures analyst at a steel mill, and an engineering assistant at an electric power plant. Job titles used to designate the programing function at other plants are: Programer analyst at a petroleum refinery, programer at a cement plant, and programing technician at a chemical plant.

The degree of specialization in the various jobs also differs significantly in survey plants. In some plants, one or more major functions are merged into one job classification. At a paper mill, for example, the same job classification for systems analyst-programer and programer-computer operator is used. Even where job titles in one survey plant are approximately the same as in another, substantial variation in job content is sometimes found. Moreover, in a few plants, employees involved with computer process control also work on scientific and related computer applications.[3]

Some insight into the job duties of employees in new computer occupations can be obtained by examining the content of seven new positions at a paper mill. (See table 15.) Examples from each of the five broad functional occupational groups contained in table 14 are presented.

Selecting Employees for New Jobs

The duties of a significant number of new computer jobs required that the incumbent have a highly specialized technical knowledge of the process to be controlled, particularly the engineers and technicians who were engaged in system analysis, design, and related work and the programers. Consequently, most employees selected for new computer jobs were recruited from among the existing work force in survey plants. Of the 60 employees in new computer occupations for whom data on prior work experience were available, about 88 percent were working in the survey plants prior to installation of the computer systems, about 8 percent were formerly with another plant of the same company, and only slightly over 3 percent were hired from the outside.

The procedure in most survey plants was to train engineers and other technical staff in systems analysis and programing rather than to use systems analysts and programers with business data processing experience and expect them to acquire a knowledge of a complex industrial process. Although the techniques required to perform systems analysis and programing functions for a process control computer system were in many respects similar to those used in a business data processing computer system, the systems analyst and programer involved with process control usually must have a high degree of specialized technical knowledge (engineering, chemistry, and physics, for example) which is significantly different than the skill and knowledge needed to implement business data processing systems.

The criteria most frequently considered in selecting employees for new computer jobs were prior work experience, education, and interest. (Most of the new computer jobs were not under union jurisdiction and therefore the selection methods were not governed by formal procedures spelled out in collective bargaining agreements.) Formal aptitude tests as a means of selecting employees for new jobs were used in only a few instances. However, they sometimes carried considerable weight in the selection process. The four new computer console operator positions associated with a computerized hot strip mill, mentioned earlier, were staffed from among a group of about 66 clerks who applied for and completed a series of tests.[4]

The four applicants with the highest test scores were chosen for the new computer console operator positions. However, at other survey plants, aptitude tests only supplemented other techniques of selection. Employees being considered for programer positions at a chemical plant and paper mill took a programer aptitude test which was considered along with work experience and education in determining who would staff these new programer jobs.

Extent of Upgrading

Employees assigned to new computer jobs generally were upgraded. Table 16 indicates that two-thirds of 27 employees selected to staff new jobs received a wage increase of 20 percent or more. These increases frequently resulted because professional and technical employees acquired new skills through training and thus were able to perform the duties of the more responsible and higher-paying computer positions. A technical assistant at a survey petroleum refinery, for example, whose major duties involved general clerical tasks,

[3] This lack of standardization of job content and title also existed for occupations associated with the early stages of use of electronic computers for business data processing. See *Adjustments to the Introduction of Office Automation* (BLS Bulletin 1276) May 1960.

[4] These tests included the Watson–Glaser test of syllogistic problems which is designed to appraise ability to reason analytically and logically; and the Wonderlic personnel test of problem solving ability consisting of verbal, arithmetic, geometric, and vocabulary problems.

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Table 15. Description of duties of new computer process control occupations at a papermill

Job title	Description of major duties
Manager, computer systems and programing	Supervises the development and implementation of digital computer programs and procedures designed to control papermaking process. Acts as consultant to corporate research staff in the development and implementation of computer programs and systems. Some major duties include defining programs into specific computer requirements, recommending computer equipment to be purchased or leased, developing or supervising the development of computer programs and procedural systems, and overseeing testing, debugging, and implementation of the approved program. The manager of computer systems and programing also has responsibility for training personnel in the use of process control computers and programing techniques, and for providing technical assistance on matters pertaining to process control computers. He works under the direction of the associate director, process control.
Systems analyst-programer	Investigates and analyzes operational problems and prepares and carries out proposals for new systems, procedures, or computer programs. He prepares operating procedures; draws flow charts and diagrams to define programing problems and procedures to be followed; checks programs for completeness and accuracy; evaluates and modifies existing programs; translates flow chart information into coded machine instructions and prepares other guides for use by the machine operator; and performs related duties. He also does a limited amount of programing work. The systems-analyst programer is under the supervision of the manager, computer systems and programing.
Senior process control engineer	Supervises process control of papermaking operations. This function encompasses problem analysis, data collection, standards development, programing, and computer operation. He has complete responsibility for the effective use of an electronic computer and related equipment to control selected papermaking operations. Some specific duties include applying guidance to the process engineer and the computer programer; planning and implementing process control activities to assure optimum utilization of equipment; acting as liaison between the mill (where the computer is used) and corporate research (where research on process control in undertaken) to assure coordination of computer process control activities; providing technical assistance to other company staff engaged in computer process control activities; and performing related duties pertaining to the implementation and maintenance of computer process control. The senior process control engineer works under the direction of the assistant division manager.
Computer programer	Develops, prepares, and tests programs which will solve scientific, mathematical, and technical problems associated with computer process control of selected papermaking processes. He develops and designs formulas, flow charts, and other descriptive material; designs programs which directs the computer to produce the desired production results; checks computer equipment to verify proper operating condition and notifies computer manufacturer technical staff when maintenance or repair work in needed; provides programing assistance in collection of data for research projects and performs related duties. The computer programer works under the direction of the senior process engineer.
Programer-computer operator	Assists in the development and preparation of new programs and the modification of those already prepared. He is responsible for the less complex programs or segments of larger programs. Specific duties include programing in a computer language, converting the computer language to machine language through a processor program, and testing and debugging the program. He also may operate computer equipment to run programs when requested. He receives technical advice from other staff members on aspects of programing which involve instrumentation, engineering, etc. The programer-computer operator is supervised by the manager, computer systems and programing.

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Table 15. Description of duties of new computer process control occupations at a papermill—Continued

Job title	Description of major duties
Junior programer	Prepares digital computer programs necessary to solve scientific, mathematical and technical problems related to the control of papermaking processes. He prepares flow charts for less complex programs; codes flow chart information into FORTRAN, symbolic language, or machine instructions; checks programs for completeness and accuracy during test runs; makes a diagnosis of problems and corrects them as they occur; and performs related duties. The junior programer works under the direction of a systems analyst or senior programer.
Electronic specialist	Develops and refines laboratory and process instruments and control systems; operates, calibrates, adjusts, and checks instrument and control systems; conducts instrument and control evaluations and reports the results; and performs related duties. Work assignments sometimes involve mill trials and startups, pilot plant trials, and laboratory experimentation. Requires a background in advanced mathematics, physics, and electron theory; a high school diploma; and a passing grade on a special qualifying examination.

completed programing training and was upgraded to a technical analyst position involving computer programing. His new job pays nearly one-third more than his former position. At a paper mill, a powerhouse fireman with some college education passed a programer aptitude test and did well in a series of interviews, completed programer training, and is now a computer programer making 50 percent more than before. Moreover, some maintenance workers and computer console operators receive more money in their new jobs because responsibility for equipment and product is greater than before.

Because of the expected continued shortage of technical employees with computer process control experience, the wage level for these new occupations probably will continue to be relatively high, and there will be promotional opportunities for qualified employees.

Characteristics of Employees in New Jobs

Some insight into the manpower implications of computer process control can be assessed by examining the age, sex, education, and seniority of employees selected for new computer jobs. Comparison of these characteristics with those of employees working in the production units where computers were installed is of interest. The data for both of these groups are presented in tables 17 and 18.

Table 16. Extent of upgrading of employees selected to staff new computer jobs[1]

Category	Total number of employees for whom data were available	Number of employees whose wage increase was—				
		Less than 10 percent	10 to 19 percent	20 to 29 percent	30 to 39 percent	40 percent or over
Total	27	2	7	4	5	9
Managing or supervising	2	1			1	
Systems analysis, design, and related work	8		2		1	5
Programing	11		2	2	3	4
Operating computer consoles and related equipment	4	1	1	2		
Instrument development, installation, maintenance, or related work	2		2			

1 Data were available for 27 of the 68 employees in new positions. The amount of wage increase is based on a comparison between the rate applicable to an employee's former position, just prior to installation of the process control system, and the rate assigned the new computer job. Several officials interviewed stressed that factors other than the new computer control systems, such as normal professional advancement, account for a portion of the increases. No employee moving into a new computer job for whom information on job status was available received a wage lower than his prior position.

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Table 17. Age, education, and seniority: Employees in new computer process control positions and those in affected production units

Characteristic	Employees in new process control computer jobs		Employees in affected production units where process control computers were installed [1]	
	Number	Percent of total [2]	Number	Percent of total [2]
Age				
Total, all ages	68	100.0	223	100.0
Under age 25	6	8.8	6	2.7
Age 25-44	50	73.5	142	63.7
Age 45 and over	10	14.7	74	33.2
Unknown	2	2.9	1	.4
Education				
Total, all groups	68	100.0	223	100.0
Less than high school graduate	1	1.5	72	32.3
High school graduate	9	13.2	132	59.2
Some college	16	23.5	6	2.7
College graduate	42	61.8	5	2.2
Unknown	0	-	8	3.6
Seniority				
Total, all groups	68	100.0	223	100.0
With company:				
Less than 10 years	38	55.9	35	15.7
10-19 years	18	26.5	101	45.3
20 years or more	4	5.9	87	39.0
Unknown	8	11.8	-	-
Total, all groups	68	100.0	223	100.0
Present jobs:				
Less than 5 years	55	80.9	75	33.6
5-9 years	5	7.4	87	39.0
10 years or more	0	-	61	27.4
Unknown	8	11.8	-	-

1 Data were available for only 223 out of the more than 1,600 employees working in affected production units. Of these 223 employees, about 78 percent were operators and assistants, 11 percent were supervisors, 9 percent were technicians and technicians assistants, and 2 percent were clerks, materials handlers, and related employees.

2 Because of rounding, sum of individual percentages may not equal 100.0.

Sex and age. All employees in new computer jobs were men, and about 82 percent were under 45 years old at the time of the plant surveys.[5] Managers and supervisors and those performing systems analysis, design, and related work were somewhat older than those in the other categories of new computer occupations shown in table 18.

Employees in production units where computers are being used were also men. However, in contrast to employees in new computer jobs, about two-thirds of this group were under age 45.

Education. Although several important jobs were filled by training employees with a high school education, most of the new computer jobs were filled by college graduates, many with degrees in engineering, mathematics, and related fields. (See table 18.) Jobs involving supervision, systems analysis, process control engineering, and high-level programing required college training.

A high school diploma, or at least some high school education, was sufficient for some jobs. At a paper mill, a lab technician who was a high school graduate received training and was upgraded to a junior programer position. At a steel mill, four clerks, including two with only 3 years of high school, achieved the highest scores in a series of aptitude tests and were selected and trained as computer console operators. Moreover, most of the instrument installation and maintenance jobs in survey plants, such as electronic specialist positions in a paper mill, were staffed by high school graduates.

Employees in production units using process computers had significantly less formal education than those in new computer jobs. About 59 percent of this group were high school graduates, and about 32 percent had less than a high school education.

The significantly higher educational attainment of many of the employees in computer and related jobs is not surprising. The skill, knowledge, and experience required to plan and implement a process control computer installation is far different from that required to perform the duties of a production job in the affected units. Engineers, mathematicians, and other professional employees with college training are essential, and, as shown above, frequently make up a large segment of the

5 These finding differ significantly from an earlier BLS study which presented age and sex data for employees in offices using electronic computers for business data processing. In offices surveyed for this study, women staffed 11 percent of the new computer occupations and 53 percent of all jobs in affected office units. The variation in composition of the work force, by sex, reflects primarily the difference between an industrial environment, predominated by men, and a business office where women make up a significant segment of the staff. Employees in the new business data processing computer occupations were also somewhat younger than those in the new process control computer occupations. See *Adjustments to the Introduction of Office Automation,* (BLS Bulletin 1276) May 1960, 86 pp.

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Table 18. Education of employees in new computer jobs, by category of job

Occupational group	Total in new jobs		Education			
			Percent of employees			
	Number	Percent	Less than high school graduate	High school graduate	Some college	College graduate
Total, all groups	68	100.0	1.5	13.2	23.5	61.8
Employees whose major duties involve:						
Managing or supervising	12	100.0	0	0	0	100.0
System analysis, design, or related work	24	100.0	0	0	4.2	95.8
Programing	22	100.0	0	13.6	59.1	27.3
Operating computer consoles and related equipment	5	100.0	20.0	40.0	40.0	0
Instrument development, installation, maintenance, or related work	5	100.0	0	80.0	0	20.0

project staff. Although production workers in the highly instrumented environment of a modern process plant also need skills and knowledge of a high degree, this skill and knowledge generally is acquired through job oriented classroom and on-the-job training rather than in a college or university.

Seniority. Employees in new computer jobs had significantly less company seniority than those working in affected production units. About 56 percent of those employed in computer occupations at the time of the plant survey had less than 10 years of company service; 27 percent had 10 to 19 years, and only 6 percent had been employed 20 years or more. For employees in production units, the proportion in these categories were 16, 45, and 39 percent, respectively.

Employees in the two groups differed even more sharply in terms of length of service in their present jobs. Because the computer units were relatively new, most of the employees had less than 5 years of continuous service in their present positions. On the other hand, most of the employees in production units had more than 5 years of service in their present positions. About one-fourth of the production unit employees had 10 or more years of service in their current jobs.

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CHAPTER 9. TRAINING FOR COMPUTER PROCESS CONTROL

Training to provide employees with programing, maintenance, and operating skills is a key requirement to the successful introduction and use of computer process control. This training usually consists of intensive on-the-job and classroom programs conducted by vendors and users of process computers.

Training Provided by Vendors

Computer manufacturers provided a variety of training services to survey plants which purchased their computers. (See table 19.) Training involved classroom and on-the-job instruction at the site of the computer installation, and classroom and workshop or laboratory sessions at training facilities maintained by the computer vendor. Employees received full wages and salaries and, where applicable, travel allowances while undergoing training. A total of 154 employees at 11 survey plants received some form of vendor training. Provisions for this training were included in several of the lease or purchase agreements with vendors.

Onsite vendor training. This form of training, often in the nature of computer orientation, was relatively brief and tailored to meet the needs of workers in different occupational groups. Specialized training of longer duration also was provided when necessary.

Vendor staff sometimes joined with personnel of user companies and with representatives of other equipment suppliers in furnishing instruction. At an electric power plant, for example, representatives of the computer vendor, suppliers of related plant equipment, and instrument manufacturers participated with plant engineers in orientation lectures for operators and technicians.

Offsite vendor training. Facilities for customer training were maintained by four suppliers of computers; a fifth vendor provided brief equipment familiarization at one of its offices to a plant supervisor. Offsite vendor training facilities generally are maintained at a single location, although one vendor offered its courses at centers in several locations.

These schools or training centers provided instruction in computer concepts and fundamentals, programing, and maintenance. They were attended primarily by control group managers, systems engineers, programers, instrument engineers, and maintenance foremen. Several electronics technicians and a program maintenance technician also received training at vendor schools.

Courses of instruction offered at vendor schools are designed primarily for training managerial and technical personnel. Although the curricula vary at vendor schools, all of them provide courses which fall into the broad categories of maintenance and programing. In addition, some vendor schools offer specialized computer concepts courses for managerial personnel. A description of selected courses offered by one vendor is shown in table 20. Programing courses usually are from 2 to 4 weeks in length, while general maintenance courses may last from 8 to 12 weeks. Concepts courses, intended primarily for supervisors, are comparatively brief.

One vendor offers audio-taped programing courses that may be completed at the training center or at a location convenient to the student. This procedure lowers the cost of instruction and permits the student to progress at his own pace. Another vendor has developed a programing course in FORTRAN to be completed by the trainee before his enrollment in programing courses at the vendor's school.

16. Instructor explains maintenance procedures for computer equipment at computer training school.

Table 19. Training provided by computer manufacturers[1]

Recipient(s) of training	Number trained	Type of training	Description of training	Length of training
Papermill				
Instrument engineers	2	Classroom	Onsite instruction in computer concepts and FORTRAN provided jointly with user company staff. Process systems engineers and programers received additional training in concepts, hardware, machine, and symbolic language, FORTRAN programing, and executive systems at vendor facility.	2 weeks
Project leader	1	Classroom		2 weeks
Manager, computer systems and programing	1	Classroom		2 weeks
Keypunch operator	1	Classroom		2 weeks
Process systems engineers	6	Classroom		6 weeks
Programers	4	Classroom		6 weeks
Programer-operator	1	Classroom		6 weeks
Chemical plant				
Instrument engineer	1	Classroom	Computer technology, maintenance, and programing.	3 months
Programer	1	Classroom	Programing.	1 month
Process engineers	2	Classroom	Computer concepts and programing.	1 month
Chemical plant				
Engineer	1	Classroom	Computer maintenance.	4 months
Program maintenance technician	1	Classroom and on-the-job	Programing and computer techniques jointly with user staff onsite and at vendor facility.	12 months
Chemical plant				
Project team	12	Classroom	General details of computer system onsite.	Not provided
Project engineer	1	Classroom	Programing and theory of computer operation.	4-6 weeks
Process engineer	1	Classroom	Programing and theory of computer operation.	4-6 weeks
Construction engineer	1	Classroom	Programing and theory of computer operation.	4-6 weeks
Maintenance foreman	2	Classroom	Computer technology and maintenance.	9 weeks
Electronic and instrument mechanics	2	Classroom	Computer technology and maintenance.	9 weeks
Electrical engineer	1	Classroom	Computer technology and maintenance.	9 weeks
Engineers	4	Classroom	Programing techniques.	4-6 weeks
Petroleum refinery				
Technical employees	7	Classroom	Programing techniques and computer operation.	1-4 weeks
Petroleum refinery				
Programers	2	Classroom	Programing techniques.	3 weeks
Instrument engineers	1	Classroom	Computer maintenance and theory.	8 weeks
Instrument supervisors	1	Classroom	Computer maintenance and theory.	4 weeks
Instrument men	1	Classroom	Computer maintenance and theory.	12 weeks

See footnote at end of table.

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Table 19. Training provided by computer manufacturers[1]—Continued

Recipient(s) of training	Number trained	Type of training	Description of training	Length of training
Petroleum refinery—Continued			3 instrument engineers, 6 instrument supervisors, and 6 instrument men (including above 3 employees) received 30 hours classroom instruction in computer theory onsite.	
Programers	7	Classroom	Programing techniques.	5 weeks
Steel plant				
Dispatchers	4	Classroom	Computer system and usage onsite.	4 hours
Systems engineers	4	Classroom	Basic programing.	2 weeks
Electrical engineers	2	Classroom and workshop	Programing maintenance.	10 weeks
Steel plant				
Electronics foreman	1	On-the-job	Computer terminology; location and function of hardware components.	5-7 weeks
		Classroom	Information entry and retrieval; machanics of peripheral equipment.	2 days
Electronics repairmen	12	On-the-job	Minimal training for minor maintenance given jointly with electronics foreman.	Ad hoc basis
Console operators	5	On-the-job	Use of computer to control mill setting and produce reports. Modifying and testing programs.	3 months
Steel plant				
Coordinator of control computers	1	Classroom	Familiarization with program prepared by vendor.	5 weeks
		Classroom	Familiarization with program prepared by vendor onsite.	1 week
		Classroom	Programing for business data processing computer.	Not provided
Procedures analyst	1	Classroom	Familiarization with program prepared by vendor.	5 weeks
		Classroom	Programing for business data processing computer.	Not provided
		Classroom	Equipment wiring procedures.	2 months
Electronics maintenance foreman	1	Classroom	Computer logic and maintenance onsite.	6 months
		Classroom	Programing onsite and at vendor facility.	3 months
Electronics repairmen	2	Classroom and on-the-job	Computer concepts, logic, and capabilities.	Class: 15 hours OJT: Periodically
		Classroom and on-the-job	Programing; functions of computer equipment; computer logic, etc., onsite.	Class: 1 week OJT: Periodically
Electric power plant				
Senior design engineers	7	Classroom	Various courses including computer concepts, programing, computer installation and checkout, and computer hardware.	2-12 weeks

See footnote at end of table.

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Table 19. Training provided by computer manufacturers[1]—Continued

Recipient(s) of training	Number trained	Type of training	Description of training	Length of training
Electric power plant—Continued				
Assistant test engineer	1	Classroom	Hardware and programing.	12 weeks
Electronic technicians	2	Classroom	Maintenance and some programing.	8-12 weeks
Electric power plant				
Electrical engineers	13	Classroom	General orientation, programing, and maintenance.	1-3 weeks
Performance supervisor	1	On-the-job	Employee worked with vendor personnel assigned to program computer.	3-6 weeks
Technical foremen	2	Classroom	General orientation.	2 weeks
Operator supervisors	4	Classroom	General orientation	3 weeks
Operators and technicians	26	Classroom	Vendor participated in familiarization lecture program with user and equipment manufacturers onsite.	80-120 hours

1 Provided at vendor facility unless otherwise noted.

Course prerequisites. Requirements for enrollment in courses vary among vendor schools. For programing courses, an engineering or science degree generally is desired, although one school accepts students with a background in high school algebra. For maintenance courses, a good understanding of basic electronics and the ability to think logically are the basic requirements. The knowledge of basic electronics usually was acquired as a result of having an electrical engineering degree, formal training in electronics, or on-the-job experience.

Training Provided by Users

All but one of the survey plants provided employee training during conversion to computer control. The exception was a steel mill which relied exclusively on vendor staff for training. (See table 21.) The extent and kind of training were determined largely by a company's computer system requirements, its capability to provide training, and the type of training provided by the computer vendor. A total of 484 employees at survey plants received some form of classroom or on-the-job instruction.

Operators. Almost all training provided to operators at survey plants was given by company personnel, who usually had been trained by the vendor. The focus of training was on the operating procedures for the computerized system. The training was relatively brief, ranging from 4 to 80 hours, although sometimes this training was extended over a long period of time. Although most training sessions were held on-the-job, some involved classroom instruction.

Technicians. Most technicians also received their training from the user staff. The time spent in training varied greatly, largely because of differing job requirements for technicians among survey plants. Instrument maintenance men at a paper mill, for example, received 2 weeks of classroom instruction, whereas those with the same job title at a petroleum refinery were given 300 hours of on-the-job training. Two technicians at a chemical plant were trained for programing maintenance, one for 6 months and the other (jointly with vendor staff) for a year.

Supervisors. Several plants also provided training, including both computer orientation sessions and specialized instruction to supervisory and professional personnel. At a paper mill, for example, company staff joined with vendor representatives to familiarize the computer project group with the functions and programing of the planned computer installation; at a chemical plant, 10 chemical engineers were given 7 months training in programing.

Type of instructors, facilities, and methods. Training instructors from plant staff included engineers with a knowledge of computer programing, maintenance, and technology, and production supervisors who had undergone training either at their plants or at vendor schools. Training aids were used extensively to facilitate both classroom and on-the-job instruction. These included blackboards, manuals prepared by both the user and vendor staff, and, at one plant, a console mockup and templates which fitted over the dials of the operator console. At a papermill, a taped series of closed—circuit TV lectures on digital computers is being prepared for presentation to selected plant employee groups.

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Table 20. Selected courses offered by the training school of a large vendor of process control computers

Title of course	Content of course	Prerequisites	Length of course
Process computer concepts	Fundamentals of digital computers and their place in automatic control, introduction to process computer programing, and descriptions of typical systems.	Interest in process computers.	2 days
Programing courses:			
Standard programing course	Computer concepts, number systems, flow charting, FORTRAN, and computer process assembly language.	Bachelor's degree in science or engineering and a working knowledge of process to be monitored or controlled.	4 weeks
Audio taped programing course	Specially prepared audio tape lectures and accompanying workbooks. (Can be taken at customer's locations and may be supplemented by 2 weeks "live" course at computer school.)	Bachelor's degree in science or engineering and a working knowledge of process to be monitored or controlled.	Determined by student
Maintenance courses:			
Programed instruction course	Number systems, digital computer theory, core memory theory, and basic machine-language programing. (Designed to prepare students for maintenance courses taught at computer school.)	Electrical engineering degree or 2 years of formal electronic training, plus 2 years' maintenance of major electronic equipment.	1 week (approximate)
Central processor maintenance	Detailed theory of operation of the computer system. Study and practice of preventive and corrective maintenance procedures.	Successful completion of examination covering material contained in programed instruction course.	11 weeks
Basic peripheral maintenance	Extensive theory and practical work on peripheral devices.	Successful completion of control processor maintenance course.	2 weeks
Disc memory maintenance	Theory of operation of the device and preventive and corrective maintenance procedures.	Same	3 weeks
Teletype printer maintenance	Same	Same	2 weeks
Card reader and card punch maintenance	Same	Same	1 week
Line printer maintenance	Same	Same	1 week
Remote scanner maintenance	Same	Same	2 weeks

SOURCE: Training brochures of computer vendor.

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Table 21. Training provided by user companies

Recipient(s) of training	Number trained	Type of training	Description of training	Length of training
Papermill				
Task force employees (See table 24)	16	Classroom	(See table 24.)	2 weeks
Paper machine crews	35	On-the-job	Instrument functions and capabilities.	6 hours
Instrument maintenance men	33	Classroom	Instrument maintenance.	2 weeks
Chemical plant				
Instrument technician	1	On-the-job	Computer and instrument maintenance.	Periodic
Plant superintendent	1	On-the-job	Computer technology. Use of computer technology.	Periodic
Cracker operators	4	On-the-job	Operating techniques.	Periodic
Clerk	1	On-the-job	Computational techniques. Use of input-output equipment.	Periodic
Operators	4	On-the-job	Plant operation using computer.	8 hours
Process engineers	2	On-the-job	Computer system familiarization; programing.	4 months
Clerks; operators	30	On-the-job	Operation of computerized system.	
Chemical plant				
Chemical engineers	10	Classroom and on-the-job	Programing.	7 months
Programing technician	1	Classroom and on-the-job	Programing.	6 months
Program maintenance technician	1	Classroom and on-the-job	Programing and computer techniques, jointly with vendor.	1 year
Laboratory technicians	2	On-the-job	Computer applications to lab operations.	50 hours
Laboratory analysts	50	Classroom and on-the-job	Computer utilization.	16 hours
Chemical plant				
Operators	32	On-the-job	Operations of computer equipment.	Periodic
Operators	32	Classroom and on-the-job	Operations of computer equipment.	12 hours
Petroleum refinery				
Foreman, stillmen, operators	30	Classroom and on-the-job	Computer programs and operations.	40 hours
Foremen, stillmen, operators	25-30	Classroom and on-the-job	Computer programs and operations.	12 hours
Petroleum refinery				
Stillmen and controlmen	72	On-the-job	Operating techniques.	80 hours
Instrument man	1	On-the-job	Computer and instrument maintenance.	150 hours
Instrument engineer	1	On-the-job	Instrument maintenance.	300 hours
Instrument men	3	On-the-job	Instrument maintenance.	300 hours
Steel mill				
Melter foreman, operators, and helpers	50	Classroom	Basic operating procedures.	4 hours

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Table 21. Training provided by user companies—Continued

Recipient(s) of training	Number trained	Type of training	Description of training	Length of training
Steel mill				
Electronics repairmen	12	On-the-job	Minor maintenance of computer system jointly with vendor staff.	Periodic
Electric power plant				
Operators	29	On-the-job	Operating procedures.	-
Control group engineers	2	On-the-job	Programing.	3 weeks
Electric power plant				
Operators and technicians	26	Classroom	Familiarization lectures jointly with computer and equipment vendors.	16-24 hours
Cement plant				
Kiln burners	3	On-the-job	Basic operating procedures.	-

Training has been formalized at many survey plants, some of which maintain permanent programs for developing employee skills. One large chemical plant, for example, has a continuing program that consists of three sequential courses. The basic course consists of mathematics, process flow, and chemical technology, which is followed by two advanced courses pertaining to plant operations and process technology. After completing the two advanced courses, employees receive a pay increase.

Training generally was provided during working hours. In at least two survey plants, however, training sessions were conducted after regular working hours, and the trainees earned overtime pay.

As plants gain experience in computer process control, evidence from this study suggests they will rely increasingly on their own staffs for the training of new personnel in computer tasks. The two newest engineers at an electric power plant, for instance, were assimilated into the control group with only 3 weeks' training that consisted of reading a programing manual and experimenting with control problems. This power company believes that outside training for this control group will not be necessary as long as it maintains an experienced group of engineers.

Training Provided by Educational Institutions and Other Groups

As a general rule, technical schools and colleges were not found to be important sources of training for computer process control. A cement plant included in the survey, however, sent four electricians to a local junior college at its expense for 16 weeks' instruction in electronics to prepare them for work as instrumentation technicians.

Technical schools and junior colleges may be used more extensively as their curriculums are broadened to meet the needs of companies in process industries. The major training tasks of these institutions, however, probably will be to provide the necessary skills needed to qualify for entry positions as technicians and operators. An important source of training for managers and technical personnel will continue to be the relatively brief (often 1 to 2 weeks in duration) courses in computer concepts and techniques which are offered by universities, industry technical associations, and private consulting firms.

Schools also have been established for the development of computer technicians by some computer manufacturers. Computer technology (40 weeks) and programing (20 weeks) are among the courses offered at one of these schools. A high school education or its equivalent is required for entrance.

Some experts foresee that training of engineers, systems analysts, and related technical staff involved in implementing computer process control may increasingly involve postgraduate instruction, since presently most undergraduate curriculums do not include some essential specialized technical subjects related to computer control. It is significant, however, that a few schools reportedly have initiated undergraduate BS degree programs and others now offer selected courses in the field of systems engineering. Some idea of the educational requirements for computer process control is indicated in appendix B-4, which lists some of the

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suggested courses for process control systems engineers in the chemical and petroleum industries. With slight modification, this list would be appropriate for process computer applications, regardless of industry.

Criteria and Methods of Selecting Employees for Training

Employees who received training as a result of the conversions to computer control included those in existing jobs whose duties were to be affected by the introduction of the computer, and those assigned to the new programing, maintenance, and operating tasks created by the computer. Employees in the first group, primarily operating personnel and their supervisors, automatically received the training needed to perform their duties under the modified operating conditions. The latter group comprised employees selected for new positions and others assigned from engineering staffs to work in computer occupations.

Selection criteria most frequently considered by survey plants for computer-related training assignments included work experience, ability, interest, and aptitude. Job performance and amount and kind of education also were considered. In addition, work experience and knowledge of a given process were cited by several companies as important reasons for recruiting programer trainees from within the company.

Particular personal temperaments and aptitudes were looked for by various companies in screening applicants for training. Those most often cited were dedication, initiative, patience, persistence, adaptability, capacity for logical thinking, and interest in pursuing education.

Methods used by plants to appraise qualifications for training ranged from management judgment of employees' records to reliance on standard aptitude tests. Both tests and interviews were employed in several plants to screen candidates. Seniority lists were used at one plant to select instrument men for training in computer maintenance from among employees who had completed outside courses in electronics.

A high school diploma represents the preferred minimum educational requirement for operator and technician jobs. Applicants for technician jobs at a power plant, however, were required to have 2 years of technical school training in mathematics and electronics. Moreover, officials at several plants expressed a preference for applicants with technical training equivalent to the junior college level for operator jobs.

Appraisal of Training

Although few problems involving training were reported, officials at all survey plants expressed a need for greater preparatory training for work with computer control. Some courses considered useful are presented in table 22. The desirability of a more thorough preparation in mathematics and the physical sciences in high school was mentioned repeatedly. The importance of technical schools and junior colleges in providing instruction in these subject areas and in electronics also was stressed.

Table 22. Type of courses for computer process control desired by officials at selected survey plants

Plant	Suggested courses
Papermill	Education oriented toward the development of logical thinking would be desirable, including high school courses in geometry and algebra.
Chemical plant	More high school training in mathematics is needed for operators. Junior colleges are beginning to offer 2-year courses in processing technology, and a graduate of such a course would be preferred to a high school graduate for operator jobs.
Cement plant	More formal education in electronics, instrumentation, and mathematics would be useful in preparing operating employees for computer control.
Steel mill	Technical school training, courses in mathematics, and electrical training would be helpful in preparing operating employees for computer control.
Electric power plant	Technicians, technical assistants, and helpers should have a high school education, with courses in physics, chemistry, and electronics. Training courses offered by the computer manufacturer will continue to be used for systems engineers and programers.
Electric power plant	Courses useful for computer process control engineers include Boolean algebra, basic to logical thinking and to understanding computers; discrete sampling techniques; linear programing; and digital techniques for solution of practical differential equations.

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CHAPTER 10. LABOR–MANAGEMENT ADJUSTMENTS

The introduction of process computers has caused minimal adverse manpower impact at most survey plants and has resulted in only a few major problems affecting labor-management relations. Most of the survey plants had existing collective bargaining contracts which contained provisions to facilitate the adjustment of workers to technological change. These provisons provide the mechanism for giving advance notice, setting wage rates, reassigning workers, and providing benefits for workers laid off.

Contract Provisions Relating to Technological Change

Workers were represented by unions at 9 of 12 plants visited. Major unions at survey plants are the Oil, Chemical and Atomic Workers International Union; the International Brotherhood of Electrical Workers; the United Steelworkers of America; the International Union of Pulp, Sulphite and Paper Mill Workers; the International Union, District 50, United Mine Workers of America; and the Independent Petroleum Workers of America.

All of the collective bargaining contracts at the survey plants have broad general provisions that protect workers affected by technological change. These provisions cover topics such as job security, advance notice of technological and other changes, displacement and downgrading, procedures for manning new jobs, severance pay, and layoff benefit plans. In a few plants, contracts contain a clause that ensures the use of these provisions in instances of technological change. The following are examples of two such union contract provisions at a survey chemical plant.

> The collective bargaining contract contains a statement of intent pertaining to job security. Its purpose is to minimize ". . . .adverse effects on employees. . .elimination or downgrading of jobs arising from automation, restructuring of work, and operations improvement. . " The company is obligated to ". . .inform employees directly affected when changes or improvements are proposed and are to be studied, as soon as such advance information may be feasible, and in any case before the proposals are instituted. . ." Workers affected by the three process control computer installations at this survey plant were notified well in advance of the changes.

A formal job evaluation plan provided for in the union agreement was used to adjust the wage rates of workers affected by process computers. Job evaluations were requested by the union for eight operators working in two of the units using computer control. Factors such as skill, physical and mental demand, working conditions, and responsibility for equipment, product, and materials were assigned a number of points depending upon their relative importance. The point total for each job category was agreed upon by union and management representatives and was used to set the wage rate. As a result of these job evaluation studies, four operators received an increase in wages, but the other four operators retained their former rate.

Informing Employees About Change

Employees in the affected units were notified in advance of the actual installation of the process computer system at 10 of the 12 plants visited. The period of advance notice ranged from 4 months to 2 years at survey plants. The most usual way of informing workers about the pending installation of computer process control was a special meeting held by supervisors with workers in the affected unit. Other communication techniques included a description of the forthcoming change in the company newspaper or bulletin, discussions during regular union-management meetings, notification of the union by letter, and notification through the local press to the public.

Prior to the installation of the computer, a description of the system was provided the workers, and its probable effect on their employment was discussed with them. In a paper plant, for example, the possibility that workers might be displaced and the changes in job content of workers in the affected unit were the subjects discussed at a meeting of company and union representatives. Other topics of discussion between company and worker representatives at survey plants were training programs and job evaluation studies for affected workers.

Special Negotiations and Grievances

Union-management negotiations or specific grievances related to the introduction of process computers occurred in only two plants. At a petroleum refinery, one of the unions became concerned about who would have jurisdiction over the maintenance of the process control computer that was to be installed. The union brought this matter up during a regular union-management meeting and indicated that union members were qualified and should maintain the computer. The company's position was that it had a contract with the computer manufacturer for maintenance of the computer. The result of the negotations was that union members would repair minor difficulties, and the manufacturer's representative would be called to repair major equipment malfunctions.

At a power plant, formal grievances were filed concerning the abolition of two extra operator jobs per shift in a new plant using a process computer. A specific grievance was filed for each job abolished. These jobs were added to the operating crew of the plant to assist with additional tasks required during the shakedown period when the plant was being brought into operation. Following past procedure, the company wanted to abolish the extra jobs after the shakedown period was over. The union's position in contesting the job reductions was that the computerized plant could not be operated safely without the additional workers. A major union complaint was that the workers in the contested jobs were needed to check out the numerous alarms about plant operations given by the computer. The arbitrator, however, ruled in favor of the company on both jobs and they were abolished. Employees in these abolished jobs were transferred to other positions.

Union Comments About Computer Process Control

The effects of the introduction of process control computers on workers were discussed with local union representatives at the nine unionized plants visited. Since the majority of the survey plants were already highly instrumented, process computers were felt to be merely a further extension of instrumentation for use in control over plant processes. Such changes had been introduced frequently in these plants in the past, and the union officials accepted these changes as part of the technological evolution of the industry. Most union officials indicated that worker adaptation to computer process control created no serious problems. In some cases, union representatives felt more concern about other kinds of technological changes that might have a greater effect on employment at their plants. At steel mills, for example, the basic oxygen furnaces being introduced are expected to have a greater effect upon workers than computer process control.

A number of officials, however, felt that adverse effects upon union members were possible in the future. At two petroleum refineries, for example, the increasing use of process computers is expected to accelerate the declining employment of operators and maintenance workers. At one electric power plant, computer process control is expected to reinforce the adverse effect on the work force brought about by other recent technological changes. At another electric power plant, more automatic computer control operations may lead to future reductions in manpower. (See appendix B-5 for more extensive comments by union representatives about the introduction of process computers at specific survey plants.)

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CHAPTER 11. OUTLOOK FOR COMPUTER PROCESS CONTROL AND MANPOWER

Process computer installations are expected to increase greatly in number and complexity over the next decade, and probably will result in significant increases in employment of engineers, programers, and technicians. However, fewer operators may be needed as computer control is improved and centralized further.

Growth in Number of Computer Control Installations

Continued growth in the total number of process control computer installations is expected though the future growth rate is difficult to estimate because of diverse factors such as changing computer technology, the expansion of process computer applications to many areas outside of process industries, the economic conditions in the industries involved, and the changing economic conditions of the Nation. From 1963, the first year that a significant number of process computers were reported, to 1968, process computer installations in the United States have been increasing at an average annual rate of 48 percent, and worldwide at an average annual rate of 55 percent. Although these rates may not be sustained, a continued high rate of growth can be expected. Some industry experts suggest that the increase in process computer installations may be about 20 percent a year in the near future. Projecting the 1968 estimated total of 1,647 process computers in the U.S. and 3,094 in the world at this 20 percent rate to 1975 results in totals of about 5,900 U.S. and 11,100 worldwide installations.

Outlook for computer control in process industries. Most experts at survey plants foresee expansion in the number of computers and the ways they will be applied in the process industries. The paper industry will be using process computers for control of nearly all major processes by 1975. In the chemical industry, officials interviewed estimated that all large chemical plants and 90 percent of the major production processes will be using process computers by 1975. In addition, all petroleum refineries with capacities of 50,000 barrels a day and all major refining processes should be using some form of digital process computer control by the mid-1970's. Laboratory computer systems are expected to become important in both the chemical and petroleum refining industries. The key steps of raw materials blending and kiln control in the cement industry are expected to account for the largest number of future applications. By the early 1970's, in the iron and steel industry, all new hot strip mills and basic oxygen furnaces are expected to be using process computers. Continuous casting also is expected to be a prime candidate for computer control. Main applications of process computers in the electric power industry will be for startup, shutdown, normal operations and performance calculations for conventional plants, and economic dispatch for power systems. Nuclear plants also probably will be computer controlled. An increase in process computer installations is expected in many sectors of the economy outside of the process industries. Specific forecasts of future installations and applications by officials at survey plants are presented in appendix B-6.

Factors Affecting Outlook for Computer Process Control

Changes in process computer control technology and programing techniques are expected to be a particularly important determinant of growth in the number of process computer installations and the type and scope of application in the near future. Specific factors affecting the future of computer process control mentioned by officials at survey plants are presented in appendix B-7.

Two trends in computer equipment are underway. One trend is toward small, relatively low cost computers which are economically feasible for control of a single small process, or if used in multiples, for control of a large process. The other trend is toward large, expensive computers with time sharing, priority interrupt features. At present the calculating power of these large computers is such that many complex processes in a plant can be run by a single unit. Systems are being set up with the computer in a central location. By using data transmission lines, many plant processes can be placed under continuous control. Time sharing capabilities of

these computer systems allow a number of different type process operations to be interwoven into their operating functions, and it is expected that this type of computer system will have even greater capability in the future.

Both of these trends are leading to lower cost computer control operations. Small computers will allow applications in areas that were previously uneconomical; large computers will lower the cost of control over individual processes in a large plant. In addition, the growing production of process computers and continuing competition among computer manufacturers also are leading to decreased computer costs. In a paper plant visited, for example, a process computer installed in December 1962 was leased for $14,000 a month. A replacement computer installed in January 1967, however, cost only $7,000 a month, despite the fact that it has 10 times the computing capability of the former unit.

Computer reliability also has increased greatly since process computers were introduced. As reliability of equipment increases, more dependence will be placed on the computer system and less on human control.

New and more advanced instrumentation, including more accurate on-line analyzers, are being developed for process control. Much emphasis is being placed by instrument manufacturers on making equipment compatible with computer control. These trends are expected to lead to more precise control, and the ability to operate the process closer to equipment limits.

Direct digital control has proved successful and can be expected to increase in application in the future. One of the major advantages of DDC is that the conventional analog controllers, used for most existing process control applications, are replaced by a digital computer connected directly to the process. Some of the gains are a reduction in the cost of large projects, improvement in control performance, and greater flexibility in changing control strategy. DDC is expected to have its greatest use in new plants where the control systems can be designed specifically for this advanced technique rather than in existing plants which already have analog controllers installed. Use of DDC for control of batch processes probably will lead to increased process computer applications in many industries.

The use of computer hierarchy systems, consisting of interconnected computers at different levels of a plant or a company, is expected to increase in the future. A small number of these systems are planned or in use at present, and the early stages of such a system were observed at a survey paper plant and a petroleum refinery. Many of the operating decisions of a large multiprocess plant, or a complete company, could be assumed by a computer hierarchy system. DDC can be expected to find a major application in such systems.

Specialized computer languages designed to assist engineers in programing for process control applications are being developed. These languages will relieve the programer from directly writing machine instructions and will allow him to set up a program package with the best operating procedures for the computer system being used with a minimum of effort.

In addition, a number of standardized program packages for process control applications have been developed by computer manufacturers and by firms that anticipate many process computer applications. They consist of a set of general programs that can be modified easily to fit individual control projects and are designed to be used by engineers with a minimum of computer training. Much of the cost, time, and effort of programing will be reduced by the use of these standardized programs.

Another recent and important development has been the licensing of standardized process models for commonly used industrial processes. Process models for catalytic cracking have been developed, for example, that can be used by units at different locations with a minimum of adjustment.

Outlook for Employment and Occupations in Process Industries

Employment trends are expected to vary in the different process industries surveyed because of factors such as changes in general economic conditions, productivity, demand, and technology, including computer process control. In three industries—pulp and paper, industrial chemicals, and iron and steel—employment is expected to increase slightly; in two—petroleum refining and hydraulic cement—employment is expected to decline slightly; in the remaining industry—electric power—little or no change in employment is anticipated. Employment in total manufacturing, on the other hand, is expected to increase gradually through the 1970's.

Prospects for major occupations affected by computer control. An increased demand for systems, control, instrument, and process engineers can be expected because of the growing emphasis on advanced control techniques and equipment and the expanding output in the process industries. The expanding number of process computer installations and applications is expected to be a key factor in accelerating the demand for these highly skilled engineers who will be needed to plan, develop,

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install, and repair computer equipment and instrumentation. This trend can be expected to continue despite factors such as growing experience in process computer technology and the introduction of standardized process models, which serve to reduce engineering effort. (Specific occupational trends forecast by officials at survey plants are presented in table 23.)

Employment opportunities for programers in the process industries also are expected to increase, but not as rapidly as for engineers. This is due in part to the practice of training engineers to perform programing tasks for process computers and the increasing use of standardized program packages. More programing technicians and assistants also will continue to be needed to update and maintain computer programs. Demand for process computer programers can be expected to increase in firms outside of the process industries, such as computer manufacturers and consulting firms who are expected to continue to supply much of the programing effort needed for process computer installations.

The demand for operators in the process industries is expected to continue to decline, due mainly to the continuing shift to large capacity production units, centralized control rooms, and more automatic controls. This decline in demand for operators is likely to be reinforced by the growing use of process computers. Older plants may centralize control rooms at the same time as they introduce computer control, thereby reducing the need for operators. New plants, designed and built to encompass computer control, probably will require fewer operators than similar plants without computers. However, electronic and instrument technicians, who are needed to install and repair complex computer equipment and sophisticated electronic instrumentation, can be expected to increase in number.

Other types of occupations also are expected to be affected by computer control. Demand for laboratory analysts in analytical and production control laboratories, for example, may be reduced by the increasing use of computer systems for routine analysis and calculations. Employment of record and production accounting clerks also may be reduced, since much of the data logging and report preparation done by these workers can be carried out automatically by process computers.

Multiprocess, plant, and company control, advanced forms of computer control that are now receiving much emphasis, may have adverse manpower implications in the future. A complete plant, for example, could be operated with a crew no greater in size than is presently required to operate a single control room; this situation obviously would result in a significant decrease in operating manpower.

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Table 23. Outlook for further occupational changes at selected survey plants because of computer process control

Survey plant	Outlook
Papermill	As paper machines come increasingly under computer control, the duties presently performed by crews will be reduced. Possibly within 10 years, a single crew, perhaps larger than a current single crew today, will be able to operate 2 paper machines. Within 10 years, less labor probably will be required in the operations of threading the machine, changing paper grades, and cleaning the machines than at present. The quality control capability of the computer probably will eliminate the present occupations involved with testing and inspection. Also, instrument maintenance will become much more systematic and demand a higher level of technical skill.
Chemical plant	Labor costs as a percentage of total costs in large chemical plants are very low. Emphasis, therefore, is on improving control and reducing raw material costs rather than reducing manpower requirements. In analytical laboratories, labor costs are the largest expense. Consequently, use of computers is expected to have a great impact on manpower in laboratories. Computers in the analytical control labs will affect both supervisors and technicians. Through the use of computer systems which include data transmission lines and remote chromatograph stations, laboratories may be able to double present loads. Although this chemical plant does not yet have a permanent computer control group for systems design and programing, it probably will have one in the future because applications are growing so rapidly that the company cannot afford the loss of programing skills and computer knowledge which occurs when computer project groups breakup.
Chemical plant	The size of the computer systems engineering group is expected to increase from 3 to between 6 and 9 workers, including systems engineers, programers, and technicians. Computer systems, however, are not expected to have much impact on the employment of operating personnel since operators will be employed to assure operation of the plant during emergencies with which the computer cannot cope. Training of programers and technicians will become more important, since the adverse effects of lack of training in computer technology only are beginning to be felt. The shortage of trained process computer personnel is likely to retard more widespread use of computer process control in the petrochemical industry.
Petroleum refinery	Most units at this refinery have been utilizing automatic controllers for some time; therefore, the operating staff is small and not much change is anticipated. Maintenance employment, which has been declining due to a continuing consolidation of small units into larger and more efficient ones, is expected to continue to decline slightly because of the utilization of computers which allows equipment to operate for longer periods between shutdowns for maintenance. The computer applications group is not expected to grow much larger. If more technical manpower is needed, the companies' policy will continue to be to borrow personnel from other parts of the corporation to work on specific projects. Lack of qualified technical manpower for new key positions is a fairly universal problem. For the industry as a whole, more process engineers with chemical engineering backgrounds and computer knowledge will be needed. Standardized process computer programs, however, could reduce the need for programers.
Petroleum refinery	The company can foresee complete automatic control in the future. Such installations would have a computer in complete control of all process operations. The operator would remain only as a monitor. If this plant is to increase utilization of process computers, however, it needs more skilled programers and instrument men who are trained in electronics.
Steel mill	Engineers and maintenance workers will need to acquire some knowledge of computer control systems and the capabilities and methods to maintain them. More maintenance workers and systems engineers will be needed. Additional programing skills also may be required.
Steel mill	Further use of process control computers is not expected to lead to any notable labor displacement. Operators will continue to be needed at least as backup men to run production processes manually in the event of computer system failure. More maintenance personnel may be required, and maintenance job skills will have to be extended and upgraded.
Electric power plant	The amount of time spent calculating performance requirements and testing is expected to be reduced because of computer control.
Electric power plant	Nuclear power plants may tend to decrease the number of plant personnel due to increased automation, including computer process control, less maintenance, and elimination of coal handling. Skill levels in nuclear plants probably will be higher.

SOURCE: Based on interviews with officials at 9 survey plants.

APPENDIX A. SCOPE AND METHOD

Coverage of Survey

This study is limited to the use of digital process control computers in the highly instrumented process industries where computer control was first adopted beginning in the late 1950's. Twelve plants in six major process industries were visited by BLS staff for information for the study. These industries are paper, industrial chemicals, petroleum refining, hydraulic cement, iron and steel, and electric power. Table A provides detail on the number of plants, process control computers, and employees in the survey. A total of 28 separate process control computer installations were surveyed.

Plants included in the survey varied in size from several hundred employees at an electric power station to nearly 19,000 employees at a large steel mill. Total employment at the time of visit in the operating units where process computers were introduced was 1,644—about 3 percent of the total employment of 63,687 at these plants.

Survey plants were located in 10 different States in the East, South, and Midwest. Most plants were in or near major population centers. However, several were in communities with fewer than 50,000 people.

Method

The first phase of research involved a comprehensive review of trade journals, technical magazines and books, corporate annual reports, and other secondary source materials to determine in which industries process control computers were being applied. Articles describing specific plant installations were helpful in selecting representative and illustrative plants to include in the field survey. A listing of secondary source material is included in the bibliography.

Next, the major producers of process control computers were visited by BLS staff to discuss in depth the outlook and implications of computer procees control. Company technical staff provided expert judgment on the possible future rate of adoption of computer process control in the various industries and applications. Prospects for further refinements and advancements in computer technology also were discussed. The brochures describing the various systems obtained during the visits were helpful in acquiring a better understanding of the capability and functions of computer process control systems.

The next step was to select the plants to be included in the study. Substantial effort was made to include plants in the major process industries which would be representative of processes being put under computer control. Twelve plants in six major process industries were selected for study on the basis of the secondary sources described above and interviews with experts. These 12 plants represent a wide range of applications and levels of computer control. Only plants with systems in operation for at least 1 year were included in the survey so that effects on employment could be examined more readily. Plants also were chosen that had replaced early process control systems with more advanced systems. Most plants contacted had more than one computer system functioning when visited.

A questionnaire was developed for use as an aid in gathering data during informal discussions with management and union officials. The prior steps of reviewing secondary source materials and visits to computer manufacturers were very helpful in developing a draft form. This questionnaire was reviewed by government, industry, and labor experts, and their suggested revisions were incorporated.

The plant visits were undertaken by BLS staff who spent an average of about 2 days at each plant interviewing company officials who had direct knowledge of the installation. Administrators, managers of production units, industrial relations experts, engineers, computer technicians, and maintenance staff were among typical company employees interviewed. In addition, the local officials of the unions representing the employees at the plants were interviewed. Information was obtained on topics such as the nature of the computer control system and process application, reasons for installation and economic benefits that resulted, extent of worker displacement and reassignment, characteristics of employees in jobs created and abolished, and training programs and other techniques to prepare employees for new duties relating to computer process control systems.

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Table A-1. Number of survey plants, process control computers, and employees in operating units with process control computers

Process industry	SIC code[1]	Number of plants in survey	Number of process control computers covered in survey	Total number of employees in operating units with process control computers
Pulp, paper, and board	261,262,263,266	1	1	35
Industrial chemicals[2]	281	3	12	3 220
Petroleum refining	291	2	4	38
Hydraulic cement	324	1	1	17
Iron and steel[4]	331	3	6	3 669
Electric power	491,493	2	5 4	665
Total		12	28	1,644

1 U.S. Bureau of the Budget, *Standard Industrial Classification Manual, 1967.*
2 Includes inorganic and organic chemicals.
3 Employment for some units unavailable and therefore not included in total.
4 Blast furnaces, steelworks, and rolling mills.
5 Includes two computers in survey plants and two in other plants of companies surveyed for whom extensive data were obtained.

A draft report was prepared based primarily on data obtained during these field visits, supplemented by analysis of government statistics, trade and technical publications, and other secondary sources. It then was sent to company and union officials, industry and government experts, technical journal editors, and others for comment on the validity and accuracy of findings. Their suggested changes were evaluated and the necessary revisions incorporated.

Limitations

In assessing the results of this study, consideration of several limitations is important.

First, not all applications of computer process control were covered. This study focuses on the use of computers to control operations in process industries and does not cover their limited but growing use in discrete product manufacturing industries for functions such as industrial testing and production control. Process computers used in research, educational, or medical institutions are not covered by the survey. The study also excludes analog computers which are being used for control applications involving only a few variables.

Second, the study focuses on the manpower and economic effects of computer process control at user plants only. Indirect effects on manpower at plants where computers are manufactured were outside the scope of the study. Also excluded was an evaluation of possible employment and other manpower problems at competing plants which had not yet adopted digital process control computers.

Third, data on certain aspects of the study, such as on the type and extent of manpower and economic savings, were classified as confidential by a few companies and therefore were unavailable.

Finally, the experiences of plants included in the study may not be representative of the manpower impacts that might occur at a later stage of use of process control computers when advanced types are developed and installed.

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APPENDIX B. TABLES

(Tables B-1 through B-7.)

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Table B-1. Employment, output, and output per man-hour, in manufacturing and major process industries, selected years, 1957-69

Industry	SIC code[1]	Employment: Number of employees 1969 annual average (in thousands): Total	Employment: Number of employees 1969 annual average (in thousands): Production workers	Employment: Average annual percent change 1957-69[2]: Total	Employment: Average annual percent change 1957-69[2]: Production workers	Output and output per man-hour: Average annual percent change 1957-68[2]: Output	Output per man-hour: All employees	Output per man-hour: Production workers
Manufacturing	-	20,121	14,735	1.8	1.5	[3] 5.4	[3] 3.4	-
Pulp, paper, and board	261,262, 263,266	297.8	233.0	[4] .2	[4] -.2	[5] 5.1	[5] 4.7	[5] 5.0
Industrial chemicals	281	314.2	172.8	[4] 1.3	[4] .5	[6] 10.2	-	-
Petroleum refining	291	146.3	86.1	- 2.5	- 3.3	[5] 3.2	[5] 7.2	[5] 7.4
Hydraulic cement	324	35.1	26.9	- 2.1	- 2.9	[5] 2.1	[5] 4.8	[5] 5.5
Iron and steel[7]	331	643.9	513.8	.1	-.1	3.1	2.6	2.6
Electric power and gas[8]	491,492, 493	616.1	529.0	.4	0	7.0	6.5	6.9

1 U.S. Bureau of the Budget, *Standard Industrial Classification Manual, 1967.*
2 Based on the linear least squares trends of the logarithms of the index number.
3 Output is gross product originating and is not strictly comparable with output and output per all employee man-hour measures for individual industries.
4 Rates are for period 1958-69.
5 Rates are for period 1957-67.
6 Federal Reserve Board. Not strictly comparable with output measures for manufacturing and other process industries.
7 Blast furnaces, steel works, and rolling and finishing mills.
8 Not strictly comparable with definition of survey industry used elsewhere in the report. Includes SIC 492, gas companies and systems.

SOURCE: Average annual percent change in output for industrial chemicals is based on Federal Reserve Board data. All other data are from U.S. Department of Labor, Bureau of Labor Statistics.

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Table B-2. Major applications of process control computers in survey industries in the United States, July 1968[1]

Industries and applications	Number of applications
Electric power:	
Electric generating stations	199
Scan, log, and performance calculations	51
Nuclear plants	12
Operator guide control	11
Start, stop control	10
Power systems	43
Economic dispatch and load control	34
Industrial chemicals:	
Ethylene production	16
Analytical laboratory and chromatograph control	14
Ammonia production	6
Iron and Steel:	
Basic oxygen furnace	22
Electric arc furnace	19
Hot strip mill	18
Plate mill	7
Tinning line	6
Power demand	5
Blast furnace	4
Petroleum refining:	
Refinery control and optimization	17
Catalytic cracking	15
Gasoline blending	6
Crude distillation	4
Analytical laboratory and chromatograph control	4
Pulp, paper, and board:	
Papermaking machine	13
Hydraulic cement:	
Rotary kiln control	14
Cement blending	5

[1] Applications that were reported less than four times were excluded.

SOURCE: See footnote on table 2, p. 12.

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Table B-3. Major job duties of three occupations in an 80-inch hot strip mill affected by process computer control

Job title	Primary function	Major duties
Recorder	To compile complete record of 80-inch mill operations.	Copies rolling schedule.[1] Checks charging tally for weight of material rolled.[1] Maintains hourly production report.[1] Compiles production data such as steel rolled, rolls changed, delays and runbacks.[1] Notifies concerned personnel on rolling schedule changes such as runbacks, cobbles, rejects, blow-out, etc.[1] Assists computer operator, as directed. Picks up charging tallies from order stocker and gives copies to coil marker and computer operators. Picks up and checks roll data card against record and delivers to roll shop. Picks up and delivers rolling schedule to concerned mill personnel. Maintains working area clean and orderly.
Assistant roller	To control settings for guides, loopers, and four finishing stands; assists roller and directs crew in mill set-up and roll changes.	Operates various controls to make necessary adjustments to mill and guide settings.[1] Operates controls for run-out table water spray.[1] Synchronizes speed for a section of run-out table.[1] Sets thickness and width gage indicators to order requirements and sets the decode system for automatic gage control.[1] Receives, records, and signals notice of last slab on order.[1] Operates controls for roll cooling system. Observes passage of strip for possible correction of mill screw down. Requests and/or makes necessary gage and width corrections. Directs the roll hand to make necessary mill stand adjustments. Directs and assists roll changes, mill adjustments, and removal of cobbles. Checks whether lubrication system light is on. Maintains equipment and work area clean and orderly.
Coiler operator	To operate table rolls, guides, pinch rolls, and coiler to coil strip steel.	Sets guides to proper width of strip.[1] Operates controls for coiler water sprays.[1] Operates stripper car and downender to deposit coils on conveyor.[1] Operates controls to synchronize table rolls, pinch rolls, and coiler speeds with mill delivery speed to insure proper coiling of strip. Works with mill crew to make roll changes, remove cobbles, and perform other miscellaneous operational functions. Turns on stop signal in event of trouble or as directed by Ganger. Checks whether lubrication system light is on. Maintains equipment and work area clean and orderly.

1 Performed automatically when mill is on computer control.

SOURCE: Plant records.

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Table B-4. Suggested courses for process control systems engineers

Engineering management	**Chemical engineering—Continued**
Personnel supervision	Mass and energy transfer
Industrial organization	Thermodynamics
Elementary accounting	Reaction kinetics
Evaluation of investments	Unit operations
Scheduling (PERT, CPM)	Process dynamics
Contracts and specifications	Instrumentation (measurements)
Mathematics	**Control engineering**
Calculus	Basic control theory
Differential equations	Time-domain analysis
Ordinary	Frequency-domain analysis
Partial	Stability
Operational calculus	Synthesis
Matrix Algebra	Sample-data systems
Numerical methods	Multivariable systems
Probability and statistics	Nonlinear systems
Fourier Analysis	Adaptive systems
Optimization	**Electrical engineering**
Linear programing	Network analysis
Gradient methods	Field theory
Variational calculus	Electronics
Dynamic programing	Logic devices
Computer programing	**Other fields**
Analog	System concepts
Digital	Economics
Boolean (logical) algebra	Operations research
Chemical engineering	Information theory
Inorganic and organic chemistry	Psychology
Stoichiometry	Human engineering
Material and energy balances	

SOURCE: T. M. Stout and J. H. Hiestand, *"Process Computers and Chemical Engineering Education."* Paper presented at the American Institute of Chemical Engineers, 61st Annual Meeting, Los Angeles, Calif., Dec. 1-5, 1968.

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Table B-5. Union comments on computer process control at survey plants

Type of plant	Comments of union representatives
Paper plant	Unionized workers were not affected adversely by the introduction of the process computer. The computer provided increased jobs for nonunion workers such as programers and process engineers.
Chemical plant	The workers did not find adaptation to computer process control difficult, because a continual change in technology had taken place at this plant. The company job security plan offers valuable protection against displacement caused by technological change. No major problems related to computer process control are expected in the future.
Petroleum refinery	Workers selected to operate the computer controlled units did not find adjustment to the changed jobs difficult. However, they feared that as computer use increases an accelerated decline in maintenance workers will occur. Computer control allows units to operate closer to physical limits with less equipment breakdown and therefore less regularly scheduled shutdowns for maintenance. Moreover, marginal units, which cannot be computer controlled, are expected to be terminated and the operating and maintenance crews cut back.
Petroleum refinery	*Electrical workers union*—because the amount of plant instrumentation required for process control computers and other technologies has increased, the number of union members who install and maintain these instruments has risen, despite the general downtrend in total plant employment. Therefore, process computers are felt to be advantageous to union members. However, job classifications and wage rates for instrument men working on computerized units have remained unchanged, despite the union position that these workers require greater ability than those working on noncomputerized units. *Operating and maintenance workers union*—a major decline in the number of union members at this plant has taken place due to a continuing modernization program. The operating staff at the computerized units was cut back at about the time the computers became operational. This employment decline was attributable to the instrumentation needed for putting the units under computer control. An increasing number of process computers probably will be used to control older units at this plant. The instrumentation needed for these computers and the laborsaving potential of computer control are expected to lead to large reductions in operating and maintenance manpower.
Steel plant	New technologies, such as basic oxygen furnaces, will continue to have a substantially greater impact on manpower than installations of process control computers.
Steel plant	Employees adapted to computer process control with little difficulty. However, major changes in employment, occupations, and job skills are expected because of other innovations, such as continuous casting.
Steel plant	Worker adjustment to computer control presented no problems. More concern was felt about other innovations, such as the basic oxygen furnace.
Power company	Technological changes, such as automated substations and centralized controls, are expected to have more effect on the work force than process computers. However, computers are expected to accelerate the changes brought about by the other innovations.
Power company	Process computers are not expected to affect operating workers to any significant extent. However, innovations such as substation automation, plant automation, and interconnected switching systems are expected to have major impact upon union workers. Computer control over automatic startup and continuous operations of power plants may cause future reductions in employment.

SOURCE: Based on interviews with local union officials.

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Table B-6. Outlook for installations and applications of computer process control at selected survey plants

Survey plant	Outlook
Paper company	The paper machine at the survey mill will be placed under a more advanced form of computer control. Other papermaking machines presently under conventional control in this mill also will be placed under computer control. Within the corporation, 14 major papermaking steps with potential for process computer applications were mentioned. Among these are the bleach plant, where computer control of primary bleaching may save $600 a day; batch and continuous pulping mills; electrical and steam distribution facilities; chemical recovery; paper and board machines; woodyards and woodrooms; and the finishing department. These applications are being studied by an outside consultant to set up a 3 to 5 year program of computer usage. If found to be technically and economically feasible, they could be placed under computer control by 1975. The company is in the process of setting up a computer-based planning and control system that will encompass all aspects of the company's operations—accounting, shipping, inventory, manufacturing, scheduling, and marketing. Data transmission lines will connect both general purpose and process computers in different company plants and areas to provide an integrated management control system.
Chemical plant	Applications of the computerized plantwide production control system will be increased to include more units and more advanced control techniques. A computer system to be installed in an analytical control laboratory will operate all chromatographs in the lab and at least one chromatograph station in an operating unit. Other laboratory instruments may be connected to the system. Based on a detailed feasibility study, the laboratory computer is expected to save $60,000 a year in labor and instrument costs and produce a major increase in speed and accuracy of analysis.
Chemical plant	An estimated 10 to 20 percent of major plant operations may be under full closed-loop control by 1975. The computer system in the analytical control laboratory has been successful, and its applications will be increased through further programing effort.
Petroleum refinery	A centralized computer control system, designed to replace the two existing control computer systems and control other major plant units, is being installed. This system may be connected, via data transmission lines, to a large scale computer at company headquarters as part of a total management information and control system. Many of the major units in the plant are expected to be computer monitored or controlled by 1975. The alkylation unit and the heavy oils sections may be under computer control by 1972. Catalytic cracking, vapor recovery, gasoline blending, the desulfurizer, the lube oils extraction unit, and the hydrofinisher are other process units that have major potential for computer control.
Cement plant	Two raw mills, material blending, and kiln control—most of the major steps in cement making at this plant—are expected to be put under automatic control by 1970.
Steel plant	Possible future applications of computer control include the hot strip mill, cold mill reduction, machine shop numerical control, blast furnace burdening, and hot saw cutting of commercial beams.
Steel plant	A computer will be applied to the electric arc furnace, for at least control of the electrical load, and if billet continuous casting is introduced, for coordinating the production of electric furnace steel with casting. A computer also may be applied to basic oxygen furnace operations.

SOURCE: Based on interviews with officials at seven survey plants.

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Table B-7. Factors expected to accelerate and retard growth in process computer installations

Factors expected to accelerate use	Factors expected to retard use
Success of present systems	Lack of trained personnel, especially in the areas of process engineering, programing, and computer systems analysis.
Competitive pressure and its emphasis on cost reduction.	Absence of full management support, especially when savings due to computer control are difficult to quantify.
Demand for a better quality product	Difficulty in justifying computer control in plants or processes with low volume production.
Trend toward larger production facilities.	Unsuccessful attempts to control a unit.
Larger proportion of plant cost being spent for control instrumentation	Computer equipment that does not perform to specifications.
Declining computer costs and continuing development of low cost, reliable computers.	Difficulties in developing the mathematical models and programing for complex processes.
Development of computer time-sharing ability which allows one computer to control a number of processes	
Development of universal programs and process models	
Development of direct digital control.	
Increasing complexity of processes which require more sophisticated control systems.	

SOURCE: Based on interviews with officials at survey plants.

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APPENDIX C. SELECTED ANNOTATED BIBLIOGRAPHY

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Drennan, Jerry
The Effect of Industrial Education on Educable Mental Retardates Entering the Labor Force. Final Report.

Education Service Center Region 14, Abilene, Tex.
Abilene Christian Coll., Tex.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Nov69 73p.

DESCRIPTORS - *WORK STUDY PROGRAMS; *EDUCABLE MENTALLY HANDICAPPED; *INDUSTRIAL EDUCATION; *VOCATIONAL ADJUSTMENT; EMPLOYER ATTITUDES; *PERSONNEL EVALUATION; ANALYSIS OF VARIANCE

ABSTRACT - This study used employer evaluations to measure the labor market success of educable mental retardates who had received industrial education. An Employee Evaluation checklist was developed by a jury of 12 experts in industrial and special education, including teachers, counselors, and employers. This instrument was distributed to employers of 303 mentally handicapped students from 18 school districts. Using analysis of variance techniques, the study revealed that these students were rated by their employers as cautious and as having better than average relationships with their co-workers. (Not recommended for hard copy reproduction due to marginal legibility of original document.) (BH)

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THE EFFECT OF INDUSTRIAL EDUCATION ON EDUCABLE MENTAL RETARDATES ENTERING THE LABOR FORCE

The Final Report of a Cooperative Research Grant
Funded by
Abilene Christian College and
Education Service Center, Region XIV
Abilene, Texas

Jerry Drennan, Investigator

Abilene Christian College
Abilene, Texas
November, 1969

2836

VT012262

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2837

ABSTRACT

A Study of the Effect of Industrial Education
on the Educable Mental Retardate
Entering the Labor Force

This research is the result of a cooperative effort of Abilene Christian College and the Education Service Center, Region XIV of Abilene, Texas. Jerry Drennan, Head of the Industrial Education Department of Abilene Christian College was the investigator. The subjects were educable mentally retarded (EMR) work-study students in selected schools in Education Service Center Consortium E, a division of the Texas Education Agency.

A review of literature established the fact that work-study experiences are one of the most beneficial for EMR students. It was decided to solicit the aid of employers and/or supervisors to determine the effect of industrial education on these students. A highly qualified jury developed the Employee Evaluation Checklist which was used in the statistical analysis.

Eighteen school systems with over 300 EMR work-study students were the participants of the study. 30.8% of the students were girls. Total returns from employees totaled 75.9%. The largest school systems had a total of 112 students employed out of a possible 131. The medium size schools had a total of 76 students employed out of a possible 79. The smaller school systems had a total of 88 students employed out of a possible 93. Of the school systems studied, 10 provided opportunities for EMR students to take some form of industrial

education. All of the school systems provided some form of non-academic type class for their EMR students.

Significant results of the study revealed that students who had participated in classes of industrial education were rated by their employers to be more cautious and to have better relationships with their co-workers. Other statistics revealed that there is no significance between the following:

(1) Workers from different size school systems,

(2) Workers from special or regular classes of industrial education,

(3) Workers with one semester or less or two semesters or more of industrial education.

(4) Workers with experiences in industrial education or workers with experiences in other subjects.

Of the 230 returns, 32 did not list specific job descriptions because the employer or vocational adjustment counselor preferred to withhold the information. Occupational listings include the following:

Light Industrial Work		General Service Work	
Farm Laborer	7	Laborer; General	9
Maid	5	Service Station Attn.	5
Clerk	4	Machine Operator	3
Baby Sitter	4	Well Servicing	2
Nurse's Aide	3	Truck Driver Asst.	2
Barber	3	Repairman	2
Beautician	3	Operator; Cleaners	2
Sack Boy	2	Soft Drink Bottler	2
Barber Trainee	2	Mechanic; Asst.	2
Office Helper	2	Welding Trainee	2
Tree Trimmer	1	Truck Driver	1
Hospital Aide	1	Repairman; Asst.	1
Hospital Helper	1	Engine Mechanic	1
Laundry Boy	1	Dairy Helper	1
Nursing Home Asst.	1	Carpenter's Helper	1
Teacher's Aide	1	Wool Dyer	1

Light Industrial Work (cont.)	
Garbage Collector	1
Civil Service Worker	1
Zoo Attendent	1
Messenger	1
Sub-Total	41

Food Service	
Cafeteria Helper	25
Bus Boy-Girl	24
Dishwasher	17
Dispenser; Serving Line	6
Kitchen Helper	6
Cook's Helper	4
Concession Employee	3
Cook	3
Broiler Cook	1
Dietetics; Helper	1
Waitress-Waiter	1
Sub-Total	91

General Service Work (cont.)	
Egg Crater	1
Car Wash Attn.	1
Film Inspector	1
Transmission Mechanic	1
Sub-Total	45

Janitorial	
Janitor	12
General Maintenance	3
Custodial Asst.	2
Houseman	2
Garage Clean-up	2
Sub-Total	21

Grand Total 230

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CHAPTER I

INTRODUCTION

Great interest has been expressed in recent years in the educable mentally retarded* student who is enrolled in special education classes in the public schools. This individual, who has an intelligence quotient of 55-70,[1] is capable of learning to the extent that he can be trained to support himself financially in our present-day society.

Definition of Terms

Several terms need to be defined for the purpose of this study. These items are as follows:

1. Industrial education is a generic term used to designate various types of education of an industrial nature.[2] This includes industrial arts, vocational industrial education, technical education, or specialized occupational training classes for EMR.

2. Educable mentally retarded individuals, abbreviated EMR, are those students enrolled in local special education programs. Students in these programs are usually retarded because of one of several

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*Hereafter referred to as EMR.

[1]Texas Education Agency, State Plan for Special Education (Austin, Texas: November, 1965), p. 10.

[2]American Vocational Association, Definitions of Terms in Vocational, Technical, and Practical Arts Education (Washington, D.C.: American Vocational Association), p. 11.

reasons which include physiological disturbances, hereditary factors, or brain damage.[3]

3. Special education refers to the local program within the school which meets the needs of exceptional children.[4]

4. Regular industrial education classes are those classes which contain both regular students and EMR students.

5. Special industrial education classes are those classes which contain only EMR students.

Significance of the Problem

Only in recent years have interested persons begun concentrating on the special problems of mentally deficient persons. The national trend of exhibiting interest, securing funds, initiating research, and publishing information has been greatly beneficial to EMR individuals.

The basic purpose of this study is to determine the effect of industrial education on educable mental retardates entering the labor force. Many EMR students, during their secondary school career, are placed in courses which will help them to associate better with members of our industrialized society. Many of these students are encouraged to take courses in industrial education. These courses often provide enrichment experiences which improve a mentally de-

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[3]Jerry Drennan and Phil Nichols, "The Relationship of Industrial Arts to Special Education," The TIAA Bulletin, February, 1965, p. 9.

[4]Texas Education Agency, State Plan, p. 1.

ficient person's ability to associate with his peers. Regular or special industrial education classes are often utilized.

Altman[5] notes that EMR students as well as general students are affected by

> . . . increasing rates of technological improvement and social change which demands graduates with capabilities (skills and knowledge) which are generalizable across a reasonable variety of job requirements.

A noted educator in the field of special education states that the

> . . . special education curriculum should be a means of promoting development in broad aspects of adjustment with the end objective being maximum self-sufficiency.[6]

According to Daly and Cain,[7] "The high school should provide terminal education for the mentally retarded". They also state that the school should concern itself with the important problems of vocational guidance, occupational orientation, and work experience of a prevocational nature.[8]

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[5]James W. Altman, Research on General Vocational Capabilities (Skills and Knowledge), a research grant to the American Institutes for Research, Pittsburgh, Pa., March, 1966 (Washington, D.C.: USOE), p. xi.

[6]Evelyn Deno, Retarded Youth: Their School-Rehabilitation Needs, a research grant to the Minneapolis Public Schools, Minneapolis, Minn., March, 1965 (Washington, D.C.: Vocational Rehabilitation Administration), p. 141.

[7]Flora M. Daly and Leo F. Cain, Mentally Retarded Students in California Secondary Schools, XXII, No. 7, 1953 (Sacramento: California State Department of Education), p. 156.

[8]Ibid.

[9]Ramsey Myers Groves, "Vocational Education Programs for Students with Special Needs" (Unpublished Ed. D. dissertation, Ohio State University, 1966), pp. 57-58.

Many persons are unfamiliar with the possibilities of the EMR worker. Groves[9] found that

> . . . employment brochures and want ads indicate that employers are desirous of employing well-trained individuals for service occupations and that many of these jobs can be filled with less able persons.

In speaking of mental defectives in general, Tredgold and Soddy[10] make the following statement:

> For defectives, the advantage of being able to engage in some kind of useful and constructive work is so great, that some form of technical training should always be attempted.

Frampton and Gall[11] agree by stating that

> . . . preparatory training will, in addition to uncovering some vocational interest, be invaluable for physical therapy, training in the use of appliances and other aids, meeting the demands of daily living, and as a psychologically supportive technique for self-confidence.

Crump,[12] Groves,[13] and DiMichael[14] agree that on-the-job training is the most suitable training method for the mentally retarded. On-the-job training offers practical application of knowledge plus the added advantage of constant supervision.

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[10] R. R. Tredgold and K. Soddy, Textbook of Mental Deficiency (Subnormality) (Baltimore: The Williams and Wilkins Co., 1963), p. 449.

[11] Merle E. Frampton and Elena D. Gall, eds., Special Education for the Exceptional (Boston: Porter Sargent Publisher, 1955), p. 360.

[12] William A. Crump, Vocational Rehabilitation for Mentally Retarded Pupil-Clients, a research project of the Georgia State Office of Vocational Rehabilitation, September, 1966 (Washington, D. C.: USOE), p. 115.

[13] Groves, "Vocational Education Programs", p. 183.

[14] Salvatore G. DiMichael, ed., Vocational Rehabilitation of the Mentally Retarded, Federal Security Agency, 1950 (Washington, D. C.: Office of Vocational Rehabilitation), p. 58.

According to Groves,[15] cooperative work-study programs offer the advantages of personal and social skills as related to occupational training with the added advantage of on-the-job training. Further advantages of the cooperative work-study program include low pupil-teacher ratios and active, interested parents.[16] Such programs can be made available to younger students, who, according to Gilmore[17] appear to have more interest in learning performance skills necessary to many jobs.

The coordinator of the EMR work-study program is very important. Research by Peck[18] shows that

> The efficiently performing, socially oriented, satisfied retarded tended to perform well in vocational, sociocivic, and personal success areas if continued guidance was accepted.

Surveys and follow-up studies in EMR curriculum development, which are necessary for the total adjustment of EMR students,[18] are more readily available when a counselor or coordinator is available.

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[15] Groves, "Vocational Education Programs", p. 212.

[16] Ibid., 210-211.

[17] Marla J. Gilmore, "An Experimental Study of the Relative Importance of Mental Age and Chronological Age in Visual-Motor Performance of the Mentally Retarded" (Unpublished M.A. thesis, Hardin-Simmons University, 1961), p. 19.

[18] John R. Peck, Personality and Success Profiles Characteristic of Young Male Adults, a cooperative research grant to the University of Texas, Austin, Texas, 1964 (Washington, D. C.: USOE), p. 57.

[19] Alfred Henry Moore, "Practices and Opinions Relative to Practical Arts Education for Mentally Retarded Secondary School Youth" (Unpublished Ed. D. dissertation, University of Missouri, 1954), p. 3.

The EMR in Industrial Education

Industrial education for mentally deficient individuals appears to be a necessity in our schools. Such education may be initiated through regular classes or special classes. Many industrial education personnel do not wish to have retarded students in their classes because of a fear that an unfavorable reflection may be cast on their program. Brice[20] states that when adequate placement and follow-up programs exist, unfavorable reflections are not evident. Integration of EMR into other subjects, such as industrial education, should be encouraged for the personal and social skills which complement occupational skills, according to Kolstoe and Frey.[21]

It is not uncommon for EMR students to be integrated in normal classes of industrial education. In some schools, special programs are developed for the occupational training of retardates. The vocational training programs are beneficial when adequate supervision is available.

Havighurst and Stiles[22] state that a curriculum for mentally deficient students is inappropriate if some form of occupational

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[20]Carl R. Brice, "Vocational Programming for the Retarded," American Vocational Journal, LXI (May, 1966), 23.

[21]Oliver P. Kolstoe and Roger M. Frey, A High School Work-Study Program for Mentally Subnormal Students (Carbondale: Southern Illinois University Press, 1965), p. 137.

[22]Robert Havighurst and Lindley Stiles, "The National Policy for Alienated Youth," The Phi Delta Kappan, XLII (April, 1961), 284.

training is not included. Muller and Lewis[23] report that better results in EMR workers can be obtained when they are exposed to some form of on-campus training prior to being placed on jobs. This research is made more pertinent by the study of Gorelick.[24] She indicates that most EMR students have more realistic vocational plans if they are enrolled in formal, on-campus programs related to work experiences. Gorelick also reported that there was little value in post-school training for EMR students.[25]

Perry,[26] Kolstoe, and Frey[27] state that the more successful employees are those whose training in school is applicable to actual job training. Severe retardates make successful workers, even on complex operations, when provided with adequate supervision, according to Tate and Baroff.[28] Those students who are unsuccessful on the job, according to O'Conner,[29] are usually failures because of reasons

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[23]Virginia Muller and Mark Lewis, "Work Program for the Mentally Retarded Students," The Journal of Secondary Education, LXI (February, 1966), 75.

[24]Molly C. Gorelick, An Assessment of Vocational Realism of High School and Post-High School Educable Mentally Retarded Adolescents, a research project of the Exceptional Children's Foundation, March, 1966 (Washington, D. C.: U.S. Office of Education), p. 41.

[25]Ibid.

[26]Natalie Perry, Teaching the Mentally Retarded Child (New York: Columbia University Press, 1960), p. 192.

[27]Kolstoe and Frey, A High School Work-Study Program, p. 69.

[28]Bobby G. Tate and George S. Baroff, "Production of a Complex Product: A Demonstration of Work Potential," Exceptional Children, XXXII (February, 1966), 405.

[29]N. O'Conner, "Defectives Working in the Community," American Journal of Mental Deficiency, LIX (October, 1954), 177.

other than ability. Gorelick[30] noted that a transfer of learning of vocational training and job skills from the sheltered environment of the school to the complex urban community cannot be assumed.

School sponsored industrial education programs for mentally deficient persons are beneficial for job-training experiences. Favorable results do not occur when such training takes place after the students have left school. General employee characteristics, such as personal and social skills, should receive emphasis in the training of EMR students.

Objectives

The purpose of this study is to determine the effect of industrial education on EMR students entering the labor force. Specific objectives are to determine if:

1. Retardates who have had two or more semesters of industrial education are rated higher by their employers than EMR workers who have had one semester or less of industrial education.

2. Retardates who have had industrial education experiences in regular classes are rated differently by their employers than EMR workers who have had industrial education experiences in special classes.

3. The size of school system produces a difference in the employer's rating of EMR workers.

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[30]Gorelick, An Assessment of Vocational Realism, p. 101.

4. The experience in industrial education classes produces a difference in the employer's rating of ETR workers as opposed to those ETR workers who have not had industrial education experiences.

Limitations

The research project will have the following specific limitations:

1. Schools in the general area of Texas Education Service Center Consortium "E" will be used to secure individual participants. A total of 17 schools were used. (See Appendix A)

2. Selected schools will exhibit programs of industrial education, special education, and cooperative vocational rehabilitative counseling.

3. A total of 303 student-workers who have been on the job for two years or less will serve as subjects for the research project. This will include those students who are engaged in cooperative work-study programs at the present time.

CHAPTER II

PROCEDURES AND METHODS

A review of literature greatly facilitated the decision-making process for determining much of the final techniques utilized in this project. Additional facets of the format were determined by the excellent response from schools, EMR personnel, and employers.

Outline of Research Procedures

The general procedure for this investigation is outlined as follows:

I. Review the literature.

II. Select a jury of specialists who are knowledgeable in the combined areas of industrial education and special education.

   A. The twelve jury members were selected from the following:

      1. Teachers of industrial education.

      2. Teachers of special education.

      3. Vocational rehabilitation counselors.

      4. Employers of EMR.

   B. The jury evaluated the items to be used in the instrument.

      1. The selection of evaluative criteria was made by the jury.

      2. The rating scale to be used by the employers was determined.

III. Development of the instrument was made according to the jury response.

IV. A pilot study was conducted in the Abilene Public Schools.

A. Students from two high schools participated in the study.

B. Necessary revisions were made as indicated by the study.

V. Approval was obtained from superintendents of the participating schools.

A. Explanatory letters and telephone conversations were used to make contact with each school.

B. A conference was arranged with each school.

VI. Personal interviews were arranged with representatives of the schools.

A. Pertinent data was secured from school files with the assistance of the special education director.

B. Securing occupational data of subjects was done with the assistance of the vocational adjustment counselor.

VII. An evaluation instrument was sent to the employer of each EMR worker.

VIII. Collection, tabulation, and analysis of the data was made.

A. The analysis of variance was the statistical technique used according to the research design. (See Appendix B)

B. Conclusions and recommendations were made.

IX. Results of the study were disseminated.

A. Results were sent to all participating schools and other interested persons.

B. Abstracts were sent to all employers who indicated an interest in the study.

C. A formal report was submitted to Education Service Center Consortium "E".

Jury Selection

The most important aspect of this study depended on the development of the instrument. A jury of experts was selected from throughout the state. Personnel lists from the Special Education Division and the Vocational Rehabilitation Division of the Texas Education Agency were secured. Additional lists were tabulated from industrial education personnel and from personal contacts. Regional supervisors were asked to recommend persons who would meet the following criteria:

1. Educational background in industrial education and/or special education.

2. Practical experience in industrial education and/or special education.

3. Actual experience as an employer or supervisor of EMR workers.

From an initial group of 46 individuals, 12 persons, knowledgeable in both industrial education and special education, were selected to serve as the jury. (See Appendix C) These individuals were asked to evaluate specific employee characteristics which they felt would be indicative of industrial education experience.

Instrument Development

A list of 24 items was assembled from various employee evaluation forms. These items were sent to the jury. The jury was asked to rate and rank the individual characteristics. (See Appendix D) The top twenty items were used to form the Employee Evaluation Checklist that was used in the pilot study. (See Appendix E) This checklist was shortened to include only the top ten items after results of the pilot study were made available. See Appendix F for a sample of the final checklist sent to the employers.

Pilot Study

The Abilene Independent School District was selected for the pilot study because of its availability. The study included the following: development of the instrument, collection of the data, and needed revisions of the instrument and procedure.

The necessary subject data was collected with the permission of the superintendent of schools and with the cooperation of the vocational adjustment counselor. Data included name, industrial education background, type of industrial experiences, length of time enrolled, employer, job description, employer's address, and length of time employed.

Twenty students were enrolled in the Abilene cooperative work-study program for educable mentally ratarded. An employee evaluation checklist was mailed to each employer. Within two weeks, 70 percent of the evaluations had been returned. A follow-up letter resulted in 80 percent returns.

Several changes were suggested because of the pilot study. Some revisions were necessary because of oversights in the original proposal while others were basic improvements. The following modifications were suggested:

1. Shorten the employee evaluation checklist to include ten items instead of twenty.
2. An employee should be on the job for at least one month before being evaluated.
3. An employee can be evaluated if it has been a month or less since he left a work position.
4. The term "educable mentally retarded" should be deleted from all correspondence to employers.
5. The evaluation checklist may be directly distributed to the employer by the vocational adjustment counselor.

Location of EMR Work-Study Subjects

The Texas Education Agency provided lists of schools in the state which met the following criteria:

1. Exhibited a program of industrial arts education.[31]
2. Exhibited a program of vocational industrial education.[32]

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[31]Texas Education Agency, Industrial Arts in Texas 1966-1967 (Austin, Texas: Texas Education Agency, 1967), pp. 1-157.

[32]Texas Education Agency, Directory: Vocational Industrial Education (Austin, Texas: Industrial Education Division, 1968), pp. 1-55.

3. Exhibited a program of special education which accommodates EMR students.[33]

4. Exhibited a cooperative program of vocational rehabilitative counseling.[34]

The 16 schools of Education Service Center Consortium "E" which encompassed the above criteria were then divided into groups. (See Appendix A) These groups were based on the total enrollment of the school systems. Internal divisions of the groups were based on suggested divisions of the Annual Statistical Report, Part I, of the Texas Education Agency.[35]

Formal letters were sent to the superintendents of the schools asking them to cooperate in the project. (See Appendix G) Self-addressed cards were enclosed which requested names and telephone numbers of school personnel who should be contacted. (See Appendix H)

Personal interviews were arranged with each school. A general overview of the EMR program was obtained. Specific information on each student engaged in some form of occupation was collected from individual vocational adjustment counselors. (See Appendix I)

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[33]Texas Education Agency, Special Education Unit Allocation for School Year 1967-1968 (Austin, Texas: Special Education Division, September, 1967), pp. 1-28.

[34]Texas Education Agency, School District in the Cooperative Program (Vocational Rehabilitation Division, March, 1968), pp. 1-7.

[35]Texas Education Agency, Annual Statistical Report, Part I (Austin, Texas: Texas Education Agency, Summer, 1967), p. 1.

Employer Evaluation of EMR Employees

An explanatory letter was sent to the employer and/or supervisor of each EMR worker. (See Appendix J) After two weeks, a follow-up letter (See Appendix K) was sent to those individuals who had not replied.

CHAPTER THREE

STATISTICAL ANALYSIS

Employee evaluations of 303 EMR work-study students were used in the statistical analysis. The procedure utilized in securing the data was discussed in Chapter Two. As the results were received, they were tabulated according to the research design in Table 1.

TABLE 1

NUMBER OF RETURNS IN EACH DIVISION

	Regular Ind. Ed. Classes		Special Ind. Ed. Classes		Classes Other Than Ind. Ed.	
Semester	1	2	1	2	1	2
Group A	12	19	6	14	28	6
Group B	11	18	8	16	9	4
Group C	4	20	6	10	27	7

The groups in Table 1 refer to the different size schools in the research project. Group A included the four largest schools, Group B included five medium size schools, and Group C included seven smaller schools. (See Appendix A)

The three classes include the following: "Regular" classes are those which allowed EMR students to participate in industrial education classes with normal students; "Special" classes of industrial education for EMR students; and "Classes Other Than Industrial Education" included EMR students who participated in non-academic-type classes

other than industrial education. These classes included subjects such as art, music, typing, etc.

Each of the major classes was further divided into two sections. The first section contained students who had been enrolled in class for one semester or less. The second division represented students who had participated in class for two semesters or more.

Numerical values were assigned to the employer's evaluation of each section of the Employee Evaluation Checklist. (See Appendix F) This evaluation of each working student was tabulated so that a raw score could be assigned to each student within each division. This raw score was utilized in the analysis.

General Analysis

The statistical technique used in the overall analysis was the analysis of variance which tested for interaction. The model used was $X_{ijk} = \mu + \alpha_i + \beta_j + (\alpha\beta)_{ij} + \varepsilon_{ijk}$. The subscripts refer to the classes, groups, and "semester" subdivisions of classes. Machine formulas were used in the statistical analysis, therefore it was advantageous to have equal responses in each division. Since the smallest groups had four subjects for analysis, it was necessary to use four subjects from each of the divisions. The selections were made with the use of a random table of numbers.[36] The resultant raw scores for use in the analysis are listed in Table 2.

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[36] Helen M. Walker and Joseph Lev, Statistical Inference (New York: Holt, Rinehart and Winston, Inc., 1953), 434-435.

TABLE 2

RAW SCORES USED IN THE OVERALL ANALYSIS

	Regular Ind. Ed. Classes		Special Ind. Ed. Classes		Classes Other Than Ind. Ed.	
Semester	1	2	1	2	1	2
Group A	26	28	27	36	33	36
	40	28	32	29	30	22
	42	31	35	32	24	23
	20	31	28	28	19	32
Group B	25	30	18	32	29	30
	29	32	26	37	30	32
	40	45	16	33	40	25
	40	30	46	26	26	32
Group C	39	40	30	33	39	25
	29	10	50	30	50	26
	27	48	26	30	27	32
	30	26	32	34	35	38

The null hypothesis was used in all of the analyses because of the analytical process used. The hypotheses are:

H_0: There is no significant difference between EMR workers who have taken industrial education for two or more semesters and those who have taken one semester or less.

H_0: There is no significant difference between EMR workers who have taken industrial education in regular classes and those workers who have had similar courses in special classes of industrial education.

H_0: There is no significant difference between EMR workers with experience in industrial education and those workers having experience in subjects other than industrial education.

H_0: There is no significant difference between EMR workers from larger school systems and those workers from medium and smaller school systems.

Table 3 presents the statistical results of the interaction analysis of variance using the data in Table 2.

TABLE 3

ANALYSIS OF VARIANCE OF EVALUATIONS OF EMR WORK-STUDY EMPLOYEES

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	5551.4445	71	--
All Divisions	363.4445	8	45.4306
Classes (α)	87.0278	2	43.5139
Groups (β)	50.6945	2	25.3473
Interaction ($\alpha\beta$)	225.7222	4	56.4306
Error	5188.0000	63	82.3492

For All Divisions: $F_{8,63} = \frac{45.4306}{82.3492} = .5517$

For Classes: $F_{2,63} = \frac{43.5139}{82.3492} = .5284$

For Groups: $F_{2,63} = \frac{50.6945}{82.3492} = .3078$

For Interaction: $F_{4,63} = \frac{225.7222}{82.3492} = .6853$

None of the analyses exhibited in Table 3 were significant at the .05 level of the F distribution. All of the hypotheses may be accepted as true.

Analysis of EMR Students Enrolled in Industrial Education Classes

The largest class was that which contained EMR students who had been enrolled in classes other than industrial education. All students

who were not enrolled in any non-academic-type class were assigned to this group. Many of these students were enrolled in two or more non-academic-type classes. Some students were not enrolled in any subject-matter course other than their self-contained class for EMR students. Students who were enrolled in industrial education plus some other non-academic-type class were deleted from the study. There were only seven such individuals.

An analysis of only those students who had been or were enrolled in regular or special classes of industrial education is presented in Table 4. The raw score data was the same as that in Table 2.

TABLE 4

ANALYSIS OF VARIANCE OF REGULAR AND SPECIAL INDUSTRIAL EDUCATION CLASSES FOR EMR

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	2905.3125	47	--
All Divisions	120.1875	5	24.0375
Classes (α)	2.625	1	2.625
Groups (β)	.5208	2	.2604
Interaction ($\alpha\beta$)	117.0417	2	58.5209
Error	2785.125	42	66.3125

For All Divisions: $F_{5,42} = \frac{24.0376}{66.3125} = .3625$

For Classes: $F_{1,42} = \frac{2.625}{66.3125} = .031$

For Groups: $F_{2,42} = \frac{.2604}{66.3125} = .0039$

For Interaction: $F_{2,42} = \frac{58.5209}{66.3125} = .8825$

None of the analyses exhibited in Table 4 were significant at the .05 level of the F distribution. Therefore, the general hypotheses, as applied to industrial education students only, may be accepted as true. The following statements are assumed to be true:

1. There is no significant difference between retardates enrolled in special industrial education classes and those enrolled in regular industrial education classes as far as work evaluations by employers are concerned.

2. There is no significant difference between retardates who have enrolled in one semester or less of industrial education and those EMR students who have been enrolled for two semesters or more of industrial education.

3. There is no significant difference between retardates who have been enrolled in industrial education classes in school systems of varying sizes.

Analysis of EMR Students in Industrial Education
and EMR Students in Other Subjects

Since there was no significant difference at the .05 level between students with industrial education experiences, it was decided to examine all students in the combined industrial education classes as opposed to all students in classes other than industrial education. This analysis necessitated regrouping of the data. Four industrial education students were randomly selected from the data in Table 2. This group of raw scores was analyzed with raw scores of students in classes other than industrial education.

TABLE 5

RAW SCORES USED IN THE ANALYSIS OF STUDENTS ENROLLED IN INDUSTRIAL EDUCATION AND STUDENTS ENROLLED IN OTHER SUBJECTS

	All Ind. Ed. Classes		Classes Other Than Ind. Ed.	
Semester	1	2	1	2
Group A	28	36	33	36
	40	39	30	22
	35	32	34	23
	42	31	19	32
Group B	26	33	29	30
	40	37	30	32
	18	45	40	26
	46	26	26	33
Group C	29	50	39	25
	39	34	50	26
	32	40	27	32
	26	48	35	38

The analysis of the raw score data above is developed in Table 6 below.

TABLE 6

ANALYSIS OF VARIANCE OF EHR WORK-STUDY STUDENTS WITH EXPERIENCES IN INDUSTRIAL EDUCATION AND OTHER SUBJECTS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	2694.3125	47	--
All Divisions	392.6875	5	78.5375
Classes (α)	129.125	1	129.125
Groups (β)	229.6875	2	114.8438
Interaction ($\alpha\beta$)	33.875	2	16.9375
Error	2301.625	42	54.8006

For All Divisions: $F_{5,24} = \frac{78.5375}{54.8006} = 1.4332$

For Classes: $F_{1,42} = \frac{109.125}{54.3006} = 2.3562$

For Groups: $F_{2,42} = \frac{114.0438}{54.3006} = 2.0957$

For Interaction: $F_{2,42} = \frac{16.9375}{54.3006} = .3091$

None of the analyses are significant at the .05 level of the F distribution. The general hypotheses, as applied to students with industrial education experiences as opposed to students with no experiences in industrial education, are true. The statements are:

1. There is no significant difference in EMR work-study employees who have had industrial education experiences and those who have had experiences in other subjects.

2. There is no significant difference in EMR work-study employees who are associated with school systems of varying sizes.

3. There is no significant difference in retardates who have had experiences in non-academic-type classes for one semester or less and those who have had such experiences two semesters or more.

Item Analysis

Each return from the employers was tabulated in such a way that a raw score was available for each of the items on the Employee Evaluation Checklist. (See Appendix F) The raw scores were used to secure a mean for each of the ten items on the checklist.

It must be remembered that the number of subjects in each class is different. Subject numbers affect drastically the mean score when they are few, whereas the divisions with larger numbers will normally have less deviation.

Tables 7, 8, and 9 show the unadjusted means for students from the different school groups.

TABLE 7

MEAN SCORES DERIVED FROM EMPLOYER EVALUATIONS OF EMR STUDENTS FROM GROUP A SCHOOLS*

Item Evaluated	Regular Classes of Ind. Ed. Semester		Special Classes of Ind. Ed. Semester		Classes Other than Ind. Ed. Semester	
	1	2	1	2	1	2
Accepts Constructive Criticism	3.00	3.21	3.33	3.21	3.23	2.33
Cautious	3.17	3.42	3.17	3.21	3.32	3.50
Character	3.08	3.32	3.17	3.21	3.18	3.67
Citizenship	3.33	3.53	3.83	3.36	3.28	3.83
Cooperation	3.25	3.58	3.50	3.64	3.43	2.50
Dependability	2.75	3.26	3.17	2.79	3.13	2.00
Follows Directions	2.93	3.26	3.00	3.29	3.13	2.83
Perseverance	3.00	3.26	3.17	3.43	3.10	2.83
Promptness	2.83	3.16	3.33	3.00	3.13	2.50
Relationship to Co-Workers	3.25	3.32	3.17	3.36	3.30	2.33
Number of Subjects Evaluated	12	19	6	14	30	6

*Group A schools are those which have a total enrollment of 10,000 to 49,999.

Group A schools, being the largest in total population, had the greatest number of subjects to be evaluated. School groups B and C contained slightly fewer total subjects to be evaluated.

TABLE 8

MEAN SCORES DERIVED FROM EMPLOYER EVALUATIONS OF EMR STUDENTS FROM GROUP B SCHOOLS*

Item Evaluated	Regular Classes of Ind. Ed. Semester		Special Classes of Ind. Ed. Semester		Classes Other than Ind. Ed. Semester	
	1	2	1	2	1	2
Accepts Constructive Criticism	3.55	2.89	2.63	3.06	3.70	3.00
Cautious	3.82	3.00	2.88	3.13	3.56	2.75
Character	3.91	3.17	2.75	3.19	3.56	3.00
Citizenship	3.64	2.89	2.75	3.38	3.67	3.50
Cooperation	3.55	3.00	3.00	3.31	3.44	3.25
Dependability	3.73	2.83	2.75	3.00	3.67	3.00
Follows Directions	3.45	3.22	2.88	3.13	3.67	2.25
Perseverance	3.73	2.94	2.38	2.88	3.56	3.25
Promptness	3.73	3.28	2.88	3.56	3.67	3.00
Relationship to Co-Workers	3.91	3.06	2.50	3.06	3.78	3.25
Number of Subjects Evaluated	11	18	8	16	9	4

*Group B schools are those which have a total enrollment of 5,000 to 9,999.

The mean scores for evaluations of EMR students from Group C schools are presented in Table 9.

TABLE 9

MEAN SCORES DERIVED FROM EMPLOYER EVALUATIONS OF EMR STUDENTS FROM GROUP C SCHOOLS*

Item Evaluated	Regular Classes of Ind. Ed. Semester		Special Classes of Ind. Ed. Semester		Classes Other than Ind. Ed. Semester	
	1	2	1	2	1	2
Accepts Constructive Criticism	3.25	3.33	3.29	3.10	3.26	3.00
Cautious	3.00	3.29	3.43	3.40	3.37	3.00
Character	3.00	3.10	3.00	3.20	3.30	3.24
Citizenship	2.25	3.57	3.57	3.10	3.60	3.14
Cooperation	3.25	3.57	3.14	3.40	3.56	3.14
Dependability	3.00	3.19	3.43	3.50	3.26	2.86
Follows Directions	3.50	3.24	3.14	3.10	3.37	2.86
Perseverance	3.50	3.24	3.43	3.20	3.26	3.00
Promptness	3.00	3.29	3.33	3.30	3.26	3.14
Relationship to Co-Workers	3.50	3.24	3.43	3.30	3.30	3.14
Number of Subjects Evaluated	4	20	7	10	27	8

*Group C schools are those which have a total enrollment of 1,500 to 4,999.

Analyzing the item evaluations of the previous tables required additional computations because of the disproportionality among the sub-classes. The correction technique utilized was the Patterson

Method of adjusting border means.[37] According to this method, the border means of the classifications were successively adjusted until they equaled the general mean.

When disproportionality is evident among the subclasses, ordinary methods of computation of the sums of squares yield biased results for all sources of variation except that for within subgroups. Accordingly, the recognition of disproportionate frequencies is important.[38]

It would be possible to use a table of random numbers to remove individual cases in certain cells and hence reduce the number of cases until they are proportional, and perhaps equal. The disadvantage of this method is that much data is lost and serious mis-calculations might result. For this reason it was decided to utilize the aforementioned Patterson Method to arrive at proportionate means for the analysis of the individual items of the Employee Evaluation Checklist.

It should be noted that the resultant adjusted means are determined by the number of subjects in each division. With the available information, the adjusted mean scores should be as near as possible to being equal from one division to another.

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[37] James E. Wert, Charles O. Neidt, and J. Stanley Ahmann, Statistical Methods in Educational and Psychological Research (New York: Appleton-Century-Crofts, Inc., 1954), p. 216.

[38] Ibid., p. 211.

It is interesting to note the subtle changes in individual scores of the adjusted mean scores in Tables 10, 11, and 12 from that of the unadjusted mean scores in Tables 7, 8, and 9. This of course, is due to the Patterson Method of adjusting disproportionate means.

TABLE 10

ADJUSTED MEAN SCORES DERIVED FROM EMPLOYER EVALUATIONS OF EMR STUDENTS FROM GROUP A SCHOOLS*

Item Evaluated	Regular Classes of Ind. Ed. Semester		Special Classes of Ind. Ed. Semester		Classes Other than Ind. Ed. Semester	
	1	2	1	2	1	2
Accepts Constructive Criticism	3.26	3.19	3.36	3.28	3.32	3.61
Cautious	3.50	3.38	3.27	3.35	3.38	3.96
Character	3.31	3.27	3.17	3.24	3.24	4.03
Citizenship	3.41	3.29	3.64	3.20	3.15	4.00
Cooperation	3.34	3.40	3.37	3.54	3.36	2.73
Dependability	3.06	3.29	3.25	2.90	3.27	2.44
Follows Directions	3.44	3.50	3.29	3.61	3.48	3.48
Perseverance	3.25	3.23	3.19	3.49	3.13	3.21
Promptness	3.03	3.03	3.30	3.01	3.16	2.83
Relationship to Co-Workers	3.41	3.11	3.31	2.63	3.70	3.73
Number of Subjects Evaluated	12	19	6	14	30	6

*Group A schools are those which have a total enrollment of 10,000 to 49,999.

TABLE 11

ADJUSTED MEAN SCORES DERIVED FROM EMPLOYER EVALUATIONS OF EMR STUDENTS FROM GROUP B SCHOOLS*

Item Evaluated	Regular Classes of Ind. Ed. Semester		Special Classes of Ind. Ed. Semester		Classes Other than Ind. Ed. Semester	
	1	2	1	2	1	2
Accepts Constructive Criticism	2.72	3.17	3.21	3.21	3.20	3.29
Cautious	3.55	3.29	3.63	3.35	3.31	3.22
Character	3.54	3.42	3.29	3.30	3.23	3.26
Citizenship	3.08	2.95	3.11	3.30	3.03	3.57
Cooperation	3.05	3.12	3.41	3.29	2.97	3.38
Dependability	3.44	3.16	3.37	3.19	3.30	3.34
Follows Directions	3.37	3.76	3.71	3.53	3.51	2.80
Perseverance	3.38	3.21	2.94	3.01	3.14	3.53
Promptness	3.33	3.50	3.40	3.65	3.20	3.23
Relationship to Co-Workers	3.45	3.25	2.98	3.22	3.87	3.87
Number of Subjects Evaluated	11	18	8	16	9	4

*Group B schools are those which have a total enrollment of 5,000 to 9,999.

The adjusted mean scores for evaluations of EMR students from Group C are presented in Table 12.

TABLE 12

ADJUSTED MEAN SCORES DERIVED FROM EMPLOYER EVALUATIONS OF E-H STUDENTS FROM GROUP C SCHOOLS*

Item Evaluated	Regular Classes of Ind. Ed. Semester		Special Classes of Ind. Ed. Semester		Classes Other than Ind. Ed. Semester	
	1	2	1	2	1	2
Accepts Constructive Criticism	3.29	3.34	3.14	3.16	3.11	3.22
Cautious	3.44	3.17	3.15	3.33	3.10	3.09
Character	3.12	3.03	2.97	3.22	3.23	3.81
Citizenship	2.18	3.46	3.20	2.93	3.23	3.13
Cooperation	3.23	3.41	2.97	3.29	3.36	3.52
Dependability	3.20	3.25	3.33	3.60	3.16	3.12
Follows Directions	3.91	3.51	3.25	3.41	3.56	3.33
Perseverance	3.64	3.24	3.27	3.24	3.10	3.21
Promptness	3.09	3.24	3.12	3.30	3.05	3.30
Relationship to Co-Workers	3.55	3.16	3.10	3.32	3.06	3.26
Number of Subjects Evaluated	4	20	7	10	27	8

*Group C schools are those which have a total enrollment of 1,500 to 4,999.

A simple two-way analysis of variance was used in analyzing the evaluated items of the Employee Evaluation Checklist. It was decided to analyze all industrial education students in one group. Random scores were selected from industrial education scores in

Tables 10, 11, and 12 to correspond with those students who had had classes other than industrial education. This process was followed with each analysis of the evaluated items.

Accepts Constructive Criticism

The first item of the Employee Checklist was "Accepts Constructive Criticism". The industrial education mean scores selected for analysis are located below on the left. The mean scores from students in classes other than industrial education are on the right.

Industrial Education		Other Subjects	
3.38	3.49	3.64	3.24
3.23	3.14	3.24	3.10
3.19	3.21	3.27	3.21

The analysis of these scores is presented in Table 13.

TABLE 13

ANALYSIS OF VARIANCE OF THE EVALUATED ITEM "ACCEPTS CONSTRUCTIVE CRITICISM"

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	.1968	11	--
Classes	.0375	1	.0375
Groups	.1191	5	.0282
Error	.0402	5	.0080

For Classes: $F_{1,5} = \frac{.0375}{.0080} = 4.6875$

For Groups: $F_{5,5} = \frac{.0282}{.0080} = 3.5250$

The above analysis was not significant at the .05 level of the F distribution. When rating EMR work-study students on the qualification of accepting constructive criticism, employers could discern

no difference between students who had industrial education experience and students who had experiences in other non-academic type classes.

Cautious

The second item of the Employee Checklist was "Cautious." The industrial education mean scores selected for analysis are located below on the left. The mean scores from students in classes other than industrial education are on the right.

Industrial Education		Other Subjects	
3.50	3.29	3.44	3.17
3.63	3.35	3.15	3.33
3.31	3.96	3.10	3.09

The analysis of these scores is presented in Table 13A.

TABLE 13A

ANALYSIS OF VARIANCE OF THE EVALUATED ITEM "CAUTIOUS"

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	.6897	11	--
Classes	.3579	1	.3579
Groups	.1750	5	.0350
Error	.1568	5	.0314

For Classes: $F_{1,5} = \frac{.3579}{.0314} = 11.3981$

For Groups: $F_{5,5} = \frac{.0350}{.0314} = 1.1146$

According to the results of this analysis, there is a significant difference at the .05 level of the F distribution. EMR work-study students who had taken industrial education classes were considered by

employers to be more cautious than similar students who had not taken industrial education classes.

Character

The third item of the Employee Evaluation Checklist was "Character". The industrial education mean scores selected for analysis are located below on the left. The mean scores from students in classes other than industrial education are on the right.

Industrial Education		Other Subjects	
3.54	3.27	3.12	3.08
3.29	3.24	2.97	3.22
3.23	4.03	3.23	3.81

The analysis of these scores is presented in Table 14.

TABLE 14

ANALYSIS OF VARIANCE OF THE EVALUATED ITEM "CHARACTER"

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	1.0091	11	--
Classes	.1037	1	.1037
Groups	.3472	5	.0694
Error	.5582	5	.1116

For Classes: $F_{1,5} = \frac{.1037}{.1116} = .9289$

For Groups: $F_{5,5} = \frac{.3472}{.1116} = .6216$

The above analysis was not significant at the .05 level of the F distribution. When considering an individual's character, employers noted no difference between students who had classes of industrial education and students from other classes.

Citizenship

The fourth item of the Employee Evaluation Checklist was "Citizenship". The industrial education mean scores selected for analysis are located below on the left. The mean scores selected from students in classes other than industrial education are on the right.

Industrial Education		Other Subjects	
3.41	3.30	2.18	2.99
2.96	3.36	3.46	3.23
3.64	4.00	3.20	3.13

The analysis of these scores is presented in Table 15.

TABLE 15

ANALYSIS OF VARIANCE OF THE EVALUATED ITEM "CITIZENSHIP"

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	2.2506	11	--
Classes	.6300	1	.6300
Groups	1.0785	5	.2157
Error	.5421	5	.1084

For Classes: $F_{1,5} = \frac{.6300}{.1084} = 5.8118$

For Groups: $F_{5,5} = \frac{.2157}{.1084} = 1.9900$

The above analysis was not significant at the .05 level of the F distribution. When considering an individual's citizenship, employers noted no difference between EMR work-study students who had experiences in industrial education and those students who had experiences in classes other than industrial education.

Cooperation

The fifth item of the Employee Evaluation Checklist was "Cooperation". The industrial education mean scores selected for analysis are located below on the left. The mean scores selected from students in classes other than industrial education are on the right.

Industrial Education		Other Subjects	
3.34	3.54	3.23	3.29
3.40	2.97	3.41	3.36
3.37	3.38	2.97	3.52

The analysis of these scores is presented in Table 16.

TABLE 16

ANALYSIS OF VARIANCE OF THE EVALUATED ITEM "COOPERATION"

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	.3665	11	--
Classes	.0047	1	.0047
Groups	.1720	5	.0344
Error	.1898	5	.0380

For Classes: $F_{1,5} = \frac{.0047}{.0380} = .1237$

For Groups: $F_{5,5} = \frac{.0344}{.0380} = .9053$

The analysis was not significant at the .05 level of the F distribution. When considering an employee's cooperation, employers noted no difference between EMR work-study students who had classes of industrial education and similar students who had classes other than industrial education.

Dependability

The sixth item of the Employee Evaluation Checklist was "Dependability". The industrial education mean scores selected for analysis are located below on the left. The mean scores selected from students in classes other than industrial education are on the right.

Industrial Education		Other Subjects	
3.44	2.90	3.20	3.60
3.29	3.30	3.25	3.16
3.37	2.44	3.33	3.12

The analysis of these scores is presented in Table 17.

TABLE 17

ANALYSIS OF VARIANCE OF THE EVALUATED ITEM "DEPENDABILITY"

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	7.8142	11	--
Classes	.2605	1	.2605
Groups	.1724	5	.0345
Error	7.3813	5	1.4763

For Classes: $F_{1,5} = \frac{.2605}{1.4763} = .1765$

For Groups: $F_{5,5} = \frac{.0345}{1.4763} = .0234$

The analysis was not significant at the .05 level of the F distribution. When considering an employee's dependability, employers noted no difference between EMR work-study students who had classes of industrial education and similar students who had classes other than industrial education.

Follows Directions

The seventh item of the Employee Evaluation Checklist was "Follows Directions". The industrial education mean scores selected for analysis are located below on the left. The mean scores selected from students in classes other than industrial education are on the right.

Industrial Education		Other Classes	
3.44	3.61	3.91	3.41
3.76	3.48	3.51	2.56
3.71	2.80	3.25	3.33

The analysis of these scores is presented in Table 18.

TABLE 18

ANALYSIS OF VARIANCE OF THE EVALUATED ITEM "FOLLOWS DIRECTIONS"

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	.4063	11	--
Classes	.0326	1	.0326
Groups	.1918	5	.0384
Error	.1819	5	.0364

For Classes: $F_{1,5} = \frac{.0326}{.0364} = .8956$

For Groups: $F_{5,5} = \frac{.0384}{.0364} = 1.055$

The above analysis was not significant of the .05 level of the F distribution. When considering an employee's ability to follow directions, employers noted no difference between EMR work-study students who had classes of industrial education and similar students who had classes other than industrial education.

Perseverance

The eighth item of the Employee Evaluation Checklist was "Perseverance". The industrial education mean scores selected for analysis are located below on the left. The mean scores selected from students in classes other than industrial education are on the right.

Industrial Education		Other Classes	
3.38	3.49	3.64	3.24
3.23	3.14	3.24	3.10
3.19	3.21	3.27	3.21

The analysis of these scores is presented in Table 19.

TABLE 19

ANALYSIS OF VARIANCE OF THE EVALUATED ITEM "PERSEVERANCE"

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	.3567	11	--
Classes	.0026	1	.0026
Groups	.1814	5	.0363
Error	.1727	5	.0345

For Classes: $F_{1,5} = \frac{.0026}{.0345} = .0753$

For Groups: $F_{5,5} = \frac{.0363}{.0345} = 1.0510$

The above analysis was not significant at the .05 level of the F distribution. When considering the perseverance of an employee, employer's noted no difference between EMR work-study students who had classes of industrial education and similar students who had classes other than industrial education.

Promptness

The ninth item of the Employee Evaluation Checklist was "Promptness". The industrial education mean scores selected for analysis are located below on the left. The mean scores selected from students in classes other than industrial education are on the right.

Industrial Education		Other Classes	
3.03	3.65	3.09	3.29
3.50	3.16	3.24	3.05
3.30	3.23	3.12	3.30

The analysis of these scores is presented in Table 20.

TABLE 20

ANALYSIS OF VARIANCE OF THE EVALUATED ITEM "PROMPTNESS"

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	.3503	11	--
Classes	.0586	1	.0586
Groups	.1420	5	.0284
Error	.1495	5	.0294

For Classes: $F_{1,5} = \frac{.0586}{.0294} = 1.9932$

For Groups: $F_{5,5} = \frac{.0284}{.0294} = .9660$

The above analysis was not significant at the .05 level of the F distribution. When considering the promptness of an employee, employers noted no difference between FHR work-study students who had classes of industrial education and similar students who had classes other than industrial education.

Relationship to Co-Workers

The last item of the Employee Evaluation Checklist was "Relationship to Co-Workers". The industrial education mean scores selected for analysis are located below on the left. The mean scores selected from students in classes other than industrial education are on the right.

Industrial Education		Other Classes	
3.88	3.11	3.55	3.32
3.25	3.87	3.16	3.06
3.81	3.73	3.19	3.26

The analysis of these scores is presented in Table 20.

TABLE 21

ANALYSIS OF VARIANCE OF THE EVALUATED ITEM "RELATIONSHIP TO CO-WORKERS"

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square
Total	1.1114	11	--
Classes	.5463	1	.5463
Groups	.4356	5	.0871
Error	.1295	5	.0259

For Classes: $F_{1,5} = \frac{.5463}{.0259} = 21.0927$

For Groups: $F_{5,5} = \frac{.0871}{.0259} = 3.3629$

There was no significance at the .05 level of the F distribution in the groupings of the above analysis but there was significance at this level in the class treatments. When evaluating an EMR work-study student on his relationship to his co-workers, employers

detected a difference in those retardates who had experiences in classes of industrial education as opposed to those individuals who had experiences in classes other than industrial education. Workers who have a background of industrial education enjoy better relationships with their co-workers.

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CHAPTER IV

SUMMARY

General Information

Eighteen (18) schools with 303 cooperative work-study students were the primary participants of this study. (See Appendix A) Of the 303 Employee Evaluation Checklists mailed to employers, 230 returns were received. Four (4) of these could not be used in the overall analysis. A total of 75.9% returns were available for study and analysis. Returns based on student-employees schools ranged from 43.9% to 100.0%.

Returns from employers of students from the four (4) larger schools, Group A, totaled 65.9%. Group B returns of the Employee Evaluation Checklists from five (5) schools totaled 86.8%. Returns from eight (8) Group C schools totaled 82.8%. Table 22 shows the breakdown of the school groupings.

TABLE 22

EMR EMPLOYEES AS RELATED TO SCHOOL GROUPINGS AND SUBSEQUENT RETURNS OF EMPLOYEE EVALUATION CHECKLISTS

School Groupings	Number of Employable EMR	Number of Employed EMR	Number of EMR Checklists Returned	Percentage of Returns
A	131	112	87	65.9%
B	79	76	66	86.8%
C	93	88	77	82.8%
Total	303	276	230	75.9%

The number of students employed changes daily to fluctuating business-industrial trends, seasonal occupations, and student characteristics.

TABLE 23

SCHOOL AVAILABILITY OF INDUSTRIAL EDUCATION CURRICULUM FOR EMR STUDENTS

School Groupings	Availability of Ind. Ed.	Regular Ind. Ed. Classes	Special Ind. Ed. Classes
A	3	2	2
B	3	1	2
C	4	3	4
Total	10	6	8

Table 23 shows that some schools make industrial education available to EMR students in both regular and special classes. For instance, some industrial arts classes in the school would be offered in a regular academic type class while a special vocational class would be offered only for EMR students in a special class.

Some examples of special industrial education classes for EMR students include the following:

1. Cooperative Vocational-Academic Education (CVAE) in a specific skill or family of skills. The student's academic training is included in the curriculum by the teacher of the skills course. This program will usually concentrate on occupations in the food services. The course is also referred to as Cooperative Academic-Vocational Education (CAVE).

2. Driver education was taught in several schools. The objective of the course was to assist capable EMR students to obtain their driver's license. The student's aptitude and intelligence were considered before such training was made available, consequently the size of each class was usually small.

3. A Vocational Office Machines course was taught for EMR students in one school. Special training in the use of office machines was given and proficiency stressed. Much of the school typing, duplication, and processing was done by the students.

4. Occupational Training was a popular course with many schools. The vocational adjustment counselor would teach EMR students various techniques and procedures in securing and maintaining a job. The curriculum would include such items as personal hygiene, speech and writing, use of public transportation, improvement of minor skills, safety, etc.

Many EMR students took courses in the general curriculum other than or in addition to industrial education. Such courses included physical education, art, music, home economics, drama, typing, driver's education, remedial reading, and speech.

Male-Female Ratio

The boy-girl ratio was somewhat overbalanced in favor of the boys in cooperative work-study individuals. Many of the counselors and teachers agreed that it was easier to place boys on-the-job than girls. Table 24 shows the total ratio.

TABLE 24

MALE-FEMALE RATIO IN RELATION TO
COOPERATIVE WORK-STUDY PROGRAMS

	Subjects	Subjects in Ind. Ed.	Subjects not in Ind. Ed.	Students with Two Jobs
Boys	153	103	50	9
Girls	68	38	30	0
Total	221	141	80	9

Present Occupations of EMR Student-Employees

For various reasons, some occupations of EMR employees were not recorded. In some cases the school representative felt that such information should not be divulged. In a few cases, the employer failed to note the job description and in certain situations the occupation of the EMR worker was not known.

The occupations listed in Table 25 were divided into five groups: Food Service, General Service Work, Janitorial, Light Industrial Work, and Occupational Listings Not Available.

TABLE 25

OCCUPATIONS OF EMR

Group	Occupation	Number
FOOD SERVICE:	Cafeteria Helper.	25
	Bus Boy-Girl.	24
	Dishwasher.	17
	Disponser; Serving Line . . .	6
	Kitchen Helper.	6
	Cook's Helper	4
	Concession Employee	3
	Cook.	3
	Broiler Cook.	1
	Dietetics; Helper	1
	Waitress-Waiter	1
	Sub-Total	91

TABLE 25

Group	Occupation	Number
GENERAL SERVICE WORK:	Farm Laborer.	7
	Maid.	5
	Clerk	4
	Baby Sitter	4
	Nurse's Aide.	3
	Barber	3
	Beautician.	3
	Sack Boy.	2
	Barber Trainee.	2
	Office Helper	2
	Tree Trimmer.	1
	Hospital Aide	1
	Hospital Linen Room Helper.	1
	Laundry Boy	1
	Nursing Home Assistant.	1
	Teacher's Aide.	1
	Garbage Collector	1
	Civil Service Worker.	1
	Zoo Attendent	1
	Messenger	1
	Sub-Total	45
JANITORIAL:	Janitor	12
	General Maintenance and Upkeep. . . .	3
	Custodial Assistant	2
	Houseman.	2
	Garage Clean-up	2
	Sub-Total	21
LIGHT INDUSTRIAL WORK:	Laborer; General.	9
	Service Station Attendent	5
	Equipment and Machine Operator. . . .	3
	Well Servicing	2
	Truck Driver Assistant.	2
	Repairman	2
	Operator, Cleaners.	2
	Soft Drink Bottler.	2
	Mechanic; Assistant	2
	Welding Trainee	2
	Truck Driver	1
	Repairman; Assistant.	1
	Air Cooled Engine Mechanic.	1
	Dairy Helper.	1
	Carpenter's Helper.	1

TABLE 25

Group	Occupation	Number
	Wool Dyer	1
	Egg Crater.	1
	Car Wash Attendent.	1
	Film Inspector.	1
	Transmission Mechanic; Assistant. . .	1
	Sub-Total	41
OCCUPATIONAL LISTINGS NOT AVAILABLE:	Occupation Withheld	22
	Unable to Secure Employment	5
	Dismissed From Job.	5
	Sub-Total	32
	TOTAL	230

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

The research data was collected over a period of several weeks through personal interviews, visits and correspondence. During this time, many personal observations eventually solidified into general impressions of the EMR work-study program in this part of Texas. The various state agencies were very helpful in supplying basic information which was necessary in making initial contacts. There appears to be a cooperative atmosphere for persons interested in doing research directly related to the educable mentally retarded.

General Observations

The state standards governing EMR work-study programs are general in nature. This allows school districts to establish programs which will most nearly meet the needs of the students at the local level.

There were some indications from several vocational adjustment counselors that they would welcome additional assistance from state agencies. The most common suggestion for state assistance was standard report and evaluation forms. Most teachers and counselors developed their own form for pupil evaluation of on-the-job workers.

It appeared that overall community reaction to EMR work-study students was good. Some of the programs were successfully established because of the community esteem for the director of the program or because of the respect extended toward the teacher or counselor of the program.

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Many schools were able to allow their students to participate in sheltered occupations of various kinds within the school itself. In almost every case, this program was well accepted in the school community. When employers could relate the student's work experience in school to his work in the community, they were often willing and eager to accept the EMR student as a part-time worker.

The major problems of vocational adjustment counselors may be categorized as public relations and curriculum. In repeated conversations, it appeared that parents were not cognizant of the goals and purposes of the work-study program for the EMR. This often lead to disagreement of activities of the student. The other major problem could be briefly described as a lack of available information for instructing students on the mechanics of securing and maintaining needed jobs.

Statistical Conclusions

As related in Chapter 3, there was no significant statistical difference at the .05 level of the F distribution in the general analyses. The assumptions to be made concerning the overall objectives of this study are:

1. The size of the school system has no bearing on the success of EMR work-study students who were evaluated by their employers.

2. The non-academic-type courses in which EMR work-study students had participated were not significant. It did not matter whether the student had taken industrial education, art, music, typing, or some similar activity as far as his work-success was concerned.

3. EMR work-study students who had taken non-academic-type courses for one semester or less were essentially rated the same by their employers as those retardates who had taken two semesters or more of such courses.

4. When employers evaluated only the industrial education retardates, it was discovered that there was no difference between those students who had participated in special classes of industrial education and those students who had participated in regular classes of industrial education.

The item analysis of the measuring instrument revealed some interesting information. Only two items were significant at the .05 level of the F distribution. The significant items were "Cautious" and "Relationship to Co-Workers". All other items were not significant.

It appeared that EMR work-study students were more successful in the two significant areas if they had some experience in industrial education classes. When the nature of industrial education classes are considered, this should not be too surprising. All industrial-type classes demand a reasonable amount of safety instruction and safety consciousness. It is also possible that the nature of industrial education laboratories and the arrangement of student personnel could positively affect the development of personal relationships. This relationship could readily be related to actual job experience.

Recommendations

The following suggestions are based on a combination of personal observations and statistical analysis:

1. A standardized report form, similar to the Employee Evaluation (See Appendix F), should be developed by the Vocational Rehabilitation or Special Education division of the Texas Education Agency. This form could be utilized in evaluating a student who is working in the community. Separate forms could be developed, one for the supervisor or employer and one for the instructor and/or counselor.

2. Sheltered jobs within the school atmosphere should be developed for retardates. This is especially true for the junior high or early high school age student. Jobs could include those in the cafeteria, kitchen, laundry, and clinic. Janitorial, custodial, yardwork, and light maintenance jobs could be developed. Minor activities could accommodate EMR workers in different offices and classrooms such as the gym, library, laboratories, music hall, and others. School activities could supply jobs in concession work, printing or publicity, or at professionally sponsored meetings.

3. Better relations with parents should be developed for the EMR work-study program. Special programs which will bridge ethnic gaps are especially recommended. Workshops at regional Education Service Centers conducted by some of the more successful vocational adjustment counselors would be of benefit to many.

4. Industrial education classes are significantly beneficial to two special types of EMR work-study students. Such courses should be encouraged for students who are eventually going to be placed in positions where cautiousness and/or safety is a necessity. Students who will be working in a direct relationship with other people will benefit from a class in industrial education.

APPENDIX A

Selected Schools

Group "A" -- 10,000-49,999

1. Abilene ISD
2. Amarillo ISD
3. Lubbock ISD
4. Wichita Falls ISD

Group "B" -- 5,000-9,999

1. Pampa ISD
2. Plainview ISD
3. Big Spring ISD
4. Brownwood ISD
5. San Angelo ISD

Group "C" -- 1,500-4,999

1. Dimmitt ISD
2. Hereford ISD
3. Levelland ISD
4. Littlefield ISD
5. Snyder ISD
6. Sweetwater ISD
7. Tulia ISD

APPENDIX B

Research Design

	Regular		Special		No Ind. Arts Ed. or Voc. Ind. Edu.	
	1 Sem.	2 Sem.	1 Sem.	2 Sem.	1 Sem.	2 Sem.
Group A (over 10,000) Worker Rating by Employer						
Group B (5,000 to 9,999) Worker Rating by Employer						
Group C (1,500 to 4,999) Worker Rating by Employer						

APPENDIX C

Jury Members

Name	City	I. Ed.*	S. Ed.**	Emp.#	Exp.##
A. C. Bassett	Odessa	30	0	12	12
G. Clark, Jr.	Baytown	0	18	3	12
B. Denton	Dallas	48	24	2	9
J. Dowell	Abilene	42	6	0	4
D. Gallegos	San Antonio	9	30	0	9
W. H. Harbour	Denton	52	21	0	5
S. McKenty	Galena Park	6	3	2	11
P. Nichols	Abilene	48	12	0	5
J. Stovall	Abilene	21	6	0	2
J. Thurman	Lubbock	60	6	6	10
C. Wainscott	Austin	48	36	0	5
C. Wentz	Col. Station	81	6	0	2
	Total . .	445	168	25	86
	Mean . .	31.6	12	1.6	6.1
	Median . .	40.5	18	6	7

*Number of college hours credit in industrial education
**Number of college hours credit in special education
#Number of years to serve as an employer of EMR
##Number of years to have experiences with EMR

APPENDIX D

Employee Characteristics Ranked by the Jury

Accepts Constructive Criticism: Utilizes corrections, does not feel persecuted	Memory: Retains vital information
Cautious: Safety conscious, concerned with the welfare of others	Moral-Ethical Disposition: Exhibits religious concepts
Character: Demonstrates adequate social values	Physical Stamina: Shows energetic character, exhibits vitality
Citizenship: Honest, trustworthy, respects legal authority	Perseverance: Patient, steady
Competitive: Challenged by competition	Personal Appearance: Well groomed, clean, has good taste
Concentration: Attentive, not distracted	Promptness: Aware of time, maintains schedules
Continual Improvement: Shows steady progress at assigned job	Relationship to Co-workers: Adjusts to attitudes of others, compatible
Cooperation: Willing to operate with others, loyal	Self Correction: Self-controlled
Dependability: Self-disciplined, independent	Sociability: Friendly, enjoys company of others
Effort: Diligent, active	Steady Rate: Adaptable to different situations
Follows Directions: Accurate, consistent in doing what he is told	Teamwork: Enjoys working with others, does his share of work
Manual Dexterity: Displays skill with hands	Verbalization: Self-expressive, able to communicate

APPENDIX E

Employee Evaluation Items

Rank	Top 10 No.	Top 10 %	Top 20 No.	Top 20 %	Mean	Med.
1. Dependability	12	100.0	12	100.0	5.3	8.0
2. Cautious	11	91.7	12	100.0	5.4	8.5
3. Cooperation	11	91.7	12	100.0	5.6	8.5
4. Promptness	11	91.7	12	100.0	5.6	8.0
5. Follow Direct.	10	83.3	12	100.0	6.0	7.0
6. Accepts Crit.	10	83.3	12	100.0	6.1	9.0
7. Citizenship	9	75.0	12	100.0	6.4	10.0
8. Co-worker Rel.	9	66.7	12	100.0	9.2	10.0
9. Character	8	66.7	12	100.0	9.3	9.5
10. Perseverance	7	58.3	12	100.0	9.8	8.5
11. Person. Appear.	6	50.0	12	100.0	10.2	9.8
12. Teamwork	6	50.0	11	91.7	10.3	10.0
13. Phys. Stamina	6	50.0	9	75.0	10.4	9.5
14. Effort	5	41.7	9	75.0	11.4	12.5
15. Man. Dexterity	5	41.7	11	91.7	11.9	11.5
16. Memory	5	41.7	9	75.0	12.3	10.0
17. Self-Correct.	5	41.7	11	91.7	10.7	11.5
18. Sociability	4	33.3	10	83.3	13.0	10.5
19. Cont. Improve.	4	33.3	11	91.7	20.0	11.0
20. Verbalization	4	33.3	6	50.0	12.0	11.5

APPENDIX F

Employee Evaluation Check List

Directions: Check the categories below in the column in which you feel the employee is best described when compared with all other workers under your employ.

	5	4	3	2	1
Accepts Constructive Criticism: Utilizes corrections, does not feel persecuted					
Cautious: Safety conscious, concerned with the welfare of others					
Character: Demonstrates adequate social values					
Citizenship: Honest, trustworthy, respects legal authority					
Cooperation: Willing to operate with others, loyal					
Dependability: Self-disciplined, independent					
Follows Directions: Accurate, consistent in doing what he is told					
Perseverance: Patient, steady					
Promptness: Aware of time, maintains schedules					
Relationship to Co-workers: Adjusts to attitudes of others, compatible					

Rating: 5-Well above average; 4-Above average; 3-Average; 2-Below average; 1-Well below average.

APPENDIX G

Date

Mr. _____
Superintendent of Schools
_____Public Schools
_____, Texas

Dear Mr._____:

A study is being initiated in the field of special education. It will involve the educable mentally retarded high school student who is presently working in the local labor force. Your school system has been randomly selected to participate in this study.

The study will attempt to determine the effect that industrial arts and/or vocational industrial education have upon the working performance of educable mentally retarded employees. It would be helpful if I could come to your school system and obtain necessary information concerning these individuals' background and present location. The follow-up will be done through the on-the-job-supervisor of the educable mentally retarded worker.

According to the records of the Texas Education Agency, your school system meets the following criteria of this study:

1. A broad program of industrial arts education,
2. A broad program of vocational industrial education,
3. A special program for educable mentally retarded students, and
4. A cooperative program of vocational rehabilitative counseling with the Texas Education Agency.

If you are willing to participate in this study, please return the enclosed card at your earliest convenience.

Sincerely,

Jerry Brennan, Consultant
Region XIV Education Service Center

APPENDIX H

Response Cards for Participating Schools

Are the educable mentally retarded students in your special education program provided with the opportunity to participate in the programs of:

Industrial Arts. . . . . Yes_____ No_____

Vocational Industrial Education. . . Yes_____ No_____

Please list the name(s) of the special education director or vocational adjustment counselor who should be contacted concerning this project.

Name	Address	Telephone

APPENDIX I

Subject Data-Gathering Form

General Information:

Name _____ School _____

Address _____ Address _____

City _____ City _____

Industrial Arts Experience:

Course	School	Instructor	No. of Sem.	Format

Vocational Industrial Education Experience:

Course	School	Instructor	No. of Sem.	Format

No Industrial Arts or Vocational Industrial Education Experience:

Course	School	Instructor	No. of Sem.	Format

Remarks:

Work Situation:

Present Occupation _____ Length of Employment _____

Name of Employer _____ Supervisor _____

Address of Employer _____
Street or Box City State Zip

Does the firm and/or employee cooperate regularly with the local vocational rehabilitation counselor? Yes _____ No _____

Local V.R.C. _____
Name T.E.A. District

Address _____
Street or Box City State Zip

APPENDIX J

Explanatory Letter to Employer or Supervisor

Date

Mr. or Mrs._____
Company or Firm
Address
City, State, and Zip Code

Dear Mr. or Mrs._____:

Will you evaluate the work-study employee(s) under your supervision? Please use the enclosed questionnaire. The results of this evaluation will be used to determine the effect of industrial arts and/or vocational industrial education upon the working performance of work-study employees.

You, or the irrediate supervisor of the employee, are asked to rate the worker whose name is on the enclosed check list. The information will be treated confidentially and will be used only in statistical analysis without referral to individual employees or employers.

Your cooperation and consideration are greatly appreciated. If you desire an abstract of the results of this study, please list your name and address in the appropriate place at the end of the evaluation form. Please return immediately in the enclosed, stamped, self-addressed envelope. If there is any question, please feel free to contact me at the number listed below. Thank you very much.

Sincerely,

Jerry Drennan
Telephone: 915-672-8441 ext. 325

APPENDIX K

Follow-Up Letter to Employers

Date

Mr. or Mrs._____
Company or Firm
Address
City, State, and Zip Code

Dear_____:

You recently received an Employee Evaluation Checklist concerning one of your employees who is a work-study student in your employ. We have not received the results of your evaluation. Additional Checklists and a stamped, self-addressed envelope is enclosed. Please return them as soon as possible. Please disregard this notice if you have already returned the checklist.

The results of this Checklist will be utilized in determining the effects of industrial education on work-study employees. Your assistance is necessary and greatly appreciated. If you have any questions concerning the project, please call me at the number below.

Thank you very much.

Sincerely,

Jerry Drennan, Consultant
Region XIV, Education Service Center

(915) 672-8441 ext. 325

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VT 012 270
Preparing the Handicapped for the World of Work.

East Carolina Univ., Greenville, N.C.
North Carolina State Dept. of Public Instruction, Raleigh.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 62p.Report of an Inst. for Occupational Education Teachers and Related Educational Personnel (Aug 3-21, 1970).

DESCRIPTORS - *INSTITUTES (TRAINING PROGRAMS); *VOCATIONAL EDUCATION; *TEACHER EDUCATION; *HANDICAPPED STUDENTS; EDUCATIONAL OPPORTUNITIES; INSTRUCTIONAL MATERIALS; MATERIAL DEVELOPMENT; CONFERENCE REPORTS; PROGRAM EVALUATION

ABSTRACT - The objective of this 3-week institute was the improvement of professional competencies of 60 participants, occupational educators and related educational personnel selected from schools with specially funded occupational education projects for handicapped students. Daily sessions consisted of program presentations, group discussions, and group or individual development of instructional materials, with four field trips to on-going programs. Evaluation during the institute was accomplished by informal evaluation of the program and facilities by the director and also through periodic mini-reports of small group activities. Analysis of a rating scale and a free response questionnaire completed on the final day of the institute revealed that the program content and presentations were considered effective and stimulating by the participants. The institute program, list of participants, and sample evaluation form are appended. (SB)

VT 012 270

ED0 57254

(C1)

PREPARING THE HANDICAPPED FOR THE WORLD OF WORK

A Report of
An Institute for Occupational Education Teachers
and Related Educational Personnel

August 3-21, 1970

Directed By
William H. Durham, Jr.
School of Business

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East Carolina University
In Cooperation With
North Carolina State Department of Public Instruction

VT012270

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2912

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ABSTRACT

The underlying objective of this institute was the improvement of professional competencies of participants in their attempts to provide occupational educational opportunities for handicapped students. Sixty participants, selected from schools with specially funded occupational educational projects for handicapped students during the 1970-1971 academic year, attended the three-week program.

The institute was a cooperative venture between the North Carolina State Department of Public Instruction and East Carolina University. Representing the State Department was Mr. Nurham Warwick, Chief Consultant for Programs for the Handicapped; Dr. William H. Durham, Jr., School of Business, East Carolina University, represented the University. Among those who participated in planning for the institute were representatives from the University, the State Department of Public Instruction, and the public school system.

The institute, directed by Dr. Durham, was held at the East Carolina University campus from August 3-21. Daily sessions provided for program presentations, group discussions, and group and/or individual development of instructional materials. Three all-day field visits to on-going programs for the handicapped were included in the institute program.

Participant evaluation of the institute program was highly favorable. It is anticipated that follow-up evaluations will yield evidences that the underlying objective of the institute was successfully achieved.

SUMMER INSTITUTE
PREPARING THE HANDICAPPED FOR THE
WORLD OF WORK

INTRODUCTION

The Problem

This institute was designed to provide in-service education for a group of teachers and other educational personnel who will be involved in providing occupational educational opportunities for handicapped students during the 1970-71 academic year. Institute participants had been assigned specific responsibilities for working with handicapped students in specially funded programs in selected North Carolina schools.

This institute was the second of its type hosted by East Carolina University. The first institute was held during the summer of 1969; twenty-six teachers who had been designated by their school units to perform specific responsibilities relative to providing occupational educational opportunities for handicapped students participated. The 1969 institute received much acclaim from the participants, the North Carolina State Department of Public Instruction, and from school administrators in North Carolina. The success of the initial institute encouraged the leadership of the North Carolina State Department of Public Instruction to request the assistance of East Carolina University to design, develop, and to conduct a similar institute on an expanded basis during the summer of 1970.

Purposes and Objectives

The underlying objectives of this institute were to improve and to develop the professional competencies of the participants to work more effectively in their efforts to provide occupational educational opportunities for handicapped students.

The purpose of the institute was to provide opportunities to train, retrain, and redirect the thinking of occupational educators and related educational personnel concerning their obligations and opportunities in preparing handicapped students for the world of work. Specific objectives were to provide opportunities to assist participants (1) to develop and refine their concepts in the fields of Occupational Education, Special Education, and Vocational Rehabilitation; (2) to develop understanding of learning characteristics of handicapped children; (3) to develop understanding of supportive services from which assistance might be obtained in providing educational and noneducational opportunities for handicapped students; (4) to develop understanding of programs and methods of working with handicapped students; and (5) to develop understanding of employment opportunities available to handicapped persons.

METHODS AND PROCEDURES

This institute was, from the beginning, a cooperative venture between the North Carolina State Department of Public Instruction and East Carolina University. Mr. Nurham O. Warwick, Chief Consultant for Programs for the Disadvantaged and Handicapped, assumed the leadership for the State Department; Dr. William H. Durham, Jr., Teacher Educator (Distributive Education) and Professor of Business, represented East Carolina University. Mr. Warwick assumed the leadership in identifying participants who would be served and in seeking confirmation of a proposed budget; Dr. Durham assumed the leadership in initiating planning efforts culminating in the design, development, and direction of the institute program which would be held on the East Carolina University campus.

Survey of 1969 Institute Participants

Preparatory to planning for this institute, a survey of participants of the 1969 institute was made. Specific survey objectives were to determine strengths and weaknesses participants recognized in the 1969 institute after they had assumed their teaching responsibilities during the 1969-70 academic year. The participants' recommendations concerning a follow-up institute during 1970 were obtained. Among specific deficiencies recognized in the 1969 institute was the lack of opportunities provided to permit participants to obtain "hands on" contact with handicapped students during the institute program.

During the planning for the summer, 1970, institute, attempts were made to capitalize upon suggestions and recommendations made by the 1969 institute participants and specific plans were made to correct the major deficiency identified by the 1969 institute participants.

Participants

Occupational educators and related educational personnel who, during the 1970-1971 school year, would be involved in providing educational experiences for handicapped students were the participants in the institute. Thirty-six school administrative units were represented by sixty participants (Appendix C).

Invitations to attend the institute were extended by the State Department of Public Instruction through local administrators. Occupational educators who would be devoting full time to professional assignments with handicapped students received top priority in invitation extensions. Second priority on the invitation list was given to related educational personnel whose professional assignments included responsibilities to handicapped students.

In recognition of the fact that no one area of work is best suited for handicapped students, a cross section of occupational educators was included in the invitation list. In recognition of the fact that better working relations relative to joint planning and curriculum development for handicapped students within the administrative units involved might be obtained during the 1970-1971 academic year, general educators, special educators, and guidance personnel from those units were extended

invitations to participate in the institute. Invitations accepted resulted in the following balance of participants:

Occupational Educators	40
Special and General Educators . .	10
Guidance Counselors	10
Total	60

During the institute, opportunities were provided for participants representing the same administrative units to meet for the purposes of evaluating program presentations in relation to their unit's projects for handicapped students and to consider and to plan strategies to enhance the success of their unit's efforts in preparing handicapped students for the world of work.

Resources

All funds for the institute were provided by the State Department of Public Instruction. Local administrative units were reimbursed fully for the salaries of teachers and other educational personnel attending the institute. Participants were reimbursed for living expenses and for travel incident to their involvement in the institute.

Consultant's honorariums, the salaries of the director and a full-time secretary, supplies, and attendant expenses were provided in the contractual arrangement between the State Department of Public Instruction and East Carolina University.

Resources capitalized upon during the conduct of the institute were from the following sources:

The State Department

Occupational Education

Special Education

Vocational Rehabilitation

Social Services

Pupil Personnel Services

Department of Community Colleges

East Carolina University

School of Business

Business Education and Office Administration

Business Administration

Distributive Education

School of Education

Special Education

Secondary Education

School of Nursing

School of Home Economics

Department of Psychology

Department of Health and Physical Education

Department of Biology

Pitt Technical Institute

Department of Data Processing

Vocational Rehabilitation Facilities

Caswell, Kinston

Cherry Hospital-O'Berry Center, Goldsboro

Summer Camp for the Handicapped

White Lake

Special Education Instructional Materials Laboratory

Grifton

County and City Administrative Units

Pitt County

Kings Mountain

West Columbus High School, Cerro Gordo

Market High School, Warren, Ohio

Business and Industry

Belk Tyler Company, Greenville

Empire Brushes, Inc., Greenville

Cox Trailers, Grifton

Planning for the Institute

A great many persons participated in planning the objectives, content, process, and evaluation of the institute (Appendix B). During the planning stages, it was determined that the focus of the institute would be approximately two-thirds upon educable mental retardates and one-third upon students with other kinds of handicaps. Accordingly, consultants with expertise in the areas designated were sought and obtained for program presentations.

Through the efforts of Mr. Nurham Warwick, arrangements were made with the Social Services Department to provide participants opportunities to study and to become involved with that supportive service through

visits with social case workers in the homes of handicapped students. To enable participants to make professional contacts and to become acquainted with social services personnel upon whose assistance they might ultimately rely during 1970-1971, field visits with social case workers were arranged to take place in the county in which the participants would be working. Arranging the field visits in the county of the participant's employment, it was assumed, would enable the participant to gain first-hand information and understanding of the backgrounds of students with whom he would be working.

Mrs. Rosanna Ezzell of West Columbus High School (Cerro Gordo) planned and directed a program presentation involving teachers who had gained experience in working with educable mental retardates. Mr. Robert Mullen, Associate Director of Program Services, Division of Occupational Education, planned and directed one all-day session of the institute. Dr. Textron Miller, School of Education, University of North Carolina at Raleigh, who had directed a summer institute devoted to preparing disadvantaged students for the world of work, was consulted; he provided many valuable suggestions.

Program Format

Duration of the Institute: To enhance the accomplishment of the purposes and objectives of the institute, a time block of three weeks was deemed essential. Three major program features necessitated the three-week time block: (1) the inclusion of three all-day field studies designed to enable participants to obtain direct contact, or "hands-on" experiences,

with handicapped persons; (2) the inclusion within the daily program of opportunities for participants to meet in small groups (mini-groups) for purposes of discussing the implications of presentations in terms of their respective programs for handicapped students; and (3) the provision of time within the daily program to permit participants to plan and to develop instructional materials that might prove to be effective in their professional work with handicapped students.

Daily Schedule: The typical institute day was planned to begin at 8:30 a.m. and to end at 4 p.m. Time was allotted for two daily breaks and for a one and one-half hour lunch period. In general, morning sessions were reserved for presentations before the total group of participants; time was provided for participants to enter into discussions with consultants following each presentation.

Afternoon sessions were planned to include time to permit participants to meet in mini-groups for purposes of group discussion, group planning, and group work involving the development of occupational instructional materials.

Field Studies: The program design provided for three and one-half days to be devoted to field studies. Two major objectives were set for the field studies.

First, the field trips were designed to provide opportunities for participants to experience "hands-on" contact with handicapped students. This specific objective was set as a result of evaluations of the Institute for Teachers of Handicapped Students held at East Carolina University

during the summer of 1969. As was previously mentioned, evaluations of the 1969 institute revealed that one of the major deficiencies of that institute was the failure to provide "hands-on" contact with handicapped students.

Field visits were arranged to three on-going programs for the handicapped. Visits were scheduled to (1) Vocational Rehabilitation Facility, Caswell Center, Kinston, North Carolina; (2) Vocational Rehabilitation Facility, Cherry Hospital-O'Berry Center, Goldsboro, North Carolina; and (3) a summer camp for handicapped children held at White Lake, North Carolina. Time was provided to permit each participant to visit two of the three on-going programs for handicapped persons.

The second objective set for field studies was to help participants to develop understanding of supportive services from which assistance might be obtained in providing educational and noneducational opportunities for their students. To accomplish this objective, arrangements were made for two specific field visits.

One of the field trips provided by the program design was a one-half day field study of the Special Education Instructional Materials Laboratory at Grifton, North Carolina. The purpose of this field visit was to acquaint participants with the nature of a materials laboratory and the kinds of assistance that might be obtained from that source. Participants were to be made cognizant of the fact that an instructional materials laboratory similar to that in Grifton could be found within commuting distance of the respective units in which they would be teaching during 1970.

The second field study, designed to acquaint participants with supportive services available, was an all day affair. Participants, after receiving proper and thorough orientation, were to visit the Social Services Departments in their home counties and to accompany social case workers on visits into homes of handicapped persons, some of whom would probably be students in their 1970-71 classes. It was anticipated that, among other outcomes of this field study, participants would make professional contacts with social services personnel that would prove to be mutually beneficial.

Participant Involvement on Institute Program: Opportunities were built into the program to encourage participants to participate actively in program presentations. Speakers had most generously agreed to answer, to the best of their abilities, questions participants might ask and to lead discussions that might ensue.

The program design provided several opportunities for participants to make informal reports of progress being made in their small group sessions. These reports, generally, tended to be interpretations of program presentations in terms of their significance to participants' professional assignments for 1970-71.

On the final day of the institute, the program design provided opportunities for the individual groups to present and to explain instructional materials they had developed. In addition, time was provided for participants to evaluate their experiences.

Instructional Materials

A wide variety of instructional materials was utilized during the institute. Materials furnished by the Division of Vocational Rehabilitation and the Division of Special Education, State Department of Public Instruction, were furnished each participant upon his registration. Each participant was provided a three-ring notebook containing one each of the following: package of notebook paper; pen; copy of the Institute Program Schedule; copy of the State Department of Public Instruction HANDBOOK FOR EVALUATING DISADVANTAGED AND HANDICAPPED STUDENTS FOR PLANNING OCCUPATIONAL EDUCATION PROGRAMS; copy of United States Department of Health, Education, and Welfare publication entitled SUGGESTED UTILIZATION OF RESOURCES AND GUIDE FOR EXPENDITURES; copy of United States Department of Health, Education, and Welfare publication entitled VOCATIONAL AND TECHNICAL EDUCATION IN RURAL AMERICA. A bibliography compiled by Mrs. Marie Moffitt, Consultant with the State Department of Public Instruction, was also provided each participant.

Participants were invited to utilize the library at East Carolina University to obtain materials pertinent to individual or group projects conducted during the institute. A wide variety of occupationally oriented materials was made available in the office of the Institute Director; participants were provided these materials for their personal professional libraries when sufficient quantities were available to so permit. Audio-visual equipment was provided for individual and small group use upon request. (Several participants, it is interesting to note, borrowed

materials from the Special Education Materials Laboratory, Grifton; those materials were previewed by participants with a view toward the materials' usefulness in programs for which the participants were to be responsible when they returned to their respective teaching positions.)

In a few instances, program consultants presented participants with instructional materials pertinent to the consultant's individual presentation. Individual participants on three different occasions requested that specific programs be recorded; tapes of those presentations were made and furnished, at his expense, to the individual participant requesting them.

The development of occupational instructional materials for use with handicapped students was a main objective of the institute. In keeping with that objective, participants prepared, on both a group and an individual basis, materials that might be useful in working with handicapped students. Instructional materials developed were reproduced in quantity and each participant received one copy of all materials. Because of staff and time limitations, some materials developed during the institute were reproduced and mailed to the participants at their school addresses in early September.

Evaluation

The evaluation format provided for participant evaluation of all phases of the institute program. Formal and informal procedures were used.

Rating Scale: On the final day of the institute, participants were provided a rating scale to use in evaluating presentations made by

consultants who had appeared on the program. The instrument required participants to rate consultants' presentations on two factors: content and presentation (Appendix E).

In a free-response evaluative situation, several participants suggested that, in future programs, rating scales be provided prior to program presentations and that opportunities be provided for participants to evaluate presentations on a small-group basis instead of on an independent basis.

Free Response: On the final day of the institute, participants were provided a free response questionnaire (Appendix E). Opportunities were provided for participants to evaluate the Director and to suggest changes to be considered in the planning of a future institute. A "Free Comments" section was provided to give participants opportunities to express their points of view concerning strengths and weaknesses of the total institute program.

Field Study Evaluation: A formal report of the field study made with social case workers was required of each participant. Participants were instructed to evaluate their field experience as a part of the field study report. (Many participants expressed the belief that the field study was the finest professional experience they had acquired in their total preparation for teaching.)

Mini-Reports: To provide feedback from small group activities, periodic mini-reports were included as part of the regular institute program. Mini-group chairmen and recorders prepared and presented the reports.

Informal Evaluation: Informal evaluations of the institute program, physical facilities provided in connection with the program, and living arrangements were conducted daily by the Institute Director and visitors from the State Department of Public Instruction.

OUTCOMES

The underlying objective set for this institute was to design and to conduct a program that would enable participants to develop and to improve their professional competencies in providing occupational educational opportunities for handicapped students. The degree to which the underlying objective was successfully realized can only be determined after field evaluations are conducted during the 1970-1971 academic year.

On the basis of data yielded during evaluations conducted during the institute program, the institute is adjudged to have been highly successful in a variety of ways. One major outcome of the total program, though not stated as an original specific objective, was that the need for developing programs to prepare professionals to work with handicapped students was brought into focus. Representatives from ten departments at East Carolina University contributed to the institute program; in preparing presentations, consultants from these departments conducted considerable research. In addition, leaders from eastern North Carolina businesses and from Pitt Technical Institute contributed to the total institute program. The contributions of the professionals involved in a consulting capacity will not go unrecognized; the challenge to prepare professional personnel to work effectively with handicapped students will not be ignored--the challenge is very much in the spotlight and attempts will continue to be made to meet that challenge.

The evaluations yielded data to indicate that the institute program was successful in developing participants' interest in their 1970-1971

school projects for handicapped students. Participants gained content material that will be of value to them as they work to prepare handicapped students for the world of work. The program was also successful in influencing participants' opinions concerning handicapped students and their opinions concerning their abilities to work effectively with handicapped students.

Evidences upon which one might predict improved professional competencies in providing occupational educational opportunities for handicapped students were revealed in the analyses of evaluation data. Each participant was requested to complete an independent assignment in which he attempted to analyze the influence the institute program presentations and other activities would have upon his attempts to prepare handicapped students for the world of work. The summary of participants' comments revealed that the total institute program had influenced their determination to improve programs for which they will be responsible in numerous ways. Typical comments included the following:

> Out of the mini-group discussions I have acquired many new ideas that I believe I can incorporate into my program.
>
> I have been especially impressed with the value of visual aids in working with handicapped students. I have gained many new ideas that I will use in making visual aids for my work with these students. I will make a slide program for occupational training using, as far as possible, the students in my classes.
>
> I will endeavor to use and to cooperate with the Social Services Department now that I understand more of their services rendered to these people in need.
>
> I was impressed with the program of the Market High School of Warren, Ohio. Something of that nature would be good for our county. We have some empty schools that I feel could be utilized for a program like that of Market High.

I was glad to learn more about Vocational Rehabilitation. I will certainly try to make use of their services for those of my students who need special help.

I enjoyed the field trips, and my vision of possibilities was broadened.

The field trip to White Lake motivated me to try to have such a camp for the handicapped of our area. I will seek out sponsors for such a program.

Looking into the various areas of possibilities of vocations for the handicapped has really broadened my desires to do all for these people that I can. They will be defended and never branded. They will, with their initiative and my help and the help of the community resources available, be prepared for a useful, self-supporting, contributing citizen's role.

I know people in my community who can help me do a better job this year. Some of the resources such as Vocational Rehabilitation were new to me. My Social Services Area Counselor is now my friend.

The employers reassured me of their interest in my students. I am not afraid of sending them students.

The groups from other schools and state hospitals and programs have served as a motivation to me. If "they" can do the job, then I can do the job!

I am ready to walk "more miles" with occupational education.

The discussions and interchange of ideas in our mini-groups gave me many new ideas which I plan to implement this year. These meetings have been a "Swap Shop" for me.

I will set up an advisory council in my county.

I will bring in other areas of learning such as math, English, science, etc., to correlate with my program.

I will be sincere, and most of all, patient, when working with these students.

I will utilize materials and information to help in the guidance and counseling program at our school. I feel that I have learned about many new possibilities for the handicapped students.

Many of the pamphlets and other information given will be shared with other teachers who did not attend the institute.

As was noted previously, participants developed instructional materials that they believed would be useful in preparing students for the world of work. Materials developed were devoted to occupational areas in which the participant believed he would be able to locate occupational training opportunities for, and ultimate placement of, handicapped students within his respective community. Materials developed were classifiable into the following occupational categories:

Service Station Occupations

Welding Occupations

Transportation

Small Engine Repairing

Janitorial Services

Cashiering

Baking

Merchandising

Each institute participant was provided one copy of all occupational materials developed to use as he sees fit in the particular program for which he is responsible. Because of the sectional nature of the instructional materials developed, no attempt is made to include them as a part of this report.

EVALUATION OF THE INSTITUTE

Participants' Evaluations

As previously mentioned, participants were provided a variety of opportunities to express their opinions and reactions to the institute program.

An overview of Table I supports the conclusion that program content and presentation was considered effective and stimulating by the participants. For each program item evaluated at the conclusion of the institute, an average score was computed; the table displays the number of program items falling within each percentage range. On a four-point scale, approximately 89.5% of all the program items were rated 2.5 (good) or higher (Subtotals 1 and 2). Approximately 42.1% of the items were rated 3.5 (very good) or higher (Subtotal 1). Only four items had an average rating of less than 2.5 (fair).

Major Strengths of the Program Recognized by Participants

Participants departed the institute fully cognizant of the fact that they need not operate in a vacuum in their efforts to prepare handicapped students for the world of work. One participant, expressing his point of view and that of many, commented, "I know more about Social Services, Vocational Rehabilitation, and other state and community organizations that are able to give me help in working with handicapped students." "I know who to ask for help," commented another participant. "The ideas and information I received will be valuable in my program. I acquired a

TABLE I. Distribution of Averaged Ratings of Program Items*

Final Evaluation, August 21, 1970

Category Ranges	Number of Items Within Ranges (N=38)	Percentage of Items Within Ranges
Very Good		
3.75-4.00	3	7.9
3.50-3.74	13	34.2
Subtotal	16	42.1
Good		
3.00-3.49	11	29.0
2.50-2.99	7	18.4
Subtotal	18	47.4
Fair		
2.00-2.49	3	7.9
1.50-1.99	1	2.6
Subtotal	4	10.5
Poor		
1.00-1.49	0	0
Totals	38	100

*Based on 52 usable returns.

broader knowledge of who the program is designed to help and what my role is in the program. I received a wealth of information on supporting agencies and services available to me and my students."

The interaction among participants, both in and out of the classroom setting, was recognized as one of the major strengths of the institute. The participants representing a variety of backgrounds, experiences, ages, and specializations were able to share their differing viewpoints with each other, thereby gaining deeper insights into the requisite content, instructional materials, and teacher competencies that are necessary to conduct a quality program for the occupational education of the handicapped.

Among the many strengths of the institute recognized by the participants were the following:

Well organized, varied, and interesting

Exchange of ideas among people from various areas

Field trips

Audio-visual session

Materials were well organized by the Director.

Field trips related real life situations.

Dr. Durham, State Department personnel, field trips, dormitory living

Well-informed speakers presenting pertinent information

Field trips that were well chosen and well planned

Clear purpose; many points of view expressed; practical

Relationship of participants

O'Berry field trip

Mini-group discussions

Better understanding of other agencies

Social Services field trips; parents' viewpoints

Consultants who were able to provide "first-hand" information

Good resource persons; well planned programs and well organized

Relevant presentations

Emphasis placed on World of Work and its demands. I know more about what its needs are.

Field trips like White Lake

Programs presented by the teachers

Offered an opportunity for the new members to share techniques and ideas of experienced participants

Seeing people at work and being educated

The many facets of the institute were well developed as a result of planning; field trip experiences contributed much to learning.

Meeting other people, sharing ideas; learning new methods, techniques, and about materials; the introduction to new fields of thought and review of known ones

Program Weaknesses Recognized by Participants

In a free response situation, participants were requested to cite the weaknesses they recognized in the total institute program. Summaries of participants' responses revealed, from participants' observations, the following weaknesses:

Some presentations tended to be in the abstract, possibly because the presenter had not had actual experiences in working face-to-face with handicapped students.

A research paper was needed to help me pull together the total program.

At least one of the field trips lacked adequate direction; I did not know just what was expected of me when I arrived at the field trip destination.

The institute day was too long; three weeks was a long time, too.

Some of the speakers had difficulty relating to handicapped students. Those speakers appear to recognize no differences between handicapped students and slow learners.

One or two speakers were not adequately prepared; they did not exactly know what EMR students are.

There was not enough staff to help the director.

There were not enough "classroom teacher" type speakers.

The group was too large. I did not feel the closeness of the entire group as I did last year; this might have been due to the increase in membership.

More Negro representation was needed.

Group activities would have been stronger and possibly more effective if groups had been formed according to interests in specific phases of work.

There was too little advanced notice that I would be a participant.

Reimbursement procedures presented problems for many of us. We should have been reimbursed on a weekly basis at the $15 a day rate.

Participants' Recommendations for Future Institutes

Participants made several recommendations to be considered in planning other institutes concerning occupational education for handicapped students. Their recommendations tended to be both of an administrative

nature as well as of a content nature. Recommendations included the following:

> Hold a similar institute for school administrative personnel. Many administrators' points of view could be greatly influenced if they could be a part of this wonderful program we have been a part of.
>
> Evaluations should be conducted on a daily basis and should be on a small-group instead of an individual basis.
>
> Participants should be given advanced notice that they will be included in the institute. Many of us were not aware that we were to come to the institute until the Thursday before the institute started on Monday.
>
> I suggest that mini-groups be used again in any institute; however, I believe that we would accomplish more and there would be less domination by a few participants if the groups could have a designated leader to direct the activities of the group.
>
> Include me in next year's institute--and include more field trips.
>
> Incorporate more direct experiences with handicapped students and include more speakers who have worked with handicapped students in a classroom setting. We would like some teachers who have actually worked with these students to "tell it like it is."
>
> Include more "how to" teach sessions in future institutes. "How to get the businessman's interest in our students is a major necessity for those of us who will try to place students on jobs."
>
> Involve more academic teachers in future institutes. They must recognize the fact that they, too, must contribute to the total development of the handicapped student.

APPENDICES

APPENDIX A

INSTITUTE PROGRAM

Monday, August 3, 1970

W. H. Durham, Jr., Director

8:30-9:30 Registration and Coffee Hour, New Biology Building
Room 103 North

9:30-10:15 Orientation

Welcome

Dr. Robert W. Williams, Provost
East Carolina University

Conference Overview

Dr. W. H. Durham, Jr.
Institute Director

10:15-10:30 Break

10:30-12:00 Keynote Address

Mr. Clifton B. Belcher
Assistant Director of Program Operations
Department of Public Instruction

12:00-1:30 Lunch

1:30-4:00 Instructions, Announcements, Organization of Mini-groups

Meetings of Mini-groups:

Group A, New Biology Building, Room 103 North

Group B, New Biology Building, Room 103 North

Group C, Rawl Building, Room 201

Group D, Rawl Building, Room 202

Tuesday, August 4, 1970

W. H. Durham, Jr., Director

8:30-9:00	Mini-Reports, Group Leaders
9:00-10:00	Data Processing for the Handicapped Student?
	Mrs. Mildred McGrath, Chairman, Data Processing, Pitt Technical Institute
10:00-10:30	Break
10:30-12:00	Using Audio-Visual Resources in Preparing the Handicapped for the World of Work
	Mr. Kenneth S. Herman, Jr., Educational Consultant, Instructional Media, Division of Occupational Education, Department of Community Colleges
12:00-1:00	Lunch

Program I:

1:00-3:00	Audio-Visuals, Group A, Rawl Building, Room 201
3:00-3:15	Break
3:15-5:15	Audio-Visuals, Group B, Rawl Building, Room 201
	Mr. Herman

Program II:

1:30-4:00	Field Trips
	Special Education Instructional Materials Laboratory, Grifton, North Carolina
	Miss Maxine Brown, Hostess
1:30	Group D Arrival
3:00	Group C Arrival

Wednesday, August 5, 1970

W. H. Durham, Jr., Director

8:30-10:00	Job Analysis as a Base for Curriculum Development for the Handicapped
	Dr. Joseph A. Hill, Chairman, Department of Business Administration, East Carolina University
10:00-10:30	Break
10:30-12:00	Identification and Management of Children with Speech and Hearing Handicaps
	Dr. William Garrett Hume, Assistant Professor, Special Education, East Carolina University
12:00-1:00	Lunch

Program I:

1:00-3:00	Audio-Visuals, Group C, Rawl Building, Room 201
3:00-3:15	Break
3:15-5:15	Audio-Visuals, Group D, Rawl Building, Room 201
	Mr. Herman

Program II:

1:30-4:00	Field Trips
	Special Education Instructional Materials Laboratory, Grifton, North Carolina
	Miss Maxine Brown, Hostess
1:30	Group B Arrival
3:00	Group A Arrival

Thursday, August 6, 1970

W. H. Durham, Jr., Director

8:30-9:00	Mini-Reports, Group Leaders
9:00-10:15	Parents' Points of View Dr. and Mrs. Raymond L. Jones, Greenville, North Carolina
10:15-10:45	Break
10:45-12:00	Social Services Provided for North Carolinians Mr. Jim Burns, State Department of Social Services
12:00-1:30	Lunch
1:30-3:00	Social Services Provided for North Carolinians, Continuation Mr. Burns
3:00-3:15	Break
3:15-4:00	Orientation: Field Trips with Social Services Case Workers Mr. Patrick Lloyd, State Department of Social Services

Friday, August 7, 1970

W. H. Durham, Jr., Director

8:30-4:30 Field Trips with Social Case Workers

Participants will report to the Social Services office in their home counties unless otherwise directed.

Monday, August 10, 1970

W. H. Durham, Jr., Director

8:30-10:15	Mini-Reports, Group Leaders Reports of Field Studies with Social Case Workers Reactor: Miss Dorothy Bolton, Director, Pitt County Department of Social Services
10:15-10:45	Break
10:45-12:15	The Market High School Program for Preparing the Handicapped for the World of Work Mr. Erwin J. Klein, Principal, Market High School, Warren, Ohio
12:15-1:45	Lunch
1:45-3:00	Employers' Points of View Concerning the Employment of Handicapped Persons Mr. Walter Faulkner, Personnel Manager, Empire Brushes, Inc., Greenville, North Carolina Mr. G. Paul Redgate, Personnel Manager, Belk-Tyler Company, Greenville, North Carolina
3:00-3:15	Break
3:15-4:00	Mini-Groups: Group A, New Biology Building, Room 103 North Group B, New Biology Building, Room 108 North Group C, Rawl Building, Room 201 Group D, Rawl Building, Room 202

Tuesday, August 11, 1970

W. H. Durham, Jr., Director

8:30-9:00	Mini-Reports, Group Leaders
9:00-10:15	Preparing the Handicapped for Health Occupations
	Miss Lee Bennett, R.N., Associate Professor, School of Nursing, East Carolina University
10:15-10:45	Break
10:45-12:00	Occupational Modules
	Mr. Michael W. Mills, Curriculum Analyst of Occupational Programs for the Handicapped, Pitt County Schools
	Mr. Daniel E. Hardee, Project Director, Middle School Program, Pitt County Schools
12:00-1:30	Lunch
1:30-3:00	What Does Education Mean to the Handicapped Person?
	Mr. Charles Matthews, Special Education Instructor, Benson, North Carolina
	Mr. Joe Morrow, Assistant State Director, Department of Vocational Rehabilitation
3:00-3:15	Break
3:15-3:45	Mini-Groups
	Group A, New Biology Building, Room 103 North
	Group B, New Biology Building, Room 108 North
	Group C, Rawl Building, Room 201
	Group D, Rawl Building, Room 202
3:45-4:00	Orientation: Field Trips to Ongoing Programs for the Handicapped
	Dr. William H. Durham, Jr., Institute Director

Wednesday, August 12, 1970

W. H. Durham, Jr., Director

Field Trips

Group A — Vocational Rehabilitation Facility
Cherry Hospital-O'Berry Center
Goldsboro, North Carolina

Host: Mr. Forrest Teague

Group B — Camp White Lake
White Lake, North Carolina

Host: Dr. William B. Martin

Group C — Caswell Vocational Rehabilitation Center
Kinston, North Carolina

Host: Mr. W. A Dunne

Arrival time, each destination: 10 a.m.

Thursday, August 13, 1970

W. H. Durham, Jr., Director

Field Trips

Group A	Camp White Lake White Lake, North Carolina Host: Dr. William B. Martin
Group B	Caswell Vocational Rehabilitation Center Kinston, North Carolina Host: Mr. W. A. Dunne
Group C	Vocational Rehabilitation Facility Cherry Hospital-O'Berry Center Goldsboro, North Carolina Host: Mr. Forrest Teague

Arrival time, each destination: 10 a.m.

Friday, August 14, 1970

W. H. Durham, Jr., Director

8:30-9:00	Mini-Group Reports, Group Leaders
9:00-10:15	The Role of Vocational Rehabilitation in Preparing the Handicapped for the World of Work Mr. Claude Meyer, Director, Department of Vocational Rehabilitation Mr. Wallace McCullock, Department of Vocational Rehabilitation
10:15-10:45	Break
10:45-12:00	Community Organization for Rehabilitation Mr. Eugene Keener, State Supervisor of Program Planning, Department of Vocational Rehabilitation
12:00-1:30	Lunch
1:30-4:00	Occupational Planning for the Emotionally Disturbed Child Dr. Charles Moore, Department of Psychology, East Carolina University

Monday, August 17, 1970

W. H. Durham, Jr., Director

8:30-9:45	Business and Office Education for the Handicapped Dr. Harold M. McGrath, Professor, Business Education, East Carolina University
9:45-10:15	Break
10:15-12:15	The Kings Mountain Program for Preparing the Handicapped for the World of Work Dr. Donald Jones, Superintendent, Kings Mountain City Schools, Kings Mountain, North Carolina Mr. Fred Withers, Principal, Central Elementary School, Kings Mountain, North Carolina
12:15-1:45	Lunch
1:45-4:00	Mini-Groups

Tuesday, August 18, 1970

W. H. Durham, Jr., Director

8:30-9:00	Mini-Reports, Group Leaders
9:00-10:15	Home Economics Education for the Handicapped Dr. Vila Rosenfeld, Chairman, Home Economics Education, East Carolina University
10:15-10:45	Break
10:45-12:00	Leisure Time Activities for the Educable Mentally Retarded Dr. William B. Martin, School of Education, East Carolina University Miss Nell Stallings, Department of Health and Physical Education, East Carolina University
12:00-1:30	Lunch
1:30-2:45	Evaluating and Reporting the EMR's Progress Dr. Calvert R. Dixon, Department of Psychology, East Carolina University
2:45-3:00	Break
3:00-4:00	Mini-Groups Consultant: Mrs. Marie Moffitt, State Department of Public Instruction Programs for the Disadvantaged and Handicapped

Wednesday, August 19, 1970

W. H. Durham, Jr., Director

8:30-9:45	New Cooperative Programs for the Handicapped Dr. William H. Durham, Jr., Teacher Educator, Distributive Education and Institute Director, East Carolina University
9:45-10:15	Break
10:15-12:00	Assisting the EMR in the Development of Communication and Computational Skills Mrs. Rosanna Ezzell, West Columbus High School, Cerro Gordo, North Carolina Mrs. Lee Ann Howard, West Columbus High School, Cerro Gordo, North Carolina Mrs. Judi Waddell, West Columbus High School, Cerro Gordo, North Carolina
12:00-1:30	Lunch
1:30-2:30	(a) The Governor's Advisory Committee on Vocational and Technical Education (b) An Employer's Point of View Concerning the Employment of Handicapped Workers Mr. Henry Oglesby, Grifton, North Carolina
2:30-2:45	Break
2:45-4:00	The Roles of Guidance and Counseling in Working with Handicapped Students Mrs. Thelma Lennon, Pupil Personnel Services, State Department of Public Instruction
4:00	Watermelon Feast, Campus Mall
6:30	Dutch Dinner, Candlewick Inn

Thursday, August 20, 1970

W. H. Durham, Jr., Director

8:30-10:00 The Student as an Active Member in the Teaching-Learning Process

Mr. Robert A. Mullen, Associate Director, Program Services, Division of Occupational Education, Department of Public Instruction

State Staff Members:

Edward Alderman, Middle School Program

Kitty Lyons, Occupational Home Economics

Meg Murphy, Home Economics

Mike Wheeler, Summer Intern

10:00-10:30 Break

10:30-11:30 Our Power to Change the Handicapped Person's Future

Dr. Charles Law, State Director, Division of Occupational Education, Department of Public Instruction

11:30-1:00 Lunch

1:00-4:00 Mini-Groups

Consultants from the State Staff

Friday, August 21, 1970

W. H. Durham, Jr., Director

8:00-9:30	Breakfast, Three Steers Restaurant, Memorial Drive
9:45-10:45	Group Presentations, New Biology Building, Room 103 North
	Group Leaders
10:45-11:15	Evaluation
11:15-12:00	Reimbursement Procedures
12:00	Adjournment

APPENDIX B

INSTITUTE STAFF

Dr. William H. Durham, Jr., Director
Institute for Teachers of the Handicapped
School of Business
East Carolina University
Greenville, North Carolina

Mr. Nurham O. Warwick
Chief Consultant
Disadvantaged and Handicapped
Department of Public Instruction
Raleigh, North Carolina

Mrs. Hilda Smith
Secretary, Dr. William H. Durham, Jr.
School of Business
East Carolina University
Greenville, North Carolina

Miss Velma Lowe, Assistant Professor
Department of Office Administration
School of Business
East Carolina University
Greenville, North Carolina

INSTITUTE PLANNING COMMITTEE

Mr. Nurham O. Warwick
Chief Consultant
Disadvantaged and Handicapped
Department of Public Instruction
Raleigh, North Carolina

Dr. Textron R. Miller, Director
Institute for Teachers of the Disadvantaged
Associate Professor
School of Education
North Carolina State University
Raleigh, North Carolina

Mr. Robert A. Mullen
Associate Director, Program Services
Division of Occupational Education
Department of Public Instruction
Raleigh, North Carolina

Mrs. Rosanna B. Ezzell
Instructor, Business Education and Coordinator, Work Experience Program
West Columbus High School
Cerro Gordo, North Carolina

Mr. Frank R. Harris, Coordinator
Public School Programs
Division of Vocational Rehabilitation
Department of Public Instruction
Raleigh, North Carolina

Mr. Lowell Harris
Associate State Supervisor
Division of Special Education
Department of Public Instruction
Raleigh, North Carolina

Dr. William H. Durham, Jr.
Institute Director
Professor and Teacher Educator
Distributive Education
School of Business
East Carolina University
Greenville, North Carolina

APPENDIX C

PREPARING THE HANDICAPPED FOR THE WORLD OF WORK

LIST OF CONSULTANTS
(in order of appearance on program)

Dr. Robert W. Williams, Provost
East Carolina University
Greenville, North Carolina

Mr. Clifton B. Belcher
Assistant Director of Program Operations
Department of Public Instruction
Raleigh, North Carolina

Mrs. Mildred T. McGrath, Chairman
Data Processing
Pitt Technical Institute
Greenville, North Carolina

Mr. Kenneth S. Herman, Jr.
Educational Consultant of Instructional Media
Department of Public Instruction
Raleigh, North Carolina

Miss Maxine Brown
Special Education Instructional Materials Laboratory
Grifton, North Carolina

Dr. Joseph A. Hill, Chairman
Department of Business Administration
East Carolina University
Greenville, North Carolina

Dr. William Garrett Hume
Assistant Professor, Special Education
East Carolina University
Greenville, North Carolina

Dr. Raymond L. Jones, Professor
Department of Business Administration
East Carolina University
Greenville, North Carolina

Mrs. Raymond L. Jones, Instructor
Department of Biology
East Carolina University
Greenville, North Carolina

Mr. Jim Burns
Public Relations Director
State Department of Social Services
Raleigh, North Carolina

Mr. Patrick Lloyd
State Department of Social Services
Raleigh, North Carolina

Miss Dorothy Bolton, Director
Pitt County Department of Social Services
Greenville, North Carolina

Mr. Erwin J. Klein, Principal
Market High School
Warren, Ohio

Mr. Walter Faulkner, Personnel Manager
Empire Brushes, Inc.
Greenville, North Carolina

Mr. G. Paul Redgate, Personnel Manager
Belk-Tyler Company
Greenville, North Carolina

Miss Lee Bennett, R.N.
Associate Professor
School of Nursing
East Carolina University
Greenville, North Carolina

Mr. Michael W. Mills
Curriculum Analyst of Occupational
Programs for the Handicapped
Pitt County Schools
Greenville, North Carolina

Mr. Daniel E. Hardee
Project Director
Middle School Program
Pitt County Schools
Greenville, North Carolina

Mr. Charles Matthews
Special Education Instructor
Benson, North Carolina

Mr. Joe Morrow
Assistant State Director
Division of Vocational Rehabilitation
Department of Public Instruction
Raleigh, North Carolina

Mr. Forrest Teague, Supervisor
Vocational Rehabilitation Facility
Cherry Hospital-O'Berry Center
Goldsboro, North Carolina

Dr. William B. Martin, Professor
School of Education
East Carolina University
Greenville, Norrh Carolina

Mr. W. A. Dunne, Facility Director
Caswell Vocational Rehabilitation
Center
Kinston, North Carolina

Mr. Claude Meyer, Director
Division of Vocational Rehabilitation
Department of Public Instruction
Raleigh, North Carolina

Mr. Wallace McCullock
Division of Vocational Rehabilitation
Department of Public Instruction
Raleigh, North Carolina

Mr. Eugene Keener
State Supervisor of Program Planning
Division of Vocational Rehabilitation
Department of Public Instruction
Raleigh, North Carolina

Dr. Charles Moore, Assistant Professor
Department of Psychology
East Carolina University
Greenville, North Carolina

Dr. Harold M. McGrath, Professor
Business Education
East Carolina University
Greenville, North Carolina

Dr. Donald Jones, Superintendent
Kings Mountain City Schools
Kings Mountain, North Carolina

Mr. Fred Withers, Principal
Central Elementary School
Kings Mountain, North Carolina

Dr. Vila Rosenfeld, Chairman
Home Economics Education
East Carolina University
Greenville, North Carolina

Miss Nell Stallings, Professor
Department of Health and Physical
Education
East Carolina University
Greenville, North Carolina

Dr. Calvert R. Dixon,
Associate Professor
Department of Psychology
East Carolina University
Greenville, North Carolina

Mrs. Marie Moffitt
Programs for the Disadvantaged and
Handicapped
Department of Public Instruction
Raleigh, North Carolina

Dr. William H. Durham, Jr.
Teacher Educator, Distributive
Education and Institute Director
East Carolina University
Greenville, North Carolina

Mrs. Rosanna Ezzell
West Columbus High School
Cerro Gordo, North Carolina

Mrs. Lee Ann Howard
West Columbus High School
Cerro Gordo, North Carolina

Mrs. Judi Waddell
West Columbus High School
Cerro Gordo, North Carolina

Mr. Henry Oglesby
Member, Governor's Advisory Committee
on Vocational and Technical Education
Cox Trailer Company
Grifton, North Carolina

Mrs. Thelma Lennon, Director
Pupil Personnel Services
Department of Public Instruction
Raleigh, North Carolina

Mr. Robert A. Mullen
Associate Director
Program Services
Division of Occupational Education
Department of Public Instruction
Raleigh, North Carolina

Mr. Edward Alderman
Middle School Program
Department of Public Instruction
Raleigh, North Carolina

Mrs. Kitty Lyons
Occupational Home Economics
Department of Public Instruction
Raleigh, North Carolina

Mrs. Meg Murphy
Home Economics
Department of Public Instruction
Raleigh, North Carolina

Dr. Charles Law, State Director
Division of Occupational Education
Department of Public Instruction
Raleigh, North Carolina

Mr. Mike Wheeler
Summer Intern
Department of Public Instruction
Raleigh, North Carolina

APPENDIX D

OCCUPATIONAL EDUCATION INSTITUTE

PREPARING THE HANDICAPPED FOR THE WORLD OF WORK

East Carolina University

August 11-21, 1970

Mrs. Glenda M. Adams
C. C. Wright Elementary School
Wilkes County
North Wilkesboro, N. C. 28659

Mr. Joseph S. Barber
Boomer-Ferguson School
Wilkes County
Boomer, N. C.

Mr. Keith J. Beam
North Brook School
Lincoln County
Route 1
Cherryville, N. C.

Mr. Michael Wayne Bolen
Southeast Guilford Senior High
Guilford County
Greensboro, N. C.

Mrs. Linda Gooch Boulden
Nash Central Junior High School
Nash County
Nashville, N. C.

Mr. Randall S. Brooks
Allen Jay High School
1201 East Fairfield Road
Guilford County
High Point, N. C. 27263

Mr. Ronnie D. Brown
White Oak School
Bladen County
White Oak, N. C.

Mr. Ernest M. Bullard
Charles E. Perry School
Sampson County
Roseboro, N. C. 28382

Mr. Morris Bullock
West Columbus High School
Columbus County
Cerro Gordo, N. C.

Mr. Larry E. Byrd
Eastern High School
Alamance County
Route 4
Mebane, N. C. 27302

Mr. Donald H. Cain
Cape Fear High School
Cumberland County
Fayetteville, N. C.

Miss Esther V. Campbell
Graham County Schools
Graham County
Graham, N. C.

Mrs. Marie H. Collins
West Columbus High School
Columbus County
Cerro Gordo, N. C. 28430

Mr. Frederick L. Dixon
Central Junior High School
Cleveland County
105 East Ridge Street
Kings Mountain, N. C. 28086

Mr. Brent F. Eller
Wilkes County Creek School
Wilkes County
Wilkesboro, N. C.

Mr. Balaam T. Elliott
West Columbus High School
Columbus County
Cerro Gordo, N. C.

Mrs. Rosanna B. Ezzell
West Columbus High School
Columbus County
Cerro Gordo, N. C.

Mrs. Carolyn J. Foster
Dillard Junior High School
Caswell County
Yanceyville, N. C. 27379

Mr. Lonnie T. Foster
Nash Central Junior High School
Nash County
Nashville, N. C.

Mrs. Ruth H. Frinks
Edenton-Chowan Schools
Chowan County
Edenton, N. C. 27932

Mr. Rhett Fulcher
Morehead Central School
Carteret County
Court House Annex
Beaufort, N. C.

Mrs. Laura Gilmore Gibbs
Cape Fear High School
Cumberland County
Fayetteville, N. C.

Mr. Robert R. Gilbert
West Carteret High School
Carteret County
Morehead City, N. C. 28557

Mrs. Carrie B. Gillikin
Brinson Memorial School
Craven County
219 Neuse Forest Drive
New Bern, N. C. 28560

Mr. Roy Goodman
Ashe Central High School
Ashe County
Jefferson, N. C. 28640

Mrs. Phyllis A. Grant
Southern Wayne High School
Wayne County
Route 1
Dudley, N. C.

Mrs. Elizabeth Y. Greene
Dillard Junior High School
Caswell County
Yanceyville, N. C. 27379

Mr. Daniel E. Hale
Alleghany County Public School
Alleghany County
Sparta, N. C.

Mr. Richard E. Hamrick
Central School
Cleveland County
Kings Mountain, N. C. 28086

Mr. Greenville Harris
Eastern Wayne High School
Wayne County
Goldsboro, N. C.

Mrs. Ruth Warwick Hunt
Fairmont High School
Robeson County
Fairmont, N. C.

Mr. Edward C. Johnson
Alleghany High School
Alleghany County
Sparta, N. C.

Mr. William H. Johnson
Massey Hill High School
Cumberland County
Fayetteville, N. C.

Mr. Charles T. Justin
North Wilkesboro High School
Wilkes County
Wilkesboro, N. C.

Mr. Herbert R. Lail
Cleveland Training School
Cleveland County
Shelby, N. C. 28150

Mr. Allen Lloyd Lawrence
D. F. Walker Junior High School
Chowan County
Edenton, N. C.

Mrs. Laura E. Lewis
Moravian Falls Elementary School
Eilkes County
Moravian Falls, N. C.

Mrs. Ruby V. Luck
Asheboro Junior High School
Randolph County
523 Walker Avenue
Asheboro, N. C.

Mr. Peter Mack
Brinson Memorial School
Craven County
219 Neuse Forest Drive
New Bern, N. C. 28560

Mr. Clarence T. McDonald
Bladen Central School
Bladen County
Elizabethtown, N. C.

Mr. Daniel F. McLaurin
White Oak Elementary School
Bladen County
Elizabethtown, N. C.

Mr. Ronald E. Nanney
Kings Mountain City Schools
Central School
Cleveland County
Kings Mountain, N. C.

Mr. Richard B. Null
Catawba County Schools
P. O. Box 1000
Newton, N. C. 28658

Mr. Roy L. Payne
Western Guilford High School
Guilford County
Greensboro, N. C.

Mr. Ernest Linwood Parker
East Carteret High School
Carteret County
Beaufort, N. C.

Mrs. Ruth M. Pridgen
Merrick Moore High School
Durham County
Durham, N. C.

Mr. Frank T. Randolph
Washington City Schools
Jones Junior High School
Beaufort County
Washington, N. C.

Mr. Daniel P. Reaves
Bertie Junior High School
Bertie County
Windsor, N. C.

Mrs. Phyllis P. Ross
C. B. Aycock High School
Wayne County
Pikeville, N. C. 27863

Mrs. Lynda Strickland Rowe
West Carteret High School
Carteret County
Route 1
Morehead City, N. C.

Mr. W. Stuart Scott, Jr.
Durham County Schools
Durham County
Durham, N. C.

Mr. Herschel B. Seets
Dillard Junior High School
Caswell County
Yanceyville, N. C.

Mrs. Helen F. Sibley
Wake Forest Junior High School
Wake County
Wake Forest, N. C.

Miss Joyce K. Thomas
Eastern Middle School
Alamance County
Route 4
Mebane, N. C. 27302

Mr. Walter Lewis Turner
Eastern Middle School
Alamance County
Route 4
Mebane, N. C. 27302

Mr. Cyrus C. Vernon
Bartlett Yancey High School
Caswell County
Yanceyville, N. C. 27379

Mr. Garland R. Whitaker
West Carteret High School
Carteret County
Morehead City, N. C.

Mr. James E. Wiggins
Lincoln County School
Lincoln County
Lincolnton, N. C.

Mr. Russell L. Williams
Rocky Mount City Schools
Nash County
P. O. Box 1260
Rocky Mount, N. C. 27801

Mr. Milton E. Windham
Person Senior High School
Person County
Roxboro, N. C. 27573

APPENDIX E

EVALUATION OF 1970 INSTITUTE FOR TEACHERS OF THE HANDICAPPED

August 3-21, 1970

Using the following rating scale, rate each of the following items as both Content and Presentation:

Very good - Score of 4
Good - Score of 3
Fair - Score of 2
Poor - Score of 1

	ITEMS TO EVALUATE	CONTENT	PRESENTATION
August 3	Keynote Address 1. Clifton B. Belcher		
August 4	Data Processing for the Handicapped 2. Mildred T. McGrath		
	Using Audio-Visual Resources 3. Kenneth S. Herman, Jr.		
August 5	Job Analysis 4. Joseph H. Hill		
	Identification and Management of Children with Speech and Hearing Handicaps 5. William Garrett Hume		
August 6	Parents' Point of View 6. Raymond L. Jones		
	7. Martha Jones		
	Social Services Provided for North Carolinians 8. Jim Burns		
August 10	Market High (Ohio) Program for the Handicapped 9. Erwin J. Klein		
	Employers' Points of View 10. Walter Faulkner		
	11. G. Paul Redgate		
August 11	Occupational Modules 12. Michael Mills		
	13. David E. Hardee		
	What Does Education Mean to the Handicapped Person? 14. Charles Matthews		
	15. Lee Bennett		

		ITEMS TO EVALUATE	CONTENT	PRESENTATION
August 14		The Role of Vocational Rehabilitation		
	16.	Wallace McCullock		
	17.	Claude Meyer		
	18.	Eugene Keener		
		Occupational Planning for the Emotionally Disturbed Child		
	19.	Charles Moore		
August 17		Business and Office Education for the Handicapped		
	20.	Harold M. McGrath		
		Kings Mountain Program for the Handicapped		
	21.	Donald Jones		
	22.	Fred Withers		
August 18		Home Economics Education for the Handicapped		
	23.	Vila M. Rosenfeld		
		Leisure Time Activities for the Educable Mentally Retarded		
	24.	William B. Martin		
	25.	Nell Stallings		
		Evaluating and Reporting the EMR's Progress		
	26.	Calvert R. Dixon		
August 19		Cooperative Education		
	27.	William H. Durham, Jr.		
		Assisting the EMR in the Development of Communication and Computational Skills		
	28.	Rosanna Ezzell		
	29.	Judi Waddell		
	30.	Lee Ann Howard		
		The Governor's Advisory Committee on Vocational and Technical Education		
	31.	Henry Oglesby		
		The Roles of Guidance and Counseling In Working with Handicapped Students		
	32.	Thelma Lennon		
August 20		The Student as an Active Member in the Teaching-Learning Process		
	33.	Robert A. Mullen		
	34.	Edward Alderman		
	35.	Kitty Lyons		
	36.	Meg Murphy		
	37.	Mike Wheeler		
		Our Power to Change the Handicapped Person's Future		
	38.	Charles Law		

FREE RESPONSE

I. Director Evaluation:

How well did the Director (Dr. Durham) perform in

a. Serving as host and chairman of the sessions?

b. Coordinating Institute Activities?

c. Meeting individual needs of Participants?

II. In general, what do you believe needs to be changed if another Institute were to be set for next year?

III. Free Comments

With the thought that you are best able to tell us the kind of program you believe will best meet your specific program needs, your director is greatly interested in any criticisms, pro and con, and suggestions that you care to make to serve as a guide to future planning. Please list suggestions and criticisms below.

APPENDIX F

SPECIMEN REPORT: FIELD TRIP WITH SOCIAL SERVICES DEPARTMENT

I arrived at my local Social Services office at 9:15 a.m. on Friday, August 7, 1970, to be welcomed by Mr. E. L. Hauser, Director. Mr. Hauser explained the role of the Social Services Department in general and assigned Mrs. Walters, a social work supervisor to discuss the program outlined for the day. Mrs. Walters explained that I would go out to some of the homes with Miss Peggy Cunningham and observe the meeting between the families and the social worker and to observe the home and conditions in which the family lived. The two cases we had time to see involved one large Negro family and one large Indian family, and the cases were as follows:

NEGRO FAMILY: Father was about fifty years old, had severe heart condition, and had previous operation for cancer. Mother about the same age appeared very frail and worked to death. Children seen in the home were those who had been taken into the home from other families who were less fortunate and who had been raised by this family prior to the father's becoming unable to work. One of the children was almost deaf in one ear and had to be spoken to in a very loud voice to be heard. There were six people living in this three-room home without water or bath facilities. The outdoor toilet had been condemned by the Health Department also. The social worker was trying to help them procure a home improvement loan to put screens on the doors and windows and to get money enough to build an outside toilet of acceptable standards. She also was trying to arrange for a hearing test for the one child to determine if a hearing aid would

help. Although some of the children were old enough to work, no transportation was available; and the home was about ten miles from town. The family had a good garden, and they were canning some of the vegetables for winter use.

INDIAN FAMILY: This was a family of a broken home. Five children were living with a grandfather and a grandmother. The grandfather was about fifty-five or older and was unable to work due to some operation he had had some years ago. He was supplied with a tube of some sort in his side, and this was causing trouble which he stated could only be corrected by another trip to Duke Hospital. The grandmother was not present at the home; she was out working someplace on a farm. The children had been taken from the mother by a court order and were being placed in foster homes. The grandmother and grandfather were trying to keep the three smallest in their home. The grandfather performed the baby-sitting position while the grandmother worked elsewhere. The two older children around nine to thirteen years old were placed in separate foster homes. One was placed with another family with five children of their own in a housetrailer. The home was immaculately clean, and the other children were very nice and clean. This seemed at first sight to be a wonderful home for the foster child. The other child was placed in a nice brick home with an Indian family who by their appearance and the appearance of their home also seemed to be very well educated and above average. This home had four or five children of ages six through eighteen years. This foster home appeared to be an excellent choice for this child.

After a quick lunch I was assigned to another social worker along with other participants to go on a tour of a child day care center and the Sheltered Workshop. Mrs. Gwen Davison, social worker, was assigned as tour guide. The day care center was for mentally retarded persons with an average I.Q. of 30. They had about fifteen children and five adults on this date. The office of this center was in an old small frame house donated by a local civic group. There was one other building of cinder block which was the training facility. One worker was bathing a child about three years old with brain damage from birth who was completely helpless. One was supervising a group in an enclosure who were playing with various dolls and toys and were at the same time trying to teach a child about six years old to walk. All of these persons were in constant need of help. The director stated that his small staff of five workers would have to be reduced to three due to nonavailability of funds. He stated that action by local civic groups was being taken to gain recognition for the facility and to procure the necessary funds to build an adequate facility and to procure the necessary staff to maintain it. This facility and its pupils was a heart rendering experience to all of us. Let us hope and pray that somehow funds can be made available for this worthwhile project.

We visited the Sheltered Workshop and were amazed to see the work being accomplished there. It was like going into a small factory. One shop was making basketball goals and backboards, bending and cutting metal, welding, painting, and packing for shipment. They were all sixteen

years of age or above. With supervision, they were accomplishing a great deal of work. These people are receiving pay for their work while they are being trained. All of the employees were either mentally or physically handicapped, and were doing an excellent job. This is a very worthwhile facility. After the tour was completed we were greeted by Mrs. Ann Faircloth, Homemaker Services Supervisor, who discussed the many services available to the people of our community.

After this, we met with Mrs. Audrey Carter, Social Work Supervisor, who discussed our day's events and answered our questions. She invited us and you and anyone to accept a similar tour with them.

I feel that this was one of the most rewarding tours I have ever had the opportunity to go on, and I think every able-bodied person should accept this invitation of their own Social Services Facility to go on a similar tour. It makes the paying of taxes seem worthwhile--try it and see.

EAST CAROLINA UNIVERSITY MAKES NO DISTINCTION IN THE ADMISSION OF STUDENTS OR IN ANY OTHER OF ITS OFFICIAL ACTIVITIES ON THE BASIS OF RACE, COLOR, SEX, CREED, OR NATIONAL ORIGIN.

VT 012 272
State of Washington Comprehensive Manpower Plan for Fiscal Year 1971.

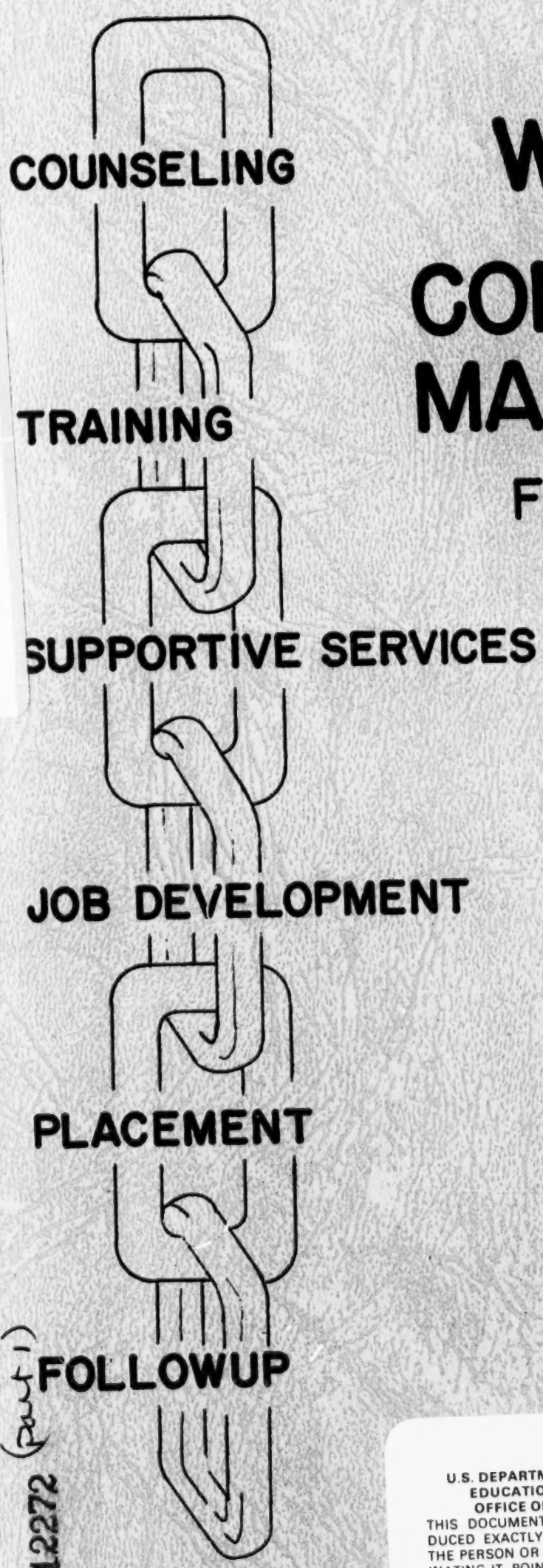
Washington State Manpower Coordinating Committee, Olympia.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 1Mar70 365p.

DESCRIPTORS - *MANPOWER DEVELOPMENT; *STATE PROGRAMS; *PROGRAM PLANNING; LABOR SUPPLY; MANPOWER NEEDS
IDENTIFIERS - WASHINGTON

ABSTRACT - The Washington 1971 manpower plan is presented in two parts. Each part has four sections: the Tacoma Area Plan, the Seattle-Everett Area Plan, the Balance of State Area Plan, and a State Summary. Part A describes each area, identifies its manpower problems and target populations, and summarizes current manpower activity in the area. Part B lists manpower resources available for the planning year, identifies the target populations to be served, and details how these resources will be used to meet the objectives. In addition, Part B establishes priorities, discusses unmet needs and describes how various agencies and the general community will be involved in the preparation and implementation of the plan. (BH)

VT 012 272

ED0 57254



STATE OF

WASHINGTON

COMPREHENSIVE MANPOWER PLAN

FISCAL YEAR 1971

PART A

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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2974

VT012272 (part 1)

DANIEL J. EVANS
GOVERNOR

PART A

STATE OF WASHINGTON

COMPREHENSIVE MANPOWER PLAN

for

FISCAL YEAR 1971

* * * * * * * * * * *

March 1, 1970

* * * * * * * * * * *

Compiled and Submitted by The

Washington State Manpower Coordinating Committee

Lyle M. Tinker, Chairman

P. O. Box 367

Olympia, Washington 98501

Part A

Fiscal Year 1971 -- CAMPS

Washington State Manpower Coordinating Committee

Participating Agency	Represented By
State Apprenticeship Council 315 East Fifth Street Olympia, Washington 98501	Clyde Hamlette Secretary
U. S. Bureau of Apprenticeship & Training 2006 Smith Tower Building Seattle, Washington 98104	Reno L. Switzer Acting State Supervisor
U. S. Civil Service Commission 5105 Federal Office Building Seattle, Washington 98104	Robert W. Dolan Executive Officer
Dept. of Commerce & Economic Development General Administration Building Olympia, Washington 98501	Daniel B. Ward Director
State Board for Community Colleges P. O. Box 1666 Olympia, Washington 98501	Richard G. Moe Education Program Director
State Board Against Discrimination 1411 - 4th Avenue Building Seattle, Washington 98101	Alfred E. Cowles Executive Secretary
Economic Development Administration U. S. Department of Commerce 415 - 1st Avenue North Seattle, Washington 98109	Kenneth E. Latcholia Field Coordinator
Washington State Employment Service P. O. Box 367 Olympia, Washington 98501	A. W. Burchill Assistant Commissioner

Participating Agency	Represented By
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Department of Health Public Health Building Olympia, Washington 98501	Wallace Lane M.D. Dr. Wallace Lane Director
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Department of Institutions Institutions Building Olympia, Washington 98501	William R. Conte, M.D. Dr. William R. Conte Director
Department of Labor and Industries General Administration Building Olympia, Washington 98501	William C. Jacobs William C. Jacobs Director
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Planning & Community Affairs Agency 1306 Capitol Way Olympia, Washington 98501	Stanton E. Schmid Stanton E. Schmid Administrative Assistant
Office of Program Planning & Fiscal Management Insurance Building Olympia, Washington 98501	John W. McCurry John W. McCurry Deputy Director

Participating Agency	Represented By
Department of Public Assistance P. O. Box 1162 Olympia, Washington 98501	Quenten Emery Deputy Director
Department of Public Instruction P. O. Box 527 Olympia, Washington 98501	Elmer E. Clausen Director, Adult Education
Rural Development Committee U. S. Department of Agriculture 127 South Mission Street Wenatchee, Washington 98801	Michael C. Horan Chairman
Division of Unemployment Compensation Employment Security Department P. O. Box 367 Olympia, Washington 98501	Carl G. Westine Director
Division of Vocational Education P. O. Box 248 Olympia, Washington 98501	Ernest G. Kramer Director
Division of Vocational Rehabilitation P. O. Box 528 Olympia, Washington 98501	Raymond M. Ryan Director
Water Pollution Control Administration U. S. Department of the Interior 200 South 35th Street Corvallis, Oregon 97330	Lyman J. Nielson Chief, Training Branch
Washington State Community Action Directors Association P. O. Box 4036 Wycoff Station Bremerton, Washington 98310	Theodore F. Drake President
Washington State Manpower Coordinating Committee P. O. Box 367 Olympia, Washington 98501	Lyle M. Tinker Chairman

- - - - - - - -

INTRODUCTION

This document is Part A of the Washington State Comprehensive Manpower Plan for Fiscal Year 1971. It consists of the following sections:

- State Summary (white pages): A brief general summary of the information contained in the Area Plans.

- Balance of State Area Plan (green pages): The plan for all counties in the state except King, Snohomish, and Pierce.

- Seattle-Everett Area Plan (blue pages): The plan for King and Snohomish Counties.

- Tacoma Area Plan (buff pages): The plan for Pierce County.

The designation "PART A" suggests that the State Manpower Plan is not completely incorporated in this document. This suggestion is correct. PART A is the first of two volumes which together comprise the state's annual plan. PART B is scheduled to be published in June 1970. Very briefly the contents of the two Parts may be summarized as follows:

PART A consists of a description of the state and area, the identification of manpower problems, a narrative and statistical description of the target populations, and a summary of current manpower activity (By current is meant the fiscal year in which the plan is being written rather than the upcoming fiscal year).

PART B lists the manpower resources available for the planning year, identifies the target populations to be served by them, and details how these resources will be utilized to meet the objectives of the target populations. PART B also establishes priorities, describes unmet needs, describes how the various agencies will cooperate with each other in serving the target populations (linkages), and discusses general community involvement in the preparation and implementation of the plan.

C O N T E N T S

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	The National Economy	4
	The Decade of the Seventies	4
E.	Identification of Manpower Problems	5
	Occupational Shortages and Surpluses	5
	Target Group Problems in Adjusting to the Job Market	7
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G.	Target Populations	12
H.	Inventory of Current Manpower Programs	14
I.	Suggested Priorities and Program Needs	14
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	Suggested Priorities	16
	Suggestions for Improving Program Activities and Suggestions of How to Improve the Mix of Program Resources	16
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DESIGNATED AREA PLANS

Balance of State Area Plan	green pages
Seattle-Everett Area Plan	blue pages
Tacoma Area Plan	buff pages

D.[1] Description of State

AREA LOCATION AND GEOGRAPHY [2]

Geographically, Washington State is located in the extreme Northwest corner of the continental United States. Variations in climate account in part for its diverse industrial base. As the various regions of the state are described in the area plans following this summary, the information will not be repeated in detail here. Generally, Western Washington is characterized by manufacturing, trade, and finance in the heavily populated urban areas. In addition, water transportation and fishing, due to the sheltered waterways of Puget Sound are important. The less densely settled areas of Western Washington are noted for logging and related industries, agriculture, and dairy farming. Eastern Washington, through a favorable combination of climate, soil, water resources, and topography, is ideal for fruit and grain crops as well as the raising of beef cattle. In addition to its agricultural base, Eastern Washington has its urban area as well. Spokane, unofficial capitol of "the inland empire" serves as the principal market, trade, finance, and service center that extends into northern Idaho, western Montana, and southern British Columbia, Canada.

POPULATION AND ECONOMIC FACTORS

The area plans contain detailed information about regional population and economic factors and will not be repeated here. The following statewide summary submitted by the Washington State Department of Commerce and Economic Development, is an economic outlook for the state for calendar year 1970 as such it covers the last half of the current fiscal year and the first half of the upcoming fiscal year:

Washington's economy will reflect a pronounced slowdown in aggregate growth through 1970, with some quickening in the relative pace evident during the second half. The timing and magnitude of an upturn is dependent upon an easing in the current posture of national economic restraint. The impact of federal anti-inflationary measures to control an over-heated economic situation will weigh heavily upon overall performance.

1/ This plan follows the outline presented in Interagency Cooperative Issuance 71-1. As paragraphs A through C in that outline pertain to other than sections of the plan narrative, the text of this document begins with paragraph D.

2/ A map of the state showing the boundaries of area and local committees and a list of committee chairmen will be found in the appendix to this plan.

ECONOMIC GROWTH INDICATORS
STATE OF WASHINGTON

	Actual		Forecast	
	1968	1969	1970	1971
Total Employment (in thousands of workers)	1,309.7	1,337.1	1,343.7	1,376.4
% Annual Increase	4.2	2.1	0.5	2.4
Personal Income (in millions of dollars)	12,234.1	13,324.4	14,248.6	15,489.3
% Annual Increase	11.4	8.9	6.9	8.7
Consumer Price Index (1957-59 = 100)	122.3	128.3	133.8	138.7
% Annual Increase	4.1	4.9	4.3	3.7

Forecasts developed by Washington State Department of Commerce and Economic Development, Business and Economic Research Division

The increments to Washington's job rolls will be moderate by recent postwar standards, with total employment advancing by only 6,600. Washington's industrial sector will be dominated by the slump in lumber manufacturing and further cutbacks in aerospace. Forest products will witness assured strength in pulp and paper markets but the lumber and plywood segment cannot recover until national housing construction rebounds. It is generally anticipated that the money market will ease after mid-1970, federal economic policies moving gradually into a more relaxed position following the slow first half. As a consequence, residential construction in the nation will be sluggish through the early months, expanding rapidly once the anti-inflationary restraints are lifted. Housing starts in 1970 are forecast at 1.53 million units, ending the year at a 1.70 million rate. This is contrasted to a 1.45 million unit level over the past period. Within a slightly broader perspective, the pent-up demand for housing promises a strong growth following this brief time of artificially depressed conditions.

Aerospace will continue to cut back employment levels through the first half of 1970; thereafter, the outlook is for further growth. Aerospace employment levels will drift downward at the current rate of 1-2,000 a month, bottoming out at perhaps 75,000 by mid-year. Delivery of the 747 should bring forth another round of orders to the present backlog. Production schedules will be intensified to meet commitments. With the go-ahead received on the Supersonic Transport prototypes, activity will commence on the construction phase of this vital commercial program in Boeing's production base. The impact will be most apparent into late 1970 and beyond. Military contract proposals depend upon an easing in government expenditure position.

The growth in personal income will reflect the lower payroll additions, climbing by an anticipated 6.9% in current dollar terms - real growth adjusted for the rate of price increases will approximate 2.5%. By comparison with the ensuing pattern of 1969, these coming months will be a mirrored image of prevalent trends: a restricted beginning followed by some real gains into the latter months.

THE NATIONAL ECONOMY

This period of adjustment toward a more stable internal economic situation is mandatory; in fact, the correction is long overdue. Present extreme inflationary pressures have seriously distorted the allocation of resources. Clearly, the domestic economy cannot continue to produce at full capacity through the sacrifice of price stabilty. Some easing is necessary. A cycle of inflation has pushed prices from an average 1.4% annual rate during the 1960-65 period to over 5% in the past year. It appears evident that the impact of extreme monetary and fiscal policies working in concert have moderated demand; the coming months should mark the beginning toward a more sound, sustainable growth. The correction is expected to maintain a tight grasp upon the economy over the next six months.

The national economy is expected to evidence a nearly sideward movement through the first half of 1970 with all of the year's gain posted in the final two quarters. Whether or not these coming months will be termed an actual short-lived recession the signs of slowdown are apparent; an easing in labor demand, declining profit positions, and a slackening in industrial production. Capacity is building, and resources are less strained. While the high degree of uncertainties preclude any clear consensus among economists, it seems likely that real growth will drop to under 2%. Gross National Product should rise by 5½% to a level of $985 billion in current value against an increase of almost 8% in 1969. Price performance holds the key to government policy position and the resultant affect upon general business conditions over the year. Inflation will not be stopped in 1970, but its rate could slacken to about 4%. Coincident with a softening in overall demand, the unemployment rate is destined to rise particularly through the first half. The overall impact of the slowdown should be relatively mild; a resurgence in business activity is anticipated into the latter months.

A buoyant strength remains within the capital goods markets. This is an optimistic note for Washington's structural material and equipment manufacturers. Spending for new plant and equipment is projected to rise 9.7% through 1970 to a level exceeding $78.13 billion. That margin is less than the 11.2% increase estimated for 1969, but greatly exceeds the 3.9% gain of the prior year. An "inflationary psychology" appears to have overridden such adverse considerations as declining profits, tight credit, and pending repeal of the 7% tax credit on business equipment purchases. There is question whether actual business spending will materialize to this degree: at year-end, industrial firms were operating with excess capacity. Some scaling back of investment plans may be necessary as the grip of economic restraint heightens.

THE DECADE OF THE SEVENTIES

Clearly, the decade of the 1970's is to begin at a crawl. This period of adjustment in cooling an overheated economic situation should prove to be short-lived and relatively mild, followed by strong growth along a sounder foundation into the subsequent period. It should be borne in mind that the 1960's also entered at a slow pace before the tempo quickened - in fact, Washington felt the drag of two recessionary periods, one in 1961 and another in 1963-64. The outlook beyond these coming months is bright and promising. The potential exists for a growing work force, continued gains in productivity, and tremendous advances in technology.

E. Identification of Manpower Problems

OCCUPATIONAL SHORTAGES AND SURPLUSES

The area plans, following, should be consulted for specific information on occupational shortages and surpluses. The best available indicator of statewide shortages is the data developed in an employer survey conducted in 1966 in which they were asked to project their occupational needs through 1971. The information was obtained from a sample of employers, covering most of Washington State. Only Spokane and Clark County were not included in the survey, but this exclusion does not materially affect the statewide picture of occupational trends. The data were originally published for seven broad areas of the state in a series entitled "Occupational Manpower Projections, 1966-1968-1971." While these are not based on current information, the trends by occupation for the second period of the projection, 1968-1971, closely parallel the expected industrial trends.

The following table lists all occupations for which a statewide net need of 1,000 or more in three years was projected. Of the 36 occupations listed, only two required a college degree--registered nurses and college faculty (some managerial jobs may also require college). Four or possibly five require apprenticeship training, and two or three are at a skill level requiring considerable experience. Generally speaking, most of the remaining occupations can be learned on the job or by at most 6 months formalized training for at least entry to the field.

Yet, for many of the occupations which require minimal training, pay levels are comparatively low. Jobs as janitors, maids, and kitchen help, for example, may be better than welfare, but to the disadvantaged--or any worker for that matter--they hardly represent a gateway to the affluent society.

MAJOR SHORTAGE OCCUPATIONS IN WASHINGTON STATE BASED ON 3-YEAR NET NEED 1968-1971 1/

Occupation	Net Need
Registered Nurses	1,260
Nurse Aides and Attendants	2,450
College Administrators and Faculty	1,660
Service and Trade Managers	1,140
Clerk Typists	1,570
Stock Clerks	2,390
Miscellaneous Clerical Occupations	1,530
Cashiers and Tellers	2,230
Receptionists and Telephone Operators	1,590
Mail Clerks and Carriers	1,340
Grocery Salespeople	1,100
Miscellaneous Commodities Salespeople	3,150

(table continued on next page)

1/ Data represent employer estimates of expansions and replacement needs during three-year period. Data from occupational Manpower Projections, Employment Security Department for seven Washington areas.

Occupation	Net Need
Cashier - Checkers	1,730
Miscellaneous Merchandising Occupations	2,100
Transportation Equipment Salespeople	1,330
Waiters and Waitresses	5,490
Cooks	3,060
Kitchen Help	2,260
Hotel and Hospital Maids	1,290
Laundry Occupations	1,040
Janitors and Related Workers	4,650
Watchmen and Guards	1,280
Carpenters	1,260
Miscellaneous Construction Workers	1,000
Machinists and Related Machine Workers	2,880
Auto Mechanics	2,840
Truck Drivers	3,460
Bus and Taxi Drivers	1,020
Service Station Attendants	1,850
Ore and Metal Processing Occupations; Skilled	1,340
Laborer	1,050
Wood Processing Occupations, Skilled	1,390
Food Processing Occupations, Unskilled	1,060
Packaging Occupations	2,400
Moving and Storing	2,710
Miscellaneous Material Handling	2,130

The foregoing relates exclusively to occupational shortages. Data on occupational surpluses is scarce and, where available, is less reliable. In the past, this information was derived from a count of work registrations in Employment Service offices. Now that applicants for work are registered selectively, many job ready workers being provided services without going through the traditional work registration process, local office files no longer provide reliable information on the number of unemployed persons by occupation.

The above notwithstanding, information is available on occupational surpluses, although it is not quantitative. Generally speaking, surpluses exist on the lower end of the job ladder. As the occupational skills of the target groups tend to cluster at this level, the problem is significant. Following is a partial listing of occupational surpluses:

Routine Clerical Work: The continuing mechanizing and automatization of routine clerical occupations have affected the outlook for a number of entry clerical jobs. This is particularly true of those involving transcribing data from one form to another, manipulative operations such as envelope stuffing, and simple posting. While new occupations have been created to keep pace with advancing technology, their skill and educational requirements tend to exclude the very workers who have been replaced.

Routine Public Contact Work: Seasonality and a trend toward self-service in many retail sales outlets, contribute to a surplus of sales clerks and various support occupations (e.g., stock clerks) during all but peak buying periods.

Agricultural Work: Seasonality and continuing mechanization have created surpluses in this area. Strictly speaking, automation (involving computer control of a mechanized process) has not significantly affected agriculture to date.

Semi-Skilled Machine Operating: While the outlook is equally bleak, the surplus of workers in this occupational group is proportionally smaller than the national figure. This is primarily due to the fact that Washington's largest manufacturing industry, aerospace, cannot adapt as easily to the mass-production techniques of those consumer products industries turning out hundred of thousands of identical items.

Bench Work: Shortages and surpluses of electrical assemblers exist in adjacent areas in Washington. Inadequate public transportation and variations in the cost of housing are the primary causal factors. For example, the movement of companies engaged in light manufacturing to suburban areas has resulted in a surplus of electrical assemblers in the city of Seattle, while in Redmond, a satellite community, a shortage exists.

Unskilled Labor: The surplus of unskilled laborers in most areas of the country is such that no elaboration is required here. It is sufficient to state that Washington follows the national pattern.

Aerospace Workers: Workers in virtually all classifications in aerospace are currently in surplus because of recent and continuing payroll reductions in this industry.

TARGET GROUP PROBLEMS IN ADJUSTING TO THE JOB MARKET

The following table summarizes the problems identified in the three area plans. It will be noted that two problems, the need for child care and problems relating to transportation, were identified in all three plans. Inadequate medical or health services and insufficient skills were identified in two. Beyond these each of the area plans enumerated a different set of problems, resulting in a far longer list than if each had duplicated the others.

In addition to the problems listed in the area plans, the state committee submits the following:

Bonding: The inability of many members to qualify for bonding can limit their search for employment. In that some service station attendants, for example, must be bondable, the problem can be seen as one that exists far down on the occupational scale.

Criminal Records: Criminal and arrest records can be a serious impediment to employment.

Economic Trends: A stable or slightly declining economic trend, such as is predicted for the near future, is a problem to members of the target population. The disadvantaged person with problems is less attractive to an employer when he can fill his openings with the fully qualified unemployed.

TARGET GROUP PROBLEMS

PROBLEM	AREA PLAN		
	Balance of State	Seattle Everett	Tacoma
Transportation	X	X	X
Medical or Health Service	X	X	
Child Care	X	X	X
Housing		X	
Legal Services		X	
Clothing Needs		X	
Minority Status	X		
Welfare Recipient Status	X		
Poor Grooming			X
Insufficient Skills	X		X
Lack of Motiviation			X
Low Wages	X		
Lack of Confidence			X
Poor Work Habits & Attitudes			X
Lack of Family Counseling		X	
Cultural Differences	X		
Architectural Barriers	X		
Educational Deficiencies	X		
Apprenticeship Requirements	X		
Limited Financial Resources	X		
Stereotypes	X		
Limited Training Resources for Under-Utilized Non-Poor	X		
Adjustment	X		

F. Anticipated Developments

The slowdown in the state's economy, which became apparent in fiscal 1969, is expected to continue throughout fiscal 1970 with only modest recovery in late fiscal 1971. Growth in employment opportunities will be insufficient to provide jobs for many youth, returning servicemen, and persons migrating to this area. The extent of the decline in employment growth has been substantial. At the beginning of fiscal 1969, employment was nearly 46,000 above its year earlier total but, by the end of that year, the year-to-year margin was only slightly over 28,000. At the end of the second quarter of fiscal 1970 (December), the 12-month growth figure had dropped to around 16,000. There is little hope for improvement for the remainder of fiscal 1970; in fact, the outlook is for a further slowdown in the growth of employment opportunities.

MANUFACTURING (Fiscal 1969--285.8; 1970-269.1; 1971-260.3). Manufacturing payrolls averaged 2,600 more in fiscal 1969 than fiscal 1968, but during the last half of the former year employment in basic industries was falling substantially below year earlier totals, and by the end of fiscal 1969, manufacturing employment was 5,200 lower than during the beginning of the year. This unfavorable trend has carried over into fiscal 1970 and will continue through fiscal 1971. The over-riding cause of the job loss is, and will be, the decline in aerospace--Washington's largest manufacturing industry. Forecasts indicate manufacturing jobs will fall 16,700 from fiscal year 1969 to 1970 and an additional 8,800 from fiscal 1970 to 1971. Nearly all of the losses will occur in aerospace.

Logging and Lumber (Fiscal 1969--46.1; 1970--44.9; 1971--45.7). Most of fiscal 1969 was an exceptionally good year for lumber and wood products and employment averaged 1,300 more than in the preceding year. However, by the beginning of fiscal 1970 the imposition of fiscal and monetary restraints to check inflation reduced home building and the demand for lumber. Temporary closures and short workweeks at mills became common. Several smaller mills closed and, if history is any guide, many will not reopen after market conditions improve.

In fiscal 1970 lumber employment is likely to average 1,200 below the previous year. Assuming predictions that monetary restraints will be eased by fiscal 1971 will occur, the lumber industry should add 800 jobs in that year. Larger gains are not likely regardless of the demand for wood products because of increased automation at mills and limitations on the amount of lumber which can be harvested.

Metals and Machinery (Fiscal 1969--37.6; 1970--39.4; 1971--40.5). Employment in the industry increased 2,700 between fiscal 1968 and 1969. Most of the gain occurred at aluminum plants and at firms producing nonelectrical machinery. Some of the gains in machinery have been related to aerospace subcontracts and the amount of work in this field will probably decline in the forecast period. All in all, it appears expansion in this industry will taper off. A gain of 1,100 jobs is expected in the industry between fiscal 1970 and 1971.

Aerospace (Fiscal 1969--99.4; 1970--79.0; 1971--66.8). Employment in Washington's largest manufacturing industry fell 4,800 from fiscal 1968 to 1969. Employment in the industry was already down to 83,900 in December 1969 (fiscal 1970) when The Boeing Company announced a substantial cutback for calendar 1970. As a result, employment in fiscal year 1970 is expected to average 20,400 below the previous year, and fiscal 1971 will see aerospace employment at an average 12,200 below 1970.

Other Transportation Equipment (Fiscal 1969--14.3; 1970--15.5; 1971--15.5). Growth in these industries is quite volatile but gains since 1961 have averaged approximately 800 per year. In spite of the slowdown in the national economy, data in the first few months of fiscal 1970 indicate an industry payroll level of around 15,500 for the entire year. No increase is probable in fiscal 1971. Equipment orders from the North Slope area of Alaska will probably counteract losses due to the national economic slowdown and fewer orders from the Defense Department.

Food Products (Fiscal 1969--30.0; 1970--30.3; 1971--30.4). Overcapacity has been noted in some lines of canning and a few plant closures have occurred. Little increase is indicated in fiscal 1970. New plants will open in eastern Washington in fiscal 1971, but this may force some less efficient plants to close.

Paper Products (Fiscal 1969--19.8; 1970--20.5; 1971--21.3). Unlike lumber and wood products, pulp and paper has moved from a position of excess capacity to a point where more capacity is needed. The industry's problem now is finding a sufficient supply of raw material; a decline in lumber production means less wood chips for pulp. However, employment in the industry should increase 700 in fiscal 1970 and an additional 800 in fiscal 1971.

Chemicals and Petroleum (Fiscal 1969--7.6; 1970--7.7; 1971--7.8). A number of new refineries will be built in the Puget Sound area in the next decade to handle Alaskan oil. The first will be completed in late 1971 (fiscal 1972) and employ approximately 400. Growth in both chemicals and petroleum in the interim will be moderate. Labor-management disputes idled an average of 100 workers during fiscal 1969.

Other Manufacturing (Fiscal 1969--31.0; 1970--31.8; 1971--32.3). This group which includes apparel, printing, furniture, and stone-clay-glass products will continue to grow with the area's population since their major markets are tied to the Northwest. Penetration of national markets is limited for furniture and apparel since major competition is from firms located in the south where wages are considerably lower. Increases in the minimum wage, however, have improved the positions of Washington firms.

MINING (Fiscal 1969--1.6; 1970--1.7; 1971--1.7). Most activity in this industry continues to be in stone and gravel quarrying. Increased prices and demand for nonferrous metals may increase employment somewhat in fiscal 1970 and 1971, but this resource in Washington State is limited.

CONSTRUCTION (Fiscal 1969--58.4; 1970--58.0; 1971--58.0). Construction employment was at all time highs during fiscal 1969 in spite of sharp reductions in home building because of the limited availability of loanable funds and interest rates which soared to the highest levels in 100 years. Commercial and public construction projects more than took up the slack from the decline in home building, but the second half of fiscal 1970 may see construction employment fall below year earlier levels. The current momentum, however, should limit the loss in fiscal 1970 to 500. Construction activity should benefit from an expected easing of fiscal policies in fiscal 1971, but employment is not expected to increase because of high vacancy rates in Western Washington.

TRANSPORTATION, COMMUNICATIONS, AND UTILITIES (Fiscal 1969--73.0; 1970--74.3; 1971--74.7). Employment in this category rose a substantial 2,900 from fiscal 1968 to 1969. Military shipments to Viet Nam, log shipments to Japan, movement of more people and goods was evident by rail, air, and highway. The largest increase, however, was in communications and utilities which are tied directly to population and business growth. Recently the movement of logs to Japan has declined and a lessening of shipments to Viet Nam is probable. A slowdown of business expansion will be reflected by less growth in transportation. Utilities employment will continue to expand since it must build for the long term, but the growth in communications will drop if the movement of people to this state in search of jobs declines as expected. Transportation-utilities employment will probably increase 1,300 from fiscal 1969 to 1970 and 400 from fiscal 1970 to 1971.

FINANCE, INSURANCE, AND REAL ESTATE (Fiscal 1969--57.0; 1970--59.0; 1971--59.3) The economic and population expansion of the past few years has boosted activity in this group tremendously. Percentagewise, it has been one of the fastest growing industries. Between fiscal 1968 and 1969 a gain of 3,700 jobs was noted. As mentioned before, however, the economy is due to slow down and so is the

population growth. Real estate activity, especially speculative building, has been hurt by high interest rates and it would seem the establishment of new branch banks would begin to taper off. Growth in the industry is not due to stop, though, and gains of 2,000 and 300 are forecast for fiscal 1970 and 1971, respectively.

TRADE (Fiscal 1969--241.3; 1970--249.4; 1971--252.6). The downward trend in manufacturing activity in fiscal 1969 did not prevent trade from posting a gain of 10,400 from the preceding year and so far in 1970 it has continued to grow. The explanation for this phenomenon includes, in part, the normal lag between employment changes in basic industries and resulting changes in the trade and service areas and the fact that trade establishments had numerous unfilled openings prior to the downturn in manufacturing.

Nationally, trade has reacted to the fiscal and monetary restraints now in effect. Sales are up from year earlier levels but only because of inflated prices. The actual movement of goods is reported to be lower. Washington State will not escape the national trend. Growth will continue due to population pressure, but at a reduced pace. Trade employment will probably increase 8,100 from fiscal 1969 to 1970 and 3,200 between fiscal 1970 and 1971.

SERVICE AND MISCELLANEOUS (Fiscal 1969--164.1; 1970--169.5; 1971--171.7). Employment in the service and miscellaneous category rose 11,100 between fiscal 1968 and 1969. Major gains were in health services where numerous nursing homes were built and countless hospitals were expanded to meet increased usage by the elderly following passage of Medicare. Sizable gains were also noted at motels-hotels and at amusement establishments prompted by an increasingly affluent and mobile population. All other sectors of the service industry also posted significant gains.

Population pressures alone assure further expansion in service industries, but a more moderate rate of expansion is indicated for fiscal 1970 and 1971. The first few months of fiscal 1970 indicated a definite slowdown in their rate of growth. Factors behind the lower growth rate may be that the industry's initial reaction to Medicare is over, migration to this state by those in search of jobs may already be on the decline, and service establishments wishing to expand are probably finding it difficult to raise funds in todays money market. Forecasts call for service employment to increase 3,400 between fiscal 1969 and 1970 and 2,200 between fiscal 1970 and 1971.

GOVERNMENT (Fiscal 1969--234.5; 1970--244.7; 1971--254.9). Government payrolls increased 9,500 between fiscal 1968 and 1969. Unlike other areas of employment, government is expected to continue its expansion due to the increasing complexity of modern life. Government payrolls will probably rise 10,200 in both fiscal 1970 and 1971.

AGRICULTURE (Fiscal 1969--63.6; 1970--64.5; 1971--641.). The long range trend in farm employment continues to be downward with more land being taken out of production for industrial sites and housing developments, more large and fewer small farms, and increased mechanization. Fiscal 1969 employment in agriculture was 3,600 below that of the previous year because of a small apple crop and losses in soft fruits as well as the above factors. Employment totals in fiscal 1970 will show some improvement because of the record apple harvest this fall, although weather factors and crop timing in the last half of 1970 could play an offsetting role.

Continued mechanization and other long range considerations already mentioned will probably lower farm employment between fiscal 1970 and 1971.

EMPLOYMENT IN WASHINGTON STATE
FISCAL YEAR AVERAGES,
1969 AND PROJECTED 1970 AND 1971
(in Thousands)

	Fiscal Year Averages			Net Gain	
	1969	1970	1971	1969 to 1970	1970 to 1971
TOTAL EMPLOYMENT	1325.7	1336.6	1343.3	+ 10.9	+ 6.7
Nonfarm Wage and Salary.....	1115.8	1125.7	1133.2	+ 9.9	+ 7.5
Manufacturing.....	285.8	269.1	260.3	- 16.7	- 8.8
Lumber and wood products.	46.1	44.9	45.7	- 1.2	+ .8
Metals and machinery.....	37.6	39.4	40.5	+ 1.8	+ 1.1
Aerospace.....	99.4	79.0	66.8	- 20.4	- 12.2
Other transportation equipment	14.3	15.5	15.5	+ 1.2	0.0
Other durable goods.....	12.6	13.0	13.3	+ .4	+ .3
Food products.....	30.0	30.3	30.4	+ .3	+ .1
Paper products.....	19.8	20.5	21.3	+ .7	+ .8
Chemicals and petroleum..	7.6	7.7	7.8	+ .1	+ .1
Other nondurable goods...	18.4	18.8	19.0	+ .4	+ .2
Mining.....	1.6	1.7	1.7	+ .1	0.0
Construction.....	58.5	58.0	58.0	- .5	0.0
Transp., Comm., & Util.....	73.0	74.3	74.7	+ 1.3	+ .4
Trade.....	241.3	249.4	252.6	+ 8.1	+ 3.2
Fin., Ins., & Real Est....	57.0	59.0	59.3	+ 2.0	+ .3
Services.....	164.1	169.5	171.7	+ 5.4	+ 2.2
Government.....	234.5	244.7	254.9	+ 10.2	+ 10.2
Agriculture.....	63.6	64.5	64.1	+ .9	- .4
Self-Employed and Other.....	146.3	146.4	146.9	+ .1	- .7

G. Target Populations

For purposes of uniformity, and to facilitate the merging of data in the state summary, the three area committees used the same target group designations with one exception. The Seattle-Everett committee, wishing to emphasize the problems of the under-utilized poor, has divided the target groups Disadvantaged Adults and Disadvantaged Youth (as used in the Tacoma and Balance of State Plans) into three target groups: Disadvantaged Unemployed Adults, Disadvantaged Unemployed Youth, and Under-Utilized Poor. Otherwise the target groups are defined in all three plans as follows:

PUBLIC ASSISTANCE RECIPIENTS - All recipients of public assistance (AFDC and other) who could be presumed to benefit from manpower services. Excluded are those unable to work because of advanced age or permanent total disability.

PHYSICALLY, EMOTIONALLY, OR SOCIALLY DISABLED - Persons who cannot seek or retain employment without services related to the correction of a physical, emotional, or social handicap; or, if the handicap is uncorrectible, other services such as vocational training, enabling entry into an occupation in which the handicap does not seriously impair performance.

RESERVATION INDIANS - All persons so classified by the Bureau of Indian Affairs. Indians not classified as reservation residents are reported under the other target groups as appropriate.

MIGRANT WORKERS - Migrant workers who move from place to place following crops. Included in this target group are "settled-in" migrants, persons who have dropped the pattern of migrancy but who are still primarily engaged in agricultural work and who are still, through identification, a part of the migrant milieu. Members of this target group are predominately Mexican-Americans.

DISADVANTAGED ADULTS - Poor adult persons who meet the disadvantagement criteria but who do not readily fall into one of the classifications above.

DISADVANTAGED YOUTH - Persons under 22 who are poor and meet the disadvantagement criteria. Youth are somewhat less likely to be placed in other classifications than are the disadvantaged unemployed adults. As many programs have been designated specifically to meet their needs, most have been placed in this target group.

PERSONS WITH LESS THAN EIGHTH GRADE ACHIEVEMENT - This target group is defined adequately by its title. However, unlike the groups listed above, no effort has been made to "subtract it out" in order to avoid overlapping or duplication. Moreover, while many of the disadvantaged have less than an eighth grade achievement level, not all persons in this target group meet the disadvantagement criteria. Neither methodology nor data are available to resolve these problems. The target group is included for the purpose of incorporating Adult Basic Education programs into the plan.

UNDER-UTILIZED NON-POOR PERSONS - Persons who are operating significantly below their potential vocational and economic level because of past disadvantagement, hardship situations, or other reasons such as minority group status.

The following table summarizes the target group data in the area plans. As noted above, the final category, Under-Utilized Poor, has been used only by the Seattle-Everett Committee and is a further breakout of the disadvantaged adults and youth groups. Accordingly, the entries in the Seattle-Everett column for adults and youth will show only the number of Disadvantaged Adults and Disadvantaged Youth who are unemployed.

STATE OF WASHINGTON
Target Populations in mid-Fiscal Year 1970

Target Group	Balance of State	Seattle-Everett	Tacoma	Total
Residents, Target Areas	N/A	15,000*	INA	15,000*
Public Assistance Recipients	16,721	7,632	2,616	26,969
Physically, Emotionally, or Socially Disabled	22,647	12,800	6,000	41,447
Reservation Indians	2,565	920	313	3,798
Disadvantaged Adults	12,795	8,142	3,200	24,137
Disadvantaged Youth	9,966	3,658	1,100	14,724
Migrant Workers	6,200	N/A	N/A	6,200
Prison Inmates	N/A	N/A	1,360	1,360
Under-Utilized Non-Poor	33,806	10,500	2,400	46,706
Persons With Less Than Eighth Grade Achievement	115,524*	60,691*	26,000*	202,215*
Under-Utilized Poor	N/A	36,100	NA	36,100
Total	104,700	79,752	16,989	201,441

* Figures marked with an asterisk are duplicated in whole or in part under other target groups and are not incorporated in column totals.

H. Inventory of Current Manpower Programs

Summary tables and accompanying explanations will be found in the appendix beginning on page 18.

I. Suggested Priorities and Program Needs

PROGRAM NEEDS: In this section of the plan, the area committee is asked to estimate the number of persons who will be served in the upcoming fiscal year. The estimate is to be based on the assumption that existing federal programs will continue at current levels and should utilize the projections, contained elsewhere in the plan, of non-federally assisted program resources and federal carry-over funds. This the area committees have done, and in so doing have identified as well a portion of the unmet need for Fiscal Year 1971. The critical word in the foregoing sentence is "portion." Not all of the unmet need has been identified, as an analysis of the methodology employed will indicate. Briefly this methodology is as follows:

a. Estimate the size of current target populations.

b. Estimate the number of persons expected to be served in the balance of the current fiscal year.

c. Subtract b. from a. to determine the size of the target populations at the beginning of the upcoming fiscal year.

d. Estimate the number of persons to be served in the upcoming fiscal year from: (1) non-federally assisted programs; (2) federal carry-over funds; and (3) federal programs for the upcoming fiscal year assuming their continuation at current levels.

e. Subtract d. from c. in order to determine how many people will not be served by the program resources projected for the upcoming fiscal year.

(By using the above paragraph letters algebraically, the equation may be stated thus: (a-b)-d = e. The simplicity of the equation adds to its appeal. However, a number of important factors have been omitted, as will be seen by the continuation of the list.)

f. The number of persons who solve their own problems, thereby removing themselves from the target populations.

g. The number of persons whose problems develop after the target population estimate has been made and who thus enter the population untallied. 1/

h. Regional and national economic trends and their impact on the labor market.

i. The number of persons who are served by a manpower program but who, because of the complexity of their problems or other factors, remain unemployed.

j. The number of persons who have been or will be served by more than one program before their manpower problem is resolved, and the average number of programs they will receive services from.

The above list is not exhaustive. Anyone familiar with the problems of manpower planning can add to it. It is not difficult to enumerate the factors that should be considered in arriving at a reasonably accurate estimate of the unmet need for the upcoming fiscal year. Unfortunately, while easily identified, such factors are not as easily translated into numerical estimates. At present, area and state committees have the data gathering and analytic capabilities to make acceptable estimates for only a portion of the factors identified above. They are unable, for example, to project in advance the number of persons who will solve their own problems and remove themselves from the target populations, the number of persons whose problems will develop after the target population estimates have been made and will thus enter the population untallied, the number of persons whose problems will not be solved by one program and who will thus remain unemployed, or the number of persons who will be served by more than one program before their manpower problem is solved and the average number of programs they will receive services from.

As suggested by the above, area committees were unable to arrive at estimates of the total unmet need for Fiscal Year 1971. However, unmet needs are shown on page 24 of the Balance of State Area Plan, pages 26 and 27 of the Seattle-Everett Area Plan, and on page 18 of the Tacoma Area Plan. These figures were arrived at by using the methodology contained in sub-paragraphs a. through e., above. As such, they represent the carry-over unmet need rather than the total unmet need and should be so regarded.

1/ The suggestion that the groups identified in f. and g. are numerically equivalent and thereby cancel each other out is naive, ignoring such factors as general economic trends, the industrial base of a region, the nature and ratio of occupational shortages and surpluses, and so forth.

SUGGESTED PRIORITIES FOR PROVIDING SERVICES TO PROBLEM GROUPS: At present, the Balance of State Area Plan is developed by the state committee utilizing the input from local committees. Accordingly, the material on priorities on pages 24 and 25 of the Balance of State Area Plan reflects the thinking of the state committee. As the instructions contained in ICI 71-1 state that the "statewide summary should not repeat information in the attached area plans," the suggested priorities will not be described again although they should be considered as included in this section by reference.

SUGGESTIONS FOR IMPROVING PROGRAM ACTIVITIES AND SUGGESTIONS OF HOW TO IMPROVE THE MIX OF PROGRAM RESOURCES: As discussed in the Balance of State section of the plan, a considerable improvement in program activities would result from a decategorization of federal manpower program funds. Such a decategorization would also facilitate improvements in the mix of program resources.

A major improvement in the delivery of manpower services (and one which would help fill the data gaps identified on page 15, above) would be the development of a statewide data processing system designed to track manpower program clients. To operate effectively, such a system should provide the following:

1. By fiscal year, the names and other relevant characteristics of all persons who are or have been enrolled in a manpower program, or who have received certain manpower services, such as counseling or a medical evaluation.

2. The system should be devised in such a way that a print-out on a given person will indicate:

   a. Present status as it relates to manpower programs;

   b. Previous manpower services or program enrollments;

   c. Projected additional programs or services following termination of present status;

   d. Other selected characteristics such as age, sex, disadvantagement, and race.

3. In addition, the system should be of sufficient flexibility so that the following can be obtained:

   a. The number of persons involved in more than one program. This should provide information on both the number of programs and the agencies involved.

   b. The total number of persons provided manpower services in a given fiscal year. At present, information is available only on the total number of enrollments. As many persons are enrolled in more than one program in a year, this figure does not actually show a true total of persons served. This information should be available by selected characteristics in order to determine the actual number of persons in each target group served.

c. In addition, when needed for research or other purposes, it would be possible to obtain the characteristics of enrollees in any given program.

d. If followup information on client or trainee success were incorporated into the system, data would be available for statistical research into the effects of various combinations of services. It could be determined, for example, if a series of programs (such as NYC, Job Corps, OJT) would tend to be more predictive of success for a given type of client than fewer programs or a different combination or sequence of them.

While the design of the system would require the services of a systems analyst working with representatives of various manpower agencies, certain operations that will be necessary can be identified at this point. These operations will require the participation of all manpower agencies and will consist primarily of providing required input. Business machine cards would probably be suitable for this purpose and would be used to indicate initial and subsequent services by an agency. This initial submittal would contain basic characteristic data in addition to information on the client's enrollment in a program. Subsequent cards submitted on a client would show only name, social security number (for identification), and whatever change in status (or characteristic data) is being reported. It would also be possible to program the system in such a way that an agency, enrolling an applicant for the first time, could run a check with the data processing facility to determine if basic data had already been incorporated in the system by another agency or department. This could become an important function of the system in that an agency, contemplating providing a manpower service, could receive a print-out on the client's manpower service background. The agency could thereby avoid the unnecessary duplication of services that now sometimes occurs. In that other agencies that had worked with the client would be identified, such a print-out would also identify, to authorized professionals, other potential sources of valuable information about the client.

It will be seen from the above that a system enabling manpower agencies to pool their information about program clients would provide planners with much valuable data about linkages, unmet needs, successful and unsuccessful program sequences, target groups, and so forth. The system as described would be particularly valuable in the preparation of Part A of the Comprehensive Manpower Plan for it would serve to replace educated guesses of varying degrees of accuracy with solid, reliable statistical data.

APPENDIX

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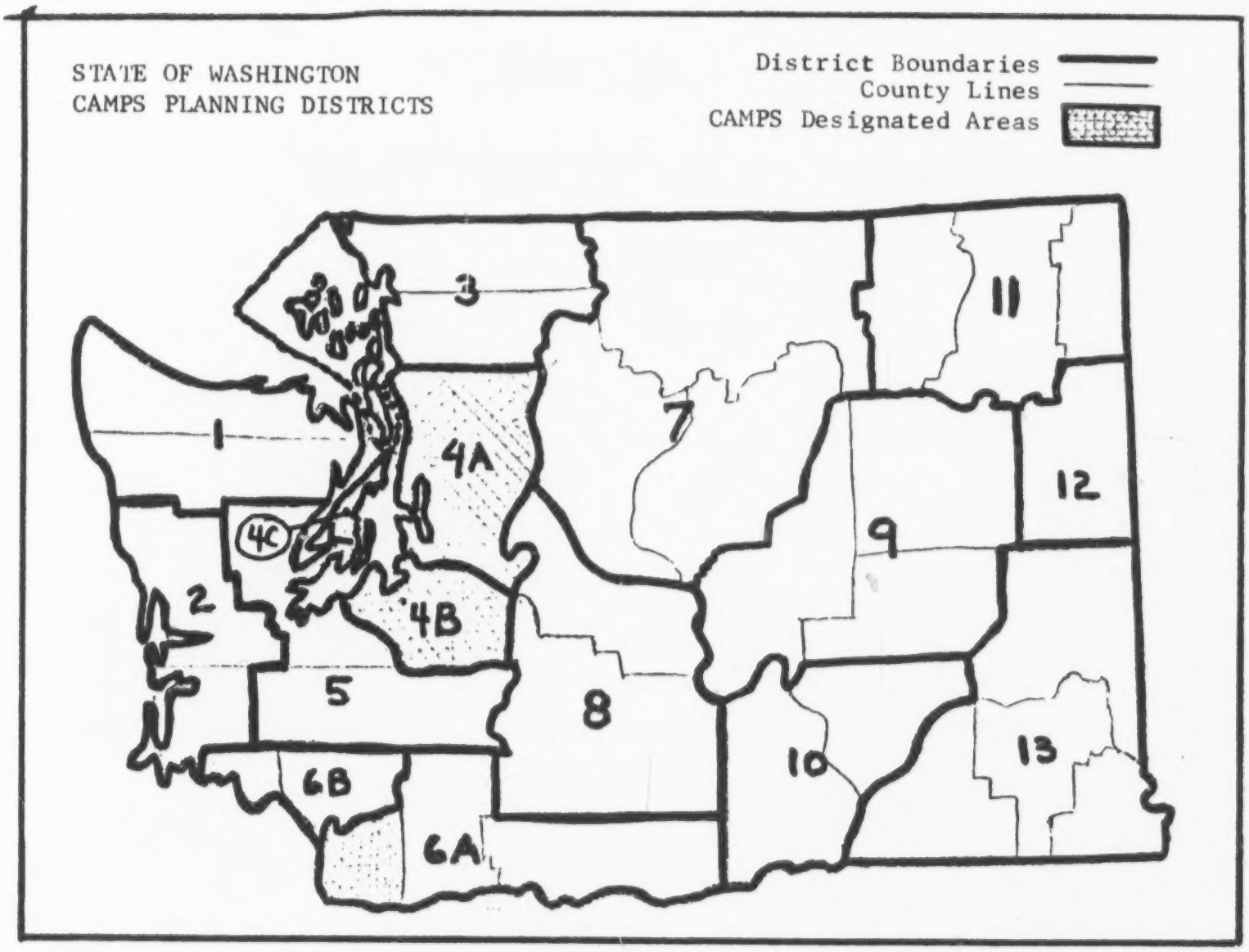
Methodology employed in estimating target populations	59

Tables C and D above are provided to show the range of vocational training opportunities available throughout the state. This is responsive to the request under Item I in the format outline (ICI 71-1) that the committee provide estimates of the capacity of vocational educational and preparation facilities to meet area needs.

Table E is included to show the wide range of training being offered by the State Department of Health.



AREA CAMPS COMMITTEES

Committee	District Number	Chairman (Title and Affiliation)	Address
Seattle-Everett	4A	Howard R. Dishman Field Supervisor Employment Security	1933 Fifth Avenue Seattle, Wash. 98101
Tacoma	4B	Arnold A. Hirsekorn Manager Employment Security	1313 Tacoma Ave. South Tacoma, Wash. 98402
Aberdeen-Raymond	2	Fred L. Pederson Manager Employment Security	P. O. Box 600 Aberdeen, Wash. 98520
Bremerton	4C	Mrs. Virginia Hannig Manager Employment Security	P. O. Box 519 Bremerton, Wash. 98310
Centralia-Olympia	5	* Hugh S. Allen Manager Employment Security	P. O. Box 609 Centralia, Wash. 98531

* Co-Chairman

Committee	District Number	Chairman (Title and Affiliation)	Address
Centralia-Olympia (Cont.)	5	* John Willmarth Counselor - Registrar Olympia Vocational Technical Institute	317 East 4th Street Olympia, Wash. 98501
Colville	11	Marvin L. Ray Manager Employment Security	P. O. Box 112 Colville, Wash. 99114
Longview	6B	Joe A. Johnson Manager Employment Security	P. O. Box 849 Longview, Wash. 98632
		# Dean Gregorius County Administrator Dept. of Public Assist.	P. O. Box 120 Kelso, Wash. 98626
Moses Lake-Ephrata	9	* John W. Rea Manager Employment Security	P. O. Box M Moses Lake, Wash. 98837
		* Harold D. Bliss Manager Employment Security	P. O. Box 1176 Ephrata, Wash. 98823
Mount Vernon - Bellingham	3	H. S. Langenhorst Manager Employment Security	P. O. Box 160 Mt. Vernon, Wash. 98273
		# Paul J. Grandquis Manager Employment Security	P. O. Box 938 Bellingham, Wash. 98225
Pasco	10	Charles A. Vedder Manager Employment Security	P. O. Box 2567 Pasco, Wash. 99301
Port Angeles	1	John S. Spade Manager Employment Security	P. O. Box 992 Port Angeles, Wash. 98362
Spokane	12	Morris R. Slavens Manager Employment Security	N. 1206 Howard Street Spokane, Wash. 99201
Vancouver	6A	Edwin S. Harding Manager Employment Security	P. O. Box 1536 Vancouver, Wash. 98663
Walla Walla	13	Leonard A. Pruss Manager Employment Security	P. O. Drawer H Walla Walla, Wash. 99362

* Co-Chairman
\# Vice-Chairman

Committee	District Number	Chairman (Title and Affiliation)	Address
Wenatchee - Okanogan	7	S. Wayne Wardle Manager Employment Security	P. O. Box 1089 Wenatchee, Wash. 98801
Yakima - Ellensburg - Toppenish	8	Robert A. Clarke Manager Employment Security	P. O. Box 2458 Yakima, Wash. 98902

FISCAL YEAR 1970
MANPOWER PROGRAMS

State of Washington Portion of National MDTA/OJT Contracts

CONTRACT NUMBER	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
32-8-0032-000	Brotherhood of Marine Officers	DOL	$ 2,958	INA	3	INA	INA
09-7-0026-000	Social Develop. Corporation	DOL	INA	INA	up to 285	INA	INA
15-9-0022-000	Auto Service Industry Assoc.	DOL	INA	INA	INA	INA	INA
09-9-0035-000	Natl. Tool, Die & Prec. Mach. Assoc.	DOL/HEW	25,506	INA	15	INA	INA
34-9-0011-000	National Urban League, Inc.	DOL	377,142	Underemployed and unemployed disadvantaged.	300	INA	INA
15-8-0004-000	Plast. & Cement Int.; Cement Assoc.	DOL/HEW	INA	INA	10	INA	INA
N-J-96	RCA Service Co.	DOL/HEW	9,294	Underemployed and unemployed.	18	INA	INA
09-8-0068-000 OEC-0-8-018007	International Carp. & Joiners	DOL/HEW	101,354	Underemployed and unemployed.	642	INA	INA
15-0-0010-000	Oper. Plasterers & Cement Masons'	DOL	4,320	INA	15	INA	INA
	Intl. Assoc. & Portland Cem. Assoc.						
09-8-0011-000	Institute of Scrap Iron & Steel	DOL	1,372	Unemployed and underemployed.	2	INA	INA
34-8-0051-000	Envelope Mfg. Association	DOL	2,589	Unemployed and underemployed.	4	INA	INA
Natl. OJT/MDTA (USDOL)	Natl. Assoc. for Retard. Children	Fed. 100%	Approx. 14,400	Unemployed mentally retarded	50	4,000	None
09-9-0038-010	FWPCA Seattle Metro	DOL	19,696	Underutilized non-poor	20	40	None

NOTES: All MDTA/OJT data based on information provided by national and/or regional Manpower Administrator or their representative.

The detail provided DOES NOT respond to ICI 71-1 guidelines, therefore, considerable detail is not available (INA).

FISCAL YEAR 1970
MANPOWER PROGRAMS

State of Washington MDTA/OJT Contracts

CONTRACT NUMBER	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
51-9-3002-000	Hytec, Inc.	DOL	$10,000	Unemployed and under-employed.	20	None	None
51-9-3001-000	Rest. Assoc. of State of Wash.	DOL	94,808	Disadvantaged.	125	INA	INA
51-9-3004-000	Cape Flatery Company, Inc.	DOL	5,002	Unemployed and under-employed.	42	INA	INA
51-0-3001-000	Rest. Assoc. of State of Wash.	DOL	158,507	Disadvantaged	250	INA	INA
51-0-3002-000	Yakima Valley Council for	DOL	56,787	Disadvantaged	75	INA	INA
	Community Action, Inc.						
51-9-3003-000	Employment Security Dept.	DOL	237,600	Disadvantaged	550	INA	INA

3002

January 2, 1970

DIRECTORY OF OCCUPATIONAL PROGRAMS

VOCATIONAL TECHNICAL INSTITUTES

OCCUPATIONAL PROGRAMS	INSTITUTION - LOCATION					
	Bellingham Technical Institute, Bellingham	Clover Park Educ. Center, Lakewood Center	L. H. Bates Voc-Tech Institute, Tacoma	Lake Washington Voc-Tech School, Kirkland	Olympia Voc-Tech Institute, Olympia	Renton Voc-Tech Institute, Renton
AGRICULTURE RELATED PROGRAMS						
Adult Farm Management and Record Analysis	X					
Landscape & Ornamental Horticulture		X			X	
Agricultural Welding					X	
ACCOUNTING & FINANCE PROGRAMS						
Bookkeeping & Accounting	X	X	X	X	X	X
DATA PROCESSING PROGRAMS						
Data Processing Programming		X	X		X	X
Keypunch Operator	X	X	X		X	X
MANAGEMENT PROGRAMS						
" " (Restaurant)		X				X
Retail Management (Grocery)		X				
" " (Hotel-Motel)		X				
Insurance (Adult)			X			
Mid-Management (General)		X				
DISTRIBUTING & MARKETING PROGRAMS						
Cashier-Checker (Basic Sales included)	X				X	X
Retail Selling & Marketing (Basic)		X	X			X
Real Estate		X				
Service Station Operator & Management		X				
Bank Teller		X				
Spec. Course for Disadv.			X			

DIRECTORY OF OCCUPATIONAL PROGRAMS

VOCATIONAL TECHNICAL INSTITUTES

OCCUPATIONAL PROGRAMS	Bellingham Technical Institute, Bellingham	Clover Park Educ. Center, Lakewood Center	L. H. Bates Voc-Tech Institute, Tacoma	Lake Washington Voc-Tech School, Kirkland	Olympia Voc-Tech Institute, Olympia	Renton Voc-Tech Institute, Renton
SECRETARIAL SCIENCE PROGRAMS						
General Secretarial - Office Management	X	X	X	X	X	X
Typing & General Clerical	X	X	X	X	X	X
Medical Secretary					X	
Legal Secretary		X				
Business Machine Operator	X	X	X	X	X	X
DENTAL PROGRAMS						
Dental Assistant	X		X		X	
Dental Lab. Technician			X			
MEDICAL PROGRAMS						
Medical Assistant		X			X	
Medical Lab. Technician		X				
Nursing Unit Clerical Assistant (Ward Clerk)		X				
NURSING PROGRAMS						
Restorative Nursing for R.N.					X	
Practical Nurse	X	X	X			
Nurses Aide		X	X			
MAN RELATED PREPARATORY PROGRAMS						
Commercial Fishing		X				

DIRECTORY OF OCCUPATIONAL PROGRAMS

VOCATIONAL TECHNICAL INSTITUTES

OCCUPATIONAL PROGRAMS	INSTITUTIONS - LOCATIONS					
	Bellingham Technical Institute, Bellingham	Clover Park Educ. Center, Lakewood Center	L. H. Bates Voc-Tech Institute, Tacoma	Lake Washington Voc-Tech School, Kirkland	Olympia Voc-Tech Institute, Olympia	Renton Voc-Tech Institute, Renton
PUBLIC SERVICE PROGRAMS						
Fire Protection Technology			X			
PERSONAL SERVICE OCCUPATIONS - PREP. PROGRAMS SERVICES						
Cosmetology		X	X			
Barbering			X			
Early Childhood Education - Teacher Aide		X	X			
HOME AND FAMILY LIFE						
Personalized Dining Service					X	
Hotel-Motel Housekeeper		X				
Institutional Housekeeper		X				
AUTOMOTIVE PROGRAMS						
Body and Fender	X		X			
Mechanic	X	X	X		X	X
Diesel Mechanic			X			
Machinist		X	X			X
Service Station Attendant		X				
Automotive Counterman		X				
Automotive Trimmer		X				

DIRECTORY OF OCCUPATIONAL PROGRAMS

VOCATIONAL TECHNICAL INSTITUTES

OCCUPATIONAL PROGRAMS	INSTITUTIONS - LOCATION: Bellingham Technical Institute, Bellingham	Clover Park Educ. Center, Lakewood Center	L. H. Bates Voc-Tech Institute, Tacoma	Lake Washington Voc-Tech School, Kirkland	Olympia Voc-Tech Institute, Olympia	Renton Voc-Tech Institute, Renton
AVIATION PROGRAMS						
Airframe & Powerplant Mechanics		X				
Flight Training		X				
COMMERCIAL FOODS PROGRAMS						
Baking	X		X			
Cooking	X		X			X
Waiter-Waitress	X		X			X
Food Service	X	X	X			X
CONSTRUCTION & MAINTENANCE PROGRAMS						
Boat Building/Marine Carpentry			X			
Cabinet Making			X			
Carpentry	X		X			
Upholstery			X			
Custodian		X				
Painting & Decorating			X			
GRAPHIC ARTS PROGRAMS						
Offset Reprographics		X				
Commercial Art		X				
Photography		X				

DIRECTORY OF OCCUPATIONAL PROGRAMS

VOCATIONAL TECHNICAL INSTITUTES

OCCUPATIONAL PROGRAMS	INSTITUTIONS - LOCATIONS					
	Bellingham Technical Institute, Bellingham	Clover Park Educ. Center, Lakewood Center	L. H. Bates Voc-Tech Institute, Tacoma	Lake Washington Voc-Tech School, Kirkland	Olympia Voc-Tech Institute, Olympia	Renton Voc-Tech Institute, Renton
ELECTRICAL/ELECTRONIC PROGRAMS						
Electrical Engineering Technology			X		X	
Appliance Repair			X			
Electronic Engineering Technology	X	X	X		X	X
Electrical Power Technology			X		X	
Broadcasting/Communications Technology		X	X			
Industrial Electronics	X		X			
Industrial Instrumentation			X			
Construction Electrician			X			
Radio & Television Service		X	X			
METAL WORKING MANUFACTURING PROGRAMS						
Machinist	X	X	X			X
Welding		X	X			X
Sheet Metal			X			
Plastics/Plaster Patternmaker		X				
DRAFTING PROGRAMS						
Drafting Technology		X	X			

DIRECTORY OF OCCUPATIONAL PROGRAMS

VOCATIONAL TECHNICAL INSTITUTES

OCCUPATIONAL PROGRAMS / INSTITUTIONS - LOCATION	Bellingham Technical Institute, Bellingham	Clover Park Educ. Center, Lakewood Center	L. H. Bates Voc-Tech Institute, Tacoma	Lake Washington Voc-Tech School, Kirkland	Olympia Voc-Tech Institute, Olympia	Renton Voc-Tech Institute, Renton
TECHNICAL PROGRAMS						
Civil Engineering Technology			X		X	X
Mechanical Engineering Technology		X	X			X
Horology (Watchmaking)			X			
Engineering Aides	X				X	
TRADE & INDUSTRIAL PROGRAMS						
Office Machine Repair		X				
Power Sewing			X			
TEACHER EDUCATION RELATED PROGRAMS						
Technical Illustrator		X				

INVENTORY OF VOCATIONAL

PREPARATORY PROGRAMS

WASHINGTON STATE BOARD FOR COMMUNITY COLLEGE EDUCATION

1969-70

3009

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3010

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
CLUSTER I																						
AGRICULTURE RELATED PROGRAMS																						
Agri-Business		X	X															X			X	
Agricultural Chemicals and Fertilizers						X																
Agricultural Equipment																		X				X
Animal Technician								X														
Farm Management			X														X	X				X
Fisheries & Game Management									X					X								
*Forestry Technology			X						X			X		X		X					X	
Ornamental Horticulture	X			X		X								X								
Production Agriculture					X													X			X	
*Park & Recreation Management	X	X		X						X												

3011

CLUSTER II

BUSINESS AND OFFICE RELATED PROGRAMS

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
ACCOUNTING & FINANCE PROGRAMS																						
Accounting Machines Operation															X							
Automatic Data Handling															X							
Bookkeeping & Accounting	X			X				X							X			X		X		
Business Management				X								X										

3012

CLUSTER II

BUSINESS AND OFFICE RELATED PROGRAMS

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
DATA PROCESSING PROGRAMS																						
Data Process - Operations				X			X						X		X							
Data Process - Programming		X	X	X	X		X		X		X	X	X		X			X		X		X
Key Punch Operation		X	X	X			X					X	X		X			X		X		
Data Processing - Systems Analyst					X																	

3013

CLUSTER II

BUSINESS AND OFFICE RELATED PROGRAMS

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
MANAGEMENT PROGRAMS																						
Home Furnishings Management																X						
Hotel-Motel Management										X					X			X				
Mid-Management - General	X	X	X		X	X	X	X	X	X	X		X	X		X	X	X		X	X	
DISTRIBUTING AND MARKETING																						
Cashier Checker															X			X				
Customer Representative															X			X				
Fashion Merchandising																X						
Parts Merchandising												X						X				
Real Estate	X					X								X	X						X	
Retail Selling & Marketing																		X				
Traffic and Transportation				X						X	X							X		X		
*Recreation Management										X												

CLUSTER II

BUSINESS AND OFFICE RELATED PROGRAMS

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
SECRETARIAL SCIENCE PROGRAMS																						
General Secretarial - Office Mgt.		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
Legal Secretary																		X		X		
*Medical Record Technician																X		X	X			
*Medical Secretary				X					X									X		X	X	
*Nursing Unit Clerical Assistant															X							
Stenographer				X					X						X			X				
Typing and General Clerical	X			X		X	X		X	X					X	X	X	X		X		

CLUSTER III

HEALTH RELATED PROGRAMS

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
DENTAL PROGRAMS																						
Dental Assistant						X									X			X				
Dental Hygiene				X												X						X
Dental Laboratory Technician																X						
MEDICAL PROGRAMS																						
Biological Laboratory Technician																X						
Cardio Pulmonary Technology																		X				
Central Service Technician											X											
Inhalation Therapy Assistant										X				X				X				
Medical Assistant						X									X							
*Medical Photographer	X																					
Medical Laboratory Technician																X					X	
*Medical Record Technician																X		X	X			

CLUSTER III

HEALTH RELATED PROGRAMS

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
MEDICAL PROGRAMS (cont)																						
*Medical Secretary				X								X					X			X		
Mental Health Technician								X														
Mental Retardation Technician								X										X				
Occupational Therapy Assistant										X												
Physical Therapy Assistant										X												
Radiology Technology	X																		X		X	X
Surgical Technician															X							
NURSING PROGRAMS																						
Associate Degree Nursing	X			X	X		X				X	X	X			X		X	*** X	*** X	X	X
Practical Nursing		X	X	X	X		X		X	X		X	X	X	X		X	X		X	X	X
Nurses Aide										X		X			X		X	X				
*Nursing Unit Clerical Assistant															X							
***Cooperative 3 year program with local hospital																						

CLUSTER IV

OCEAN RELATED PROGRAMS

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
*Marine Biology Technology																X						
*Marine Carpentry															X							
*Marine Engineering Technology															X							
*Oceanography Technology																X						
*Underseas Technology												X										

3U18

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
									C L U S T E R V													
									PUBLIC SERVICE PROGRAMS													
Fire Service Technology		X				X	X															X
Labor Studies																X						
Law Enforcement Technology	X			X	X		X	X		X	X	X	X			X		X	X	X		X
Parole and Probation Aide	X																					
Social Service Assistant	X																	X				
Urban Planning																				X		
Corrections Officer																			X	X		
*Library Technician				X					X		X	X								X		

3019

CLUSTER VI

PERSONAL SERVICE PROGRAMS

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
SERVICE																						
Cosmetology							X					X			X			X				
Custom Apparel Design & Construction															X							
Dry Cleaning															X							
Tailoring															X							
HOME AND FAMILY LIFE																						
*Early Childhood Education	X			X				X		X					X			X				
Home Decorator	X			X																		
Home Economics						X									X						X	
*Teacher Aide				X			X						X		X	X						

3020

CLUSTER VII

TRADE, TECHNICAL & MANUFACTURING

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
AUTOMOTIVE PROGRAMS																						
Body and Fender				X	X					X		X			X			X		X		X
Commercial Driver															X							
Diesel & Heavy Duty Mechanics				X	X										X			X				
Mechanic			X	X	X		X			X		X	X	X	X			X		X	X	X
Small Engine Repair													X				X					
AVIATION PROGRAMS																						
Aircraft Maintenance							X															
Aircraft Manufacturing Mechanics															X		X					
*Aircraft Mechanical Drafting															X							
*Aircraft Production Illustrator															X							
*Aircraft Tool Design Drafting															X							
Airframe & Powerplant Mechanic		X				X	X								X			X				

CLUSTER VII

TRADES, TECHNICAL & MANUFACTURING

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
AVAIATION PROGRAMS (cont)																						
Airplane Stewardess		X		X							X								X			
Air Traffic Control										X												
Aviation Electronics														X								
Commercial Pilot		X	X				X					X						X		X	X	
Wind Tunnel Model Maker															X							
COMMERCIAL FOODS PROGRAMS																						
Baking				X											X			X				
Cake Decoration															X							
Cooking				X											X			X				
Food Service	X															X						
Waiter/Waitress															X			X				

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
									C L U S T E R VII													
									TRADE, TECHNICAL & MANUFACTURING													
CONSTRUCTION AND MAINTENANCE																						
Architectural & Industrial Graphics																X						
Cabinetmaking & Millworking															X							
Carpentry					X		X			X					X			X			X	
*Civil Engineering Technology	X		X	X						X	X					X	X					
*Marine Carpentry															X							
*Structural Technology								X										X				
Surveying Technician				X																		
GRAPHIC ARTS																						
Architectural Drafting & Design																		X				
Commercial Art			X						X						X			X				
Drafting				X						X	X		X		X							
Graphic Arts													X									

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CLUSTER VII

TRADES, TECHNICAL & MANUFACTURING

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
GRAPHIC ARTS (cont)																						
In-Plant Duplicating															X							
*Medical Photographer	X																					
Offset Printing											X				X							
Photography							X								X			X				
Printing				X														X				
Technical Illustration					X		X															
METAL WORKING MANUFACTURING																						
Aluminum Trades																					X	
*Industrial Engineering Technology	X															X						
*Industrial Instrumentation																		X				
Industrial Mechanics																	X	X				
Machine Shop				X								X	X		X	X		X				

CLUSTER VII

TRADES, TECHNICAL & MANUFACTURING

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
METAL WORKING MANUFACTURING (cont)																						
*Machine Technology					X					X												
Maintenance Mechanic												X										
*Pulp and Paper Technology												X										
Quality Control	X										X					X						
Sheet Metal															X			X				
Welding		X		X	X		X			X	X	X	X		X		X	X		X	X	X
ELECTRICAL AND ELECTRONICS																						
Electrician																					X	
Electrical Power Generation & Control															X							
Electronics			X	X	X	X	X		X	X		X	X		X	X	X	X			X	X
*Horology & Micro Precision Instru.															X			X				
Hydro Mechanics																					X	

3025

CLUSTER VII

TRADES, TECHNICAL & MANUFACTURING

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
ELECTRICAL AND ELECTRONICS (cont)																						
Industrial Electricity																		X				
Industrial Electronics															X							
Industrial Instrumentation																		X				
*Office Machine Repair																				X		
*Visual Communications Technology															X	X						
DRAFTING PROGRAMS																						
*Aircraft Mechanical Drafting																X						
*Aircraft Production Illustration															X							
*Aircraft Tool Design Drafting															X							
Architectural Drafting & Design																X						
*Drafting Technology				X						X	X		X		X							
Industrial Drafting & Design																		X				

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OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
										C L U S T E R VII												
										TRADES, TECHNICAL & MANUFACTURING												
DRAFTING PROGRAMS (cont)																						
*Mechanical Engineering Technology				X						X						X						
*Mechanical Technology		X								X	X	X			X	X						
TECHNICAL PROGRAMS																						
Chemical Technology							X															
*Civil Engineering Technology	X		X	X						X						X	X					
*Drafting Technology				X						X					X							
*Electronics Engineering Technology				X																		
Engineering Technology				X	X		X				X		X	X						X		X
*Food Services Technology																X						
Industrial Drafting Technology																		X				
*Industrial Engineering Technology	X															X						
*Machine Technology					X					X												
*Forest Technology					X																	
Instrumentation Technology																						

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
									C L U S T E R VII													
							TRADES, TECHNICAL & MANUFACTURING															
TECHNICAL PROGRAMS (cont)																						
*Marine Biology Technology																X						
*Marine Engineering Technology															X							
*Mechanical Engineering Technology				X						X						X						
*Mechanical Technology		X								X	X	X			X	X						
*Oceanographic Technology																X						
*Pulp and Paper Technology												X										
*Structural Technology								X										X				
*Underseas Technology											X											
*Visual Communications Technology															X	X						
OTHER TRADES & INDUSTRIAL																						
Power Sewing															X		X	X				
Refrigeration																					X	

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CLUSTER VIII

TEACHER EDUCATION RELATED PROGRAMS

OCCUPATIONAL GOALS	Bellevue	Big Bend	Centralia	Clark	Columbia Basin	Edmonds	Everett	Fort Steilacoom	Grays Harbor	Green River	Highline	Lower Columbia	Olympic	Peninsula	Seattle	Shoreline	Skagit	Spokane	Tacoma	Walla Walla	Wenatchee	Yakima
TEACHER EDUCATION RELATED PROGRAMS																						
*Early Childhood Education	X			X				X							X			X				
*Teacher Aide				X			X						X		X	X						
*Library Technician				X					X		X	X								X		

* Programs Cross-Referenced in Two or more Occupational Clusters
** Cooperative Three-Year Program with Local Hospitals

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Division of Laboratories
State Department of Health

MANPOWER PROGRAMS

July 1, 1969 to December 31, 1969

	PROGRAM NAME	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
1.	Public Health Laboratory Practice	Div. of Labs.	State	N.A.	Senior Med.Tech.Students U. of Washington	10	N.A.	None
2.	Bench Training	"	"	N.A.	Employed Microbiologists	1	N.A.	None
3.				Academic				
3.	Master's Degree on Part time basis	at U. of Wash.	State	$192	Microbiologists in State Division of Laboratories	2	N.A.	None
				Inservice Training				
4.	Shorthand in Commerical Business School	Div. of Labs.	State	$250	Clerical personnel	2	N.A.	None
5.	Methods & Practices for State Milk Laboratory Survey Officers	National Center for Urban & Ind. He., USPHS	State & Federal	$250	Div. of Labs. Microbiologist Div. of Labs., WSDH	1	N.A.	None
6.	Autotutor Course "Basic Statistics"	State Department of Health	State	N.A.	WSDH, Div. of Lab. Personnel	6	N.A.	None
7.	Correspondence Course in Parasitology: CDC	Div. of Labs.	None	N.A.	WSDH Microbiologist SEattle-King Co. Micro.	1 1	N.A.	None
8.	Workshop on Millipor Filter by Millipor Co.	Div. of Labs.	None	None	WSDH Micros.	4	N.A.	None
9.	Principles & Bacterial Application of E.A. Techniques by CDC	Div. of Labs.	State	$694	WSDH Microbiologist	1	N.A.	None
10.	Part I Administration Course:Western Branch UPHA	Div. of Labos.	APHA State	$96 $35	WSDH Microbiologist	2	N.A.	None
				Training paid for by State to Local H.O. People				
11.	Automated Procedures for V.D. Serology: CDC	Div. of Labs.	State	$404	Director, City-County Health Department	1	N.A.	None

*N.A. - Not Available

3030

Office of Air Quality Control
Peter Hildebrandt, Assistant Director

MANPOWER PROGRAMS

July 1, 1969 to January 1, 1970

	PROGRAM NAME	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
1.	Smoke Plume Evaluation	Office of Air Quality Control	Wash. Oregon State Funds & Fed. Aid.	I.N.A.	Air Pollution Inspectors and interested persons	50	N.A.	N.A.
2.	Field Enforcement Aspects of Air Pollution Control	Office of Air Quality Control	Federal	Approx.$200	Concerned persons	30	N.A.	N.A.
3.	Correspondence Course Algebra 101	Office of Air Quality Control	State	$75	State Employee	1	N.A.	N.A.

MANPOWER PROGRAMS

Pacific Northwest Home Health
Training Project
Kay Laughrige, Director

July 1, 1969 to January 1, 1970

	PROGRAM NAME	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
1.	Action & Reaction in Continuity of Care	Pacific Northwest Training	I.N.A.	N.A.	Health Related Agencies	71	N.A.	N.A.
2.	The Health Professional in the Nursing Home	"	N.A.	N.A.	Health Professionals	84	N.A.	N.A.
3.	A Sectional Meeting on Nome Care	"	N.A.	N.A.	Members of the Wash. Assoc. for Social Welfare plus interested persons	25	N.A.	N.A.

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MANPOWER PROGRAMS

Health Manpower Project
Ilse J. Volinn, Director

July 1, 1969 to December 31, 1969

	PROGRAM NAME	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
1.	Short Course in Technical Writing	Health Manpower Project	State	$90	Research Analysts	2	N.A.	N.A.
2.	Summer Session of Statistics in Health Sciences	Health Manpower Project	State	$20	Project Director & 2 Research Analysts	3	N.A.	N.A.

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MANPOWER PROGRAMS

Wash. State Dept. of Health
Training activities
Fiscal Year 1970

July 1, 1969 - June 30, 1970

PROGRAM NAME	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
			INSERVICE TRAINING PROGRAMS				
Basic Supervisory Certification Program	State Dept. of Personnel	State	$300	Public Health Personnel	8	NA	NA
Sex Education Workshop	Central Wash. State College	State	60	Health Educators	2	NA	NA
Elementary Biostatistics	U. of Wash.	State	30	Statisticians	3	NA	NA
Statistics & Government	St. Martins College	State	215	Statisticians	1	NA	NA
Professional Systems Course	Systemation, Inc.	State	714	Data Processors	3	NA	NA
New Look in Preventive Dentistry	Professional Association	State	25	Public Health Dentist	1	NA	NA
Working With Trainable Mentally Retard. Child.	U. of Wash	State	20	Public Health Nurses	1	NA	NA
Clinical Mgt. & Control of TB	Professional Association	State	506	Public Health Nurses	1	NA	NA
Western Institute of Drug Problems	Portland State Univ.	State	165	Public Health Personnel	3	NA	NA
VD Control Clinic	Sea. King Co. Health Dept.	State	24.44	VD Control Personnel	1	NA	NA
Scientific Cleaning & Hosp. Env. San. Symp.	Economics Lab. Inc.	State	229	Sanitarians	1	NA	NA
Institute on Hospital Design	American Hospital Assoc.	State	500	Architect	1	NA	NA
Principles of P.H. for Dentist & Dental Hyg.	Univ. of N.C.	State	803	P.H. Dental Personnel	1	NA	NA
Building Effective Communication	Univ. of Chicago	State	510	P.R. Personnel	1	NA	NA
FORIM Seminar	Wash. State Univ	State	75	Data Processing Mgts.	1	NA	NA

Wash. State Dept. of Health
Training Activities
Fiscal Year 1970

MANPOWER PROGRAMS

July 1, 1969 - June 30, 1970

PROGRAM NAME	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
General Education	State Dept. of Health	State	670	Public Health Personnel	19	NA	NA
School Health Education Conference	State Dept. of Health	State	500	Public School Classroom Teachers	150	NA	NA
Secretarial Training	State Dept. of Health	State	570	Public Health Personnel	22	NA	NA
4-Part Course on Administration	APHA	State/ Federal	1,500	Supervisory Public Health Personnel	4	NA	NA
Spastic Children's Workshop	Spastic Child Clinic	State	500	Public Health Nurses	5	NA	NA
X-Ray Technicians Training Conference	State Dept. of Health	State	437	X-Ray Technicians	32	NA	NA
Nursing Care for Multiple Handicapped Child	State Dept. of Instit.	State	1,130	Public Health Nurses	5	NA	NA
Industrial Ventilation & Air Cleaning	Univ. of Wash	State	50	Public Health Personnel	2	NA	NA
Neuro. Approach to Physical Rehab. of Stroke Patients	Univ. of Wash	State	10	PT & Nurses	1	NA	NA
Smoking Intervention Clinic	State Dept. of Health	State	NA	Public Health Personnel	15	NA	NA
Water Works Short Course	State Dept. of Health	State	1,500	Water Works Personnel	85	NA	NA
Report Writing	U.S. Civil Service Comm.	State	60	Public Health Personnel	2	NA	NA
Autotutor - Basic Statistics	State Dept. of Health	State	NA	Public Health Personnel	13	NA	NA
Urban Community Development	Western Branch of APHA	State	90	Public Health Personnel	3	NA	NA
Conference on Alcoholism for Nurses & Physicians	Univ. of Wash.	State	30	Public Health Personnel	1	NA	NA

Wash. State Dept. of Health
Training Activities
Fiscal Year.1970

MANPOWER PROGRAMS

July 1, 1969 - June 30, 1970

PROGRAM NAME	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
Basic Forms Design Course	Systemation, Inc.	State	145	Analyst	1	NA	NA
			ALLIED TRAINING PROGRAMS				
Strengthen AI&R Activities	U. of Wisconsin	State	100	Health Voluntary Agencies	1	NA	NA
Field Placement in Services to the Aged	State Dept. of Health	State	800	Prospective Public Health Employee	1	NA	NA

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Wash. State Dept. of Health
Training Activities
Fiscal Year 1970

MANPOWER PROGRAMS

July 1, 1969 - June 30, 1970

PROGRAM NAME	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
Public Health Residency	State Dept. of Health	State/ Federal	37,440	Public Health Personnel	3	NA	NA
Field Training for Nutritionists	State Dept. of Health		NA	Future employees of Wash State Dept. of Health	4	NA	NA
			ACADEMIC TRAINING PROGRAM				
Masters in Public Health Program	State Dept. of Health	State/ Federal	35,255	Public Health Personnel	5	NA	NA
Public Health Nursing	State Dept. of Health	State	5,906	Future employees of Wash State Dept. of Health	4	NA	NA
			PRESERVICE TRAINING PROGRAMS				
Sanitation Field Training	State Dept. of Health	State	6,000	Future employees of Wash State Dept. of Health	13	NA	NA
New Careers	State Dept. of Health	State/ Federal	39,430	Disadvantaged	4	NA	NA
Migrant Health Project MG145C	State Dept. of Health	Migrant Health Ser. PHS	800	Migrant Workers and Families	NA	NA	NA

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TARGET GROUP ESTIMATES
Sources of Data and Methodology

Following, by target group name, are the sources of target group population estimates. When these population estimates involve extrapolations from base figures, the methodology employed will be summarized briefly:

RESIDENTS OF TARGET AREAS
Source: Seattle Model Cities. Methodology: Application of percentages for poor or marginally poor and underemployed to estimated population of the area.

PUBLIC ASSISTANCE RECIPIENTS
Source: State Department of Public Assistance. Methodology: Total caseload less the number of persons who could not be construed as targets for manpower services or programs (e.g., recipients of old age assistance, the totally disabled).

PHYSICALLY, EMOTIONALLY, OR SOCIALLY DISABLED
Source: State Division of Vocational Rehabilitation. Methodology: Beginning with the total estimated handicapped population of the state, the Division applied a percentage factor, based on experience, to determine the number of persons in the total handicapped population who would be in need of manpower services.

RESERVATION INDIANS
Source: U. S. Bureau of Indian Affairs. Methodology: Total Indian population of reservations within the area committee boundaries.

DISADVANTAGED ADULTS
Source: Employment Security Department. Methodology: Total adult disadvantaged estimate using the Department of Labor "Universe of Need Formula" less the number of disadvantaged adults included in other target groups. This subtraction is made in order to avoid overlapping of target group populations.

DISADVANTAGED YOUTH
Source: Employment Security Department. Methodology: Same as that employed for disadvantaged adults.

MIGRANT WORKERS
Source: Employment Security Department. Methodology: Percentage of the total number of known migrant workers in the state estimated to be in need of manpower services or programs.

PRISON INMATES
Source: Penal institutions or institutions involved. Methodology: Total number of inmates.

UNDER-UTILIZED NON-POOR PERSONS
Source: Employment Security Department. Methodology: Standard Department of Labor Universe of Need Formula for Under-Utilized Non-Poor Individuals.

PERSONS WITH LESS THAN EIGHTH GRADE ACHIEVEMENT
Source: Superintendent of Public Instruction. Methodology: Extrapolation from 1960 census figures.

UNDER-UTILIZED POOR

Source: Employment Security Department. Methodology: The Seattle committee has divided the total of disadvantaged persons into those totally unemployed and those disadvantaged persons who are (a) employed part-time for economic reasons or (b) employed full-time at or below the poverty level. These figures were derived from the Universe of Need Formula.

PART A

BALANCE OF STATE AREA

State of Washington

COMPREHENSIVE AREA MANPOWER PLAN -- FISCAL YEAR 1971

* * * * * * * * * * * * *

February 1, 1970

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C O N T E N T S

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D.[1/] Description of State or Area

1. The area location and geographical features:

As only four of Washington's 39 counties are in CAMPS designated areas, a physical description of the balance of state area and its geographical features is approximately that of the state as a whole.

Washington State rises from sea level along the shores of the Pacific Ocean and Puget Sound to 14,410 feet at the summit of Mount Rainier. This wide range in altitude is far more than an interesting geographical curiosity when consideration is given to the effects of terrain on population dispersal, weather, availability of natural resources such as forests and water power, and, through the interaction of the above, the industrial base and economy of a given area of the state. Geographically, western Washington is characterized by mountains, forested hills, green valleys and the miles of navigable waterways of Puget Sound. The eastern half of the state, while not without rugged terrain, is noted for large areas of gently rolling plains, intersected by rivers, providing both the soil and water supply necessary for agriculture.

The map on the following page identifies the boundaries of Coordinating Committee jurisdictions in Washington State. Shaded areas (4A, 4B, and a portion of 6A)[2/] are CAMPS designated areas. Accordingly, the non-shaded area comprises the balance of state planning area. This balance of state area has been divided into 14 local areas to bring the planning process closer to the communities involved. Each of the 14 local areas is represented by a Coordinating Committee which submits annual plans to the balance of state committee. These local plans are then merged into the balance of state plan. These local areas, identified by the numbers appearing on the map, are as follows:

Area 1 - Port Angeles Committee; Clallam and Jefferson Counties

Area 2 - Aberdeen-Raymond Committee; Grays Harbor and Pacific Counties

Area 3 - Mount Vernon-Anacortes-Bellingham Committee; Whatcom, Skagit, Island, and San Juan Counties

Area 4C - Bremerton Committee; Kitsap County

Area 5 - Olympia-Centralia Committee; Mason, Thurston and Lewis Counties

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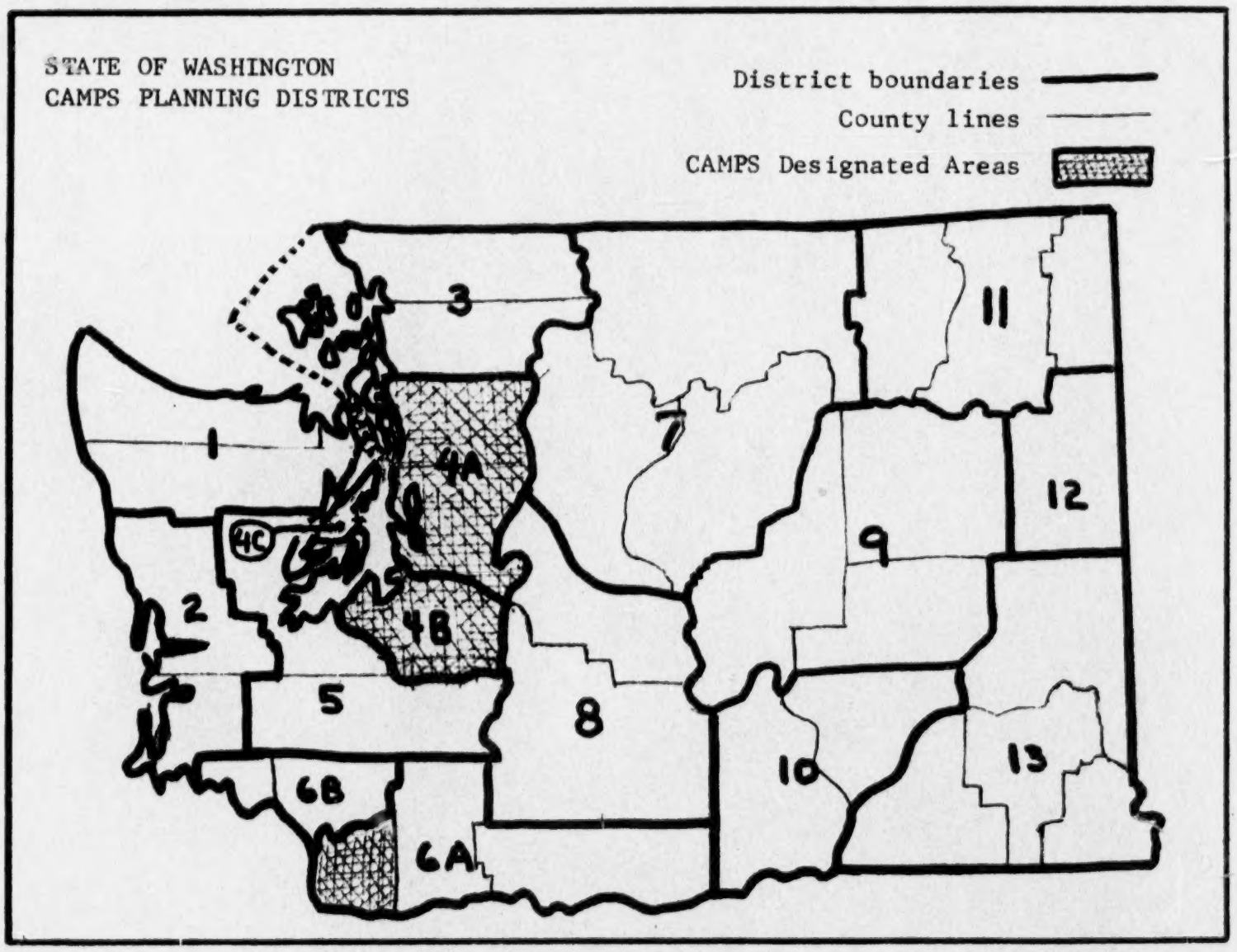
1/ This plan follows the outline presented in Interagency Cooperative Issuance 71-1. As paragraphs A through C in that outline pertain to other than sections of the plan narrative, the text of this document begins with paragraph D.

2/ The number and letter system whereby the districts are indicated on the map is used to bring CAMPS boundary designations into conformity with the 13 official planning districts used in Washington State.



Area 6A - Vancouver Committee; Clark, Skamania, and Klickitat Counties (The shaded portion of this district is Clark County which is in the Portland, Oregon, SMSA and is thus a part of the Portland CAMPS designated area.)

Area 6B - Longview Committee; Cowlitz and Wahkiakum Counties

Area 7 - Wenatchee-Okanogan Committee; Chelan, Douglas and Okanogan Counties

Area 8 - Yakima-Toppenish-Ellensburg Committee; Yakima and Kittitas Counties

Area 9 - Moses Lake-Ephrata Committee; Grant, Lincoln, and Adams Counties

Area 10 - Pasco Committee; Franklin and Benton Counties

Area 11 - Colville Committee; Ferry, Stevens, and Pend Oreille Counties

Area 12 - Spokane Committee; Spokane County

Area 13 - Walla Walla Committee; Walla Walla, Whitman, Asotin, Columbia and Garfield Counties

2. The economy of the area and factors affecting it:

In 1969, the five top industries in the "balance of the state" area, ranked by average number of workers, were as follows:

Industry	Number of Workers (Fiscal Year Average 1969)
Government	120,400
Trade	97,300
Services and Miscellaneous	68,000
Agriculture	52,300
Lumber and Wood Products	31,900

As can be seen, the most important industrial groups in the area are non-manufacturing industries. Basic industry accounts for 17 percent of average total employment compared with 26 percent for the state's major metropolitan areas. The economic problems associated with a smaller industrial base for the total area are compounded by the regional concentration of basic industry. For example, in March 1969 Spokane County accounted for 14.5 percent of all manufacturing employment, including nearly one-third of the area's jobs in the metals and transportation equipment sectors and one-fourth of "other" manufacturing jobs. Similarly, Clark and Cowlitz counties accounted for 23.5 percent of the area's total, including over half of the employment in paper products. Other pronounced regional concentrations of industry are the chemicals industry in the Tri-Cities area, lumber and wood products in southwestern Washington, and the food processing industry in southeastern Washington. Economic dependence on a single industry is magnified in the case of the two largest manufacturing industries, lumber and food products, which are both highly seasonal. In fiscal 1969, the differences between peak and low employment were 6,400 in lumber and 7,100 in food processing.

PERCENTAGE DISTRIBUTION OF MANUFACTURING EMPLOYMENT, BY REGION
BALANCE OF STATE AREA (WASHINGTON STATE)
MARCH 1969

	Percent Distribution					
Industry	Total	Northwest	Southwest	Northeast	Spokane	Southeast
TOTAL MANUFACTURING	100.0	15.1	45.1	6.1	14.5	19.2
Lumber	100.0	15.6	63.3	9.4	3.2	8.4
Metals, non-electric machinery	100.0	13.4	31.5	9.4	38.3	7.4
Trans. equip.	100.0	19.2	34.6	---	30.8	15.4
Food	100.0	13.1	19.7	4.4	16.8	46.0
Paper	100.0	21.8	70.7	0.8	2.2	4.5
Chemicals	100.0	0.2	0.5	---	0.2	90.0
Other	100.0	13.8	31.7	4.9	25.2	24.4

Totals may not add due to rounding.

3. Current population and labor force, and recent trends:

Population, Total and Nonwhite, Balance of State Area (Washington State)
1960, 1968, 1969 (In Thousands)

	1969 2/	1968 2/	1960 1/	% gain 1960-1969	% gain 1960-1968	% gain 1968-1969
TOTAL POPULATION	1,645.3	1,587.6	1,424.4	+ 15.5	+ 11.5	+ 3.6
White		1,550.0	1,392.2			
Nonwhite	NA	37.6	32.2		+ 16.8	
Black		13.1	9.9		+ 32.3	
Indian		17.3	15.6		+ 10.9	
Oriental		4.4	4.2		+ 4.8	
Other		2.8	2.5		+ 12.0	
Spanish Surname		41.5				

SOURCE: 1/ 1960 Census
2/ Planning and Community Affairs

Population in the area totaled 1,645,300 in April 1969, an increase of 57,700 from the previous April. The fastest growing region during this period was southwestern Washington, led by gains in Clark County (15,100) and Thurston County (8,500) as new residents attracted by job opportunities in metropolitan areas settled in adjacent counties. Eighty-eight percent of the year-to-year gain in the area occurred in western Washington. As news of declining job opportunities in the Seattle-Tacoma area spreads, the rate of growth will probably slow.

Total Population, by Age
Balance of State Area (Washington State)

Total	1960 and 1969 1969	1960	Percent Gain 1960-1969
TOTAL	1,645.3	1,424.4	+ 15.5
Under 15	488.4	452.5	+ 7.9
15-19	148.4	111.0	+ 33.7
20-24	132.6	80.6	+ 64.5
25-34	189.8	162.3	+ 16.9
35-54	377.3	352.4	+ 7.1
55-64	147.1	122.5	+ 20.1
65+	161.7	143.1	+ 13.0

The civilian labor force total for 1969, at 601,900, was up 9,900 from fiscal 1968. In-migration and availability of jobs for secondary wage earners were primarily responsible for the growth.

4. Current employment by industry and occupation and recent trends, and seasonal employment patterns and other characteristics of the labor market situation:

Labor Force and Employment Balance of State Area (Washington State)
Fiscal Year Averages 1967, 1968, 1969 (In Thousands)

	Fiscal Year Averages			Net Gain	
	1969	1968	1967	1968-1969	1967-1968
CIVILIAN LABOR FORCE	601.9	592.0	574.9	+ 9.9	+ 17.1
Labor Disputes	0.4	0.4	0.7	0	- 0.3
Total Unemployment	34.5	34.2	30.6	+ 0.3	+ 3.6
Rate	5.7	5.8	5.3		
Total Employment	567.0	557.4	543.6	+ 9.6	+ 13.8
Nonfarm wage and salary	446.1	433.0	419.7	+ 13.1	+ 13.3
Manufacturing	95.8	92.8	92.1	+ 3.0	+ 0.7
Lumber and wood products	31.9	31.1	30.9	+ 0.8	+ 0.2
Metals and mach. exc. elec.	14.8	13.8	13.5	+ 1.0	+ 0.3
Transportation equipment	2.5	2.1	1.8	+ 0.4	+ 0.3
Food products	16.1	15.9	16.0	+ 0.2	- 0.1
Paper products	13.4	13.5	13.7	- 0.1	- 0.2
Chemicals	4.2	4.4	4.6	- 0.2	- 0.2
Other manufacturing	12.9	12.0	11.6	+ 0.9	+ 0.4
Construction	21.8	23.7	23.9	- 1.9	- 0.2
Transportation, Comm., & Util.	26.3	25.6	25.8	+ 0.7	- 0.2
Trade	97.3	95.4	94.1	+ 1.9	+ 1.3
Finance, Ins., and Real Estate	16.5	15.5	14.8	+ 1.0	+ 0.7
Services, Mining, Miscellaneous	68.0	63.9	58.8	+ 4.1	+ 5.1
Government	120.4	116.1	110.2	+ 4.3	+ 5.9
Agriculture	52.3	55.2	53.9	- 2.9	+ 1.3
Self-Employed and Other	68.6	69.2	70.0	- 0.6	- 0.8

Total employment in Fiscal Year 1969 averaged 567,000, an increase of 9,600 from the average of the previous year. All of the gain came in nonfarm wage and salary employment; at 446,100, there were 13,100 additional nonfarm jobs in 1969. The year-to-year gain marked a slowdown in over-the-year growth: following a substantial gain of 21,800 between 1965 and 1966, margins have slipped to 14,500 for 1966-67 and 13,300 for 1967-68.

Manufacturing employment averaged 95,800 in 1969, a gain of 3,000 from 1968, compared with an increment of 700 for 1967-68.

Lumber and wood products firms registered an increase of 800 jobs from the previous year to average 31,900. With the exception of January and February when severe winter weather restricted logging activity, employment in the industry was consistently above year-earlier levels, by as much as 2,000 in August and November 1968. The higher totals reflected strong demand for logs for export and for lumber products

for homebuilding and resulting high prices for logs and finished lumber. By the end of the fiscal year, the imposition of fiscal and monetary restraints to check inflation reduced homebuilding and the demand for lumber. In June, the year-to-year margin had fallen to 200.

The primary and fabricated metals and nonelectrical machinery sector averaged 14,800 in 1969, an increase of 1,000 from the previous year's average. However, in 1968 an average of 200 persons were idled by a labor dispute in the aluminum industry. Expansion of aluminum facilities was a primary factor in the year-to-year growth.

Transportation equipment manufacturers, primarily firms producing boats, mobile homes, and campers, employed an average work force of 2,500 in 1969, up 400 from the previous year. Defense department contracts at smaller shipyards and the increasing use of recreation vehicles have encouraged growth in the industry.

Food processing employment in 1969 averaged 16,100 for an increase of 200 from the 1968 average. Employment in the industry expanded rapidly between 1965 and 1967, from 13,400 to 16,000, but growth has leveled off in subsequent years.

During the latter period, year-to-year growth has depended on the quantity and quality of Washington's fruit and vegetable crops rather than on the building of new facilities.

A labor-dispute in early 1969 cut the paper and allied products employment average by 100 to 13,400. Without the dispute, the industry total would have been about 200 higher in 1969.

An over-the-year loss of 200 in the chemicals industry to 4,200 reflected closure of nuclear reactors at the Hanford complex.

The "other" manufacturing sector, which includes furniture, apparel, electrical machinery, petroleum, printing, and stone-clay-glass products, added 900 from 1968 for a 1969 total of 12,900. This total was held down about 100 by a labor dispute in the petroleum industry. Employment in these industries, which are tied to local and regional markets, has continued to grow with the area's population.

Average employment in construction fell 1,900 to 21,800 in 1969. Much of the loss was attributable to completion of hydroelectric projects in eastern Washington--the Wells, Boundary, and John Day dams were all completed in 1969. Harsh winter weather also contributed to the lower average.

Transportation-communication-utilities added 700 workers from the 1968 level to average 26,300 in 1969. The year-to-year gain was nearly evenly divided between transportation and communications-utilities. Employment growth in the communications and utilities sectors has accompanied population growth while much of the increase in transportation reflected longshoring activities as logs were shipped to Japan through Washington ports.

Average employment in wholesale and retail trade rose 1,900 to 97,300 in fiscal 1969. An important part of the growth in trade has been in new retail outlets, especially in newly established shopping centers.

Employment in the finance, insurance, and real estate industry averaged 16,500, gain of 1,000 from the level of the previous year. Pressure for land and homes has encouraged increased activity in real estate sales and speculative building; affluence has also expanded the market for second homes and recreational development. Insurance firms and money-handling institutions have also participated in the expansion.

Substantial gains in the medical and health services field pushed the average in services and miscellaneous up 4,100 to 68,000 in fiscal 1969. Expansion of medical facilities following passage of Medicare accounts for a large portion of the 1,500 increase in health services. The average number of workers employed by non-profit membership organizations was up 900 over the year, reflecting in part a change in the industrial classification of fraternal clubs with eating facilities from trade to services in 1968.

Government employment posted the largest single year-to-year gain as the average rose from 116,100 to 120,400. All of the increase came in state and local government; schools and colleges were the primary contributors although expansion of services provided by all levels of government was also important.

Agricultural employment fell 2,900 from 1968 to 1969. The declining demand for farm workers was accentuated by a smaller apple crop and crop losses in soft fruit during the 1968 harvest.

The most recent information available on occupational distribution of the work force is found in the Occupational Manpower Projections, 1966-1968-1971. Neither Clark nor Spokane counties were surveyed and data for Kitsap County are not available. Within these limitations, the percentage distribution of nonagricultural wage and salary employment, excluding railroad employment, by occupation, is shown in the table below for June 1966, with projections for 1971.

Percentage Distribution of Nonagricultural Wage and Salary Employment
By Occupation, Balance of State Area (Washington State) 1/
June 1966 and Projected June 1971

	June 1966	June 1971
TOTAL	100.0	100.0
Professional, Technical, and Managerial	23.1	23.9
Clerical	12.8	13.0
Sales	6.7	7.3
Service	13.3	13.2
Craftsmen	14.2	12.8
Transportation and Utilities 2/	7.0	7.2
Extractive	3.8	3.6
Manufacturing Processing	10.9	10.6
Material Handlers	6.0	5.8
Miscellaneous	2.2	2.6

SOURCE: Occupational Manpower Projections.

1/ Excludes Clark, Kitsap, and Spokane Counties.
2/ Excludes railroads.

In first quarter 1969, the average monthly wage in covered employment in the area was $522.25, up $17.36 or 3.4 percent from first quarter 1968. The only industry with a lower average in 1969 was construction, down $20.82 to $683.14. The lower figure reflected the effects of a much harder winter in 1969 which limited activity on construction projects during the period. The substantial gain, from $686.27 to $744.60, in the metals and nonelectrical machinery sector resulted from settlement of a labor dispute which distorted the 1968 average.

Average Monthly Wage in Covered Employment
Balance of State Area (Washington State)
First Quarter 1969 and 1968

	First Qtr. 1969	First Qtr. 1968	% Change 1968-69
TOTAL	$522.25	$504.89	+ 3.4
Construction	683.14	703.96	- 3.0
Manufacturing	625.85	597.97	+ 4.7
Lumber	600.70	577.97	+ 3.9
Metals and nonelectrical mach.	744.60	686.27	+ 8.5
Transportation equipment	579.26	575.37	+ 0.7
Food processing	521.83	501.64	+ 4.0
Paper and allied products	689.10	653.61	+ 5.4
Chemicals	827.83	807.90	+ 2.5
Other	528.28	519.60	+ 1.7
Transportation, Comm., and Util.	630.48	598.75	+ 5.3
Trade	433.71	414.25	+ 4.7
Finance, Insurance, and Real Estate	507.86	478.54	+ 6.1
Services	383.55	369.61	+ 3.8

E. Identification of Manpower Problems

1. Recent occupational shortages or surpluses, and changes in labor demand or supply in recent months:

Labor demand has declined in recent months in the balance of the state area, mainly due to unfavorable developments in the lumber industry. In addition, the decline in aerospace in the Seattle-Everett Metropolitan Area and a slower growth rate in other industries in that area and in the Tacoma Metropolitan Area has had a decided impact on the area. When jobs were readily available in the Seattle-Tacoma area, many of the unemployed moved to the metropolitan areas. Now the incentive to move is gone. Also, it is probable many who moved previously, and were subsequently terminated, will return to their home areas.

Even had labor demand not declined, however, the slower growth rate would have created a substantial increase in the number of persons unsuccessfully seeking work. Nonagricultural placements at Washington State Employment Offices in the balance of the state fell from 2,315 in November of 1968 to 2,230 in November 1969. The table below shows November nonfarm job placements by occupation and the insured unemployed by occupation at mid-November for the balance of the state area.

Nonagricultural Placements and Insured Unemployed by Occupation
Balance of State Area (Washington State) November 1969

Occupation	Nonagricultural Placements	Insured Unemployed
TOTAL	2,230	18,895
Professional, Technical, and Managerial	14	1,170
Clerical and Sales	447	3,740
Service	539	2,452
Farming, Fishing, Forestry	54	329
Processing	109	2,276
Machine Trades	121	1,079
Bench Work	26	720
Structural	189	3,209
Miscellaneous	731	3,154
Uncoded	xxx	766

The above table is not a comprehensive comparison of the demand for, and supply of, labor but does indicate the relative difficulty of finding work, by occupation. The number of insured unemployed was measured at the midweek of November, while the job placement count was for the entire month. In addition, the insured unemployed represented only a fraction of the total number of applicants. A breakdown of all applicants by occupation is not available; however, the total number of applicants in November for the balance of the state was 32,682. Job openings available for these applicants numbered 3,516, or approximately one opening for every nine applicants. The 2,230 nonfarm placements made during the month represented only seven percent of the applicant count. November nonfarm job openings and nonagricultural placements were down 27 percent and 4 percent from their year-ago totals.

The decline in placements while minor in total was largely in logging ("all other") occupations. The table below shows nonagricultural placements by occupation for the balance of the state in November 1969, June 1969, and November 1968.

Nonagricultural Employment Service Placements by Occupation
Balance of State Area (Washington State)

Occupation	Nov. 1969	June 1969	Nov. 1968	Change: June 1969-November 1969	Change: November 1968-November 1969
TOTAL	2,230	3,291	2,315	- 1,061	- 85
Professional, Technical and Managerial	14	74	24	- 60	- 10
Clerical and Sales	447	691	426	- 244	+ 21
Service	539	848	525	- 309	+ 14
Farming, Fishing, Forestry	54	239	30	- 185	+ 24
Processing	109	125	99	- 16	+ 10
Machine Trades	121	90	90	+ 31	+ 31

(Table continued on following page)

Occupation	Nov. 1969	June 1969	Nov. 1968	Change June 1969-November 1969	Change November 1968-November 1969
Bench Work	26	40	43	- 14	- 17
Structural Work	189	261	185	- 72	+ 4
All Other	731	923	893	- 192	- 162

Logging and lumber-plywood mill occupations have been especially hard hit. In the Aberdeen area (Grays Harbor County), two-thirds of all manufacturing jobs are in the lumber and wood products industry. Because of the depressed state of the lumber market, nonfarm placements in November were down 37 percent over the year and insured unemployment had more than doubled over the 12-month period. Other lumbering areas of the state have had similar experiences.

Occupations listed in clearance (job which could not be filled in the local area) have also declined in the balance of the state area as indicated in the table below.

Unfilled Job Openings in Clearance, December 1968 and 1969
Balance of State Area (Washington State)

Occupation	Unfilled Openings in Clearance December 1968	December 1969
Engineers	14	1
Registered Nurses	15	7
Social Welfare Work	5	2
Oyster Shucker	10	0
Machinists	46	0
Electrician	2	25
Pipefitter	21	25
Logging Occupations	30	0
Tank Cleaner	0	20

In the occupations listed above for which demand increased, the added need was entirely due to orders placed by a military installation. The turnabout in the demand for engineers and machinists was typical of occupations utilized by the aerospace industry in the Seattle Metropolitan Area. Prior to the aerospace build-up, demand from this industry had attracted workers from other areas by high wages. This caused shortages in certain skilled occupations in the rest of the state. Now, however, terminated aerospace workers have filled the shortages originally created by the expansion in aerospace.

In addition to the above identified shortages, the Washington State Water Pollution Control Commission has submitted information that a shortage of trained personnel in the field of water pollution control facilities operation continues to exist. It is anticipated that this

shortage will increase to the point of being critical unless training programs are implemented to provide skilled people to meet the needs of the field. This shortage of manpower and the anticipated increase of this need is due to the construction of waste-water treatment facilities, the expansion of existing treatment facilities, the upgrading of the degree of treatment in existing facilities and the greater emphasis on the efficient operation. Because of recent state and national interest concerning all components of the environment, water pollution control facility operator training should become an important and specific component of shortage occupational training in the fiscal year 1971 manpower plans.

The Washington State Water Pollution Control Commission has adopted a regulation and a plan of implementation for interstate, intrastate, and coastal waters for the protection and maintenance of water quality in the State of Washington.

In these plans of implementation, the Commission will have required the following accomplishments:

1. There will be 60 new municipal sewage treatment plants constructed.

2. There will have been 166 communities required to upgrade the degree of treatment provided by their treatment facilities.

3. There will be 20 municipalities required to expand or modify their existing treatment facilities.

4. There will be 65 municipalities required to improve their operation and maintenance program.

5. The Commission will have required 72 industries to upgrade their degree of treatment.

6. There will have been 15 industries required to expand their existing treatment facilities.

7. There will have been 48 industries required to improve their method of operation and maintenance.

Based upon these requirements and including an assumed attrition of 10 percent, there is an existing need within the State of Washington for providing training to 490 waste-water treatment plant operators by 1974.

2. Problems which the various target groups encounter in adjusting to the job market:

While certain problems are characteristically faced by nearly all disadvantaged persons (child care and transportation are examples), the committee felt that the identification of problems by target group would be of greater value than an unclassified enumeration.

PUBLIC ASSISTANCE RECIPIENTS 1/

a. Child Care: As the majority of persons in this target group are female heads of household with pre-school children or children in the primary grades, the problem of securing competent, moderately priced child care is a principal obstacle to employment.

b. Welfare Status: The status of "welfare recipient" has an impact on both the program client and prospective employers. The former may feel he or she is a failure and incapable of self-support, the latter may consider recipients unmotivated, lazy, poor risks, etc. These two negative attitudes can come together and reinforce each other, resulting in a self-fulfilling prophecy injurious not only to the worker but to others in the same target group because the employer's expectations are confirmed and he will be less likely to hire welfare recipients in the future.

c. Transportation: Welfare recipients, because of their limited resources, live in low cost housing which is frequently located long distances from prospective centers of employment. The recent trend of business and industry to locate in suburban areas outside the core cities compounds the problem of getting to and from work sites. As many communities in the balance of state area do not provide public transportation, the welfare recipient who cannot afford an automobile (which most cannot) must severely limit the area in which he can accept employment.

d. Minority Status: The minority group status of many public assistance recipients creates an additional handicap in securing employment. While proportionately fewer Negroes live in the balance of state than in the urban centers in the Seattle-Everett and Tacoma designated areas, the balance of state area has proportionately more Mexican-Americans and Indians. The Mexican-American, while not a racial minority, may be characterized as an ethnic minority because of cultural and language differences which can stand as barriers to employment because of employer attitudes or problems in communication.

PHYSICALLY, EMOTIONALLY, OR SOCIALLY DISABLED - For purposes of identifying problems in adjusting to the job market, persons in this target group may be divided into two groups; those who have been disabled for some time and those whose disabilities are more recent. In the case of the recently disabled, a major adjustment is the adjustment to the disability itself; the restructuring of the worker's self-concept, the acquiring of new skills, seeking new employment, and so forth. The person with a congenital disability or disability of long standing has generally made certain adjustments relating to his condition. These may be good adjustments, in which case one obstacle to successful employment will have been removed, or poor ones (e.g., "I can't do anything well") in which case a major problem exists. In addition to the basic adjustments relating to the handicap itself, the following problems affect persons in this target group:

a. Employer Attitudes: Despite extensive nationwide and local "Hire the Handicapped" campaigning, a number of employers still consider disabled

1/ Definitions of target groups as used in this plan will be found in Section G, Target Populations.

persons poor risks. The notion (disproved by research) still persists that disabled persons are more prone to industrial accidents, have higher absentee rates, and so forth. In addition, most national advertising relating to employment of the handicapped stresses paraplegics and amputees. While such disabilites are easily illustrated in posters, which probably accounts for their emphasis, an association between "handicap" and "wheelchair" or "crutches" is not necessarily advantageous to the many handicapped persons whose mobility or manipulative skills are unaffected. For example, an employer with an opening for a furniture assembler, having just viewed a TV spot showing a man in a wheelchair repairing electronic equipment will not be motivated to respond to the suggestion that he telephone the local Employment Service Office and place an order for a handicapped worker. Were he to do so, he might receive many handicapped referrals, including the deaf, the mentally restored, and so forth.

b. Architectural Barriers: Architectural barriers continue to be a problem to handicapped workers seeking employment. Although the example of the person in a wheelchair confronting a revolving door has been fairly welleliminated by changes in architectural style, less dramatic barriers continue to exist and unintentionally screen some of the disabled from employment, not because they would be unable to perform the tasks of a given job, but because they would be unable to climb a long flight of steps, negotiate a wheelchair through a narrow doorway, or use the restroom facilities.

c. Transportation: The lack of adequate public transportation poses a problem for the disabled person who is unable to operate an automobile. In addition, even where public transportation exists, certain disabled persons are unable to use it because of wheelchair confinement, and so forth.

RESERVATION INDIANS

a. Location: In the case of reservation Indians, the remoteness of many reservations from potential employment or training sites is a major obstacle to entry into the labor market.

b. Transportation: Related to the above, the problem of transportation is a major obstacle to reservation Indian employment.

c. Wages: The Bureau of Indian Affairs reports that too many firms are set up to hire entry level "trainees" where wages are inadequate to support a single or a family unit on wages offered.

MIGRANT WORKERS

a. Cultural: The majority of migrant workers in the balance of state area are Mexican-American. Cultural and language differences are thus an important problem in target group member's adjustment to the job market. Lack of fluency in the English language, for example, results in difficulties in both skill training and subsequent employment for those workers who seek to leave farm work and enter into other more permanent occupations.

b. Adjustment: Migrant workers who have spent their lives doing seasonal agricultural work sometimes find difficultly in adjusting to the more rigid patterns of industrial employment. If the new employment is in a densely populated urban area the problem is compounded by a complex and unfamiliar environment.

c. Education: Workers born and raised in the migrant milieu have been exposed, if at all, to a very erratic education as their families moved from area to area following crops. Accordingly, many are weak in the basic mathematical and language skills necessary if they choose to enter other occupational fields.

d. Stereotypes: A degree of employer resistance to hiring workers with a migrant past is another problem. This is due in part to a migrant stereotype accepted by some employers. Elements of this stereotype work against the migrant who wishes to leave agricultural work.

DISADVANTAGED ADULTS - This target group is defined as all disadvantaged adults not classifiable under any of the designations above. Accordingly, they are disadvantaged adults who are not public assistance recipients, not disabled, not reservation Indians, and not migrant workers. In a sense this fact itself may be designated a problem for certain members of this target population, for inasmuch as they are not members of special categories they are also not eligible for special programs such as WIN, rehabilitation, and so forth. In the Washington State balance of state area, many of the members of this group are rural and small town poor, the remainder are urban poor living in Spokane. Problems encountered by members of this group are as follows:

a. Transportation: Transportation to and from training and work sites is a problem for the disadvantaged adult in the Balance of State Area. In addition, as many persons in this area are located miles from any point of service, they often lack the transportation to visit an agency to ask for assistance.

b. Health Services: Health care in rural areas is generally inadequate. There are fewer free clinics, and the disadvantaged person who is not eligible for Public Assistance or Vocational Rehabilitation services may be prevented from securing or remaining on a job due to generally poor health.

c. Child Care: As for all target groups, child care is a serious problem. Generally considered a problem of the female head of household, the need for child care services is also felt by a number of men in motherless households. A related problem, often overlooked, is the presence of an older chronically ill relative in the home who requires care.

d. Education: Many of the rural poor are unable to prepare themselves for employment because of the absence of conveniently located basic education training opportunities.

e. Other: The group served by Operation Mainstream frequently is inhibited from adjustment to the labor market by reason of age, obsolete skill as well as problems of geographical location and transportation. Some target group members are also hindered by varying forms of discrimination.

DISADVANTAGED YOUTH

a. Lack of Skills: A major problem faced by the young person entering the labor market is the lack of marketable job skills. An increasingly technically oriented society has resulted in a decrease in unskilled entry level positions. In the past, these positions provided opportunities for unskilled youth to enter the labor force and acquire skills on the job.

b. Apprenticeship Requirements: Apprenticeships, which might otherwise be suitable for disadvantaged youth, involve certain problems as entrance requirements to apprenticeships are established by joint labor management committees. The committees adhere generally to age limits, from 18 through 32 years (including service time). Hiring specifications mostly require a high school diploma or the equivalent, physical attributes to do the work, and the ability to meet minimum norms of aptitude tests. Joint apprenticeship councils usually retain the right to make exceptions to these requirements. Under federal and state regulations apprentices are selected on the basis of qualifications or by some other impartial manner promulgated in federal and applicable state regulations. Clearly, while a council is empowered to make exceptions to the requirements outlined above, the disadvantaged youth who is a school dropout...and who scores poorly on an aptitude test because of educational deficiencies...will encounter difficulties in competing for an apprenticeship. Many apprenticeship councils are aware of this problem and are attempting to find ways to correct it.

c. Other: The U. S. Department of Labor, Manpower Administration, which administers the NYC program has stated that the target group served by the NYC program encounters numerous difficulties in adapting to the job market. Frequently the lack of meaningful work experience, lack of a job skill and low educational attainment are the major factors.

PERSONS WITH LESS THAN EIGHTH GRADE ACHIEVEMENT - The basic problem faced by members of this target group is defined by its title. The inability to perform at or above the eighth grade level is a major obstacle to successful performance of many occupations. However, even in the case of those occupations for which an eighth grade level is not necessary to perform the tasks of the job, hiring requirements, arbitrarily assigned by the employer, can be a barrier to employment.

UNDER-UTILIZED NON-POOR PERSONS

a. Insufficient Funds: Many of the under-utilized non-poor, who might otherwise benefit from training programs to upgrade their skills, are unable to take advantage of them because of financial considerations. They simply cannot afford to quit their jobs to take advantage of training programs--most of which are scheduled during normal working hours.

b. Limited Opportunities: In that manpower training resources are limited, the assignment of priorities is essential. Accordingly, because their situation is less desperate then that of the unemployed disadvantaged, fewer manpower program funds are assigned to serve the needs of the under-utilized non-poor. It is not suggested that this assignment of priorities is incorrect. It becomes, however, one of the problems facing this target group.

F. Anticipated Developments

1. Anticipated social and economic developments that will affect human resources programs in the balance of fiscal year 1970 and in fiscal year 1971:

Labor Force and Employment Balance of State Area (Washington State)
Fiscal Year Averages 1969. Projected 1970 and 1971 (In Thousands)

	Fiscal Year Averages			Net Gain	
	FY 1969	FY 1970	FY 1971	1969-1970	1970-1971
CIVILIAN LABOR FORCE	601.9	617.8	631.1	+ 15.9	+ 13.3
Labor Disputes	0.4	0.5	0.5	+ 0.1	0
Total Unemployment	34.5	36.1	37.2	+ 1.6	+ 1.1
Rate	5.7	5.8	5.9		
Total Employment	567.0	581.2	593.4	+ 14.2	+ 12.2
Nonfarm wage and salary	446.1	457.4	470.3	+ 11.3	+ 12.9
Manufacturing	95.8	96.3	97.7	+ 0.5	+ 1.4
Lumber and wood products	31.9	30.9	31.2	- 1.0	+ 0.3
Metals and mach. exc. el.	14.8	15.4	15.8	+ 0.6	+ 0.4
Transportation equip.	2.5	2.7	2.8	+ 0.2	+ 0.1
Food products	16.1	16.4	16.5	+ 0.3	+ 0.1
Paper products	13.4	1.37	13.9	+ 0.3	+ 0.2
Chemicals	4.2	4.0	4.0	- 0.2	0
Other manufacturing	12.9	13.2	13.5	+ 0.3	+ 0.3
Construction	21.8	22.1	22.5	+ 0.3	+ 0.4
Transp., Comm., and Util.	26.3	26.6	26.9	+ 0.3	+ 0.3
Trade	97.3	100.4	103.9	+ 3.1	+ 3.5
Finance, Ins., & Real Est.	16.5	17.0	17.6	+ 0.5	+ 0.6
Services, Mining, Misc.	68.0	70.0	73.0	+ 2.0	+ 3.0
Government	120.4	125.0	128.7	+ 4.6	+ 3.7
Agriculture	52.3	54.4	53.0	+ 2.1	- 1.4
Self-Employed and Other	68.6	69.4	70.1	+ 0.8	+ 0.7

The projections for 1970 and 1971 are based on the following assumptions: (1) restrictive fiscal and monetary policies; (2) cutbacks in defense spending; (3) a slowdown in construction projects funded by the state and federal government; (4) no major labor-management disputes; (5) moderate weather; and (6) lower demand for commercial aircraft. Nearly all of the primary job loss in the aerospace industry will occur in the metropolitan areas but the impact will be felt in the balance of state area: the work forces of aerospace subcontractors are likely to be trimmed. Persons who moved to the metropolitan areas to work in aerospace and who have subsequently lost their jobs may return to their home areas to seek employment.

The area labor force in fiscal 1970 will average 617,800, an increase of 15,900 from 1969. The availability of jobs resulting from exceptionally good agricultural harvests drew many housewives and students into the labor force in the first half of the fiscal year. Growth in fiscal 1971 is expected to slow somewhat, with an increase of 13,300.

Employment growth is not expected to keep pace with that of the labor force so that the number of unemployed will rise from 34,500 and 5.7 percent of the labor force in 1969 to 36,100 and 5.8 percent in 1970. Projected unemployment in 1971 is 37,200 and 5.9 percent. Many of the additional unemployed persons will be entrants to the labor force who are unable to find jobs, mainly youth and returning servicemen. Layoffs will be a secondary contribution to the unemployed count in western Washington.

Total employment is expected to rise to 581,200 in 1970, up 14,200 from the 1969 average; most of the increase will be in secondary industries and in agriculture. In fiscal 1971, the rate of growth will slow, with 12,200 additional jobs expected over the year.

The manufacturing employment average will be 96,300 in fiscal 1970 as a lull in expansion of basic industry holds the year-to-year gain to 500. The over-the-year increase in fiscal 1971 will be 1,400, with all of the major industries except chemicals contributing to the gain.

In fiscal 1970, logging and lumber employment is expected to average 1,000 below the 1969 level. Fiscal and monetary restraints to check inflation have reduced homebuilding and the demand for lumber. Several smaller mills have closed as a result and temporary shutdowns and short workweeks are common in the industry. If predictions that monetary restraints will be eased by fiscal 1971 are true, the industry should add 300 workers in that year.

The primary and fabricated metals and nonelectrical machinery sector is expected to average 15,400 in fiscal 1970, up 600 from the previous year. Although the year-to-year difference was 1,800 at the start of the fiscal year, preliminary estimates for November indicate that it had narrowed to 200 by that month. Expansion of aluminum facilities in late 1968 was the primary factor in the gain. The downtrend in the national growth rate and elimination of the investment tax credit may limit further growth in the last half of the current fiscal year and in 1971. In the latter year, employment is expected to average 15,800.

Growth in the transportation equipment industry is expected to slow in the next two fiscal years as cutbacks in defense spending limit orders. The industry average in fiscal 1970 at 2,700 will be only 200 above the 1969 average while 100 jobs will be added in 1971.

The record 1969 apple crop and generally favorable weather conditions during the growing and harvest periods are the primary factors responsible for the over-the-year increment of 300 in food processing in fiscal 1970. Overcapacity has been noted in some lines of canning so expansion in the 1971 fiscal year is expected to be limited to 100.

Employment in the paper products industry is expected to expand slowly during the forecast period. The expansion of 300 between 1969 and 1970 represents recovery from a labor dispute which depressed the 1969 average. An additional 200 workers are expected in fiscal 1971 as production capacity in the industry is expanded to meet demand. Obtaining a sufficient supply of raw material may be a limiting factor; the decline in lumber production means fewer wood chips for pulp.

Following a loss of 200 between fiscal 1969 and 1970, employment in the chemicals industry is expected to stabilize at 4,000.

Growth in "other manufacturing" industries is expected to show a marked slowdown in fiscal 1970 and 1971. One-third of the increase of 300 anticipated between 1969 and 1970 is the result of settlement of a labor dispute in the petroleum industry.

Construction employment will reverse the downtrend in fiscal 1970 to record a gain of 300 over the year, with a gain of 400 projected for fiscal 1971. Although homebuilding has been sharply reduced because of the limited availability of mortgage funds and high interest rates, this will be offset by continuing work on several large commercial and public projects, including the power plant in Lewis County, Grand Coulee Dam, and the new Wynoochee Dam.

Slower growth is expected in transportation-communications-utilities during the forecast period with increments of 300 anticipated in fiscal 1970 and 1971. The slowdown of business expansion and lessening demand for export logs will limit the increase in transportation. Utilities expansion will continue while growth in communications will moderate as population pressures are reduced.

Trade employment will average 100,400 in fiscal 1970, up 3,100 from fiscal 1969. The expansion will occur in spite of slower growth in manufacturing because of the usual lag between employment changes in basic industries and resulting changes in secondary industries. In addition trade establishments had numerous unfilled openings prior to the slowdown in manufacturing. The record 1969 apple and cherry crops also provided added opportunities in the wholesale sector of the industry. Expansion will continue through fiscal 1971 when employment is projected at 103,900.

After a sizable increase in employment in the finance, insurance, and real estate industry from 1967 to 1969, growth in the industry is expected to be somewhat slower during the forecast period. Employment is expected to average 500 higher in fiscal 1970 and an increase of 600 is predicted in the following year.

Population pressures alone assure further expansion in the service category but a more moderate rate of expansion is indicated for fiscal 1970 and 1971. Factors behind the lower growth rate are that the industry's initial response to Medicare is over, migration from outside the state has already slowed, and service establishments wishing to expand are experiencing increasing difficulty in securing the necessary funds. Forecasts call for service employment to increase 2,000 between fiscal 1969 and 1970 and 3,000 between fiscal 1970 and 1971.

The momentum of expansion of governmental payrolls will push the employment total up 4,600 between fiscal 1969 and 1970 but growth will slow during the subsequent year to 3,700. The major pressure for expansion in preceding years has been in public schools but the situation is easing as children born following World Ward II are through school. The emphasis in local school districts will be on hiring to relieve overcrowding and heavy teacher workloads and this may be limited by financial restrictions. Much of the future growth will come in post-high school educational institutions--community and state colleges and universities.

The long-term downtrend in agricultural employment will be interrupted in fiscal 1970 as a result of the previously mentioned record cherry and apple harvests. Employment will average 2,100 higher in fiscal 1970 but will then drop 1,400 the following year.

2. Anticipated social and economic developments, fiscal years 1971 through 1974:

Secondary industries will continue to provide the bulk of additional jobs in the area from fiscal 1971 to 1974. Employment is expected to reach 627,400 in fiscal 1974, up 34,000 from fiscal 1971; only 4,100 of the gain is expected to be in manufacturing firms. An aluminum plant and a magnesium and chlorine processing facility are scheduled for completion in fiscal 1972 in Klickitat County; employment at the two plants is expected to total 700. "Other manufacturing" employment will rise with the completion of an oil refinery in Whatcom County. Predicted gains in nonmanufacturing industries range from 400 in construction to 11,700 in government.

Labor Force and Employment
Balance of State Area (Washington State)
Projected Fiscal Year Averages in 1971 to 1974
(In Thousands)

	Fiscal Year Averages				Net Change
	1971	1972	1973	1974	1971-1974
CIVILIAN LABOR FORCE	631.1	643.7	653.1	667.6	+ 36.5
Labor Disputes	0.5	0.5	0.5	0.5	0
Total Unemployment	37.2	38.0	38.8	39.7	+ 2.5
Rate	5.9	5.9	5.9	5.9	
Total Employment	593.4	605.2	613.8	627.4	+ 34.0
Nonfarm wage and salary	470.3	481.9	490.5	503.8	+ 33.5
Manufacturing	97.7	100.0	100.7	101.8	+ 4.1
Lumber	31.2	31.9	32.0	32.3	+ 1.1
Metals and mach. exc. elec.	15.8	16.3	16.4	16.5	+ 0.7
Transportation equipment	2.8	2.9	2.9	3.0	+ 0.2
Food products	16.5	16.7	16.8	16.9	+ 0.4
Paper products	13.9	13.9	14.0	14.2	+ 0.3
Chemicals	4.0	4.3	4.4	4.5	+ 0.5
Other manufacturing	13.5	14.0	14.2	14.4	+ 0.9
Construction	22.5	22.6	22.7	22.9	+ 0.4
Transportation, Comm., & Util.	26.9	27.3	27.5	28.0	+ 1.1
Trade	103.9	106.6	108.1	111.1	+ 7.2

(Table continued on following page)

	Fiscal Year Averages				Net Change
	1971	1972	1973	1974	1971-1974
Finance, Ins., and Real Est.	17.6	18.0	18.4	18.9	+ 1.3
Services, Mining, Misc.	73.0	75.6	77.6	80.7	+ 7.7
Government	128.71	131.8	135.5	140.4	+ 11.7
Agriculture	53.0	52.4	51.8	51.6	- 1.4
Self-Employed and Other	70.1	70.9	71.5	72.0	+ 1.9

G. Target Populations *

1. Universe of need and target groups:

Following is the universe of need in the Washington State Balance of State Area:

Universe of Need
Balance of State Area (Washington State), 1969

Total Universe of Need		115,400
Nonpoor Individuals Unemployed During Year		10,700
Disadvantaged Individuals, Total		64,100
Youth	(22,400)	
Adults	(41,700)	
Unemployed Poor		11,500
Part-Time Employed for Economic Reasons		6,200
Employed Full-Time at or Below Poverty Level		44,500
Individuals Who Should be in Labor Force		1,900
Under-Utilized Nonpoor Individuals		40,600

The following target group breakdown are further refinements of the above figures with the exclusion of the first category, "Nonpoor Individuals Unemployed During the Year." As the unemployed non-poor (unless under-utilized) are not a target for manpower programs they are excluded from the following breakdown.

PUBLIC ASSISTANCE RECIPIENTS
Estimated Size: 16,721
All recipients of public assistance (AFDC and other) who could be presumed to benefit from manpower services. Excluded are those unable to work because of advanced age or permanent total disability.

PHYSICALLY, EMOTIONALLY, OR SOCIALLY DISABLED
Estimated Size: 22,647
Persons who cannot seek or retain employment without services related to the correction of a physical, emotional, or social handicap; or, if the handicap is uncorrectable, other services such as vocational training, enabling entry into an occupation in which the handicap does not seriously impair performance.

*A description of the methodology used to determine target group sizes will be found on page 59 of the State Summary.

RESERVATION INDIANS
Estimated Size: 2,565
All persons so classified by the Bureau of Indian Affairs. Indians not classified as reservation residents are reported under the other target groups as appropriate.

MIGRANT WORKERS
Estimated Size: 6,200
Migrant workers who move from place to place following crops. Included in this target group are "settled-in" migrants. Persons who have dropped the pattern of migrancy but who are still primarily engaged in agricultural work and who are still, through identification, a part of the migrant milieu. Members of this target group are predominately Mexican-American.

DISADVANTAGED ADULTS
Estimated Size: 12,795
Poor adult persons who meet the disadvantagement criteria but who do not readily fall into one of the classifications above.

DISADVANTAGED YOUTH
Estimated Size: 9,966
Persons under 22 who are poor and meet the disadvantagement criteria. Youth are somewhat less likely to be placed in other classifications than are the disadvantaged unemployed adults. As many programs have been designated specifically to meet their needs, most have been placed in this target group.

PERSONS WITH LESS THAN EIGHTH GRADE ACHIEVEMENT
Estimated Size: 115,524
This target group is defined adequately by its title. However, unlike the groups listed above, no effort has been made to "subtract it out" in order to avoid overlapping or duplication. Moreover, while many of the disadvantaged have less than an eighth grade achievement level, not all persons in this target group meet the disadvantagement criteria. Neither methodology nor data are available to resolve these problems. The target group is included for the purpose of incorporating Adult Basic Education programs into the plan.

UNDER-UTILIZED NON-POOR PERSONS
Estimated Size: 33,806
Persons who are operating significantly below their potential vocational and economic level because of past disadvantagement, hardship situations, or other reasons such as minority group status.

Note: In the figures given for estimated size for the above target groups, it will be seen that three figures (those for Disadvantaged Adults, Disadvantaged Youth, and Under-Utilized Non-Poor Persons) differ from those shown in the Universe of Need Table. The Disadvantaged Adult and Youth figures are smaller in that in many of the universe of need total of 64,100 disadvantaged are reported under the other target groups. The Universe of Need Table shows 40,600 Under-Utilized Non-Poor Persons while the figure for this group in the text directly above is 33,806. This is because the State Division of Vocational Rehabilitation estimates that 6,794 of the Physically, Emotionally, or Socially Disabled target group are non-poor persons. The adjusted

figures for these three target groups assures that no one person is entered under more than one target group (with the exception of the group "Persons with Less than Eighth Grade Achievement" which cannot be compared to the Universe of Need total for the reasons cited).

2. Outlook for Target Groups:

Estimates of the size of target groups are shown in the following table. These estimates are based on a number of assumptions, including the continuation of present trends in employment and in-migration, and a general slowdown or cooling off in the national and state economies. It is also assumed that manpower programs will continue at present levels throughout the forecast period.

TARGET GROUP ESTIMATES
WASHINGTON STATE BALANCE OF STATE AREA
(by fiscal year)

	1971	1972	1973	1974
Total Universe of Need	118,605	121,909	125,296	128,777
Non-poor Individuals Unemployed During Year	10,967	11,241	11,522	11,810
Disadvantaged Individuals, Total	66,023	68,013	70,053	72,153
Youth	(23,068)	(23,763)	(24,476)	(25,210)
Adult	(42,955	(44,250)	(45,577)	(46,943)
Unemployed Poor	12,109	12,753	13,414	14,099
Part-Time Employed for Economic Reasons	6,355	6,513	6,675	6,841
Employed Full-Time at or Below Poverty Level	45,612	46,752	47,920	49,118
Under-Utilized Non-Poor Individuals	41,615	42,655	43,721	44,814

H. Inventory of Current Manpower Programs

The inventories responsive to this item in the format comprise the appendix to this plan. A table of contents to this appendix will be found on page 27.

I. Suggested Priorities and Program Needs

This section of the plan calls for a description and analysis of unmet needs and gaps in services, together with an explanation of what needs to be done to fill these gaps in the upcoming fiscal year. This analysis is to include----

1. Anticipated unmet need in Fiscal Year 1971 considering estimated non-federally funded efforts, carryover funds from Fiscal Year 1970, and a continuation of federal programming at current levels:

The following table identifies, by target group, the number of persons, the number to be served, and the projected unmet need for Fiscal Year 1971 if federal manpower programs continue to be funded at the current level.

TARGET GROUP	SIZE	ESTIMATED NO. TO BE SERVED	UNMET NEED
Public Assistance Recipients	16,721	5,727	10,994
Physically, Emotionally, or Socially Disabled	22,647	5,590	17,057
Reservation Indians	2,565	498	2,067
Migrant Workers	6,200	2,085	4,115
Disadvantaged Adults	12,795	1,190	11,605
Disadvantaged Youth	9,966	3,283	6,683
Persons With Less Than Eighth Grade Achievement	115,524	2,488	113,036
Under-Utilized Non-Poor Persons	33,806	200	33,606

In the above table the "estimated number to be served" figure of 1,190 under Disadvantaged Adults is deceptively low. It should be remembered that services to disadvantaged adults who are recipients of public assistance, handicapped, or migrant workers are reported under the appropriate target group designations.

2. Suggested priorities for providing services to problem groups:

Following, by target group, are priorities assigned by the committee for providing services. See also Section E.2., pages 12-16, for indications of supportive services needed.

PUBLIC ASSISTANCE RECIPIENTS - Programs designed to deal with the recipient's entire range of problems are considered most important for this target group. The Work Incentive Program, by virtue of being tailored to the needs of recipients, is an example of this responsiveness. Institutional training under the MDT Act is also a high priority service, and for those recipients with physical, emotional, or social disabilities, training and other services under Vocational Rehabilitation is a valuable resource.

PHYSICALLY, EMOTIONALLY, OR SOCIALLY DISABLED - Of highest priority for this target group is the service provided by the State Division of Vocational Rehabilitation. Like the WIN Program for public assistance recipients, it is tailored to the needs of the target group, offering counseling, medical and psychiatric diagnosis and treatment, training, selective placement, and followup.

RESERVATION INDIANS - Again a tailored program, that of the Bureau of Indian Affairs, was considered of highest priority in that it provides, from a single source, institutional vocational training, supportive services, relocation, referral, and followup. Also important for this target group are the training programs funded under Section 241 of the MDT Act.

MIGRANT WORKERS - As the majority of migrant workers in the balance of state area are Mexican-Americans, language and basic education training are considered of highest priority in assisting members of the target group to prepare themselves for entry into other than migrant work. An educational program offered by the Northwest Rural Opportunities Corporation,

accordingly, was selected as the most important service for migrants. Following the educational program, the Committee considered, in order of priority, on-the-job training and institutional skill training as essential services for this target group.

DISADVANTAGED ADULTS - Skill training with either allowances (institutional) or wages (OJT) under the MDT Act is considered a high priority service for this target group. The NAB-JOBS program is considered equally as important. Operation Mainstream and New Careers, while valuable additions to the range of program resources are of secondary importance because of the limited funds available.

DISADVANTAGED YOUTH - Services considered most valuable for youth are institutional training under the MDT Act, the Neighborhood Youth Corps in-school and summer programs, Job Corps, and apprenticeships. Following the above, on-the-job training under the MDT Act or the NAB-JOBS program and the Neighborhood Youth Corps summer program, are considered important. The Committee concluded that Project Value, because of its limited scope, was less important than other programs for this target group.

PERSONS WITH LESS THAN EIGHTH GRADE EDUCATION - Adult Basic Education programs are the highest priority service for members of this target group. If a person in this target group has any other manpower problem, his needs will be further discussed under the appropriate target group (see the definition of this target group on page 22).

UNDER-UTILIZED NON-POOR PERSONS - The under-utilized non-poor, being generally employed or recently employed, are most in need of training which will upgrade their skills and salary potential. The Committee felt that the under-utilized non-poor would best be served by skill training (institutional or on-the-job) under the MDT Act as their needs for other manpower services would be less severe than that of members of other target groups.

3. Suggestions for improving program activities and suggestions of how to improve the mix of program resources:

Manpower programs funded at the federal level tend, properly, to be funded proportionate to the national need for the service to be provided by the particular program. Accordingly, appropriations for the national array of manpower programs, each addressed in part to the needs of a certain target group, tend to reflect the relative size of the target groups in the nation as a whole. These funds are then apportioned to the states on the basis of population, unemployment, average UI benefit, and so forth. Unfortunately, while the factors on which apportionments are based assure that a state will receive its proportionate share of the <u>total</u> of manpower program resources, a situation in which the various target groups are disproportionately served will develop if the distribution of target groups within a state differs from the national distribution.

Disproportionately serving target groups is not in itself improper. The act of assigning priorities, if it is to be more than a gesture, necessarily results in the administration of programs in such a way that the group whose needs are greatest gets a greater share then the group whose needs are least. But the distribution of funds among target groups is not the result of committee assigned priorities, being instead dictated by the

availability of funds earmarked for various categories of applicants. Nationally, these funds may represent a rational system of priorities. At the state level, to the extent that its demographic characteristics differ appreciably from the national characteristics, priorities reflect neither national thinking nor committee action. They are accidently caused by the differences between the composition of the state and national populations. 1/

The problem defined above may be solved in one of two ways: (1) The equations by which apportionments are now made can be further refined to a point at which the above described inequities are eliminated. These would be very complex and sophisticated equations, and states would be required to submit more information on the characteristics of their disadvantaged population, but they could be developed. (2) Funds apportioned into a state could be decategorized, allowing the appropriate CAMPS committee to make whatever adjustments were necessary. The latter is clearly the more consistent approach for if the apportionment equations were perfected in favor of decategorization, the committee's priorities would still be established for it by the federal program appropriations. This would render meaningless the National Committee's instruction that state and area committees establish target group priorities. The Committee could declare priorities but, without the flexibility of decategorization, would be able to use only the few programs addressed to all or nearly all target groups (e.g., MDTA) to implement its system of priorities.

1/ This is an inverse effect. A state whose older workers are experiencing greater difficulty in adjusting to the labor market than its youth, may receive funds to serve only 10 percent of its disadvantaged adults, while funds are available to serve 30 percent of its disadvantaged youth. This illustration is only partly hypothetical. An analysis of the table on page 24 will show that 9.3 percent of Disadvantaged Adults are being served in the Balance of State Area compared to 32.9 percent of Disadvantaged Youth. Much of this disparity is due to the number of program resources earmarked for youth.

A P P E N D I X

Contents

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1. Information on manpower programs that have operated in the past year. As requested in Interagency Cooperative Issuance 71-1, this information is presented to "cover fiscal year 1969 and...updated to add the latest available data for fiscal year 1970."	
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2. Descriptions of nonfederally assisted programs expected to operate in fiscal 1971 with funds of local and state government and/or non-governmental resources.	
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Federally Funded
Manpower Programs
FY 1969 & 1970

TABLE A

PROGRAM NAME *	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
Work Incentive - WIN	Employ. Security	20% State 80% Fed	$2,169,492	Public Assistance AFDC recipients	6,187	13,150	None
Support to WIN Enrollees by PA	Dept. of Public Assistance	20% State 80% Fed	4,810,706	Public Assistance AFDC recipients	6,187	13,150	None
Training and Employment Service	Bureau of Indian Affairs	Federal	385,000	Reservation Indians	764	2,565	None
Vocational Rehabilitation	Division of Voc. Rehab.	Federal/ State	5,515,389	Physically, emotionally & socially disabled	5,355	17,292	None
Job Corps Enrollment	Employment Security	OEO/ DOL	INA	Disadvantaged youth	483	INA	INA
State Contract On-the-Job Training	Employment Security	DOL	330,000	Disadvantaged or underemployed persons	550	380	None
Adult Basic Education	Supt. of Public Instruction	Federal/ State	346,382	Persons with less than 8th grade achievement	4,609	113,036	None
MDTA Institutional	Employment Sec./ Vocational Ed.	Federal/ State	4,479,700	Disadvantaged or underemployed persons	3,246	2,700	None
MDTA - Section 241 Aquaculture	Employment Sec./ Vocational Ed.	DOL	150,023	Reservation Indians	18	1/	None
MDTA - Section 241 Multi-Occup. Training	Employment Sec./ Vocational Ed.	DOL	708,316	Reservation Indians	200	1/	None
Sewage Treatment Plant Operator Training	Fed. Water Poll. Control Admin.	DOL	250,000	Under-utilized non-poor persons & disadv.	160	310	None
Migrant Education	NW Rural Opportunities Corp.	OEO	350,000	Migrant Workers	1,785	4,415	None
National Apprenticeship Program	Bureau of Appren. and Training	Federal	INA	Disadvantaged youth	1,338 2/	INA	None

1/ The general unmet need for Reservation Indians is 2,565. Obviously, not all of these would be an appropriate target for Section 241 training. The total identified unmet need for Section 241 training for Reservation Indians is 170.

2/ This figure which includes programs at the Puget Sound Naval Shipyard and at McNeil Island Federal Penitentiary consists of 890 accessions, 329 completions and 119 in skill improvement. It is estimated that approximately 9 percent of the totals are disadvantaged.

*See Tables I, II, IV, V, Balance of State Section of Part B of the FY 1970 Manpower Plan for a description of the programs listed in this table and their utilization in dealing with the problems of the target groups.

Manpower Programs
Contracted Directly by USDOL
Manpower Administration
FY 1969 & 1970

TABLE B

PROGRAM NAME *	AGENCY	FUND SOURCE	AMOUNT **	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS ***
NYC In School	USDOL	EOA Title I-B	FY 1970 $629,180	Potential high school dropouts from low	1,082 (# on board)		$ 618,233
			FY 1969 $633,000	income families	INA		
NYC Out of School	USDOL	EOA Title I-B	FY 1970 $576,010	16-17 year old high school dropouts	308 (# on board)		INA
			FY 1969 $1,160,000	from low income families	INA		
NYC Summer	USDOL	EOA Title I-B	FY 1969 $1,458,000	Disadvantaged students from low income families	INA		
Operation Mainstream	USDOL	EOA Title I-B	FY 1970 $214,830	Disadvantaged individuals over	130 (# on board)		$ 214,079
			FY 1969 $386,000	18 years of age, from low income families	INA		
JOBS	USDOL/NAB	MDTA/ EOA	FY 1970 $1,961,211	Hard-core disadvantaged primarily in SMSA's.	547		$1,417,603
			FY 1969 $107,000		INA		
MDTA-OJT (regular)	USDOL	MDTA	FY 1970 $215,294	Unemployed or underemployed	281		INA
			FY 1969 $836,000	disadvantaged	500		

** "Amount" = obligated funds *** "Carry Over Funds" = obligated funds minus reimbursed invoice funds

All FY 1970 fiscal data for EOA programs (NYC and Mainstream) as of 11/30/69; FY 1970 enrollment data for EOA programs as of 9/30/69.

All FY 1970 JOBS data cumulative to 10/31/69.

All FY 1970 OJT enrollment data as of 9/1/69; FY 1970 fiscal data as of 1/20/70.

*See footnote on previous page.

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NON-FEDERAL MANPOWER PROGRAMS - FY 71 TABLE C

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Sheltered Workshop	Supervised Occupational Enterprise Spokane	Supervised workshop training for handicapped workers.	Some DVR, some self-support	50 (approx. 18 per year have moved into regular employment)
Sheltered Workshop	Goodwill Industries Spokane	Supervised workshop training for handicapped workers	Local funds, some DVR, partial self support	150 (approx. 9 per year have moved into regular employment)
Crisis Clinic	Community Mental Health, Olympia	Counseling and referral of people with mental health problems.	UGN	125
Alcoholic Referral Center	Civic Organizations, Olympia	Referral of persons for any phase of alcoholism-group therapy and counseling.	UGN State	1,200
Morning Side	Community Agencies Olympia	Work and training programs for mentally retarded persons	State County donations	50
Olympia Child Care Center	Community Agencies Olympia	Provides day care for children of working mothers - ages 2½ to 5.	UGN	35
Community Services	Community Services of Moses Lake	Provides food, clothing, shelter for destitute, impoverished families, both local and itinerant	Moses Lake UGN	4,250
Health Services	Grant County Health Department Moses Lake	Sanitary inspections, chest x-rays, health cards. Health services to indigent local and itinerant people.	Grant County	15,000

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NON-FEDERAL MANPOWER PROGRAMS - FY 71 TABLE C (continued)

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Veteran Relief	Soldiers and Sailors Relief Fund Moses Lake	Direct relief to itinerant veterans	Grant County	75
Applied Industries	Applied Industries Longview	To provide sheltered workshop employment jobs provided through contract work.	$500,000*	70
Goodwill Industries	Goodwill Industries Longview	To provide sheltered workshop employment jobs provided through salvage operations.	160,000	45
Extended Sheltered Employment	Applied Industries Longview	State fund support for marginally productive handicapped workers.	18,000	25
Diversified Industries	Diversified Industries Port Angeles	Provides employment and training for retarded and physically handicapped.	Private and state	50
Whatcom Foundation, T.S. Hamilton Fund	Whatcom Foundation, T. S. Hamilton Fund, Bellingham	Emergency financial assistance. Utilized by WIN program and DPA for emergency purchases--glasses, tires, etc. Youth Employment Service 14-17.	Private	Various
Workshop for the Handicapped	Workshop for the Handicapped Bellingham	Sheltered workshop and social recreation for handicapped.	Contributions, UGN	Various
Shaw Secretarial Business College	Shaw Secretarial Business College Bellingham	General training in clerical skills and general office practices.	Tuitions	Various

*DVR non-matching funds included in the workshop's overall budget.

NON-FEDERAL MANPOWER PROGRAMS - FY 71 TABLE C (continued)

Program Name	Operating Agency	Program Description	Funds	Number of Persons
McDonald's Beauty College	McDonald's Beauty College Mount Vernon	Training in hair styling, setting, etc., sufficient to meet requirements for state licensing, MDTA referral facility.	Tuitions	Various
Skagit Success Business College	Skagit Success Business College Mount Vernon	General training in clerical skills and general office practices.	Tuitions	Various
Bellingham Beauty College	Bellingham Beauty College, Bellingham	Same as McDonald's Beauty College program description.	Tuitions	Various
Indian Village Mission Whatcom County	Indian Village Mission, Whatcom County, Bellingham	Evangelical, physical health, recreational, social services, family counseling, employment, hospital and home visitations.	---	---
Lighthouse Mission	Board of Trustees, 20 men from different churches Bellingham	Rehabilitation and social services to destitute, food and lodging; clothing; sheltered employment; employment service; shut-in visitations.	Contributions, UGN	100 meals, 30 lodging
Salvation Army	Salvation Army Bellingham	Evangelical, social service, counseling, welfare, emergency, employment, youth activities, camping, music, adult activities, missing persons service.	Contributions, UGN	Various
Yakima Specialties, Inc.	Yakima Specialties, Inc., Yakima	Works with and trains mentally retarded persons.	State and self-supporting from sale of mfctrd. wood products.	35

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NON-FEDERAL MANPOWER PROGRAMS - FY 71 TABLE C (continued)

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Goodwill Insutries	Goodwill Industries Yakima	Rehabilitation of the handicapped and retarded	Cash donations, community contributions	75
Apprenticeship Programs	Various Yakima	Promotion and attainment of equal opportunities; expansion of apprenticeship opportunities; general promotion and public relations.	Industry	124

PART A

SEATTLE-EVERETT METROPOLITAN AREA

State of Washington

COMPREHENSIVE MANPOWER PLAN - - - FISCAL YEAR 1971

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January 31, 1970

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Participating Agencies . . . .

. . . . See Next Page

The Seattle-Everett Metropolitan Area Comprehensive Manpower Plan
Fiscal Year 1970 - Part A
January 31, 1970

Participating Agencies and Names of Representatives

Bureau of Apprenticeship and Training
R. L. Switzer, Acting State Supervisor
Bureau of Indian Affairs
William Murdock, Director
Seattle Employment Assistance Office
Miss Irene Day, Employment Assistance Officer
Western Washington Indian Agency
U.S. Civil Service Commission
John Koreski, Chief Staffing Operations
Interagency Board of Examiners
Department of Agriculture
L. Donohue Callan, King County Supervisor
Farmer's Home Administration
George Porter, Snohomish Co. Supervisor
Farmer's Home Administration
Economic Development Administration
Kenneth E. Latcholia, Field Coordinator
Employment Security Department
Howard Dishman, Field Supv. and Committee Chairman
Jack Martin, Everett Local Office Manager
Housing and Urban Development
Robert Magnusson, Spec. Asst. for Equal Opportunity
Northwest Area Office
Model City Program
Gil Lloyd, Employment & Economic Development Planning Coordinator
Seattle Model City Program
Office of Economic Opportunity
Harry Carle, Executive Director
Community Action Council of Snohomish County
James Every, Director of Manpower & Training
Seattle-King County Economic Opportunity Board
Public Assistance Department
Maurice Anderson, Snohomish County Administrator
Louise Brogan, King County Employment Coordinator
Vocational Rehabilitation Division
Edward Ostling, District Supervisor
Snohomish County
John Spencer, King County Asst. Supervisor
Vocational/Technical Education
Edward Schierberl, Coordinator Special Education Programs
Seattle Community College
George DeBell, Associate Dean of Occupational Education, Bellevue Community College
Paul Hylton, Coordinator of Vocational and Technical Programs, Everett-Edmonds Community Colleges
George D. Dorr, Asst. Dean, Continuing Education and Occupational Programs
Highland Community College
Arthur A. Binnie, Coordinator Vocational Education
Green River Community College

CONTENTS

This plan follows the outline presented in Interagency Cooperative Issuance No. 71-1. As items A through C pertain to other than the sections of the plan, the text of this document begins with Section D.

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Section D. Description of Area.

(1) The Area Location and Economy.

The Seattle-Everett metropolitan area, consisting of King and Snohomish counties, lies between Puget Sound and the Cascade Mountains in western Washington. Population and economic activity are concentrated along Puget Sound and the adjacent lowlands.

Transportation equipment manufacture is the mainstay of the local economy. During calendar year 1969, transportation equipment accounted for about 63 percent of all manufacturing jobs in the area, and nearly 90 percent of these jobs were in the aerospace segment. At that, average monthly aerospace employment at 90,600 in 1969 was 13,300 - or 12.8 percent - below the record high 1968 average. Staffing of a major new plant for final assembly of jumbo jet aircraft in Snohomish County resulted in substantial job gain in that portion of the area during the year. At the same time, employment at facilities in King County, to a great extent related to production of older models of aircraft some of which are currently being phased out, dropped sharply. By the end of the year aerospace employment in Snohomish County had leveled off. Employment in shipbuilding and repair averaged 7,500 during 1969 compared with 6,800 a year earlier and highest since World War II. Although small in comparison with aerospace, shipbuilding is an increasingly important factor in the local economy. Employment in other transportation equipment (principally trucks and railroad cars) rose to an average of 4,100 in 1969 from 2,900 in 1968 when strikes depressed employment in the segment.

Lumber, once the dominant influence in the economy of the area, has decreased in importance over the years but still provided an average of 8,500 jobs in calendar year 1969. Weakness in national lumber markets during the year due to a decline in residential construction caused a moderate loss of jobs in the lumber industry during the year.

Employment in food and kindred products averaged 10,500 in 1969 - just about on a par with the two previous years. Closure of two fruit and vegetable plants and termination of some baking activity during the year was about balanced by gains at other plants. Paper and allied products with employment of about 4,700 and printing and publishing at 5,700 are fairly stable sources of employment. Strikes affected employment in primary and fabricated metals both in 1968 and 1969 but involvement was greater in the former year. Principally as a result of the effect of disputes, employment in primary metals rose 400 over the year to 3,100 in 1969. At the same time average employment in fabricated metals increased by 300 to total 5,500 in 1969. Diminished labor unrest contributed to an upturn of 1,000 in non-electrical machinery manufacture to a total of 6,700 during 1969 but the gain resulting from strike settlements was augmented by growth in the industry. Contract completions caused job losses in the electrical machinery industry over the year. Other over-the-year changes in manufacturing employment were small.

Employment in contract construction averaged 30,400 in 1969, only a little above the 1968 average but up by roughly 50 percent from the 1965 averages. During 1969 cutbacks in single family residential and in industrial construction were about balanced by a gain in public building. Commercial building activity remained strong.

The Seattle-Everett area is also an important regional center for trade, finance, insurance and services - particularly in the health and education fields - both private and governmental. These industries provide most of the nonmanufacturing employment and the most dependable sources of new jobs.

(2) Current Population and Labor Force and Recent Trends

Table 1A in the Appendix lists the total population of the area, the total labor force and their recent trends.

Table 1B in the Appendix gives the distribution of total and non-white population statewide and in this metropolitan area by county in 1968. While these figures have been changed somewhat by subsequent in-migration, they reflect that in 1968 King County, with approximately one-third of the total population had approximately one-half of the non-white population in the state. Snohomish County in 1968 had a total non-white population of only 2,751 of which only 1,036 were Black. Therefore, those manpower problems associated with ethnic groups are a strong factor in manpower planning in King County. On the other hand, in Snohomish County employer interest in hiring from minority groups can not always be fulfilled. This situation is aggravated by the difficulty of commuting to the Everett area from the Seattle area and the shortage of low cost housing in Snohomish County.

Table 1C in the Appendix provides population figures by sex and age group. This table indicates that most of the population increase since 1960 was expected to be in the under 30 age group. The total between 30 and 44 inclusive was expected to decrease with small gains in the 30-34 and 40-44 groups more than cancelled by a substantial loss among the prime 35-39 age group. The report was prepared before the heavy migration to the area which was spurred by the 1965-1968 surge in aerospace employment. Revision of the forecast would undoubtedly result in some noticeable changes. However, based on the evidence that is available it seems reasonable to assume that the population influx probably accentuated the trend toward an increased portion of youth (18-30) in the population and probably the current population includes even a smaller proportion of 30- to 44-year olds than had previously been anticipated. As this table was published in 1966, the total population figure does not agree with the more recent estimate in Table 1A.

(3) Current Employment by Major Industry and Recent Trends

This information is contained in Tables 2 and 3 in the Appendix and paragraph (1) of this section.

(4) Seasonal Employment Patterns and Wage Developments.

Several industries experienced substantial increases in employment during the late spring, summer and early fall months, and decreases during the rest of the year. These are mostly industries which involve outdoor activities to a great extent - classifications such as lumber and wood products, construction, fishing and farming. Tourist-related gains in trade and services occur mostly during the summer.

Wage rates increased substantially during 1969 and additional gains are slated for 1970. In the dominant aerospace industry, hourly pay rates increased by roughly 10 percent during 1969 and clerical salaries rose by 7.5 percent.

Section E. Identification of Manpower Problems.

(1) Significant Occupational Shortages and Surpluses and Other Job Market Conditions.

The demand for manpower dropped sharply during 1969. In the Seattle-Everett Area Manpower Review for May there were 68 occupations listed in the hard-to-fill category. Included were jobs which do not require extensive training - bus boy for example. In part, the listing reflected seasonal demand, particularly in the food service classifications. In addition, though, there were still unmet nonseasonal needs for a broad range of occupational classifications in the professional, technical, clerical, machine trades, bench work and structural occupational categories. By the end of November, there were only 14 occupations on the hard-to-fill listing and these included 5 shipyard classifications for which there was evidence that supply and demand were nearing balance. For two other occupations in short supply - marine engineer and marine draftsman - there were few openings but fewer applicants able to meet the stringent employer specifications. Also there were unmet needs for coremakers and molders at foundries but here again demand was narrow. The largest unmet needs were for nurses and sewing machine operators.

Concurrent with the decrease in demand for manpower, there has been a substantial increase in the supply of experienced workers available for jobs. The list of hard-to-place occupational classifications nearly doubled, increasing from 49 to 96 over the period. Included in the most recent listing are surpluses of experienced workers in a wide range of occupational classifications in each of the major categories. This means, of course, that disadvantaged workers meet increasing competition as they search for jobs.

Part of the increase in available labor supply is reflected in an over-the year gain in the number of claimants for unemployment compensations. At mid-November 1968 there were 8,108 unemployment insurance claims compensated in the area. A year later the total had more than doubled reaching 17,098. There was a substantial increase in the number of claimants recorded in each broad occupational category except farming, forestry and fishing.

Concurrent with a leveling off in construction employment in calendar year 1969, minority groups stepped up efforts to gain increased representation in skilled building trades. Several large public building projects were shut down for short periods of time and agreements calling for hiring of trainees were subsequently reached between contractors and public agencies.

The anticipated scarcity of job opportunities in fiscal 1971, will, of course, weigh most heavily on workers lacking in training or job experience. Jobless workers with skills in demand in other sections of the country may be expected to migrate from the area. On the other hand, there are indications (such as a rapid increase in welfare rolls) of continuing in-migration of relatively inexperienced workers to the area.

(2) Problems Which the Various Target Groups Encounter in Adjusting to the Job Market.

In this section we shall discuss only those problems which are common to all or most of the target groups. To avoid duplication, special problems applicable to a particular target group will be covered in Section G, Target Populations. Many of these issues not only affect adjustment to the job market but also create difficulties in connection with enrollment in or continuation in training programs.

Transportation.

There is an inadequacy or absence of public transportation to serve the industry and the training facilities in the areas not served by the Seattle Transit System and the Everett Bus Lines. The concentrations of industry east of Lake Washington, from Renton south through the Green River valley to Auburn, and in Snohomish County outside of Everett either have no bus service or schedules are not suitable for industrial shifts. Five rurally located community colleges and the pockets of disadvantaged residing outside of Seattle and Everett are similarly affected. Transportation planning for the future will only partially alleviate this problem. As a result disadvantaged individuals have been denied jobs otherwise available to them or the training required to make them employable.

Child Care.

Child care facilities are inadequate in this area. The ADC or low income mother does not have an automobile. If licensed day care is not readily accessible to her home she is prevented from taking training or seeking employment because of the present lack of adequate transportation to areas where day care is available. Mothers whose children become ill must interrupt their training or be absent from work. The child two and one-half years old or younger presents a special problem because group centers are reluctant to enroll them and the day care mother is restricted to two children in this age group in addition to her own.
Afternoon care for the younger school child also presents a problem. It was felt that future training programs should make provisions for child care and associated transportation where needed.

There is considerable night shift work and rotating shift work in both King and Snohomish Counties in hospitals, industry and banks that could be available to women with children if day care centers were available that would accept children on swing and graveyard shifts.

Low Cost Housing

There is still a shortage of low cost housing in Snohomish County and in the Seattle central area. Elsewhere in Seattle and King County vacancies have increased somewhat. Present construction of low-rent housing in Snohomish County should ease the situation there. Due to immigration and lack of construction, the situation in the Seattle central area will continue to be critical.

Other Supportive Services.

Our manpower programs are continuously hampered by the shortage of other supportive services such as legal services, family counseling, medical care and the need for clothing.

Employment Problems.

There is a great need for improvement of the involvement in manpower programs by the public and private sectors. CAMPS participating agencies continue to report hiring restrictions due to ethnic background, lack of a high school diploma, offender records, alcoholic background, physical disabilities, etc. The inability or unwillingness of employers to work with the problems of the disadvantaged has contributed to a high turnover rate among individuals hired through our manpower programs. While more jobs need to be committed by management for the unemployed who are undergoing training we have also had the problem of overcommitment by private industry which is not translated into practice. Hardships have been encountered due to delays in placement in the public sector resulting from government red tape and civil service regulations.

Section F. ANTICIPATED SOCIAL and ECONOMIC DEVELOPMENTS

Total employment is expected to increase through the remainder of the current fiscal year but the gain will result almost entirely from seasonal influences. The number of workers employed in manufacturing will drop further as continuing reductions in aerospace outweigh gains in food and kindred products; lumber; stone, clay and glass; fabricated metals and miscellaneous manufacturing. As the weather improves, employment in construction will increase but the gains will probably not match the year-earlier pace. In June, construction will increase but the gains will probably total about 31,500, or 800 below the year-earlier level. Other nonmanufacturing industries will probably turn in a better performance but even among these, real growth will slacken in comparison with the last couple of years. Trade and services will continue to provide most of the new jobs. In June trade employment will probably total about 129,500 or 5,700 above the year-earlier level. Employment in services will probably register a June to June increase of about 5,300 to total 86,500 at the end of the current fiscal year. Employment in finance and insurance will increase moderately but the real estate sector will suffer from the cumulative effects of tight money and a reduction in speculative building activity. Government employment will dip in January and February following post-holiday layoffs at post offices but will recover by June as outdoor activities pick up. Farm employment will increase by about 4,000 between January and June - with most of the gain in the last month as strawberry harvest gets under way.

In total, nonfarm wage and salary employment will probably average about 563,000 for fiscal year 1970. This would be a gain of only 2 tenths of a percentage point over the 1969 fiscal year average - much too small a gain to provide enough jobs for the expanding labor force. Unemployment will continue to increase, after allowance for seasonal factors, through the remainder of the fiscal year. The mid-January seasonally-adjusted rate of unemployment will probably be above 5 percent compared with 3.3 percent a year earlier. A seasonally-adjusted rate near 6 percent by mid-June appears likely.

A decrease of over 8,000 or about 1.5 percent in average monthly nonfarm payroll employment is anticipated between fiscal years 1970 and 1971. This forecast is based on published reports indicating continuing reductions in aerospace employment during calendar year 1970, with the largest decrease occurring by June. Little or no change is anticipated for other transportation equipment manufacture although implementation of a national merchant marine shipbuilding program could improve the picture for the shipbuilding industry. Easing of national monetary policy which is apt to occur during the last half of fiscal year 1970 would improve the national outlook for residential construction during fiscal 1971 and result in some improvement in demand for lumber and wood products. However, technological change within the lumber industry and in construction (as competing materials gain increased acceptance) will inhibit employment growth in the lumber industry. Only a small net gain is expected for other manufacturing industries. In total, manufacturing employment will probably average 138,500 in fiscal 1971, nearly 15,000 below the 1970 average. There will probably be some increase in construction activity during the last half of fiscal 1971, but weakness during the first half will probably hold the average for the fiscal year to 30,000 - unchanged over the year. Other major nonmanufacturing industries will continue to grow but at a more moderate rate than over the past few years.

Unless job opportunities improve far beyond current expectations, increasing unemployment through fiscal 1971, discounting seasonal influences, is a certainty. In addition, labor force withdrawals will continue at a relatively high rate as workers give up the job search. Also, youth will tend to delay entry into the labor force until job prospects appear more favorable.

To a great extent, industrial job losses will be at plants within relatively easy commuting distance of the central Seattle area. Plants in Snohomish County and East of Lake Washington, less accessable to central area residents will fare relatively well.

Population will continue to shift to the suburban areas - particularly the southern portion of Snohomish County and the Bellevue - Redmond, Kirkland area in King County.

Over the longer term, renewed growth in manufacturing employment appears likely. Expanding air freight traffic and operating economies in passenger transportation resulting from the use of large jet aircraft will probably expand demand for the Boeing 747 and modifications already in the planning stage. Also, development of a supersonic transport plane will probably require substantially more workers. Furthermore, fruition of the current research and development programs in aerospace is likely. On the other hand there will be a continuation of the phase-out of older production models. No significant improvement is anticipated for employment in the lumber industry. Paper, metals, machinery (both electrical and nonelectrical) and miscellaneous manufacture will likely require more workers. Growth in the construction industry will probably increase substantially although there may be problems in obtaining enough skilled workers. Other major nonmanufacturing industries will continue to expand as the population grows and becomes increasingly service-oriented. Total nonfarm wage and salary employment will probably average near 660,000 by the 1975 fiscal year.

Table 3 in the Appendix provides a Forecast of Nonagricultural Employment for the Seattle-Everett Area for Fiscal Year 1971.

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Section G. Target Populations

(1) Universe of Need and Estimated Size of Target Groups 1/

Following is the universe of need in the Seattle-Everett Area. This table is based on figures derived from estimates supplied by committee members for the target groups rather than using a universe of need formula:

Universe of Need
Seattle-Everett Area, FY 1970

Total Universe of Need	122,452
Non-Poor Individuals Unemployed During Year	42,700
Disadvantaged Individuals, Total	69,252
Unemployed Poor	30,672
Part-Time Employed for Economic Reasons	6,840
Employed Full-Time at or Below Poverty Level	30,540
Individuals Who Should be in Labor Force	1,200
Under-Utilized Non-Poor Individuals	10,500

The following target group breakdowns are further refinements of the above figures with the exclusion of the first category, "Non-Poor Individuals Unemployed During the Year." As the unemployed non-poor (unless under-utilized) are not a target for manpower programs they are excluded from the following breakdown:

Target Group	Target Group Populations
Residents of Target Areas (Disadvantaged Individuals in Model Cities and CEP areas of the Seattle Central District)	15,000
Public Assistance Recipients	7,632
Physically, Emotionally or Socially Disabled	12,800
Reservation Indians	920
Disadvantaged Unemployed Adults	8,142
Disadvantaged Unemployed Youth	3,658
Under-Utilized Poor Persons	36,100
Under-Utilized Non-Poor Persons	10,500
Persons With Less Than Eighth Grade Achievement	60,691*

A duplication of count appears in these target populations. The 15,000 individuals in Residents of Target Areas are all also included, as their characteristics would classify them, in the target groups following in the above list. Although a duplication, this target group was established because of the special problems of the population of the geographic area involved and the CEP and Model Cities programs which have been set up to alleviate them.

1/ A description of the methodology used to determine target group size will be found on page 59 of the state summary.
* See entry on this target group on page 13.

(2) Description of Target Groups and Their Special Problems, Needs and Outlook

Residents of Target Areas

This target group includes the disadvantaged individuals who reside within the Seattle CEP and Seattle Model Cities areas in the Seattle Central District. The population in this section of the city is approximately 45,000. Model Cities reports that 32.5% of the Black residents are poor or marginally poor and that underemployment exists to the extent of 50% of the neighborhood as compared to 20% for all Seattle workers. The average family income of central area Blacks is 54% of the city-wide average and the median individual income of Blacks is only 73% of that for Whites. 77% of those employed are in blue collar positions. An OEO survey in 1968 showed 20.2% of families headed by persons with some college training had poverty or marginally poor income.

Workers in this area are in personally meaningless jobs in which they (a) are poverty-bound via poor wages despite full employment, or (b) cannot find employment utilizing their optimal skills and interests, or (c) are marking time, being barred from normal skill upgrading and promotion.

Due to in-migration, natural growth, and re-entry of disaffected workers, it is anticipated that this target group will have an 11% growth during fiscal years 1971 and 1972. During the last three years of the forthcoming 5-year period it is believed that growth will only be one-half as great as in 1971 and 1972.

Public Assistance Recipients

All recipients of public assistance (AFDC and other) who could be presumed to benefit from manpower services are included in this group. Excluded are those unable to work because of advanced age or permanent total disability. The supportive service problems mentioned in Section E, particularly child care, affect this group. While state and federal regulations with regard to the licensing of day care personnel and facilities are considered essential to health and welfare of the children involved, the lack of funds to finance compliance has created problems. The State Department of Public Assistance, which has the responsibility for licensing does not in either King or Snohomish County have sufficient staff to administer it. As a result delays result in licensing individuals who wish to offer their personal services and homes for day care and personnel is not available to provide needed follow-up and supportive services between licensing periods or to promote day care facilities.

The present labor market has resulted in re-entry to public assistance roles of individuals trained in industrial entry skills only either due to layoff or because jobs are not available for them.

Because of the removal of both the residence requirement and the ceiling on maximum grants and the updating of standards in the State of Washington, there has been increased migration of AFDC types to this area and this, together with the present economic situation, has caused the AFDC caseload in recent months to grow at a rate of 16% in King County and 4% in Snohomish County. The immigrants have a very low literacy rate which creates problems in enrolling them in existing training programs.

Physically, Emotionally or Socially Disabled

These are persons who cannot seek or retain employment without services related to the correction of a physical, emotional or social handicap; or, if the handicap is uncorrectable, other services such as vocational training, enabling entry into an occupation in which the handicap does not seriously impair performance. In severe cases, workshops requiring a reduced rate of production or degree of performance, are also available.

Employer hiring restrictions and lack of understanding of the problems of the culturally and socially deprived individual particularly affect this target group. Most existing training programs fail to meet the requirements of the severely handicapped and the mentally and emotionally disturbed person. Intensive follow-up on the job, in order to resolve the problems which occur must be built into training programs, especially for the mentally recovered, the retarded, the alcoholic, and the released offender. Because of these problems and the lack of resources available to deal with them, it is anticipated that this target group will continue to increase in size over the next several years and that as time goes on it will contain a greater portion of those individuals who are more difficult to serve.

Reservation Indians

These are all persons so classified by the Bureau of Indian Affairs. Indians not classified as reservation residents are reported under the other classifications as appropriate.

Transportation is the greatest problem for this target group because the absence of public transportation to serve the two reservations in the area. During the past year little difficulty has been encountered in locating jobs for Indians who have completed training and have personal transportation. This situation could change under the existing labor market. As reservation populations are relatively stable little change is expected in the size of this target group in the next 3 to 5 years.

Disadvantaged Unemployed Adults

These are unemployed poor adult persons who meet the disadvantagement criteria but who do not readily fall into one of the classifications above.

This group will be greatly affected by the recent changes in the labor market. Skilled and semiskilled individuals being laid off or downgraded will absorb many of the entry level positions which would normally be available to the unskilled or entry level trained disadvantaged adult. Over the longer term, while renewed growth in employment appears likely, this target group will increase in size unless our manpower programs are geared to the needs of these individuals.

Disadvantaged Unemployed Youth

These are unemployed persons under 22 who are poor and meet the disadvantaged criteria.

The youth between 16 and 18 is a particular problem because of industrial hiring restrictions in this age bracket. The lack of programs to preclude dropouts and the absence of vocational training in secondary schools in the King-Snohomish area contribute greatly to the numbers of youth entering the labor market without qualifications for the jobs available.

The constant yearly flow of unskilled youth into the labor market coupled with the dearth of programs tailored to their needs will cause this target group to increase in size.

Under-Utilized Poor Persons

Those disadvantaged individuals who are (a) employed part time for economic reasons or (b) employed full time but are members of families below or near the poverty level.

While this is our largest target group, we have directed the least attention to it under existing manpower programs. SOIC has been able to provide some upgrading training in their evening classes and some of the Model Cities programs are designed for this target group. The Employment Service MDTA/OJT project and the NAB/JOBS program have limited provisions for such training but to date no trainees have been so enrolled.

This target group was discussed during the December 9, 1969 meeting of this Committee and the suggestions made by the members are contained in Section I.

During the forthcoming year the Labor Market will not provide many opportunities for the Under-Utilized Poor Persons to be upgraded or to secure more skilled employment. However, as opportunities become available in future years, a combination of employer cooperation and effective upgrading training will be required or this target group will continue to grow, thereby creating an ever widening differential in income between the disadvantaged and non-disadvantaged.

Under-Utilized Non-Poor Persons

This target population includes persons who are operating significantly below their potential vocational and economic level because of past disadvantagement, hardship situations or other reasons such as minority group status. We have also included in this group numbers of the armed forces in Project Transition who need brief intensive training to make them readily employable in civilian occupations after discharge. The greatest problem are the individuals who, due to their ethnic background, cannot find employment utilizing their optimal skills or are barred from promotion. Positive action by employers will be required to prevent this target group from increasing in size in forthcoming years.

Persons With Less Than Eighth Grade Achievement

This target group is defined adequately by its title. However, unlike the groups listed above, no effort should be made to "subtract it out" in order to avoid overlapping. While many of the disadvantaged have less than an eighth grade achievement level, not all persons in this target group meet disadvantagement criteria. Neither data nor methodology are available to resolve these problems.

Because of their limited flexibility due to the lack of basic skills needed to learn new jobs, members of this target group encounter serious problems in seeking employment. They are generally required to limit their search for work to one or two occupations with which they are familiar or seek opportunities in the shrinking market for unskilled labor.

Section H. Inventory of Current Manpower Programs

(1) Current Manpower Programs.

Table 5 in the appendix presents areawide data on all major federally assisted programs. It lists the program name, operating agency, source of funds, target groups and the combined total for Fiscal Year 1969 and Fiscal Year 1970 of the amount of funds and the number served. While a column is provided for carry-over funds no entries have been made because it has not been possible this early in the fiscal year to make a determination. The column on unmet needs is partially responsive to data required in Section I. Geographic scope and services offered are also called for in the (C) format for the plan under H, (1). This information is inferable from the table.

(2) Non-Federally Assisted Programs.

Table 6 in the appendix presents data on those manpower programs in the area which are non-federally assisted. It lists the program name, the operating agency, a program description of the services offered, the source of funds and the estimated number of individuals that will be served in Fiscal Year 1971.

I Suggested Priorities and Program Needs

(1) Estimates of Individuals Served and Unmet Needs

Table 5 in the appendix gives the totals in each target group which will be served by the programs listed and also indicates the unmet need at the end of FY 1970. If programs are continued on their present scale into FY 1971 approximately the same number of individuals will receive manpower services but the unmet need could be increased in all target groups except Reservation Indians. In Section G we have discussed those specialized situations which could increase the unmet needs within the target groups.

Projecting over a three to five year period it would appear that our manpower programs and supportive services will be far outstripped by individuals presently in need of these benefits and those entering the labor market in the future unless it is possible to greatly augment the availability of such programs.

While unmet needs and problems are not necessarily synonymous, most problems are unmet needs. Therefore, the analysis of many of our unmet needs has been covered in the problem discussions in Section E and Section D. The suggestions for improving programs contained in Part (2) of this section also reflect unmet needs. We shall therefore list below unmet needs not elsewhere covered.

Reconditioning the Community

We feel that CAMPS has a responsibility in the reconditioning of the community to accept the changing role and status of the disadvantaged and the under-employed. While it is believed that we do not have the capacity to undertake this at present, the implementation of such a program should be given attention when resources are available.

Improved Communication between Agencies

There is a great need for improved communication and exchange of information among agencies dealing with the handicapped and the disadvantaged in an effort to avoid duplication of services and to avoid frustration on the part of those individuals the agencies are attempting to serve. This Committee, in our meeting of November 12, 1969 discussed this problem and suggested that a funded and staffed program be established, preferably computerized, that could provide agencies with immediate information as to the manpower services available to a person in need.

Apprenticeship

In the field of apprenticeship the need is as follows:

1. Promotion and attainment of equal opportunity in apprenticeship and training with encouragement to industry to adopt and follow nondiscriminatory selection procedures, apprentice employment practices, and affirmative action programs;

2. Expansion of apprenticeship opportunities;

3. Improvement and maintenance of apprenticeship programs;

4. General promotion and public relations which create the public's awareness of the goals and aims of apprenticeship.

Programs Endorsed by the Committee but Not Implemented

The agencies involved have requested the inclusion of the following programs that have been endorsed by this committee but which have not been implemented:

1. The proposal for an Operation Mainstream project submitted by the Community Action Council of Snohomish County on January 14, 1969.

2. The proposal for an Inner City Job Corps Center submitted by the Seattle King County Economic Opportunity Board on October 14, 1969.

3. Those Model Cities first year Employment and Economic Development programs which were endorsed during the meeting of December 10, 1968, and which have not been funded to date, are:

In-School NYC Expansion
Model Neighborhood NYC
Increased Training Stipends
Skills Training Center
Training Redirection
Action Research Institute

Bonding

Disadvantaged individuals in all target groups have a high rate of felony convictions and the reluctance of bonding institutions to cover such persons together with employer requirements for bonding excludes many individuals from jobs for which they would otherwise qualify. While we have no substantiation for this statement, it is our understanding that in areas where federal bonding plans have been available to ex-felons on manpower programs the incidence of surety bonding losses has not been significantly greater than any other group. At present we have a bonding program on the Model Cities program only. It should be made available throughout the area.

(2) Suggestions for Improving Program Activities

Improvement of Existing Training Programs

Training allowances should be more realistic. The present meager allowances in most of our training programs cause a significant proportion of dropouts and rejection by enrollees.

Programs should be better structured to the cultural background of the disadvantaged. The disadvantaged youth or adult and the physically or emotionally disabled individual are frequently incapable of completing existing institutional training courses.

MDTA is also inflexible in that the prohibition against GED preparation makes impossible the development of a plan that can carry a client with high potential through basic education, GED preparation, other prevocational training in needed basic skills, and then through a vocational and work experience program. Liberalization of the MDTA requirement for 30 hours of training in a formal classroom would adapt the program to varied needs. The Individual Referral procedure needs simplification as the delays now encountered discourage the client.

A more effective followup procedure should be built into all of our training programs. Training alone does not necessarily make an individual job ready. Many of the disadvantaged carry their hangups and problems with them to their first job and too few employers have the understanding to cope with them. Supportive services are also frequently needed for a period after hire. Information developed during followup would be of great assistance to us in evaluating the effectiveness of our manpower programs.

Upgrading Training

When discussing the needs of the Under Utilized Poor Persons Target group in our meeting of December 9, 1969, members of the Committee made the following suggestions to better serve the training needs of these individuals:

1. An individual referral program utilizing existing vocational night classes but providing allowances to cover the cost of transportation and other needed supportive services.

2. The use of mobile trailer classrooms to carry the training to industry or to areas of concentrated housing of the underemployed poor. This plan would be particularly effective where public transportation is inadequate.

3. Expanding the opportunities for upgrading training under MDTA/OJT and NAB/JOBS by:

   a. Relaxing existing eligibility requirements

   b. Providing income maintenance to enable the underemployed poor to take institutional training during working hours without loss of income when the employer is willing to allow regularly scheduled time off from work each week for such training.

Supportive Services

In our meeting of November 12, 1969 this Committee passed the following resolution regarding supportive services:

The Seattle-Everett Metropolitan Area Manpower Coordinating Committee is greatly concerned with the high drop-out rate and absenteeism in training programs that result from unmet support needs, particularly child care and transportation. These unmet needs also prevent enrollment of qualified individuals and their successful adjustment to employment after training.

It is therefore resolved that any training program proposal should show evidence that any potential support problems such as transportation, child care or other maintenance requirements have been considered and should contain a statement that:

1. Adequate support is available and can be funded through normal allowances, or

2. There are identifiable support needs requiring funding in which case the proposal should contain a description of them and the estimated cost of same, or

3. It be assumed that no less than 20% of the trainees will have unmet support needs and in which case the proposal shall contain a request for a contingency fund adequate to meet the estimated needs.

(3) Suggested Priorities for Providing Services to Problem Groups

In our Committee meeting of January 13, 1970 there was a discussion of the establishment of suggested priorities for providing services to problem groups. A few priorities were suggested but there was no general agreement on any of them. It was the opinion of the Committee that it was not possible to establish priorities on our programs and unmet needs because they are so interlaced and intertied that the success of one is dependent on the success of another and they therefore could not be separated and assigned separate priorities. A motion was passed by the Committee that no priorities be set on our programs and unmet needs.

Attachment to Part A, Section I of the Seattle-Everett Metropolitan Area Comprehensive Manpower Plan FY 1971

The Seattle-Everett Area Manpower Coordinating Committee is greatly concerned because the anticipated labor market in this area during fiscal year 1971 is expected to make it extremely difficult for the disadvantaged and the graduates of our training programs to be placed on and retained in jobs in private industry.

Government, which has proposed that the Philadelphia plan be adopted by the construction trades in this area, a plan that requires a definite commitment by employers with respect to both percentages of minority employees to be hired and the time period in which they are to be hired - a plan which this committee also endorses - is not taking the lead by adopting such a definite plan and program itself. Not enough has been accomplished by government agencies toward implementing a policy of hiring first, then training and qualifying individuals on the job. Such agencies are still setting high educational standards and requiring pre-employment tests which are not related to the cultural and educational background of the disadvantaged and are still excluding individuals who have a background of arrest or alcoholism.

It is therefore resolved that this committee recommends that federal, state and local governments and other tax supported organizations such as schools, public utility districts and port districts adopt a definite commitment as to the percentage of their total employment that disadvantaged people shall constitute and that they adopt a definite time table for achieving that commitment.

A P P E N D I X

Table Number	Subject	Page	Supports Narrative in Section Number
1-A	Manpower Characteristics of Area	19	D,(2)
1-B	Total and Non-White Population, 1968	20	D,(2)
1-C	Population by Sex and Age Group	21	D,(2)
2	Labor Force and Employment	22-23	D,(3)
3	Forecasts of Nonagricultural Employment	24	D,(3); F
4	Glossary of Abbreviated Titles of Agencies	25	Table 5
5	Manpower Programs	26-27	H,(1); I,(1)
6	Non-Federal Manpower Programs	28-34	H,(2)

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TABLE 1-A

MANPOWER CHARACTERISTICS OF AREA

	Seattle-Everett	Washington	United States
Population			
April 1969	1,378,500 1/	3,417,300 1/	202,711,000 2/
Percent change from 1960	+24.5	+19.8	+13.0
Civilian Work Force			
November 1969	666,800	1,399,900	81,295,000
Percent change from November 1968	+ 2.1	+ 2.4	+ 2.9
Nonagricultural Wage and Salary Employment:			
November 1969	566,000	1,137,500	70,621,000
Percent change from November 1968	+ 0.4	+ 1.6	+ 2.6
Manufacturing employment as a percent of nonfarm wage and salary employment (1968 average)	30.9	26.1	29.0
Seasonally-adjusted unemployment rate November 1969	4.9	5.5	3.4

Labor market area definition: King and Snohomish Counties

Area Classification: Group C, moderate unemployment

1/ Washington State Planning and Community Affairs Agency

2/ U. S. Department of Commerce, Bureau of the Census.

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TABLE 1-B

TOTAL AND NONWHITE POPULATION

STATEWIDE AND METROPOLITAN AREA BY COUNTY, 1968

	Total Population	Total Non-White	Black	Indian	Oriental	Other
King County	1,085,285	68,586	41,308	3,498	17,551	6,229
% of Total	100%	6.3	3.8	0.3	1.6	0.6
Snohomish County	232,662	2,751	1,036	1,275	244	196
% of Total	100%	1.2	0.4	0.5	0.1	0.1
Total for Area	1,317,947	71,337	42,344	4,773	17,795	6,425
% of Total	100%	5.4	3.2	0.4	1.4	0.5
State of Washington Total	3,292,400	131,697	71,150	24,138	25,360	11,049
% of Total	100%	4.0	2.2	0.7	0.8	0.3

Source: (1) Population Series No. 2, Washington State Planning and Community Affairs Agency

Source: (2) Schmid, Calvin F., et.al. Nonwhite Races, State of Washington, Washington State Planning and Community Affairs Agency

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TABLE 1-C

Population by Sex and Age Group
Seattle-Everett Area 1960 Census and 1970 Forecast

Age	TOTAL		MALE		FEMALE	
	1960	1970	1960	1970	1960	1970
Total	1,107,213	1,346,075	549,576	664,643	557,637	681,432
0-14	342 651	409 395	174 065	209 011	168 586	200 384
15-24	139 419	230 226	57 179	116 662	72 222	116 564
25-29	68 993	84 884	35 119	41 370	33 874	43 514
30-34	73 929	74 789	36 944	36 010	36 985	38 779
35-39	82 387	74 128	40 672	36 689	41 715	36 439
40-44	75 509	76 698	37 744	38 248	37 765	38 450
45-64	218 586	272 851	109 351	133 872	109 235	138 979
65 and over	105 739	120 104	48 484	51 781	57 255	68 323

SOURCE: Calvin F. Schmid and others "Population Forecasts State of Washington 1965 to 1985."

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TABLE 2

LABOR FORCE AND EMPLOYMENT IN SEATTLE-EVERETT AREA

ANNUAL AVERAGES 1960-1969 (in thousands)

	1969*	1968	1967	1966	1965	1964	1963	1962	1961	1960	% Change to 1969 From 1968	% Change to 1969 From 1960
CIVILIAN LABOR FORCE	659.7	644.2	609.1	566.6	506.0	489.2	495.2	501.1	470.2	457.7	+ 2.4	+44.1
Workers in Dispute	.3	1.7	.4	.5	.8	.1	.4	.2	.2	0		
Unemployment	26.4	18.9	18.8	16.9	24.5	32.3	29.7	24.3	30.5	28.0	+39.7	- 5.7
Percent of Labor Force	4.0	2.9	3.1	3.0	4.8	6.6	6.0	4.8	6.5	6.1		
Employment	633.0	623.6	589.9	549.2	480.7	456.8	465.1	476.6	439.5	429.7	+ 1.5	+47.3
Agricultural	6.1	6.7	6.9	7.4	7.8	8.1	8.8	9.3	9.6	10.1	- 9.0	-39.6
Nonagricultural	626.9	616.9	583.0	541.8	472.9	448.7	456.3	467.3	429.9	419.6	+ 1.6	+49.4
Employer Own Account, unpaid & domestics	63.1	63.6	62.5	60.8	56.0	54.0	54.4	56.5	52.8	50.6	- 0.8	+24.7
Wage and Salary Workers	563.8	553.3	520.5	481.0	416.9	394.7	401.9	410.8	377.1	369.0	+ 1.9	+52.8
Manufacturing	162.1	171.8	165.5	152.7	118.3	110.8	120.1	129.0	115.8	112.2	- 5.6	+44.5
Food & Kindred Prod.	10.5	10.6	10.5	9.9	9.5	9.3	9.4	9.6	9.6	9.8	- 0.9	+ 7.1
Apparel & Allied Prod.	3.1	3.1	2.8	2.7	2.6	2.4	2.4	2.3	2.1	2.2	0	+40.9
Lumber & Wood Products	8.5	8.6	8.3	8.9	8.8	9.0	8.6	8.7	8.8	9.3	- 1.2	- 8.6
Furniture & Fixtures	1.2	1.3	1.2	1.0	.9	.9	.9	1.2	1.0	1.0	- 7.7	+20.0
Paper & Allied	4.7	4.6	4.5	4.6	4.3	4.2	4.2	4.2	4.2	4.2	+ 2.2	+11.9
Printing, Publishing & Allied	5.7	5.6	5.4	5.5	4.9	4.6	4.6	4.6	4.5	4.5	+ 1.8	+26.7
Chemicals	1.2	1.2	1.2	1.1	1.2	1.1	1.1	1.2	1.1	1.1	0	+ 9.1
Stone, Clay & Glass	3.4	3.2	2.9	2.9	2.7	2.7	2.8	2.7	2.5	2.4	+ 6.3	+41.7
Primary Metals	3.1	2.7	2.8	3.0	2.5	3.0	2.8	1.9	2.1	2.3	+14.8	+34.8
Fabricated Metals	5.5	5.2	5.7	5.4	5.0	3.8	3.6	4.3	4.6	4.7	+ 5.8	+17.0
Machinery (Exc. Elec.)	6.7	5.7	6.0	6.0	5.1	4.4	3.9	3.8	3.4	3.6	+17.5	+86.1
Electrical Machinery	3.5	3.8	3.7	3.1	2.4	2.0	2.0	2.2	2.1	2.2	- 7.9	+59.1
Transportation Equip.	102.2	113.6	108.1	96.4	66.4	61.4	71.8	80.4	68.0	63.1	-10.0	+62.0
Aircraft	90.6	103.9	98.2	85.1	56.8	52.3	63.9	72.8	61.5	56.9	-12.8	+59.2
Shipbldg & Repair	7.5	6.8	6.4	7.2	5.4	5.2	4.3	4.2	3.7	3.2	+10.3	+134.4
Other Trans. Equip.	4.1	2.9	3.5	4.1	4.2	3.9	3.6	3.4	2.8	3.0	+41.4	+36.7
Other Mfg.	2.8	2.6	2.4	2.2	2.0	2.0	2.0	1.9	1.8	1.8	+ 7.7	+55.6

* Preliminary

TABLE 2 (Cont.)

LABOR FORCE AND EMPLOYMENT IN SEATTLE-EVERETT AREA (Continued)

ANNUAL AVERAGES 1960-1969 (in thousands)

	1969*	1968	1967	1966	1965	1964	1963	1962	1961	1960	% Change to 1969 From 1968	% Change to 1969 From 1960
Nonmanufacturing	401.7	381.5	355.0	328.3	298.6	283.9	281.8	281.8	261.3	256.8	+ 5.3	+56.4
Mining, For.& Fish.	2.6	2.4	2.3	2.2	2.1	2.0	2.1	2.1	1.9	1.8	+ 8.3	+44.4
Contract Const.	30.4	29.9	27.4	25.5	19.9	18.2	20.1	20.4	18.2	17.4	+ 1.7	+74.7
Transp.Comm.,& Util.	40.4	39.2	37.2	34.2	31.3	30.3	30.1	30.4	29.6	30.0	+ 3.1	+34.7
Transportation	27.9	27.4	26.2	24.3	22.2	21.5	21.3	21.7	21.1	21.5	+ 1.8	+29.8
Communications,Util.	12.5	11.8	11.0	9.9	9.1	8.8	8.8	8.7	8.5	8.5	+ 5.9	+47.1
Wholesale & Retail Trade	123.5	116.7	109.8	102.3	93.6	89.2	89.6	91.3	84.9	85.1	+ 5.8	+45.1
Finance,Ins.,& R/E	35.7	33.5	30.5	27.7	26.0	25.1	25.1	24.8	22.6	22.0	+ 6.6	+62.3
Services	80.3	74.6	68.0	62.0	55.9	53.0	51.8	53.6	47.3	45.3	+ 7.6	+77.3
Government	88.8	85.2	79.8	74.4	69.8	66.1	63.0	59.2	56.8	55.2	+ 4.2	+60.9
Education Services	45.9	43.8	40.0	36.4	33.6	31.3	28.7	24.8	23.1	21.5	+ 4.8	+113.5
All other Gov't. .	42.9	41.4	39.8	38.0	36.2	34.8	34.3	34.4	33.7	33.7	+ 3.6	+27.3

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TABLE 3

FORECAST OF NONAGRICULTURAL EMPLOYMENT
Seattle - Everett Area for Fiscal Year 1971

		AVERAGE EMPLOYMENT FOR FISCAL YEAR		
		1971 Forecast	1970 Base Year	1969 Prev. Year
Nonagricultural Employment - Total 1/		554,700	563,000	561,900
Agric. Serv., Mining, For. & Fish	(07-14)	2,600	2,600	2,500
Contract Construction	(15-17)	30,000	30,000	30,600
Manufacturing	(19-39)	138,500	153,300	169,200
Food - Kindred Products	(20)	10,500	10,400	10,700
Lumber - Wood Products	(24)	8,000	8,300	8,700
Paper & Allied Products	(26)	4,800	4,800	4,700
Printing & Publishing	(27)	5,700	5,700	5,700
Metals & Machinery	(33-36)	19,000	18,800	18,300
Transp. Equipment	(37)	78,500	93,500	109,600
Other Manufacturing		12,000	11,800	11,500
Transp., Comm., & Utilities	(40-49)	41,000	40,700	40,000
Wholesale & Retail Trade	(50,52-59)	127,000	126,500	120,300
Finance, Ins. & Real Estate	(60-67)	37,600	36,600	34,600
Services (Exc. Domestics)	(70-86,89)	86,000	83,100	77,300
Government	(91-94)	92,000	90,200	87,400

1/ Excludes self-employed, unpaid family, and private household domestic workers.

TABLE 4.

Glossary of Abbreviated Titles of Agencies.

In certain sections of this plan agencies have been indicated by initials or abbreviated titles, a glossary of which follows:

BAT	Bureau of Apprentice and Training
BIA	Bureau of Indian Affairs
CEP	Concentrated Employment Program
DVR	Division of Vocational Rehabilitation
ESD	Employment Security Department
FWPCA	Federal Water Pollution Control Administration
JOBS	Job Opportunities in the Business Sector
Mod.Cit.	Model Cities
MDTA	Manpower Training & Development Act
MDTA-OJT	" " " " On the Job Training
NAB	National Alliance of Businessmen
NYC	Neighborhood Youth Corps
SCC	Seattle Community College
SDPA	State Dept. of Public Assistance
SKCEOB	Seattle King County Economic Opportunity Board
SOIC	Seattle Opportunities Industrialization Center
Voc.Ed.	State Dept. of Vocational Education
WIN	Work Incentive Program

TABLE 5

MANPOWER PROGRAMS

FISCAL YEAR 1969 & FISCAL YEAR 1970

PROGRAM NAME 1/	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
Work Incentive (WIN)	ESD	20% State 80% Fed.	$ 990,267	Public Assistance Recipients	2824	6000	
Work Incentive (WIN)	SDPA	25% State 75% Fed.	1,095,045	"			
Vocational Rehabilitation	DVR	20% State 80% Fed.	3,912,656	Physically, emotionally or socially disabled	6903	8800	
Concentrated Employment Program	SKCEOB, ESD	100% Federal	4,443,000	Residents of Target Areas	2625		
Model Cities	Model Cities	Federal State	502,225*	" "	1132**	12,243	
*Value of Manpower Programs only funded to date. **Total Jobs to be provided FY 1970 as a result of total Model City funding							
Bureau of Indian Affairs Voc. Training Program	BIA	100% Federal	15,000	Reservation Indians	15		
MDTA Institutional	ESD, Voc. Ed.	100% Federal	***	" "	45	730	
***45 Indians from Snohomish County eligible to participate in this project which has been funded for $708,316 in Skagit County for a total of 200 trainees in Skagit, Whatcom and Snohomish Counties.							
Seattle Opportunities Industrialization Center	SOIC	Federal State	2,038,750	Disadvantaged unemployed Adults and Youth	1811	2/	
" " " SOIC also the training facility for CEP.				Under-utilized poor individuals	370	29,755	
MDTA Institutional	ESD, Voc. Ed.	100% Federal	986,599	Disadvantaged unemployed adults and youth.	990	2/	
MDTA/OJT	ESD	100% Federal	47,520	" "	110	2/	
JOBS	NAB	100% Federal	3,883,571	" "	1288	2/	

2/ See totals for Disadvantaged Unemployed Adults and Disadvantaged Unemployed Youth on page following.

1/ See Tables I, II, IV, V, Seattle-Everett Section of Part B of the FY 1970 Manpower Plan for a description of the programs listed in this table and their utilization in dealing with the problems of the target groups.

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TABLE 5 (Cont.)

MANPOWER PROGRAMS

FISCAL YEAR 1969 & FISCAL YEAR 1970

PROGRAM NAME *	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED	UNMET NEED	CARRY OVER FUNDS
Job Corps	ESD, Job Corps	100% Federal	INA	Disadvantaged Unemployed Youth	255	/2	
NYC Out of School	(CAC Snohomish (County	100% Federal	865,850	" " "	271	/2	
NYC In School	(King County (City of	100% Federal	504,880	" " "	781	/3	
NYC Summer	(Seattle	100% Federal	810,640	" " "	1031	/3	
Title VIII Vocational Training	Seattle Public Schools SCC	100% Federal	$ 20,802	" " "	16	/2	
/2 See Total for Disadvantaged Youth Below.							
/3 Not included when calculating unmet need for Disadvantaged Unemployed Youth.							
				Disadvantaged Unemployed Adults		5098	
				Disadvantaged Unemployed Youth		1968	
Project Transition	Project Transition ESD	100% Federal	60,729	Under Utilized Non-Poor Individuals	146)		
FWPCA Sewage Treatment Plant Operation	FWPCA, ESD	100% Federal	19,696	" " "	20)	10,334	
Adult Basic Education	Superintendent of Public Inst.	Fed. State	133,252	Persons with less than eighth grade achievement	1068	59,623	

* See footnote 1/ on previous page.

TABLE 6

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
The persons served column for many of these agencies includes individuals who receive temporary services only such as referral to or employment on jobs of very short duration or rehabilitation and/or financial assistance for a very short period. Temporary services are identified in the program description column.				
Bishop Lewis House Pioneer Fellowship Dalton House Guerin House	Church and voluntary members.	Functions as a graduated system of recovery for homeless male alcoholics; reception center, diagnostic screening, motivation and holding residence	Fees & donations	1000
Cedar Hills Alcoholism Treatment Center	Board of King. Co. Commissioners	Provide in-treatment, care, diagnostic and medical evaluation, and comprehensive rehabilitation services to adult males (court committed).	Seattle City King County & State	360
Compass Center (Lutheran)	Churches (non-denominational services) in cooperation with the City of Seattle	Provide social service to all single men; emergency assistance. Group therapy for skid row types. Temporary job placement. Temporary service.	UGN, operating income, donations, City appropriation	4500
Eastside Handicappers	Society for Exceptional Children	A program of work opportunity and social experience for handicapped persons age 18 to 30, most of whom are severely mentally retarded--not being served in any other way or by any other program.	UGN, society donations, sales, memberships.	14

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TABLE 6 (Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Fellowship of Christian Urban Service (FOCUS)	Methodist churches (4) in Central Area	A referral agency, a place for drop-in counseling. Mental health program for former patients of state institutions	Contributions of churches and individuals	125
Goodwill Industries	Goodwill Ind. of America, Inc. and National Assn. of Sheltered Workshops non-profit agency	Provides employment, training, and rehabilitation for handicapped and older workers in a sheltered workshop. Temporary and permanent service.	Self-supporting.	375 job stations. 1133 Hdcp.in workshop 360 Disadvantaged 101 Hdcp. Placements
Indian Center	American Indian Women's Service League	Provides a center for social, educational, and recreational activities for American Indians. Indians from reservations make scheduled tour of local industries for vocational and employment information.	UGN and donations	200
Job Therapy, Inc.	Voluntary Agency	Involves the community in the rehabilitation of offenders through a man-to-man sponsorship program and job service for young men in the State Reformatory and State Correctional Center.	Membership-donations	300
Lighthouse for the Blind, Inc.	Affiliated with National Industries for the Blind	To contribute to the general welfare and well being of the blind, and to maintain a workshop to make the blind self-supporting.	Contributions and product sale	100 blind 20 other hdcp.persons

TABLE 6 (Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Millionaire Club, Ind.	Voluntary Agency (charity)	Provides emergency assistance; meals, clothing, employment service for men (day workers who do housework, yard work, and similar tasks). Temporary service	Donations	Approximately 50 jobs per day. 144,000 meals per year.
Northwest Center for the Retarded	King County Chapter, Wash. Assn. for Retarded Children (WARC)	To give day training to trainable mentally retarded persons from 3 to 60 years of age; training in basic skills and occupational training in Seattle Public Schools or in sheltered workshops. Also training program for persons with special problems of retardation.	Supported by Seattle Pub. Schools, St. Dept. of Institutions, donations & income.	143 in Seattle Public Schools 40 in sheltered workshops. 21 in special programs.
Pioneer Industries, Inc.	Self-sustaining	A vocational rehabilitation workshop to provide employment and on-the-job training opportunities for society for selected residents; those with prison record, a probationary criminal charge, an alcoholic addiction with or without criminal implications. Goal: to become acceptable for employment in private industry.	Subcontracts from Boeing and other private industry	175
Rehabilitation Center for Injured workers.	State Dept. of Labor and Industries	A center for the physical restoration of workers with job related injuries, primarily those with neurological or orthopedic disorders; occupational therapy; vocational guidance, placement service.	Premiums from Workmen's Compensation Insurance	1100

TABLE 6 (Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Ronald Hall	In-As-Much, Inc. a non-profit, non-sectarian Corp.	Provides a home for exprisoners on the road from prison to the community; help given in preparing for and finding employment.	Fees and Donations	200
St. Vincent de Paul Society	Catholic Agency	Provide assistance, employment, counseling to resident and transient families and individuals; Salvage Bureau provides employment for those who cannot compete in industry. Temporary and permanent service.	Donations, legacies, salvage sales	400
Salvation Army	Voluntary agency governed under the authority of the Salvation Army	Social service and rehabilitative opportunity for alcoholic men and other unfortunate men; meals, lodging, clothing, medical care, and work therapy (spot jobs). Provide and secure temporary jobs. Temporary and permanent service.	UGN, fees, and contributions	3000
Seattle Urban League	Affiliated with National Urban League	Regular on-going program to place minority persons with skills.	UGN and membership	360
South King County Activity Center	Private non-profit organization	Promote and implement a program of vocational education, work opportunity and social experiences for the trainable mentally retarded, age 16 and up, who are not able to qualify for other programs.	Contributions.State Epton Bill	50

TABLE 6 (Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
The Frye (Hotel)	Private	A haven for patients discharged from mental hospitals - an open door policy to help the person make the adjustment to the outside working world, and then help them to find other jobs. Average stay 2 months.	Some contributions, otherwise private funds	2000
Union Gospel Mission	Churches-Union Gospel Mission Assn.	Temporary labor for homeless men in order to earn board, room, clothes while seeking employment. Also full-time work program for handicapped. Temporary and permanent services.	Individuals and Churches	Approx. 40-50 transients a day on spot jobs. 15-20 full time.
United Cerebral Palsy Assn.	Private non-profit Organization	Provide sheltered workshop employment for cerebral palsied and other severely handicapped adults; on-the-job training and evaluation; a work program geared to individual abilities.	UGN and money earned from work projects	155 - 175
Young Women's Christian Assn. (YWCA)	Voluntary Agency	Career Referral Center-project which gives information on opportunities for mature women.	UGN, Memberships, Endowments	70
Summer Youth Activities Committee	Public Agency	Operates "PITCH IN" a city wide program of recreation, education and employment, education and employment for youth for the summer, in the summer in cooperation with NYC, NAB, WSES and Seattle Public Schools.	City and County appropriations Donations voluntary staffing	4500

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TABLE 6 (Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Washington Insurance Council	24 Insurance Companies	A pilot program to provide tuition and material to train under-employed persons from the Seattle Central Area to become insurance examiners, underwriters and claims adjusters.	Washington Insurance Council	20
		SNOHOMISH COUNTY		
Everett Rescue Mission	Voluntary Agency	Transient care for men of all ages - meals, lodging, clothing, counseling. Capacity 41 men. Temporaty service.	Contribution Donations Churches	375
Goodwill Industries	Goodwill Industries of America, Inc.	Charitable non-profit organization--Work adjustment & training. Rehabilitation, jobs for handicapped. Sheltered workshop assistance and advice. Temporary service.	Self-supporting	I.N.A.
Snohomish County Legal Aid	Community Action Council	Legal assistance and counseling to indigent persons. Temporary service.	Donated serv. No expense	200
Salvation Army	International Salvation Army	Private charities. Family counseling and relief transient counseling and relief, Youth work, missing persons, employment service, temporary service.	Contributions, UGN. Endowments	2400
Snohomish County Center for the Handicapped	Voluntary	Work training & evaluation-Sheltered industry-Extended employment. Recreational program-Job Placement, Permanent type (some temporary).	Contributions, UGN, sales of goods & service.	65 Permanent 35 Temporary

TABLE 6 (Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
St.Vincent de Paul	Roman Catholic Archdiocese	Salvage bureau - charity information Pickup salvage. Temporary assistance.	Contributions Salvage & Diocese Fund	375
Victoria Ranch, Inc.	Private Agencies	Residential Center for mentally retarded adolescents and adults. Occupational training, work evaluation, skills assessment. Permanent service	Fees, WS, DVR, SDPA Contributions	75
Volunteers of Amerida	National Volunteers	Emergency assistance. Men's dormitory - Family welfare-Thrift store-Youth work, Children's summer camp Temporary service	UGN,Salvage Sales	4800 cases 8190 persons
		KING-SNOHOMISH COMBINED		
NAB/JOBS	National Alliance of Business Men	A program to provide jobs for disadvantaged workers. Employers will hire first and then provide training and supportive services at employer expense.	NAB Employers	700

TACOMA (Pierce County) AREA

State of Washington

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Comprehensive Manpower Plan

Fiscal Year 1971

PART A

Compiled and Submitted.....January 28, 1970

Member Agencies.....Signatures and
Titles.....See following pages

Bruce Brennan Director	Bates Vocational-Technical Institute
Irene Day Employment Assistance Officer	Bureau of Indian Affairs
Ed DeTray Area Representative	Apprenticeship Division Department of Labor and Industries
Tom Dixon Director	Tacoma Urban League
George Hauser Project Director	Neighborhood Youth Corps
Frank C. Jackson	Technical Action Panel
Dr. Fred Miner Director	Clover Park Education Center
Roberta Morical Coordinator	Department of Public Assistance
John Murphy District Supervisor	Division of Vocational Rehabilitation
Peter C. Nagrodski Director of Extended Education	Tacoma Public Schools

Mabel Roberts Project Director	Operation Mainstream
Ed Sheldon Director	National Alliance of Businessmen
James Stanton Deputy Director of Manpower	Tacoma-Pierce County Opportunity and Development, Inc.
Reno Switzer Area Representative	Bureau of Apprenticeship
Herman Walker Director	Model Cities Program
Homer Halverson Associate Dean for Occ. Ed.	Fort Steilacoom Community College
William Spielman Assistant Manager	Employment Security Department
Arnold A. Hirsekorn Chairman	Employment Security Department

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D.[1/] DESCRIPTION OF AREA

1. Area location and geographical features.

Pierce County, which comprises the Administrative Area served by many of the members of the Manpower Coordinating Committee, ranks second among the thirty-nine Washington counties in population with 393,000 as of December 1969; nineteenth in size geographically with 1,072,640 acres. The county is located in the western half of the State at the southern end of Puget Sound.

Tacoma, the county seat and principal city, is the third largest in the state, with 158,000 residents.

The City of Tacoma and the northern and western parts of the county are served by several transcontinental railroads and truck lines. Tacoma's port facilities are among the finest on the Pacific Coast and offer ship transportation for Pierce County and Tacoma's manufactured goods to the markets of the world. Air transportation to all parts of the world is provided at the Sea-Tac Airport--twenty miles north of Tacoma. Additional local air facilities are available at the Tacoma Industrial Airport which is served by West Coast Airlines.

Pierce County is the site of two major military installations: McChord Air Force Base and Fort Lewis Military Reservation, both located southeast of the City of Tacoma adjacent to Interstate 5. Tacoma is the site of the University of Puget Sound; and Pacific Lutheran University is located only a few miles south of Tacoma at Parkland. The area is served by two community colleges and two vocational-technical schools: Tacoma Community College; Fort Steilacoom Community College; L. H. Bates Vocational-Technical Institute; and Clover Park Education Center.

Pierce County lays claim to the most difference in elevation in the State. Puyallup River Valley is approximately fifty feet above sea level, while only fifty miles away in the southeastern part of the county the terrain rises to 14,410 feet at Mt. Rainier, the state's highest peak.

The City of Tacoma owns and operates its own power, water and intercity bus system.

The Tacoma Metropolitan Area is a trade and service area. Manufacturing is an important segment of the local economy and employed 20,800 in fiscal year 1969, but it is dwarfed by nonmanufacturing activities. While the ratio of nonmanufacturing to manufacturing payroll employment was 2.9 to 1 nationally in 1967, it was 5 to 1 in the Tacoma area. Two factors account for this difference: the existence of two large military installations in the area and the employment of thousands of local residents in the Seattle Metropolitan Area's aerospace industry.

1/ This plan follows the outline presented in Interagency Cooperative Issuance 71-1. As paragraphs A through C in that outline pertain to other than sections of the plan narrative, the text of this document begins with paragraph D.

Pierce County is also an important agricultural area. Rich farmlands under production amount to about 27,000 acres, most of which are located in the Puyallup River Valley. The county produced 19 million dollars worth of farm products in 1964, most of the income coming from poultry, berry and dairy farms.

2. The economy and factors affecting it.

Originally an area of logging camps and lumber mills only a few decades ago, the Tacoma Metropolitan Area has grown to a major trade and service area. Lumbering and other manufacturing activities are still important, but they no longer dominate the economy. Major elements of the current economic base are large military establishments, the aerospace industry in nearby King County which probably employs more Tacoma area residents than any single private employer in the metropolitan area, and the lumber industry which employs more than one out of every four manufacturing workers.

Government is the area's largest single industry and employs twenty-one percent of all workers, or more than one out of every five. Of the 26,700 government workers in fiscal 1969, over 10,000 were federal workers. Approximately half worked at military establishments. Employment averaged 23,700 in trade and 17,600 in the service and miscellaneous group during fiscal 1969. Much support for trade and service business is provided by military personnel in the area whose numbers are not reflected in the employment totals. Fort Lewis is now one of the largest Army training centers in the United States. An estimated 50,000 military personnel and dependents live in the area. In addition, a good deal of business is attracted from residents of smaller communities in southwest Washington. Manufacturing employed 20,800 workers in fiscal 1969 and although logging and basic lumber accounted for twenty-six percent of the total, there is a wide range of manufacturing plants in the area. Aside from lumber, other major products include pulp and paper, primary metals, chemicals, ships, machinery, apparel, and food and kindred products.

Several factors are now adversely influencing the economy of the area; although employment remained at a record level, the growth rate has declined and jobless totals have been on the increase. These factors include the nationwide drop in housing starts which has resulted in cutbacks at lumber and plywood plants, the decline in the nearby aerospace industry, and, in recent months, cutbacks at military establishments.

3. Population trends.

Population trends in the metropolitan area have generally followed employment trends in the area. Between 1950 and 1960 employment growth was slow and the population increased less than 17 percent in the decade, well below the nationwide increase of 18.5 percent during the same period. Between 1960 and 1969, however, increased employment opportunities attracted thousands of persons to the area, especially after 1965. In contrast to the slow growth rate in the preceding decade, the population of the Tacoma Metropolitan Area increased 22 percent between 1960 and 1969, compared with a nationwide increase of 13 percent.

The nonwhite population of the area is small, but it has increased rapidly in the last few years because of the availability of jobs and, just as important, the location of a major Army base (Fort Lewis) here. The Army, of course, has a disproportionate percentage of nonwhites. The total population increase in the area between 1960 and 1968 was 20 percent, but the nonwhite population increased nearly 39 percent with the Black population up 49 percent.

POPULATION OF TACOMA METROPOLITAN AREA
1940, 1950, 1960, 1968 and 1969, TOTAL
AND BY RACE

Race	1940	1950	1960	1968	1969
TOTAL	182,081	275,876	321,590	386,886	393,500
White	178,307	267,370	305,201	364,155	NA
Nonwhite	3,774	8,506	16,389	22,731	NA
Black	935	4,005	10,520	15,678	NA

4. Employment trends.

Employment has increased at a phenomenal pace in the Tacoma Metropolitan Area in recent years. Between fiscal years 1965 and 1969, the job total rose by an average of over 6,000 annually compared with an average yearly increase of slightly over 1,000 in the 15 year period preceding 1965. The record growth of recent years was prompted by the expansion of the aerospace industry in nearby King County which employs many Tacoma area residents, the war in Viet Nam and subsequent growth at military establishments, longshoring activity, shipyards building patrol craft for the Navy and at other firms conducting defense business, and the general increase in the national economy.

As mentioned previously, however, employment growth in recent months has declined substantially due to cutbacks in the King County aerospace industry, retrenchment at military establishments, and the national decline in the home building industry which is the largest single market for Tacoma's large lumber industry.

LABOR FORCE AND EMPLOYMENT IN THE TACOMA METROPOLITAN AREA
(in thousands)

	FISCAL YEAR					November	November
	1965	1966	1967	1968	1969	1969	1968
CIVILIAN LABOR FORCE	108.8	113.9	121.9	127.2	132.7	134.5	129.9
Workers in Labor Disputes	0	0	0	.6	.1	0	0
Total Unemployment	6.6	5.5	5.2	5.4	6.0	7.7	5.6
Percent of Labor Force	6.1	4.8	4.3	4.2	4.5	5.7	4.3
Total Employment	102.2	108.4	116.7	121.2	126.6	126.8	124.3
Manufacturing	17.8	19.1	20.3	19.7	20.8	20.4	20.6
Food & kindred products	3.1	3.0	3.1	3.1	3.2	2.9	3.0
Lumber & wood products	4.6	5.2	5.4	5.3	5.5	5.0	5.5
Pulp & paper products	1.8	1.9	1.9	1.8	1.7	1.8	1.7
Chemicals	1.1	1.1	1.1	1.1	1.1	1.0	1.1
Metals & nonelectrical machinery	2.6	3.0	3.3	2.8	3.5	3.7	3.6
Other manufacturing	4.6	4.9	5.5	5.6	5.8	6.0	5.7
Contract Construction	4.3	4.7	4.8	5.5	6.1	5.9	6.0
Transportation, Communications & Utilities	5.4	5.5	6.2	6.3	6.7	6.9	6.6
Trade	18.5	19.6	20.9	22.3	23.7	25.1	24.0
Finance, Insurance & Real Estate	4.3	4.5	4.9	5.5	5.9	6.1	5.8
Service & Miscellaneous	12.6	13.5	15.3	16.9	17.9	18.6	17.6
Government	21.2	22.8	25.1	26.2	26.7	26.7	26.4
Agriculture	5.0	5.2	5.2	4.8	4.6	2.9	3.2
All other nonfarm employment	13.1	13.5	14.0	14.0	14.2	14.2	14.1

TACOMA METROPOLITAN AREA
YEAR-TO-YEAR INCREASE
(in thousands)

	Fiscal 1968 to Fiscal 1969	November 1968 to November 1969
Civilian Labor Force	+ 5.5	+ 4.6
Workers in Labor Disputes	- .5	0
Total Unemployment	+ .6	+ 2.1
Total Employment	+ 5.4	+ 2.5
Manufacturing	+ 1.1	- .2
Food & kindred products	+ .1	- .1
Lumber & wood products	+ .2	- .5
Pulp and paper products	- .1	+ .1
Chemicals	0	- .1
Metals & nonelectrical machinery	+ .7	+ .1
Other manufacturing	+ .2	+ .3
Contract Construction	+ .6	- .1
Trans., Comm., & Utilities	+ .4	+ .3
Trade	+ 1.4	+ 1.1
Finance, Insurance & Real Estate	+ .4	+ .3
Service & Miscellaneous	+ 1.0	+ 1.0
Government	+ .5	+ .3
Agriculture	- .2	- .3
All other	+ .2	+ .1

Manufacturing employment in November 1969 was 200 under its year earlier level. The most significant loss was in lumber and wood products where payrolls fell 500 or 9 percent over the year due to the depressed lumber market. Activity in the "other manufacturing" group, which includes apparel, printing, publishing, boatbuilding and a wide variety of manufacturers from fishing tackle to petroleum, continued to show strength and was up 300 from 12 months earlier.

In the nonmanufacturing industries, contract construction, which expanded 600 between fiscal 1968 and 1969 was 100 under its year earlier level in November because of a decline in housing starts. Restrictions on state and federal construction projects are expected to lower employment in the building trades more than seasonally in the remainder of fiscal 1970.

Growth margins in other nonmanufacturing industries also narrowed from gains posted between fiscal 1968 and 1969. The only exception was the service and miscellaneous category which maintained a year-to-year margin of 1,000. Trade payrolls were still 1,100 above year ago totals in November, but much of the increase represented part-time jobs at new shopping centers. The growth margin in trade would probably fall somewhat even if economic conditions were favorable because of a developing saturation in new shopping centers. The major reason for the decline in the employment growth rate in trade and other secondary industries, however, is the recent lack of expansion in basic industries and the retrenchment at the nearby aerospace plants.

5. Wage developments.

Weekly earnings of manufacturing production workers in the area in October 1969 averaged $150.92, well above the national average for that month of $132.36. Weekly earnings in the metropolitan area rose $13.02 over the year or by 9.4 percent.

E. IDENTIFICATION OF MANPOWER PROBLEMS

1. Occupational shortages and surpluses.

When responding to occupational shortages and surpluses, the most reliable data available is through the Employment Security Department. However, this data does not include the employment activity which does not come in to the purview of Employment Security Department. This factor should emphasize the lack of hard data available barring a complete survey of employing establishments which do not utilize the services of Employment Security Department. When we compare a survey of job openings received locally with the available applicant supply, few shortages are present. One problem encountered is that the jobs and the applicants though coded for ready reference do not take into consideration the wide differences of employer requirements, both performance and non-performance, and the variety of applicant demands such as hours, wages, nearness of employment, etc., which often are inconsistent with employer demands.

If we assume that the job activity within Employment Security Department does give a clear picture of the total job activity then only the traditional occupations such as registered nurse, physician, etc., are truly in short supply. In the trades, apprenticeship generally meets the needs of employers of those trades. At least the employers who are willing to participate in the training of apprentices have a fairly balanced need. The total industry needs, however, are greater than the total output of apprentices. This is caused, in part, upon the reluctance of some employers who could use the apprenticeship programs to do so.

More significant than the shortages are the surpluses, which at this time are difficult to specify due to the labor market being in a state of flux, but which appear to affect a wide variety of occupations. In most occupations in which a relatively small degree of experience or training is necessary, the supply of applicants far outstrips the supply. In the semi-skilled levels the output of the technical schools is meeting the supply. In skilled occupations some surpluses are apparent. This is because of the number of students in the technical schools in some of these areas is greater than the number of job orders received during the same period. One difficulty in establishing this figure of available applicant-supply is that the totals of the technical schools are presumed to be of this labor market area; but, in fact, many of the trainees will migrate to other labor markets.

2. Labor demand and supply.

Labor demand has declined appreciably in 1969 as could be expected with the reduction in the employment growth rate. Comparable data for one year ago on total nonfarm placements are not available for the Tacoma State Employment Office because of procedural changes. However, comparable placement data are available for certain occupational groups. These are shown below.

Nonagricultural Placements, Tacoma Office

Occupation	November 1969	November 1968	Change
Professional, technical & managerial	31	3	+ 28
Clerical and Sales	88	76	+ 12
Service	103	153	- 50
Farm, Forest & Fishing	3	11	- 8
Processing	12	10	+ 2
Machine Trades	10	13	- 3
Bench Work	9	15	- 6
Structural Work	23	41	- 18

The available labor supply has increased substantially in recent months. The number of insured unemployed in the metropolitan area at mid-November was above that of January when heavy snow had reduced outdoor activities to a standstill. The tables below show the occupation and former industry attachment of this insured unemployed for mid-January and mid-November 1969.

Insured Unemployed by Occupation, Tacoma Metropolitan Area; Mid-January and Mid-November 1969

Occupation	Mid-November 1969	Mid-January 1969
TOTAL	3,839	3,386
Professional, Technical & Managerial	297	181
Clerical	693	429
Sales	217	293
Service	455	316
Forest, Farm & Fishing	99	23
Processing	99	135
Machine Trades	416	271
Bench Work	218	203
Structural Work	890	926
Miscellaneous	435	609
INA	20	0

Insured Unemployed by Industry of Last Employment, Tacoma Metropolitan Area, Mid-January and Mid-November 1969

Industry	Mid-November 1969	Mid-January 1969
TOTAL	3,839	3,386
Contract Construction	416	700
Manufacturing, Total	1,662	1,400
Food & kindred products	257	135
Apparel	40	0
Lumber & wood products	257	203
Furniture & fixtures	138	45
Pulp and paper	138	181
Printing & publishing	40	45
Chemicals	0	45
Petroleum	20	23
Stone, clay & glass products	20	23
Primary metals	59	135
Fabricated metals	20	23
Machinery	40	0
Transportation equipment	633	542
Public Utilities	159	180
Trade	870	768
Finance, Insurance & Real Estate	237	135
Services	435	158
Other	60	45

3. Problems of target groups in adjusting to the job market.

Although each target group rarely encounters all the barriers to employment that are prevalent, many of the problems affect in greater or lesser degree most individuals within the target groups.

To ascertain which one problem or combination of problems cause the people to fail to obtain and hold satisfactory employment presents a dilemma. The dilemma being: is the problem the cause of their lack of a job, or is the lack of the job a mitigating influence? For example, one of the suggested difficulties is transportation. Is the lack of transportation causing the lack of a job or vice-versa? It is apparent that both can be true, or either, depending upon the individual.

Each member of a target group experiences to a different degree barriers caused by lack of confidence, poor grooming, poor work habits and attitudes, transportation difficulties, child care problems, lack of skill, lack of motivation, et al. It is significant to note that although these problems affect most members of target groups, they do not affect the members of the groups in the same way. Some individuals whether because of intestinal fortitude or pure luck manage, after a minimum of skill training, to solve a great many of the problems which to other people in the target groups are insurmountable barriers.

Even in the case of employers who are willing to hire the disadvantaged into an environment that provides for deviation from the norms of usual employee standards, the results of this so-called honeymoon period are less than 100 percent effective.

To assume that the disadvantaged in this area experience any difficulties which are significantly different than those of other areas, presupposes that our own area's cultural norms and our mixture of sub-cultures which must operate in our established system are unique. This is not the case. It would be fair to say that some of the barriers to employment of the disadvantaged are internal, and must be met by internal change; and some of the barriers are external and must also be changed. To what extent the various programs are affecting these internal and external changes is dependent on whether one chooses to look at failures or successes. The failures of the programs certainly indicate the failure of the programs to affect these changes. But do not also the successes demonstrate the effectiveness of programs in affecting these changes?

By and large our most significant problem is the lack of meaningful jobs for people who possess little else than the desire for productive work.

F. ANTICIPATED EMPLOYMENT DEVELOPMENTS FISCAL 1970 AND 1971

The economic slowdown experienced in the early months of fiscal 1970 is expected to continue until the late months of fiscal 1971 when some improvement will become evident. In contrast to the average annual increase of 6,000 between fiscal 1965 and 1969, and increase of only 2,200 is probable between fiscal 1969 and 1970 and only 700 between fiscal 1970 and 1971.

Manufacturing employment (Fiscal 1969--20.8; 1970--20.7; 1971--20.6)

Lumber and wood products employment will continue to fall below year earlier levels for the balance of fiscal 1970 because of the low level of housing starts. Some easing of monetary and fiscal restraints are likely in late 1971, which will prompt a minor increase in lumber payrolls. The "other manufacturing" group is the only other manufacturing category expected to undergo significant changes from now until the end of fiscal 1971. Higher employment in boat building and other segments will boost employment 200 in fiscal 1970. Based on the expectation of lower defense related business in fiscal 1971, however, a loss of 200 is probable in that year.

Contract Construction (Fiscal 1969--6.1; 1970--5.8; 1971--5.2)

In fiscal 1970 declining construction of single family dwelling units was largely offset by increased commercial and public construction. In the remainder of the fiscal year, however, cutbacks in federal and state projects will lower construction payrolls well below year earlier levels. Average annual employment in construction for fiscal 1970 will be 300 lower than in fiscal 1969. A further and larger loss in fiscal 1971 will drop employment in the building trades 600 below the fiscal 1970 level and 900 below the fiscal 1969 level.

Over building has become evident in commercial projects, especially apartment houses. Building costs have skyrocketed and interest rates will remain high for a long time. Future years will also see more off-site fabrication to offset rising costs. All of the above factors will tend to lower construction payrolls through fiscal 1971.

Government (Fiscal 1969--26.7; 1970--27.2; 1971--27.7)

Governmental payrolls rose by an average of 1,400 between fiscal 1965 and 1969, but gains of only 500 are probable in fiscal 1970 and 1971. Increases between 1965 and 1969 were largely due to expanding school enrollments and growth at military establishments. With cutbacks in defense spending now underway, federal employment is not expected to increase in the near future. In addition, growth in school enrollments has begun to taper off and employment in public education will not increase as rapidly as in the past.

LABOR FORCE AND EMPLOYMENT IN THE TACOMA METROPOLITAN AREA
(in thousands)

	FISCAL YEAR					
	1969	1970	1971	1972	1973	1974
CIVILIAN LABOR FORCE	132.7	136.6	137.5	141.3	145.2	149.2
Workers in labor disputes	.1	.1	.1	.1	.1	.1
Total Unemployment	6.0	7.7	7.9	7.9	7.9	7.4
Percent of Labor Force	4.5	5.6	5.7	5.6	5.4	5.0
Total Employment	126.6	128.8	129.5	133.3	137.2	141.7
Manufacturing	20.8	20.7	20.6	20.5	20.5	20.9
Food & kindred products	3.2	3.1	3.1	3.2	3.2	3.3
Lumber & wood products	5.5	5.2	5.3	5.0	4.8	4.8
Pulp & paper products	1.7	1.8	1.8	1.8	1.8	1.8
Chemicals	1.1	1.1	1.1	1.1	1.1	1.1
Metal & nonelectrical machinery	3.5	3.5	3.5	3.6	3.6	3.7
Other manufacturing	5.8	6.0	5.8	5.8	6.0	6.2
Contract Construction	6.1	5.8	5.2	5.5	5.8	6.0
Transportation, Communication & Utilities	6.7	7.0	7.3	7.7	8.1	8.5
Trade	23.7	24.7	24.5	25.7	27.0	28.4
Finance, Insurance & Real Estate	5.9	6.2	6.4	6.7	7.0	7.3
Services & Miscellaneous	17.9	18.7	19.4	20.4	21.6	23.0
Government	26.7	27.2	27.7	28.5	29.0	29.5
Agriculture	4.6	4.3	4.1	3.9	3.7	3.5
All other nonfarm employment	14.2	14.2	14.3	14.4	14.5	14.6

Trade, Services and Other Manufacturing

With employment declining in lumber, construction, and in the King County aerospace industry, and lower growth rates in other basic industry and government, purchasing power will increase slowly in the remainder of fiscal 1970 and in fiscal 1971. Consequently, trade, service, and other nonmanufacturing wage and salary employment dependent on consumer purchases will also grow more slowly. Employment in the trade and services industries each rose an average of 1,300 annually between fiscal 1965 and fiscal 1969. In fiscal years 1970 and 1971 trade is expected to post increases of 1,000 and 800 respectively, while services should add 800 in fiscal 1970 and 700 in fiscal 1971.

Unemployment

Because of the lack of employment opportunities, unemployment is expected to increase from an average of 6,000 and 4.5 percent of the labor force in fiscal 1969 to 7,700 and 5.6 percent in fiscal 1970. In fiscal 1971 unemployment is expected to total 7,900, representing 5.7 percent of the work force.

Long Range Outlook

Between fiscal 1972 and fiscal 1974, the economy should begin to expand more rapidly, although it is unlikely to match the hectic pace recorded in recent years. Cutbacks in aerospace should be completed in fiscal 1971 and some expansion might occur. Government fiscal and monetary policies should be less stringent, and retrenchment in defense spending and federal and state funded construction will be in the past. Employment is likely to increase 3,800 in fiscal 1972; 3,900 in fiscal 1973; and 4,500 in fiscal 1974. In spite of the overall trend in those years, lumber employment will fall as a large firm moves administrative personnel to a new office complex in an adjacent area. It should be noted, however, most of these individuals will continue to maintain homes in the Tacoma Metropolitan Area where they will continue to spend most of their earnings.

G. TARGET POPULATIONS *

UNIVERSE OF NEED

TACOMA METROPOLITAN AREA 1969

TOTAL UNIVERSE OF NEED	26,100
Non-poor individuals unemployed during year	9,200
Disadvantaged individuals, total	14,500
Unemployed poor	1,800
Part-time employed for economic reasons	1,300
Employed full-time at or below poverty level	10,800
Individuals who should be in labor force	600
Under-utilized non-poor individuals	2,400

The preceding figures are an estimate of the total number of individuals who need employment-related assistance. These figures are based on a methodology devised by the Department of Labor and used by Employment Security Department. They are not to be interpreted to be an accurate count, but are an estimate of the total individuals in our area who will be requiring a wide variety of manpower-related services. The universe of need attempts to eliminate from the totals the vast number of individuals who appear in the various agencies for service but who need only the minimal amounts of assistance in order to re-enter the work force. Such individuals may be those temporarily laid off from a job but who expect to return to their normal employer within a reasonable length of time. Or those individuals who possess sufficient skills and experience to freely move into productive employment.

Within the broad classification of Disadvantaged Individuals are specific sub-groups or target populations. These target populations attempt to categorize the disadvantaged into classes which have similar employment barriers. Although an individual can be properly a part of one or more of these sub-groups, to the best of our ability the double representation has been eliminated.

Ethnic classification has not been assigned a separate target group as such, primarily because of their representation in all groups specified. Generally, because of a dramatic increase in non-white immigration into this area, current data on non-whites is unavailable. We must make assumptions that national data will adequately delineate the social and economic status of non-whites.

To be sure, non-whites are disproportionately represented among the disadvantaged. In relation to White population, non-whites have a higher

*A description of the methodology used to determine target group size will be found on page 59 of the State Summary.

proportion of youth, less educational attainment, lower skill levels, about double the incidence of unemployment, and income approximately one-third lower. In addition the non-white frequently is socially, culturally and geographically isolated to the extent that the services and jobs available to him are unknown.

The following represents the estimate of the size of target groups and their special problems and needs.

Residents of Target Areas

This target group encompasses disadvantaged persons who reside within the boundaries of an area designated by the Federal government as the target for special manpower or similar programs, i.e., Model Cities. At this time the Tacoma Model Cities program is in the mid-point of their planning period and quantitative data is not available.* Currently the residents of this area comprise 20 percent of enrollment in programs such as MDTA, DVR, and WIN.

Public Assistance Recipients

This includes all recipients of public assistance (AFDC and other) who could be presumed to benefit from manpower services. Approximately 2,616 individuals will need services including and not limited to medical care, child care, counseling, and vocational training. This target group tends to be predominately female head-of-household in the 20 to 30 year age range. The children in these households, more than the national average, number 4 on the average.

Physically, Emotionally, or Socially Disabled

These are persons who are precluded from employment because of physical, emotional, or social handicaps. Services to this group will include vocational counseling, guidance, training, physical restoration, diagnostic services, on-the-job experience, placement and in severe cases workshop placement wherein a reduced production rate and/or a limited degree of performance is required. This target group encompasses approximately 6,000 individuals in this area.

Prison Inmates

This target group has been included because of a Research and Demonstration project operational in the Federal Prison at McNeil Island for 60 trainees. The total prisoner population of this institution averages 1350 men. Predominately this group has a low level of educational attainment (8th grade) and, of course, find extreme discrimination or barriers to employment because of their prison record.

*When such data becomes available, it will be incorporated into this document by amendment.

Reservation Indians

These are all persons so classified by the Bureau of Indian Affairs. Indians not classified as reservation residents are reported under other classifications as appropriate. The number of this group in this area is 313. The Indian stereotype and lack of adequate transportation are the two greatest barriers to employment at and near their home area.

Persons with less than Eighth Grade Achievement

This target group has been included for the purpose of incorporating Adult Basic Education programs into the plan. With this group no effort has been made to eliminate possible double counting or overlapping as with the other groups. While many of the disadvantaged have less than eighth grade achievement, not all members of this group meet the disadvantaged criteria. There has not been any data or any methodology developed which will enable us to identify only those in this group who are disadvantaged. This group encompasses over 26,000 persons.

Disadvantaged Adults.

This group encompasses poor adult persons who meet the disadvantaged criteria but who do not fall readily into the other target groups. Of the approximate total of 3,200 individuals the most significant problem is the lack of jobs for which they are qualified by experience and/or training. Most have functioned only in marginal or seasonal jobs without acquiring any degree of sophisticated skills. Many, due to repeated failures in finding successful employment, believe that there does not exist a job for them. In addition, and possibly prior to vocational training, these individuals will require intensive counseling services.

Disadvantaged Youth.

These are persons under 22 who are poor and meet the criteria of diadvantagement. The individuals in this target group, because of specifically designed programs, are less likely to appear in the other target groups. In this area are approximately 1,100 disadvantaged youth. In addition to a lack of formal education and vocational skills, many of these individuals lack motivation and normal work habits. Programs which are of a sheltered work type, such as Neighborhood Youth Corps, can assist this target group to develop the necessary stability of behavior so that vocational skill programs can be effective. In some programs such as MDTA Institutional training, many of these individuals, because of their immaturity, cannot adequately participate in the program until they have developed stability of behavior gained from Neighborhood Youth Corps.

Under-utilized non-poor Persons.

This comprises persons who are operating significantly below their potential vocational and educational attainment because of prior disadvantagement, economic pressures, or other reasons such as minority group membership. This group is estimated to encompass 2,400 individuals. Many of these individuals are marginally employed with a number of dependants which does not allow for sufficient financial resources to avail themselves to existing adult vocational courses. Many of these people are just a downtrend in the economy from being included into one of the other target groups. Although MDTA has some provisions for assisting this group, many programs do not reach them because they are not classed as meeting the disadvantaged criteria. In addition to this group are the servicemen who are to be released from active duty within six months. Because many of these individuals have learned skills which do not relate to civilian occupations, they are considered to be operating below their potential vocational attainment. These servicemen will number 2,500 individuals who can be assisted by Project Transition.

Outlook for Target Groups.

The following table reflects the estimated size of the target groups over the next five year period. The growth of the groups is based on two assumptions: one, that current in-migration and economic trends will remain as projected; and two, that program efforts will be maintained at near their present levels.

TARGET GROUP	1971	1972	1973	1974	1975
Public Assistance Recipients	2747	2829	2914	3001	3091
Physically, Emotionally or Socially Disabled	6300	6489	6684	6885	7092
Prison Inmates	1428	1471	1515	1560	1607
Reservation Indians	328	338	348	358	369
Disadvantaged Adults	3360	3461	3565	3672	3782
Disadvantaged Youth	1155	1190	1226	1263	1301
Under Utilized Non-Poor	2520	2596	2674	2754	2837
Persons with Less than 8th Grade Achievement	27,300	28,119	28,963	29,832	30,727

H. INVENTORY OF CURRENT MANPOWER PROGRAMS

Table 1-A includes a list of Federally funded programs operational during fiscal year 1969, and totals of persons involved up to, and including, fiscal year 1970. In most instances the geographical scope of those programs is the Tacoma-Pierce County area. Primarily the programs are funded on a fiscal year basis, thus little carry-over funds are anticipated.

Table 1-B includes a brief description of services offered by each program.

Table 2-A includes a list of primarily non-federal programs and description of services available in this area. While this list does not include each program that exists, it does include those whose services are primarily complimentary to manpower services.

Because of the length of these tables, they are appended at the end of this report.

I. SUGGESTED PRIORITIES AND PROGRAM NEEDS

The following list includes the target groups by estimated size and the resulting unmet needs by current program activities.

TARGET GROUP	SIZE	UNMET NEED
Residents of Target Area	INA	INA
Public Assistance Recipients	2,616	2,057
Physically, Emotionally or Socially Disabled	6,000	4,000
Prison Inmates	1,360	1,300
Reservation Indians	313	300
Disadvantaged Adults	3,200	2,687
Disadvantaged Youth	1,100	1,076
Under Utilized Non-Poor	2,400	2,400
Persons with Less than 8th Grade Achievement	26,000	25,300

It is readily apparent that the existing levels of program activities barely cause a dent in the total of disadvantaged individuals, while, at the same time, the number of disadvantaged individuals is increasing. Of course, not all members of the target groups are precluded from entry into employment without the variety of program efforts directed to them. Some manage, whether by internal strength or good fortune, to secure for themselves an adequate job and the accompanying benefits that accrue from it.

Of the estimated total of target groups for fiscal year 1971 the non-federal programs serve slightly more than 2 percent of the total. The federally funded programs, if continued into FY 1971 at current levels, would serve slightly less than 15 percent, or 3,888 individuals, of the total target group population.

Beyond the quantitative need are unmet needs due to lack of facilities and services. One foremost need is a greater involvement by employers. Although our local NAB effort is laudable, it is not producing the volume of openings necessary to encompass more than special pressure groups. The target groups such as Public Assistance Recipients and Physically, Emotionally and Socially Disabled are not well represented in the limited jobs that have been developed. Certainly much of the lack of openings garnered by NAB is attributable to the overall downward trend in the economy.

Additional unmet needs are child care, transportation, low cost housing, family counseling, etc. These needs, by and large, are created not by gaps in services, but by the ratio of program slots versus populations within the target groups.

In view of the fact that many of the individuals who are without employment is because of a lack of sophisticated skills, the first priority of service should be to provide training in depth. This is, of course, an expensive procedure but in an economy that is declining, programs that offer only minimal training do not offer, in fact, a pathway to productive employment. The surface level or short duration training does not impart skills any greater than that which is possessed by the recently unemployed. With the pressure of more and more people finding themselves on the welfare rolls, each program should, as a matter of expediency, concentrate the bulk of their activities towards this group.

One method of improving the current activities of programs would be to provide sufficient staff resources to enable the various agencies to do a more thorough follow-up. This increased follow-up should tend to decrease the dropout rates in the various programs.

Over the next 3 to 5 years it is projected that our economic growth will again be on an upward trend. During this period our target groups should have only moderate increases. Our greatest need will be to have some real commitment by the employing establishments to open the doors of opportunity to include groups heretofore precluded from productive utilization. A greater degree of program or agency commitment in delivering services will also be a need. Much more than lip service will have to be given in order to mount a concentrated attack on the myriad problems of the disadvantaged. We can no longer afford to each "do his own thing" in our approach to manpower programs.

TABLE 1-A
Federally Assisted Manpower
Programs Operational
FY 1969 and 1970

PROGRAM NAME *	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED
ADULT VOCATIONAL TRAINING	BIA	Federal	INA	Reservation Indians	15
NATIONAL APPRENTICESHIP PROGRAM	BAT	Federal	INA	Disadvantaged Youth	Accessions 1080** Skill Improvement 660**
	**It is estimated that approximately 9% of the totals are disadvantaged youth.				
VOCATIONAL REHABILITATION	DVR	Federal/ State	INA	Physically, Emotionally or Socially disabled	4100
WIN	SDPA/ES	80% Federal 20% State	$239,421	Public Assistance Recipients	569
NEIGHBORHOOD YOUTH CORPS Out-of-School	DOL	Federal	166,760	Disadvantaged Youth	135
NEIGHBORHOOD YOUTH CORPS In-School	DOL	Federal	208,856	Disadvantaged Youth	342

*See Table 1-B, immediately following for additional information. See also Tables I, II, IV, and V, Tacoma Section of Part B of the FY 1970 Manpower Plan for a description of the programs listed in this table and their utilization in dealing with the problems of the target groups.

TABLE 1-A Continued

PROGRAM NAME	AGENCY	FUND SOURCE	AMOUNT	TARGET GROUP	NUMBER SERVED
NEIGHBORHOOD YOUTH CORPS Summer	DOL	Federal	295,844	Disadvantaged Youth	630
OPERATION MAINSTREAM	DOL	Federal	170,000	Disadvantaged Adults	42
ADULT BASIC ED	Tacoma Public Schools	Federal State	21,000	Persons with less than 8th grade achievement	1040
MDTA - Inst.	ES / Voc. Ed.	Federal State	546,371	Disadvantaged Youth Disadvantaged Adults P.A. Recipients	342
MDTA - Transition	ES/ Voc. Ed.	Federal State	146,432	Under-utilized non-poor	360
MDTA - Prison Project	ES / Voc. Ed.	Federal State	70,375	Prison Inmates	60
MDTA-OJT	DOL	Federal	INA	Disadvantaged Adults & Youth	35
MANPOWER CENTER	Oppor. Dev. Ind. (OEO)	Federal	4,000	Disadvantaged Adults & Youth	35

TABLE 1-B
Federally Assisted Programs

PROGRAM NAME	AGENCY	SERVICES OFFERED
ADULT VOCATIONAL TRAINING	Bureau of Indian Affairs	Counseling, testing, evaluation, vocational training, placement assistance, income maintenance while in training.
NATIONAL APPRENTICE-SHIP PROGRAM	Bureau of Apprenticeship	By utilizing the voluntary cooperation of management and labor, the Bureau assists industry in the development, expansion, and improvement of apprenticeship and training programs designed to provide skills required in the economy.
VOCATIONAL REHABILITATION	Division of Vocational Rehabilitation	By vocational counseling, guidance, training, physical restoration, diagnostic services, on-the-job experience, and placement public dependent and potentially dependent individuals are provided gainful employment.
WIN	Public Assistance and Employment Security Dept.	By the joint efforts of PA and ES, recipients of AFDC are provided income maintenance, child care costs, transportation, counseling, testing, work experience, training and education to progress to full employment.
NEIGHBORHOOD YOUTH CORPS	Department of Labor	In cooperation with City and County government, youths are placed in jobs to develop the attitudes and aptitudes necessary for their later inclusion into the work force. Primarily, the program attempts to redirect the clients into the mainstream educational system.

TABLE 1-B Continued

PROGRAM NAME	AGENCY	SERVICES OFFERED
OPERATION MAINSTREAM	Department of Labor	Provides work for persons hard to employ because of age, health or insufficient training. This employment is temporary and is used as a stepping-stone to the re-entry of persons into private industry.
MDTA	Employment Security Department	Provides vocational training, counseling, transportation expense, income maintenance, job development and placement. Training can also be on-the-job with cooperation of private employers. Trainees are paid usual wages and employers are reimbursed for extraordinary costs.
MANPOWER CENTER	Tacoma-Pierce County Opportunity and Development, Inc.	Provides intake, assessment, counseling, job development, training stipends, and placement. Directs clients to other agencies as appropriate for wide variety of services.
ADULT BASIC EDUCATION	Tacoma Public Schools	Provides remedial education in a variety of locations throughout the Tacoma area to bring people to a functional eighth grade level.

TABLE 2-A
Non Federal Programs
Operating FY 1970

PROGRAM NAME	AGENCY	SOURCE OF FUNDS	NUMBER OF PERSONS	SERVICES OFFERED
JOBS	NAB	Private/Federal	450	Employment of hardcore unemployed using OJT methods on a voluntary commitment of the business community. (May be assisted by DOL.)
CEREBRAL PALSY WORKSHOP	United Cerebral Palsy of Pierce Co.	Private	75	Provides workshop experience and training for handicapped adults.
TACOMA GOOD-WILL INDUSTRIES REHABILITATION	Goodwill Industries of America	Sales & Contributions. Federal and State Grants.	150	Provides training, rehabilitation and employment for handicapped and older workers in a sheltered workshop.
CASCADIA JUVENILE RECEPTION DIAGNOSTIC CENTER	State Department of Institutions	State	1,700 admissions per year	Cascadia receives all boys and girls, ages 8 through 17, committed by the Juvenile Courts as delinquents. Following a short period of evaluation and study, the child is either transferred to one of its institutions or forest camps, or is returned to the community under the supervision of Juvenile Parole, and in some cases may be referred to Employment Security or other agencies for training.

TABLE 2-A Continued

PROGRAM NAME	AGENCY	SOURCE OF FUNDS	NUMBER OF PERSONS	SERVICES OFFERED
TACOMA VOCATIONAL TECHNICAL INSTITUTE	Tacoma Public Schools	State and local primarily	12,515	Provides vocational and technical training in 41 different occupational fields, day and night classes. This facility has the capacity to expand at least equal to their present level of operations.
FORT STEILACOOM COMMUNITY COLLEGE	State Board for Community College Ed.	State	500 vocational students only	Provides vocational and technical education in 12 occupational fields, Primarily evening classes. Room for expansion open.
CLOVER PARK EDUCATION CENTER	Clover Park School District #400	State/ local	9,900	Provides vocational and technical training in 45 occupational fields- day and evening classes - if needed expansion could equal present level of operations.
CRISIS CLINIC	Community Mental Health	Grants/ donations	7,000 average cases per year	Provides short-term, group, individual, or family therapy, to promote a better adjustment of the patient to his life situation.
----	Tacoma Housing Authority	Grants/ rents	1,495 units	Provides housing for families of low income who are presently living in sub-standard housing, or are without housing or about to be without housing. Approximately 43 percent of the low income housing is for elderly. Housing is both owned and leased by Tacoma Housing Authority.

TABLE 2-A Continued

PROGRAM NAME	AGENCY	SOURCE OF FUNDS	NUMBER OF PERSONS	SERVICES OFFERED
--	Conifer Corp.	Private	569 units	Develops and constructs housing for low to moderate income families with some being under rent subsidy under 221-B 3 program.
JUVENILE PAROLE SERVICES	Department of Institutions	State	INA	Provides casework services to parolees and their families, and field investigations. Juvenile Parole frequently works with other agencies by providing counseling assistance and referral.
MIGRANT MINISTRIES	Puyallup Valley Migrant Ministries	Private	INA	Provides medical, health, clothing, recreation, and instruction during June, July, August and early September.
DAY CARE	Various	Private	666	18 separate centers located in the county area (primarily Tacoma) provide day care of pre-school children ages 2½ to 6. Fees are based upon parents' ability to pay.

TABLE 2-A Continued

PROGRAM NAME	AGENCY	FUND SOURCE	NUMBER OF PERSONS	SERVICES OFFERED
RAINIER SCHOOL	Department of Institutions	State	1,700	Provides residential care, treatment, and education and training for mentally retarded residents of western Washington. There is no age limitation. One year state residence prior to application.
MEN'S REHABILITATION	Salvation Army	Donations	50	Provides counseling, spiritual guidance, work and training on restoring household articles, furniture, clothing, etc. to rehabilitate the physically handicapped, alcoholic and parolees.
TACOMA RESCUE MISSION	Tacoma Rescue Mission, Inc.	Donations	INA	Provides shower facilities, meals, clothing, dormitory services for needy unattached men. Also provides counseling and placement. The women's division is the HOPE GUEST HOME.

TABLE 2-A Continued

PROGRAM NAME	AGENCY	FUND SOURCE	NUMBER OF PERSONS	SERVICES OFFERED
HEADSTART MANPOWER CENTER EASTSIDE HILLTOP M.O.R.E. SOUTHSIDE REO LEGAL AID NARCOTICS PROBATION SENIOR CENTERS	Tacoma-Pierce County Opportunity and Development Inc.	O.E.O.	INA	Tacoma-Pierce County Opportunity and Development, Inc. provides a combination of services through its delegate centers and programs such as: day care, outreach, housing assistance, aides for sick, well baby clinic, tutoring, crisis counseling, training, job development, placement, etc.

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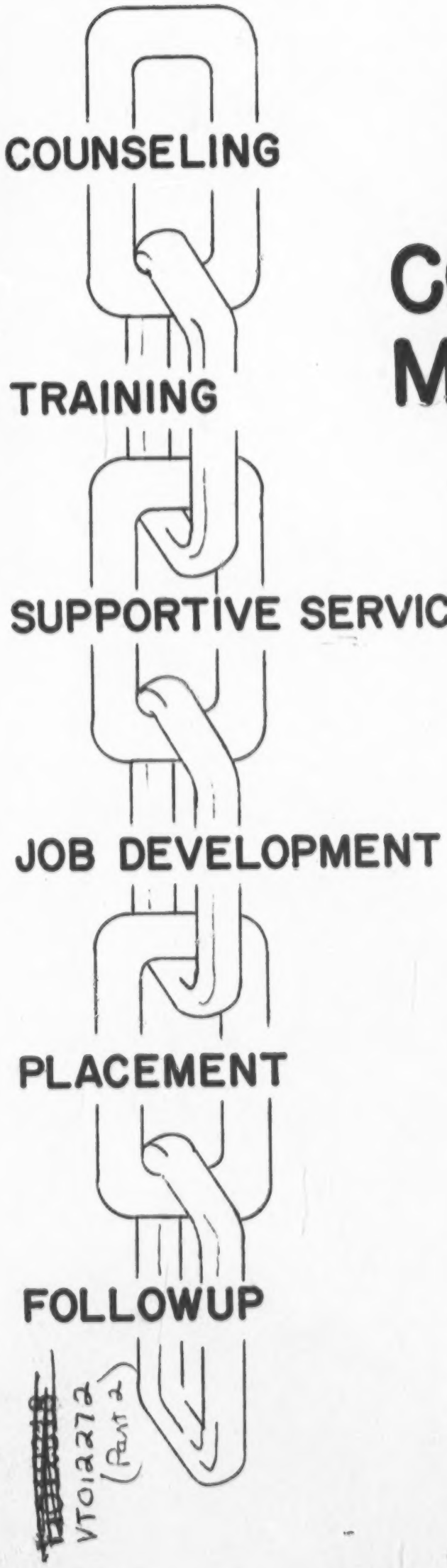

VT012272 (Part 2)

STATE OF

WASHINGTON

COMPREHENSIVE MANPOWER PLAN

FISCAL YEAR 1971

PART B

DANIEL J. EVANS
GOVERNOR

PART B

STATE OF WASHINGTON

COMPREHENSIVE MANPOWER PLAN

for

FISCAL YEAR 1971

* * * * * * * * * * *

August 1, 1970

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Compiled and Submitted by the
State of Washington
Governor's Manpower Coordinating Committee

Richard W. Hemstad, Chairman
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Part B

Fiscal Year 1971 Comprehensive Manpower Plan

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September 30, 1970

SPECIAL NOTICE

Amendments for:

PART B - Washington State Comprehensive Manpower Plan - Fiscal Year 1971

1. State Summary Section (white pages):

Remove and Destroy	Insert	
Page	Page	Amended
Contents	Contents	9/30/70
5	5	9/30/70
9	9	9/30/70
15	15	9/30/70
37	37	9/30/70
40	40	9/30/70
46	46	9/30/70
--	New Pages: 47-54	9/30/70

2. Balance of State Section (green pages):

Remove and Destroy	Insert	
Page	Page	Amended
9	9	9/30/70
38	38	9/30/70

3. Seattle-Everett Section (blue pages):

Remove and Destroy	Insert	
Page	Page	Amended
3	3	9/30/70
17-23	17-23	9/30/70
31	31	9/30/70
38	38	9/30/70
--	New Page: 38A	9/30/70

4b

4. Tacoma Section (buff pages):

Remove and Destroy		Insert	
Page		Page	Amended
7		7	9/30/70
16		16	9/30/70
21		21	9/30/70
24		24	9/30/70
27		27	9/30/70
29		29	9/30/70
--	New Page:	37A	9/30/70

Rev. 9/30/70

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INTRODUCTION

This document is the second half of the Comprehensive Manpower Plan for Fiscal Year 1971. The first half, PART A, was published on March 1, 1970. To familiarize the reader with the contents of these two documents, the following summary is presented:

> PART A consists of a description of the state and area, the identification of manpower problems, a narrative and statistical description of the target populations, and a summary of current manpower activity. (By current is meant the fiscal year in which the plan is being written rather than the upcoming fiscal year.)
>
> PART B lists the manpower resources available for the planning year, identifies the target populations to be served by them, and details how these resources will be utilized to meet the objectives of the target populations. PART B also establishes priorities, describes unmet needs, describes how the various agencies will cooperate with each other in serving the target populations (linkages), and discusses general community involvement in the preparation and implementation of the plan.

This document contains four color coded parts, as follows:

- State Summary (white pages): A brief general summary of the information contained in the area plans.
- Balance of State Area Plan (green pages): The plan for all counties in the state except King, Snohomish and Pierce.
- Seattle-Everett Area Plan (blue pages): The plan for King and Snohomish Counties.
- Tacoma Area Plan (buff pages): The plan for Pierce County.

The format of this state summary follows the general format provided for the area plans by the National Coordinating Committee. Whenever possible, tables have been appended to the end of this section. As requested in Interagency Cooperative Issuance No. 71-2, this state portion of the plan consists of a relatively brief overall statewide summary and analysis.

A. Inventory of Program Resources Available for FY 1971:

The area plans each contain three tables which together list all manpower resources available for the planning year. These tables are as follows:

Table I - Federal Fiscal Year 1971 Programs: This table includes information about all programs funded entirely or in part from estimated Fiscal Year 1971 federal manpower funds. For each manpower program the table includes:

1. Program name

2. A short description of the program

3. The amount of federal funds (and state funds, if any) estimated to be available for Fiscal Year 1971

4. The estimated number of persons to be served by the program.

Table II - Federal Carryover Programs from Previous Fiscal Years: Information on this table is essentially the same as that on Table I with the exception of the year in which the program funds were appropriated.

Table III - Non-Federal Manpower Programs FY 1971: This table lists manpower resources funded entirely from non-federal funds. The table shows the following information:

1. Program name

2. Operating agency

3. A short description of the program

4. Fund source and amount, when available

5. The estimated number of persons to be served.

In the case of Table III fund sources are more frequently entered than fund amounts. Many private and community agencies operate on contributions or on fund cycles other than fiscal years and were unable to provide financial projections for Fiscal Year 1971.

Summary Tables I, II, and III, will be found in the appendix to this portion of the plan beginning on page 12.

Tables A and B, immediately following this page, represent an overall summary of federal and state funds and training opportunities apportioned by the state committee to the three CAMPS planning areas. This table shows, by program, the total state allocation, the total number of training opportunities available for state planning, and the breakdowns of these totals into subtotals for each of the three planning areas.

TABLE A

State of Washington
FISCAL YEAR 1971 PROGRAM FUNDS AND TRAINING OPPORTUNITIES
By CAMPS Planning Areas

Program Name	Total State Allocation	Total State Training Oppor-tunities 1/	Balance of State Area		Seattle-Everett Area		Tacoma Area	
			Funds	Training Oppor-tunities	Funds	Training Oppor-tunities	Funds	Training Oppor-tunities
MDTA - National OJT and Coupled Projects	$ 686,123	1,187	xxx 2/	xxx	xxx	xxx	xxx	xxx
MDTA Institutional and Part-Time and Other	Federal: 2,647,000 State: 139,312	1,400	Federal: $1,376,440 State: 72,444	728	Federal: $1,032,330 State: 54,330	546	Federal: $238,230 State: 12,538	126
JOBS	3,293,000	1,098	428,090	143	2,305,100	768	559,810	187
Special OJT Option	522,000	621	438,480	522	46,980	56	36,540	43
NYC - In School	890,000	1,240	480,600	670	302,600	421	106,800	149
NYC - Summer	1,612,000	4,873	870,480	2,631	548,080	1,657	193,440	585
NYC - Out-of-School	1,510,000	438	875,800	254	468,100	136	166,100	48
Mainstream	385,000	103	250,250	68	69,300	18	65,450	17
WIN	3,100,512 (Fed. 80% State 20%)	4,200	1,695,980	2,297	1,032,471	1,399	372,061	504

1/ "Training Opportunities" refers to the number of persons to receive a service (as opposed to slots).
2/ "xxx" indicates entry not applicable in that funds and training opportunities cannot be broken down into areas.

TABLE A

FISCAL YEAR 1971 PROGRAM FUNDS AND TRAINING OPPORTUNITIES
(Continued)

Program Name	Total State Allocation	Total State Training Oppor-tunities 1/	Balance of State Area		Seattle-Everett Area		Tacoma Area	
			Funds	Training Oppor-tunities	Funds	Training Oppor-tunities	Funds	Training Oppor-tunities
WIN - PA Support to Trainees 3/	(Fed. 75% State 25%) $2,025,954	4,200	$1,108,197	2,297	$ 674,643	1,399	$ 243,114	504
Adult Basic Education	Federal: 366,630 State: 64,700	3,500	Federal: 186,981 State: 32,997	2,205	Federal: 146,652 State: 25,880	945	Federal: 32,997 State: 5,823	350
Vocational Education Basic Grants	Federal: 3,840,300 State: 10,000,000	260,640	Federal: 1,954,600 State: 5,100,000	132,926	Federal: 1,427,000 State: 3,700,000	96,437	Federal: 458,700 State: 1,200,000	31,277
DVR - Basic Support Program	Federal: 6,718,459 State: 2,879,130	14,186	Federal: 2,909,093 State: 1,246,663	6,143	Federal: 2,868,782 State: 1,229,389	6,057	Federal: 940,584 State: 403,078	1,986
BIA - Employment Assistance Program	4/ 300,000	300	280,000	280	15,000	15	5,000	5
Job Corps	INA	360	INA	207	INA	114	INA	39
ESD - Title III	6,687,897 (estimated)	173,330	2,608,280 (estimated)	67,714	3,277,069 (estimated)	84,484	802,548 (estimated)	21,132

1/ "Training Opportunities" refers to the number of persons to receive a service (as opposed to slots).
3/ Includes child care, transportation, physical examinations, extra clothing, glasses, dentures, and child physical examinations for those children of WIN enrollees placed in day care centers.
4/ FY 1971 estimate based on FY 1970 appropriation.

TABLE A

FISCAL YEAR 1971 PROGRAM FUNDS AND TRAINING OPPORTUNITIES
(Continued)

Program Name	Total State Allocation	Total State Training Oppor-tunities 1/	Balance of State Area		Seattle-Everett Area		Tacoma Area	
			Funds	Training Oppor-tunities	Funds	Training Oppor-tunities	Funds	Training Oppor-tunities
State Apprenticeship Program	N/A	2,000	N/A	550	N/A	1,000	N/A	450
Concentrated Employment Program	2,060,000	1,350	-0-	-0-	2,060,000	1,350	-0-	-0-
Seattle Opportunities Industrialization Center (SOIC)	908,736	500	-0-	-0-	908,736	500 5/	-0-	-0-
Model Cities	N/A	1,100	-0-	-0-	N/A	1,100 6/	-0-	-0-
Manpower Tacoma Pierce County Opp. and Dev., Inc.	212,510	876	-0-	-0-	-0-	-0-	212,510	876

1/ "Training Opportunities" refers to the number of persons to receive a service (as opposed to slots).
5/ SOIC direct intake only - SOIC will also train 614 of the individuals served through CEP.
6/ Jobs generated by Model Cities operations.

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TABLE B

State of Washington
CARRYOVER PROGRAM FUNDS AND TRAINING OPPORTUNITIES
By CAMPS Planning Areas

Program Name	Total State Allocation	Total State Training Opportunities 1/	Balance of State Area		Seattle-Everett Area		Tacoma Area	
			Funds	Training Opportunities	Funds	Training Opportunities	Funds	Training Opportunities
Public Service Careers	FY 1970 $1,261,243	565	$850,000	400	$411,243	165	-0-	-0-
New Careers	FY 1970 578,990	100	578,990	100	-0-	-0-	-0-	-0-
Mainstream	FY 1970 216,600	114	178,600	94	38,000	20	-0-	-0-
ESD-OJT Project	FY 1969 35,815	50	27,215	38	6,450	9	2,150	3
	FY 1970 164,774	380	125,174	284	29,700	73	9,900	23
Federal Water Pollution Control Administration OJT	FY 1970 245,797	40	114,975	20	130,822	20	-0-	-0-
Supplemental Training and Employment Program	FY 1970 2,870,885	817 2/	1,527,552	432 2/	1,131,173	325 2/	212,160	60 2/
CAA Manpower Programs	FY 1970 Federal: 178,781 State: 188,570	1,100	Federal: 178,781 State: 188,570	1,100	-0-	-0-	-0-	-0-

1/ "Training Opportunities" refers to the number of persons to receive a service (as opposed to slots).

2/ Plus one individual referral training slot for each four regular STEP slots.

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B. Programs in Relation to Target Populations:

The two tables in this section of the area plans, Tables IV and V, are the heart of Part B. In these tables the area committee indicates how the resources listed in Section A will be utilized to serve the target populations in the area:

Table IV - Target Populations and Objectives: This is a summary table and contains the following information:

1. The names of each target population the committee intends to serve (e.g., Disadvantaged Adults, Migrant Workers).

2. The estimated size of each target population (carried forward from Part A of the Plan, published in March 1970).

3. The manpower objectives, expressed in general terms, for each target population.

4. The number of persons in each target population to be served.

5. The percent of the total of each target population to be served.

The following table shows state summary entries for all but item 3, Manpower Objectives. These will be found on the individual Tables IV in the area plans.

TABLE C
STATE SUMMARY
TARGET POPULATIONS AND NUMBERS SERVED

Target Group	Estimated Size	No. to be Served	Percent to be Served
Disadvantaged Adults	24,137	4,490	18.6
Disadvantaged Youth	14,724	8,101	55.0
Public Assistance Recipients	26,969	5,257	19.5
Physically, Emotionally, or Socially Disabled	41,447	13,237	31.9
Reservation Indians	2,878	461	1.6
Migrant Workers	6,200	334	5.4
Persons with Less than 8th Grade Achievement	202,215	3,500	1.7
Under-Utilized Non-Poor	56,106	1,307	2.3
Residents of Target Areas	1,110 1/	229	20.6
Under-Utilized Poor 2/	36,100	165	0.5

1/ Refers to Tacoma target area only. The Seattle CEP and Model Cities residents were incorporated in the other target populations.

2/ A Seattle-Everett plan target population breakout. The Tacoma and Balance of State plans incorporated the under-utilized poor under Disadvantaged Adults and Disadvantaged Youth.

Table V - Manpower Activities: In Table V, the area plans indicate how the program resources will be distributed among the target populations. Table V provides the following information by target population:

1. The service provided
2. The agency(s) operating the program and the program name
3. The number in the target population to be served by the program
4. The source and amount of the funds
5. A brief description of the program
6. The fiscal year in which the funds were appropriated.

A master Table V, showing the statewide apportionment of program funds and training opportunities among the target populations has been included among the tables in the appendix to this portion of the plan. This master table summarizes the entries in the area Tables V. **

C. Establishing Priorities:

Priorities of activities by target population are shown in the final column of Table V in the area plans.* This column assigns a numerical priority to a particular program for a specific target population. It should be remembered that these priority assignments relate only to the relative urgency and need for activities and services for the target population under consideration. In other words, "Priority 1" assigned to a program under Disadvantaged Adults means only that the program was considered more critically needed than one coded "Priority 2" for the same target population. It does not necessarily mean that it is equally as important as a "Priority 1" assignment under another target population.

Both the Tacoma and Balance of State Area plans show priority assignments 1, 2, and 3 for the various program. The Seattle-Everett plan shows a priority 1 for each program listed. In the following quotation from the Seattle-Everett plan, the handbook referred to is the Washington State CAMPS Handbook, a document which represents a distillation of the Interagency Cooperative Issuances. The specific reference cited relating to priorities is from the plan format which is essentially the same as in ICI 71-1:

> "The handbook prepared by the State CAMPS Committee indicates that area committees should indicate relative urgency and need for all activities and services proposed in the plan. It further requests that this be accomplished by indicating in the final column of Table V the relative priorities of the programs as they relate to

* This final column does not appear on the State Summary Table V in that priorities cannot be "added together" or "averaged."

**Refer to page 47 for supplemental TABLE V-A - OCCUPATIONAL CATEGORIES.

each target group. Priorities are requested to make it possible to adjust the proposed area plan in an effective manner in light of subsequent federal action on program policies, appropriations and allocations.

"It will be noted that this committee has assigned priority one to all programs. This has been done because the labor market in the area, together with the limited funds available for manpower programs, has created a situation in which the need for all of these programs is urgent. It is the opinion of the Seattle-Everett Metropolitan Area Manpower Coordinating Committee that should any reallocation of funding become necessary it should be referred back to the area committee for action. Reallocation could then be accomplished in accordance with the relative urgency of programs based on the information available to the committee at that time."

D. Evaluation of Resources in Relation to Needs:

A review of Section D of the three area plans indicates three general areas of unmet needs:

1. The need for increased funding of existing programs: A review of the percent of each target population served* emphasizes the critical need for the expansion of existing programs. It should be emphasized here that this figure represents the percent of the target population which has received a service rather than the percent fully served. This latter figure would be somewhat smaller.

2. The need for additional supportive services: Adequate supportive services being often the factor most responsible for success or failure in training or on the job, it is strongly recommended that additional resources be made available for supportive services. In the State Summary of the Fiscal Year 1970 Part B, fourteen specific types of supportive services were recommended for additional funding. In reviewing this document the Regional Committee asked that the fourteen listed services be placed in three groups: First Priority, Second Priority, and Third Priority. While the state committee felt all fourteen services were important, it complied with the Regional Committee's request and amended the plan. These three lists are reproduced again this year for the information of the Regional Committee as there has been little apparent action on them to date:

FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY
Child Care	Bonding	Relocation Assistance
Transportation	Expanded Health Services	Nutritional Counseling
Basic and Remedial Education	Food Stamps	Consumer Education
Vocational and Educational Counseling	Allowances for Income Maintenance for More Programs	Home and Farm Loals
Job Coaching		
Orientation		

* See Table C, page 8.

3. The need for greater program flexibility: Categorized funding not only structures program content, it often predesignates the target populations to be served. The only program of major scope that provides a degree of flexibility in addressing the needs of various target populations is training under the Manpower Development and Training Act. MDTA resources are thus used in part to attempt to resolve imbalances in the proportions of target populations served but the disparities caused by predesignated target populations are too great to resolve with one program. For this reason, Table C on page 8 shows 55 percent of Disadvantaged Youth being served while only 18.6 percent of Disadvantaged Adults will receive services. The gross figures are even more striking. (Disadvantaged Adults, 4,490 out of 24,137 to be served; Disadvantaged Youth, 8,101 out of 14,724 to be served.)

E. Linkages:

Extensive and complicated systems of linkages are detailed in the area plans. These linkages are shown by target population, as requested in the format for Part B. Linkages are shown on charts rather than on the linkage tables used in the Fiscal Year 1970 Part B. This has been done at the request of the Regional Committee.

F. Relationship of Area CAMPS Plan to Special Programs of Interagency Planning and Coordination:

Special Programs of Interagency Planning and Coordination are defined in Interagency Cooperative Issuance 71-2 by examples. These examples include the Model Cities Program Community Work-Training Program, Neighborhood Center Pilot Program, the Labor/EDA/OEO Select Indian Reservation Project and so forth. With the exception of the last (not operating in this state, incidentally) such programs tend to be mounted in urban areas. Twelve such programs are listed in the Tacoma and the Seattle-Everett Plans.

G. Community Involvement:

In this section of the plan the area committee is asked to describe the role of employers, labor organizations, Indian reservation representatives, and other community groups in developing the area CAMPS plan and in implementing the proposed manpower programs. All three area plans cite the role of the local Manpower Advisory Committee, although the Seattle-Everett Plan states this committee has not been active in the past year. However, the Seattle-Everett Plan states that industry is represented through the NAB representative.

The Governor's Coordinating Committee is concerned about insuring greater input from the community at large and the target populations specifically, and is currently engaged in two studies in this area. One is the development of model committee structures for recommending to area and local committee and the other study is to develop a system for the adequate feedback of client groups into the planning process. The outcome of these studies will be summarized in the Quarterly Review Report for the first quarter of Fiscal Year 1971.

_A_P_P_E_N_D_I_X_

- Summary Tables -

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Table V - Manpower Activities 35

TABLE I

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
National On-the-Job Training Contracts	On-the-job training in industry under national contracts.	$ 686,123	1,187
Manpower Development and Training	Institutional skill training, employment orientation, or skill upgrading under the Manpower Development and Training Act (MDTA). Includes class group training or individual referral to ongoing courses in community training facilities.	Federal: 2,647,000 State: 139,312	1,400
Job Opportunities in the Business Sector	On-the-job training and supportive services for hardcore disadvantaged workers.	3,293,000	1,098
Special Option On-the-Job Training	On-the-job training contracts negotiated with industry or community agencies to provide employment opportunities or upgrading to unemployed or underemployed persons.	522,000	621
Neighborhood Youth Corps (In-School)	Part-time employment to provide youth with the financial resources and incentives to remain in school.	890,000	1,240
Neighborhood Youth Corps (Summer)	Summer employment to provide youth with the financial resources and incentives to resume school attendance in the fall.	1,612,000	4,873
Neighborhood Youth Corps (Out-of-School)	Provides unemployed, underemployed, or low income persons 16 years of age and over with useful work and training, including basic education and institutional or on-the-job training.	1,510,000	438

TABLE I

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
Mainstream	Job creation and work training program for chronically unemployed poor adults.	385,000	103
Work Incentive Program (WIN)	A joint venture of Employment Security, Public Assistance, and community resources in an effort to consolidate the manpower services of Employment Security with the supportive social services of Public Assistance to achieve habilitation or rehabilitation of the Public Assistance recipient.		
	Program funds administered by Employment Security Department.....	(Federal 80% State 20%) $3,100,512	4,200
	Program funds administered by Public Assistance for child care, transportation, physical examinations, extra clothing, glasses, dentures, and child physical examinations for those children of WIN enrollees placed in day care centers.....	(Federal 75% State 25%) 2,025,954	4,200
Adult Basic Education	Basic skills, literacy, communication, arithmetic, citizenship, consumer education.	Federal: 366,630 State: 64,700	3,500
Vocational Education - Basic Grants	Support and improvement of vocational education programs. Training for gainful employment as semi-skilled or skilled workers and for business and office occupations is emphasized.	Federal: 3,840,300 State: 10,000,000	260,640
Vocational Rehabilitation Basic Support Program	Rehabilitation services including counseling, medical and psychological examination, physical restoration, prosthetics, job training, maintenance, transportation, occupational tools and equipment, selective placement and followup.	Federal: 6,718,459 State: 2,879,130	14,186

TABLE I

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
Indian Employment Assistance Program	Institutional training in various occupations for Indian. *Estimates based on FY 1970 appropriation.	$ 300,000*	300*
Job Corps	Trains hardcore unemployed youth between the ages of 16 and 22 who are out of school. A residential type program, it includes basic education, vocational skills, and social responsibilities.	INA	360
Employment Service, Title III Activity	Activities include outreach, reception and intake, application taking and interviewing, counseling, testing, job development, selection and referral to training (programs funded from other sources), placement, occupational and industrial analysis, compiling and disseminating labor area information, test development and community services. Emphasis is placed on employability development and placement of the disadvantaged and unemployment insurance claimants that are not job ready. Priority is given to veterans.	6,687,897	173,330
State Apprenticeship Program	Provides for the development, expansion, and improvement of apprenticeship and other forms of training in industry within the structure of federal apprenticeship standards and regulations.	N/A	2,000 accessions
Northwest Rural Opportunities	Provides basic education, GED and supportive services for minority groups to assist them to compete in the labor market. Focus is on migrant workers.	INA	122

TABLE I

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
Seattle Concentrated Employment Program (CEP)	A manpower program with a unified delivery system combining the optimum mix of resources into a single project. See Section F. *The anticipated breakdown of persons to be served is as follows: Direct employment after intensive job orientation - Basic education and/or vocational training - New Careers - Operation Mainstream -	$2,060,000	1,350* (552) (614) (106) (78)
Seattle Model Cities	A comprehensive and coordinated attack on social, economic and physical problems to improve the environment and welfare of its target population. See Section F. **Jobs generated by Model Cities operations. Many of these persons will need training and/or supplemental services in addition to placement; and through CEP and WSES will be channeled into the other programs in Table I.	Not applicable	1,100**
Seattle Opportunities Industrialization Center (SOIC)	A skill center providing basic work orientation, education and occupational training. See Section F. ***SOIC direct intake only. SOIC will also train 614 of the individuals served through CEP.	908,736	500***

TABLE II

FEDERAL CARRYOVER PROGRAMS FROM PREVIOUS FISCAL YEARS

Program Name	Description	Funds	Number of Persons
Public Service Careers	Permanent employment for the disadvantaged in public service agencies and to stimulate upgrading of current public sector employees.	FY 1970 funds $1,261,243	565
New Careers	Provide unemployed and low income people with jobs leading to career opportunities in health, education, welfare, neighborhood redevelopment and public safety.	FY 1970 funds 578,990	100
Operation Mainstream	Job creation and work-training program for chronically unemployed poor adults.	FY 1970 funds 216,600	114
On-the-Job Training Projects Sponsored By The Employment Security Department	Employment Security Department contract with the Department of Labor to provide training and employment in entry skills for unemployed and upgrading for underemployed.	FY 1969 funds: 35,815 FY 1970 funds: 164,774	50 380
Federal Water Pollution Control Administration On-the-Job Training	OJT training coupled with institutional classroom and laboratory training in sewage treatment plant operation.	FY 1970 funds: 245,795	40
Supplemental Training and Employment Program (STEP)	An interim program for providing recent graduates of manpower programs with the opportunity to maintain skills and be paid a training stipend. An eligible participant is provided employment in the public sector or in the private nonprofit sector.	2,870,885	817*

*Plus one individual referral training slot for each four regular STEP slots.

TABLE II

FEDERAL CARRYOVER PROGRAMS FROM PREVIOUS FISCAL YEARS

Program Name	Description	Funds	Number of Persons
Community Action Agency Manpower Services	A variety of manpower services including prevocational and vocational training, job placement, followup, dropout prevention, summer employment for youth and so forth. For a listing of these programs see Table II-A, page , in the Balance of State Plan.	FY 1970 Federal: $178,781 FY 1970 State: 189,570	1,100
MDTA Institutional	Institutional training under MDTA for Park Ranger.	FY 1970 Federal: 125,862 FY 1970 State: 6,358	24
MDTA Institutional	Upgrading in construction skills for entry level construction laborers. A minimum of 80 trainees will be new entrants.	FY 1970: 123,840 (No state matching. Allowances only paid from MDTA funds.)	360
MDTA Institutional	Training in Fish Culture for residents of the Lummi Indian Reservation.	FY 1970: 388,657 (Private school waiver. No state matching.)	64

TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
AREA 1 - CLALLAM AND JEFFERSON COUNTIES				
Diversified Industries	Private (All referrals come through DVR)	To provide a sheltered workshop for persons unable to compete in the normal labor market, provides training and counseling.	Nonprofit	50
AREA 2 - GRAYS HARBOR AND PACIFIC COUNTIES				
Work Experience Program	Willapa Valley, Raymond, and South Bend School Districts	On-the-job training for seniors, based on student interest, in a variety of occupations.	$15,000	50
Social Services	Grays Harbor Goodwill Industries	Training and/or employment of handicapped and older persons in cashiering, sales, minor appliance repair, and entry laborer positions.	35,087	23
AREA 3 - WHATCOM, SKAGIT, ISLAND, AND SAN JUAN COUNTIES				
Emergency Financial Assistance	Whatcom Foundation, T. S. Hamilton Fund Bellingham	Emergency financial assistance. Utilized by WIN program and DPA for emergency purchases--glasses, tires, etc. Youth Employment Service 14-17.	INA	INA
Sheltered Workshop	Workshop for the Handicapped Bellingham	Sheltered workshops and social recreation for handicapped.	INA	INA
Indian Services	Indian Village Mission Bellingham (Marietta)	Evangelical, physical health, recreational, social services, family counseling, employment, hospital and home visitations.	INA	INA

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Rehabilitation and Social Services	Lighthouse Mission Bellingham	Rehabilitation and social services to destitute, food and lodging, clothing, sheltered employment; employment service; shut-in visitation.	INA	100 meals 30 lodging
Social Services	Salvation Army Bellingham	Evangelical, social service, counseling, welfare, emergency, employment, youth activity, camping, music, adult activity, missing persons service.	INA	INA
Training for the Retarded	New Leaf, Inc. Mount Vernon Burlington	Provide training and employment assistance for mentally retarded.	$52,000	12
Day Care	The Day Care Board Bellingham	Day care for children between ages of 3 to 5. Funded by UGN, DPA and fees.	25,000	35
Day Care	Skagit County Day Care, Inc. Mount Vernon	Day care for children between ages of 3 to 5. Funded by contributions, DPA and fees.	12,500	20
AREA 4A - KING AND SNOHOMISH COUNTIES				
The persons served column for many of these agencies includes individuals who receive temporary services only such as referral to or employment on jobs of very short duration or rehabilitation and/or financial assistance for a very short period. Temporary services are identified in the program description column.				
Bishop Lewis House Pioneer Fellowship Dalton House Guerin House	Church and voluntary members.	Functions as a graduated system of recovery for homeless male alcoholics; reception center, diagnostic screening, motivation and holding residence.	Fees & donations	1,000

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Cedar Hills Alcoholims Treatment Center	Board of King County Commissioners	Provide in-treatment, care, diagnostic and medical evaluation, and comprehensive rehabilitation services to adult males (court committed).	Seattle City King County & State	360
Compass Center (Lutheran)	Churches (non-denominational services) in cooperation with the City of Seattle	Provide social service to all single men; emergency assistance. Group therapy for skid row types. Temporary job placement. Temporary service.	UGN, operating income, donations, city appropriation	4,500
Eastside Handicappers	Society for Exceptional Children	A program of work opportunity and social experience for handicapped persons age 18 to 30, most of whom are severely mentally retarded--not being served in any other way or by any other program.	UGN, society donations, sales, memberships	14
Fellowship of Christian Urban Service (FOCUS)	Methodist churches (4) in Central Area	A referral agency, a place for drop-in counseling. Mental health program for former patients of state institutions.	Contributions of churches and individuals	125
Goodwill Industries	Goodwill Ind. of America, Inc., and National Assn. of Sheltered Workshops, Non-Profit Agency	Provides employment, training, and rehabilitation for handicapped and older workers in a sheltered workshop. Temporary and permanent service.	Self-supporting	375 job stations 1,133 Hdcp. in workshop 360 disadvantaged 101 Hdcp. placements

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Indian Center	American Indian Women's Service League	Provides a center for social, educational, and recreational activities for American Indians. Indians from reservations make scheduled tour of local industries for vocational and employment information.	UGN and donations	200
Job Therapy, Inc.	Voluntary Agency	Involves the community in the rehabilitation of offenders through a man-to-man sponsorship program and job service for young men in the State Reformatory and State Correctional Center.	Membership-donations	300
Lighthouse for the Blind, Inc.	Affiliated with National Industries for the Blind	To contribute to the general welfare and well being of the blind, and to maintain a workshop to make the blind self-supporting.	Contributions and product sale	100 blind 20 other handicapped persons
Millionaire Club, Inc.	Voluntary Agency (charity)	Provides emergency assistance; meals, clothing, employment service for men (day workers who do housework, yard work, and similar tasks). Temporary service.	Donations	Approximately 50 jobs per day. 144,000 meals per year.
Northwest Center for the Retarded	King County Chapter, Wash. Assn. for Retarded Children (WARC)	To give day training to trainable mentally retarded persons from 3 to 60 years of age; training in basic skills and occupational training in Seattle public schools or in sheltered workshops. Also training program for persons with special problems of retardation.	Supported by Seattle public schools, State Dept. of Institutions, donations and income	143 in Seattle public schools 40 in sheltered workshops 21 in special programs

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Pioneer Industries, Inc.	Self-sustaining	A vocational rehabilitation workshop to provide employment and on-the-job training opportunities for society for selected residents; those with prison record, a probationary criminal charge, an alcoholic addiction with or without criminal implications. Goal: to become acceptable for employment in private industry.	Subcontracts from Boeing and other private industry	175
Rehabilitation Center for Injured Workers.	State Dept. of Labor and Industries	A center for the physical restoration of workers with job related injuries, primarily those with neurological or orthopedic disorders; occupational therapy; vocational guidance, placement service.	Premiums from Workmen's Compensation Insurance	1,100
Ronald Hall	In-As-Much, Inc. a nonprofit nonsectarian corp.	Provides a home for exprisoners on the road from prison to the community; help given in preparing for and finding employment.	Fees and donations	200
St. Vincent de Paul Society	Catholic Agency	Provide assistance, employment, counseling to resident and transient families and individuals; Salvage Bureau provides employment for those who cannot compete in industry. Temporary and permanent service.	Donations, legacies, salvage sales	400
Salvation Army	Voluntary agency governed under the authority of the Salvation Army	Social service and rehabilitative opportunity for alcoholic men and other unfortunate men; meals, lodging, clothing, medical care, and work therapy (spot jobs). Provide and secure temporary jobs. Temporary and perment service.	UGN, fees, and contributions	3,000

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Seattle Urban League	Affiliated with National Urban League	Regular on-going program to place minority persons with skills.	UGN and membership	360
South King County Activity Center	Private nonprofit organization	Promote and implement a program of vocational education, work opportunity and social experiences for the trainable mentally retarded, age 16 and up, who are not able to qualify for other programs.	Contributions State Epton Bill	50
The Frye (Hotel)	Private	A haven for patients discharged from mental hospitals - an open door policy to help the person make the adjustment to the outside working world, and then help them to find other jobs. Average stay two months.	Some contributions, otherwise private funds	2,000
Union Gospel Mission	Churches-Union Gospel Mission Assn	Temporary labor for homeless men in order to earn board, room, clothes while seeking employment. Also full-time work program for handicapped. Temporary and permanent services.	Individuals and churches	approx. 40-50 transients a day on spot jobs. 15-20 full time.
United Cerebral Palsy Assn.	Private nonprofit organization	Provide sheltered workshop employment for cerebral palsied and other severely handicapped adults; on-the-job training and evaluation; a work program geared to individual abilities.	UGN and money earned from work projects	155-175
Young Women's Christian Assn. (YWCA)	Voluntary Agency	Career referral center-project which gives information on opportunities for mature women	UGN, memberships, endowments	70

TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Summer Youth Activities Committee	Public Agency	Operates "PITCH IN" a city-wide program of recreation, education and employment, education and employment for youth for the summer, in the summer in cooperation with NYC, NAB, WSES and Seattle public schools.	City and county appropriations donations voluntary staffing	4,500
Washington Insurance Council	24 Insurance Companies	A pilot program to provide tuition and material to train underemployed persons from the Seattle Central Area to become insurance examiners, underwriters and claims adjusters.	Washington Insurance Council	20
		SNOHOMISH COUNTY		
Everett Rescue Mission	Voluntary Agency	Transient care for men of all ages - meals, lodging, clothing, counseling. Capacity 41 men. Temporary service.	Contributions donations, churches	375
Goodwill Industries	Goodwill Industries of America, Inc.	Charitable nonprofit organization--work adjustment and training. Rehabilitation, jobs for handicapped. Sheltered workshop assistance and advice. Temporary service.	Self-supporting	INA
Snohomish County Legal Aid	Community Action Council	Legal assistance and counseling to indigent persons. Temporary service.	Donated service--no expense	200
Salvation Army	International Salvation Army	Private charities. Family counseling and relief, transient counseling and relief. Youth work, missing persons, employment service, temporary service.	Contributions UGN, endowments	2,400

TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Snohomish County Center for the Handicapped	Voluntary	Work training & evaluation -sheltered industry-extended employment. Recreational program-job placement, permenent type (some temporary).	Contributions UGN, sales of goods & service	65 permanent 35 temporary
St. Vincent de Paul	Roman Catholic Archdiocese	Salvage bureau - charity information. Pickup salvage. Temporary assistance.	Contributions salvage and Diocese Fund	375
Victoria Ranch, Inc.	Private Agencies	Residential center for mentally retarded adolescents and adults. Occupational training, work evaluation, skills assessment. Permanent service.	Fees, WS, DVR, SDPA, contributions	75
Volunteers of America	National Volunteers	Emergency assistance. Men's dormitory - family welfare, thrift store-youth work, children's summer camp. Temporary service.	UGN, salvage sales	4,800 cases 8,190 persons
		KING-SNOHOMISH COMBINED		
NAB/JOBS	National Alliance of Businessmen	A program to provide jobs for disadvantaged workers. Employers will hire first and then provide training and supportive services at employer expense.	NAB employers	700

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
AREA 4B - PIERCE COUNTY				
L. H. Bates Vocational Technical Institute	Tacoma Public Schools	Provides vocational and technical training in 41 different occupational fields, day and night classes. This facility has the capacity to expand at least equal to their present level of operations.	State and local primarily	12,515
Fort Steilacoom Community College	State Board for Community College Education	Provides vocational and technical education for 12 occupational fields, primarily evening classes. Room for expansion open.	State	500 vocational students only
Clover Park Education Center	Clover Park School District #400	Provides vocational and technical training in 45 occupational fields - day and evening classes - if needed expansion could equal present level of operations.	State/ local	9,900
Crisis Clinic	Community Mental Health	Provides short-term, group, individual, or family therapy, to promote a better adjustment of the patient to his life situation.	Grants/ donations	7,000 average cases per year
---	Tacoma Housing Authority	Provides housing for families of low income who are presently living in sub-standard housing, or are without housing or about to be without housing. Approximately 43 percent of the low income housing is for elderly. Housing is both owned and leased by Tacoma Housing Authority.	Grants/ rents	1,495 units
JOBS	NAB	Employment of hardcore unemployed using OJT methods on a voluntary commitment of the business community. (May be assisted by DOL)	Private/ federal	450

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Cerebral Palsy Workshop	United Cerebral Palsy of Pierce County	Provides workshop experience and training for handicapped adults.	Private	75
Tacoma Goodwill Industries Rehabilitation	Goodwill Industries of America	Provides training, rehabilitation, and employment for handicapped and older workers in a sheltered workshop.	Sales and contributions, federal & state grants	150
Cascadia Juvenile Reception Diagnostic Center	State Department of Institutions	Cascadia receives all boys and girls, ages 8 through 17, committed by the Juvenile Courts as delinquents. Following a short period of evaluation and study, the child is either transferred to one of its institutions or forest camps, or is returned to the community under the supervision of Juvenile Parole, and in some cases may be referred to Employment Security or other agencies for training.	State	1,700 admissions per year
---	Conifer Corp.	Develops and constructs housing for low to moderate income families with some being under rent subsidy under 221-B 3 program.	Private	569 units
Juvenile Parole Services	Department of Institutions	Provides casework services to parolees and their families, and field investigations. Juvenile Parole frequently works with other agencies by providing counseling assistance and referral.	State	INA
Migrant Ministries	Puyallup Valley Migrant Ministries	Provides medical, health, clothing, recreation, and instruction during June, July, August and early September.	Private	INA

TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Day Care	Various	18 separate centers located in the county area (primarily Tacoma) provide day care of pre-school children ages 2½ to 6. Fees are based upon parents' ability to pay.	Private	666
Rainier School	Department of Institutions	Provides residential care, treatment, and education and training for mentally retarded residents of Western Washington. There is no age limitation. One year state residence prior to application.	State	1,700
Men's Rehabilitation	Salvation Army	Provides counseling, spiritual guidance, work and training on restoring household articles, furniture, clothing, etc. to rehabilitate the physically handicapped, alcoholic and parolees.	Donations	50
Tacoma Rescue Mission	Tacoma Rescue Mission, Inc.	Provides shower facilities, meals, clothing, dormitory services for needy unattached men. Also provides counseling and placements. The women's division is the Hope Guest Home.	Donations	INA
AREA 4C - KITSAP COUNTY				
Career Development Program	Olympic Center	Vocational evaluation, counseling, job sampling, placement and followup services.	INA	15-20
Olympic Peninsula Enterprises	Olympic Peninsula Enterprises	Vocational evaluation, sheltered workshop training and adjustment.	INA	30

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
AREA 5 - MASON, THURSTON AND LEWIS COUNTIES				
Morningside	Community Agencies	Work and training programs for mentally retarded persons.	INA	50
Olympia Child Care Center	Community Agencies	Provides day care for children of working mothers--ages 2½ to 5.	INA	35
AREA 6A - CLARK, SKAMANIA, AND KLICKITAT COUNTIES				
Sho-Craft, Inc.	Sho-Craft, Inc.	Provides employment, training and rehabilitation for handicapped and older workers in a sheltered workshop type environment.	INA	20
Goodwill Industries	Goodwill Industries of America, Inc. & National Assoc. of Sheltered Workshops Non-Profit Agency	Provides employment, training and rehabilitation for handicapped and older workers in a store setting.	INA	10
AREA 6B - COWLITZ AND WAHKIAKUM COUNTIES				
General Assistance Unemployed	DPA & DVR	To provide vocational rehabilitation services to PA recipients and GAU/DVR. Provides maintenance and other services necessary to attain vocational training.	$10,000	20
Applied Industries	Applied Industries	To provide sheltered workshop employment jobs provided through contract work.	500,000	70

TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Goodwill	Goodwill Longview	To provide sheltered workshop employment jobs through salvage operations.	$160,000	45
Extended Sheltered Employment	Applied Industries	State fund support for marginally productive handicapped workers.	18,000	25
AREA 7 - CHELAN, DOUGLAS AND OKANOGAN COUNTIES				
Wenatchee Sheltered Workshop	Wenatchee Sheltered Workshop	Provides employment, activity, and socialization for handicapped.	INA	INA
AREA 8 - YAKIMA AND KITTITAS COUNTIES				
Social Welfare Vocational Training	Goodwill Industries Yakima	Rehabilitation of the handicapped and retarded.	INA	75
Handicapped Vocational Training	Yakima Specialities Yakima	Workshop for mentally retarded and seriously handicapped.	INA	25
Administration, Coordination Counseling, Lunch Program, Recreation	The Place Yakima	Working with dropouts and disadvantaged youth in offering them aid for emotional problems, helping them to regain self-confidence, and by providing them with an opportunity to complete education. Prepares applicants for GED, job orientation, and aid with job placement.	INA	36

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
AREA 9 - GRANT, LINCOLN, AND ADAMS COUNTIES				
Work Experience Program	Ephrata School District No. 165	On-the-job training for seniors and some juniors, based on student interest, in a variety of occupations. Assignments vary from one and three quarter hours to two hours daily--8:00 a.m. to 4:30 p.m. Students are not paid but receive high school credit. Many students are employed for pay after 4:30 p.m. and on weekends. Supervision is by the employer and the high school counselor.	$5,020	90
AREA 10 - FRANKLIN AND BENTON COUNTIES				
Goodwill Industries	Goodwill Inc. of America, Inc. and National Assn. of Sheltered Workshops Non-Profit Agency	Provides employment, training and rehabilitation for handicapped and older workers in a sheltered workshop. Temporary and permanent service.	INA	32 Job Stations 54 Ind.Served 8 Handicap Placements
TOPPS	Hanford Contractors	Preparation of disadvantaged youth for entry level jobs. Includes basic education to 8th or 9th grade level (GED coaching is encouraged but not sponsored). On-the-job training to entry level is conducted by individual Hanford contractors.	INA	16 to complete training during 1970 30 to be added during FY 1971

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
AREA 11 - FERRY, STEVENS, AND PEND OREILLE COUNTIES				
AFDC-E	State Department of Public Assistance	Support and train low income and disadvantaged citizens. A small portion are referred to WIN.	$70,040	720
Vocational Training	State Department of Vocational Rehabilitation	Train and assist the mentally, physically and socially handicapped.	INA	125
AREA 12 - SPOKANE COUNTY				
SUPER	School District #81	Provides Teacher Aid & Community Worker positions in elementary and junior high grades of public schools in selected areas. Emphasis is on hiring disadvantaged of minority races.	185,000	50
Career Opportunity Program	School District #81	Provide career ladder for teacher aids with half classroom practice and half educational classes under institution of higher learning. Training expense only under this program with wage to be paid under an expanded SUPER phase.	27,000	30
Sheltered Workshop	Supervised Occupational Enterprises	Supervised work projects for handicap youth to test potential employability and orientation to the work force. Can provide sheltered employment.	INA	50

TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Sheltered Workshop	Goodwill Industries	Supervised work projects for handicap youth and adults to test potential employability and orientation to the work force. Can provide sheltered employment	INA	150
NAB/JOBS	National Alliance of Businessmen	Job pledges converted to job openings by the ESD who refer disadvantaged applicants to the NAB employer. ESD provides followup.	$20,000 INA	400 permanent 435 summer
AREA 13 - WALLA WALLA, WHITMAN, ASOTIN, COLUMBIA AND GARFIELD COUNTIES				
Sheltered Workshop	Goodwill Industries, Inc.	Supervised work project for handicapped youth and adults to test potential employability and orientation to the work force. Can provide sheltered employment.	INA	20

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TABLE V

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Disadvantaged Adults	Institutional Training	MDTA - Employment Security & Vocational Education	663	USDOL: Federal: $1,255,204 State: 66,062	Institutional training under the MDT Act. Includes class group skill training, orientation, and individual referral.	FY 1971
	On-the-Job Training	Job Opportunities in the Business Sector (JOBS)	733	USDOL: 2,199,724	On-the-job training plus supportive services through contracts between industry and the Department of Labor.	FY 1971
	On-the-Job Training	Special Option On-the-Job Training - USDOL	291	USDOL: 246,708	On-the-job training through contracts between industry and the Department of Labor.	FY 1971
	Training	Operation Mainstream	217	USDOL: 601,600	Job creation and work training program for chronically unemployed adults.	FY 1970 & 1971
	Training	Manpower	40	OEO: 23,200	Similar to MDTA.	FY 1971
	Various Manpower Services	Community Action Agencies	220	Federal: 35,756 State: 37,714	A variety of manpower programs. See page 10, Balance of State Plan, for a fuller description.	FY 1970

TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Disadvantaged Adults (Cont.)	Skill Training	MDTA - Employment Security & Vocational Education	3	Federal: $15,733 State: 795	Institutional training under MDTA for Park Ranger.	FY 1970
	Training and Employment	CEP	810	Federal: 1,236,000	See Section F, Seattle Plan.	FY 1971
	Skill Training	MDTA-ESD/Voc. Ed. and Laborers-Employers Trust Fund	48	USDOL: 16,099	Entry training and upgrading in construction skills.	FY 1970
	Job Training	Public Service Careers	432	USDOL: 945,947	Permanent employment for the disadvantaged in public service agencies and to stimulate upgrading of current public sector employees.	FY 1970
	Training and Employment	New Careers	90	USDOL: 521,091	Provides unemployed and low income people with jobs leading to career opportunities in health, education, welfare, neighborhood redevelopment and public safety.	FY 1970
	Training and Employment	CEP	540	Federal: 824,000	See Section F., Seattle Plan.	FY 1971

TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Disadvantaged Adults (Cont.)	On-the-Job Training	ESD Operated OJT Project	194	USDOL: $ 89,426	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969 & 1970
	Interim Employment	STEP/ESD	601	USDOL: 1,900,646	An interim program for providing recent graduates of manpower programs with the opportunity to maintain skills and be paid a training stipend.	FY 1970
Disadvantaged Youth	Institutional Training	MDTA - ESD & Voc. Ed.	156	USDOL: Federal: 296,727 State: 15,617	Institutional training under the MDT Act. Includes class group skill training, orientation, and individual referral.	FY 1971
	On-the-Job Training	Job Opportunities in the Business Sector (JOBS)	365	USDOL: 1,093,276	On-the-job training plus supportive services through contracts between industry and the Department of Labor.	FY 1971
	Training	SOIC	208	Fed./State 377,489	Counseling, pre-employment orientation, basic education and vocational training.	FY 1971
	On-the-Job Training	Special Option OJT	89	USDOL: 76,291	On-the-job training through contracts between industry and the Department of Labor.	FY 1971
	Work Experience	NYC (In School)	1,240	890,000	Part-time employment to provide youth with the financial resources and incentives to remain in school.	FY 1971

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TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Disadvantaged Youth (Cont.)	Work Experience	NYC (Summer)	4,873	$1,612,000	Summer employment to provide youth with the financial resources and incentives to resume school attendance in the fall.	FY 1971
	Work Experience	NYC (Out of School)	438	1,510,000	Provides unemployed, under-employed or low income persons 16 years of age and over with useful work and training, including basic education and institutional or on-the-job training.	FY 1971
	Work Experience and Training	Job Corps	360	INA	Trains hardcore unemployed youth between ages 16 and 22 who are out of school. A residential program, it includes basic education, vocational skills, and social responsibilities.	FY 1971
	Apprentice Training	State Apprenticeship Program	2,000 accessions	N/A	Provides for the development, expansion, and improvement of apprenticeship and other forms of training in industry.	FY 1971
	Various Manpower Services	Community Action Agencies	880	Federal: 143,025 State: 150,856	A variety of manpower programs. See page 10, Balance of State Area, for a fuller description.	FY 1970

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TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Disadvantaged Youth (Cont.)	Training	MDTA - ESD/Voc. Ed.	3	Federal: $ 15,733 State: 795	Institutional training under MDTA for Park Ranger.	FY 1970
	Skill Training	MDTA - ESD/Voc. Ed. and Laborers-Employers Trust Fund	32	Federal: 11,146	Entry training and upgrading in construction skills.	FY 1970
	Job Training	Public Service Careers	88	USDOL: 204,260	Permanent employment for the disadvantaged in public service agencies. and to stimulate upgrading of current public sector employees.	FY 1970
	Training and Employment	New Careers	10	USDOL: 57,899	Provides unemployed and low income people with jobs leading to career opportunities in health, education, welfare, neighborhood redevelopment and public safety.	FY 1970
	On-the-Job Training	MDTA - OJT	2	USDOL: 994	Training/employment in entry skills.	FY 1970
	On-the-Job Training	ESD Operated OJT Project	70	USDOL: 32,179	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969 & 1970

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TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Disadvantaged Youth (Cont.)	Training	SOIC	127	Fed./State $ 231,364	Counseling, pre-employment orientation, basic education and vocational training.	FY 1971
	Interim Employment	STEP	231	USDOL: 757,979	An interim program for providing recent graduates of manpower programs with the opportunity to maintain skills and be paid a training stipend.	FY 1970
Public Assistance Recipients	Institutional Skill Training	MDTA Training ESD/Voc. Ed.	212	Federal: 401,815 State: 21,148	Institutional training under the MDT Act. Includes class group skill training, orientation and individual referral.	FY 1971
	On-the-Job Training	Special Option On-the-Job Training - USDOI	26	Federal: 21,924	On-the-job training through contracts between industry and the Department of Labor.	FY 1971
	Employability Services	Work Incentive Program PA/ESD	4,200	3,104,511 of which approx. 80% is Fed. 20% is State	Vocational assessment, orientation, basic education, GED, vocational training, work experience, OJT, placement, followup.	FY 1971
	Support to WIN Enrollees	WIN Support Services: Public Assist.	(4,200)	2,025,954 (Fed. 75% State 25%)	Supportive services to WIN enrollees. See page 8, Balance of State section, for a description.	FY 1971

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TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Public Assistance Recipients (Cont.)	On-the-Job Training	ESD Operated OJT Project	24	USDOL: $ 10,785	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969 & 1970
	Vocational Rehabilitation	State Div. of Vocational Rehabilitation	795	Fed. 80% - 376,234 State 20% - 161,231	Necessary vocational rehabilitation services for job preparation.	FY 1971
Physically, Emotionally, or Socially Disabled	Rehabilitation Services	Division of Vocational Rehabilitation	13,193	Federal: 6,248,105 State: 2,677,593	Rehabilitation services including counseling, medical and psychological examinations, physical restoration, prosthetics, job training, maintenance, transportation, occupational tools and equipment, selective placement and followup.	FY 1971
	Institutional Skill Training	MDTA - ESD/Voc. Ed.	44	USDOL: Federal: 85,498 State: 4,499	Institutional training under the MDT Act. Includes class group skill training, orientation, and individual referral.	FY 1971

TABLE V (Cont.)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Reservation Indians	Institutional Skill Training	MDTA Training ESD/Voc. Ed.	36	USDOL: Federal: $ 68,822 State: 3,622	Institutional training under the MDT Act. Includes class group skill training, orientation, and individual referral.	FY 1971
	On-the-Job Training	Special Option On-the-Job Training - USDOL	47	USDOL: 39,463	On-the-job training through contracts between industry and the Department of Labor.	FY 1971
	Training	BIA - Indian Assistance Program	300	BIA 300,000	Institutional training in various occupations for Indians.	FY 1971
	Institutional Training	MDTA Inst. ESD/Voc. Ed.	64	Federal: 388,657	Fish culture training course for reservation Indians.	FY 1970 funds
	On-the-Job Training	ESD On-the-Job Training Project	4	2,449	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969
	On-the-Job Training	ESD/OJT	25	11,265	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1970

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TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Migrant Workers	Institutional Training	MDTA - ESD/Voc. Ed.	110	USDOL: Federal: 206,466 State: 10,867	Institutional training under the MDT Act. Includes class group skill training, orientation, and individual referral.	FY 1971
	On-the-Job Training	On-the-Job Training - USDOL	63	Federal: 52,618	On-the-job training through contracts between industry and the Department of Labor.	FY 1971
	Basic Ed & Support Services	Northwest Rural Opportunities	122	INA	Basic education, GED, and supportive services for minority groups to assist them to compete in the labor market. Focus is on migrant workers.	FY 1971
	On-the-Job Training	ESD-OJT Project	5	Federal: 3,266	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969
	On-the-Job Training	ESD-OJT Project	34	Federal: 15,021	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1970

Services to migrant workers with physical, emotional or social disabilities, and those receiving public assistance are shown under those target groups.

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TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Under-Utilized Non-Poor Persons	Institutional Skill Training	MDTA - ESD/Voc. Ed.	153	USDOL: Federal: $ 284,818 State: 14,990	Institutional training under the MDT Act. Includes class group skill training and individual referral.	FY 1971
	On-the-Job Training	USDOL - OJT	104	87,696	On-the-job training through contracts between industry and the Department of Labor.	FY 1971
	Upgrading Training	Public Service Careers	45	Federal: 111,036	Provide upgrading training to current public sector employees.	FY 1970
	Training	MDTA - ESD/Voc. Ed.	18	USDOL: Federal: 94,396 State: 4,768	Institutional training under MDTA for Park Ranger.	FY 1970
	Vocational Training	MDTA/Transition	600	USDOL: 322,000	Vocational training, placement, followup with eligible Project Transition servicemen.	FY 1971
	Skill Training	MDTA - ESD/Voc. Ed. and Laborers-Employers Trust Fund	280	96,595	Upgrading training in construction skills.	FY 1970
	On-the-Job Training	FWPCA	40	245,797	On-the-job training coupled with institutional classroom and laboratory training in sewage treatment plant operation.	FY 1970 funds

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TABLE V (Cont.)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Under-Utilized Non-Poor Persons (Cont.)	On-the-Job Training	ESD-OJT Project	67	USDOL: $ 31,884	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969 & 1970
Persons With Less Than 8th Grade Achievement	Adult Basic Education	Superintendent of Public Instruction	3,500	Federal: 366,630 State: 64,700	Instruction in basic skills, literacy, communications, arithmetic, citizenship, and consumer education.	FY 1971
All Target Groups 1/	Title III Wagner-Peyser Act	Employment Security Department	173,330	INA	Activities include outreach, reception and intake, application taking and interviewing, counseling, testing, job development, selection and referral to training (programs funded from other sources), placement, occupational and industrial analysis, compiling and disseminating labor area information, test development and community services. Emphasis is placed on employability development and placement of the disadvantaged and unemployment insurance claimants that are not job ready. Priority is given to veterans.	FY 1971

1/ Employment Security Department Title III activities will be provided to members of all target groups listed on this table. The extent and diversity of this involvement is made clear on the linkage table, Section E of the Balance of State Section.

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TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period
Under-Utilized Poor Persons	Training	SOIC	165	Fed./State $ 299,883	Part-time upgrading skill training.	FY 1971
Resident of Target Areas 1/	Vocational Training	MDTA	26	USDOL: Federal: 47,646 State: 2,507	Vocational training, placement and followup.	FY 1971
	On-the-Job Training	MDTA	5	USDOL: 2,410	Provides employment/training in entry skills.	FY 1969 & 1970
	Vocational Rehabilitation	State Division of Vocational Rehabilitation	198	Federal: 94,058 State: 40,308	Necessary vocational rehabilitation services for job preparation.	FY 1971

1/ These resources are in addition to those outlined in Section E of the Tacoma Area Plan.

TABLE V-A - OCCUPATIONAL CATEGORIES

In addition to master Table V, the following supplemental Table V-A has been included to provide a distribution of occupations included in the training opportunities shown in Table V. The figures included do not establish firm skill distributions for FY 1971, but provide the viewer a means to estimate proportional skills being trained within selected major programs.

Program: Public Service Careers

Occupational Category	Projected Number Of Enrollees
Entry Occupations	
Civil Engineering Aide	12
Draftsman Aide	7
Surveyor's Aide	12
Math and Research Aide	7
Chemistry Aide	6
Biological Aide	5
Psychology Aide	57
Sociology Asst.	23
Social Science Asst.	35
Medical and Health Aide	12
Library and Archival Aide	4
Budget and Management Aide	4
Food Preparation Aide	25
Recreation Aide	27
Parole and Probation Aide	7
Fisheries Aide	14
Forestry Aide	12
Agricultural Aide	7
Bodyman Asst.	4
Maintenance Aide	17
Log Inspection Aide	7
Clerk	5
Messenger	5
Meter Reader	5
Laborer	5
Police Officer	5
Community Sanitation Aide	5
Upgrade	
Civil Engineering Aides	10
Draftsman Aide	5
Surveyor's Aide	5
Math and Research Aide	5
Chemistry Aide	5
Biological Aide	5
Psychology Aide	10
Social Science Asst.	10
Medical and Health Aide	10
Library and Archival Aide	5
Parole and Probation Aides	5

Program: Public Service Careers (Cont.)

Occupational Category	Projected Number Of Enrollees
Fisheries Aides	5
Forestry Aides	5
Maintenance Aides	10
Log Inspection Aides	5
Operator, Key Punch	2
Lineman Helper	2
Clerk	2
Reader - Meter	2
Electrical Helper	2

Program: NAB-JOBS

File Clerk	10
Classified Ad Clerk	2
Clerk-Typist	19
Office Clerk	8
Statement Clerk	3
Clerk, General	11
Teller	2
Comptometer Operator	1
Proof Machine Operator	8
Returned Item Clerk	2
Clerk, General Office	9
Ward Clerk	2
Stock Clerk	1
Central Supply Worker	1
Copy Boy	1
Central Operator	30
Admitting Aide Clerk	2
Messenger, Bank	4
Sales Person, General	7
Routeman	1
Cashier-Checker	12
Cook's Helper	1
Hospital Maid	4
Physical Therapy Aide	1
Nurse's Aide	15
Dietary Aide (Tray Line Worker)	3
Laundryman	1
Presser	1
Feeder Folder	1
Porter I	22
Porter II	7
Floor Waxer	7
Window Cleaner	5
Lehr Tender II	5
Bottle Machine Operator	1
Turning Machine Operator	1
Drill Press Set-Up Opr-Spindle	1
Auto Mechanic Helper	2
Bay Machine Operator	1

Program: NAB-JOBS (Cont.)

Occupational Category	Projected Number Of Enrollees
Cutting and Printing Machine Opr.	1
Saw Mill Worker	3
Instrument Shopman	6
Electronic Assembler	5
Sewing Machine Operator	2
Metal Fabricating Shop Helper	1
Fab. Assembler Metal Prod.	16
Lineman	15
Frameman	10
Gas Fitter Helper	3
Glazier	6
Roofer Apprentice	2
Maintenance Building	1
Truck Driver Helper	2
Lubrication Man	1
Laborer, Stores	4
Sorter	1
Bailing Machine Operator	1
Material Helper	2
Service Mechanic	1
Houseman	1
Busboy	1
Packager, Hand	2
Candymaker Helper	2
Usher	4
Teacher, Nursery School	3
Foundry Worker	18
Mail Clerk	1
Coding Clerk	4
Control Clerk	9
Teller, Note	5
Grocery Clerk, Supermarket	23
Recording Machine Operator	1
Clerk, Stenographer	17
Assembler-Installer	17
Personnel Clerk	4
Manager-Trainee	1
Janitor	1
Maid	1
Furniture Finisher	1
Material Handler	11
Presser, Machine I	10
Laborer, General	10
Draftsman, Civil	1
Electronics Assembler	3
Radio Announcer	2
New-Car-Get-Ready Man	1
Shoe Repairman	1

Program: NAB-JOBS (Cont.)

Occupational Category	Projected Number of Enrollees
Operating Engineer Apprentice	3
Diamond Driller Helper	5
Grocery	40
Meat Cutter	6

Program: Mainstream

Site Improvement Aides	10
Clerical Aide	19
Public Works Aide	5
Community Aide	5
Day Care Aide	5
Teacher Aide	10
Homemaker Aide	7
Park Aide	18
Maintenance Aide	19
Janitor	18
Watchman, Night	2
Security Guard	1
Predator Control	2
Feed Research, Fish Feeding	4
Community Service Aide	10
Landfill Attendant	2
Highway Beautification Aide	12
Receptionist	2
Storekeeper	1
Laboratory Aide	1
Sanitation Aide	1
General Labor	5
Engineering Aide	1
Typist	2
Grading Crew	1
Asphalt Plant	1
Forestry Aide	17

Program: Special Option OJT

Health Aide	46
General Mechanic	45
Maintenanceman, Building	64
Clerk, General Office	45
Multi-Occupational--includes:	200
Maintenanceman, Building	
Home Attendant	
Nurse Aide	
First Aide Attendant	
Nurse, Practical	
Mechanic Repair Cluster	
Stenographer	
Stock Checker	
Bookkeeper	

Program: New Careers

3196

Social Service Assistant	100

Program: Vocational Rehabilitation

Occupational Category	Projected Number Of Enrollees
Professional-technical-managerial	1,858
Clerical-Sales	2,724
Service Occupations	2,738
Farming-Fishing-Forestry	539
Processing Occupations	1,419
Machine Trades	2,142
Bench Work	582
Structural Work	1,134
Other/Miscellaneous	1,050

Program: Work Incentive Program

Professional Technical and Managerial	588
Clerical and Sales	1,302
Service	966
Farming, Fishing, Forestry	168
Processing	126
Machine Trades	168
Bench Work	210
Structural Work	378
Miscellaneous	294

Program: MDTA Institutional Training

Basic Education	80
Employment Orientation	400
Prevocational	80
Upgrading (Various)	50
Clerical and Sales	350
Health Occupations	150
Draftsman	25
Welder	75
Machinist	15
Auto Mechanic	25
Electronics Mechanic	15
Cook	25
Barber	10
Cosmetologist	50
Sewage Plant Operator	20
Programmer	30

Program: State OJT Contract

Clerical and Sales	95
Farming	30
Health Occupations	75
Other Service Occupations	100
Bench Work	20
Processing Work	30
Technical Work	30
Sewage Plant Operator	60

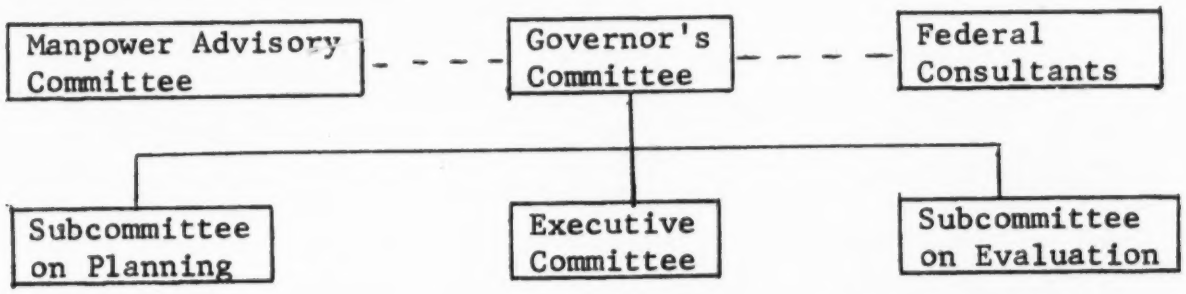
Program: Indian Employment Assistance

Occupational Category	Projected Number Of Enrollees
Business Administration & Related Professions	4
Engineering Technicians	12
Health Service Occupations	27
Clerical and Related Occupations	40
Service Occupations	20
Building Trades	46
Mechanics and Repairmen	48

ADMINISTRATIVE DEVELOPMENTS

Fiscal Year 1970 saw the creation of a new Coordinating Committee, the Governor's Manpower Coordinating Committee, created by an executive order of Governor Daniel J. Evans, signed on March 31, 1970. April and May were extremely busy months for the new committee and its staff. At the first meeting the chairman appointed ad hoc subcommittees to examine questions of Organization and Structure and Evaluation Mechanisms and Procedures. By late May the committee had developed a permanent structure and had begun work on an evaluation of the CAMPS system in Washington.

Structually the Governor's Committee is organized as follows:



A complete evaluation of the CAMPS system is underway and is scheduled for completion by the end of October 1970. Progress of this evaluation will be reported in quarterly review reports.

Related to the evaluation of the system are three staff assignments scheduled for completion on September 1, 1970. These assignments are:

1. The development of model committee structures for recommending to area and local committees.

2. The development of a plan for adequate feedback of client groups into the planning process.

3. The development of alternative recommendations for the structure of the Balance of State Area.

At the request of the Governor's Manpower Advisory Committee, the Coordinating Committee instructed its staff to develop a set of recommended functions and mechanisms whereby the Advisory Committee could become more directly involved in manpower planning in Washington State.

Four persons were added to the staff of the Governor's Committee during the quarter. This brought the staff to its full complement of six professionals, including the Executive Director. Training of these new employees was a major secretariat activity during the close of the fiscal year.

As one of the principal reasons for additional CAMPS staff was an expanded capability for lower echelon technical assistance, the Executive Director has assigned to each staff person the responsibility for providing technical assistance to several local committees. These assignments are in addition to their responsibilities to the Governor's Committee and should provide for greater penetration and continuity of assistance to local committees.

INTERAREA & INTERSTATE LINKAGES

Primarily, linkages have been of an informal nature. However, interarea meetings are anticipated where local area chairmen will meet together and discuss mutual problems.

Interstate linkages exist between the states of Oregon and Washington.

An Oregon-Washington CAMPS meeting was held with representation from Washington and Oregon State CAMPS and the Clark, Skamania and Klickitat Counties CAMPS. It was agreed that the secretariat get together whenever a problem exists as well as prior to the submittal of Part A and Part B to the Regional Committee. Communication lines between the CAMPS secretariats, we well as the involved area chairman, will be kept open. The two states will exchange minutes of their regular State CAMPS meetings as well as those of the area CAMPS Committee bordering the Columbia River.

Vancouver, located across the Columbia River from Portland, is included in the Portland SMSA. A toll-free bridge connects the two cities allowing residents to cross from one state to the other with ease. Many Vancouver residents are employed in Portland and vice versa.

The chairman of the Clark-Skamania-Klickitat Counties CAMPS is a member of the Portland Area Coordinating Committee and attends its meetings on a regular basis. The Clark-Skamania-Klickitat Counties Committee prepares two separate plans, one for the Vancouver portion of the Portland SMSA and another for the balance of the area.

The chairman and some of the members of the Clark-Skamania-Klickitat Counties CAMPS have attended three subcommittee meetings with Oregon area 9 CAMPS up-river at The Dalles, Oregon, and at Lyle, Washington, to discuss coordination of effort in that area. This is in anticipation of two industrial firms who are planning to build plants in the south central part of Klickitat County. Of the approximately 20,000 residents of Skamania-Klickitat County, it is estimated that approximately 3,500 are disadvantaged. Three hundred and fifty of this group are estimated to be Indians. The situation on the Oregon side is much the same. The purpose of the coordination is to assist some of these disadvantaged residents to take advantage of the job opportunities which should exist the latter part of Fiscal 1971 and sometime in Fiscal 1972. At these meetings it was agreed that any training proposals would be sponsored by the state of Washington. A proposal was recently submitted by the Clark-Skamania-Klickitat Counties CAMPS for Employment Orientation for forty slots for that area.

PART B

BALANCE OF STATE AREA

State of Washington

COMPREHENSIVE AREA MANPOWER PLAN - - - - FISCAL YEAR 1971

* * * * * * * * * * *

July 15, 1970

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N O T E

This plan is a complex technical document written in conformity with a prescribed federal format. It is best understood by a reader who has a general knowledge of its structure. For this reason an introduction has been included and will be found on page 4.

C O N T E N T S

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Introduction

The format for Part B of an area plan is contained in Attachment I to Interagency Cooperative Issuance 71-2. This format consists of seven sections, identified as follows:

SECTION A - Inventory of Program Resources Available for FY 1971. In this section the plan tabulates all manpower program resources available for planning in Fiscal Year 1971. There are three sources of program funds and these are identified on three tables:

Table I - Federal program funds appropriated for Fiscal Year 1971 planning.

Table II - Federal carryover funds; i.e., program funds appropriated for previous fiscal years but available for FY 1971 planning.

Table III - Non-federal funds available for planning in Fiscal Year 1971. These include programs funded entirely from state, local, non-profit organizations or other sources.

SECTION B - Programs in Relation to Target Populations. In this section, the target populations are identified and described and the plan lists the manpower programs that will be utilized to serve their needs. This is done principally on two tables:

Table IV - Lists the target populations, shows the approximate number in each, gives the general manpower objectives for them, and indicates the percentage that will be served from the resources available.

Table V - Shows the specific manpower resources that will be made available to each target population.

SECTION C - Establishing Priorities. In Section C, the plan indicates the priorities assigned to the various manpower programs. This is not an overall ranking of programs but an indication of the relative urgency and need of the programs as applied to each target population. This is indicated in the final column on Table V.

SECTION D - Evaluation of Resources in Relation to Needs. This section provides an estimate of the proportion of each target population whose needs will be met by existing program resources (carried forward from Table IV) and describes briefly the type and scope of additional or alternative services that would be required to serve those whose needs will not be met. This material is provided on Table VI.

SECTION E - Linkages Between Programs. This section indicates, for each target population, the administrative and operating linkages to be established between the agencies in the operation of projects or activities listed in Section B. These linkages are shown in a series of charts.

SECTION F - Relationship of Area CAMPS Plan to Special Programs of Interagency Planning and Coordination. Special programs of interagency planning and coordination are defined as Model Cities programs, Community Work-Training programs, Neighborhood Center Pilot programs, and select Indian Reservation projects. As none of these programs operate in the Balance of State area, there is no response to this item.

SECTION G - Community Involvement. This section describes the role of employers, labor organizations, Indian Reservation representatives, and other community groups in developing the area CAMPS plan and in implementing the proposed manpower programs.

STATE OF WASHINGTON
Part B
FISCAL YEAR 1971 COMPREHENSIVE AREA MANPOWER PLAN

Balance of State* Section

A. Inventory of Program Resources Available for Fiscal Year 1971:

This inventory is contained in Tables I, II, and III, following:

Table I is an inventory of Fiscal Year 1971 funds and enrollment opportunities allocated for each federally-assisted program in the area. The table gives the program name, describes the program briefly, the available funding, and the number of persons who will be served. In the fund column, unless otherwise noted, all monies are from federal sources.

Table II is to be interpreted identically as Table I with the exception that funds are available from previous fiscal years.

Table III is a listing of manpower programs available from nonfederal sources; i.e., funded entirely by state, local government, nonprofit organizations, or private sources. The key words in the preceeding sentence are "manpower programs." Accordingly, in the following table, only those community agencies that provide a clearly identifiable manpower service have been included.

* The Balance of State Area comprises all counties in Washington except King, Snohomish, and Pierce. For a description of this area and its economy see Part A, Fiscal Year 1971 Comprehensive Area Manpower Plan.

TABLE I

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
Manpower Development and Training	Institutional skill training, employment orientation, or skill upgrading under the Manpower Development and Training Act (MDTA). Includes class group training or individual referral to ongoing courses in community training facilities.	Federal: $1,376,440 State: 72,444	728
Job Opportunities in the Business Sector	On-the-job training and supportive services for hardcore disadvantaged workers.	428,090	143
Special Option On-the-Job Training	On-the-job training contracts negotiated with industry or community agencies to provide employment opportunities or upgrading to unemployed or underemployed persons.	438,480	522
Neighborhood Youth Corps (In-School)	Part-time employment to provide youth with the financial resources and incentives to remain in school.	480,600	670
Neighborhood Youth Corps (Summer)	Summer employment to provide youth with the financial resources and incentives to resume school attendance in the fall.	870,480	2,631
Neighborhood Youth Corps (Out-of-School)	Provides unemployed, underemployed, or low income persons 16 years of age and over with useful work and training, including basic education and institutional or on-the-job training.	875,800	254
Mainstream	Job creation and work training program for chronically unemployed poor adults.	250,250	68

TABLE I (continued)

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
Work Incentive Program (WIN)	A joint venture of Employment Security, Public Assistance and community resources in an effort to consolidate the manpower services of Employment Security with the supportive social services of Public Assistance to achieve habilitation or rehabilitation of the Public Assistance recipient.		
	Program funds administered by Employment Security Department.....	(Federal 80% State 20%) $1,695,980	2,297
	Program funds administered by Public Assistance for child care, transportation, physical examinations, extra clothing, glasses, dentures, and child physical examinations for those children of WIN enrollees placed in day care centers.....	(Federal 75% State 25%) 1,108,197	2,297
Adult Basic Education	Basic skills, literacy, communication, arithmetic, citizenship, consumer education.	Federal: 186,981 State: 32,977	2,205
Vocational Education - Basic Grants	Support and improvement of vocational education programs. Training for gainful employment as semi-skilled or skilled workers and for business and office occupations is emphasized.	Federal: 1,954,600 State: 5,100,000	132,926
Vocational Rehabilitation Basic Support Program	Rehabilitation services including counseling, medical and psychological examination, physical restoration, prosthetics, job training, maintenance, transportation, occupational tools and equipment, selective placement and followup.	Federal: 2,909,093 State: 1,246,603	6,143

TABLE I (continued)

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
Indian Employment Assistance Program	Institutional training in various occupations for Indians. *Estimates based on FY 1970 appropriation.	$280,000*	280*
Job Corps	Trains hardcore unemployed youth between the ages of 16 and 22 who are out of school. A residential type program, it includes basic education, vocational skills, and social responsibilities.	INA	207
Employment Service, Title III Activity	Activities include outreach, reception and intake, application taking and interviewing, counseling, testing, job development, selection and referral to training (programs funded from other sources), placement, occupational and industrial analysis, compiling and disseminating labor area information, test development and community services. Emphasis is placed on employability development and placement of the disadvantaged and unemployment insurance claimants that are not job ready. Priority is given to veterans.	$2,608,280 (estimated)	67,714
State Apprenticeship Program	Provides for the development, expansion, and improvement of apprenticeship and other forms of training in industry within the structure of federal apprenticeship standards and regulations.	N/A	550 accessions
Northwest Rural Opportunities	Provides basic education, GED, and supportive services for minority groups to assist them to compete in the labor market. Focus is on migrant workers.	INA	122

TABLE II

FEDERAL CARRYOVER PROGRAMS FROM PREVIOUS FISCAL YEARS

Program Name	Description	Funds	Number of Persons
Community Action Agency Manpower Services	A variety of manpower services including prevocational and vocational training, job placement, followup, dropout prevention, summer employment for youth and so forth. For a listing of these programs see Table II-A immediately following this table on page 12.	FY 1970 Federal: $178,781 FY 1970 State: 189,570	1,100
MDTA Institutional	Institutional training under MDTA for Park Ranger.	FY 1970 Federal: 125,862 FY 1970 State 6,358	24
MDTA Institutional	Upgrading in construction skills for entry level construction laborers. A minimum of 80 trainees will be new entrants.	FY 1970: 123,840 (No state matching. Allowances only paid from MDTA funds.)	360
MDTA Institutional	Training in Fish Culture for residents of the Lummi Indian Reservation.	FY 1970: 388,657 (Private school waiver. No state matching.)	64
Public Service Careers	Permanent employment for the disadvantaged in public service agencies and to stimulate upgrading of current public sector employees.	FY 1970 funds 850,000	400

TABLE II

FEDERAL CARRYOVER PROGRAMS FROM PREVIOUS FISCAL YEARS

Program Name	Description	Funds	Number of Persons
New Careers	Provide unemployed and low income people with jobs leading to career opportunities in health, education, welfare, neighborhood redevelopment and public safety.	FY 1970 funds $578,990	100
Operation Mainstream	Job creation and work-training program for chronically unemployed poor adults.	FY 1970 funds 178,600	94
On-the-Job Training Projects Sponsored by the Employment Security Department	Employment Security Department contract with the Department of Labor to provide training and employment in entry skills for unemployed and upgrading for underemployed.	FY 1969 funds: 27,215 FY 1970 funds: 125,174	38 284
Federal Water Pollution Control Administration On-the-Job Training	OJT training coupled with institutional classroom and laboratory training in sewage treatment plant operations.	FY 1970 funds 114,975	20
Supplemental Training and Employment Program (STEP)	An interim program for providing recent graduates of manpower programs with the opportunity to maintain skills and be paid a training stipend. An eligible participant is provided employment in the public sector or in the private non-profit sector. *Plus one individual referral training slot for each four regular STEP slots.	1,527,552	432*

TABLE II - A

COMMUNITY ACTION AGENCY SPONSORED MANPOWER PROGRAMS

(See summary entry on Table II, page 10.)

Program Name	Funds	Enrollees
Manpower and Training Specialist	$ 20,845	40
Summer Crash	2,936	Included in above
Prevocational and Vocational	6,052	31
Job Development, Placement and Followup	25,085	26
Special Summer Programs	9,400	435
On-the-Job Training	2,500	5
Dropout Prevention	19,950	20
Job Development and Placement	37,300	15
Pre-Vocational Training	100,000	38
Economic Development Project	45,000	205
Forestry Management Training	19,950	20
Summer Youth Employment	38,800	165
Youth Mini Industry	40,533	100
TOTAL	$368,351	1,100

TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
AREA 1 - CLALLAM AND JEFFERSON COUNTIES				
Diversified Industries	Private (All referrals come through DVR)	To provide a sheltered workshop for persons unable to compete in the normal labor market, provides training and counseling.	Nonprofit	50
AREA 2 - GRAYS HARBOR AND PACIFIC COUNTIES				
Work Experience Program	Willapa Valley, Raymond, and South Bend School Districts	On-the-job training for seniors, based on student interest, in a variety of occupations.	$15,000	50
Social Services	Grays Harbor Goodwill Industries	Training and/or employment of handicapped and older persons in cashiering, sales, minor appliance repair, and entry laborer positions.	35,087	23
AREA 3 - WHATCOM, SKAGIT, ISLAND, AND SAN JUAN COUNTIES				
Emergency Financial Assistance	Whatcom Foundation, T. S. Hamilton Fund Bellingham	Emergency financial assistance. Utilized by WIN program and DPA for emergency purchases--glasses, tires, etc. Youth Employment Service 14-17.	INA	INA
Sheltered Workshop	Workshop for the Handicapped Bellingham	Sheltered workshops and social recreation for handicapped.	INA	INA
Indian Services	Indian Village Mission Bellingham (Marietta)	Evangelical, physical health, recreational, social services, family counseling, employment, hospital and home visitations.	INA	INA

TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Rehabilitation and Social Services	Lighthouse Mission Bellingham	Rehabilitation and social services to destitute, food and lodging, clothing, sheltered employment; employment service; shut-in visitation.	INA	100 meals 30 lodging
Social Services	Salvation Army Bellingham	Evangelical, social service, counseling, welfare, emergency, employment, youth activity, camping, music, adult activity, missing persons service.	INA	INA
Training for the Retarded	New Leaf, Inc. Mount Vernon Burlington	Provide training and employment assistance for mentally retarded.	$52,000	12
Day Care	The Day Care Board Bellingham	Day care for children between ages of 3 to 5. Funded by UGN, DPA and fees.	25,000	35
Day Care	Skagit County Day Care, Inc. Mount Vernon	Day care for children between ages of 3 to 5. Funded by contributions, DPA and fees.	12,500	20
AREA 4C - KITSAP COUNTY				
Career Development Program	Olympic Center	Vocational evaluation, counseling, job sampling, placement and followup services.	INA	15-20
Olympic Peninsula Enterprises	Olympic Peninsula Enterprises	Vocational evaluation, sheltered workshop training and adjustment.	INA	30

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
AREA 5 - MASON, THURSTON AND LEWIS COUNTIES				
Morningside	Community Agencies	Work and training programs for mentally retarded persons.	INA	50
Olympia Child Care Center	Community Agencies	Provides day care for children of working mothers--ages 2½ to 5.	INA	35
AREA 6A - CLARK, SKAMANIA, AND KLICKITAT COUNTIES				
Sho-Craft, Inc.	Sho-Craft, Inc.	Provides employment, training and rehabilitation for handicapped and older workers in a sheltered workshop type environment.	INA	20
Goodwill Industries	Goodwill Industries of America, Inc. & National Assoc. of Sheltered Workshops Non-Profit Agency	Provides employment, training and rehabilitation for handicapped and older workers in a store setting.	INA	10
AREA 6B - COWLITZ AND WAHKIAKUM COUNTIES				
General Assistance Unemployed	DPA & DVR	To provide vocational rehabilitation services to PA recipients and GAU/DVR. Provides maintenance and other services necessary to attain vocational training.	$10,000	20
Applied Industries	Applied Industries	To provide sheltered workshop employment jobs provided through contract work.	500,000	70

TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Goodwill	Goodwill Longview	To provide sheltered workshop employment jobs through salvage operations.	$160,000	45
Extended Sheltered Employment	Applied Industries	State fund support for marginally productive handicapped workers.	18,000	25
AREA 7 - CHELAN, DOUGLAS AND OKANOGAN COUNTIES				
Wenatchee Sheltered Workshop	Wenatchee Sheltered Workshop	Provides employment, activity, and socialization for handicapped.	INA	INA
AREA 8 - YAKIMA AND KITTITAS COUNTIES				
Social Welfare Vocational Training	Goodwill Industries Yakima	Rehabilitation of the handicapped and retarded.	INA	75
Handicapped Vocational Training	Yakima Specialities Yakima	Workshop for mentally retarded and seriously handicapped.	INA	25
Administration, Coordination Counseling, Lunch Program, Recreation	The Place Yakima	Working with dropouts and disadvantaged youth in offering them aid for emotional problems, helping them to regain self-confidence, and by providing them with an opportunity to complete education. Prepares applicants for GED, job orientation, and aid with job placement.	INA	36

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
AREA 9 - GRANT, LINCOLN, AND ADAMS COUNTIES				
Work Experience Program	Ephrata School District No. 165	On-the-job training for seniors and some juniors, based on student interest, in a variety of occupations. Assignments vary from one and three quarter hours to two hours daily--8:00 a.m. to 4:30 p.m. Students are not paid but receive high school credit. Many students are employed for pay after 4:30 p.m. and on weekends. Supervision is by the employer and the high school counselor.	$5,020	90
AREA 10 - FRANKLIN AND BENTON COUNTIES				
Goodwill Industries	Goodwill Inc. of America, Inc. and National Assn. of Sheltered Workshops Non-Profit Agency	Provides employment, training and rehabilitation for handicapped and older workers in a sheltered workshop. Temporary and permanent service.	INA	32 Job Stations 54 Ind.Served 8 Handicap Placements
TOPPS	Hanford Contractors	Preparation of disadvantaged youth for entry level jobs. Includes basic education to 8th or 9th grade level (GED coaching is encouraged but not sponsored). On-the-job training to entry level is conducted by individual Hanford contractors.	INA	16 to complete training during 1970 30 to be added during FY 1971

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TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
AREA 11 - FERRY, STEVENS, AND PEND OREILLE COUNTIES				
AFDC-E	State Department of Public Assistance	Support and train low income and disadvantaged citizens. A small portion are referred to WIN.	$70,040	720
Vocational Training	State Department of Vocational Rehabilitation	Train and assist the mentally, physically and socially handicapped.	INA	125
AREA 12 - SPOKANE COUNTY				
SUPER	School District #81	Provides Teacher Aid & Community Worker positions in elementary and junior high grades of public schools in selected areas. Emphasis is on hiring disadvantaged of minority races.	185,000	50
Career Opportunity Program	School District #81	Provide career ladder for teacher aids with half classroom practice and half educational classes under institution of higher learning. Training expense only under this program with wage to be paid under an expanded SUPER phase.	27,000	30
Sheltered Workshop	Supervised Occupational Enterprises	Supervised work projects for handicap youth to test potential employability and orientation to the work force. Can provide sheltered employment.	INA	50

3218

TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 1971

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Sheltered Workshop	Goodwill Industries	Supervised work projects for handicap youth and adults to test potential employability and orientation to the work force. Can provide sheltered employment	INA	150
NAB/JOBS	National Alliance of Businessmen	Job pledges converted to job openings by the ESD who refer disadvantaged applicants to the NAB employer. ESD provides followup.	$20,000 INA	400 permanent 435 summer
AREA 13 - WALLA WALLA, WHITMAN, ASOTIN, COLUMBIA AND GARFIELD COUNTIES				
Sheltered Workshop	Goodwill Industries, Inc.	Supervised work project for handicapped youth and adults to test potential employability and orientation to the work force. Can provide sheltered employment.	INA	20

B. Programs in Relation to Target Populations:

Table IV, following, lists the target populations to be served by the programs listed in Section A, above, describes the manpower objectives for each of these target populations and gives the size of each target population and the number and percent to be served.

Target population names are generally self-explanatory. However, complete definitions of target populations will be found on pages 12 and 13 of the State Summary (white pages) of Part A of the Fiscal Year 1971 Comprehensive Manpower Plan. It should be remembered in interpreting the following table that the "estimated size" column is the number of persons in the target population who could be presumed to benefit from manpower services rather than a total of all persons who could be so classified. For example, the Public Assistance recipients figure excludes persons receiving welfare payments who are unable to work because of advanced age or permanent total disability.

The second portion of this section, Table V, is described immediately following the last page of Table IV.

TABLE IV

TARGET POPULATIONS AND OBJECTIVES

BALANCE OF STATE

Target Group	Estimated Size	Manpower Objectives	No. to be Served	Per cent to be Served
Disadvantaged Adults	12,795	Bring the individual to a status of full meaningful employment consistent with his potential and appropriate to his economic needs. The immediate financial responsibilities of most adults will require stopgap employment or some form of income maintenance if training (such as basic education, orientation, or skill training) is involved. Other objectives are placement in on-the-job training or, in the case of those possessing marketable skills, intensive job development.	1,842	14.4
Disadvantaged Youth	9,966	Assist the disadvantaged, unemployed youth in facing and resolving the series of decisions and problems which he encounters in choosing, preparing himself for and entering into a job that serves his immediate needs; and will not inhibit or block (preferably facilitate) his personal and occupational development to a point where his future needs will be satisfied. It should be noted that preparations for a job, as mentioned above, might logically include a return to high school.	5,574	55.9

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TABLE IV (Continued)

TARGET POPULATIONS AND OBJECTIVES

Target Group	Estimated Size	Manpower Objectives	No. to be Served	Per cent to be Served
Public Assistance Recipients	16,721	Assist the recipient in his transition from the welfare rolls to full productive membership in, and sharing in the rewards of, modern society. This will involve intensive casework, counseling, training where appropriate, job development and supportive followup.	2,514	15.0
Physically, Emotionally or Socially Disabled	22,647	Provide necessary rehabilitative services in order to bring the individual to a level of physical, emotional or social capacity consistent with his disability. Where a change in occupation is necessary (or in the case of entrants or re-entrants to the labor market) services will include training, supportive counseling, income maintenance when required and job development and followup.	6,179	27.3
Reservation Indians *	2,565	Provide full range of services necessary to assist the reservation Indian who wishes to enter off-reservation employment. This will include assistance in making a vocational choice, training, income maintenance. Supportive counseling during the readjustment period, job development and followup.	456	17.8

* NOTE:
This item has reference to only those special programs developed specifically for Indians identified as "Reservation Indians." Indians, as a group, are NOT separately identified but are included, where appropriate, in one of the other target groups.

TABLE IV (Continued)

TARGET POPULATIONS AND OBJECTIVES

Target Group	Estimated Size	Manpower Objectives	No. to be Served	Per cent to be Served
Migrant Workers	6,200	Provide opportunities for training or job placement for migrant workers who wish either to enter into permanent employment or to supplement their agricultural incomes with off-season employment. For migrants who wish to remain in rural areas, a major objective will be to assist them in securing work in a satisfactory environment.	334	5.4
Persons with Less Than 8th Grade Achievement	115,524	Enhance opportunities for personal, social and vocational development and advancement through training in the basic skills of literacy, communication, arithmetic, citizenship, and consumer education. This is frequently a preliminary step to other more vocationally directed manpower services such as counseling, skill training, job development and so forth.	2,205	1.9
Under-Utilized Non-Poor Persons	33,806	Improve the skills and earning capacity of the under-utilized through the provision of a variety of services including counseling, job development, on-the-job training and other appropriate services as needed. Such an objective will contribute to economic stability and growth, serve the skill requirements of employers, and as a worker vacates a position when promoted, will lead to the creation of more entry opportunities for the clients of other manpower programs.	632	1.9

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B. Programs in Relation to Target Populations (Continued):

In Table V, following, the various manpower programs tablulated in Section A are apportioned among the various target populations. The table is organized by target populations (rather than by program) so that the array of programs available to each target population is readily apparent.

It should be noted that the target populations are not completely exclusive. A disabled public assistance recipient with a background as a migrant worker who meets the criteria for disadvantagement could be placed under four target groups. This has not been done, of course, for totals and percentages served would be inflated. When a person has met the definition of more than one target population he has been placed, for purposes of this table, in the group that is most logical in terms of the service to be provided. For example, in the case of the person hypothesized above, if he is to receive services through the Work Incentive Program he will be placed under "Public Assistance Recipients;" if he is to be served by the Division of Vocational Rehabilitation he will be placed under "Physically, Emotionally, or Socially Disabled," and so forth.

The final column in Table V, Priorities, relates to Section C and will be explained in that section.

TABLE V

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Disadvantaged Adults	Inst. Training	MDTA - Employment Security & Vocational Education	189	USDOL: Fed: $357,874 State: 18,835	Institutional training under the MDT Act. Includes class group skill training, orientation, and individual referral.	FY 1971	1
	On-the-Job Training	Job Opportunities in the Business Sector (JOBS)	86	USDOL: 256,854	On-the-job training plus supportive services through contracts between industry and the Department of Labor.	FY 1971	2
	On-the-Job Training	Special Option On-the-Job Training - USDOL	209	USDOL: 175,392	On-the-job training through contracts between industry and the Department of Labor.	FY 1971	1
	Training	Operation Mainstream	68	USDOL: 250,250	Job creation and work training program for chronically unemployed adults.	FY 1971	2
	Various Manpower Services	Community Action Agencies	220	Federal: 35,756 State: 37,914	A variety of manpower programs. See page 10 for a fuller description.	FY 1970	1
	Skill Training	MDTA - Employment Security & Vocational Education	3	Federal: 15,733 State: 795	Institutional training under MDTA for Park Ranger.	FY 1970	3

TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Disadvantaged Adults (Cont.)	Skill Training	MDTA - ESD/Voc. Ed., and Laborers-Employers Trust Fund	48	USDOL: $16,099	Entry training and upgrading in construction skills.	FY 1970	2
	Job Training	Public Service Careers	360*	USDOL: 765,000	Permanent employment for the disadvantaged in public service agencies and to stimulate upgrading of current public sector employees.	FY 1970	1
	Training and Employment	New Careers	90	USDOL: 521,091	Provides unemployed and low income people with jobs leading to career opportunities in health, education, welfare, neighborhood redevelopment and public safety.	FY 1970	2
	Training	Operation Mainstream	94	USDOL: 178,600	Job creation and work training program for chronically unemployed adults.	FY 1970	2
	On-the-Job Training	ESD Operated OJT Project	15	USDOL: 10,886	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969	1
	On-the-Job Training	ESD Operated OJT Project	114	USDOL: 50,070	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1970	1

*Distributed between adults and youth proportionate to New Careers in the absence of other information.

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TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Disadvantaged Adults (Cont.)	Interim Employment	STEP/ESD	346	USDOL: $1,222,042	An interim program for providing recent graduates of manpower programs with the opportunity to maintain skills and be paid a training stipend.	FY 1970	1
Disadvantaged Youth	Institutional Training	MDTA, ESD & Voc. Ed.	36	USDOL: Federal: 68,822 State: 3,622	Institutional training under the MDT Act. Includes class group skill training, orientation, and individual referral.	FY 1971	1
	On-the-Job Training	Job Opportunities in the Business Sector (JOBS)	57	USDOL: 171,236	On-the-job training plus supportive services through contracts between industry and the Department of Labor.	FY 1971	2
	On-the-Job Training	Special Option OJT	73	USDOL: 61,387	On-the-job training through contracts between industry and the Department of Labor.	FY 1971	2
	Work Experience	NYC (In School)	670	480,600	Part-time employment to provide youth with the financial resources and incentives to remain in school.	FY 1971	1
	Work Experience	NYC (Summer)	2,631	870,480	Summer employment to provide youth with the financial resources and incentives to resume school attendance in the fall.	FY 1971	1

TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Disadvantaged Youth (Cont.)	Work Experience	NYC (Out of School)	254	$875,000	Provides unemployed, underemployed or low income persons 16 years of age and over with useful work and training, including basic education and institutional or on-the-job training.	FY 1971	2
	Work Experience and Training	Job Corps	207	INA	Trains hardcore unemployed youth between ages 16 and 22 who are out of school. A residential program, it includes basic education, vocational skills, and social responsibilities.	FY 1971	1
	Apprentice Training	State Apprenticeship Program	550 accessions	N/A	Provides for the development, expansion, and improvement of apprenticeship and other forms of training in industry.	FY 1971	1
	Various Manpower Services	Community Action Agencies	880	Federal: 143,025 State: 151,656	A variety of manpower programs--see page 10 for a fuller description.	FY 1970	1
	Training	MDTA - ESD/Voc. Ed.	3	Federal: 15,733 State: 795	Institutional training under MDTA for Park Ranger	FY 1970	2

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TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Disadvantaged Youth (Cont.)	Skill Training	MDTA - ESD/Voc. Ed., and Laborers-Employers Trust Fund	32	Federal: $11,146	Entry training and upgrading in construction skills.	FY 1970	2
	Job Training	Public Service Careers	40*	USDOL: 85,000	Permanent employment for the disadvantaged in public service agencies and to stimulate upgrading of current public sector employees.	FY 1970	1
	Training and Employment	New Careers	10	USDOL: 57,899	Provides unemployed and low income people with jobs leading to career opportunities in health, education, welfare, neighborhood redevelopment and public safety.	FY 1970	2
	On-the-Job Training	ESD Operated OJT Project	5	USDOL: 3,810	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969	2
	On-the-Job Training	ESD Operated OJT Project	40	USDOL: 17,524	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1970	2

*Distributed between adults and youth proportionate to New Careers in the absence of other information.

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TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Disadvantaged Youth (Cont.)	Interim Employment	STEP	86	USDOL: $305,510	An interim program for providing recent graduates of manpower programs with the opportunity to maintain skills and be paid a training stipend.	FY 1970	1
Public Assistance Recipients *	Institutional Skill Training	MDTA Training ESD/Voc. Ed.	175	Federal: 330,346 State: 17,387	Institutional training under the MDT Act. Includes class group skill training, orientation, and individual referral.	FY 1971	2
	On-the-Job Training	Special Option On-the-Job Training-USDOL	26	Federal: 21,924	On-the-job training through contracts between industry and the Department of Labor.	FY 1971	3
	Employability Services	Work Incentive Program PA/ESD	2,297	1,695,980 of which approx. 80% is Fed. 20% is State	Vocational assessment, orientation, basic education, GED, vocational training, work experience, OJT, placement, followup.	FY 1971	1
	Support to WIN Enrollees	WIN Support Services: Public Asst.	(2,297)	1,108,197 (Fed. 75% State 25%)	Supportive services to WIN enrollees. See page 8 for a description.	FY 1971	1
	On-the-Job Training	ESD Operated OJT Project	2	USDOL: 1,361	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969	2
	On-the-Job Training	ESD Operated OJT Project	14	6,259	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1970	2

* Public assistance recipients will, of course, be enrolled in more than the following programs by virtue of other special characteristics such as a physical, emotional, or social disability or as a youth whose family is receiving public assistance. Such persons are shown under the other appropriate target group (i.e., Physically, Emotionally, or Socially Disabled; Disadvantaged Youth). To show such persons in both target populations would result in duplicate entries.

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TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Physically, Emotionally, or Socially Disabled	Rehabilitation Services	Division of Vocational Rehabilitation	6,143	Federal: $2,909,093 State: 1,246,603	Rehabilitation services including counseling, medical and psychological examinations, physical restoration, prosthetics, job training, maintenance, transportation, occupational tools and equipment, selective placement and followup.	FY 1971	1
	Institutional Skill Training	MDTA - ESD/Voc. Ed.	36	USDOL: Federal: 68,822 State: 3,622	Institutional training under the MDT Act. Includes class group skill training, orientation, and individual referral.	FY 1971	2
Reservation Indians	Institutional Skill Training	MDTA Training ESD/Voc. Ed.	36	USDOL: Federal: 68,822 State: 3,622	Institutional training under the MDT Act. Includes class group skill training, orientation, and individual referral.	FY 1971	1
	On-the-Job Training	Special Option On-the-Job Training - USDOL	47	USDOL 39,463	On-the-job training through contracts between industry and the Department of Labor.	FY 1971	2
	Training	BIA - Indian Assistance Program	280	BIA 280,000	Institutional training in various occupations for Indians.	FY 1971	1

TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Reservation Indians (Cont.)	Institutional Training	MDTA Inst. ESD/Voc. Ed.	64	Federal: $ 388,657	Fish culture training course for Reservation Indians.	FY 1970 funds	1
	On-the-Job Training	ESD On-the-Job Training Project	4	2,449	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969	3
	On-the-Job Training	ESD/OJT	25	11,265	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1970	2
Migrant Workers	Institutional Training	MDTA - ESD/Voc. Ed.	110	USDOL: Federal: $206,466 State: 10,867	Institutional training under the MDT Act. Includes class group skill training, orientation, and individual referral.	FY 1971	1
	On-the-Job Training	On-the-Job Training - USDOL	63	Federal: 52,618	On-the-job training through contracts between industry and the Department of Labor.	FY 1971	2
	Basic Ed & Support Services	Northwest Rural Opportunities	122	INA	Basic education, GED, and supportive services for minority groups to assist them to compete in the labor market. Focus is on migrant workers.	FY 1971	1

TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Migrant Workers (Continued)	On-the-Job Training	ESD/OJT Project	5	Federal: $ 3,266	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969	3
	On-the-Job Training	ESD/OJT Project	34	Federal: 15,021	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1970	1
Services to migrant workers with physical, emotional, or social disabilities and those receiving public assistance are shown under those target groups.							
Under-Utilized Non-Poor Persons	Institutional Skill Training	MDTA - ESD/Voc. Ed.	146	USDOL Federal: 275,288 State: 14,489	Institutional training under the MDT Act. Includes class group skill training and individual referral.	FY 1971	2
	On-the-Job Training	USDOL - OJT	104	87,696	On-the-job training through contracts between industry and the Department of Labor.	FY 1971	2
	Training	MDTA - ESD/Voc. Ed.	18	USDOL Federal: 94,396 State: 4,768	Institutional training under MDTA for Park Ranger.	FY 1970	1
	Skill Training	MDTA - ESD/Voc. Ed., and Laborers-Employers Trust Fund	280	96,595	Upgrading training in construction skills	FY 1970	1

TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Under-Utilized Non-Poor Persons (Cont.)	On-the-Job Training	FWPCA	20	$114,975	On-the-job training coupled with institutional classroom and laboratory training in sewage treatment plant operation.	FY 1970 funds	1
	On-the-Job Training	ESD-OJT Project	7	USDOL: 5,443	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1969	3
	On-the-Job Training	ESD-OJT Project	57	USDOL: 25,035	On-the-job training through contracts negotiated with industry by the Employment Security Department.	FY 1970	2
Persons With Less Than 8th Grade Achievement	Adult Basic Education	Superintendent of Public Instruction	2,205	Federal: 186,981 State: 32,977	Instruction in basic skills, literacy, communications, arithmetic, citizenship, and consumer education.	FY 1971	1

TABLE V (Continued)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
All Target Groups 1/	Title III Wagner-Peyser Act	Employment Security Department	67,714	INA	Activities include outreach, reception and intake, application taking and interviewing, counseling, testing, job development, selection and referral to training (programs funded from other sources), placement, occupational and industrial analysis, compiling and disseminating labor area information, test development and community services. Emphasis is placed on employability development and placement of the disadvantaged and unemployment insurance claimants that are not job ready. Priority is given to veterans.	FY 1971	1

1/ Employment Security Department Title III activities will be provided to members of all target groups listed on this table. The extent and diversity of this involvement is made clear on the linkage table, Section E.

C. Establishing Priorities

Program priorities by target populations are shown in the final column on Table V. These priorities are identical to those indicated in Part A of the Fiscal Year 1971 Plan with the exception of programs instituted since its publication such as the STEP Program.

These priority assignments are not to be construed as a ranking of programs. Rather, they reflect the relevancy of a particular program to the target population under consideration.

D. Evaluation of Resources in Relation to Needs:

The federal plan format for this section asks that the proportion of each target population whose needs will be met be estimated and that additional or alternative services that should be provided be described briefly. This information is supplied on Table VI, following, which is self-explanatory.

TABLE VI

PROPORTION OF TARGET GROUPS SERVED AND ADDITIONAL OR ALTERNATE SERVICES

Target Group	Per cent Served	Additional or Alternate Services
Disadvantaged Adults	14.4	A substantial increase in the number of training opportunities, both institutional and on-the-job, is necessary. Training is used here in the broadest sense of the word, ranging from basic education and orientation through skill training. The need for supportive services for members of this target group is critical if its members are to avail themselves of these needed programs. Income maintenance, child care, ongoing counseling and appraisal, transportation, job development and, where indicated, relocation assistance, are essential for the successful operation of manpower services.
Disadvantaged Youth	55.9	Additional or alternate services as described above under Disadvantaged Adults are also appropriate to this target group. In addition, as completion of secondary schooling is becoming increasingly important, programs that provide part-time and summer employment to enable poor youth to remain in or return to school are important. Environmental change often being beneficial, the continuation and increase of residential type programs such as Job Corps is considered necessary. The growing impatience of youth in American society increases the urgency of a swift, effective response to their needs.
Public Assistance Recipients	15.0	Increase in funding of the Work Incentive Program and the State Training Opportunity Program to provide more training slots. In addition, increases in programs not specifically designed for or limited to Public Assistance Recipients (e.g., MDTA training, Vocational Rehabilitation) will directly benefit this target group. The need for a wide range of supportive services such as child care, work orientation, counseling and so forth cannot be overemphasized.

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TABLE VI (CONT.)

PROPORTION OF TARGET GROUPS SERVED AND ADDITIONAL OR ALTERNATE SERVICES

Target Group	Per cent Served	Additional or Alternate Services
Physically, Emotionally or Socially Disabled	27.3	Additional funding is necessary to extend these services to more people and to provide more facilities such as workshops. While preventive and corrective medicine, applied early in life, have served over the years to reduce slightly the number of persons with vocationally significant handicaps, this target group is one that will be assured of continuous input for decades to come as annual groups of young people reach working age and as industrial and other accidents continue to affect the physical capacities of workers.
Reservation Indians	17.8	Increase in resources and program capability in order to serve more members of the target group. Programs should provide manpower services to both those who wish to leave the reservation to seek employment in the community at large and those who would rather realize their potential in reservation enterprises or industries.
Migrant Workers	5.4	Increased training opportunities and supportive services are needed to assist those migrant workers who wish to change their occupational pattern or to supplement farm work with off-season employment. The need for a full range of supportive services is particularly necessary for those migrants leaving the rural environment or agriculture. Good family and personal counseling, emotional support, relocation assistance, job development and followup after placement often make the difference between success and failure in the migrant worker's transition from farm work to industry. Education in English as a second language is also necessary for this target group.

TABLE VI (CONT.)

PROPORTION OF TARGET GROUPS SERVED AND ADDITIONAL OR ALTERNATE SERVICES

Target Group	Per cent Served	Additional or Alternate Services
Persons With Less Than 8th Grade Achievement	1.9	Extension of program to include recruitment and counselor services and to increase duration per week and number of weeks. Increase funding to permit inclusion of more trainees and more state teacher training programs. Through cooperation with other programs such as MDTA enable more trainees to enter full-time basic education with training allowances.
Under-Utilized Non-Poor Persons	1.9	The percent served in this target group is the smallest in the balance of state area. This is due in part to the fact that under-utilized non-poor persons are a second priority group. Another factor is that a number of them are presently working (although underemployed) and do not therefore come to the attention of agencies providing manpower services. Beyond this obvious necessity for additional program resources to serve the needs of this group (e.g., skill training, upgrading, OJT), a provision for outreach capability, counseling and income maintenance while in training are essential.

E. Linkages Between Programs

Following are the program linkages, by target populations, which will be operational in Washington State in fiscal year 1971.

Linkages are shown in the accompanying charts for six of the eight target populations listed in the plan. Reasons for the two omissions are as follows:

- PERSONS WITH LESS THAN EIGHTH GRADE ACHIEVEMENT. This target group overlaps all others and was entered in the plan in order to show program resources for Adult Basic Education programs. Linkages for persons in this target group are therefore to be found on all the charts in that persons in this target group will meet the definition of at least one other target group.

- UNDER-UTILIZED NON-POOR PERSONS. Linkages for this target group are virtually identical to those given for Disadvantaged Adults with the exception of the programs listed under "Training and Work Experience." Because of the focus of training resources on the disadvantaged in Washington State, only a small percentage of MDTA Institutional and OJT slots are planned for this target group.

For each of the target groups listed on the following charts, the agency (or, in a few cases, agencies) listed under "Intake, Screening, and Coordination" is to be regarded as the Linkage Coordinating Agency for the target group under consideration. This agency receives referrals from the "Client Sources" and provides an intake and screening service during which the client is assisted in defining his problem and working out an employability goal. Then, considering the various programs or services available through federal, state, and community resources the Linkage Coordinating Agency devises a plan whereby the client's goal can be realized. This plan may involve any or all of the following:

- Counseling and testing by Linkage Coordinating Agency.

- Referral to community agency for assistance with a special problem; e.g., to family counseling for resolution of a marital problem.

- When referred back from community agency, selection and referral for Basic Education or Employment Orientation (provision of supportive counseling and training allowances during this phase if indicated and authorized).

- Reassessment by Linkage Coordinating Agency at completion of above to determine the next appropriate service; i.e., job referral, skill training, OJT, etc.

- Referral to training such as MDTA, Job Corps, or other.

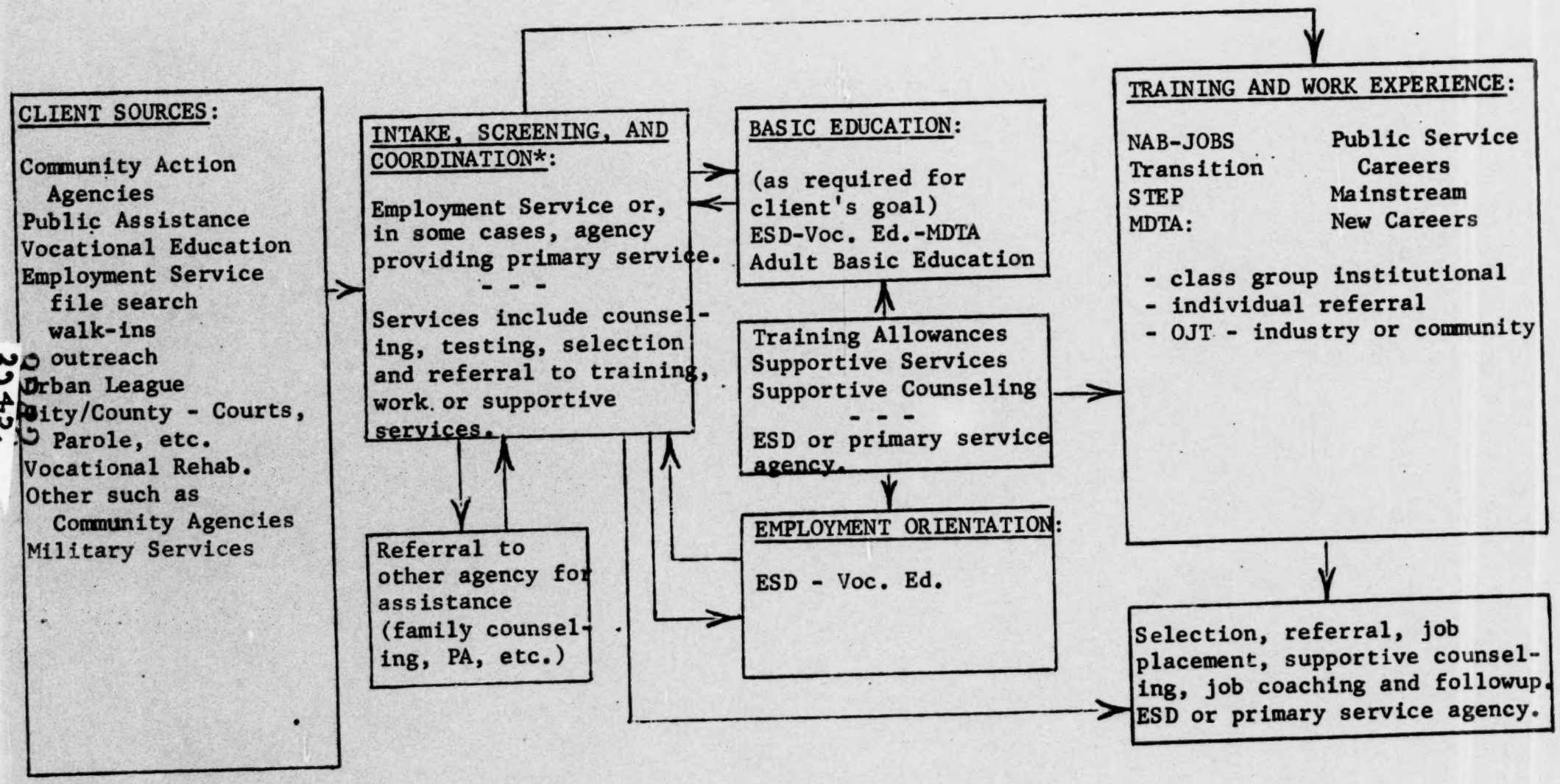
- Following completion of training: job development, referral, and placement by the Linkage Coordinating Agency if it is the Employment Security

Department or , if not, jointly by ESD and the Linkage Coordinating Agency. The Linkage Coordinating Agency will also provide post placement counseling, when required, and followup. In addition, job coaching will be undertaken when authorized and available.

CHART I

LINKAGES

DISADVANTAGED ADULTS

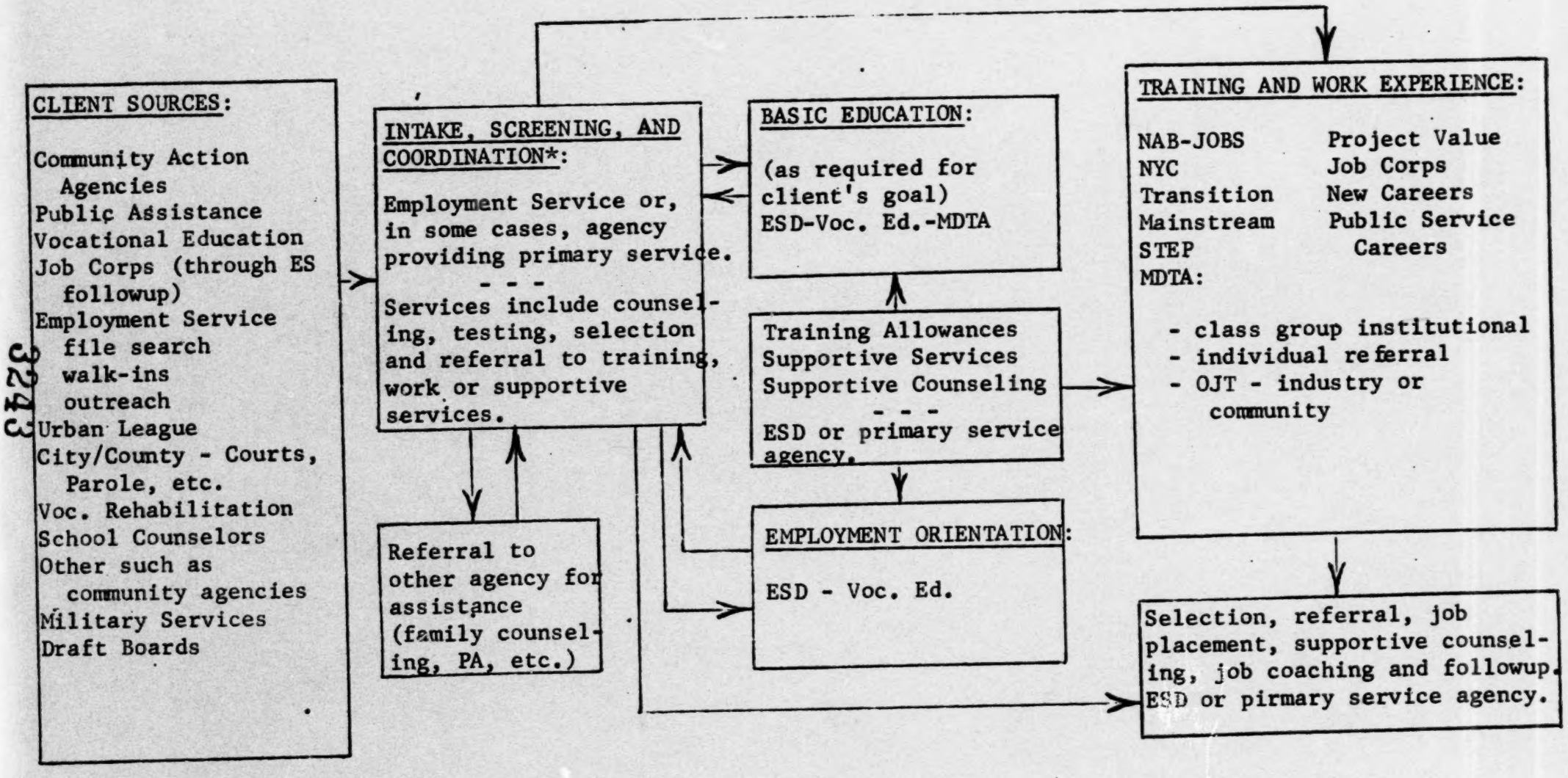


*Coordination of client's progress when more than one program or service is involved.

CHART II

LINKAGES

DISADVANTAGED YOUTH

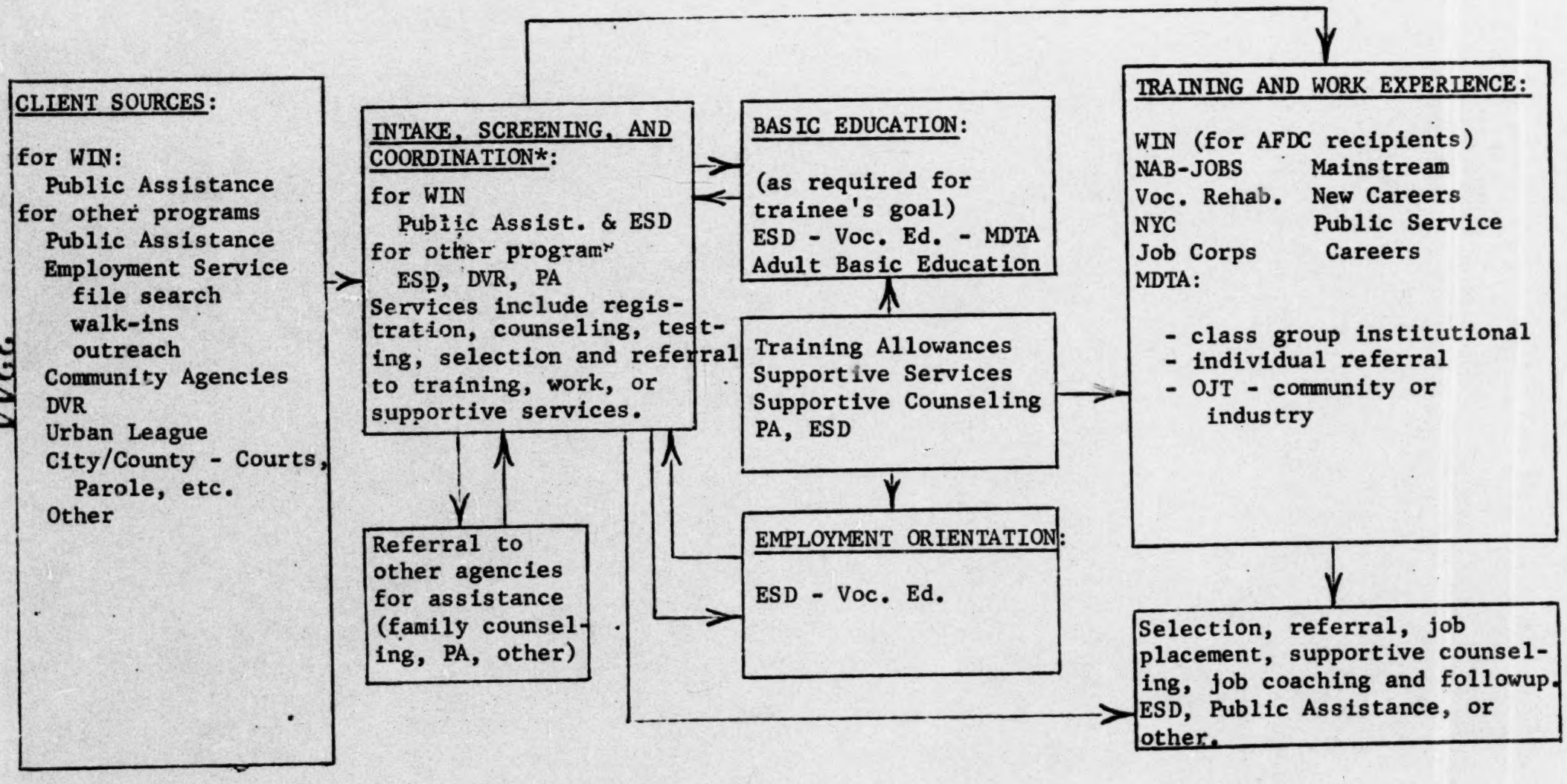


*Coordination of client's progress when more than one program or service is involved.

CHART III

LINKAGES

PUBLIC ASSISTANCE RECIPIENTS



*Coordination of client's progress when more than one program or service is involved.

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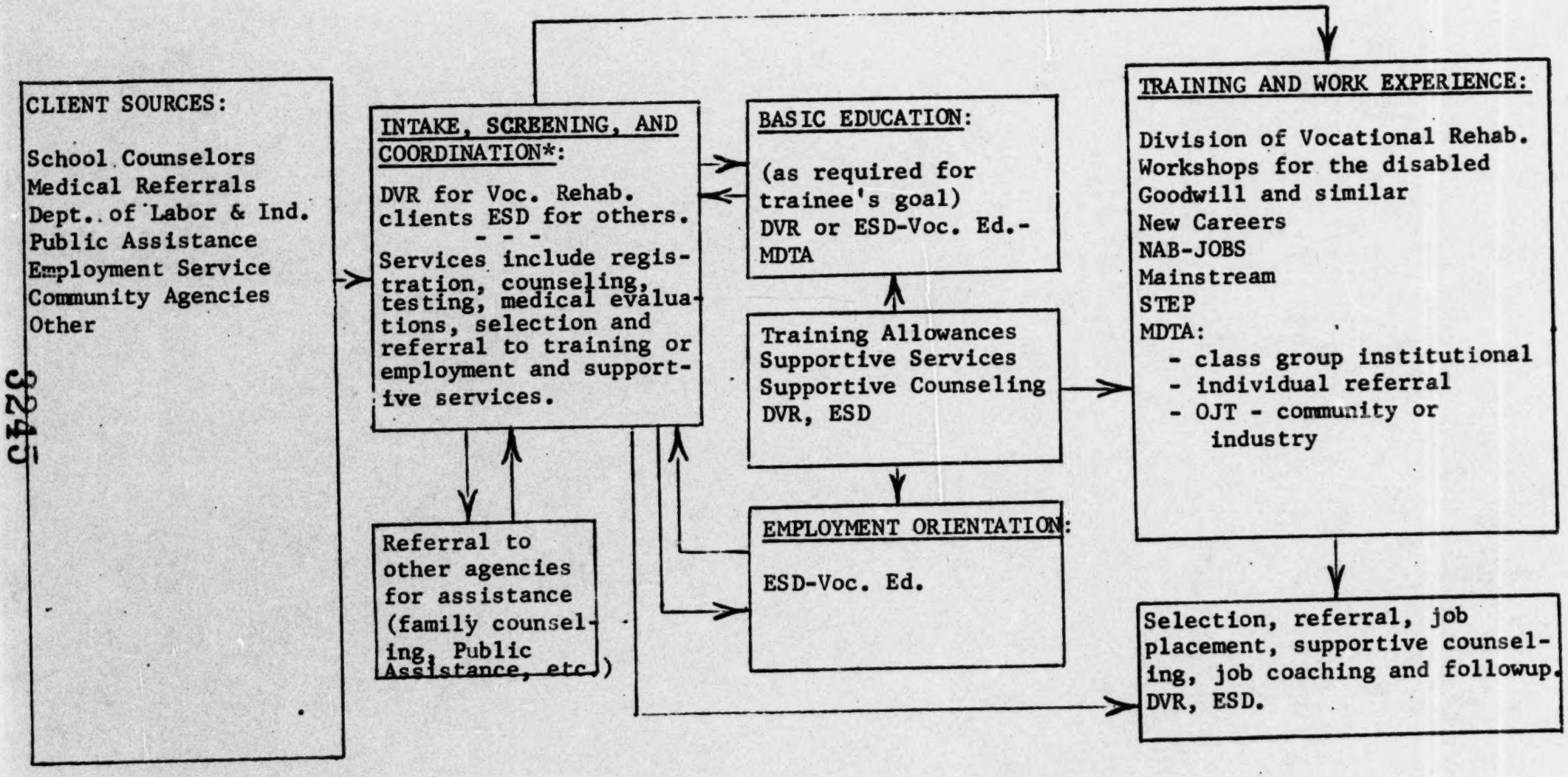
CHART IV

LINKAGES

PHYSICALLY, EMOTIONALLY, OR SOCIALLY DISABLED

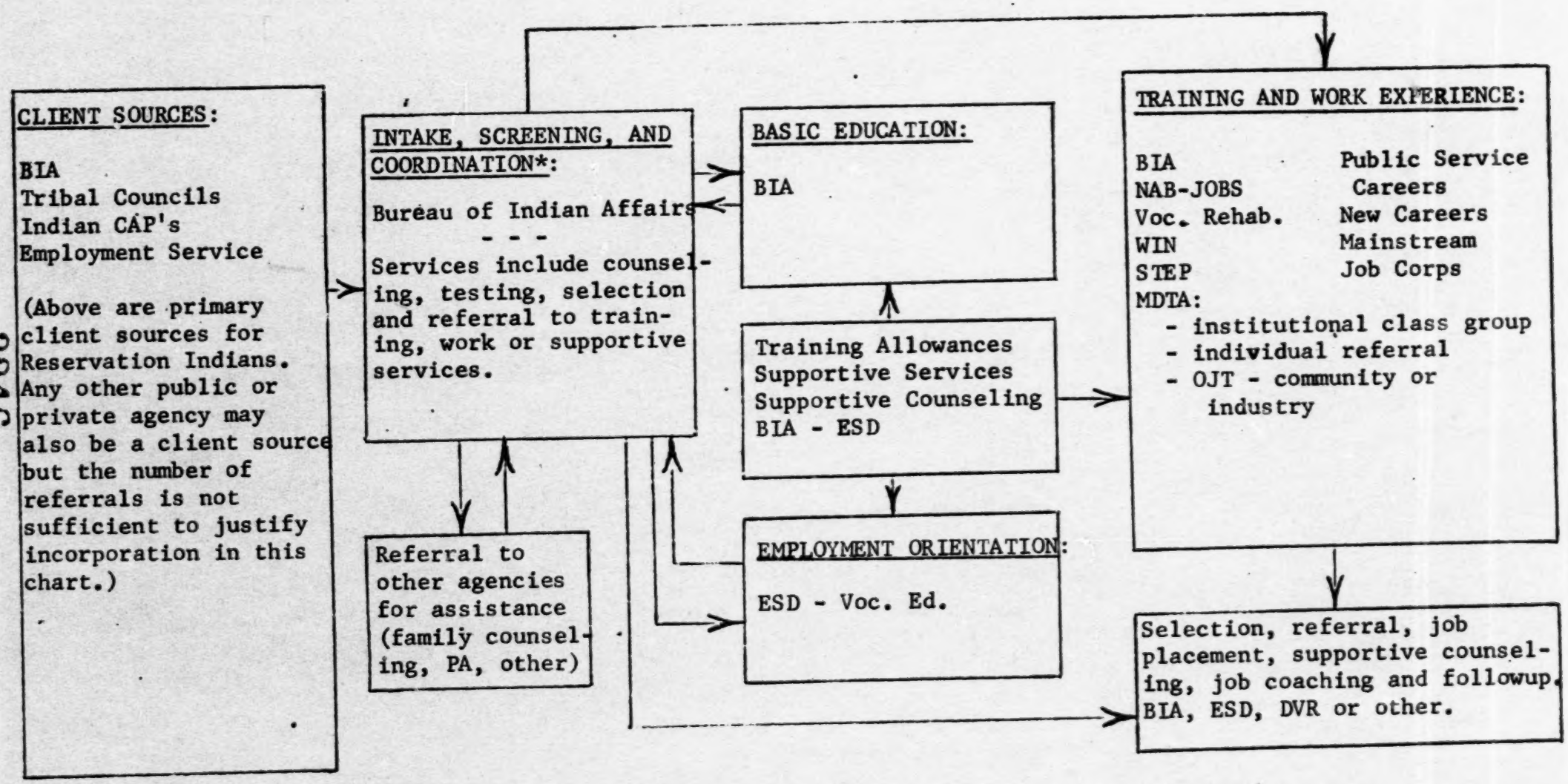


*Coordination of client's progress when more than one program or service is involved.

CHART V

LINKAGES

RESERVATION INDIANS

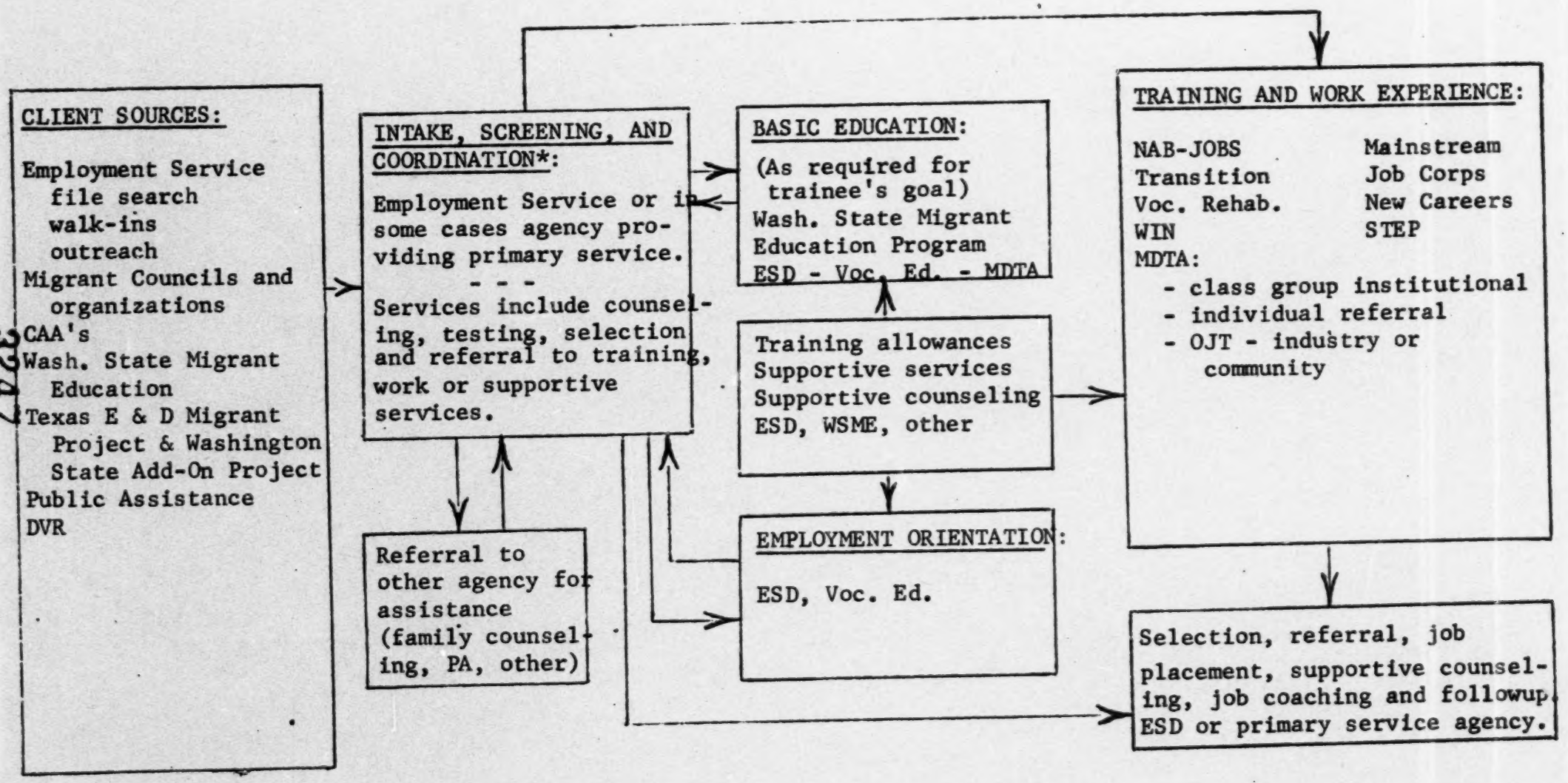


*Coordination of client's progress when more than one program or service is involved.

CHART VI

LINKAGES

MIGRANT WORKERS



*Coordination of client's progress when more than one program or service is involved.

F. Relationship of Area CAMPS Plan to Special Programs of Interagency Planning and Coordination:

None. There are no such programs in the Balance of State Area. See comment for this section on page 5.

G. Community Involvement:

In terms of development of the CAMPS plan, the principal role of employers, labor organizations, agriculture representatives, and the public is through their representation on Manpower Advisory Committees throughout the state. Part of their advisory role is directed toward the activities of the various coordinating committees. In several communities in the balance of state area, advisory and coordinating committees hold periodic joint meetings at which the advisory committee is kept informed of the development of CAMPS planning and participates in discussion regarding its implementation.

Indian Reservation representatives sit on CAMPS coordinating committees so their role in the planning and implementation of manpower programs is direct.

PART B

SEATTLE-EVERETT METROPOLITAN AREA

(King-Snohomish Counties)

State of Washington

COMPREHENSIVE MANPOWER PLAN -- FISCAL YEAR 1971

* * * * *

July 15, 1970

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compiled and submitted by the

Seattle-Everett Metropolitan Area Manpower Coordinating Committee

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The Seattle-Everett Metropolitan Area Comprehensive Manpower Plan
Fiscal Year 1971 - Part B
July 15, 1970

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R. L. Switzer, Acting State Supervisor

Bureau of Indian Affairs
William Murdoch, Director
Seattle Employment Assistance Office
Miss Irene Day, Employment Assistance Officer
Western Washington Indian Agency

U. S. Civil Service Commission
John Koreski, Chief Staffing Operations
Interagency Board of Examiners

Department of Agriculture
L. Donohue Callan, King County Supervisor
Farmer's Home Administration
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Farmer's Home Administration

Economic Development Administration
Kenneth E. Latcholia, Economic Development
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Employment Security Department
J. P. Johnston, Jr., Seattle Local Office Manager

Jack Martin, Everett Local Office Manager

Housing and Urban Development
Robert Magnusson, Equal Opportunity Officer
Northwest Area Office

Model City Program
Isaac Pope, Assistant Planning Coordinator,
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Office of Economic Opportunity
Harry Carle, Executive Director
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Clayton Harrell, Deputy Director, CEP
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Public Assistance Department
Maurice Anderson, Snohomish County Administrator

Louise Brogan, King County Employment Coordinator

City of Seattle
Edward S. Singler, Assistant to the Mayor for Manpower

Vocational Rehabilitation Division
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John Spencer, King County Assistant Supervisor

Vocational/Technical Education
Edward Schierberl, Director of Grants
and Proposal Activities
Seattle Community College
George DeBell, Associate Dean of Occupational
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Technical Programs, Everett-Edmonds Community Colleges
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Green River Community College

Edward Ostling
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Paul Hylton
George D. Dorr
Arthur A. Binnie

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SECTION A INVENTORY OF PROGRAM RESOURCES AVAILABLE FOR F.Y. 1971

1. Table I - Federal FY 1971.
   This table lists the enrollment opportunities (persons to be served) for each federally assisted manpower program in the Seattle-Everett Metropolitan Area. This is on area tabulation based on information provided by the State CAMPS Committee.

2. Table II - Federal Carryover Programs from previous Fiscal Years.
   This table lists (to the extent known) the type and quantity of services which will be available in FY 1971 from unutilized FY 1970, and FY 1969 funds.

3. Table III - Non-Federal Manpower Programs FY 1971.
   This table lists the manpower programs to be available from non-federal sources, i.e., funded entirely by State, local government, non-profit organizations, or private sources. Only those community agencies that provide a clearly identifiable manpower service have been included.

TABLE I

Rev. 9/30/70

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
Employment Service Title III Activity	Services related to employment for all persons seeking or needing the services. Activities include outreach, reception and intake, application taking and interviewing, counseling, testing, job development, selection and referral to training (programs funded from other sources), placement, occupational and industrial analysis, compiling and disseminating labor area information, test development and community services. Emphasis is placed on employability development and placement of the disadvantaged and unemployment insurance claimants that are not job-ready. Priority is given to veterans.	$3,277,069 (estimated)	Total number of persons forecast to be served; including both disadvantaged and non-disadvantaged. 84,484
Work Incentive Program (WIN) (Program Funds)	Provide manpower services of Employment Security and training in connection with a Joint Venture of Employment Security and Public Assistance to achieve habilitation or rehabilitation of the Public Assistance recipient.	$1,032,470 80% Fed. 20% State	1,399
Work Incentive Program (WIN) (PA Support to Trainees)	Provide child care, transportation, physical examinations, extra clothing, glasses, dentures, plus physical examinations for children of WIN enrollees in day care centers.	$ 674,643 75% Fed. 25% State	1,399
OJT/MDTA (Special Option)	Provides training and employment in entry skills for unemployed, and upgrading training and employment for underemployed. Provides for reimbursement, on contract basis, of additional employer costs attributable to this program.	$ 49,680	56

TABLE I (Cont)

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
DVR Division of Vocational Rehabilitation	Rehabilitation services: Counseling, medical and psychological examinations, physical restoration, prosthetics, job training, personal adjustment training, maintenance, transportation, occupational tools and equipment. Selective placement and followup.	Federal $2,868,782 State $1,229,389	6,057
MDTA	Provide institutional skill training either in classroom or on individual referral. Provide other training such as basic education and upgrading. Provide allowances to trainee.	$1,086,660*	546*
	*This allocation has been distributed as follows:		
	Individual Referral	($613,963)	(195)
	Classroom, Part-time and Other	($472,697)	(351)
JOB CORPS	Trains hard core unemployed youth between the ages of 16 and 22 who are out of school. A residential type program, it includes basic education, vocational skills and social responsibilities.	INA	114
Bureau of Indian Affairs. Vocational Training Program	Institutional training in various occupations	$15,000	15

TABLE I (cont)

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
Operation Mainstream	Provide jobs for unemployed adults, mainly in rural areas in projects to improve or beautify the area served.	$69,300	18
JOBS	Provides training and employment in entry skills for unemployed, and upgrading training and employment for underemployed. Provides for reimbursement, on contract basis, of additional employer costs attributable to this program.	$2,305,100	768
NYC Out of school	Provides useful work and training and basic education where needed.	$468,100	136
NYC In school	Provide part time employment and useful work experience	$302,600	421
NYC Summer	Provide part time employment and useful experience.	$548,080	1657
New Careers *	Provide on the job training and jobs leading to career opportunities in health, education, welfare, and neighborhood redevelopment. * All New Careers slots for King-Snohomish Counties are included in CEP planning.		
State Apprenticeship Program	Provides for the development, expansion and improvement of apprenticeship and other forms of training in industry.	N/A	Accessions: 1000

TABLE I (cont)

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
Concentrated Employment Program (CEP)	A manpower program with a unified delivery system combining the optimum mix of resources into a single project. See Section F *The anticipated breakdown of persons to be served is as follows: Direct employment after intensive job orientation Basic Education and/or Vocational Training New Careers Operation Mainstream	$2,060,000	1350* (552) (614) (106) (78)
Model Cities	A comprehensive and coordinated attack on social, economic and physical problems to improve the environment and welfare of its target population. See Section F. ** Jobs generated by Model Cities operations. Many of these persons will need training and/or supplemental services in addition to placement; and through CEP and WSES will be channeled into the other programs in Table 1.	Not applicable	1100**
Seattle Opportunities Industrialization Center (SOIC)	A skill center providing basic work orientation, education and occupational training. See Section F. *** SOIC direct intake only. SOIC will also train 614 of the individuals served through CEP	$ 908,736	500 ***

TABLE I (cont)

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
PL 90-576	State of Washington Vocational Education - Basic Grants	State $3,700,000 Federal $1,427,000 Total $5,127,000	96,437
Adult Basic Education	Basic skills, literacy, communication, arithmetic, citizenship, consumer education.	Federal: 146,652 State: 25,880	945

TABLE II

FEDERAL CARRYOVER PROGRAMS FROM PREVIOUS FISCAL YEARS

Program Name	Description	Funds	Number of Persons
OJT/MDTA	Provides training and employment in entry skills for unemployed, and upgrading training and employment for underemployed. Provides for reimbursement, on contract basis, of additional employer costs attributable to this program.	$29,700* $ 6,450**	73 9
Sewage Treatment Plant operator Training-Federal Water Pollution Control Admin. (FWPCA)	MDTA-OJT training coupled with institutional classroom and laboratory training for improvement of technical and manual skills of existing sewage treatment operating personnel	$130,822*	20
Public Service Careers	Provide premanent employment for the disadvantaged in public service agencies and stimulate upgrading of current public sector employees.	$411,243*	165***
Operation Mainstream	Provide jobs for unemployed adults, mainly in rural areas in projects to improve or beautify the area served.	$ 38,000*	20
Supplemental Training and Employment Program (STEP)	Provide unemployed recent graduates of manpower programs with interim work experience and training to maintain skills.	$1,131,173*	325

* FY 1970
** FY 1969
*** 55 of these training opportunities will be for upgrading.

TABLE III

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
The persons served column for many of these agencies includes individuals who receive temporary services only such as referral to or employment on jobs of very short duration or rehabilitation and/or financial assistance for a very short period. Temporary services are identified in the program description column.				
Bishop Lewis House Pioneer Fellowship Dalton House Guerin House	Church and voluntary members.	Functions as a graduated system of recovery for homeless male alcoholics; reception center, diagnostic screening, motivation and holding residence	Fees & donations	1000
Cedar Hills Alcoholism Treatment Center	Board of King. Co. Commissioners	Provide in-treatment, care, diagnostic and medical evaluation, and comprehensive rehabilitation services to adult males (court committed).	Seattle City King County & State	360
Compass Center (Lutheran)	Churches (non-denominational services) in cooperation with the City of Seattle	Provide social service to all single men; emergency assistance. Group therapy for skid row types. Temporary job placement. Temporary service.	UGN, operating income, donations, City appropriation	4500
Eastside Handicappers	Society for Exceptional Children	A program of work opportunity and social experience for handicapped persons age 18 to 30, most of whom are severely mentally retarded--not being served in any other way or by any other program.	UGN, society donations, sales, memberships.	14

TABLE III (Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Fellowship of Christian Urban Service (FOCUS)	Methodist churches (4) in Central Area	A referral agency, a place for drop-in counseling. Mental health program for former patients of state institutions	Contributions of churches and individuals	125
Goodwill Industries	Goodwill Ind. of America, Inc. and National Assn. of Sheltered Workshops, non-profit agency	Provides employment, training, and rehabilitation for handicapped and older workers in a sheltered workshop. Temporary and permanent service.	Self-supporting.	375 job stations. 1133 Hdcp. in workshop 360 Disadvantaged 101 Hdcp. Placements
Indian Center	American Indian Women's Service League	Provides a center for social, educational, and recreational activities for American Indians. Indians from reservations make scheduled tour of local industries for vocational and employment information.	UGN and donations	200
Job Therapy, Inc.	Voluntary Agency	Involves the community in the rehabilitation of offenders through a man-to-man sponsorship program and job service for young men in the State Reformatory and State Correctional Center.	Membership-donations	300
Lighthouse for the Blind, Inc.	Affiliated with National Industries for the Blind	To contribute to the general welfare and well being of the blind, and to maintain a workshop to make the blind self-supporting.	Contributions and product sale	100 blind 20 other hdcp. persons

TABLE III(Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Millionaire Club, Ind.	Voluntary Agency (charity)	Provides emergency assistance; meals, clothing, employment service for men (day workers who do housework, yard work, and similar tasks). Temporary service	Donations	Approximately 50 jobs per day. 144,000 meals per year.
Northwest Center for the Retarded	King County Chapter, Wash. Assn. for Retarded Children (WARC)	To give day training to trainable mentally retarded persons from 3 to 60 years of age; training in basic skills and occupational training in Seattle Public Schools or in sheltered workshops. Also training program for persons with special problems of retardation.	Supported by Seattle Pub. Schools, St. Dept. of Institutions, donations & income.	143 in Seattle Public Schools 40 in sheltered workshops. 21 in special programs.
Pioneer Industries, Inc.	Self-sustaining	A vocational rehabilitation workshop to provide employment and on-the-job training opportunities for society for selected residents; those with prison record, a probationary criminal charge, an alcoholic addiction with or without criminal implications. Goal: to become acceptable for employment in private industry.	Subcontracts from Boeing and other private industry	175
Rehabilitation Center for Injured workers.	State Dept. of Labor and Industries	A center for the physical restoration of workers with job related injuries, primarily those with neurological or orthopedic disorders; occupational therapy; vocational guidance, placement service.	Premiums from Workmen's Compensation Insurance	1100

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TABLE III(Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Ronald Hall	In-As-Much, Inc. a non-profit, non-sectarian Corp.	Provides a home for exprisoners on the road from prison to the community; help given in preparing for and finding employment.	Fees and Donations	200
St. Vincent de Paul Society	Catholic Agency	Provide assistance, employment, counseling to resident and transient families and individuals; Salvage Bureau provides employment for those who cannot compete in industry. Temporary and permanent service.	Donations, legacies, salvage sales	400
Salvation Army	Voluntary agency governed under the authority of the Salvation Army	Social service and rehabilitative opportunity for alcoholic men and other unfortunate men; meals, lodging, clothing, medical care, and work therapy (spot jobs). Provide and secure temporary jobs. Temporary and permanent service.	UGN, fees, and contributions	3000
Seattle Urban League	Affiliated with National Urban League	Regular on-going program to place minority persons with skills.	UGN and membership	360
South King County Activity Center	Private non-profit organization	Promote and implement a program of vocational education, work opportunity and social experiences for the trainable mentally retarded, age 16 and up, who are not able to qualify for other programs.	Contributions.State Epton Bill	50

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TABLE III (Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
The Frye (Hotel)	Private	A haven for patients discharged from mental hospitals - an open door policy to help the person make the adjustment to the outside working world, and then help them to find other jobs. Average stay 2 months.	Some contributions, otherwise private funds	2000
Union Gospel Mission	Churches-Union Gospel Mission Assn.	Temporary labor for homeless men in order to earn board, room, clothes while seeking employment. Also full-time work program for handicapped. Temporary and permanent services.	Individuals and Churches	Approx. 40-50 transients a day on spot jobs. 15-20 full time.
United Cerebral Palsy Assn.	Private non-profit Organization	Provide sheltered workshop employment for cerebral palsied and other severely handicapped adults; on-the-job training and evaluation; a work program geared to individual abilities.	UGN and money earned from work projects	155 - 175
Young Women's Christian Assn. (YWCA)	Voluntary Agency	Career Referral Center-project which gives information on opportunities for mature women.	UGN, Memberships, Endowments	70
Summer Youth Activities Committee	Public Agency	Operates "PITCH IN" a city wide program of recreation, education and employment, education and employment for youth for the summer, in the summer in cooperation with NYC, NAB, WSES and Seattle Public Schools.	City and County appropriations Donations voluntary staffing	4500

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TABLE III(Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
Washington Insurance Council	24 Insurance Companies	A pilot program to provide tuition and material to train under-employed persons from the Seattle Central Area to become insurance examiners, underwriters and claims adjusters.	Washington Insurance Council	20
		SNOHOMISH COUNTY		
Everett Rescue Mission	Voluntary Agency	Transient care for men of all ages - meals, lodging, clothing, counseling. Capacity 41 men. Temporaty service.	Contribution Donations Churches	375
Goodwill Industries	Goodwill Industries of America, Inc.	Charitable non-profit organization--Work adjustment & training. Rehabilitation, jobs for handicapped. Sheltered workshop assistance and advice. Temporary service.	Self-supporting	I.N.A.
Snohomish County Legal Aid	Community Action Council	Legal assistance and counseling to indigent persons. Temporary service.	Donated serv. No expense	200
Salvation Army	International Salvation Army	Private charities. Family counseling and relief transient counseling and relief, Youth work, missing persons, employment service, temporary service.	Contributions, UGN. Endowments	2400
Snohomish County Center for the Handicapped	Voluntary	Work training & evaluation-Sheltered industry-Extended employment. Recreational program-Job Placement, Permanent type (some temporary).	Contributions, UGN, sales of goods & service.	65 Permanent 35 Temporary

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TABLE III (Cont.)

NON-FEDERAL MANPOWER PROGRAMS - FY 71

Program Name	Operating Agency	Program Description	Funds	Number of Persons
St.Vincent de Paul	Roman Catholic Archdiocese	Salvage bureau - charity information Pickup salvage. Temporary assistance.	Contributions Salvage & Diocese Fund	375
Victoria Ranch, Inc.	Private Agencies	Residential Center for mentally retarded adolescents and adults. Occupational training, work evaluation, skills assessment. Permanent service	Fees, WS, DVR, SDPA Contributions	75
Volunteers of Amerida	National Volunteers	Emergency assistance. Men's dormitory - Family welfare-Thrift store-Youth work, Children's summer camp Temporary service	UGN,Salvage Sales	4800 cases 8190 persons
		KING-SNOHOMISH COMBINED		
NAB/JOBS	National Alliance of Business Men	A program to provide jobs for disadvantaged workers. Employers will hire first and then provide training and supportive services at employer expense.	NAB Employers	700

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SECTION B PROGRAMS IN RELATION TO TARGET POPULATION

The target populations are defined in Section G of Part A of this Plan, pages 10 through 16. In most instances a clear image of the characteristics of each group can be obtained by reading the first paragraph or first few sentences under the target group heading. Minority groups are not identified in the target populations because the services performed by all agencies involved are applicable to all disadvantaged persons in each target group and it is not possible in most instances to apportion the distribution of funds or services to the ethnic groups.

1. Table IV - Target Populations and Objectives
   This table lists, in order of priority, the target populations, their estimated size and for each target population, specifies the manpower objectives for the coming year and the number and proportion to be served.

   The estimated size of the target population as shown on this table are the same as indicated in Part A of this plan. During the period which has elapsed since the preparation of Part A, due to economic conditions in this area, most of these target populations have greatly increased in size. This would particularly apply to the target groups Disadvantaged Unemployed Adults, Disadvantaged Unemployed Youth and Public Assistance Recipients.

2. Table V - Manpower Activities
   This table, for each target population separately, lists the manpower services that are planned for Fiscal Year 1971.

TABLE IV

TARGET POPULATIONS AND OBJECTIVES

Target Group	Estimated Size	Manpower Objectives	No. to be Served	Per cent to be Served
King-Snohomish Area	237,500 1/	A - Number of registered individuals forecast to receive some employability development service in FY 1971. B - Forecast to be counseled. C - Forecast to be tested. D - Forecast to be enrolled in training. E - Forecast to be placed (non-agricultural) (B, C, D, and E include duplications, and all are included in A)	A - 63,352 B - 4,254 C - 7,559 D - 3,076 E - 15,640	27%

1/ From State Plan of Service Exhibit C. Includes Poor and Non-Poor.

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TABLE IV

TARGET POPULATIONS AND OBJECTIVES

Target Group	Estimated Size	Manpower Objectives	No. to be Served	Per cent to be Served
Disadvantaged Unemployed Adults	8142	Employment securing assistance including training, supportive services, referral to jobs, employment orientation and follow-up	2316	28.4%
Disadvantaged Unemployed Youth	3658	Employment securing assistance including training, supportive services, referral to jobs, employment orientation, apprenticeship	1644	44.9%
Reservation Indians	920	Assist Indians to attain a status of economic independence through employment	15	1.6%
Physically Emotionally or Socially Disabled	12,800	Rehabilitation, preparation and job placement	6057	47.3%
Under Utilized Poor Persons	36,100	Work training, skill improvement and upgrading	165	0.5%
Under Utilized Non Poor Persons	10,500	Work training, skill imporvement, upgrading,	65	0.6%
Persons with less than 8th grade achievement	60,691	Reduction of illiteracy, preparation for employment, training, better citizenship	945	1.6%

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TABLE V

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Public Assistance Recipients	Employability Services	Work Incentive Program - WIN Employment Security Dept.	1399	State 20% Federal 80% $1,032,470	Vocational Assessment Orientation. a. program b. Employability Basic education, GED, Vocational training, work experience, OJT, Placement, Follow up.	FY 1971	1
	Supportive Services	WIN Dept. of Public Assistance	1399	State 20% Federal 80% $674,643	Child care, transportation, physical examination, extra clothing, glasses, dentures, plus physical examinations for children of WIN enrollees in day care centers.	FY 1971	1
Physically, Emotionally or Socially Disabled	Vocational Rehabilitation	State Div. of Vocational Rehabilitation	6057	State 30% Federal 70% $4,098,171	Necessary vocational rehabilitation services for job preparation.	FY 1971	1

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TABLE V (cont)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Disadvantaged Unemployed Adults	Employment	Operation Mainstream	38	Federal $107,300	Provide jobs for unemployed adults, mainly in rural areas in projects to improve or beautify the area served	FY 1970 and FY 1971	1
	Training	MDTA	437	Federal 95% State 5% $869,328	Institutional and other training. See Table I, Schedule A	FY 1971	1
	Training & Employment	CEP	810	Federal $1,236,000	See Section F	FY 1971	1
	Training	MDTA-OJT (Special Option)	39	Federal $ 34,776	On the job training, entry skills and upgrading coupled with reimbursement of employer costs.	FY 1971	2
	Training	MDTA-OJT E.S. Contract 510,300,3000	57	Federal $ 25,305	On the job training, entry skills and upgrading coupled with reimbursement of employer costs.	6/1/70 to 5/31/71	2
	Training	JOBS	460	Federal $1,383,060	Employment and on the job training, both entry and upgrading. Employer reimbursement for cost of training and required supportive service.	FY 1971	2

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TABLE V (cont)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Disadvantaged Unemployed Adults (cont)	Work Experience and Training	STEP	195	Federal $678,704	Provide unemployed recent graduates of manpower programs with interim work experience and training to maintain skills.	FY 1970	1
	Training and Employment	Public Service Careers	72	Federal $180,947	Provide permanent employment in public service agencies.	FY 1970	2
	Training	SOIC	208	Federal/ State $377,489	Counseling, pre-employment orientation, basic education and vocational training.	FY 1971	1
Disadvantaged Unemployed Youth	Apprenticeship Training	State Apprenticeship Program	1000 *	N/A	Training in skilled trades and crafts through apprenticeship.	N/A	1
* Total number of projected accessions for FY 1971 for the King-Snohomish Area. Estimated of the total, about 9 percent will be members of the target group.							
	Training	Job Corps	114	Federal/Amt not available	Residential training program including basic education, vocational skills and social responsibilities.	FY 1971	3
	Jobs and Training	NYC Out of school	136	Federal $468,100	Provide useful work and training and basic education where needed.	FY 1971	1
	Work and Experience	NYC In school	421	Federal $302,600	Provide part time employment and useful work-experience.	FY 1971	1

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TABLE V (cont)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Disadvantaged Unemployed Youth (cont)	Work and Experience	NYC Summer	1657	Federal $548,030	Provide part time employment and useful work-experience.	FY 1971	1
	Work Experience and Training	STEP	130	Federal $452,469	Provide unemployed recent graduates of manpower programs with interim work experience and training to maintain skills.	FY 1970	1
	Training and Employment	Public Service Careers	48	Federal $119,260	Provide permanent employment in public service agencies.	FY 1970	2
	Training	MDTA	109	Federal 95% State 5% $217,332	Institutional and other training. See Table I, Schedule A	FY 1971	1
	Training and Employment	CEP	540	Federal $824,000	See Section F	FY 1971	1
	Training	MDTA-OJT (Special Option)	17	Federal $14,904	On the job training, entry skills and upgrading coupled with reimbursement of employer costs.	FY 1971	2
	Training	MDTA-OJT E.S. Contract 510,300,3000	25	Federal $10,845	On the job training, entry skills and upgrading coupled with reimbursement of employer costs.	6/1/70 to 5/31/71	2

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TABLE V (cont)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Disadvantaged Unemployed Youth (cont)	Training	JOBS	308	Federal $922,040	Employment and on the job training, both entry and upgrading. Employer reimbursement for cost of training and required supportive services.	FY 1971	2
	Training	SOIC	127	Federal/ State $231,364	Counseling, pre-employment orientation, basic education and vocational training.	FY 1971	1
Reservation Indians	Vocational Training	BIA	15	Federal $15,000	Institutional Training in occupations, supportive services, referral and placement.	FY 1971	1
Under Utilized Poor Persons	Training	SOIC	165	Federal/ State $299,883	Part time upgrading skill training.	FY 1971	1
Under Utilized Non-poor Persons	Training	IDTA-OJT FWPCA Program	20	Federal $130,822	OJT and classroom training in sewage treatment plant operations.	FY 1970 (Duration of program effort not established)	1
	Upgrading Training	Public Service Careers	45	Federal $111,036	Provide upgrading training to current public sector employees.	FY 1970	2

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TABLE V (cont)

MANPOWER ACTIVITIES

Target Group	Service Provided	Agency or Program	Number Served	Fund Source & Amount	Description	Funding Period	Priority
Persons with less than 8th grade achievement	Adult Basic Education	Supt of Public Instruction	945	Federal: $146,652 State: 25,880	Instruction in basic skills, literacy, communication, arithmetic.	FY 1971	1

SECTION C ESTABLISHING PRIORITIES

The guidelines for the preparation of this plan provide that the area committee should indicate relative urgency and need within each target group for all of the activities proposed in the plan. It is the opinion of the committee that the labor market in the area together with the limited funds available for manpower programs has created a situation in which the need for all programs is urgent. However, should there be any immediate reallocation of funds present circumstances would make it desirable to assign a lower priority to certain programs. The priorities of activities and services established by the committee are listed in Section B on Table V Manpower Activities beginning on page 20. Although such priorities have been assigned the Seattle-Everett Metropolitan Area Manpower Coordinating Committee strongly feels that any reallocation of funding should be referred back to the area committee for action. Reallocation could then be immediately accomplished in accordance with the relative urgency of programs based on information available to the committee at that time.

Lower priorities have been assigned to the NAB/JOBS, MDTA/OJT, and the Public Service Careers programs because the present shortage of jobs in the private and public sector would make any expansion of these programs difficult at present. However, a favorable change in these job markets would create a high priority for these programs as they provide immediate employment for the members of the target groups served. In assigning a lower priority to Public Service Careers we are referring to our existing programs under Plan A - Employment and Upgrading in State, County and Local Governments. An area wide program, if instituted, under Plan C - New Careers in Human Services would have first priority as it could be instituted immediately and would be beneficial to the target groups and the economy.

A lower priority has been assigned to Job Corps because of the difficulties in meeting enrollment requirements on this program as presently structured. Should a near or inner city Job Corps Center be established in the area it is the present opinion of the committee that a higher priority would then be assigned to Job Corps.

SECTION D EVALUATION OF RESOURCES IN RELATION TO NEEDS

Table VI - Proportion of Target Groups Served and Additional or alternative services.

This table lists the estimated proportion of each target population whose needs will be met by the activities and services planned for FY 1971. It also describes the type and scope of additional or alternative services that should be provided in the near future to adequately alleviate the target population problems.

The percent of persons served are based on the size of the target population as indicated in Part A of the plan. During the period which has elapsed since the preparation of Part A, due to economic conditions in the area, many of their target populations have greatly increased in size and the need for additional or alternative services therefore exceeds that reflected by the percentage shown.

For a detailed statement as to the manpower services needed by the target populations in the Seattle-Everett Metropolitan Area refer to the narrative in Section G, Part A, of our Manpower Plan.

TABLE VI

PROPORTION OF TARGET GROUPS SERVED AND ADDITIONAL OR ALTERNATE SERVICES

Target Group	Per cent Served	Additional or Alternate Services
All prospective users of the Training and Employment Service, from the total need shown in the State Plan of Service for FY 1971.	27% of total need is forecast to receive some service.	50 additional ES positions have been requested in the FY 1971 budget. To be properly trained and utilized, this number of new employees would have to be phased in over a period of up to 24 months. While these positions would cover a broad spectrum of ES activity, emphasis would be placed on applicant assessment and job development and placement. This is not meant to indicate that the additional staff could alleviate all the target populations' problems, but does represent the estimate of additional resources that could be utilized by the Employment Service in the foreseeable future to aid in serving employment needs.
Residents of Target Areas Seattle CEP Model Cities		See entry for this target group on table IV. Services provided to this group are enumerated below under the target groups defined by characteristics.
Public Assistance Recipients	18.5%	Increase funding so as to adequately serve the balance of this target population. Emphasis should be directed towards the great unmet need for child care to serve the AFDC parent. Afternoon care for the school child and night shift child care are needed. The low literacy rate of recent immigrants has created a greater need for basic education.
Disadvantaged Unemployed Adults	28.4%	A substantial increase in funding so as to be able to adequately serve the balance of this target group. Larger training allowances so as to make possible the development of programs that will attract the male head of household. Supportive services such as transportation, child care, medical

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TABLE VI

PROPORTION OF TARGET GROUPS SERVED AND ADDITIONAL OR ALTERNATE SERVICES

Target Group	Per cent Served	Additional or Alternate Services
		care, legal services, and more intensive followup should be built into training projects so as to lessen absenteeism and dropouts. Bonding is also needed.
Disadvantaged Unemployed Youth	44.9%	The additional or alternative services described above for disadvantaged adults are also appropriate for this target group. In addition there is a need for programs to prevent high school dropouts. More vocational training at the secondary school level would be beneficial. GED training should be possible under MDTA. The flow of unskilled youth into the existing unfavorable labor market has created a great demand for programs tailored to the needs of this target group.
Reservation Indians	1.6%	Due to the limited BIA funding for this target group and the lack of public transportation to reservations in this area, transportation is needed if Reservation Indians are to be enrolled in other programs. An alternative is to develop training projects, tailored to individual need which can be conducted on the reservation.
Physically, Emotionally or Socially Disabled	47.3%	Increase funding so as to be able to adequately serve this target group. Training programs need to have built into them, intensive followup, both during training and after job placement because of the special problems of the handicapped, the mentally recovered, the retarded, the alcoholic and the released offender. Greater employer understanding of the problems of this target group is also needed.
Under Utilized Poor Persons	0.5%	While the present labor market discourages employer cooperation in upgrading programs, plans should be made to increase the funding allocations for programs

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TABLE VI

PROPORTION OF TARGET GROUPS SERVED AND ADDITIONAL OR ALTERNATE SERVICES

Target Group	Per cent Served	Additional or Alternate Services
		to serve this target group. Such plans should include allowances to cover the costs, or any loss of income incurred by poor persons enrolled. The upgrading opportunities available under NAB/JOBS and WSES/OJT should be increased. A program should be created to allow the underskilled worker to work part time and go to school part time to increase skills.
Under Utilized Non-Poor Persons	0.6%	Little attention has been devoted to programs for this target group. While there is a continuous need for training, the fact that such persons are working above the poverty level results in less consideration for such persons by agencies providing manpower services. The greatest need is for programs for individuals, who, due to their ethnic background, cannot find employment utilizing their optimal skills or are barred from promotion.
Persons With Less Than Eighth Grade Achievement	1.6%	Extension of program to include recruitment and counselor services and to increase duration per week and number of weeks. Increase funding to permit inclusion of more trainees and more state teacher training programs. Through cooperation with other programs such as MDTA enable more trainees to enter full-time basic education with training allowances.

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Section E - Linkages Between Programs

Table VII

This table, for each target group indicates the linkages between the agencies, projects or activities as specified in Section B, Table IV. For each program we have shown the normally followed process from intake, through counseling and evaluation, supportive services, training, job development, placement and follow-up. While the procedures involved would apply to the bulk of the target group, individual situations will require variations from the linkages indicated.

Linkages are shown for eight of the nine target groups defined on pages 10 through 16 of Part A of the Seattle-Everett Area Comprehensive Manpower Plan for Fiscal Year 1971. Under Utilized Poor Persons and Under Utilized Non-Poor Persons have been combined on one chart because the linkages for these two groups are virtually identical. The reason for the one omission is as follows:

- PERSONS WITH LESS THAN EIGHT GRADE ACHIEVEMENT. This target group overlaps all others and was entered in the plan in order to show program resources for Adult Basic Education programs. Linkages for persons in this target group are therefore to be found on all the charts in that persons in this target group will meet the definition of at least one other target group.

For each of the target groups listed on the following charts, the agency (or, in a few cases, agencies) listed under "Intake, Screening, and Coordination" is to be regarded as the Linkage Coordinating Agency for the target group under consideration. This agency receives referrals from the "Client Sources" and provides an intake and screening service during which the client is assisted in defining his problem and working out an employability goal. Then, considering the various programs or services available through federal, state, and community resources, the Linkage Coordinating Agency devises a plan whereby the client's goal can be realized. This plan may involve any or all of the following:

- Counseling and testing by Linkage Coordinating Agency.

- Referral to community agency for assistance with a special problem, e.g., to family counseling for resolution of a marital problem.

- When referred back from community agency, selection and referral for Basic Education or Employment Orientation (provision of supportive counseling and training allowances during this phase if indicated and authorized).

- Reassessment by Linkage Coordinating Agency at completion of above to determine the next appropriate service; i.e., job referral, skill training, OJT, etc.

- Referral to training such as MDTA, Job Corps, New Careers (PACE) or other.

- Following completion of training: job development, referral, and placement by the Linkage Coordinating Agency if it is the Employment

Security Department or, if not, jointly by ESD and the Linkage Coordinating Agency. The Linkage Coordinating Agency will also provide post placement counseling, when required, and followup. In addition, job coaching will be undertaken when authorized and available (such as through the Seattle Concentrated Employment Program and the NAB-JOBS Program).

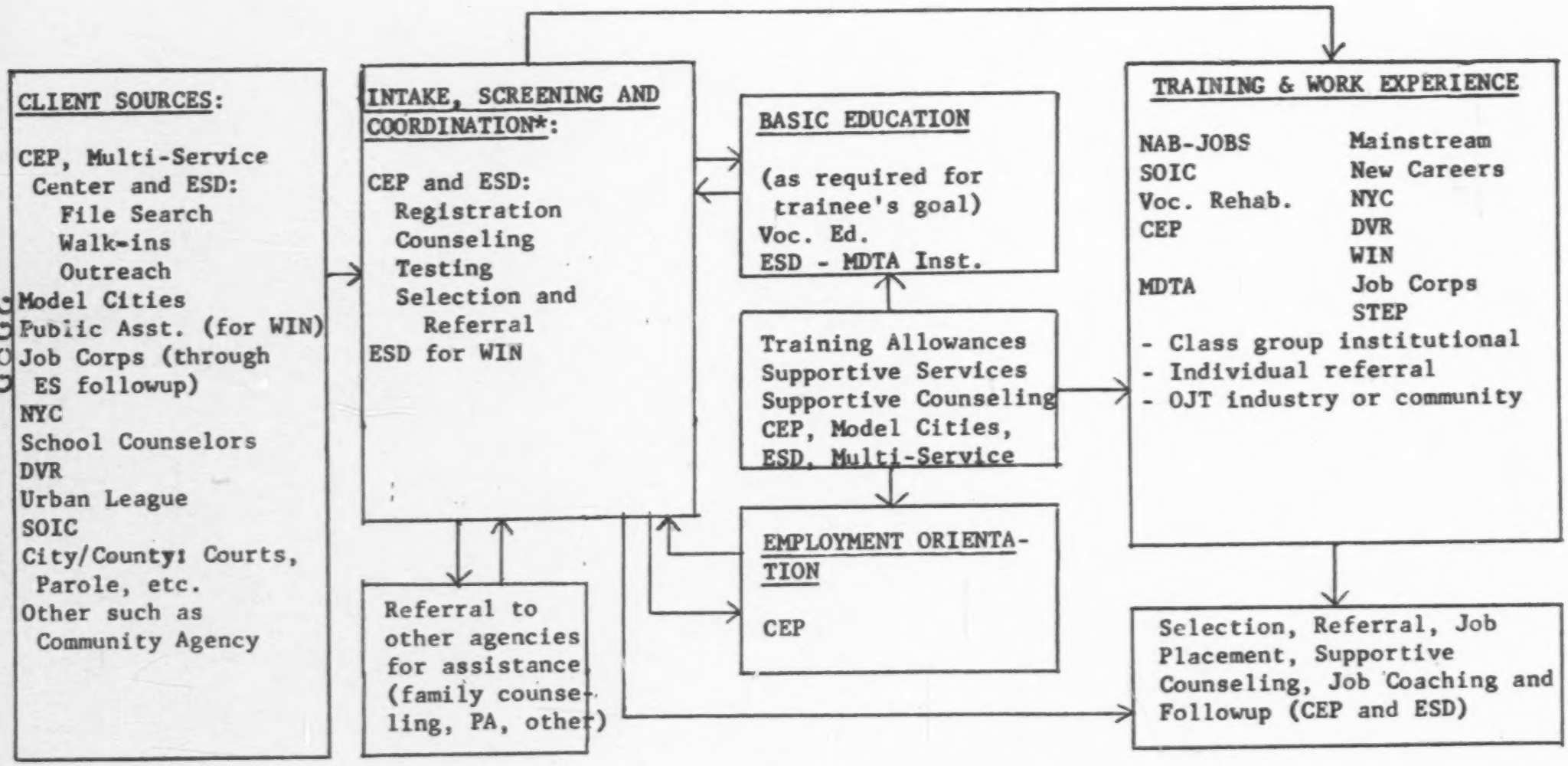
In the interest of brevity, many agencies have been indicated by initials or abbreviations, a glossary of which follows:

BAT	Bureau of Apprentice and Training
BIA	Bureau of Indian Affairs
CEP	Concentrated Employment Program
DVR	Division of Vocational Rehabilitation
ESD	Employment Security Department
MDTA	Manpower Training & Development Act
MDTA-OJT	Manpower Training & Development Act - On the Job Training
NAB-JOBS	National Alliance of Businessmen - Jobs Opportunities in the Business Sector
NYC	Neighborhood Youth Corps
PA	State Dept. of Public Assistance
SKCEOB	Seattle King County Economic Opportunity Board
SOIC	Seattle Opportunities Industrialization Center
Voc. Ed.	State Dept. of Vocational Education
Voc. Rehab.	State Division of Vocational Rehabilitation
WIN	Work Incentive Program
STEP	Supplemental Training and Employment Program
PSC	Public Service Careers

TABL II

LINKAGES

The CEP - Model Cities Area
(See section F, pages 38 and 38A)

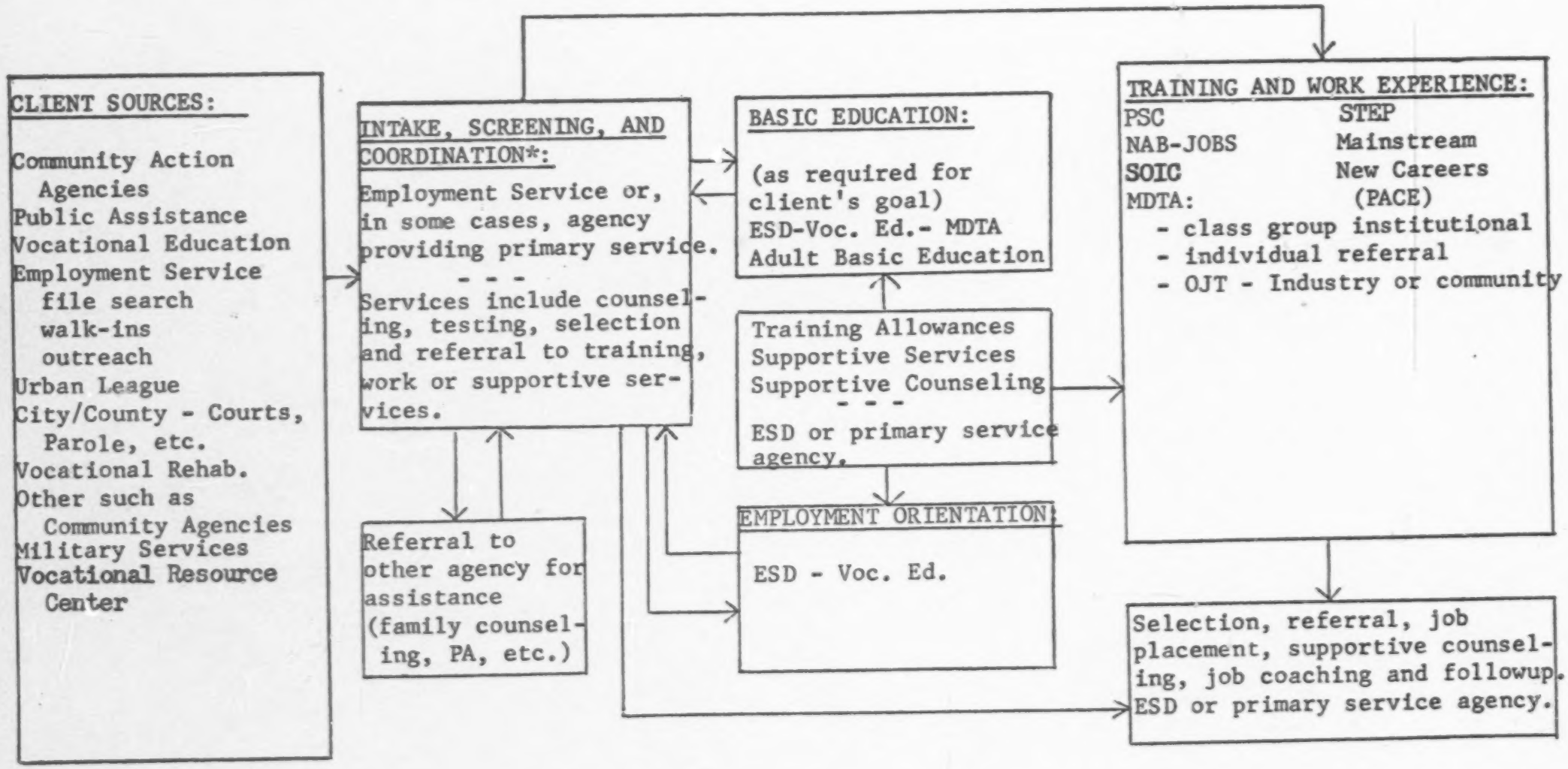


* Coordination of client's progress when more than one program or service is involved.

TABLE VII (cont)

LINKAGES

DISADVANTAGED UNEMPLOYED ADULTS



*Coordination of client's progress when more than one program or service is involved.

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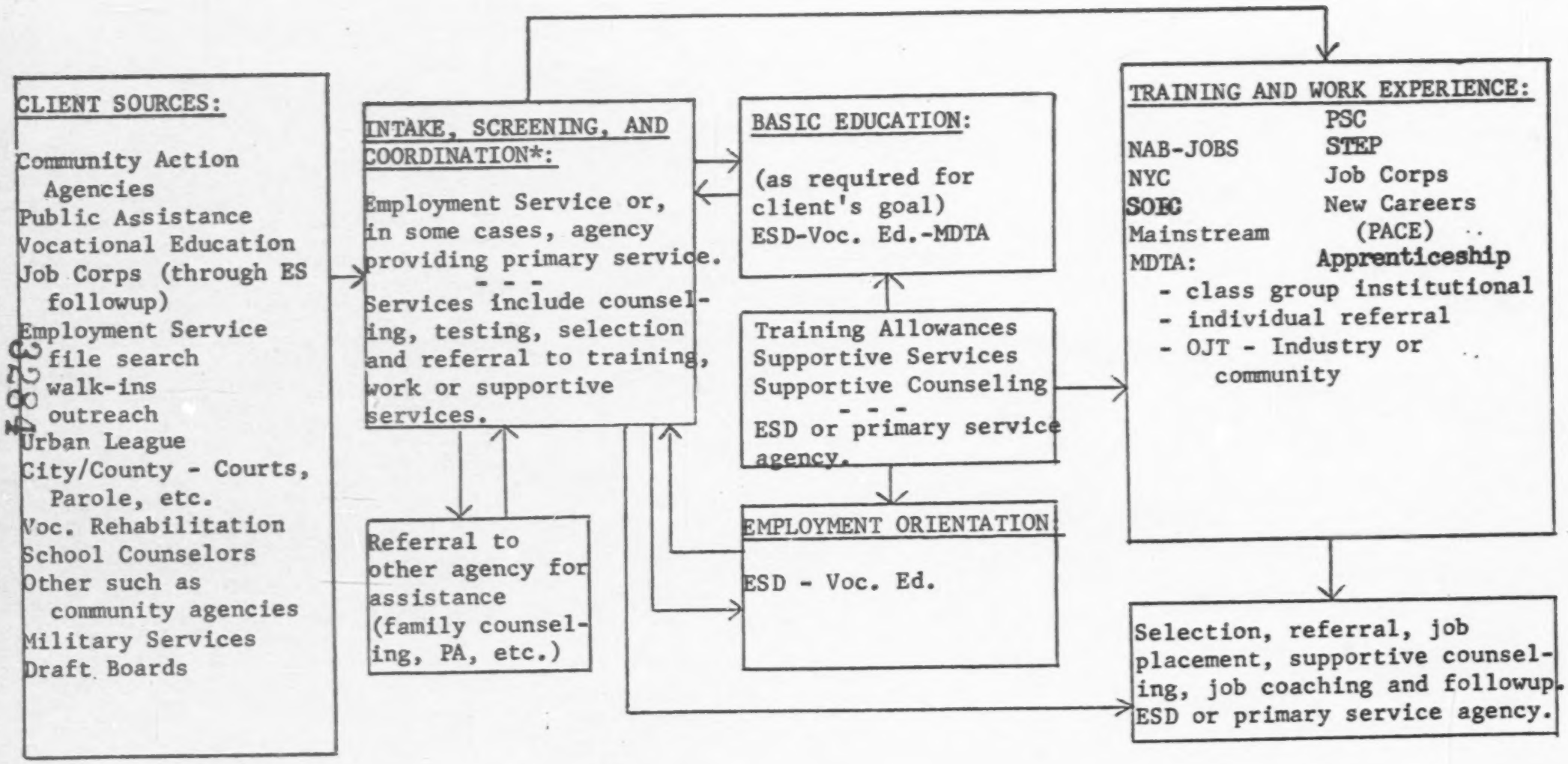
TABLE VII (cont)

LINKAGES

DISADVANTAGED UNEMPLOYED YOUTH

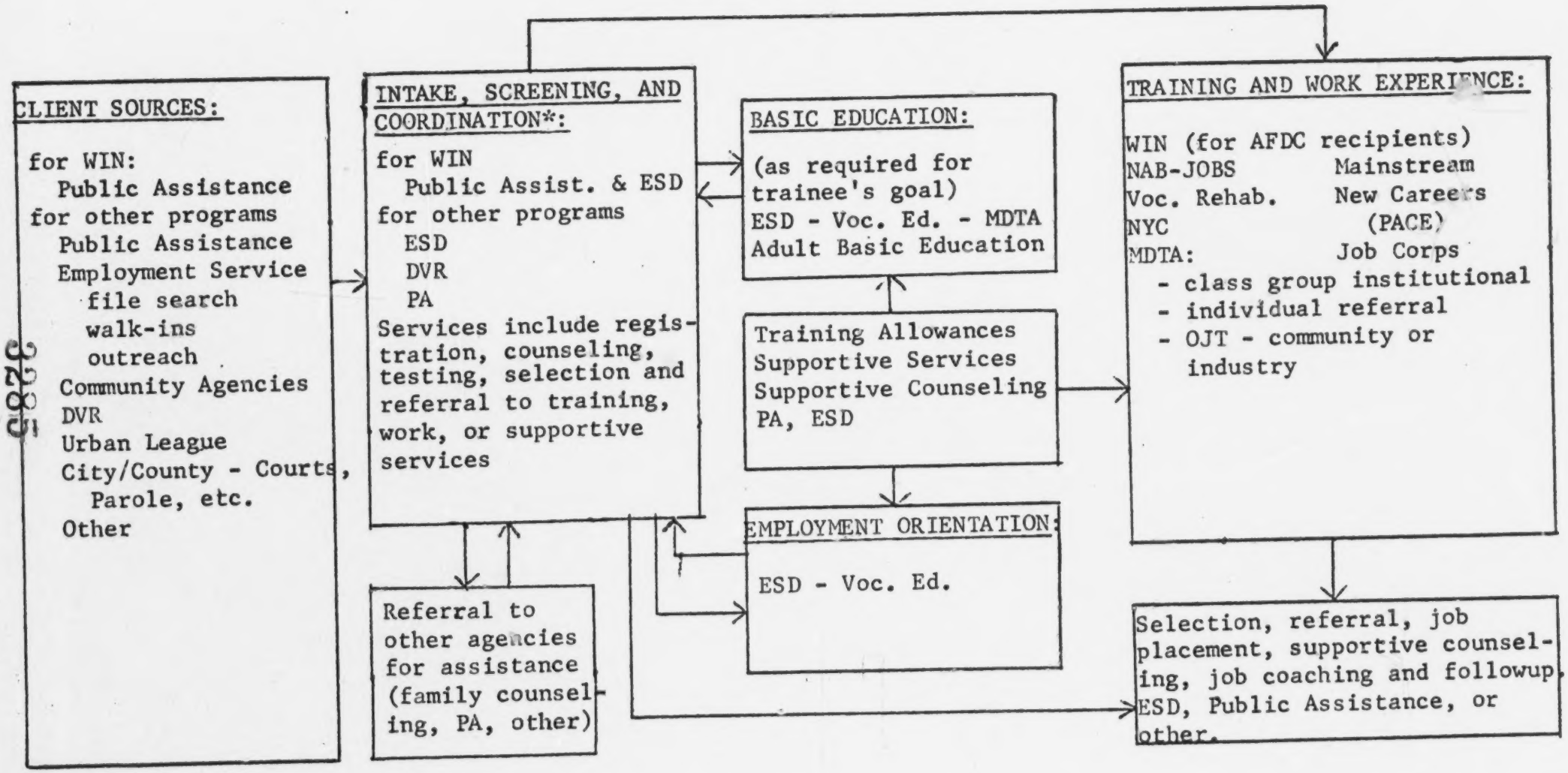


*Coordination of client's progress when more than one program or service is involved.

TABLE VII (cont)

LINKAGES

PUBLIC ASSISTANCE RECIPIENTS

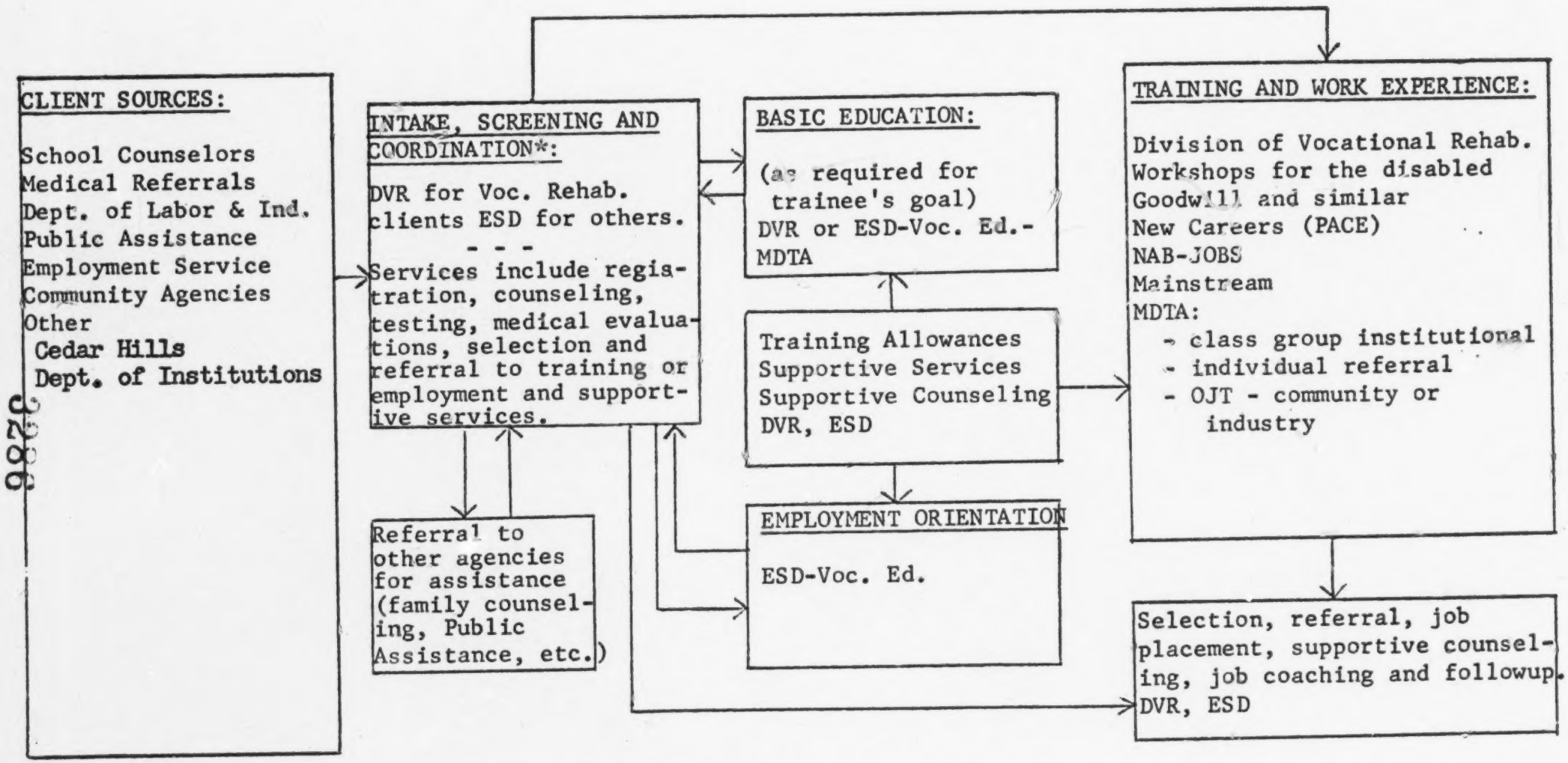


*Coordination of client's progress when more than one program or service is involved.

TABLE VII (cont)

LINKAGES

PHYSICALLY, EMOTIONALLY, OR SOCIALLY DISABLED

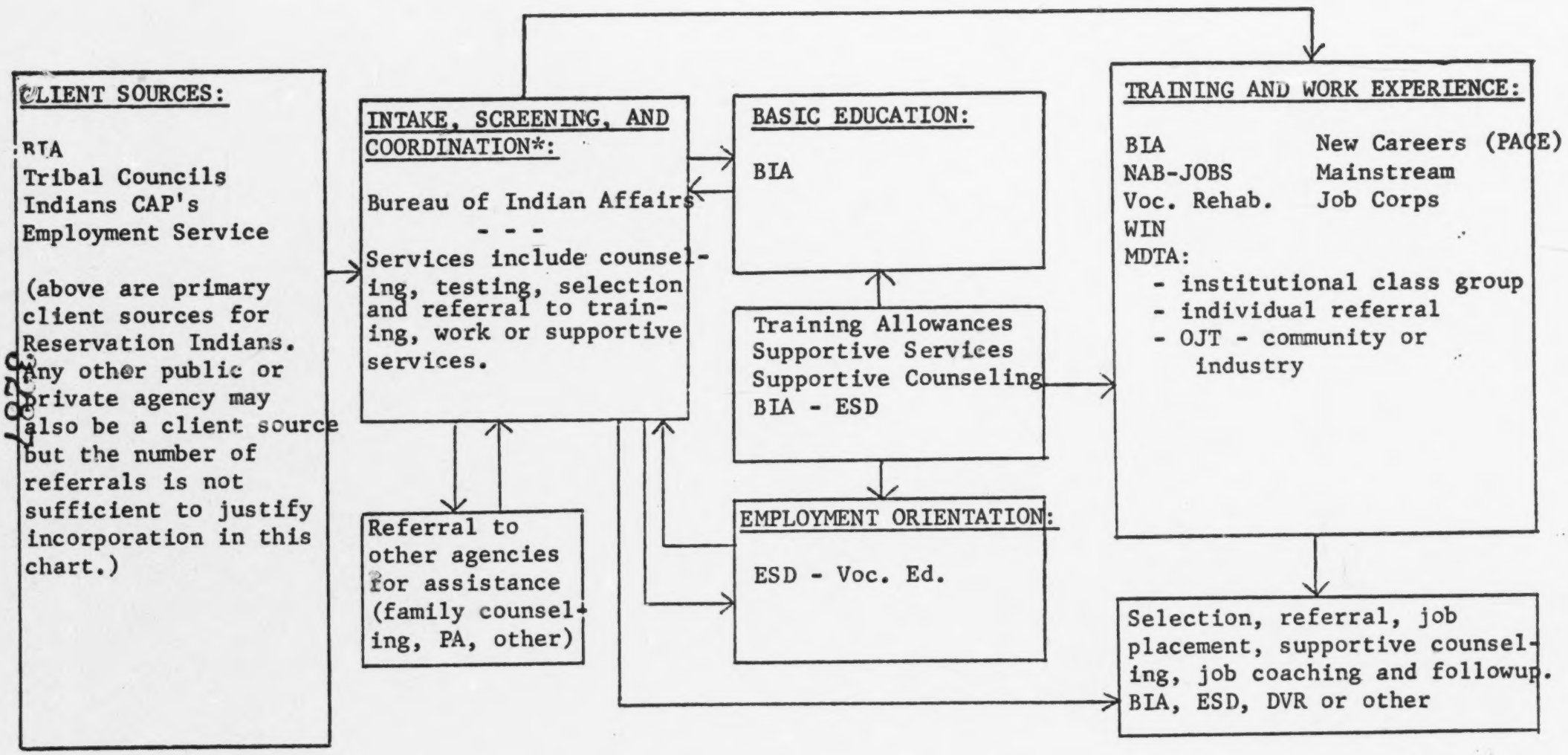


*Coordination of client's progress when more than one program or service is involved.

TABLE VII (cont)

LINKAGES

RESERVATION INDIANS



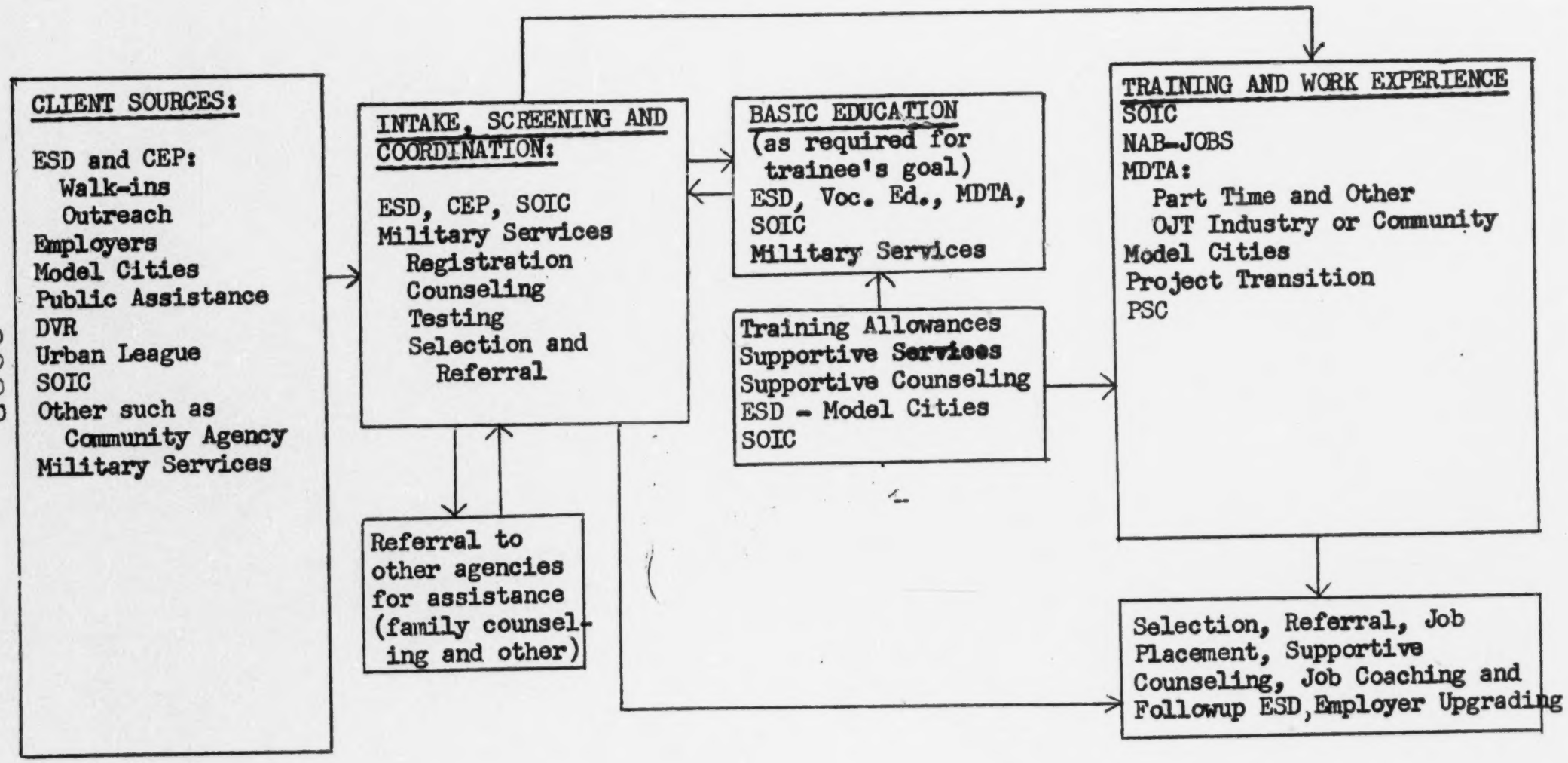
*Coordination of client's progress when more than one program or service is involved.

TABLE VII (cont)

LINKAGES

UNDER-UTILIZED POOR PERSONS

UNDER-UTILIZED NON-POOR PERSONS



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Section F - Relationship of Area CAMPS Plan to Special Programs of Interagency Planning and Coordination.

This section describes those special programs in the King-Snohomish area; both Federal and local planning efforts which involve coordination of manpower services.

THE CEP-MODEL CITIES AREA

The Seattle Central Area with its concentration of poverty and people living in slum and blighted areas is the geographic location of two manpower projects, the Concentrated Employment Program (CEP) and the Model Cities Program and a coordinating body, the Joint Manpower Board. An Employment Unicenter is being implemented by the Joint Manpower Board which will unify manpower and manpower related programs services,and resources and thereby eliminate much duplication and waste and improve the total system. Through partdcipation in the Unicenter, CEP and Model Cities will share resources and have a closer working relationship. Maps of the CEP and Model Cities area are on pages 42 and 43 of this plan. A brief description of these programs follows:

The Joint Manpower Board

On March 1, 1970, the Governor of the State of Washington and the Mayor of Seattle formed the Seattle Joint Manpower Board. This board has as its function the approval and coordination of and administrative supervision over programs for the alleviation of unemployment and underemployment in this geographic area. On September 16, 1970, it also assumed the function of being the local CAMPS committee for the Seattle Central Area.

The Concentrated Employment Program (CEP)

The Concentrated Employment Program of Seattle provides a single administrative agency to coordinate the energies and resources of the community and bring them to bear on the Manpower problems of the specified area of Seattle's Central Area and certain adjoining neighborhoods.

Most of the operating functions of the CEP will be provided by existing agencies through sub-contracts with CEP or the Prime Sponsor, Seattle-King County Economic Opportunity Board (SKCEOB) as decided when the SKCEOB plan for FY 1971 is formulated. The functions under CEP will include intake, registration, job orientation, counseling, job development, placement and records administration; coaching, child care and transportation; literacy, basic education and skill training; and follow up, continued counseling and assistance after employment. The Seattle Opportunities Industrialization Center which is described later in Section F serves as the training facility for CEP.

The Seattle Model City Program

The Model Cities Program is designed to plan, fund and evaluate a comprehensive and coordinated attack on social, economic and physical problems to improve the environment and general welfare of people living in the slum and blighted areas of Seattle, Washington. It emphasizes programs in physical and environmental health, employment and economic development, physical environment and housing, law, delinquency and justice; arts, culture, education and recreation, and social services, including day care, income maintenance, and services to the elderly, among others. A primary goal is the reduction of unemployment and underemployment among Model Neighborhood residents so they can maintain a decent standard of living through adequate dependable income.

It is estimated that the Seattle Model Cities Program will generate 1100 new jobs for its target population during Fiscal Year 1971. Special training and supplemental services will be required in approximately half of these positions. The Seattle CEP and WSES are primary resources for providing manpower services to SMCP through available programs.

Linkages between these agencies and between them and other agencies providing services to applicants in the area are shown on the special Linkages chart prepared for the CEP-Model Cities Area in Section E, Table VII, Page 31 of this plan. As the target populations in the area (except for Reservation Indians) are the same as, and are included in the target populations for the Seattle-Everett Metropolitan area, the program priorities as established for the area as a whole and tabulated in Table V, Pages 19 through 24 would apply.

SEATTLE MULTI-SERVICE CENTER

The Seattle Multi-Service Center is a Neighborhood Service Center sponsored by the State of Washington in cooperation with the City and Federal government.

The primary objective of the Seattle Multi-Service Center is to assist residents of the Central Area of Seattle, with emphasis on those in condition of poverty, in their efforts to achieve economic and social self-sufficiency. This is to be accomplished through more effective coordination and improvement of governmental and community services, and by making those services more readily and immediately available to those needing them.

The present agencies involved in the Center are: Administration-Governor's Office, State Office of Economic Opportunity, Attorney General's Office - Consumer Protection Division, Department of Institutions, Department of Personnel and Highways, Department of Public Assistance, Food Stamps, Division of Vocational Rehabilitation, Employment Security Department, Federal Civil Service and U. S. Post Office Department, U. S. Social Security Department, University of Washington Personnel Department, and Veteran's Administration.

The Center has been designed to combine public service agencies in one location easily accessible to people living in the Central Area, or others choosing to use the Center. As nearly as possible, service is on a one-step basis to reduce re-referrals and repetitive completion of forms.

To date approximately 75% of the applicants at the Center have been served by the Employment Security Department. Emphasis of ES has been on Manpower Services, with job placement in mind. All job orders received by the main office of Employment Security Department in Seattle are forwarded to the Center twice daily in addition to the daily Job Bank print-outs. Since most of the agencies concerned with manpower problems are working together in one office, coordination to solve the problems of the disadvantaged clients has become routine, and coordination with existing programs and resources is assured.

SEATTLE OPPORTUNITIES INDUSTRIALIZATION CENTER, INC.

The SOIC is a non-profit manpower training center, financed primarily by funds from OEO, DOL, and HEW. Its purpose is to provide an educational and vocational manpower training program geared to the needs of disadvantaged, unemployed adults and youths.

New recruits are placed in intake counseling where workers assemble a profile of the recruit, (without tests), learning the background and work history and he is given an understanding of SOIC's program and purpose. Then he is channeled into Feeder programs, into consumer education, and informed on community resources for medical and social services. SOIC also is providing Basic Education and vocational training for CEP clients.

During FY 1971, this agency will serve 500 people from its target group. SOIC has linkages with DVR, State Department of Public Assistance, Seattle Community College, and agencies under SKCEOB such as New Careers and the Central Area Motivation Program.

SEATTLE MAYOR'S SUMMER YOUTH ACTIVITIES COMMITTEE

A coordinated community effort called Pitch-In directed toward a city wide program of recreation, arts and culture, education and employment for youth for the summer. Priority is given to disadvantaged unemployed youth. The administration of the program is financed by City and King County appropriations and donations from the

public. The committee is composed of representatives from city, state, and federal government, NYC, NAB, Seattle and King County Public Schools, Employment Security Department, Park Departments, Seattle King County Economic Opportunity Board and other interested groups.

Summer employment offices are located in Room 426, the Food Circus Building at the Seattle Center and in the Model Cities area. These offices are staffed by voluntary personnel provided by the Employment Security Department, The Seattle Public Schools and other committee members. It is anticipated that Pitch-In will place 4000 youths on summer jobs during FY 1971.

KING COUNTY CHILD CARE COORDINATING COMMITTEE

This committee is operating in King County on a pilot basis under the Community Coordinated Child Care (4-C) Program, a system under which local public and private agencies interested in day care and pre-school programs develop a method of cooperating with one another on programs, services, staff development, and administrative activities. During FY 1971 this committee will continue its efforts to develop the substantial degree of coordination required for Federal recognition as an official 4-C program. A Federal grant of $18,000 has been received for a Day Care Mothers Short-Term Training Program to train 25 individuals in King County and this training will begin in the Fall of 1970. The 4-C program will assist manpower planners in identifying day care resources available to mothers interested in training or work.

THE CEDAR HILLS ALCOHOLISM TREATMENT CENTER

This program is designed to provide a model for the convalescence, treatment and rehabilitation of the skid road alcoholic. It has a capacity for 112 patients who are housed at the center, located in King County, 25 miles East of Seattle. Patients are admitted on a "voluntary" basis, but under a court commitment from the Seattle and King County jails for a period of 120 days. The Center is funded by the City of Seattle, King County and the State of Washington. Treatment includes individual, group, family and pastoral counseling.

Cedar Hills has an ongoing Institutional MDTA training program funded in 1970 and conducted by the Renton Vocational Technical Institute. Linkages are also with ESD and DVR who assist on counseling and placement of releasees and SDPA for temporary post release financial aid. These services are coordinated through the Vocational Resource Center described below. It is estimated that the center will serve 450 disadvantaged skid road alcoholees during FY 1971.

VOCATIONAL RESOURCE CENTER

This center, located in Seattle, and serving King County has been established as an Experimental and Demonstration Project under the Manpower Development and Training Act. It is operated by the county under contract with the Employment Security Department and serves recovering alcoholics released from the Cedar Hills Alcoholism Treatment Center. The purpose of this project is to demonstrate how community agency services can be made effectively available to the recovering alcoholic in a manner which will significantly contribute to his rehabilitation and participation in the labor market. It is estimated that 450 individuals from Cedar Hills will be served during FY 1971 with a possible 20% increase from other sources. The Employment Security Department, the State Division of Vocational

Rehabilitation are directly participating in the operation of the Resource Center. In addition the center utilizes the services of the Departments of Public Assistance and Probation and Parole and other public and private agencies.

PROJECT TRANSITION

This program provides basic education, occupational training and vocational guidance to servicemen during their last months of service to enable them to be more readily able to secure employment upon release. It is estimated that Project Transition will serve 3600 individuals who will be released from service in this area during FY 1971.

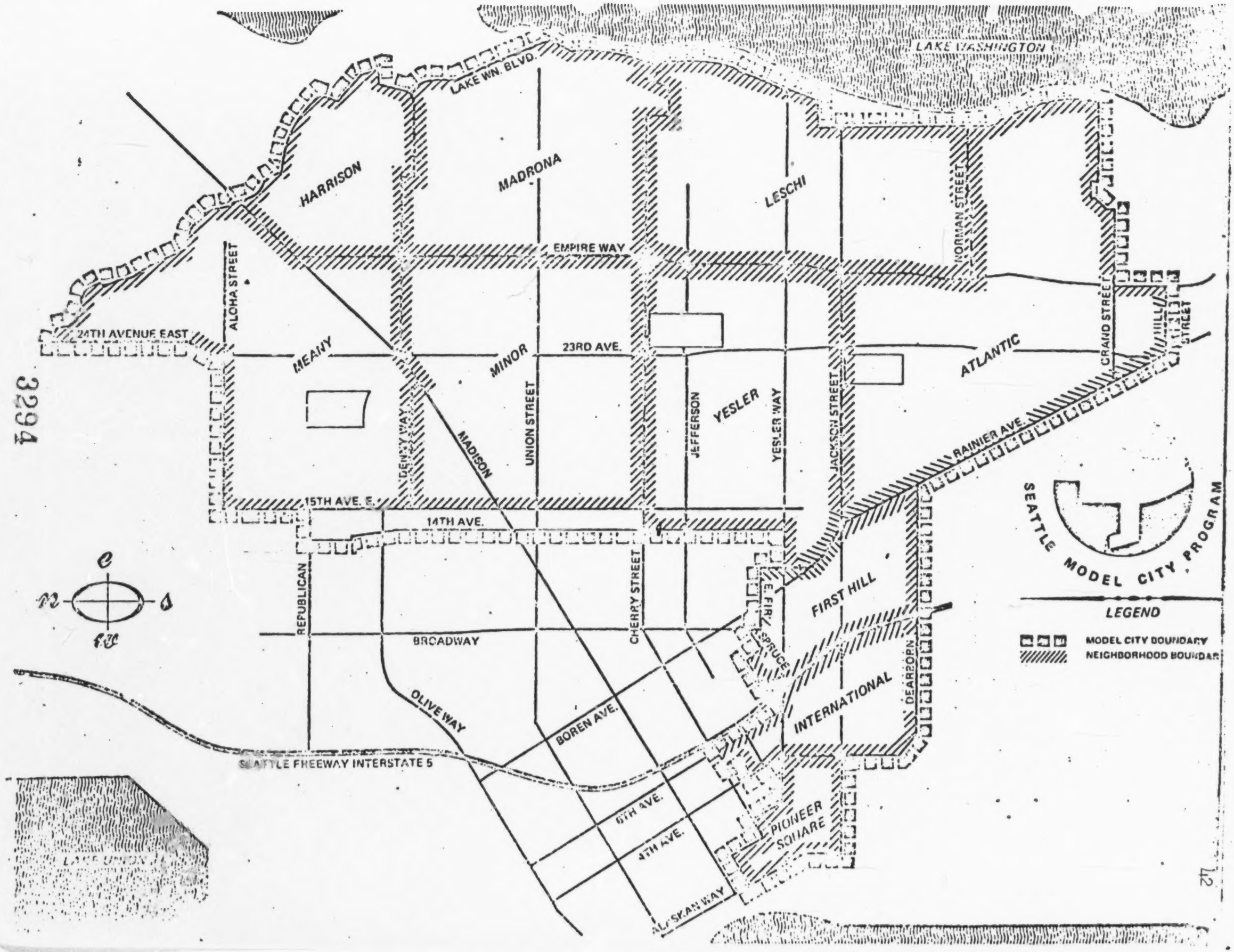
Training will be provided through Project Transition, other government agencies, industry and through MDTA Project WASH (X) 9005 which was funded in FY 1970 for 146 individual referral slots. Project Transition has linkages with ESD, MDTA, SOIC, and Voc. Ed.

OPERATION SER
(Service, Employment and Redevelopment)

Operation SER is a self-help organization which essentially supplements the work of regular social service and manpower agencies by establishing a bridge between the Mexican American population and these institutions. At the request of local Mexican organizations the SER regional headquarters in Santa Monica, California, has established Jobs for Progress Inc. of Seattle and an MDTA project to serve the needs of this ethnic group is being initiated to be funded in FY 1971. If this program is funded Operation SER will have linkages with MDTA, MDTA/OJT, JOBS, Voc. Ed., ESD, SOIC, and CEP.

THE COMPREHENSIVE WORK AND TRAINING PROGRAM (CWTP)

The CWTP plan has not been included as its preparation is awaiting the establishment of a Community Program Area and the selection of a Prime Sponsor. It will be forwarded later as an amendment.



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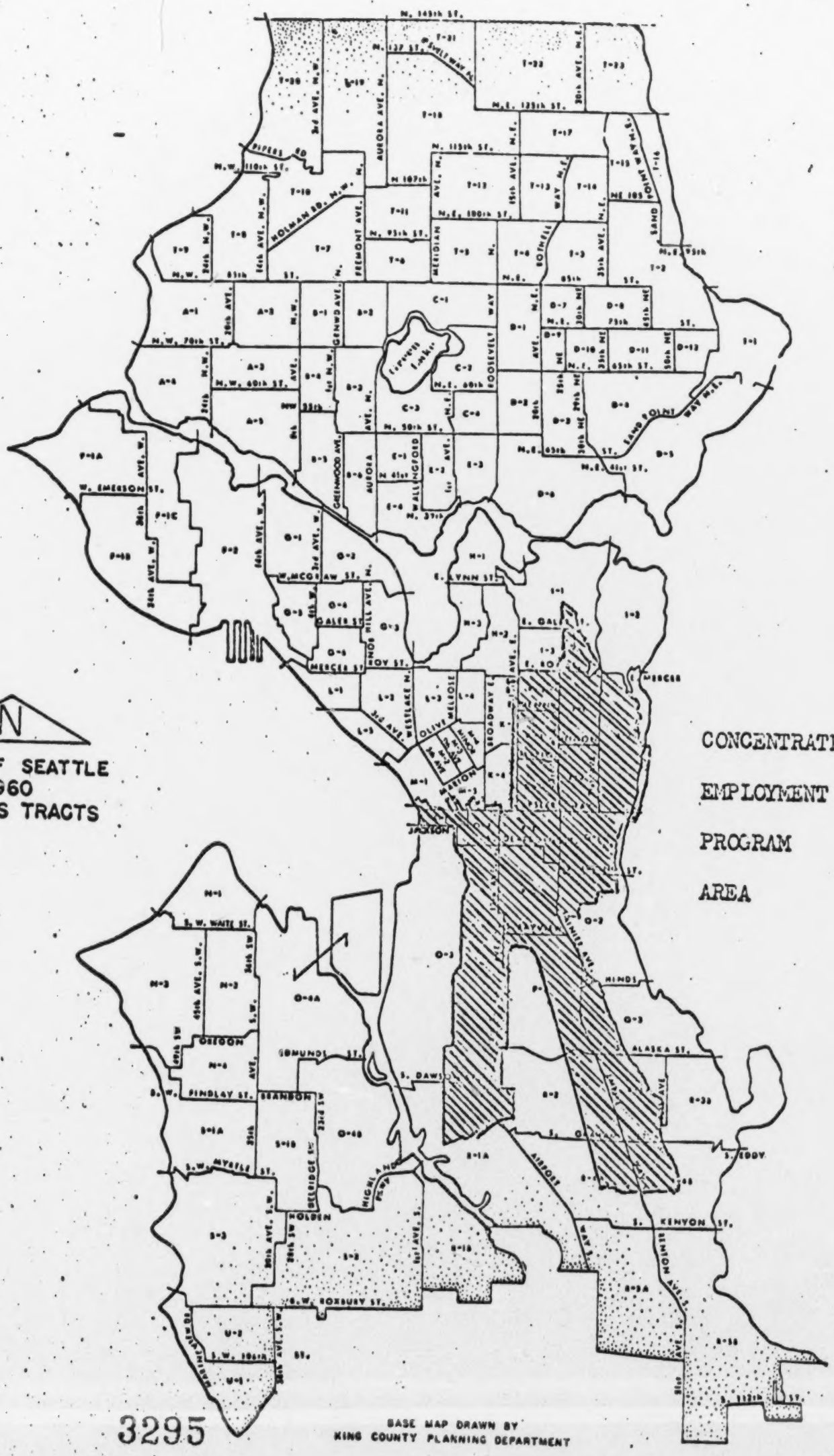

SECTION G - COMMUNITY INVOLVEMENT

Representatives of all community groups and agencies functioning under the Seattle-Everett Metropolitan Area Comprehensive Manpower Plan have participated in its development. Employers have been involved through the NAB representative only, the JOBS program being an important resource. The role of these organizations in implementing is contained in the plan.

Both King and Snohomish Counties have had Manpower Advisory Committees composed of representatives from industry, labor, the public, minority groups and education. These committees have not been active during the past year. The City of Seattle has received a Federal grant providing for three additional positions to work on planning, evaluation, etc. and it is anticipated that the Seattle-Everett Metropolitan Area Manpower Planning Committee will be reorganized so as to include in its membership broader community representation.

PART B

TACOMA (PIERCE COUNTY) AREA

State of Washington

COMPREHENSIVE AREA MANPOWER PLAN — FISCAL YEAR 1971

****

July 13, 1970

****

Part B
Fiscal Year 1971 -- CAMPS
TACOMA (Pierce County) SMSA Area Manpower Coordinating Committee

Participating Agency	Represented by
Bates Vocational-Technical Institute	Edward H. Cooney for Bruce Brennan Director
Bureau of Indian Affairs	Irene Day Irene Day Employment Assistance Officer
Department of Labor & Industries Apprentice Division	Ed DeTray Area Representative
Tacoma Urban League	Thomas Dixon Director
Opportunity and Development Inc. Manpower Resource Center	Ruby Gray Ruby Gray Deputy Director Manpower
Fort Steilacoom Community College	Homer J. Halverson Homer Halverson Associate Dean for Occupational Education
Neighborhood Youth Corps	George Hauser George Hauser Project Director
Technical Action Panel	Frank Jackson Frank C. Jackson
National Alliance of Businessmen	Franklin Haralson for John Ketter Director
Clover Park Education Center	Wilber Snyder for F. Miner Dr. Fred Miner Coordinator

Participating Agency	Represented by
Department of Public Assistance	Roberta Morical Coordinator
Division of Vocational Rehabilitation	John Murphy District Supervisor
Tacoma Public Schools	Peter C. Nagrodski Director of Extended Education
Operation Mainstream	Mabel Roberts Project Director
Employment Security Department	William Spielman Assistant Manager
Bureau of Apprenticeship	Reno Switzer Area Representative
Model Cities Program	Herman Walker Director

- - - - -

Employment Security Department	Arnold A. Hirsekorn Chairman, Area Committee

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EXPLANATORY NOTE

The data presented in this Part B of the CAMPS plan follows the format and content as required by ICI 71-2 attachment I. Much of the information requested is presented in tabular form in order to keep this document to a moderate length.

PART B of an area plan:

- Provides an inventory of all manpower resources available in an area for a fiscal year.
- Identifies the target populations in the area and lists the general objectives for them.
- Shows how the manpower resources will be utilized to meet the objectives of the target populations.
- In addition the Plan establishes priorities, evaluates resources in relation to needs, describes linkages between programs and the agencies that operate them--including (if any) special programs of interagency action and discusses community involvement in CAMPS planning.

A. INVENTORY OF PROGRAM RESOURCES AVAILABLE FOR FY 1971

1. TABLE I - FEDERAL FY 1971 PROGRAMS.

This table lists and briefly describes the federal programs available in the Tacoma Area. Included are estimates of the number of persons who will be served by these programs. The data contained on this table is based on information supplied by the Governor's Manpower Coordinating Committee.

2. TABLE II - FEDERAL CARRY OVER PROGRAMS FROM FY 1970.

This table lists (to the extent known) the type and quantity of program funds from the previous fiscal year that will be available for use in FY 1971.

3. TABLE III - NON-FEDERAL MANPOWER PROGRAMS - FY 1971.

This table attempts to list those local and/or State funded programs which are primarily directed toward Manpower rather than social objectives. While there are many organization and groups who operate from contributions or other non-federal sources, few direct their emphasis towards manpower needs. Thus, this table is brief and is not an attempt to catalogue all services available within this community but only those which direct a major part of their effort towards manpower problems.

Rev. 9/30/70

TABLE I

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
DVR	Counseling, medical and psychological examinations, physical restoration, prosthetics, job training, personal adjustment training, maintenance transportation, occupational tools and equipment, selective placement and follow-up.	* $ 940,584	1,986
BIA - Employment Assistance Program	Counseling, institutional training, placement assistance and follow-up.	5,000	5
JOB CORPS	Trains hard-core unemployed youth between the ages of 16 and 22 who are out of school.	INA	39
EMPLOYMENT SERVICE TITLE III	Services related to employment for all persons seeking or needing the services. Activities include outreach, reception and intake, application taking and interviewing, counseling, testing, job development, selection and referral to training (programs funded from other sources), placement, occupational and industrial analysis, compiling and disseminating labor area information, test development and community services. Emphasis is placed on employability development and placement of the disadvantaged and unemployment insurance claimants that are not job-ready. Priority is given to veterans.	802,548 (estimated)	21,132 Includes both disadvantaged and non-disadvantaged.
MANPOWER	Services related to employment for poor persons seeking assistance. Activities include outreach, intake, assessment, job development, referral to other agencies, training, assistance and follow-up.	$212,510	40 (training) 420 (placements) 416 (summer youth)

* For amount of State Support see page immediately following TABLES I.

TABLE I

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
MDTA	Institutional training, part time and other, includes class group and individual referral, income maintenance, job development, placement and follow-up.	* $238,230	126
JOBS	To employ disadvantaged using O.J.T. methods on a voluntary committment of the business community.	559,810	187
NYC-In School	Work experience for youth 14 through 18.	106,800	149
NYC-Summer	Work experience for youth 14 through 18.	193,440	585
NYC-Out of School	Work experience and/or training for youth 16 through 18.	166,100	48
OPERATION MAINSTREAM	On-the-job training for persons over 44 years of age to develop work habits and skills for re-entry into the work force.	65,450	17
WIN (Program funds only)	Joint venture between Employment Security and public assistance and community resources to consolidate manpower and social services to achieve the integration of the AFDC recipient into the labor force.	* 372,061	504
WIN	Services are provided as needed for child care, transportation, physical examinations, extra clothing, glasses, dentures, and child physical examinations for those children of WIN enrollees placed in Day Care Centers.	*243,114	504
ADULT BASIC EDUCATION	Basic skills, literacy, communication, arithmetic, citizenship, consumer education.	* 32,997	350
VOCATIONAL EDUCATION	Basic Grants	State 1,200,000 Federal 458,700 TOTAL 1,658,700	31,277

* For amount of State Support see page immediately following TABLES I.

TABLE I

FEDERAL FY 1971 PROGRAMS

Program Name	Description	Funds	Number of Persons
STATE APPRENTICESHIP	Provides for the expansion, development and improvement of apprenticeship and other forms of training.	INA	450 ACCESSIONS
Special Option OJT	Provides training and employment in entry skills for unemployed, and upgrading for underemployed. Employers' extraordinary costs are reimbursed on contract basis.	$ 36,540	43
MDTA-Transition	Provides vocational training to separating servicemen who do not possess a usable civilian occupational skill.	$322,000	600

Program	STATE SUPPORT FUNDS
MDTA	$12,538
WIN	80 percent Federal 20 percent State
DVR	$403,078
Basic Education	$5,823

TABLE II

FEDERAL CARRYOVER PROGRAMS FROM FY 1970

Program Name	Description	Funds	Number of Persons
MDTA - OJT	Provides training and employment in entry skills for unemployed, and upgrading for underemployed. Employers' extraordinary costs are reimbursed on contract basis.	$9,900	23
* MDTA-OJT	As above	$2,150	3
* Carry over funds from fiscal year 1969 applicable to fiscal year 1971.			
STEP	Provides supplemental training for manpower program graduates or job-ready trainees.	$212,160	Work Experience 60 Individual Referral 15

TABLE III

Non-Federal Manpower Programs - FY 71

Program Name	Operating Name	Program Description	Funds	Number of Persons
L. H. BATES VOCATIONAL TECHNICAL INSTITUTE	Tacoma Public Schools	Provides vocational and technical training in 41 different occupational fields, day and night classes. This facility has the capacity to expand at least equal to their present level of operations.	State and local primarily	12,515
FORT STEILACOOM COMMUNITY COLLEGE	State Board for Community College Education	Provides vocational and technical education for 12 occupational fields, primarily evening classes. Room for expansion open.	State	500 vocational students only
CLOVER PARK EDUCATION CENTER	Clover Park School District #400	Provides vocational and technical training in 45 occupational fields - day and evening classes - if needed expansion could equal present level of operations.	State/ local	9,900
CRISIS CLINIC	Community Mental Health	Provides short-term, group, individual, or family therapy, to promote a better adjustment of the patient to his life situation.	Grants/ donations	7,000 average cases per year
----	Tacoma Housing Authority	Provides housing for families of low income who are presently living in sub-standard housing, or are without housing or about to be without housing. Approximately 43 percent of the low income housing is for elderly. Housing is both owned and leased by Tacoma Housing Authority.	Grants/ rents	1,495 units

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TABLE III

Non-Federal Manpower Programs - FY 71

Program Name	Operating Name	Program Description	Funds	Number of Persons
JOBS	NAB	Employment of hardcore unemployed using OJT methods on a voluntary commitment of the business community. (May be assisted by DOL.)	Private/ Federal	450
CEREBRAL PALSY WORKSHOP	United Cerebral Palsy of Pierce Co.	Provides workshop experience and training for handicapped adults.	Private	75
TACOMA GOODWILL INDUSTRIES REHABILITATION	Goodwill Industries of America	Provides training, rehabilitation and employment for handicapped and older workers in a sheltered workshop.	Sales and Contributions. Federal & State Grants.	150
CASCADIA JUVENILE RECEPTION DIAGNOSTIC CENTER	State Department of Institutions	Cascadia receives all boys and girls, ages 8 through 17, committed by the Juvenile Courts as delinquents. Following a short period of evaluation and study, the child is either transferred to one of its institutions or forest camps, or is returned to the community under the supervision of Juvenile Parole, and in some cases may be referred to Employment Security or other agencies for training.	State	1,700 admissions per year

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TABLE III

Non-Federal Manpower Programs - FY 71

Program Name	Operating Name	Program Description	Funds	Number of Persons
----	Conifer Corp.	Develops and constructs housing for low to moderate income families with some being under rent subsidy under 221-B 3 program.	Private	569 units
JUVENILE PAROLE SERVICES	Department of Institutions	Provides casework services to parolees and their families, and field investigations. Juvenile Parole frequently works with other agencies by providing counseling assistance and referral.	State	INA
MIGRANT MINISTRIES	Puyallup Valley Migrant Ministries	Provides medical, health, clothing, recreation, and instruction during June, July, August and early September.	Private	INA
DAY CARE	Various	18 separate centers located in the county area (primarily Tacoma) provide day care of pre-school children ages 2½ to 6. Fees are based upon parents' ability to pay.	Private	666

TABLE III

Non-Federal Manpower Programs - FY 71

Program Name	Operating Name	Program Description	Funds	Number of Persons
RAINIER SCHOOL	Department of Institutions	Provides residential care, treatment, and education and training for mentally retarded residents of Western Washington. There is no age limitation. One year state residence prior to application.	State	1,700
MEN'S REHABIL-ITATION	Salvation Army	Provides counseling, spiritual guidance, work and training on restoring household articles, furniture, clothing, etc. to rehabilitate the physically handicapped, alcoholic and parolees.	Donations	50
TACOMA RESCUE MISSION	Tacoma Rescue Mission, Inc.	Provides shower facilities, meals, clothing, dormitory services for needy unattached men. Also provides counseling and placements. The women's division is the HOPE GUEST HOME.	Donations	INA

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B. PROGRAMS IN RELATION TO TARGET POPULATION

TABLE IV, TARGET POPULATION AND OBJECTIVES provides the information in the following two items:

1. "List the 'target populations' indicated previously in Part A of the area plan . . . . Briefly describe each and estimate its size."

2. "For each target population, specify proposed manpower programs objectives for the coming year . . ."

The titles of the target groups should provide sufficient indication of the identity of the individuals so placed in that group. For example, the target groups "Public Assistance Recipients" would be those persons who are receiving welfare grants who could be presumed to benefit from manpower services. No attempt has been made to further subgroup individuals by ethnic background due primarily to the difficulty of obtaining valid data. We do know that minorities are disproportionately represented within the target groups of disadvantaged persons. These programs available to the target groups should be, as a result, impacted by minorities also disproportionately.

TABLE IV

Target Population and Objectives

Target Group	Estimated Size	Manpower Objectives	Number to be served	Percent to be served
Public Assistance Recipients (First Priority)*	2616	Assist the recipient to move from welfare rolls to full economic and social involvment of modern society. Involved are intensive casework, counseling, training as needed, job development and placement.	1344	51.4
Disadvantaged Unemployed Adults (First Priority)*	3200	To assist the individual to achieve on employment status commensurate with his abilities, interests and ecnomic needs within the labor market. Included would be income maintenance, training, OJT, job development as appropriate.	392	12.2
Disadvantaged Unemployed Youth (First Priority)*	1100	Assist the disadvantaged unemployed youth to realistically prepare for eventual long-range goals, keeping in mind the necessary short-range needs of the individual. Included would be work sampling, counseling, employment, training and/or reinclusion into the regular academic environment.	899 (Figure inflated due to Summer NYC)	81.7
Physically, Emotionally or Socially Disabled (First Priority)*	6000	Provide necessary rehabilitative services to afford the individual to maximize his potentials. Included would be prosthesis, medical treatment supportive counseling, training, supportive maintenance, job development and selective placement.	1001	16.7

*See comment on priorities on final page of this table.

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TABLE IV

Target Population and Objectives

Target Group	Estimated Size	Manpower Objectives	Number to be served	Percent to be served
Reservation Indians (First Priority)*	313	Provide full range of services necessary to assist the reservation Indian who wishes to function in off-reservation employment. Included will be counseling, training, income maintenance, job development and follow-up.	5	1.6
Persons With Less Than 8th Grade Achievement (First Priority)*	26,000	Provide opportunities for personal, social and vocational development and advancement through training in basic skills of literacy, communication, arithmetic, citizenship and consumer education. Basic Education is frequently the foundation on which more vocationally oriented manpower services build to develop an employability plan.	350	1.3
Residents of Target Areas (First Priority)*	1110	To provide to the maximum extent for the upgrading and inclusion of Model Cities residents into full employment, both through private employment and entrepreneurship. Included will be income maintenance, counseling, training, job development and follow-up.	229	20.6

* See comment on priorities on final page of this Table.

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TABLE IV

Target Population and Objectives

Target Group	Estimated Size	Manpower Objectives	Number to be served	Percent to be served
Under-utilized Non-Poor (Second Priority)	11,800 1)	To upgrade latent skills or provide new skills which will assist this target group to achieve a higher level of employment commensurate with their aptitudes and interests.	610	0.51

1) This figure includes the members of the military (8400) bases in this area who would constitue those who have no civilian skills and who will be separating from the service during FY 1971.

* The first seven target groups listed on this Table are assigned the same priority. In establishing this method of priority, we wish to emphasize that each target group has needs which are current and pressing. We did not wish to imply that any of the seven target groups should have rank order because we feel that each group is actually or potentially interrelated and must be served. In the broad sense, all could be classified as "Disadvantaged" and the seven groupings be construed as subgroups. The assignment of second priority to the underutilized non-poor was because their needs in relation to the first seven target groups are secondary.

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3. "For each target population separately, list the manpower activities and services that are planned for fiscal 1971. This involves a distribution of all the area's program resources . . . among the area's target groups. Describe . . . briefly . . . source of funds . . . name of agencies . . . number of target group individuals . . . cost . . . funding period . . . service to be provided . . . .

Column heading on TABLE V, Manpower Activities, conform to the various elements of the descriotion as enumerated in the outline quoted above.

One point that should be kept in mind is that it is entirely possible for an individual to properly belong to several target groups. A disabled, public assistance recipient, with less than eighth grade achievement could be placed in any of four target groups. To avoid inflated totals this has not been done and such individuals have been placed in that group which is most logical with consideration of the services that will be provided.

TABLE V

Manpower Activities

Target Group	Service Provided	Agency or Program	Number Served	Fund Source and Amount	Description	Funding Period	Priority
Public Assistance	EMPLOYABILITY SERVICES	WIN	504	FEDERAL-STATE DOL-HEW $372,061	Vocational assessment, orientation, Basic Ed., GED, Vocational Training, work experience, OJT, placement and followup.	FY 1971	1
	Vocational Rehabilitation	State Division of Vocational Rehabilitation	795	$376.234 FEDERAL 80% STATE 20%	Necessary vocational rehabilitation services for job preparation.	FY 1971	2
	Vocational Training	MDTA	37	DOL $71,469	Vocational training placement and followup.	FY 1971	2
	Supportive Services	WIN	504	HEW $243,114	Screening, referral, family counseling, child care and transportation assistance.	FY 1971	1
	OJT	MDTA-OJT	8	DOL $ 3,615	Provides employment and training in entry skills.	FY 1969 & 1970	3
Disadvantaged Unemployed Adults	VOCATIONAL TRAINING	MDTA	37	DOL $71,469	As above	FY 1971	2
	OJT	MDTA	8	DOL $ 3,615	As above	FY 1969 & 1970	2
	OJT	NAB-JOBS	187	$559,810 DOL	Provides employment and training in cooperation with private enterprises.	FY 1971	1

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TABLE V

Manpower Activities

Target Group	Service Provided	Agency or Program	Number Served	Fund Source and Amount	Description	Funding Period	Priority
Disadvantaged Unemployed Adults (Continued)	Special Option OJT	RMA	43	$ 36,540 DOL	As above MDTA OJT	FY 1971	3
	Supplemental Training	STEP	48 12	$ 169,728 (Ind. Ref.) DOL	Provides training in public or non-profit sector for unemployed manpower graduates.	FY 1971	3
	On Job Training	Operation Mainstream	17	$ 65,450 DOL	For persons over 44 years, develops work habits & skills for re-entry into workforce.	FY 1971	3
	Training	Manpower	40	OEO $ 23,200	Similar to MDTA	FY 1971	2
Disadvantaged Unemployed Youth	Apprentice Training	State Division Apprenticeship	450*	INA	Training in trades & crafts through apprenticeship	N/A	1
* Total number of accessions projected for Pierce County. Of the total 11 percent will be members of this target group.							
	Work Experience	NYC-IN-SCHOOL	149	DOL $106,800	Work experience for youths 14 through 18.	FY 1971	2
	" "	NYC-SUMMER	585	DOL $193,440	AS above, 16 through 18.	FY 1971	2
	" "	NYC-OUT OF SCHOOL	48	DOL $166,100	As above, 16 and 17. (To continue in program must progress through outside training to an employable goal.)	FY 1971	2
	Supplemental Training	STEP	12 3	DOL $42,432 (ind. ref.)	As above.	FY 1971	3

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TABLE V

Manpower Activities

Target Group	Service Provided	Agency or Program	Number Served	Fund Source and Amount	Description	Funding Period	Priority
Disadvantaged Unemployed Youth (continued)	Vocational Training	MDTA	11	DOL $21,440	Vocational training, placement, follow-up.	FY 1971	1
	On Job Training	MDTA-OJT	2	DOL $994	Training/employment in entry skills.	FY 1970	3
	Vocational Training	JOB CORP	39	DOL INA	Residential training including basic ed., vocational skills and social responsibilities.	FY 1971	1
Physically, Emotionally or Socially Disabled	Vocational Rehabilitation	State Division of Vocational Rehabilitation	993	FED. $470,292	Necessary vocational rehabilitation services for job preparation.	FY 1971	1
	Vocational Training	MDTA	8	DOL $16,676	Vocational training, placement and follow-up.	FY 1971	2
Reservation Indian	Vocational Training	Bureau of Indian Affairs	5	BIA $5000	Vocational training, supportive services, referral and placement.	FY 1971	1

TABLE V

Manpower Activities

Target Group	Service Provided	Agency or Program	Number Served	Fund Source and Amount	Description	Funding Period	Priority
Persons With Less Than 8th Grade Achievement	Adult Basic Education	Superintendent of Public Instruction	350	HEW $32,997 State 5,823	Instruction in basic skills, literacy, communications, arithmetic, citizenship and consumer education.	FY 1971	1
Resident of Target Areas 1)	Vocational Training	MDTA	26	DOL $47,646	Vocational training, placement and followup.	FY 1971	1
	On Job Training	MDTA-OJT	5	DOL $2410	Provides employment/training in entry skills.	FY 1969 & 1970	2
	Vocational Rehabilitation	State Division of Vocational Rehabilitation	198	FED. $94,058	Necessary vocational rehabilitation services for job preparation.	FY 1971	1
1) These resources are in addition to those outlined in section F of this plan.							
Under-Utilized Non-Poor	Vocational Training	MDTA	7	DOL $9530	Vocational training, placement and follow-up.	FY 1971	1
	On Job Training	MDTA-OJT	3	DOL $1416	Provides employment/training in entry skills.	FY 1969 & 1970	2
	Vocational Training	MDTA/Transition	600	DOL $322,000	Vocational training, placement, followup with eligible Project Transition servicemen.	FY 1971	3

TABLE V

Manpower Activities

Target Group	Service Provided	Agency or Program	Number Served	Fund Source and Amount	Description	Funding Period	Priority
See FOOTNOTE 2)	Employability Services	Employment Service Title III	21,132	INA	Provides for intake, job development, counseling (814), testing (3,690), training (385), non-agricultural placements (4,591), occupational and industrial analysis and community services.		

2) The services will be distributed among all target groups including the non-disadvantaged. Most emphasis will be directed towards serving the disadvantaged.

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C. ESTABLISHING PRIORITIES

"For all activities and services in section V-B and elsewhere in the plan, area committees are encouraged to indicate relative urgency and need. This will make it possible to adjust the proposed area plan in an effective manner in the light of subsequent Federal action on program policies, appropriations, and allocations."

A final column entitled "Priority" is to be found in section B on TABLE V, Manpower Activities. This priority of programs is to be considered for each target group separately. For example, Operation Mainstream would have a negligable priority when dealing with the target group "Disadvantaged Unemployed Youth", but would, in turn, have a relatively high priority for the target group "Disadvantaged Unemployed Adults". Other than in consideration of individual target groups, no assignment of priorities has been attempted. We are endeavoring to show that some programs have greater relevancy to one target group than to another.

D. EVALUATION OF RESOURCES IN RELATION TO NEEDS

"Estimate the proportion of each target population whose needs will be met by the activities in V-B above, and describe briefly the type and scope of additional or alternate services that should be provided in planning for subsequent years to more adequately alleviate the target population's problems."

TABLE VI, Proportion of Target Groups Served and Additional or Alternate Services, provides the information requested in the outline item. TABLE VI enumerates each target group served, the percent served (carried forward from TABLE IV) and discusses generally the kinds of additional or alternate services that are needed.

TABLE VI

Proportion of Target Groups Served and Additional or Alternate Services

Target Group	Percent Served	Additional or Alternate Services
Public Assistance Recipients	51.4	In general, the existing variety of programs, with which this target population can avail themselves, are sufficient to meet their manpower needs. However, as it is contiually pointed out, the existing programs are woefully understaffed and in many cases under-financed.
Disadvantaged Unemployed Adults	12.2	Although additional program funding may assist this target population in achieving their manpower goals, the largest single aid to effective reentrance into employment, would be an economic climate that would be condusive to the inclusion of entry workers.
Disadvantaged Unemployed Youth	81.7	Additional emphasis should be directed by schools and/or agencies to assist this group to recognize and deal with attitudinal deficiencies and to develop appropriate vocational goals to better utilize existing opportunities.
Physically, Emotionally or Socially Disabled	16.7	Additional program funding. Extension of rehabilitation facilities in the area. (Industrial Workshop)
Reservation Indians	1.6	Increase in program capabilities and resources in order to serve a greater percentage of the target group.
Persons with less than 8th grade achievement		Program should be extended to include recruitment and counselor services. Increase in hours per week and number of weeks of training. Additional state teacher training programs.
Residents of target areas	20.6	At this writing the final planning document of Model Cities has not been funded or approved. However, if the manpower component in conjunction with other manpower programs are operational as anticipated, this target group should be served adequately.

TABLE VI

Proportion of Target Groups Served and Additional or Alternate Services

Target Group	Percent Served	Additional or Alternate Services
Under-utilized non-poor	0.51	In order to assist under-utilized workers realize the optimum of their potentials, perhaps emphasis through NAB-JOB or a similar group with governmental partnership to provide funds for counseling, training and technical assistance will actualize this goal.

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E. Linkages Between Programs

Following are the program linkages, by target group, which are operational in the Tacoma-Pierce County Area. Charts I through VI are for all the target populations used throughout this plan except for the following:

- PERSONS WITH LESS THAN EIGHTH GRADE ACHIEVEMENT. This target group overlaps all others and was entered in the plan in order to show program resources for Adult Basic Education programs. Linkages for persons in this target group are therefore to be found on all charts in that persons in this target group will meet the definition of at least one other target group.

- UNDERUTILIZED NON-POOR. Linkages for this target group are essentially the same as for Disadvantaged Unemployed Adults except for the programs listed under "Training and Work Experience". Because the major portion of program efforts in this area are directed toward the disadvantaged; only a small part of MDTA institutions and OJT slots are planned for this group.

For each of the target groups listed on the following charts the agency (or agencies) listed under "Intake, Screening, and Coordination" is to be considered as the Linkage Coordinating Agency for the target population under consideration. This agency receives referrals from "Client Sources" and provides intake and assessment to assist the client to form an appropriate employability goal and to define possible problems or barriers which may preclude the attainment of the goal. The various programs and services available through federal, state, and community resources are considered by the Linkage Coordinating Agency so that a plan may be devised to assist the client in attaining his goal. This plan may involve any or all of the following:

- Counseling and testing by Linkage Coordinating Agency.

- Referral to community agency for assistance with a special problem, e.g., to family counseling for resolution of a marital problem.

- Selection and referral for Basic Education or Employment Orientation (provision for supportive counseling and training allowances if needed and authorized.)

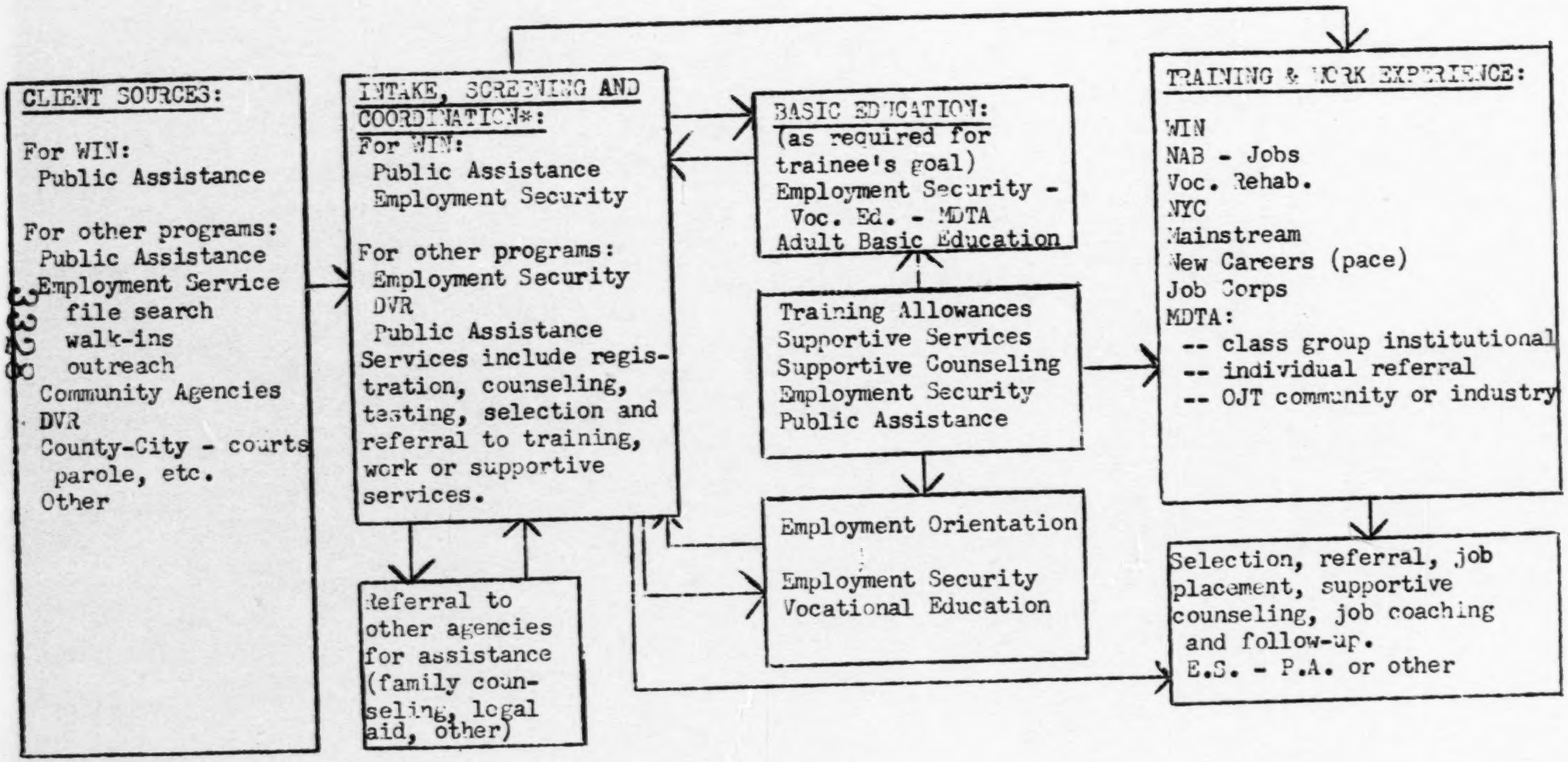
- Reassessment following above to determine if original plan needs adjustment.

- Referral to job or training such as MDTA, Job Corps, or other as appropriate.

- Following completion of training: job development, referral, and placement by the Linkage Coordinating Agency and/or Employment Security Department. The Linkage Coordinating Agency also will provide post-placement counseling, as needed, and followup.

CHART I

LINKAGES
PUBLIC ASSISTANCE RECIPIENTS



*Coordination of client's progress when more than one program or service is involved.

CHART II

LINKAGES

DISADVANTAGED UNEMPLOYED ADULTS

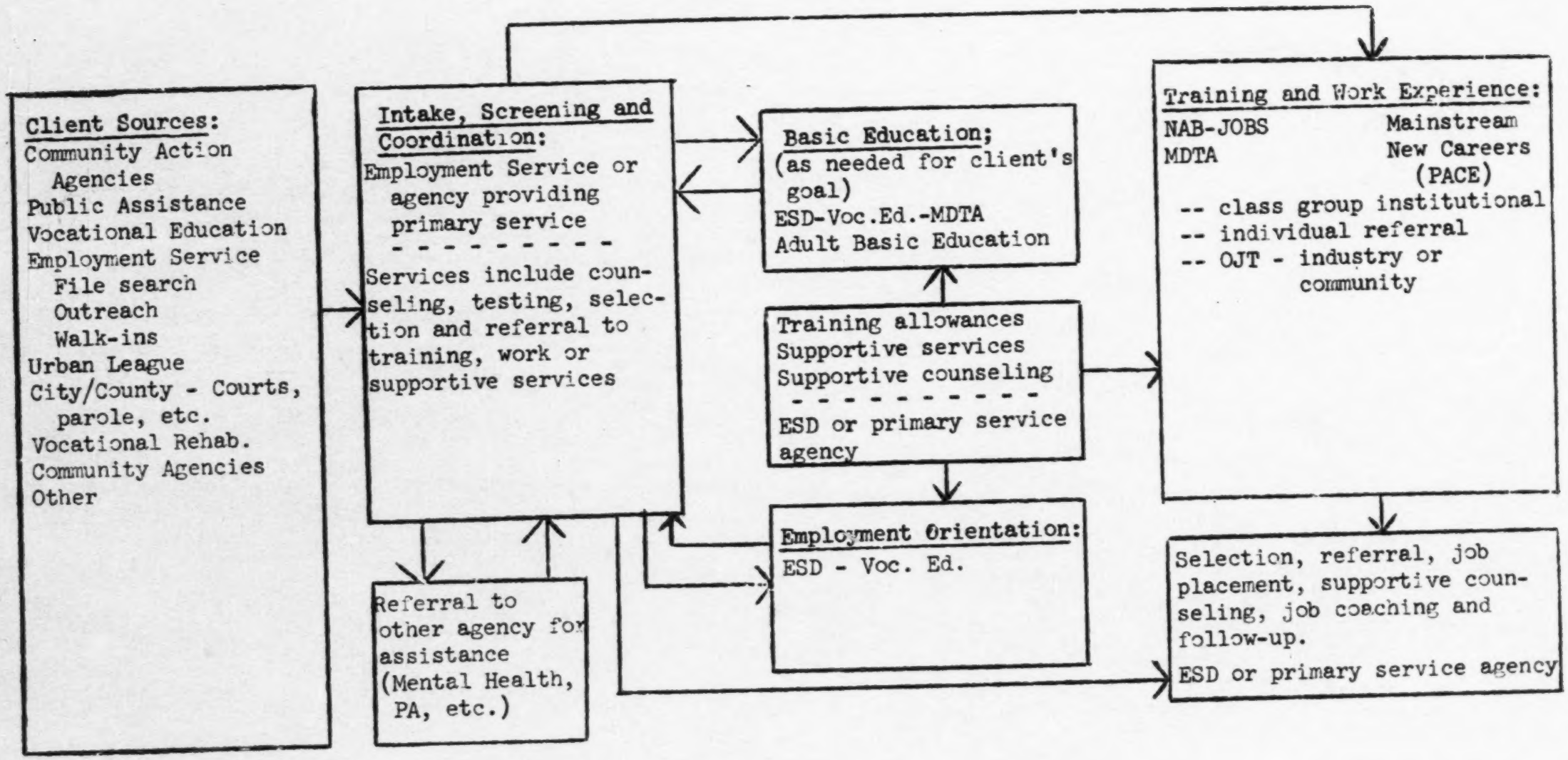


CHART III

LINKAGES

DISADVANTAGED UNEMPLOYED YOUTH

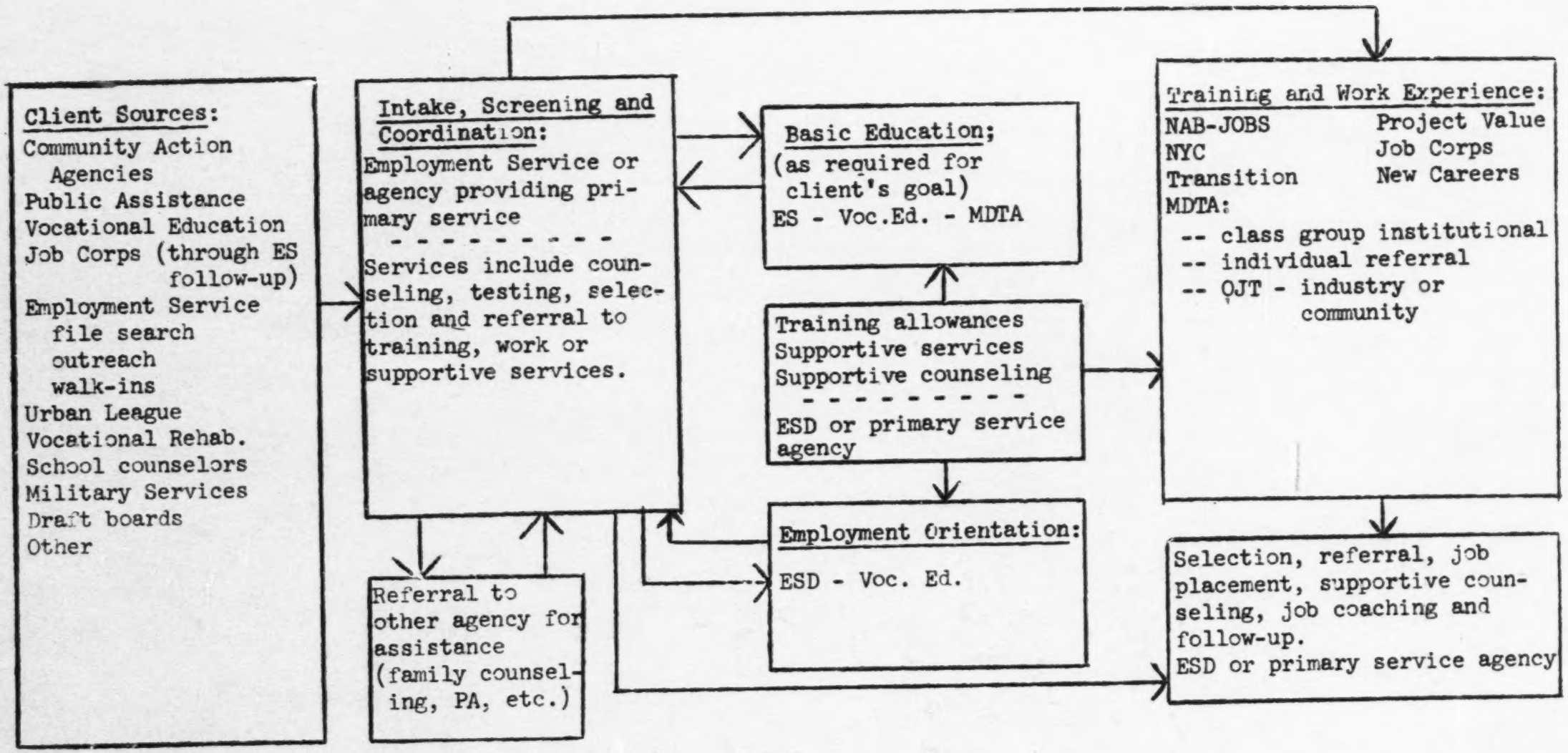


CHART IV

LINKAGES

PHYSICALLY, EMOTIONALLY, OR SOCIALLY DISABLED

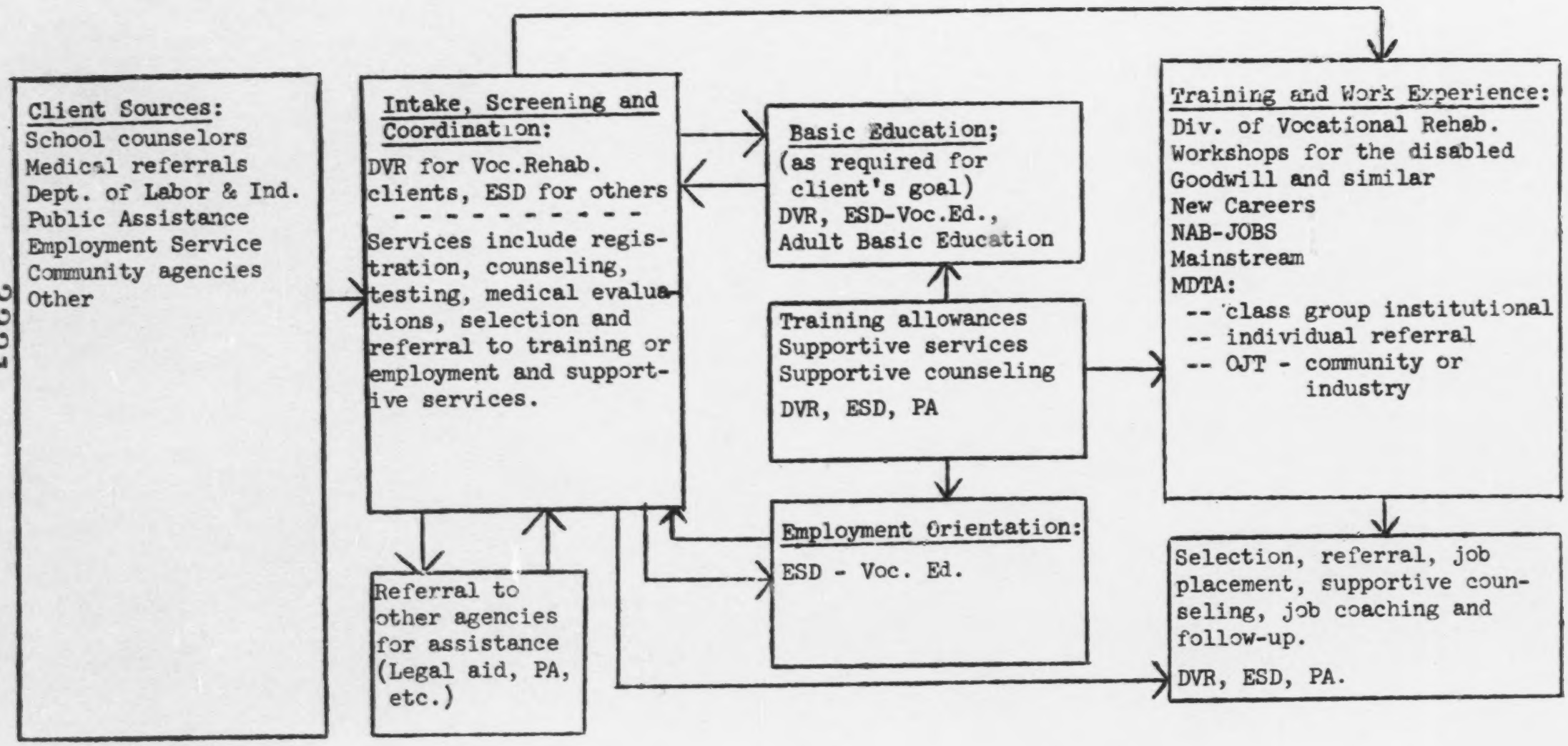


CHART V

LINKAGES

RESERVATION INDIANS

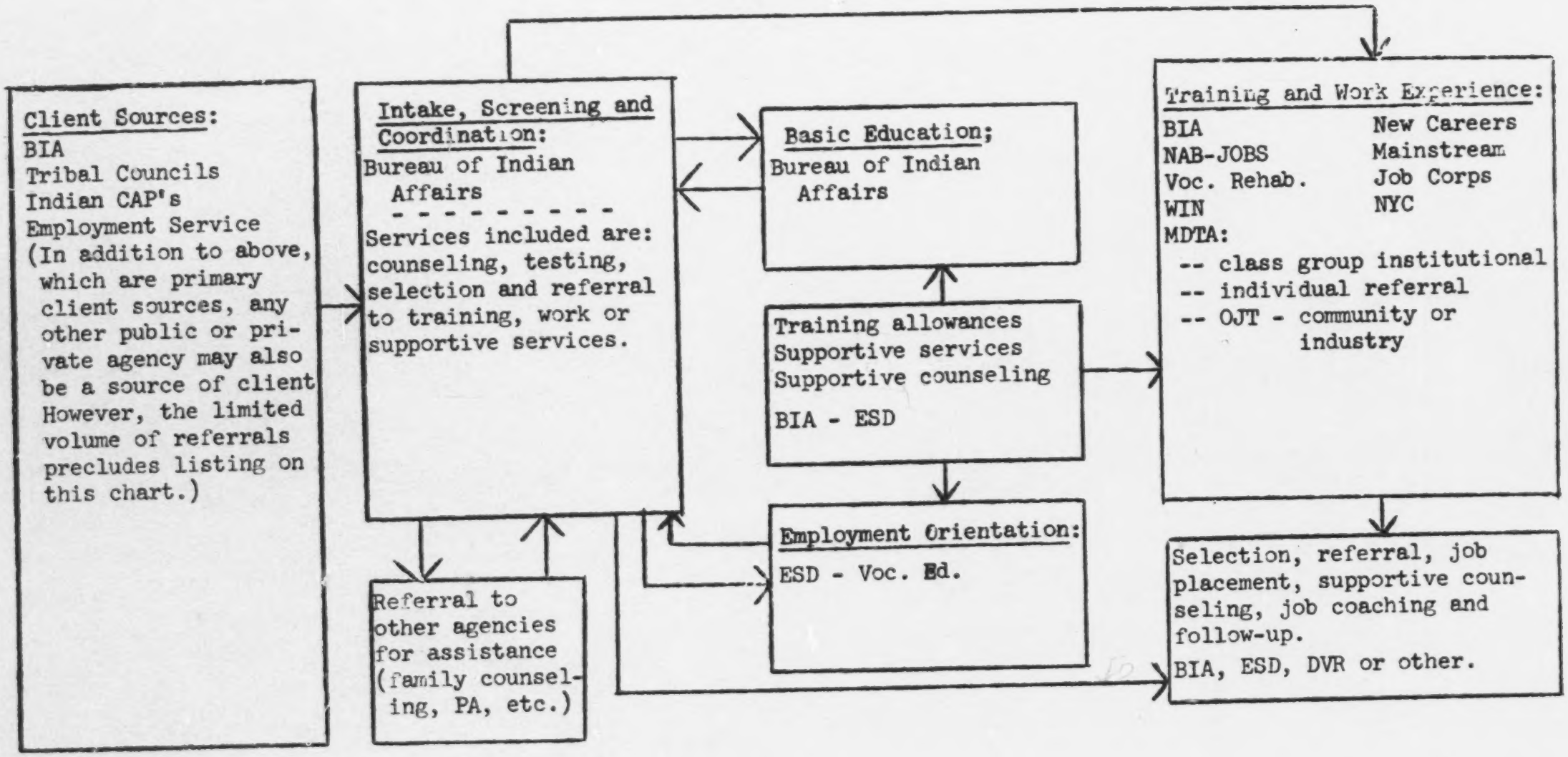
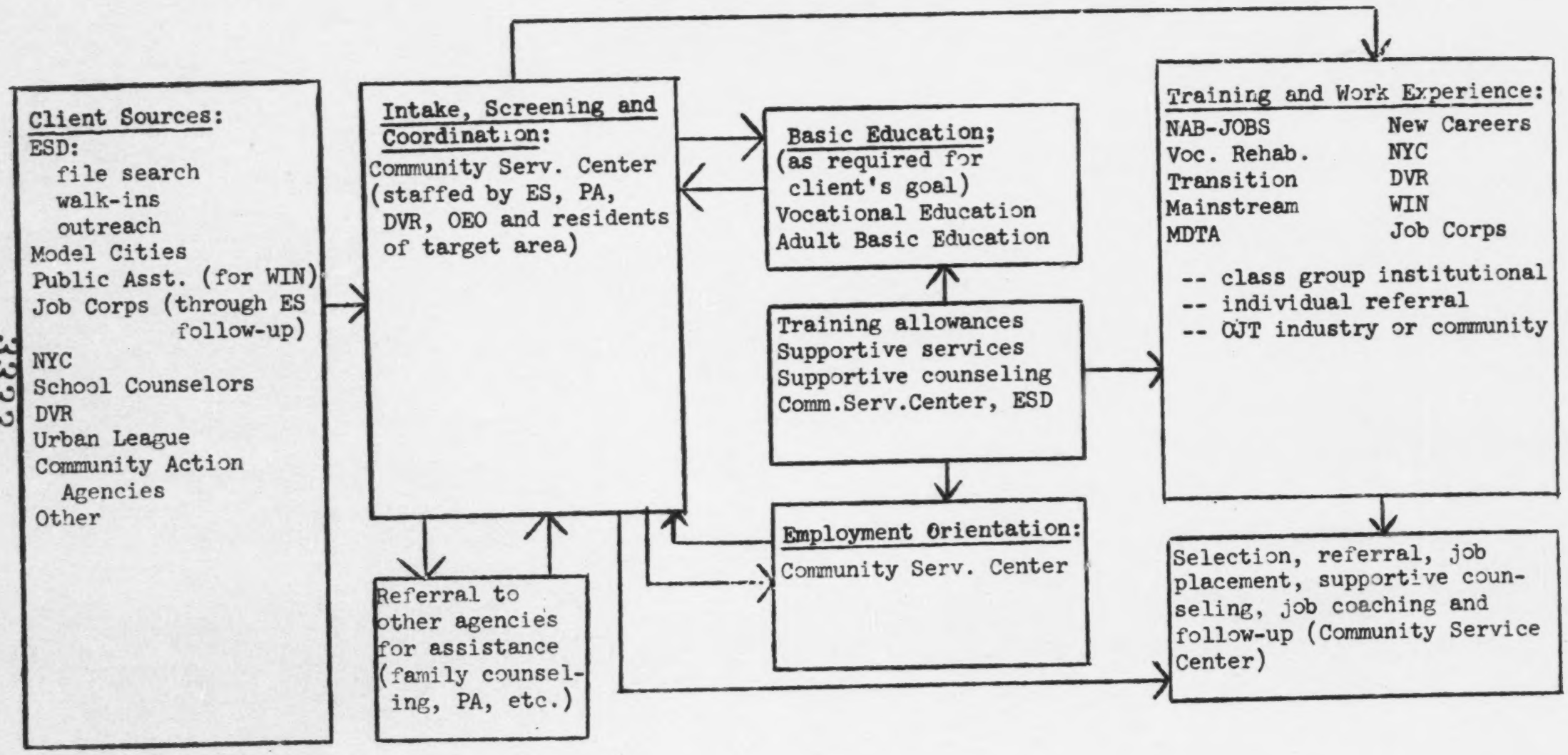


CHART VI

LINKAGES

RESIDENTS OF TARGET AREAS



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F. RELATIONSHIP OF AREA CAMPS PLAN TO SPECIAL PROGRAMS OF INTER AGENCY PLANNING AND COORDINATION

"In areas in which special programs involving interagency planning and coordination of manpower services exist, such as Model Cities Program . . . provide . . . description of the manpower activities . . . programs, including geographic area . . . target groups . . . agencies responsible for operations . . . program linkages and other coordination."

The Model Cities Program is designed to plan, implement and administer a comprehensive and coordinated attack on social, economic and physical problems to improve the environment and general welfare of people living in a selected blighted area. Immediately following this section is a map of Tacoma with the Model Cities Program Area shaded.

In general the area is residential, both single and multi-family dwellings. (Some multi-family dwellings were originally for single family occupancy) The area, also known as Hilltop, is located within walking distance of the commercial center of the city and has a neighborhood shopping area.

The primary manpower thrust of Model Cities is resident entrepreneurship. Two programs, Minority Enterprise Small Business Investment Company (MESBIC) and Wood Products Manufacturing Co. Project will provide the vehicle for resident ownership and management.

MESBIC, from a combination of local and Small Business Administration funds ($500,000) and stock subscription to residents will provide seed money for loans to model cities residents to form or improve local business.

Wood Products Manufacturing Co. Project will establish a wood products plant with minority management and ownership and employ several model cities residents in the sale and manufacturing of wood pallets. Weyerhauser Co. will provide training and technical assistance to this enterprise. During the first year employment will total 11 but is expected to triple as business increases.

These two efforts will be administered by boards which will include residents of model cities and will receive technical assistance and guidance from the local business community.

The remainder of the Model Cities manpower activities will be to utilize and coordinate the use of existing manpower programs such as MDTA, WIN, DVR, et al. These efforts will be coordinated through the CAMPS system.

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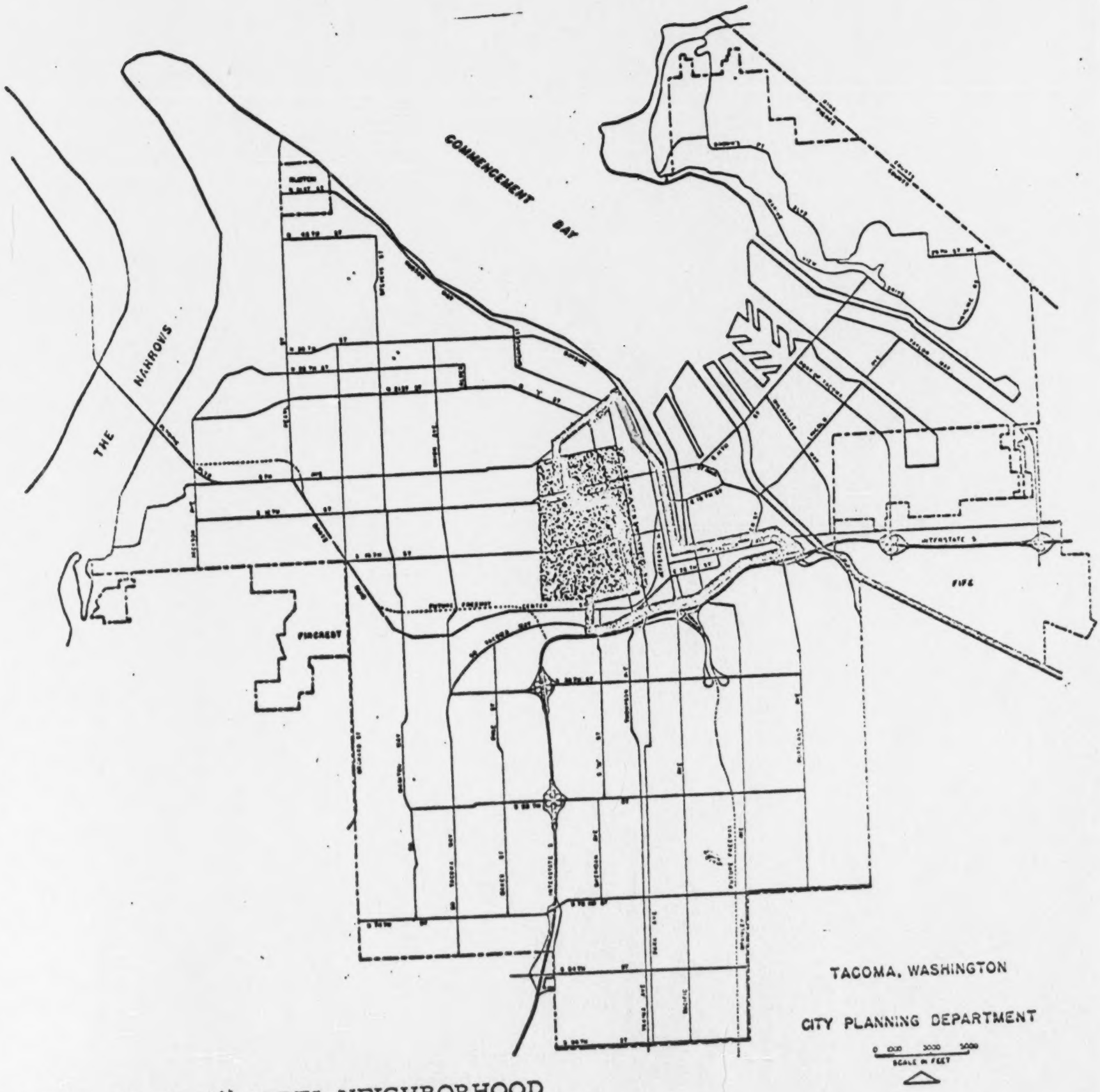
On TABLE V page 23, are listed specific commitments of Division of Vocational Rehabilitation and Employment Security Department (MDTA) resources. The following is extracted from TABLE V and would be the best estimate of the program resources that will be utilized by Model Cities Residents. This listing should not be considered as in addition to, but as part of, what is detailed on TABLE V.

PROGRAM	FUNDS	NUMBER OF PERSONS
JOB CORPS	INA	3
E.S. TITLE III	INA	2007
MANPOWER	$2,320	4
JOBS	$50,382	17
NYC - IN SCHOOL	$10,680	15
NYC - SUMMER	$38,688	117
NYC - OUT OF SCHOOL	$33,230	10
OPERATION MAINSTREAM	$6,545	2
WIN	$74,412	101
VOC. ED.	$165,587	3127
APPRENTICESHIP	INA	10
SPECIAL OPTION OJT	$3,654	4

The number of persons on this list are included in the various target groups by virtue of their characteristics other than Residents of Target Areas. For example, Model Cities residents who will be served by WIN, and thus are recipients of Public Assistance are grouped under the target group Public Assistance Recipients rather than Residents of Target Areas.



RELATIONSHIP OF MODEL NEIGHBORHOOD TO CENTRAL BUSINESS DISTRICT

Model Neighborhood Area

Central Business District (Core and Frame area as defined in Tacoma CBD Plan - 1963)

G. COMMUNITY INVOLVEMENT

"Describe the role of employers, labor organizations, Indian Reservation representatives, and other community groups in developing the area CAMPS plan and in implementing the proposed manpower programs."

The principal role of employers, labor organizations, agriculture, and the public in the development of the CAMPS plan is through their representation on the Manpower Advisory Committee.

Representation of Reservation Indians is direct by membership on the area CAMPS committee.

Poor people are indirectly involved in the development of the area plan by virtue of joint membership of OEO and CAMPS members on the respective Committees and Boards of Opportunity and Development Inc. and the Manpower Coordinating Committee.

VT 012 273
Public Employment and the Disadvantaged: An Annotated Bibliography. Reference File, File No. 4.

National Civil Service League, Washington, D.C.
Office of Economic Opportunity, Washington, D.C. Office of Program Development
MF AVAILABLE IN VT-ERIC SET.
Ref-File-4
National Civil Service League on Public Employment and the Disadvantaged, 1028 Connecticut Ave., N.W., Washington, D.C. 20036.
PUB DATE - Jan70 54p.

DESCRIPTORS - *ANNOTATED BIBLIOGRAPHIES; *MANPOWER UTILIZATION; *DISADVANTAGED GROUPS; *GOVERNMENT EMPLOYEES; *EMPLOYMENT OPPORTUNITIES; MANPOWER DEVELOPMENT; JOB DEVELOPMENT

ABSTRACT - This bibliography includes

material which considers the potential for the disadvantaged in government employment. Designed to be most valuable to those responsible for hiring the disadvantaged within an established civil service system, the bibliography deals only with material which is generally available to the average researcher. (BH)

VT 012 273

ED0 57254

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An Annotated Bibliography:

PUBLIC EMPLOYMENT AND THE DISADVANTAGED

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INTRODUCTION

This is a bibliography dealing with the role of the disadvantaged person, as defined below, in public (i.e. government) service. It deals only with material generally available to the average researcher throughout the country and is not an inventory of any one library's or office's holdings. The bibliography was designed to be of particular use to those whose responsibility it is to hire the disadvantaged and to reconcile such hiring programs with an established civil service system.

The "rule-of-thumb" definition of "disadvantaged" used in this bibliography is: those persons lacking the usual, normal, or accepted advantages and opportunities considered generally available to members of our society as a whole. The category would then include those persons who are one or more of the following:

1. poor, according to accepted government poverty levels;
2. discriminated against in employment;
3. not sufficiently educated to obtain more than menial labor;
4. unemployed or not suitably employed based on their capacity to learn or work;
5. physically or mentally handicapped.

Assimilating members of this group into the public service as both a means of providing them with gainful employment and as a way to relieve critical shortages of workers is a recognized national objective. The question posed by such a policy is how to accomplish this goal without damaging or endangering the basic principles of merit employment, which usually involve the application of certain minimum standards of training and certain mental or physical capabilities. We have tried to find whatever written material is generally available dealing with the selection, testing, training, and employment on all levels of the public service of persons who fit into the concept of disadvantaged described above. In order to do this, we faced a number of problems.

The field of new careers is new, viable, amorphous, and rapidly expanding. There must be valuable programs and approaches which would be generally useful but which are simply not written about in either readily available or in any form at all. Then there is the written material which is published in impermanent form in small editions or is restricted in distribution. No one office or agency is currently responsible for the collection and distribution of all the work done in the field, or in the broader one of private employment of the disadvantaged (with the possible exception of the new "Manpower information service" of the Bureau of National Affairs). Alan Gartner of New York University estimates that there are about 35 laws establishing "some 100 grant-in-aid programs incorporating or permitting the new careers design." He further estimates that these programs involve over 400,000 persons. A glance at the "Catalog of Federal domestic assistance," the "OEO wish book," shows he can't be far wrong.

Some material on established projects we wish were available simply is not. For example, the Army's extensive training program of men who would otherwise be rejected for service has been in operation for some years. The Department of Defense does not have any published materials generally available, and no researcher has investigated and written about the preparation of thousands of men for new careers. The project is briefly described in Sar A. Levitan's "The military: a new recruit in the war on poverty" (*American Child*, vol. 48, no. 4, Fall 1966, pp. 24-26), but this is all we have been able to find. Newspaper files may yield more information for those who are interested; the *New York Times Index* is suggested. A similar situation exists with regard to a major "big brother" program conducted by the Post Office Department.

The material in this bibliography has been evaluated, annotated, and grouped with a view to what is available, and only a few attempts have been made to point out gaps in the field. These should be evident to anyone reading in the context of his own new careers civil service work. Perhaps some academic perusing the "OEO wish book" will decide to become a prophet with a cause and make an effort to fill such obvious gaps as:

—an analysis of precisely what fields are appropriate to new careers ladders (libraries? civil defense? pre-school education? day care centers?); Alan Gartner ("Do paraprofessionals . . .") has done some preliminary work in this area;

—what supportive services are needed for those entering the world of steady, remunerative employment for the first time (basic health care? budgetary planning? social graces?);

—the role of the disadvantaged in the management and administration of their own agencies (what management training is needed for work in Model Cities programs? in Community Action Agencies? in community school districts?).

Using the guideline of "generally available," over 60 titles were discarded because they were unpublished, out-of-print, or not available at either the Library of Congress or the libraries of any major government agency in the Washington, D. C. area. Of course one of the problems here is that libraries cannot cope with the flood of miscellaneous pamphlets and brief mimeographed papers which are turned out by hundreds of organizations, many of which were in existence for only a short time. Such material is automatically classed as "ephemera" under current library selection standards and discarded. A related problem is material which is issued in draft form to a limited group or which serves only as briefing data for conference participants.

Material which is obtainable directly from an agency or organization is identified by the inclusion of an address with the main entry, or is described in "Sources." In listing titles which are issued by regular publishers, or which are easily found in a library, we do not include an address. If your library does not have the material, ask your librarian about the possibility of an interlibrary loan, or for suggestions regarding card catalog subject heading entries. Your library may also have pamphlet or vertical files where such material is stored. Addresses of publishers are available in the current issue of "Books in print," which can be found at the library or at major book stores.

Government documents may be obtained either from the agency listed as author or publisher, or from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402. In addition, the U.S. Congress Joint Committee on Printing's "Government depository libraries" lists almost 1,000 libraries throughout the country where government publications may be seen. For a copy of this list, write to: Chief of the Library, Division of Public Documents, U.S. Government Printing Office, Washington, D. C. 20402.

One of the minor problems we faced was that of semantics. A term such as "nonprofessional" is defined in many ways. For example, in the social work field primarily, "nonprofessional" is used to designate someone with a college degree in a field other than social work. Volunteers are also considered "nonprofessionals," as are older, well-educated women looking for new careers after their families are grown. All titles dealing with such nonprofessionals were discarded. Neither did we consider to be disadvantaged all those high school or college students who work as one type of "aide" or other part time or summers.

We also found discrepancies in the description of New Careers (a now out-dated term) for the disadvantaged. The 1969 term is "paraprofessional," which appears to mean what "subprofessional" did in 1968, "nonprofessional" did in 1967, and "indigenous nonprofessional" did in 1966. Lower case new careers appears to be the current "in" term.

In the final analysis, the contents of a bibliography depend entirely on the judgment of the compilers. For example, we eliminated 20 titles found in source material as irrelevant to the main subject. These titles dealt with such subjects as the structure of organizations, elementary school training for disadvantaged learners, vocational problems of professional and technical personnel, and general community problems or activities. More detail on what we considered to be irrelevant material may be found in the introduction to each section of this bibliography.

The Library of Congress cataloging system was loosely used as the basis of entries, combined with simple logic. Where there was a conflict, we hope that logic prevailed. Each entry is as complete as possible, and nothing has been included in this bibliography unless it was personally reviewed. Through the use of detailed grouping of material with explanatory notes, cross references, and an author index which includes the names of all persons or organizations mentioned anywhere in the text, we have tried to make the titles as accessible as possible.

Doris Phelps
Adele Kravitz
January 1970

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I. SOURCES

The usual sources for bibliographic material were of little value to research in the specific field of the disadvantaged and the public service. Such regular publications as the *Reader's Guide, Public Affairs Information Service (PAIS)*, and *Personnel Management Abstracts* yielded few useful titles. The periodicals which were consistently useful are not abstracted by these indexes and are listed separately at the end of this section.

The section begins with the basic Federal sources in the field: the basic enabling legislation, a guide to Federal grants, the Federal executive agencies supervising the work authorized by legislation and their regular publications, and the contract agencies working under Federal departments to disseminate information. Anyone interested in the field should keep in constant contact with these sources in order to be up-to-date on appropriate activities.

The Manpower Administration of the U.S. Department of Labor is of particular interest. In a recent reorganization, this department created a new Division of Public Career Programs, of which the old New Careers Office, dealing with established new careers agencies, will be one section. Three other sections will be concerned with entry-level and up-grading programs in: state, county, and municipal governments and special districts; grant-in-aid agencies; and the Federal government.

The New Careers Office does not now have any prepared material to assist its new careers agencies in training programs, but does send out reprints of material currently available from its two contract agencies (University Research Corporation for agencies east of the Mississippi and Social Development Corporation in the West). The Office suggests in addition that the textbooks of private publishers be used where training involves the upgrading of basic educational qualifications.

The section on Federal sources is followed by one of commentaries on Federally authorized programs. There are additional commentaries in the work done by the New Careers Development Center of New York University, but these are usually mimeographed and not generally available, so the material is listed only in the entry for that organization.

The next section on other sources covers many aspects. Here we have listed current bibliographies, regular organizations, and descriptions of organizations or projects which may no longer be in existence but which have made a substantial contribution to material in the field. There was no one list we could find which included the names and addresses of all agencies publishing material in the field, so this section has been compiled based on our research and correspondence. There may be more groups, but we simply did not run across them.

The closing section is the one on periodicals which is described in the first paragraph. Subscriptions to these, and to the regular publications of the Manpower Administration and its contract agencies will keep a researcher abreast of the field.

SOURCES: FEDERAL

Clearinghouse for Federal Scientific and Technical Information, U.S. Dept. of Commerce (National Bureau of Standards), Springfield, Va. 22151.

U.S. government research and development reports (USGRDR) *and its* Index.

A semi-monthly journal which provides a list of titles already available from the Clearinghouse at $3.00 each (paper) or 65 cents (microfiche).

Clearinghouse announcements (CAST: Clearinghouse Announcements in Science and Technology) are published twice monthly in 46 categories; $5.00 a year for first category (Social sciences and education is no. 42). The Clearinghouse also offers a Fast Announcement Service (FAS) for $5.00 a year for any and all categories. This is a selective announcement service covering about ten percent of Clearinghouse input, compiled and mailed irregularly. Of the 57 categories offered under this program, Social sciences and education is no. 53. See also Educational Resources Information Center under U.S. Dept. of Health, Education, and Welfare.

The Clearinghouse reprints reports made to various government agencies on a contract basis. Titles from this source reviewed elsewhere in this bibliography are:

Community Programs and Training Consultants, Inc., "The non-professional in experimental and demonstration projects."

National Committee on Employment of Youth (several titles).

Pelosi, John William, "A study of the effects of examiner race, sex, and style of test responses of Negro examinees."

Daniel Yankelovich, Inc. (several titles).

Social Development Corporation, 1717 Massachusetts Ave., Northwest, Washington, D. C. 20036, 202/483-5000.

The Corporation is a private nonprofit organization with the stated objective of increasing the impact of social legislation through innovations in program administration. SDC is the Labor Dept. contract agency providing technical assistance to 26 new careers programs west of the Mississippi. Several useful how-to-do-it guides have been prepared by this organization: see entries under SDC for:

"Merit systems and new careers"

"New careers job development"

"New careers police-community relations"

In preparation is a "New careers annotated bibliography." In draft, this publication has entries alphabetically by title only, without index or cross references. Many entries are for materials that we have found to be out-of-print or not generally available. Without substantial revision, the valuable annotations will not receive the use they merit.

U.S. Civil Service Commission, Washington, D. C. 20415.

The Commission issues a series of brief pamphlets which explain the role of specifically handicapped persons in the Federal civil service. These pamphlets and additional information on each subject are available upon request from local offices of the State Employment Service or the Civil Service Commission.

"Accent on Youth: Federal employment and work experience programs."

"Employment of the blind in Federal service."

"Employment of the deaf in Federal service."

"Employment of the handicapped in Federal service."

"Employment of the rehabilitated offender in the Federal service."

"Employment of the mentally restored in Federal service."

"Employment of the mentally retarded in Federal service."

U.S. Civil Service Commission Library.

Personnel literature. Monthly. Available on request (with annual index).

This acquisitions list is the best bibliography yet found of current literature in the personnel field. Numerous subject headings are devoted to topics of pertinence to new careers and the annotations provide accurate descriptions of the material. Monthly copies should be saved for use with the annual index.

Personnel bibliographies.

These are comprehensive bibliographies on specific subjects. They are revised and updated every two years. Some titles which are currently available include: "Recruitment for the public service, Supplement 1" (no. 3); "The Federal Civil Service—history, organization and activities, Supplement 1" (no. 6); and "Planning, organizing and evaluation training programs, Supplement 1" (no. 18). Anyone interested should request an up-to-date listing.

U.S. Dept. of Health, Education, and Welfare, Washington, D. C. 20201.

Four divisions of this agency are the prime source of material and information on the disadvantaged, but only a very limited amount of the material deals with the public sector or is published for general distribution. There are numerous in-service guides published by the Public Health Service (National Institutes of Health), the Office of Education Division of Manpower Development and Training, the Social and Rehabilitation Service, and the State Personnel Merit Systems Office under the Office of the Secretary. The "Summaries of training projects: Juvenile Delinquency and Youth Offenses Control Act (rev. 1966)" of the Social and Rehabilitation Service is an example of the type of publication issued. It covers all projects supported by HEW grants, but the individual reports are available only from the grantees and are not published for general distribution at this time.

Educational Resources Information Center (ERIC), Office of Education.

ERIC is a computerized national information system dealing with documents on aspects of education: administration, counseling, disadvantaged learners, etc. Its work in the field of education is similar to that of the Clearinghouse for Federal Technical and Scientific Information of the National Bureau of Standards and there is a limited amount of duplication. Material on education of disadvantaged learners (adults as well as children) is available from ERIC's clearinghouse at Teachers College, Columbia Univ., New York, N.Y. 10027. Information about ERIC is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402 ("How to use ERIC," pub. no. 328-602, 30 cents; Catalog of publications dealing with ERIC. no. FJ 5.212: 12037-A, free). See also: Yeshiva Univ.

U.S. Dept. of Labor. Manpower Administration

This agency has handled all the functions of the Office of Manpower Policy, Evaluation, and Research since Oct. 1967. The latter, in turn, had taken over the functions of the Office of Manpower, Automation, and Training (established June 1962) in Dec. 1965. All publications listed below, and any others on the subjects under the office's jurisdiction, may be obtained from the Inquiry Office, Dept. of Labor, Constitution Ave. and 14th St., Northwest, Washington, D. C. 20210, or from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, for a small charge.

Manpower and operations research studies of the U.S. Employment Service and state employment services 1958-1967: a selected bibliography. (Bureau of Employment Security, BES no. E261), 1968. 145 p.

A comprehensive state-by-state bibliography of the research activities of the U.S. Employment Service over the last 10 years. The availability of each publication is noted. The research is in such fields as job opportunity, special manpower and job markets, test development, counseling, and human resources.

Manpower development and training in correctional programs. (MDTA experimental and demonstration findings no. 3. G.P.O. no. 312-944), 1968. 199 p.

A conference report which is useful because of the chapters on "The use of nonprofessionals and service volunteers in corrections" by Leon G. Lieberg and "Job development and placement of the ex-offender" by Dr. Clyde E. Sullivan. Other chapters are of general interest.

Manpower Evaluation Reports.

First published in 1963, these are issued irregularly and tend to deal with MDTA programs for private industry. Some may be of peripheral interest, *e.g.* no. 3: "Occupational training of women" or the latest, no. 8: "The influence of MDTA training on earnings."

Manpower report of the President, including a report on manpower requirements, resources, utilization, and training. (G.P.O., $2.00, paper), Jan. 1969. 253 p.

An excellent guide to all the programs of the Dept. of Labor and their current status. Everything is explained clearly; a very basic, thorough picture of the labor market today from the government's point of view.

Manpower research projects sponsored by the U.S. Department of Labor, Manpower Administration, through June 30, 1968. (G.P.O. no. 317-261), Oct. 1968. 219 p.

This covers all projects in progress at the end of fiscal 1968, in addition to information on projects carried over from previous years and a list of reports completed 1963-1968. Each is thoroughly annotated. The availability of individual reports is another question. We suggest writing directly to the Manpower Administration at the Dept. of Labor address. Published annually.

New Careers: jobs with a future and a profession. (G.P.O. no. 359-579, 15 cents), 1969.

A brief pamphlet describing the program and telling where to get more information in individual areas around the country.

The Neighborhood Youth Corps: hope and help for youth. (G.P.O. no. 350-071, 15 cents), May 1969.

Another brief informational pamphlet similar to the one above. The Neighborhood Youth Corps was established in Nov. 1964 and has provided training for public service work in some communties in such fields as police cadets, sheriff's aides, and corrections officers' aides. It is currently administered by Mark Battle, Deputy Administrator, Bureau of Work-Training Programs of the Department. We could find no comprehensive publication on the group's work and Mr. Battle himself has complained that there is little evaluation of NYC efforts available, but there are several pamphlets which provide general information:

"From a world of poverty to a life of hope" (n.d.)
"Making the scene" (Dec. 1968)
"The Neighborhood Youth Corps, three years of success" (1968)

Public Service Careers Program: a general description, Aug. 1969, 69 p. [internal publication for staff].

The PSC program provides "funds to state and local governments and federal agencies for innovative projects directed toward overcoming or eliminating existing barriers" against hiring the disadvantaged. This publication summarizes the plans, states the general problem and the program concept, and details the plans of action. There is a most useful appendix which shows 'the increase anticipated in public sector employment."

Youth Opportunity Centers: focus on youth and jobs. (G.P.O. no. 359-581, 15 cents), 1969.

A brief pamphlet giving basic information on a project of the state-Federal Employment Service system for highly personalized services for youths 16 to 21. YOC works closely with CAP, NYC, Job Corps. etc.

Employment Service Review. Elsie S. Dorman, Editor. Published by the U.S. Employment Service (Frank H. Cassell, Director) for the Bureau of Employment Security of the U.S. Dept. of Labor from 1964 to 1968.

Each issue devoted itself to a single major topic and included a comprehensive bibliography. For example, Nov. 1966 (vol. 3, no. 11) was on "Health manpower" and included articles on all aspects of developing careers in the health fields. The progressive work by Mr. Cassell in the general field of employment of the disadvantaged was well exemplified by this USES publication. It was superseded as of Dec. 1968 (last issue) by *Manpower*.

Manpower, the official monthly journal of the Manpower Administration, U.S. Dept. of Labor. Subscriptions $7.50 from Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402.

This *Life*-like magazine covers all aspects of manpower. The April 1969 issue, for example, includes discussion of training of the retarded and the need for health personnel, as well as an interview with Seymour Wolfbein and the Kirkbride article (see entry).

U.S. Office of Economic Opportunity

Catalog of Federal domestic assistance. Washington, D. C., U.S. Government Printing Office, Jan. 1969. 610 p. (G.P.O. no. 328-264; available from OEO, Information Office, Washington, D. C. 20506)

Familiarly known as the "OEO wish book," this is a detailed "description of the Federal government's domestic programs to assist the American people in furthering their social and economic progress." The book explains the nature and purpose of each program, specifies the major eligibility requirements, tells where to apply, and lists printed materials available describing the program. An appendix lists the addresses of the regional offices of the Manpower Administration, the Civil Service Commission, and other agencies pertinent to this bibliography.

Two briefer publications on the same subject seem to be abstracted from this text. They are:

National League of Cities and U.S. Conference of Mayors. Center for Policy Analysis, 1612 K St., Northwest, Washington, D. C. 20006.

The mayor and manpower: Federally aided manpower programs. [n.d., various pp.] No index or table of contents.

Urban Coalition, 1819 H St., Northwest, Washington, D. C. 20006, 202/223-9500.

Manual of Federally-supported manpower programs. [n.d.] 55 p. No index or table of contents.

U.S. Statutes at Large

Economic Opportunity Act: vol. 80, pt. 1 (89th Cong./2d sess.) 1966, pp. 1451-1477 *and* vol. 81 (90th Cong./1st sess.) 1967, pp. 672-728.

The basic enabling act which authorizes the appropriation of funds for new careers programs to assist the disadvantaged. The 1966 amendments to the Economic Opportunity Act (EOA) which provided for the new careers program administered by the Manpower Administration of the U.S. Dept. of Labor are known as the "Scheuer Amendments."

University Research Corporation, 4301 Connecticut Ave., Northwest, Washington, D. C. 20008, 202/244-9210.

The Corporation, the Labor Dept. contract agency operating east of the Mississippi, currently has three divisions. Its National Institute for New Careers (formerly New Careers Development Corp.) is in the process of revising, updating, and releasing the comprehensive set of training manuals and other work done by the Howard University (Washington, D. C.) Institute for Youth Studies (formerly Center for Youth and Community Studies). These reprints are currently available only to those operating under Dept. of Labor New Careers contracts. This division also publishes a series of bulletins and a series of reprints available to anyone on request (see below). The Corporation has two other divisions: Institute for Justice and Law Enforcement and National Institute for Public Employee Relations.

National Institute for New Careers.

Bulletin. Patricia Fleming, editor.

This organization puts out a number of useful bulletins on a regular basis, all of which are available on request.

"Comprehensive Health Services" (CHS) career development technical assistance bulletin" (vol. 1, no. 1, Summer 1969) monthly.

"Head Start careers bulletin" (vol. 1, no. 1, Summer 1969) monthly.

"New Careers program assistance bulletin" (vol. 1, no. 1, Jan. 1969) monthly. This is perhaps the most useful of all, since it covers everything newsworthy about new careers, including current publications of interest.

"OEO-CAP Career Development" (forthcoming).

National Institute for New Careers, New Careers Information Clearinghouse.

New careers perspectives; reprint series.

Reprints of articles on various aspects of new careers are available to anyone on request. As of Aug. 1969, there were 12 of these, including:

Nixon, Russell A., "Vocational Rehabilitation and new careers" (no. 3)

Kent, James A., "Education in the new careers program" (no. 8)

and many others. It's well worthwhile to request these.

In addition, NCIC recently added reprint services in the fields of Head Start, health services, and Community Action Programs, the same subjects as their bulletins.

SOURCES: COMMENTARIES ON FEDERALLY AUTHORIZED PROGRAMS

Gartner, Alan

Do paraprofessionals improve human services: a first critical appraisal of the data. New York, New Careers Development Center, New York Univ., Room 238, East Bldg., Washington Square, New York, N. Y. 10003. June 1969. 45 p.

Mr. Gartner enumerates briefly the kinds of activities stemming from the "new careers" type legislation and evaluates the changes in human services that have been the result. A useful summary.

Hoos, Ida Russakoff

Retraining the work force. Berkeley, Univ. of California Press, 1967. 281 p. $6.00.

The author presents factual information on various retraining programs: availability, sponsorship, reason for establishment, manner in which conducted, extent and limitations, procedures and problems, and prospect for continuation. There is considerable material on Federal programs such as Neighborhood Workers, Manpower Development and Training Act, and Job Corps, using the San Francisco Bay area as the primary example for each. The author sees the need for more public service employment. This book might be considered background information on the subject of this bibliography but a researcher might find a clearer delineation of programs for the private and public sectors of employment in publications listed above.

Levitan, Sar A. and Garth L. Mangum

Federal training and work programs in the sixties. Ann Arbor, Univ. of Michigan and Wayne State University (Institute of Labor and Industrial Relations, P.O. Box 1567, Ann Arbor, Mich. 48106), 1969. 465 p.

Since 1966, the Institute has published a series of Policy Papers in Human Resources and Industrial Relations. These have now been brought together in one volume and updated; the authors' March 1967 "Making sense of Federal manpower policy" is included. The book traces "the development of manpower policies aimed at improving the employability of . . . [the] relatively disadvantaged," reviews "the seven major programs funded by the federal government," and discusses administrative problems. The authors comment unfavorably on the recommendations of Dr. Eli Ginzberg, Columbia Univ. economist who is chairman of the ten-member National Manpower Advisory Committee. (The committee holds quarterly meetings and sends recommendations on manpower problems directly to the Secretaries of Labor and Health, Education, and Welfare. It was created in 1962 to serve as an advisory group and has representatives from such fields as education, training, labor, and the general public.) There are conclusions and recommendations at the end of each chapter, with source material listed in footnotes. Index.

Nixon, Russell A.

Legislative dimensions of the new careers program. New York, Center for the Study of Unemployed Youth, 1967. 31 p.+. (Manpower training series)

This pamphlet gives a useful review of pertinent Federal legislation affecting the development of new careers in public service. (There is supposed to be an updated and expanded version of this text, but we were not able to obtain it.)

U.S. Congress. Senate. Committee on Labor and Public Welfare. Subcommittee on Employment, Manpower, and Poverty.

Examination of the war on poverty: staff and consultant reports, Washington, D. C., U.S. Government Printing Office, Aug. 1967. 2 vols. (90th Cong./1st sess.)

Four projects which are considered prototypes of local manpower programs are reviewed. There is a fine article by Garth L. Mangum on "Manpower programs in the antipoverty effort" and a state-by-state analysis of the Manpower Development and Training Act including the Manpower Coordinating Committee's structure and an operation manual prepared by the U.S. Employment Service.

Wolfbein, Seymour Louis

Education and training for full employment. New York, Columbia Univ. Press, 1967. 264 p. $6.95.

This book contains useful material on training needs and methods, including the use of indigenous workers in anti-poverty programs as well as training and retraining programs for other types of jobs. The author reviews progress to date in Federal programs to bring about full employment. His other titles include:

"Employment and unemployment in the United States," Chicago, Science Research Assoc., 1964, which gives a general background survey of employment, including definitions, patterns, concepts, and technical structure of sources of information on the labor force.

"Employment, unemployment and public policy," New York, Random House, 1965, which stresses the need for affirmative manpower policies and programs of education and training to achieve the goal of maximum productive employment.

"Occupational information: a career guidance view," New York, Random House, 1968, which could serve as a handbook to occupations and their requirements for counselors.

SOURCES: OTHER

Albert Einstein College of Medicine.

See Yeshiva Univ. below.

Bank Street College of Education, 216 West 14th St., New York, N. Y. 10011.

An annotated bibliography on auxiliary personnel in education. Prepared for the U.S. Office of Education, Jan. 1969. 94 p.

Once the reader distinguishes between nonprofessionals, meaning disadvantaged indigenous persons, and paraprofessionals, meaning those with at least high school diploma and perhaps college degrees in fields other than education, this volume should be of use. The annotations are clear, there is an alphabetical title index, and the bibliographic information is fairly adequate for obtaining the material if you have access to a major library.

Bureau of National Affairs, 1231 25th St., Northwest, Washington, D. C. 20037, 202/223-3500.

Fair employment practices. Binder no. 6, Policy and Practice Series. $100.00 a year.

A binder of looseleaf material, supplemented biweekly, and available on subscription only from this private organization. It says it is a "comprehensive guide to federal and state laws dealing with equal opportunity in employment, providing full texts of laws and regulations, summaries of court rulings, and clear explanations of what can and can't be done in this area."

Manpower information service. $396.00 a year.

A promising new (Sept. 24, 1969) looseleaf binder service covering all aspects of employment and training programs, contract application procedures, legislation, directory of organizations, and other useful material. Consists of two binders: Permanent reference file and biweekly manpower reports.

Center for the Study of the Unemployed, New York Univ. Graduate School of Social Work, 853 Broadway, New York, N. Y. 10003.

The name was changed from Center for the Study of Unemployed Youth and the purpose broadened in 1968 to include all unemployed. We have not yet seen any publications issued by the new organization.

Center for the Study of Unemployed Youth (see above).

Operating under grants provided by New York University and the Federal government, the Center followed a program of research, technical assistance, and preparation of training manuals and programs "to contribute to knowledge of the multiple problems faced by unemployed youth . . ." Specific titles which are reviewed in other sections are:

Bingham, William C., "Counseling services for unemployed youth"
Cole, Edward, "Work programs and the youthful offender"
Lesh, Seymour, "The nonprofessional worker in youth employment programs"
Nixon, Russell A., "Legislative dimensions of the new careers program"

Center for Youth and Community Studies, Howard Univ., Washington, D. C.

This organization became the Institute for Youth Studies before it disbanded. Its publications are in the hands of the University Research Corporation (see entry) and are slowly being reprinted.

Contra Costa Council of Community Services, 2717 North Main St., Suite 9, Walnut Creek, Calif. 94596, 935-0921. (Richmond Community Development Project)

From letter: "CCS organization projects terminated over two years ago. No ongoing projects —organization in process of dissolving its corporate structure." The final report of this organization is available from the Clearinghouse for Federal Scientific and Technical Information (see entry): "Richmond Community Development Demonstration Project, Calif.," Aug. 1967. 61 p., no. PB176359, $3.00. It discusses recent developments in police, schools, and community organization projects with a more detailed discussion of experience with the probation department not reported in earlier publications. There are valuable job descriptions and "know-how" for establishing programs. The final section provides statistical information on the project and lists publications and reports issued. There is also a section on the impact on the community of the new careers program. Other publications are $1.00 each if still available from the Council and are reviewed under author entry:

"Community development in low income areas: its relevance to problems of the Negro community" by Harry Specht (no. 104)
"The Development of 'new careerist' positions in the Richmond Police Department" by Gordon E. Misner (no. 103)
"Job Creation: a means for implementing a public policy of full employment" by Harry Specht and Robert Pruger (no. 109)
"New Careerist Casebook number one: school community workers" by Allee Esters and others (no. 112)
"New Careerist Casebook number two: police community aides and probation aides" by Noble E. Coleman and others (no. 113)
"New Careerist Casebook number three: community workers and research aides" by Arthur Hawkins and others (no. 114)
"New careers and community development: The community worker" by Robert Pruger and Anatole Shaffer (no. 115)
"New careers and the person" by Robert Blauner and Anatole Shaffer" (no. 116)
"Working with organizations to develop new careers programs" by Robert Pruger and Harry Specht (no. 110)

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Howard Univ.

See Center for Youth and Community Studies above and entry under University Research Corporation.

Information Retrieval Center on the Disadvantaged.

See entry under Yeshiva Univ.

Institute for Justice and Law Enforcement (Washington, D. C.).

See University Research Corporation.

Institute for the Study of Crime and Delinquency, Crocker Citizens National Bank Building, 400 Capitol Mall, Sacramento, Calif. 95814. J. Douglas Grant, 3377 Sierra Oaks Drive, Sacramento, Calif., Program Director.

It appears that this is a specialized offshoot of the New Careers Development Project in the state and that the group concentrates on studying methods for utilization of offenders and delinquents in the correctional system. One example of its work is:

Grant, J. Douglas, "The offender as a correctional manpower resource," which describes a model demonstration project training 18 prisoners as community organizers or "program development assistants" in 1964.

Other material supplied by the organization, not relevant to this bibliography, was dated 1966 to 1967. No current material or other information as to its operation could be obtained.

Institute for Youth Studies. Howard Univ.

See Center for Youth and Community Studies and entry under University Research Corporation.

Institute of Labor and Industrial Relations of the Univ. of Michigan and Wayne State University, Publications Office, P.O. Box 1567, Ann Arbor, Mich. 48106.

This organization puts out some very good pamphlets relevant to this bibliography (see titles by Mangum and Levitan, for example). It is also the publisher of three computerized bibliographies, which were reviewed for possible use in this publication. We found these biblographies of as dubious value as other computerized material because the entries are so frequently inaccurate or incomplete and so much of the material included is ephemera. With these cautions in mind, the researcher can peruse the material for his own purposes. The Institute itself was unable to clarify or locate material requested by letter. The bibliographies are:

Document and Reference Text (DART)

An index to minority group employment information, listing 5,000 documents dealing with minority group employment and related problems in full title. KWIC* format, 1967. 650 pp. $22.50.

Index to Poverty, Human Resources, and Manpower Information

KWIC* and KWOC* format provides direct access to major writings of the 1960's in this field with 1500 bibliographic entries cross-referenced by author, subject and title. 508 pp. $20.00.

(*KWIC means key word in context; KWOC means key word out of context)

Poverty and Human Resources Abstracts (PHRA), vol. 1, Jan./Feb. 1966 to date.

Published six times a year, each issue of PHRA contains 200 abstracts drawn from publications of government agencies, private foundations, major journals, periodicals and books, unpublished papers, conference reports, and literature referred by specialists on problems of poverty, manpower, and human resources. Featured in each issue is an original article on major problems and issues of contemporary society and a special report on the Washington scene. Each paperbound issue contains a detailed index. Annual subscription $40.00 with annual index volume.

Lincoln Hospital Mental Health Services.

See Yeshiva Univ.

Millman, Linda I. and Catherine S. Chilman

Poor people at work: an annotated bibliography on semi-professionals in education, health, and welfare services. Washington, D. C., U.S. Dept. of Health, Education, and Welfare, Intramural Research Division Office of Research, Demonstrations, and Training, [n.d.] 40 p. (GPO no. 863-126)

It's a shame that much of the material listed in this thorough bibliography is not generally available. The titles done by Howard University, by the Contra Costa Council, and by Mobilization for Youth, for example, are out of print and have been discarded by libraries as ephemera. The thoughtful introduction to the bibliography discusses the literature in the field and recommends some gaps to be closed. The supplemental bibliography, "Employment of disadvantaged minority groups" of the Office of State Merit Systems (HEW) is so limited as to be virtually useless.

Mobilization for Youth, 214 East Second St., New York, N. Y. 10009.

Master annotated bibliography of the papers of the Mobilization for Youth: published, unpublished, and presented at conferences, 1965.

The MFY is a multi-discipline social agency located on New York's lower East Side. It conducts juvenile delinquency action-research programs pre-dating the Economic Opportunity Act of 1964. This bibliography lists material which may be useful if you can obtain it. We had no luck, either at the Library of Congress, or by writing to MFY. One publication we were able to review was:

"New Occupations Demonstration Project, 1968"

The project consisted of two programs: "I. The New Health Occupations Program, a prototype training program in new health careers . . . [and] II. The New Occupations Development Program . . . to extend MFY's training prototype to additional new careers . . . " The final report consists of a volume on each topic. Part I was published Aug. 30, 1968 (58 p. of text and 53 p. of appendix) and covers in fine detail the development, crises, and resolution of the project, with projections for the future and suggestions for varied applications. The appendixes describe jobs, reprint forms, and give statistical analyses of the original test group. Part II was published Sept. 3, 1968 (69 p., five appendixes). It details the development of new careers in both public services and private industry, although the latter are also applicable to the former field. In both practical detail and analysis of experience these are extremely useful publications.

"Making post-secondary education more accessible to new careerists" was a one-day working conference held Nov. 12, 1968, as an outgrowth of the original project. It too is a constructive and useful guide in frank language.

National Committee on Employment of Youth, 145 East 32nd St., New York, N. Y. 10016. Eli E. Cohen, Executive Secretary.

A demonstration on-the-job training program for semi-professional personnel in youth employment programs; final report. 1965. 78 p.

Under a Dept. of Labor contract, this nonprofit, nongovernmental agency conducted this demonstration project to show "the value of employing 'indigenous' adults as semi-professional workers in youth employment programs or agencies." Sixty adults, in three groups, attended a 12-week program which combined on-the-job training, field trips, and classroom discussion and evaluation.

This report is a detailed, documented, analytical survey of the entire program, presented in a well-organized manner and should be quite useful.

National Institute for New Careers. (Washington, D. C.).

See University Research Corporation.

New Careers Development Center, New York Univ., Room 238, East Bldg., Washington Square, New York, N. Y. 10003, 212/598-2695, Sumner M. Rosen, Director of Research.

Until recently only limited copies of brief mimeographed papers were available from this organization. Therefore, many of the titles which can be found in other bibliographies are no longer available and, because of their makeup, have been discarded as ephemera by libraries. We list below only those which are particularly pertinent and which an effort should be made to obtain. In addition, a current bibliography should be requested.

The Center also publishes a *Newsletter*, available for $5.00 a year, which includes receipt of all mimeographed publications issued by the NCDC, and a series called *Social Policy* issued irregularly.

Unless a price is cited, the following publications are free upon request:

A listing of new careers legislation, June 1969. 14 p. 50 cents.

Cudaback, Dorothy, "Preliminary report of welfare service aide project," March 27, 1967. 6 p.

Elston, Patricia, "New careers in welfare for professionals and non-professionals," Dec. 1967. 19 p.

Gartner, Alan, "Do paraprofessionals improve human services: a first critical appraisal of the data," June 1969, 45 p. (See entry elsewhere; this is printed.)

Gould, Richard J., "Guide to funding new careers programs," June 1969 (rev. ed.). 127 p.

Greenberg, Barry, "Review of literature relating to the use of nonprofessionals in education (from 1942 to 1967)," Nov. 1967. 17 p.

Linn, Karl and Lee E. Jacobson, "Training for urban environmental para-professional careers in model cities," June 1967. 14 p.

Riessman, Frank and Alan Gartner, "The instructional aide: new developments," Jan. 1969 (*Social Policy* no. 5). 15 p.

Riessman, Frank, "Issues in training the new nonprofessional," March 1967. 29 p.

Riessman, Frank, "Some suggestions for cities planning new careers programs," March 1967. 4 p.

Training Laboratory, "A design for large scale training of sub-professionals," May 1967. 8 p.

Wiley, Wretha, "Designing jobs and careers in model cities program," Sept. 1967. 20 p.

New Careers Development Organization, 1013 Harrison St., Room 203, Oakland, Calif. 94607, 415/832-7713, Richard Ontineros, Executive Director.

See Institute for the Study of Crime and Delinquency.

New York Univ. Graduate School of Social Work.

See Center for the Study of Unemployed Youth.

Project CAUSE.

The project was funded for the summers of 1964 and 1965 by the Dept. of Labor's Bureau of Employment Security to focus on the training of counselors for disadvantaged youth. Although the nonprofessionals who were trained were college-level youth, other youth programs could not have functioned effectively without them because of the shortage of trained counselors. In addition, the curricula and training procedures which were set up to train these nonprofessionals could be adopted for the training of others with less formal education since some of the Youth Advisors had less than high school education. The Dec. 1964 issue of *Employment Service Review* (vol. 1, no. 12) covers the Project in several articles:

Harris, John K., "CAUSE points a new direction," pp. 43-45.

Kráng, Harry. "New challenges for counselors," pp. 38-41.

See also entries for:

Bingham, William C., "Counseling services for unemployed youth."

Gordon, Jesse E., "Project CAUSE, the Federal anti-poverty program, and some implications of subprofessional training."

For the view of a counseling professional opposed to the use of nonprofessionals and to Project CAUSE, read Hansen, D. A., "Functions and effects of subprofessional personnel in counselling," in John F. McGowan, *ed., Counselor development in American society,* OMAT Contract, June 1965, pp. 211-233.

W. E. Upjohn Institute for Employment Research, 300 South Westnedge Ave., Kalamazoo, Mich. 49007, and 1101 Seventeenth St., Northwest, Washington, D. C. 20036, 223-4747.

The Institute was established in July 1945 as a nonprofit research organization which irregularly publishes staff reports on various aspects of employment in pamphlet form. Single copies are available free and a publications list will be sent upon request. Typical publications are:

Burt, Samuel M. and Herbert E. Striner, "Toward greater industry and government involvement in manpower development," 21 p. (Sept. 1968), which deals with private industry.

Sheppard, Harold L. and Herbert E. Striner, "Civil rights, employment, and the social status of American Negroes," 85 p. (June 1966), which reviews "briefly relationships of employment, income, and family structure to civil rights" and urges programs "to stimulate the design of new policies."

Striner, Herbert E., "Toward a fundamental program for the training, employment and economic equality of the American Indian," 33 p. (March 1968), which presents history, educational problems, and the work of the Bureau of Indian Affairs in the field.

See also entries under:

Fine, Sidney A.

Levitan, Sar A.

Sheppard, Harold L.

Yeshiva Univ., Amsterdam Ave. and 186th St., New York, N. Y.

Once upon a time, the University ran an Information Retrieval Center on the Disadvantaged. The Center produced a great many publications which are not available at the Library of Congress or from the Center, but which are often listed in bibliographies or source material. The University was also responsible for the Lincoln Hospital Mental Health Service of its Albert Einstein College of Medicine which also produced a lot of material no longer available. The Information Retrieval Center is no longer at Yeshiva University. It moved to Teachers College at Columbia University and became one clearinghouse branch of the Educational Resources Information Center (ERIC) (see entry under U.S. Dept. of Health, Education, and Welfare.).

A bibliography prepared by the Information Retrieval Center at Yeshiva was of some use in the preparation of this bibliography, but it must be used with great care because of the inaccuracies of many of its entries (author's name, incomplete entry, date, etc.) and it includes much unpublished and generally unavailable material. "The nonprofessional in human services," prepared by Yeshiva University's Information Retrieval Center on the Disadvantaged, may be found in *Poverty and Human Resources Abstracts,* vol. 2, no. 4, July-Aug. 1967. It bears the disclaimer: "The bibliography includes citations which do not directly pertain to the indigenous nonprofessional. Materials are cited which deal with a wide variety of staff who lack professional study, including many individuals who are neither poor nor residents of socially disadvantaged communities."

Yeshiva University. Albert Einstein College of Medicine. 333 Southern Blvd., New York, N. Y. 10454.

Lincoln Hospital Mental Health Services. Dr. Harris B. Peck, Director.

In Feb. 1965 the hospital established its first Neighborhood Service Center in the South Bronx. It was staffed with six nonprofessional mental health aides under the supervision of a professional. By March 1969 two more such centers had been established and over 50 aides trained. Unfortunately, the material written about the project and for the training of such aides was of such an ephemeral nature that it is not now readily available to researchers, except, perhaps, from someone's old files.

SOURCES: PERIODICALS

American Child.

See *New Generation.*

Harvard Business Review, Soldiers Field, Boston, Mass. 02163, 617/547-9800. Published bimonthly by the Graduate School of Business Administration, Harvard Univ. $12.00 a year.

Although their many articles on the training and employment of the disadvantaged deal with experiences in the private rather than the public sector, it is worth checking this magazine regularly. Such articles as: "Successful experience: training hard-core unemployed" by James D. Hodgson and Marshall H. Brenner (Sept.-Oct. 1968, pp. 148-155) and "Window on the hard-core world" by Theodore V. Purcell and Rosalind Webster (July-Aug. 1969, pp. 118-129) give valuable insights no matter where the new career is established.

New Generation, a quarterly publication of the National Committee on Employment of Youth (see entry), 145 East 32nd St., New York, N. Y. 10016, $3.00 a year.

Each issue is devoted to a separate topic dealing with youth. The Winter 1967 issue, for example, (vol. 49. no. 1) contains articles by Frank Riessman, Edith Lynton, Sherman Barr, and Mark Battle, as well as a forum in which Eli Cohen and others were participants, all of which discuss various aspects of "The new nonprofessional." It's a fairly general and rather elementary survey, discussing theories, attitudes, and pitfalls of new careers, complete with examples and practical situations.

The title change from *American Child* in the summer of 1967 (vol. 49, no. 3) was intended to reflect the wider range of subjects being presented: youth, employment, automation, discrimination, the war on poverty, the job market, and education.

Occupational Outlook Quarterly, a regular publication of the U.S. Dept. of Labor, Bureau of Labor Statistics, available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, for $1.50 a year.

This is a popularly written periodical intended to keep readers up to date on developments in the field of manpower and occupational research and on legislative, education, and training developments helpful to young people making career plans. Includes book reviews.

Personnel Psychology: a journal of applied research. Dr. John A. Hornaday, Jr. *ed.,* Box 6965, College Station, Durham, N. C. 27708. Published quarterly at $10.00 a year.

This scholarly journal is intended for the personnel specialist and publishes material reporting research methods, research results, or the application of research results to the solution of personnel problems in business, industry, and government. It is indexed in *Business Periodicals Index* and *Psychological Abstracts.*

Public Health Reports, published monthly by the Dept. of Health, Education, and Welfare; available for $6.50 a year from the Public Health Service, Bethesda, Md. 20014.

Recent issues have had several articles on health aides and other community uses of indigenous workers. *Reports* has been published by the Service in one form or another since July 13, 1878.

Public Personnel Review, Kenneth D. Warner, *ed.* Public Personnel Association, 1313 East 60th St., Chicago, Ill. 60637. Published quarterly at $8.00 a year.

The official journal of the Public Personnel Association includes bibliographies and book reviews and an annual self-index as well as personnel opinions and new concepts and activities in public personnel administration.

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II. GENERAL

This section begins with a few titles on manpower projections, the existence of specific social problems related to our subject, and discussions of the need to create new jobs. Those titles selected from the plethora of material in these fields should serve as appropriate background to this bibliography. Over 40 titles more or less in this category were discarded because they were too abstract, or gave only very general information on poverty, or were selections from broad-based symposia or conferences whose participants are all amply represented in this text, or because they were generalized manpower or unemployment studies whose statistics did not specifically provide information on the disadvantaged.

Among those discarded were a few borderline titles it might be useful to mention:

Becker, Joseph M., "In aid of the unemployed," Baltimore, Johns Hopkins Press, 1965, 317 p., the last chapter of which has been expanded into "Programs to aid the unemployed in the 1960's," Jan. 1965, W. E. Upjohn Institute.

Conference on Unemployment and the American Economy held in Berkeley, Calif. in 1963 which resulted in a series of books edited by Arthur Max Ross or Robert Aaron Gordon.

Efthim, Alex, "We care in Kansas: the nonprofessionals revolt," *The Nation*, vol. 207, no. 3, Aug. 5, 1968, pp. 70-72, describing a protest movement by psychiatric aides against the kind of care provided patients and the lack of a career ladder.

Ginzberg, Eli, "Advice to the Urban Coalition," *Reporter*, vol. 37, no. 3, Sept. 7, 1967, pp. 18-20, for an example of the thoughts of the Chairman of the National Manpower Advisory Committee of the Dept. of Labor.

Following this general material are two sections on new careers: one on "whys and hows" and one on new careers in the public sector.

GENERAL: SOCIAL PROBLEMS AND MANPOWER

Barokas, Rifat, "New careers can be created for the poor," *Training and Development Journal*, vol. 22, no. 8, Aug. 1968, pp. 12-14.

There is no need to create new jobs for new careers, says the author; jobs in sales and related fields are already available. As an example, he says that in his project 296 persons were selected for hiring and, after two weeks of intensive training, 60% were employed.

Chamber of Commerce of the U.S.A. Task Force on Economic Growth and Opportunity [third report], 1615 H St., Northwest, Washington, D. C.

The disadvantaged poor: education and employment, 1966. 447 p. $5.00.

This is ". . . an attempt to contribute to a more enlightened discussion of poverty. The Task Force does not pretend that its study is definitive." The papers of 13 authorities in the field are reprinted in full and cover a full spectrum of ideas. The recommendations, however, are uniquely those of the Chamber of Commerce: number 18, for example, reads: "Government programs should be refocussed increasingly toward helping the hard-core unemployed. Massive federally financed employment programs in public and nonprofit jobs should be avoided." Number 22 reads, in part: "The appropriate sections of the Civil Rights Act of 1964 should be enforced equally with respect to business, industry and labor," and number 25 reads in part: "Special efforts to reach minority group members and to test their aptitudes and performance should be encouraged." In general, this is a useful summary of the situation as it existed in 1966.

Dentler, Robert A., *ed.*

Major American social problems. Chicago, Rand McNally, 1967. 530 p.

A general textbook on social problems. There is an overall statement of problems supplemented by readings written by other experts on various broad aspects of each problem. There is no detailed or specific material; the book as a whole constitutes background on the topic. A section on "readings" substitutes for a bibliography.

Gold, Harry and Frank R. Scarpitti, *eds.*

Combatting social problems: techniques of intervention. New York, Holt, Rinehart & Winston, 1967. 580 p.

A collection of readings which cites the availability of general statements on problems and the lack of material on alternative courses of ameliorative action. In an attempt to fill this gap the editors have collected descriptive materials on major existing and emerging programs and policies in nine principal social problem areas.

Intended as introductory survey of the techniques of intervention, the book contains useful background material: *e.g.* Harry C. Bredemeier's statement of public service employment as a means of dignified re-entry into the labor market through use of the poor in programs of service to the poor. There are some bibliographies for the introductory chapters.

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Greenleigh Associates, Inc., 355 Lexington Ave., New York, N. Y. 10017.

A public employment program for the unemployed poor [OEO contract 566], Nov. 1965, 96 p.

After reviewing data on characteristics of the unemployed poor, the bulk of this report covers identification of existing job classifications which might utilize trained nonprofessionals and estimates the numbers and types of positions which could be made available. In addition, it suggests a plan for the organization, administration, and operation of such a program. There is also detailed historical assessment of public reaction to policy in this field. A valuable guide, with appendixes and charts.

Levine, Louis, "The antecedents of our currently changing manpower concepts" in "Trend," *Poverty and Human Resources Abstracts*, vol. 3, no. 1, Jan.-Feb. 1968, 13 p. supplement.

The text offers an analysis of changing manpower concepts since World War II, including summaries of the labor market, population changes, and the emergence of governmental manpower policies. On page 12 is a discussion of the Neighborhood Youth Corps (Dept. of Labor), Job Corps (OEO), Work-Training Program of HEW, and Community Action Programs (OEO) which emphasize "work-site training through either public employment or private nonprofit employment. In general these training activities emphasized improving the characteristics needed for work readiness and orientation to the labor market rather than skill development and occupational training." The programs are for "youths in the severely disadvantaged groups ages 16 through 21 . . ."

This is a well-written article providing perspective and a brief listing of government activities in the field. It gives clues on agencies to contact for possibly relevant material.

Levitan, Sar A. and Garth L. Mangum, "Programs and priorities," *Reporter*, vol. 37, no. 3, Sept. 7, 1967, pp. 20-22.

This generalized statement of the "employer of last resort" concept emphasizes the need to create public employment of other than the WPA variety. The authors say that the increasing awareness of Congress is evidenced by the number of bills introduced calling for public service employment opportunities. They feel the prospect for passage of these is not bright because we have not yet made the necessary public commitment.

National Advisory Commission on Civil Disorders.

Report . . . [Kerner report], New York, Bantam, March 1968. 608 p.+ charts. $1.25. (Also available in editions by U.S. Government Printing Office and E. P. Dutton and Company, 201 Park Ave. South, New York, N. Y. 10003.)

One of the Commission's many recommendations for national action is for "a comprehensive national manpower policy." Suggestions for such a policy range from generalized "Goals and objectives" (p. 414) through "Creating one million new jobs in the public sector in three years" (p. 420) to "Encouraging business ownership in the ghetto" (p. 424). These manpower proposals are summarized in "Manpower proposals of the President's Commission on Civil Disorders," *Monthly Labor Review*, vol. 91, no. 4, April 1968, pp. 37-41.

A recent evaluation of progress (or lack of it) in this field may be found in Urban America, Inc. and the Urban Coalition, "One year later: an assessment of the nation's response to the crisis described by the National Advisory Commission on Civil Disorders," 1969. p. 9ff. (available from The Urban Coalition, 2100 M St., Northwest, Washington, D. C. 20006).

Theobold, Robert, *ed.*

Social policies for America in the seventies: nine divergent views. Garden City, N. Y., Doubleday, 1968. 216 p.

Of the nine chapters, seven are articles discussing various approaches other than new careers to the problems of poverty: guaranteed income, capital ownership, and changes in education. The only two chapters which are pertinent are:

Garth Mangum's "Guaranteeing employment opportunities" (pp. 25-55), which is an analysis of the Feb. 1966 report of the National Commission on Technology, Automation, and Economic Progress, particularly the section on government as an employer of last resort. There is a good review of the history of various projects and details of present programs.

Arthur Pearl's "New careers: one solution to poverty" (pp. 77-104) gives the background and meaning of new careers with particular emphasis on teachers' aides as an example of what can be done. There is some discussion of the problems of recruitment, career ladders, general long-range projections, and integration into the field or acceptance of these workers by the professionals. There is no index.

Two other books in the field of labor economics by this editor are: "Free men and free markets," New York, Potter, 1963, and "The guaranteed income. next step in economic evolution?" Garden City, N. Y., Doubleday. 1966.

U.S. Congress. Joint Economic Committee.

Federal programs for the development of human resources. (89th Cong./2d sess.) Washington, D. C., U.S. Government Printing Office, Dec. 1966. 1308 pp. in 3 vols.

"Part III is a detailed reproduction of statements received from government agencies and departments, covering objectives, history, scope, level of operative administration coordination, expectations projected for 1970, and economic aspects and impacts of the many federal programs. . . . Special interest is expressed in programs that involve education and training . . . [for] employment. . . ."

Volume three might be of use to those in state and local government whose responsibility is the finding of funds to finance local manpower programs.

U.S. Congress. Senate. Committee on Labor and Public Welfare. Subcommittee on Employment, Manpower, and Poverty.

Hearings . . . on S. 3063 . . . S. 3249 . . . S. 2938. 726 pp. (90th Cong./2d sess.) Washington, D. C., U.S. Government Printing Office, 1968.

This report of subcommittee hearings in March, April, and May of 1968 deals largely with testimony of a general nature ("we should have . . .", "we urge that funds be appropriated for . . .", etc.) on the proposed "Emergency Employment and Training Act" which would create "1.2 million public service jobs in local, urban and rural poverty areas throughout the country. . . ." There are a few detailed reports included which would be of some value to those interested in specific work in the field and a list (pp. 2 and 3) of background material considered by the subcommittee and not reproduced. Garth Mangum's "Evaluating Federal manpower programs" and Harold Sheppard's "Preliminary report on public service employment needs in cities with 100,000 population or more" are examples. The rest is the usual miscellany of generalized statements by experts in the field summarizing what they have written and said elsewhere, and generalized commentary on newspaper articles and the problems of unemployment of the disadvantaged. A number of localized projects are mentioned and discussed briefly, but there is no index, although there are many interesting charts and tables.

U.S. Dept. of Labor. Bureau of Labor Statistics.

Tomorrow's manpower needs. Washington, D. C., U.S. Government Printing Office, Feb. 1969. 4 vols. Bulletin no. 1606.

This authoritative source is an annual compilation of manpower statistics, national manpower projections, and a guide to their use. It is a basic tool in the development of state and local manpower projections.

Vol. 1. Development area manpower projections.

Vol. 2. National trends and outlook: industry employment and occupational structure.

Vol. 3. National trends and outlook: occupational employment.

Vol. 4. The national industry: occupational matrix and other manpower data.

The work by Leonard A. Lecht on manpower projections is abstracted from these volumes.

Zalinger, Alvin D., "Job training programs: motivational and structural dimensions" in "Trends," *Poverty and Human Resources Abstracts,* vol. 4, no. 3, May-June 1969, pp. 5-13.

This reprint of a paper presented at the Research Utilization Conference on Rehabilitation in Poverty Settings (Nov. 12-15, 1968, Lexington, Mass.) states that present training programs have failed for a variety of reasons. Some individuals have benefited, says the author, "but any truly significant improvement in effective training and rehabilitation for large numbers of the poor can only be realized when decent job opportunities exist—jobs which insure wages above the poverty line, which are meaningful and . . . will have a built-in progression."

GENERAL: NEW CAREERS "WHYS AND HOWS"

Books and Monographs

American Public Welfare Association, Technical Assistance Project, 1545 East 60th St., Chicago, Ill. 60637.

Public welfare—a challenge to validity; supplement no. 5: Employment of the poor as preprofessionals by John E. Hiland, Jr., July 1968. 17 p. (Also available from the President's Council on Youth Opportunity, 801 19th St., Northwest, Washington, D. C. 20506, 202/382-1534.

Supplement no. 5 is one of the specific proposals discussed in the more general policy position paper on public welfare in general. "It asks public welfare administrators and their staff to consider the possibility that they already have at hand, largely unused, the solutions to some thorny problems." The paper goes on to detail how indigenous preprofessionals can be used in the field.

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Center for the Study of Unemployed Youth.

Summary of proceedings: workshop on nonprofessional careers for disadvantaged youth, Dec. 14-15, 1966. New York. 141 p. (Manpower training series)

Fifty persons with special experience and interest in nonprofessional careers explore the basic issues raised by their experiences and attempt to suggest future action. Basic issues, such as needed changes in civil service regulations, are discussed. The appendixes include reprints of the enabling legislation and three pages of examples of new career positions which might be developed. A useful guide.

Center for the Study of Unemployed Youth.

Summary of proceedings: workshop on job development for disadvantaged youth, June 14-15, 1967. New York. 102 p.+

How can job training lead to career opportunities? Some 65 experts concerned with employment, job development, and the labor market discussed job development for the disadvantaged, including the role of civil service, the removal of artificial employment barriers, and the need for upward mobility.

Community Programs and Training Consultants, Inc., Washington, D. C., James W. Carper, Director.

The non-professional in experimental and demonstration projects, Aug. 1966. 42 p.+. Clearinghouse no. PB180-141, $3.00.

This group determined the areas of work performed by the nonprofessional to see if they had been designed specifically for this purpose or would normally be done by professionals. In addition, they investigated the reasons for recruitment, experiences in use, and the need for training. The conclusions seem fairly elementary and the report as a whole contributes little to general knowledge. "The universe surveyed for this study included a wide variety of agencies," says the author. His conclusions are based on 33 replies to a questionnaire and interviews with 55 people. No sources of information or specific agencies are cited.

[Ferman, Louis]

Job development for the hard to employ. Washington, D. C. U.S. Dept. of Labor Manpower Administration, June 1968. 119 p. (Contract 82-24-68-20; U.S. Government Printing Office no. 1969 0-356-142)

Only one chapter, "Job development in the public sector: new careers and subprofessionals," is devoted to public employment, but it is an excellent statement of the problems to be anticipated and the steps to be taken to remedy them. Since differences in approach by the public and private sectors are clearly defined, much of the material pertaining to private industry in the rest of this study could prove useful.

Fine, Sidney A.

Guidelines for the design of new careers. Kalamazoo, Mich., W. E. Upjohn Institute for Employment Research, Sept. 1967. 23 p.

The author advocates the development of career ladders for new career jobs and includes specific recommendations for titling, structuring of tasks, performance guidelines for evaluation, and in-service training.

Fishman, Jacob, Arthur Pearl and Beryce MacLennan, *eds.*

New careers: ways out of poverty for disadvantaged youth, a conference report. Washington, D. C., Howard Univ. Center for Youth and Community Studies, 1965.

See below: Howard Univ. Institute for Youth Studies, "New careers for the disadvantaged in human service."

Grosser, Charles

The role of the nonprofessional in the manpower development programs. Submitted for Operation Retrieval in fulfillment of Contract no. 82-34-66-22. [Only bibliographic data available; found in Dept. of Labor library.]

This report analyzes objectives, benefits, and problems related to the use of indigenous nonprofessionals. The author cites as a possible problem, for example, the establishment of dual systems of service in which nonprofessionals provide service in slum areas and professionals devote themselves to middle-class clients. There is useful general discussion but the report may not be generally available.

Haskell, Mark A.

The new careers concept: potential for public employment of the poor. New York, Praeger, 1969. 136 p. $10.00. (Special projects division, Frederick A. Praeger, 111 Fourth Ave., New York, N. Y. 10003.)

"For the nation as a whole, it is estimated that 5.3 million jobs could be created in the public sector to meet pressing needs . . ." Over one million of these would be in health fields, says the author, who writes about new careers programs in the health fields in New York City. He covers health labor supply, the new careers concept and its relevance, a redesign of the municipal hospital occupational structure, and the applicability of new careers to other fields in city government.

Howard University. Institute for Youth Studies, Jacob R. Fishman, director.

New careers for the disadvantaged in human service: report of a social experiment. Washington, D. C. [1965-1967] 269 p. (Available from University Research Corp., National Institute for New Careers.)

In spite of some jargon marring the text, this is a good basic handbook for those interested in the placement and general careers of the disadvantaged and not just their training. A list of the individual reports of the entire project, of which this text is a summary, is on p. 269 and two-thirds of the text presents a detailed sourcebook of all aspects of selection, training, testing, placement, and career progress reports in the fields of child counseling, mental health aides, teacher aides, and employment counseling. The 43 specific recommendations for a step-by-step method of implementation follow logically from the theoretical analysis which precedes them and take into consideration the same general problems acknowledged by other work in the field: the need for meaningful jobs, the antagonism of professionals, the training program, and career development.

This is a new edition of "New Careers: ways out of poverty for disadvantaged youth, a conference report" issued in 1965.

Kvaraceus, William C., John S. Gibson, and Thomas J. Curtin, *eds.*

Poverty education and race relations: studies and proposals. Boston, Allyn and Bacon, 1967. 226 p.

The book is useful only as background since only two chapters seem pertinent to this bibliography. The volume is a selection of papers from a television course on "Education and race relations" produced by the Mass. Dept. of Education on a grant from the U.S. Office of Education. It covers all aspects of the problem of being poor and of a minority race.

The two relevant chapters are: Martin L. Dosick's "Human relations in urban and suburban settings," which indicates an awareness of the need for innovative programs to employ displaced persons in the "public sector," and Arthur Pearl's "Education, employment and civil rights for Negro youths" which makes generalized statements on the use of the disadvantaged as school aides, guidance aides, and in other human service positions. Bibliography.

Lynton, Edith F.

The subprofessionals: from concepts to careers. A report of a Conference to Expand and Develop Subprofessional Roles in Health, Education and Welfare. New York, National Committee on Employment of Youth, Sept. 30, 1967. 117 p. $4.00.

The 66 participants in this June 1967 conference on developing subprofessional jobs in the public service fields for the disadvantaged were all practical people working in the fields of health, education, and welfare. So, in addition to the standard theories and general recommendations which come out of such conferences, a workable plan of action was formed. In order to find a reasonable balance between professional standards in each field and realistic careers for subprofessionals with minimal training, they recommend creation of practical models of employment which will fill actual gaps. Simultaneously, professional resistance must be overcome and a climate created for acceptance and utilization of trained subprofessionals. These recommendations are carefully analyzed in detail and specific ideas for implementation of programs applicable to both professional and civil service standards are made in the advance papers, the workshops, and the summary. Unfortunately there is no index, but there is a good brief bibliography and the language is clear and concise, with descriptions of many practical, working projects.

National Conference on Social Welfare.

The social welfare forum, 1968. New York, Columbia Univ. Press, 1968, 236 p.

The "Social welfare forum" is the official publication of the proceedings of the annual meetings of the National Association of Social Workers (2 Park Ave., New York, N. Y. 10016, 212/686-7128). The only pertinent article in this volume is that by George F. Rohrlech, "Work and income policies for the Negro in urban slums," pp. 78-93. The author advocates the creation of new careers jobs in the field of social work: a corps of guardians for police auxiliary work, a corps of teaching aides, and a corps of health aides. While he suggests this arrangement as offi-

cial policy, he does not state how it is to be implemented, especially fiscally.

The National Conference also publishes selected papers annually in its "Social Work Practice." However, in neither set of volumes, nor in the regular literature, has there been any material dealing with practical efforts to implement a new careers program in the social work field. The term "nonprofessional" as used in social work texts usually means persons with a college degree in other than social work, or well-educated volunteers.

Pearl, Arthur and Frank Riessman, *eds.*

New careers for the poor; the nonprofessional in human service. New York, Free Press, 1965. 273 p.

The basic thesis of the book is that the use of indigenous nonprofessionals in direct service jobs in the fields of health, education, and welfare is essential, both for employment of the disadvantaged and to fill the gap in needed services. Chapters 1-4 discuss the problem and support the thesis in a general fashion; chapters 5-7 discuss and illustrate in a limited way the possible employment of nonprofessionals; chapter 8 covers training needs; and chapters 9-11 are concerned with the problems faced in this new approach and some ways to overcome them. The appendix on "New career job descriptions" and the biblography are useful syntheses of work in the field to date of publication [1965]. Index. References after each chapter.

Powledge, Fred

New careers: real jobs and opportunity for the disadvantaged. (Pamphlet no. 427) Public Affairs Pamphlets, 381 Park Ave. South, New York, N. Y. 10016. 24 p. 25 cents.

A journalistic and simplified pamphlet on "why new careers," with a basic reading list, may be of use to those new to the subject who want informative and brief information in layman's language.

Pruger, Robert and Anatole Shaffer

New careers and community development: the community worker. Walnut Creek, Calif., Contra Costa Council of Community Services, April 1967. 46 p. (pub. no. 115, $1.00)

"Vocational roles must be built around the most elaborate and *existing* talents of the intended beneficiaries," say the authors. They feel that a new careers program is basically the search for such jobs and this booklet covers the explorations of their community project into the "catch-all and vague area often referred to as 'community development.' "

Pruger, Robert and Harry Specht

Working with organizations to develop "New Careers" programs. Walnut Creek, Calif., Contra Costa Council of Community Services, Oct. 1966. 52 p. (pub. no. 110, $1.00)

"This report on a job creation program deals with some of the problems encountered in the development of new jobs for poor people, and some of the ways the problems were solved." A theoretical approach to the field which covers such aspects as organizational barriers and how to overcome them, other types of resistance, and some strategies for initiation of new careers programs. Another in a very useful series.

Riessman, Frank

Strategies against poverty. New York, Random House, 1969. 114 p.

Although this text does not have an index or a bibliography, it is still a useful basic recent guide to our subject. Two chapters in particular are pertinent:

Chapter 3, "New careers," is a comprehensive review of Mr. Riessman's feelings about the importance of new careers as an approach to alleviating poverty as opposed to the differing approaches described in other chapters (the Alinsky method, for example). He gives some practical examples of his proposals. Chapter 9, "Training the nonprofessional," discusses various training methods (which are also discussed in Chapter 3) and offers some practical responses to problems which might arise.

The remainder of the book deals with two other major anti-poverty strategies and serves to put the new careers aspect into perspective. Chapter 10 on birth control (written by the author's wife) must be cited as being the clearest picture we have come across of the psychology of poverty. It also describes nonprofessional workers as a "highly significant new development in the field of family planning among the poor."

Riessman, Frank and Hermine I. Popper

Up from poverty: new career ladders for nonprofessionals. New York, Harper and Row, 1968. 332 p.

A reader of collected articles, this is a basic and necessary handbook for those interested in all aspects of the development of new careers. The articles range from those simply lauding this anti-poverty approach to those which specifically detail actual projects.

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Schmais, Aaron

Implementing nonprofessional programs in human services. New York, New York Univ. Graduate School of Social Work, Manpower Training Series (853 Broadway, New York, N. Y. 10003), Summer 1967. 83 p.

A sound basic handbook of all aspects of new career programs: training, problems encountered, job descriptions, testing, and career development. A good bibliography and a list of publications prepared by the school's Center for the Study of Unemployed Youth provide a solid background for more detailed reading. It is clearly written and without jargon for use by (and perhaps example for) professionals as well as laymen dealing with disadvantaged personnel.

Sexton, Brendan

The new careers movement: a useful weapon in the war against poverty. Washington, D. C., Citizens Crusade Against Poverty, 1967. 12 p. (Available from New Community Press, Inc., 3210 Grace St., Northwest, Washington, D. C. 20007 or on request from CCAP Training Program, 1220 15th St., Northwest, Washington, D. C. 20005.)

This reprint of a speech covers very briefly the new careers program, political obstacles, program hazards, and examples of some nonprofessional jobs which could fall within the province of the program.

Social Development Corporation

New careers job development, [n.d.] 54 p.

This is a how-to-do-it guide to the job development process intended for use within the agencies responsible for developing new careers programs. The emphasis is on job development in public agencies. (The SDC reports that this useful guide is now being revised.)

Specht, Harry

Community development in low-income areas: its relevance to problems of the Negro community. Walnut Creek, Calif., Contra Costa Council of Community Services, Feb. 1966. 49 p. (pub. no. 104, $1.00)

A pamphlet basic to the understanding of the work of the Richmond Community Development Demonstration Project discusses the attitude and approach this particular project took. The Negro community of Richmond in Contra Costa County, Calif., is described, as is the community organization which was designed to attack this community's problems, from work-study programs through early job training efforts. Future approaches are enumerated.

This pamphlet provides good background for one of the two main approaches to training the disadvantaged. Here they were trained specifically to help a particular community project and to become indigenous employees of government programs designed to alleviate the problems of their peers. The other new career approach, of course, is to train disadvantaged in jobs which are purposely designed to move them out of the community and into the mainstream of the middle class. Some of the former, of course, inadvertently result in the latter.

Specht, Harry and Robert Pruger

Job creation: a means for implementing a public policy of full employment. Walnut Creek, Calif., Contra Costa Council of Community Services, Sept. 1966. 47 p. (pub. no. 109, $1.00)

Although Contra Costa County, Calif. is used as a take-off point, this is a fine general discussion of new careers and the problems of establishment and implementation. Three main problems are cited: (1) the integration of nonprofessionals into the civil service system, (2) the numbers and types of persons recruited, (3) the establishment of career ladders. These are then analyzed and solutions are suggested.

Thompson, Margaret A., R. Frank Falk, and Edward C. Knop.

Job interests and job satisfactions of new careerists, [Minneapolis] Univ. of Minnesota General College and Minnesota Center for Sociological Research, Jan. 1969. 99 p. mimeo.

"This report deals with the application of a technical and highly developed series of measurements." It is broken down into three sections: interpretations (generalizations pulled from the body of the report), abstract (more detailed information summarizing and preceding each chapter), and the body of the text which is based on the Minnesota Importance Questionnaire (among others) measuring teacher and social work aides. Basically, the publication not only recommends which jobs should be assigned nonprofessional aides, but why. It is a good handbook for those involved in the actual matching of personnel and tasks, and suggests a plausible career ladder arrangement. The study is based on the Minnesota New Careers Program, a 50/50 work-study arrangement, and its personnel was utilized. It may be assumed (although it is not stated) that the

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proposals and recommendations made as a result of the project received practical testing. The text is clearly written with a minimum of jargon and should be understandable even to non-sociologists.

"A report to New Careerists" (8 p.) is a companion publication directed at those new careerists involved in the study, explaining the results to them. This is a human and understanding thing for the research staff to do, and they merit top marks for this alone.

There are additional publications by the same group; Larson, Patricia, Mary Bible, and R. Frank Falk, "Down the up staircase: a study of new career dropouts," May, 1969, 54 p., is an example. All are good and useful.

U.S. Dept. of Health, Education, and Welfare, Social and Rehabilitation Service, Washington, D. C. 20201.

Report to the coordinating committee on training and manpower development by the Task Force on the Use of Subprofessionals and Volunteers, July 31, 1969. 59 p.

This useful source book presents a survey of the various studies carried out or being conducted by HEW contractors as of date of publication. There are a brief survey of the literature and some bibliographies (including the one by the Information Retrieval Center on the Disadvantaged; see Yeshiva Univ.) The Task Force also makes recommendations with regard to development of community understanding, recruitment programs, training, etc.

Periodicals

Cohen, Audrey C., "The College for Human Services," *The Record* (Teacher's College, Columbia Univ.), vol. 69, no. 7, April 1968, pp. 665-682. (Reprint available from University Research Corporation, New Careers Information Clearinghouse. No. 6, March 1969.)

The Women's Talent Corps is a non-profit corporation organized in Sept. 1966 under the auspices of the Office of Economic Opportunity and the Dept. of Labor. Its object is to train mature women from ghetto neighborhoods for careers in community service. It now wants to start a two-year college as an outgrowth of its career-training institute. This good article describes the entire working of the program.

A later article (Featherstone, Joseph, "The talent corps: career ladders for bottom dogs," *The New Republic*, Sept. 13, 1969) also describes this program.

Cohen, Audrey C., "Women's Talent Corps highlights career development in ghetto areas," *Employment Service Review*, vol. 5, no. 12, Dec. 1968, pp. 32-37.

"To be effective, a career development program must establish new job classifications, new entry levels, and new routes of advancement—or career ladders—along which the new jobholders can progress. It must also provide a relevant, intensive educational and training course which will equip heretofore unqualified persons for such new careers. This is what the Women's Talent Corps was able to accomplish for 113 women in its first year of operation, and for 180 women during its second year."

This is a good detailed survey of the operation, which trained paraprofessionals for work in community service. (See Women's Talent Corps.)

Rudney, Shirley, "The Public Employment Service reaches out to the urban poor," *Occupational Outlook Quarterly*, vol. 13, no. 1, Spring 1969, pp. 8-11.

The U.S. Employment Service has changed its philosophy. Now it starts with potential workers and looks for jobs for them rather than vice versa. It has established various programs to reach the hard-core unemployed: Concentrated Employment Program, Work Incentive Program, and Jobs in Business Sector Program. A more detailed description of the JOBS program, designed for private industry, may be found in: *Employment Service Review*, vol. 5, nos. 5-6, May-June 1968, p. 2-9.

Sexton, Brendan, "Realistic vistas for the poor," *The Progressive*, vol. 29, no. 10, Oct. 1965, pp. 30-33. (Published in Madison, Wisc.)

The author states the case for hiring, training, and utilizing minority group members and the poor in nonprofessional roles (visible and nonmenial) in schools, social agencies, and civil service. Upward movement should be made possible and the role of professionals should be redefined in a more meaningful way. This is another basic statement without the specifics of "how."

GENERAL: NEW CAREERS—THE PUBLIC SECTOR

Books and Monographs

Advisory Commission on Intergovernmental Relations

Unshackling local government: a survey of proposals by the Advisory Commission on Intergovernmental Relations. (Rev. ed.) Published as Report No. 1270 of the U.S. House of Representatives, 90th Cong./2d sess. (Committee on Government Operations, Intergovernmental Relations Subcommittee), April 2, 1968. 71 p.

"The purpose of this report is to discuss some of the methods by which States might free local governments to handle many of their problems more effectively and expeditiously. It is intended to bring together for easy reference, and in the perspective of history, the recommendations and suggestions made for this purpose by the . . . ACIR [established 1959]."

Advisory Committee on Merit System Standards

Progress in intergovernmental personnel relations. Report . . . Washington, D. C., U.S. Government Printing Office, 1969. 130 p. 60 cents (no. 353-942) (Prepared for U.S. Dept. of Health, Education, and Welfare)

This very valuable guidebook relating administration of public personnel systems to social and public policy issues contains an excellent section (Part III) on the reconciliation of a merit system with the hiring of the disadvantaged.

Daniel Yankelovich, Inc., 575 Madison Ave., New York, N. Y. 10022.

A study of the nonprofessional in the CAP, Sept. 1966. 176 p. (OEO contract 970) Clearinghouse no. PB176-619.

An overview report of the study of nonprofessionals in CAPs in nine major cities, the text consists of a policy report which summarizes (1) conclusions and recommendations, including a factual profile of who the nonprofessionals are; (2) recommendations about the operational aspects of the program including organizational structure, recruitment, training, upgrading, supervision, evaluation, etc. together with proposed changes in OEO guidelines to strengthen these procedures; (3) an assessment of the program's premises, and (4) recommendations for future directions.

The specific report for each city (with its Clearinghouse number) is:

Washington, D. C., July 1966, 59 p. no. PB176-606
Syracuse, N. Y., June 1966, 34 p. no. PB176-608
St. Louis, Mo., July 1966, 28 p. no. PB176-609
Pittsburgh, Penn., June 1966, 39 p. no. PB176-610
New Haven, Conn., May 1966, 33 p. no. PB176-611
Chicago, Ill., July 1966, 40 p. no. PB176-612
Atlanta, Ga., May 1966, 35 p. no. PB176-613
Los Angeles, Calif., June 1966, 35 p. no. PB176-620
Detroit, Mich., June 1966, 50 p. no. PB176-621

Donovan, J. J., *ed.*

Recruitment and selection in public service. Chicago, Public Personnel Association, 1968. 404 p.

While this book does not specifically cover the special aspect of this bibliography, it is a comprehensive statement of current public service personnel theory and practice and, as such, constitutes a good background document. There is an annotated bibliography of personnel literature.

Harrison, Bennett

Public service jobs for urban ghetto residents. Washington, D. C., National Civil Service League, Fall 1969, 20 p. (1028 Connecticut Ave., Northwest, 20036, 202/659-4714.) Reference file no. 3 of "Public employment and the disadvantaged." Reprinted from *Good Government,* vol. 86, no. 3, Fall 1969 [entire issue].

Public service jobs are becoming more important, especially in the cities, says Mr. Harrison, and therefore new public service workers will be needed. Ghetto residents badly need higher quality employment so the author, with ample charts and documentation, recommends we combine public service jobs and the disadvantaged in the hope that they will spell a new public policy.

Institute for Local Self Government, Hotel Claremont Bldg., Berkeley, Calif. 94705. Randy Hamilton, Executive Director.

Local government new career implementation tactics: conclave proceedings, Sept. 3-4, 1968 (Hotel Canterbury, San Francisco, Calif.), Jan. 1969. 81 p.

The Institute is a non-profit educational and research corporation for the promotion and strengthening of the processes of local self-government. This meeting of more than 125 municipal officials was held to discuss "the most exciting innovation in public personnel administration in the past 25 years." The discussion ranged from what new careers are applicable to local government, through civil service problems and possible solutions, to practical situations. The discussion, papers, and questions and answers are reported verbatim.

Lesh, Seymour

The nonprofessional worker in youth employment programs. New York, Center for the Study of Unemployed Youth, Feb. 1966. 16 p. (Training series)

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The author describes the special characteristics of indigenous nonprofessionals which made them valuable staff members. Ways are suggested to recruit, select, train, and supervise nonprofessionals. A career ladder based on that in Pearl and Riessman's "New careers for the poor . . ." is outlined.

Mangum, Garth L. and Lowell M. Glenn

Employing the disadvantaged in the Federal Civil Service. Policy papers in human resources and industrial relations no. 13. Washington, Institute of Labor and Industrial Relations, Feb. 1969. 40 p. $1.50.

This is a basic handbook for those involved in the task of reshaping the Federal civil service to serve the disadvantaged (i.e., uneducated and untrained and sometimes seemingly unsuitable) worker. It describes the obstacles and makes some suggestions for overcoming them, based on two pilot projects. It should be of use on the state and local levels as well if a strong merit system is already in operation.

National Civil Service League, 1028 Connecticut Ave., Northwest, Washington, D. C. 20036, 202/659-4714.

See Harrison, Bennett.

A list of National Civil Service League publications on employment of the disadvantaged appears on inside back cover.

National Committee on Employment of Youth

Opportunity or dead end: the future of CAP aides, Sept. 1966. 87 p. (Final report of CAP Aide Study contract OEO605). Clearinghouse no. PB176-614. (Judith Benjamin *et al*, authors)

This third and final report summarizes prior findings and discusses the prospects for career development in these programs. The text covers the views of both aides and supervisors, existing jobs, and future prospects. Previous reports in this series are:

Interim report no. 1: Evaluation of nonprofessionals in community action programs, April 1966. 116 p. Clearinghouse no. PB176-617.

Interim report no. 2: Hiring and training the nonprofessional, July 1966. 67 p. Clearinghouse no. PB176-615.

The Curriculum Development Project of the National Committee has also produced "A guide for training neighborhood workers in a community action agency," 1967. 98 p. Clearinghouse no. PB183-185.

New Jersey Office of Economic Opportunity. Dept. of Community Affairs

Public employment career development program. Trenton, N. J. First phase: Dec. 1966 (37 p.+); Second phase: May 1968 (30 p.) Frederick A. Schenck, Program Chief.

Here is an interesting step-by-step description of the efforts of one state "to develop realistic, effective programs to meet the personnel needs of the hard-core poor, with the objective of developing new careers in Civil Service. . . . " It is doubtful that the material is generally available, but it would be of great use to those involved in similar work, since it includes case studies, job descriptions, and practical analysis of an on-going program.

Schrank, Robert and Susan Stein

One year of the public service careers program in the city of New York, Dec. 1968, 18 p. (Available from the Ford Foundation, 320 East 43rd St., New York, N. Y. 10017.)

A very frank and useful "how-to-do-it" analysis of the recruiting, training, and counseling problems encountered and solved in the New York City Public Service Careers Program. As of Oct. 1968, 1,108 persons were accepted for the program (mainly female) and trained in nursing, social work, and education, with emphasis on career ladders. Various city colleges cooperated in the training and counseling process. On the basis of the city's experience, it appeared "that rather than offering new careers to trainees, the PSCP has provided new entries into existing careers. . . . It remains now to refine training and education methods and to find a solution to the hiring and upgrading problems."

See also: Setzer, Charles J. and Herman Perveslin, "Work-study as a central personnel function" below.

Social Development Corporation

Merit systems and new careers. (For Dept. of Labor, Manpower Administration, Contract G-8912-99.) [n.d.] 24 p. Single copies free.

This very useful (although elementary) discussion of new careers and the merit system first explains what a merit system is and then provides a step-by-step plan of action for integrating new careers into a merit system. There is useful discussion of the relative merits of "adding on" jobs to existing structure versus creating a new category of jobs. The former tends to dead-end against educational and other criteria, whereas the latter can be developed into true career ladders, the Corporation concludes.

U.S. Office of Economic Opportunity. Community Action Program.
The neighborhood center, Washington, D. C., July 1966. 22 p.

This pamphlet describes the work of a neighborhood center and how it is set up, financed, and staffed. A large percentage of the staff should be local nonprofessionals, the text says, but not necessarily the neighborhood leaders. Although the method of training is not specified, a list of the types of work done by nonprofessionals is included.

White, Leslie R.
New careers in local government. Institute for Local Self Government, Hotel Claremont Building, Berkeley, Calif. 94705, March 1969. 124 p.

This is a "non-technical, step-by-step manual . . . based upon the experiences of local government agencies . . . outlining concepts and approaches as well as strategies and tactics." The appendixes offering job descriptions, career ladders, and training programs in all types of subprofessional fields are particularly valuable, as is the bibliography. The first 66 pages of the main text provide a sound collection of expert advice and evaluation of experience.

Periodicals

Erwin, Kate, "Low-income Winston-Salem citizens earn as they prepare for new careers," *American Education*, vol. 4, no. 5, May 1968, pp. 20-22.

This good article gives a description and examples of the New Careers program in Winston-Salem, N. C., one of 39 in the country as of 1968. The program enrollees are 75 Negroes and 25 white, at least 22 years old, and all in the poverty bracket. Their average level of education is tenth grade. They work 40 hours a week at the minimum wage, with half their time on the job and half spent in groups learning skills, forming attitudes, and talking out job problems. With the assistance of county and public service agencies, they are serving as aides to professionals in the fields of social work, school guidance counseling, recreation, and nursing, with built-in career ladders.

Public Personnel Review, "Do traditional policies still work?" vol. 30, no. 1, Jan. 1969, pp. 49-52.

Three public personnel directors were asked the question: "When a governmental agency undertakes to be an employer in a program to hire hard-core unemployed and similarly disadvantaged persons, what modifications, if any, have to be made in traditional personnel and civil service practices?" Charles A. Pounian of Chicago and Solomon Hoberman of New York says that changes must be made but that this need not destroy the merit system. The restructure of jobs, new recruiting techniques, review of and change in selection methods, and asking only "what is really necessary for job?" are sufficient. Nicholas Oganovic of the Civil Service Commission cites what the Federal govenment has done. The article is brief and fairly general but offers positive statements and approaches.

Setzer, Charles J. and Herman, Perveslin, "Work-study as a central personnel function," *Public Personnel Review*, vol. 29, no. 2, April 1968, pp. 111-114.

An account of the work-study program sponsored by New York City's Dept. of Personnel (220 Church St., New York, N. Y. 10013) and the Board of Education. It was a demonstration project for financially and educationally needy high school students. The authors discuss the function of the central personnel agency, structuring positions for the trainees, and further developments. A new class of position was created (Cooperative Education Trainee) in a noncompetitive class of civil service.

The former director of the New York City Dept. of Personnel, George Gregory, Jr., discussed the role of civil service in the equal opportunity recruitment of the disadvantaged at the 1961 and 1962 annual meetings of the Public Personnel Association, which may be able to supply copies of his talks (1313 East 60th St., Chicago, Ill. 60637).

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III. PERSONNEL PRACTICES

In some ways, this section is the core of this bibliography. Here are included titles on all aspects of personnel policies which affect the hiring of the disadvantaged and which may need revision of, or reconciliation with, standard civil service practices and procedures.

The first part covers fair employment. About ten titles dealt with the Fair Employment Practices Commission (FEPC) and private industry and were discarded (See Cronbach in "Selection process"). This was a clear-cut decision. Gray areas arose in the relationship of fair employment to government service and that between the disadvantaged and minority groups in general. So much of the material deals with statistical evaluation of the number of Negroes in the public sector and so little with opportunities in government for the disadvantaged. This is discussed quite frankly in the Michigan Department of Civil Service material annotated below. Those who may be interested in more material on minority-group employment per se should consult: Simpson, Dorothy and Barbara Hudson, *comp.*, "Selected list of references on minority group employment in the public service," Berkeley, California, University of California Institute of Governmental Studies, May 1964, 34 p., an excellent bibliography on the field.

No attempt has been made to review or include recruitment material, except a few brief pamphlets issued by the U.S. Civil Service Commission. We have seen favorable mention of a series of recruitment "Mini-guides" prepared by the California Department of Employment (800 Capitol Mall, Sacramento, Calif. 95814) which are geared to hard-core applicants.

Included in the "Selection process" portion below are all titles on testing, recruitment, and counseling which we have found applicable. These have been grouped because some organizations have found it more fruitful to test all applicants for a program after a period of counseling rather than as an initial move. We have included in this section several titles which have contradictory views on the question of the innate abilities of non-whites.

In both the "Selection process" and "Training" sections it was difficult to decide just how much material dealing with private industry should be included. That which might be applicable to government programs was included; union apprentice plans were discarded, along with U.S. Employment Service programs dealing only with jobs in the private sector. Also discarded were titles on university programs for the disadvantaged if they dealt only with, so far as we could tell, preparation for private industry. Some of the problems faced by private firms, such as the need for supportive services in health, education, and the standards of society, are shared, of course, by both public and private sectors. One of the best articles on this is not generally available. It is "Fitting the hard core into white collars," *Modern Office Procedures*, vol. 13, Sept. 1968, pp. 16-22. Back copies of the magazine are available on microfiche cards from Micro Photo Division, Bell and Howell Co., 1700 Shaw Ave., Cleveland, Ohio 44112.

PERSONNEL PRACTICES: FAIR EMPLOYMENT

Bullock, Paul

Equal opportunity in employment. Los Angeles, Calif., Univ. of California Institute of Industrial Relations, 1966. 113 p. 75 cents.

This publication makes a fairly brief general statement of problems of discrimination in employment and discusses some methods used to combat it. There is emphasis on the positive benefits of non-discriminatory practices. The last chapter discusses additional reading in the field but is not a bibliography.

Fine, Sidney A.

Guidelines for the employment of the culturally disadvantaged. Kalamazoo, Mich., W. E. Upjohn Institute for Employment Research, June 1969. 31 p.

Although the 11 guidelines stated and analyzed here are primarily for private industry (with examples of each from industrial situations), they might well be observed also by public personnel departments employing the disadvantaged.

Friedland, Louis L., "Fair employment practices in the public services," *Public Personnel Review*, vol. 23, no. 2, April 1962, pp. 109-113.

The history of the Fair Employment Practices Commission and Civil Service Commission Federal, state, and local guidelines for personnel officers are here given in the form of rhetorical questions. For example:

Are non-discriminatory practices discussed on the same basis as supervisory training, safety practices, and other routine matters?

How do you know there is no discrimination? What checks can you make?

What do you do with data on application blanks such as birthplace, educational institutions, etc.?

Krislov, Samuel

The Negro in Federal employment: the quest for equal opportunity. Minneapolis, Univ. of Minnesota Press, 1967. 157 p. $5.00.

A review and analysis of public service employment, this volume contains basic material on the problem, progress made to date, and the future role of government. The source from which this title was obtained says the book "will serve as a standard for future assessment of progress in the opening of the federal service to Negroes."

Lockwood, Howard C., "Critical problems in achieving equal employment opportunity," *Personnel Psychology,* vol. 19, no. 1, Spring 1966, pp. 3-10.

The recruitment of *qualified* minority-group applicants is a special problem because they feel they will not get equal consideration, the author says. Their concern over acceptance by fellow employees proved unjustified. The major problem is: what is "qualified?" Test standards seem to be discriminatory and "culture-fair" tests are not the answer, the author believes. He suggests as helpful: examination of job content in relation to test to assure the latter's relevance, use of validated tests only, selection to be made from those who pass by minimum as well as from top scores, consideration of motivation. He says that the real problem is lack of equal opportunity in education. The author has written several articles for the *Personnel Journal* on the testing of minority applicants and fair employment programs for private industry.

(See also Lambert, Nadine M., "The present status . . .")

McVeigh, Edward J., "Equal job opportunity within the Federal government," *Employment Service Review,* vol. 5, nos. 7-8, July-Aug. 1968, pp. 42-47.

This article is a survey of the Department of Labor's action program as a substitute for passive non-discrimination policies. It is the Department's obligation to provide greater employment opportunities at all grade levels for professional and non-professional qualified candidates from minority groups and to provide opportunity for training and advancement. The program includes recruitment and employee evaluation and training for advancement.

Macy, John W., Jr., "The reality of equal opportunity in Federal employment," *Employment Service Review,* vol. 3, no. 8, Aug. 1966, pp. 40-44.

The then-head of the Civil Service Commission discusses some of the statistical progress made in Federal government hiring of the disadvantaged and gives a few examples of civil services changes and programs in the field.

[Michigan] Dept. of Civil Service (Lewis Cass Bldg., Lansing, Mich. 48913, Ernest H. Wallick, Human Relations Director)

A study of non-white employment in the state service, May 1964. 18 p.

A follow-up study of non-white employment in the state service, June 1965. 20 p.

White and non-white employment in the state classified service, July 1966. 22 p.

White and non-white employment statistics in the state classified service, July 1967 (18 p.) and July 1968 (21 p.).

Here is a series of statistical reports assembling "certain pertinent information relating race to characteristics of employment," covering only those who are employed. The 1964 report's introduction mentions the "strong reactions among a few employees who . . . disputed the right and propriety of the Civil Service Commission to engage in such a study" and the limited area of the original study, which does not have information about promotional patterns or applicants. Later reports include analyses of departmental, geographic, and grade level factors. The question of whether these studies appropriately fall within the province of this bibliography depends upon whether we can automatically equate "non-white" with "disadvantaged." Perhaps it can serve as background to work with state civil service commissions. Further information may be obtained from Mr. Wallick or from Mr. Norval Trimpe, Director Research Division, Dept. of Civil Service, Civic Center, 505 West Allegan, Lansing, Mich. 48913.

Sheppard, Harold L.

The nature of the job problem and the role of new public service employment. Kalamazoo, Mich., W. E. Upjohn Institute for Employment Research, Jan. 1969. 30 p.

After a statistical analysis of the present picture of Negro employment, the author reviews various proposals for new career jobs in government.

U.S. Congress. House of Representatives. Committee on Post Office and Civil Service. Subcommittee on Postal Operations.

Hearing, part 1: Personnel promotion system of the Post Office. Washington, U.S. Government Printing Office, 1967. 93 p. (no. 90-7, 90th Cong./1st sess.)

Two articles in these printed hearings are particularly pertinent to this bibliography: W. H. Enneis' "Discrimination planned and accidental" and the Equal Employment Opportunity Commission's "Guidelines on employment testing procedures." The latter also comes in the form of an eight-page pamphlet available directly from the Commission (1800 G St., Northwest, Washington. D. C. 20506). Another popularly written guide for private industry on hiring under Title VII of the Civil Rights Act of 1964 is available from the U.S. Commission on Civil Rights, 801 19th St., Northwest, Washington, D. C. 20425. It is "Employment testing: guide signs, not stop signs," (Clearinghouse pub. no. 10, U.S. Government Printing Office, Washington, D. C. 20402, pub. no. 1968 0-287-632, 20 cents). See also Cronbach, Lee Joseph, "Essentials of psychological testing."

PERSONNEL PRACTICES: SELECTION PROCESS

Books and Monographs

Blocker, J. Lester

How to recruit the disadvantaged, Nov. 11, 1968. Available from First Pennsylvania Bank, Philadelphia, Penn. 19101. 8 p.

Although this describes a training and employment program for a particular private industry, it makes several basic points which are applicable to the public employment of the disadvantaged. The selection process, for example, is easily usable. Applicants recruited by this system were not tested until *after* a 15-week training and employment program in communication and computational skills; they became recruiters on their own. In addition to this Project 35 for adults, the bank conducted other programs for high school students. This speech is a brief summary of the work done by the bank in this field; direct contact would be necessary for more specific information.

Cronbach, Lee Joseph

Essentials of psychological testing. New York, Harper and Row, 1960. 650 p.

A basic text book which anlayzes personnel tests, explains how to give and score tests, and lists tests currently available. The Cronbach text is used as a standard against which to measure Title VII of the 1964-65 Civil Rights Act in: Fincher, Cameron, "Testing and Title VII," *Atlanta Economic Review*, vol. 15, no. 6, June 1965, pp. 15-19.

Title VII does not prohibit the use of ability tests in private industry. The test case was made by the FEPC versus the Motorola Corporation, and there are many articles on this, although they have been discarded as not pertinent to the subject of this bibliography. For those interested in this aspect, some of the articles are:

Ash, P., "Fair Employment Practices Commission experiences with psychological testing," *American Psychologist*, vol. 20, no. 9, Sept. 1965, pp. 797-798.

Business Week, "Hiring tests wait for the score: Myart vs. Motorola," Feb. 13, 1965, pp. 45-46.

French, R. L., "The Motorola case," *Industrial Psychologist*, vol. 2, Aug. 1965, pp. 20-50.

Vincent, Norman L., "The legality and validity of personnel tests," *Best's Insurance News*, vol. 66, no. 10, Feb. 1966, pp. 20-24.

Ghiselli, Edwin Ernest

The validity of occupational aptitude tests. New York, Wiley, 1966. 155 p.

The author writes a fairly technical analysis of various studies on "the validity of tests in the selection and placement of workers in various occupations," presented in a compressed "and hopefully therefore in a digestible manner." There is no index nor any bibliographic or source information. The relevance of this text to this bibliography depends entirely on whether those jobs for which tests are analyzed or compared might be filled in a government by disadvantaged workers.

Gordon, Jesse E.

Testing, counseling, and supportive services for disadvantaged youth: experiences of MDTA experimental and demonstration projects for disadvantaged youths. Ann Arbor, Univ. of Michigan-Wayne State Univ. Institute of Labor and Industrial Relations, 1969. 211 p. (available from Publications Office, P.O. Box 1567, Ann Arbor, Mich. 48106, $4.00)

Mr. Gordon evaluates the testing, counseling, and supportive services provided under 35 Manpower Development and Training Act (MDTA) programs and tries to project his conclusions and discoveries for future practical use. In the process, he evaluates the programs themselves. Although in many cases these youth were being prepared for private industry, the general preparation program should be as useful to those utilizing the disadvantaged in the public service.

Goslin, David A.

The search for ability: standardized testing in social perspective. New York, Russell Sage Foundation, 1963. 204 p. 230 Park Ave., New York, N. Y. 10017, hard cover $4.00; paperback: Wiley $1.45)

Although this is described as the first volume in a series on "the social consequences of ability testing," no additions have been made to the series as of this date, according to the publisher. This volume provides some historical and social perspective on modern tests, their range of use, and their value in prediction of ability. The author says in his foreword that the book should be of special interest to those who make use of tests. There is a thorough index, but no bibliographic or source material information.

Guion, Robert M.

Personnel testing. New York, McGraw-Hill, 1965. 585 p.

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Here is a basic textbook "principally concerned with employment problems and with the implications of psychological testing methods for those problems. Its concern is the use of tests rather than tests per se." It is not, continues the author, a guidebook for personnel managers, but is for advanced students in classrooms and for practicing psychologists. The text bears out his contention. Perhaps the only part of value to personnel managers would be the test index and the brief description of each test it leads to.

Herman, Melvin, Stanley Sadofsky, and Bernard Rosenberg
Work, youth, and unemployment. New York, Crowell, 1968. 675 p.

A well-organized collection of readings on the problems of unemployed youth, the book begins with definitions, goes on through history, and discusses the labor market, education, family, adolescence, and delinquency. The only section relevant to this bibliography is Part V: Counseling, guidance, and testing, with the most valuable article being "Guidelines for testing minority group children" by Joshua A. Fishman *et al* [reprinted from the *Journal of Social Issues,* vol. 20, no. 2, April 1964, pp. 129-145]. It is a comprehensive survey of testing and the culturally disadvantaged which could be applied to those other than the subjects discussed.

The article "Preparing disadvantaged youth for work," by Saul S. Leshner and George S. Snyderman [*Employment Service Review,* Nov. 1965] gives the prospective recruiter of indigenous personnel for new career jobs substantive food for thought on recruitment and training policies. It describes quite clearly some of the problems which arise and the follow-through and counseling which should be an integral part of job-training programs.

Kirkpatrick, James J. *et al*
Testing and fair employment: fairness and validity of personnel tests for different ethnic groups. New York, New York Univ. Press, 1968. 145 p. (Washington Square, New York, N. Y. 10003)

The Ford Foundation provided the grant for this project conducted from Sept. 1965 to Aug. 1967, and this is the English translation (more or less) of the official report handed to that organization. It includes a worthwhile review of the literature in the field. The study was based on five actual situations in which an appreciable number "of members of two or more ethnic groups were employed in comparable jobs and in which test and criterion data were available or could be obtained." It appears to be a useful handbook for those involved in testing.

Miner, John B.
Intelligence in the United States: a survey—with conclusions for manpower utilization in education and employment. New York, Springer, 1957. 180 p.

What started out as a research project devoted to the standardization of a particular test ended in this theoretical analysis of intellectual resources. Various factors which enter into the testing of prospective employees are covered here: the nature and measurement of intelligence, verbal ability and the social system, intelligence related to other variables, implications for vocational guidance, etc. The reference list contains 203 titles and there is a possibly useful appendix evaluating jobs according to level of intelligence required to pursue them. The book would probably be of value to those involved in recruitment, training, and classification of nonprofessionals.

Morrison, Donald R.
Written tests and the charge of cultural bias—implications for civil service agencies. Local Government Personnel Association of the Washington-Baltimore Area pub. no. 3. [n.d., no publisher, printed courtesy of Personnel Division, County of Fairfax, Virginia] 15 p.

This examination of the charges that public personnel tests are culturally biased was presented as a paper to a professional organization on March 16, 1967. The author analyzes each type of test in a brief and general fashion by measuring it against the question of: is the test unfair for certain groups who are the product of a different cultural background than that possessed by those for whom the tests were devised? He tries to set some standards for "culture-free" tests based on his own experiences. A good brief list of references is included.

Pelosi, John William
A study of the effects of examiner race, sex, and style on test responses of Negro examinees, 1968. 192 p. Clearinghouse no. PB178-901, $3.00.

The author did this as his doctoral dissertation at Syracuse University (N. Y.) under a Federal grant (no. 91-34-67-54). His overall conclusion was "that the examiner traits studied did not significantly influence test performance of male Negro subjects on seven of the tests used in the experiment. The only exception . . . was the IPAT Culture Fair Intelligence Test . . . Though differences were small, and non-significant, the general direction contradicts the findings of previous research which suggested inadvertent negative bias due to white examiners." Supporting statistics are included.

Rusmore, Jay Theodore

Psychological tests and fair employment; a study of employment testing in the San Francisco Bay area. Calif. Fair Employment Practices Commission, Jan. 1967. 58 p.

The major problem of tests, this report of a survey of employment testing practice in California notes, is inadvertent discrimination. This is possibly due to invalid tests, they say, and the revision of tests is only one of their recommendations for improvement. The book includes a detailed description of the methodology of this survey.

Sheppard, Harold L. and A. Harvey Belitsky

The job hunt: job-seeking behavior of unemployed workers in a local economy. Baltimore (Md. 21218), Johns Hopkins Press, 1966. 270 p. $7.95.

A study, made possible by a Dept. of Labor grant, of about 530 unemployed persons in Erie, Penn., provides good detailed background information on how people look for jobs: their motivations, expectations, etc. Both blue and white collar workers were covered. The book is a contribution to the general understanding of personnel recruitment. There are three useful appendixes.

Sheppard, Harold L. and A. Harvey Belitsky

Promoting jobfinding success for the unemployed. Kalamazoo, Mich., W. E. Upjohn Institute for Employment Research, April 1968. 17 p.

Of interest to those responsible for the recruitment of the disadvantaged for new career jobs, the authors discuss how the poor go about looking for work. This is probably a summary of their 1966 book, "The job hunt."

Shuey, Audrey Mary

The testing of Negro intelligence. New York, Social Science Press, 1966. (2d ed.) 578 p.

This text summarizes all the studies made of Negro-white differences in mental-test performances in the United States over the past 50 years. "We are forced to conclude that the regularity and consistency of these results suggest a genetic basis for the differences," says the author, predating the recent Jensen article on the subject. The references run from pages 522 to 555.

The first edition of the book was refuted in a review by: Bond, H. M., "Cat on a hot tin roof" (*Journal of Negro Education*, vol. 27, no. 4, Fall 1958, pp. 519-523, published for the Bureau of Educational Research, Howard University, Washington, D. C. by Howard Univ. Press). The reviewer claims that the statistics cited are distorted because they are inaccurately matched, *e.g.* northern white norms with southern Negro norms rather than southern versus southern. (See also Dugan, Robert D., "Current problems . . .")

U.S. Conference of Mayors. Community Relations Service, 1707 H St., Northwest, Washington, D. C. 20006. (298-7535)

Recruiting minorities for public employment. Experience report 105 (Employment Series). Aug. 1966 [n.p.]

"This report suggests specific techniques that have proven to be effective in many cities in recruiting minorities for public employment," states the introduction to this brief pamphlet. The step-by-step description of method is followed by a two-page checklist for the employer. Earlier publications by the same agency include "Recent trends in public employment," "Equal opportunity in public employment," and "Public employment in Savannah, Ga."

U.S. Dept. of Health, Education, and Welfare. Office of State Merit Systems.

Guidelines on recruitment and selection methods for support classes in human services, Aug. 1968. [Washington, D. C.] 11 p.

The techniques of recruiting and selecting community workers from among the disadvantaged are discussed in this brief basic document. Stress is placed on how merit principles can be maintained if consideration of applicants is based on realistic appraisal of the kinds of skills needed for the job rather than on arbitrary testing. Such a system requires that selection be systematic, pertinent to the job duties, and reasonably objective. The most important qualities for workers are cited as: adaptability, dependability, perseverance, and ability to learn.

Periodicals

American Psychologist, "Job testing and the disadvantaged: APA task force on employment testing of minority groups," vol. 24, no. 7, July 1969, pp. 637-650.

What are the "important elements in the chain of events that can lead to the inappropriate use of manpower and unfair and self-defeating personnel practices?" The authors analyze the sequence, discuss each aspect in detail, and make suggestions for "achieving maximum effectiveness of manpower resources."

Arnstein, Sherry, "Testing the untestables," *Occupational Outlook Quarterly,* vol. 8, no 3, Sept. 1964, pp. 21-24.

A description of the occupational testing program developed by the Jewish Employment and Vocational Service of St. Louis (see that entry). They utilized a four-week testing period in their "factory," using increasingly difficult tasks to determine ability. They also devised a new testing technique for the non-verbal who fail standard tests requiring verbal skills thereby avoiding the past school association of paper-pencil tests.

Barrett, Richard S., "Gray areas in black and white testing," *Harvard Business Review,* vol. 46, no. 1, Jan.-Feb. 1968, pp. 92-95.

Improving tests alone will not solve the problems of testing the culturally disadvantaged, says the author. He is full of practical suggestions for methods of hiring and judging minority workers. While the article is aimed primarily at business personnel managers, it should be of interest to public service personnel managers also.

Champagne, J. E., "Job recruitment of the unskilled," *Personnel Journal,* vol. 48, no. 4, April 1969, pp. 259-268.

This article analyzes the results of a questionnaire used to determine the attitudes and motivations of the unskilled. The detailed information offered is intended as a practical base for improved recruitment techniques.

Cliff, Norman, Sidney H. Newman, and Margaret A. Howell, "Selection of subprofessional hospital care personnel, *Hospitals* (Journal of the American Hospital Association), Dec. 1, 1959, 3 p. reprinted by the U.S. Dept. of Health, Education, and Welfare.

The authors report on a study made in two Public Health Service hospitals to "determine the effectiveness of tests designed to predict successful employee performance at the subprofessional level." They conclude that the tests are accurate in predicting those who can perform the tasks, but do not predict personality or attitudes on the job. They say that the single test which would be the most likely to give the best results is the one determining the ability to follow oral directions.

Culhane, Margaret M., "Testing the Disadvantaged," *Employment Service Review,* vol. 2, no. 5, May 1965, pp. 8-9.

This article offers a brief analysis of what's wrong with current tests when faced with the culturally disadvantaged, and some suggested solutions.

Dugan, Robert D., "Current problems in test performance of job applicants: II," *Personnel Psychology,* vol. 19, no. 1, Spring 1966, pp. 18-24.

"The evidence is overwhelming that the test performance of Negroes trained in southern colleges is different from that of white people who are graduates of northern colleges . . . In this paper, the primary objective is to describe some differences in five separate situations where northern employers were attempting to recruit and hire graduates from southern, predominantly Negro colleges." There was no significant difference between men and women tested; urban Negroes did better than rural Negroes. Negroes seemed to need more time in training to make up for college deficiencies but do better on jobs than test scores indicate. (See also Shuey, Audrey Mary, "The testing . . .")

Dvorak, Beatrice J., "Changing emphasis in occupational test development," *Employment Service Review,* vol. 2, no. 8, Aug. 1965, pp. 45-47.

Updating the article listed below, the author describes the changes made in the General Aptitude Test Battery (GATB) to improve its validity for those lacking basic literary skills. She also discusses improvements in screening tests, occupation lists, and interest check lists.

Dvorak, Beatrice J., "Testing the undereducated (occupational developments)," *Employment Service Review,* vol. 1, nos. 1 and 2, Jan.-Feb. 1964, pp. 20-21.

A discussion of the problems raised when a culturally disadvantaged person must take the U.S. Employment Services General Aptitude Test Battery (GATB). The author illustrates very effectively by reprinting a portion of the test in Korean as an example of what such a person faces. Several state employment services (Colorado, Iowa, Louisiana, Michigan, Missouri, New Jersey, North Carolina, Utah, and Wisconsin) were, at the time of writing, doing research on new tests which would be more applicable.

French, Wendell L., "Psychological testing: some problems and solutions," *Personnel Administration,* vol. 29, no. 2, March-April 1966, pp. 19-24.

The article analyzes some recent pro-con debate on psychological testing. Does the test do what it is supposed to do? Is it valid to the future situation? The author suggests a "clinical-statistical" approach, *i.e.*, utilizing tests appropriate to successful performance of the job to be filled combined with a patterned interview by a trained interviewer with at least a master's degree.

Guion, Robert M., "Employment tests and discriminatory hiring," *Industrial Relations,* vol. 5, no. 2, Feb. 1966, pp. 20-37. (Abridged version in *Employment Service Review,* vol. 3, no. 8, Aug. 1966, pp. 71-76.)

The author discusses the problem of inadvertent discrimination in testing by analyzing the basic principles of testing: predictors, criteria, variables, and validation. He stresses the need for research in validation in order "to distinguish between standards of *test* performance and standards of *job* performance." The relevance of tests as predictors of job performance must also be demonstrated, he says. Effects of cultural deprivation, difference, and/or alienation are discussed and moderator variables are suggested. The article is very detailed with many other recommendations. Bibliography.

Krug, Robert E., "Some suggested approaches for test development and measurement," *Personnel Psychology,* vol. 16, no. 1, Spring 1966, pp. 24-35.

The validity of tests for various groups and the relationship of tests to cultural factors, sex, and type of job to be done are discussed by Mr. Krug. He offers a practical approach to the problem of devising tests for the disadvantaged.

Lambert, Nadine M., "The present status of the culture fair testing movement," *Psychology in the Schools,* vol. 1, no. 3, July 1964, pp. 318-330. (Published by Psychology Press, Inc., Brandon, Vt.)

Although directed chiefly to schools, the article is useful as a discussion of the kinds of culture-free tests that have been developed here and abroad and the problems involved. The author cites the belief of some psychologists that, rather than concentrate on tests, we should concentrate on improving cultural background and educational opportunity.

(See also Lockwood, Howard C., "Critical problems . . .")

Lopez, Felix M., Jr., "Current problems in test performance of job applicants," *Personnel Psychology,* vol. 19, no. 1, Spring 1966, pp. 10-18.

Do differences in test performance forecast differences in successful job performance? The author's analysis was based on a Port of New York Authority situation. Tests utilized were: Clerical Speed and Accuracy test of DAT (Psychological Corp.); custom built, speeded Mental Ability test containing verbal, numerical, and abstract reasoning items; and standardized ten-minute biographical data interview (numerical assessment). Of 2,000 applicants for female toll collector, 865 were tested, 300 were considered eligible, and 182 were appointed. He concludes that combined interview and written testing was necessary to balance ethnic differences. There are supporting tables and a short bibliography.

Mathis, Gerald A., "The disadvantaged and the aptitude barrier," *Personnel and Guidance Journal,* vol. 47, no. 5, Jan. 1969, pp. 467-472.

"The theory and practice of aptitude testing are critically discussed within the context of current efforts to improve the status of the poor," says the author. Aptitude and achievement tests are contrasted and he recommends achievement test principles. This is a fairly technical article with a brief bibliography.

Matthews, Doris B., "Disadvantaged youth can help ease manpower picture," *Employment Service Review,* vol. 3, no. 4, April 1966, pp. 49-50.

The author reports success where tests were dropped for those employed for repetitive jobs not requiring educational background, and she advocates training for upgrading. She fails to provide specific proposals for "how," and the article is a general statement of the need to improve basic education and make vocational training pertinent.

Taylor, Vernon R., "Control of cultural bias in testing: an action program," *Public Personnel Review,* vol. 29, no. 3, July 1968, pp. 168-179.

The Calif. State Personnel Board made a survey of its examination results and produced clear evidence that, while minority groups competed with equal success in interviews, they did not rank as high as the majority-group applicants in written tests, this article reports. The standardized tests were then reviewed for the possible existence of artificial barriers and these were identified as being located in the areas of vocabulary, grammar, and phrasing; the need for speed; poor readability; and lack of clarity in directions and instructions. Nearly all of these test deficiencies were found to be a result of failing to follow the basic rules of test construction. Some alternatives to general tests are discussed: changes in test weights and testing only for minimum level of competency, for example.

PERSONNEL PRACTICES: TRAINING

See also: Specific Programs: Youth, below.

Hannah, Frederick H. and Mary T. Harrison, "Experiential learning for economically deprived adults," *Human Relations Training News,* vol. 11, no. 4, 1967, pp. 3-5.

A "Vestibule Training Program" designed to upgrade the basic skills of 12 economically deprived women was sponsored by the Atomic Energy Commission. A conference-type program was conducted in which participants who were concerned about their ability to fill certain jobs were exposed to actual job situations. They discussed problems of job-holding and the performance and behavior expected of them. This appears to be a useful technique for alleviating the fear of newcomers and assimilating them into work situations.

Institute for Local Self Government, Hotel Claremont Bldg., Berkeley, Calif. 94705.

Some who dared: community college involvement with public service aspects of the urban problem in California, [June 1969]. 106 p. (Office of Education contract no. 0-8-070192-2375(085))

This is a valuable report on the methods used by Calif. community colleges to alter established ways in order to meet the challenge of providing training for public service. In this article, a state consultant surveys the overall program and five specific community colleges report on their programs. There is much detailed information on curriculum, work experience programs, and other aspects.

Jewish Employment and Vocational Service, Training Service Center, 1905 Kienlen Bldg. 1, St. Louis, Mo. 63133

Final report: the youth-training project, a demonstration program, Sept. 1, 1963-Jan. 31, 1965. 76 p.

Although this project dealt with the training of 16 to 18 year olds for private industry, the methods of training may well be applicable to the public service and several laudatory articles have been written about the program (see, for example, Sherry Arnstein's "Testing the untestables").

Lee, Anne Natalie, "The training of nonprofessional personnel," *Nursing Outlook,* vol. 6, no. 4, April 1958, pp. 222-225. (Published by the American Journal of Nursing Co., New York, N. Y.)

The training program for new aides described in this article focused attention on the need to provide in-service training for long-term aides in order to eliminate a threatened feeling on their part. An added benefit was improved service. There are helpful details of the steps taken.

Luce, Charles F., "1001 good mistakes in training hard-core jobless," *Employment Service Review,* vol. 5, no. 12, Dec. 1968, pp. 6-9+.

The mistakes that Consolidated Edison of New York learned from could be illuminating to others working with the hard-core unemployed.

New Careers [manuals], University Research Corporation, National Institute for New Careers.

A series of training manuals (with a separate guide on each subject for trainer and trainee), these books are available only to those working under a Dept. of Labor New Careers contract. The manuals are revisions and updating of the original work done by the Howard Univ. (Washington, D. C.) Center for Youth and Community Studies (later Institute for Youth Studies). Efforts are now being made to overcome legal obstacles and to arrange for the general availability of these publications at cost. Each manual is a very thorough guide and includes curriculum outlines, information about other material available, and career ladders. Current publications in the series are:

Entry-level training for the human service aide, March 1968. 28 p. (no. 3)

A manual of organization and development: a source book for trainers, April 1968. 15 p. (no. 4)

Generic issues in the human services: a sourcebook for trainers, Aug. 1968. 68 p. (no. 6)

Generic issues in the human services: a manual for trainees, Aug. 1968. 191 p. (no. 7)

The patrolman aide: trainer's manual, Sept. 1968. 262 p. (no. 8)

The patrolman aide: trainee's manual, Oct. 1968. 149 p. (no. 9)

The community/home health aide trainer's manual, Oct. 1968. 212 p. (no. 10)

The community/home health aide trainee's manual, Oct. 1968. 225 p. (no. 11)

The social service aide: a sourcebook for trainers, Oct. 1968. 47 p. (no. 12)

The social service aide: a manual for trainees, Oct. 1968. 177 p. (no. 13)

The teacher aide: a manual for trainers, Oct. 1968. 40 p. (no. 14)

The teacher aide: a manual for trainees, Dec. 1968. 83 p. (no. 15)

Other titles which are currently being rewritten and which should be published in 1969 include those on: the neighborhood worker, community mental health aides, and a volume of collected position descriptions.

Puerto Rican Community Development Project, Inc. 210 West 50th St., New York, N. Y. 10019 (765-9800), Clara L. Luna, Training Officer.

Community action, a manual for community workers (May 1968).

Consumer education. 2 vols. (July 5, 1968 and Aug. 28, 1968).

Housing problems encountered by Puerto Ricans in New York City; an orientation manual for community workers (undated, probably April 1967)

This fine set of mimeographed manuals for community workers was prepared by the Training Department of the project. Each manual covers its subject in well-ordered detail and simple, clear language and provides digests of relevant local laws, appropriate telephone numbers, descriptions of agencies involved, and historical background and perspective on each subject. The basic manual, for example, begins with "Why did the Government initiate community action programs" and gives instructions for individual interviewing, working with groups, the resources of the community, and what is involved in leadership. All in all, a good basic set of training guides.

U.S. Dept. of Health, Education, and Welfare. Social and Rehabilitation Service, Washington, D. C. 20201.

Use of support personnel in vocational rehabilitation: sixth institute on rehabilitation services, May 20-22, 1968, a training guide, 1968. 114 p. (Rehabilitation service series no. 69-13)

A survey on the use of support personnel in state vocational rehabilitation agencies was conducted to determine agency guidelines. The presence or absence of a formal training program, the use of in-service training, and the effect of educational qualifications were considered and tabulated. It was concluded ". . . that the traditional criteria, i.e., age, examination, etc. for personnel selection will have to play a secondary role. It appears that a new method or procedure of selection will have to be established in order to obtain the type of individual who can best serve the agency . . ." Appendixes in this valuable guide include a sample job description and an outline of an in-service training program.

Wachendorf, John R., "Rehabilitation of homes," *Journal of Housing,* vol. 23, no. 8, Aug.-Sept. 1966, pp. 453-454. (Published by the National Association of Housing and Redevelopment Officials, Washington, D. C.)

A description of a Cincinnati, Ohio, program training unemployed youths for urban renewal work. There are details on types of work, who gets help, and project benefits.

Washington. Coordinating Council for Occupational Education, P.O. Box 248, Olympia, Wash.

A handbook for supervisors of the disadvantaged, April 1968. 45 p.+.

This useful handbook contains three sections: Laying a foundation (background material), Supervisory responsibilities (including orientation and on-the-job training), and Barriers to working with disadvantaged persons and proposed solutions. There is also a 14-page Teacher's Guide for the above handbook which outlines the contents of a seminar on the subject. Appendixes and bibliography.

Wein, Harvey J., "Training for Post Office test at YOC," *Employment Service Review,* vol. 5, no. 12, Dec. 1968, pp. 41-45.

The Post Office Dept. has revised its entrance tests (as of March 1967) to be more in keeping with the job to be filled. Applicants no longer have to pass the general abilities test before going on to the more specialized parts. Now they can qualify for a job by doing well on "address comparison" and "following instructions." The Youth Opportunity Corps of Los Angeles took advantage of this and helped to train applicants; this article describes how they did it.

[Women's] Talent Corps, Inc. 201 Varick St., New York, N. Y. 10014.

You and the paraprofessional: manual for staffs of participating training agencies. January, 1969.

Talent corps/College for human services: student's manual. January 1969. c1968.

These useful mimeographed pamphlets discuss new careers from the differing viewpoints of trainer and trainee. Unfortunately materials by this organization, though good, are difficult to obtain. Write for a list of available materials. (See entries under Cohen, Audrey C.)

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IV. SPECIFIC PROGRAMS

This final section of the bibliography deals with specialized projects in the specific fields we were able to discover had programs. We reluctantly discarded from this section as not really applicable three titles dealing with the training of volunteers. However, they are of sufficient interest to be mentioned.

Camp Fire Girls, Inc., 65 Worth St., New York, N. Y. 10013, 212/925-1980, Helen Rowe, Research Director.

There are four publications dealing with the organization's Metropolitan Critical Areas Project to train indigenous volunteers.

Epstein, Laura, "Differential use of staff: a method to expand social services," *Social Work*, vol. 7, no. 4, Oct. 1962, pp. 66-72.

The article describes the use of aides at a Travelers' Aid unit located in Chicago's Union Station.

Thurz, Daniel and Richard Bateman, "New uses of personnel in group-service agencies," *Social Service Review*, vol. 38, no. 2, June 1964, pp. 137-146.

The authors recommend the use of nonprofessional volunteer workers in such fields as library work, one which now shows little evidence of utilizing nonprofessionals.

SPECIFIC PROGRAMS: THE AGED

U.S. Congress. Senate. Committee on Labor and Public Welfare. Special Subcommittee on Aging.

Hearings . . . Sept. 18 and 19, 1967 . . ., Washington, D. C., U.S. Government Printing Office, 1967. (no. 84-164, 90th Cong./1st sess.) 318 p. 75 cents.

Community service programs for older Americans are reviewed in an assorted collection of statements, articles, etc. The usual comprehensive work.

Weber, Arnold R., "A 'second career' for older workers," *Manpower*, vol. 1, no. 5, June 1969, pp. 19-21.

The assets and liabilities of older workers are evaluated and pension and retraining adjustments are suggested by the author. He recommends the development of parallel careers in the form of less strenuous but related jobs, *e.g.*, a transfer from production line worker to production clerk, or from process operator to laboratory aide.

SPECIFIC PROGRAMS: COMMUNITY AIDES

Books and Monographs

Grosser, Charles Fletcher

Perceptions of professionals, indigenous workers and lower-class clients. New York, Columbia Univ. School of Social Work, 1965. 155 p. (University Microfilms no. 65-13,947)

Mr. Grosser studied a Mobilization for Youth project in New York for his doctoral dissertation. "Our research into perception and performance," he says, "has produced two statistically significant findings concerning indigenous workers. We have established that such workers in general gauge the community's attitude more accurately than professional staff, and that such workers on the whole are better rated performers than are professional staff members." The rest of the paper shows how and why. See also this author's other works.

Hawkins, Arthur *et al*

New careerist casebook number three: community workers and research aides. Walnut Creek, Calif., Contra Costa Council of Community Services, July 1967. 66 p. (pub. no. 114, $1.00)

The third in a series of case books, this one deals with the work done by indigenous, trained persons assisting neighborhood groups concerned with various community improvements. The case workers wrote their own material, which is printed without commentary or evaluation. There is a final chapter by a research community-liaison worker on the training program.

The North Carolina Fund, P.O. Box 687, Durham, N. C. 27702.

The nonprofessional in rural manpower programs. (MITCE: Manpower Improvement Through Community Effort), [c. 1968]. 61 p.+.

This is one of several publications issued by this typical private state contract organization which handles Dept. of Labor grants for manpower training and utilization. This particular monograph deals with the training of family occupational planning field workers, who were taught to canvass local families about employment difficulties and counsel them on possible remedies. The target area for these indigenous problem-finders were underprivileged rural people and those in designated

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pockets of poverty. The field workers were supervised and guided by professional personnel. The book deals with methods of selection, training, problems (some would not talk with those of other ethnic groups), solutions, and recommendations for the future.

A publication called "Blueprint for opportunity" listed in some bibliographies as being issued by this organization is not generally available.

President's Committee on Juvenile Delinquency and Youth Crime

Training for new careers: the Community Apprentice Program developed by the Center for Youth and Community Studies, Howard Univ., Washington, D. C., June 1965. 107 p. (Available from Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, no. 1966 0-217-886, 60 cents.)

The complete demonstration project for the training of youthful community aides is described here in detail. Appendixes give curriculum outlines and position descriptions. See also the article by Beryce W. MacLennan on the subject.

Reiff, Robert and Frank Riessman

The indigenous nonprofessional; a strategy of change in community action and community mental health programs. National Institute of Labor Education Mental Health Program. Monograph series No. 1, report no. 3, Nov. 1964. 48 p. (Available from *Community Mental Health Journal,* Box 23, Lexington, Mass. 02173, $1.00)

This sound handbook offers a brief but detailed delineation of who the indigenous (as opposed to the "ubiquitous" *i.e.,* outside volunteer) nonprofessional is, what role he can fill in all types of social service, and the problems of his recruitment, selection, and training. It includes a basic bibliography.

U.S. Dept. of Health, Education, and Welfare. Office of Under Secretary.

Closing the gap in social work manpower: report of the departmental Task Force on Social Work Education and Manpower. Washington, D. C., 1965. 90 p.

The social work manpower gap will not be closed without overhauling the social welfare structure, including systems of job classification, this report says. Technicians and other nonprofessionals can be utilized; 23,000 community organization aides (social welfare technicians) were being trained under the 1964 Office of Economic Opportunity (OEO) act.

U.S. Dept. of Health, Education, and Welfare. Bureau of Family Services

Guidelines for use of administrative aides in departments of public welfare, Washington, D. C., 1963. 24 p.+ appendixes. Prepared by Miss Willie V. Bratton.

This is a good guide, but the title is confusing, since some of the examples were other than welfare jobs. Also, the level of education varies from junior college level downward and, in some cases, is unspecified. In general, it is a brief summary of the use of auxiliary personnel in social agencies, with some of the positions described.

U.S. Dept. of Health, Education, and Welfare. Bureau of Family Services and Division of State Merit Systems.

Utilization of auxiliary staff in the provision of family services in public welfare, Washington, D. C. 1965. 24 p.

"This monograph discusses briefly the type of auxiliary positions that might be established, the administrative planning necessary, some factors to consider . . ., and illustrative class specifications." A useful guide, complete with job descriptions.

Periodicals

American Public Welfare Association, 1313 East 60th St., Chicago, Ill. 60637 (312/324-3400. *Public Welfare;* Journal of the . . . Special feature, "Manpower: solving the skill shortage," vol. 27, no. 2, April 1969.

Three articles in this issue are of particular interest: Lolly, Winifred A., "The public service career program—it's [sic] implication for client, agency, and community" (pp. 107-112); Parker, Glenn M., "New careers in public welfare: greater possibilities and some problems" (pp. 112-116); and Gartner, Alan, "The use of paraprofessionals and new directions for the social service agency" (pp. 117-125). They cover the subject from "we should" through "but what about" and on to "this is the way, from 1 to 5." General rather than specific, the articles should be useful background for those interested in this particular field. Useful footnotes.

Brager, George, "The indigenous worker: a new approach to the social work technician," *Social Work,* vol. 10, no. 2, April 1965, pp. 33-40.

This is an article obviously written to convince social workers that those without graduate degrees in social work are not all morons, and that they have a valuable role to play in the field. The author gives some interesting examples of successful use of indigenous personnel in individual situations where a professional would not have been useful. It's a good sales pitch in social workers' language. [See also comments under National Conference on Social Welfare and article by Frank M. Loewenberg.]

Cudaback, Dorothea, "New careerists in public welfare," *Public Welfare,* vol. 26, no. 2, April 1968, pp. 118-124.

This paper describes a new career project sponsored by the California Dept. of Social Welfare in a lively and readable fashion. "This is not so much a paper about these welfare aides as a paper by them," says the author, and the article is filled with comments by the aides on the work they do and the cases they have handled. "The [ten] aides are like the clients they serve. They are typically between 28 and 40 years old, have at least two . . . children . . . and have completed the 11th or 12th grade." It's the best picture yet found of the practical working side of a new career.

Gil, David G. "Social work teams—a device for increased utilization of available professionally educated social welfare personnel," *Child Welfare,* vol. 44, no. 8, Oct. 1965, pp. 442-446.

The author recommends social work teams to relieve the personnel shortage in the field without compromising professional standards or curtailing services. Each team would be a stable, integrated staff unit which assumes responsibility under a professional leader for a jointly carried caseload. Criteria for task classifications must be established and a sense of participation fostered by regular team meetings. He says that probably the best field for such team work would be child welfare.

Grosser, Charles Fletcher, "Local residents as mediators between middle-class professional workers and lower-class clients," *Social Service Review,* vol. 40, no. 1, March 1966, pp. 56-63.

A Mobilization for Youth project in New York hired over 50 local residents to serve as community organizers, homemakers, education liaison workers, and work crew chiefs. ". . . The agency conscientiously solicited persons with the qualities considered endemic to the local population. In addition, it attempted to select those residents who had successfully mastered the intricacies of urban slum life . . . The non-professional workers were significantly more accurate in assessing community views than their professional colleagues." The article concerns itself largely with methods of testing middle-class social worker attitudes as compared with indigenious personnel attitudes. It concludes that, over a period of time, indigenous workers tended toward middle-class attitudes and responses. In other words, do these personnel remain valuable as contact with the poor, or do their jobs simply become channels toward the middle-class for them as individuals? An interesting article opening considerable lines of speculation. See also his other titles on the subject.

Kobrin, Solomon, "The Chicago Area Project—a 25 year assessment," *Annals of the American Academy of Political and Social Science,* vol. 322, March 1959, pp. 19-29.

Although there is only a very brief reference to the use of qualified local residents in neighborhood welfare organizations (p. 24), this article may have some historical value, considering its date. The author lists five advantages of the use of indigenous personnel: knowledge of community, ability to communicate, evidence of sincerity, access to clients, and job training. He also notes that professionals raised the question of competence.

Levinson, Perry and Jeffry Schiller, "Role analysis of the indigenous nonprofessional," *Social Work,* vol. 11, no. 3, July 1966, pp. 95-101.

This article asks the questions: What circumstances brought him into the agency? How does his employment affect the functioning of the agency? What, if any, identity crisis does this generate? If there is an answer, it is so buried in jargon that it cannot be found.

Loewenberg, Frank M. "Social workers and indigenous nonprofessionals: some structural dilemmas," *Social Work,* vol. 13, no. 3, July 1968, pp. 65-71.

Here's a man who tells it like it is. He discusses the "grudging delegation of inconsequential functions" to "nonprofessionals" by "professional" social workers (to whom a nonprofessional is anyone with other than an MA in Social Work). Why do "professionals" find it so difficult to accept and work with indigenous personnel in an OEO neighborhood center? The author concludes that "these problems arise out of the agency setting and the profession's structure . . ." rather than from personal inadequacies of the professional. "There is need," he concludes, "to re-examine the relationship between the social work profession and the newer social welfare programs . . .," which appear to be as much of a closed book to the professionals as are their nonprofessional co-workers. [See also article by George Brager.]

MacLennan, Beryce W. *et al,* "Training for new careers," *Community Mental Health Journal,* vol. 2, no. 2, Summer 1966, pp. 135-141.

Several persons connected with the Center for Youth and Community Studies of Howard Univ. give a practical description of the step-by-step process of training what they call "human service aides." They cover job definitions, recruitment, training, and the broader aspects of social education. See also President's Committee on Juvenile Delinquency and Youth Crime book with the same title.

Manpower, "The case for legal aides," vol. 1, no. 5, June 1969, pp. 26-28.

The article reviews favorably the Office of Economic Opportunity report "Paraprofessionals in Legal Service Programs: a feasibility study." The original study was prepared by the University Research Corporation's Institute for Justice and Law Enforcement and is no longer available.

Rehabilitation Record, "The rehabilitation aide . . .," vol. 9, no. 2, March-April 1968, pp. 35-40. (Available as a reprint from Rehabilitation Services Administration, Social and Rehabilitation Service, U.S. Dept. of Health, Education, and Welfare, Washington, D. C. 20201.)

Three good brief articles on the widely varying use of aides make up one section of the magazine. Problems are described and practical solutions and suggestions are offered. The articles are:

". . . in an Iowa labor union," by Charles E. Harvey;

". . . in a rural poverty area," by Calvin E. Davis; and

". . . in Watts and nearby neighborhoods," by Lenore Karpelowsky Ridenour.

Riessman, Frank, "The revolution in social work: the new nonprofessional," *Trans-action,* vol. 2, no. 6, Nov.-Dec. 1964, pp. 12-17.

What Mr. Riessman means in this very general statement is the potential revolution which could result from the potential benefits from potential utilization of the potential nonprofessional: additional manpower, identification of poor with poor, etc. He suggests some guidelines for training programs: de-emphasis on academic learning and more on learning by doing, the use of role-playing, the need to be explicit, and the team approach.

SPECIFIC PROGRAMS: HANDICAPPED

Auerbach, Leon, "Gallaudet College Computer Center—the story of its 11-year success in training programmers for business, government, industry," *Deaf American,* vol. 21, no. 10, June 1969, pp. 3-5.

While this article reports on a successful training program, it does not contain anything specific about methods, etc.

District of Columbia. Dept. of Vocational Rehabilitation, Washington, D. C. 20005, 202/629-5278.

A national follow-up study of mental retardates employed by the Federal government. Final report, Oct. 1968. (Hedwig W. Oswald, project director)

Of the over 100 kinds of jobs filled by the mentally retarded, 52% were in the classified and postal service, this report states. Study indicates that there is little relationship between job performance and either IQ test scores, school grade level completed, or reading achievement. More important variables which are related to the success of mental retardates in the Federal service are capability to take directions and ability to follow through and to pace work. There was an encouraging upward mobility and relatively low turnover. Job opportunities can be expanded by job restructuring and on-the-job training. This is a useful report that should help dispel doubts about the feasibility of employing retardates. Supporting statistical data.

Kunze, Ruth, "A year of progress in employing the handicapped," *Employment Service Review,* vol. 5, no. 12, Dec. 1968, pp. 38-39.

The author describes various national programs to help the handicapped become self-supporting. Over 300,000 have been placed since World War II, 14,500 in the Federal government itself, but thousands more are still unemployed.

McDonald, James L., "First New England civil service training program sponsored by Boston Speech and Hearing Foundation," *Deaf American,* vol. 21, no. 10, June 1969, p. 26.

The author, director of the Foundation, taught in a pilot program for the training of deaf Post Office clerk-carriers in the Boston area. The successful pilot program was originated by William Manning of the District of Columbia Dept. of Vocational Rehabilitation as part of an adult education program. Only 12 persons attended the first session, of whom nine took a group civil service test; six passed, one with the highest score ever recorded. The classes will be repeated.

Swain, Robert L., *moderator,* "Panel of pioneer deaf programmers discuss opportunities in the computer field for the deaf" [sic], *Deaf American,* vol. 21, no. 10, June 1969, pp. 5-8.

The title says all. Mr. Swain leads five deaf computer programmers in the discussion. [See also Ulan, Martin S. below.]

Wright, Richard, "Deaf clerk-carriers in Post Office experiment," *Employment Service Review,* vol. 5, nos. 10-11, Oct.-Nov. 1968, pp. 26-28.

In Wayne County, Mich., 75 deaf students completed Post Office training courses. They learned rapidly and 56 took the clerical exam. Twenty-seven passed and 21 are now employed.

SPECIFIC PROGRAMS: HEALTH AIDES

Bellin, Lowell Eliezer, Mary Killeen, and John J. Mazeika, "Preparing public health subprofessionals recruited from the poverty group—lessons from an OEO work-study program," *American Journal of Public Health,* vol. 57, no. 2, Feb. 1967, pp. 242-252.

The article is a report on community college training of high school graduates as subprofessional or auxiliary health workers. It includes detailed information on the course of study and field experience offered, and summarizes the knowledge gained from the program by the originators. It is a useful report on a specific project which might also be applicable to programs with lower educational levels.

Callan, Laurence B., "Health education aide trainee project," *Public Health Reports,* vol. 84, no. 5, May 1969, pp. 459-464.

In 1967 the American Cancer Society branch in Calif. successfully trained four aides to work with poor people to encourage early diagnosis and early care of cancer. This is only one possible use of such indigenous health aides, says Mr. Callan. American Indians have been using such indigenous health aides since the 1950's and community health aides to work with migrant farm labor have been used in Calif. since 1961. [See also article by Jerrold M. Michael.]

Frankel, John, "To break the cycle of poverty and poor health," *Employment Service Review,* vol. 3, no. 11, Nov. 1966, pp. 18-20.

The Neighborhood Health Center Program of the Office of Economic Opportunity provides the opportunity for the training and development of health manpower. Eight centers had been started by the date of writing (Boston, Chicago, Denver, Los Angeles, New York, and Mound Bayou, Miss.) where different methods of improving services and utilizing residents were being tested. Nonprofessionals were being trained as mental health aides, laboratory assistants, clinic assistants, and health aides.

Hall, John R., "Toward health career ladders," *Employment Service Review* vol. 3, no. 11, Nov. 1966, pp. 23-24.

This article emphasizes the responsibility of management in the creation of career jobs in the health field and recommends changing the system without damaging patient care.

Heyman, Margaret M., "A study of effective utilization of social workers in a hospital setting," *Social Work,* vol. 6, no. 2, April 1961, pp. 36-43.

This report of a 1959 study project in a Philadelphia hospital again uses the social workers' definition of nonprofessional as someone without a graduate degree in social work. Although the report seems to assume a high educational level for all categories of jobs, the criteria for levels of jobs and the evaluation questionnaire might be of peripheral use. In her "Criteria for the selection of cases according to levels of staff skills" (*Social Casework,* vol. 42, no. 7, July 1961, pp. 325-331) the author gives the job descriptions used by the project according to the level of expertise (senior caseworker, caseworker, case aide, secretary) and reports on the caring for cases according to this breakdown. She feels it was a successful approach.

Hoff, Wilbur, "Training the disadvantaged as home health aides; programming success achieved by the Alameda County [Calif.] Health Department," *Public Health Reports,* vol. 84, no. 7, July 1969, pp. 617-623.

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The former director of the Alameda County Health Dept. (499 Fifth St., Oakland, Calif. 94607, 834-5151) describes the methods used to conduct the project and evaluates its results. Of 92 adults selected, 83 completed the course, and were certified as home health aides. The project's participants were not "creamed off," the author says (see Reissman under New York Univ. New Careers Development Center on that subject) but had widely differing educational backgrounds; 65% required additional education. The detailed story of the project described in this article may be found in the Alameda County Health Dept.'s "Home health aide pilot training project, final evaluation report" of Feb. 1968 (125 p.). However, their "supply is very low," and this article is the only generally available record of a success story complete with concrete suggestions.

Kent, James A. and C. Harvey Smith, "Involving the urban poor in health services through accommodation—the employment of neighborhood representatives," *American Journal of Public Health,* vol. 57, no. 6, June 1967, pp. 997-1003.

"Departing from the concept of the indigenous nonprofessional, the Maternity and Infant Care Project . . . [of] Denver's Dept. of Health and Hospitals has created a new role for indigenous people. Neighborhood representatives, as they are called, are hired specifically to represent their disadvantaged neighborhood . . . as a semi-independent worker, [he] becomes a 'link' . . . Unlike the nonprofessionals, representatives are not closely supervised nor are subprofessional tasks imposed upon them." On-the-job training evolved from problem identification to problem analysis and finally to problem solving. There was a marked increase in clinic use, directly traceable to the representatives. This is a program for getting to the hard-to-reach, but, in the process, the representative also serves as a social worker aide, securing food and clothing, taking handicapped on shopping trips, assists in acquiring of welfare grants, etc. Also, the neighborhood representative was not using the job as a pathway out of poverty, but stayed with and identified with the neighborhood. [See works by Charles F. Grosser]

Michael, Jerrold M., "Experiences of the Public Health Service in training and using health auxiliaries," *Public Health Reports,* vol. 84, no. 8, Aug. 1969, pp. 681-689.

The programs for training indigenous field workers for the Division of Indian Health are described, but unfortunately without inclusion of specific information on training methods or basic requirements for inclusion in the programs. The article does include a useful list of division training manuals. [See also article by Laurence B. Callan]

Piemer, Sydney C., Gertrude Z. Gass, and Aaron L. Rutledge, "An experiment in retraining unemployed men for practical nursing careers," *Hospitals* (Journal of the American Hospital Association), vol. 40, no. 20, Oct. 16, 1966, pp. 87-90+.

The article describes an experimental program and, based on the experience, presents guidelines for the establishment of such a program on a regular basis.

Rice, Donald T., "Three paradoxes in health development," *Public Health Reports,* vol. 81, no. 10, Oct. 1966, p. 885.

The author points out the continuing need for subprofessional health service staff no matter how advanced the medical system becomes. Although he uses developing countries as an example, the same point is pertinent to the United States. "In the long run, improvement in the health of the population will depend on the extent to which . . . the values, economy, and sensibility of using minimally trained auxiliaries are recognized."

Sanders, Marion K., "The doctors meet the people," *Harper's Magazine,* vol. 236, no. 1412, Jan. 1968, pp. 56-62.

Family-health workers who have been taught a variety of home-nursing jobs and who also serve as patient advocates are part of a health team. Doctors are called on for consultation as the nurse, who serves as team captain, determines and regular discussion conferences are held for guidance. The program begins with selection from recruitment rolls (30 of 450 applicants), core training, then specialized training as family-health workers, lab technicians, or medical record-keepers. New jobs are being developed, such as obstetrical assistant and anesthesiology assistant. "It costs the taxpayer approximately $1,000 to educate each trainee . . ." In conjunction with City College of New York (now CUNY), a career ladder program was developed. There are still problems, however: status-conscious professional organizations who choose the most promising rather than the most needy candidates and the need for more involvement of the poor. Other programs of a similar nature are being carried out all over the country under OEO funds.

Steinberg, Sheldon S., Eunice O. Shatz, and Jacob R. Fishman, "New careers: a major solution to the environmental health problem," *American Journal of Public Health and the Nation's Health,* vol. 59, no. 7, July 1969, pp. 1118-1123.

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This is a concise summary of the need for and the problems of training adequate manpower for health services. The authors describe a new careers program in the field and outline the advantages as well as the problems which must be faced. The question is not, they say, whether indigenous personnel should be utilized, but rather how quickly we can analyze and alter the existing system to utilize both available and trainable manpower.

U.S. Dept. of Health, Education, and Welfare. Office of Education, 400 Maryland Ave., Southwest, Washington, D. C. 20202.

Good training, good jobs: MDTA occupational therapy assistant program, 1968. 5 p. (no. OE-87027)

A brief pamphlet describing the therapy program and listing the training outlets.

SPECIFIC PROGRAMS: LABORATORY ASSISTANTS

National Committee for Careers in Medical Technology, 9650 Rockville Pike, Bethesda, Md. 20014

Laboratory assistant field project: final report [prepared for the Manpower Administration, U.S. Dept. of Labor, no. 82-08-67], June 30, 1968. 50 p.

The Committee undertook this three-year program to promote and encourage the development of additional 12-month training programs in as many states as possible. There are now 160 schools operating under the 1963 standards of the Board of Certified Laboratory Assistants and 400 of the 1,100 trainees during the period covered were classed as disadvantaged. "It is concluded that all types of disadvantaged are trainable but better orientation is needed to prevent dropouts. Trainees at this level require counseling . . . the various categories of laboratory personnel must be more clearly defined . . . and the medical laboratory professionals should concern themselves with the application of laboratory assistant training to usage on the job." The text and appendixes provide detailed information on the entire project.

Ulan, Martin S., "Handicapped workers rate high as lab employees," *Hospitals* (Journal of the American Hospital Association), vol. 43, no. 4, Feb. 16, 1969, pp. 45-47+.

The author reports on a study made by National Committee for Careers in Medical Technology on the successful training of the medically handicapped as medical technologists and assistants in hospital laboratories. The study indicates that 90% of disabled workers presently employed rated satisfactory, even when their disability was severe.

SPECIFIC PROGRAMS: POLICE AND CORRECTIONS

Benjamin, Judith G., Marcia K. Freedman, and Edith F. Lynton

Pros and cons: new roles for nonprofessionals in corrections. Washington, D. C. 20402, U.S. Government Printing Office, 1966. 127 p. 40 cents (no. 214-138). (Prepared by the National Committee on Employment of Youth for the Office of Juvenile Delinquency and Youth Development of the U.S. Dept. of Health, Education, and Welfare.)

Because low pay and undesirable working conditions make it difficult to attract professionals to the field, the major thrust in correctional institutions has been toward upgrading the nonprofessional. This is done by in-service training, team approach, and group counseling. All this is thoroughly described and documented in a serious book with a punning title.

Bergen, Abraham H., "Police find recruits elusive," *Manpower,* vol. 1, no. 5, June 1969, pp. 2-7.

The author discusses the shortage not just of applicants, but of qualified applicants, and reports on both sides of the question. For example, Berkeley, Calif., overcame its shortage by *raising* requirements to include at least two years of college, while the opposite view is presented in the argument that present tests do not evaluate properly the qualities that make good police officers and so tend to disqualify many competent Negroes. This well-written article documents other issues in police recruitment: pay, training, qualifications, etc.

Coleman, Noble E. *et al*

New careerist casebook number two: police community aides and probation aides. Walnut Creek, Calif., Contra Costa Council of Community Services, June 1967, 67 p. (pub. no. 113, $1.00)

The cases handled by several new careerists working with the police and probation departments of Richmond, Calif., are provided without evaluation. They cover three areas: street work, daytime treatment center, and detention center. The authors caution that the reader should not infer, as is suggested by the material, that the work done by these new careerists would not necessarily have been done in their absence. The workers wrote the material except for the introduction.

Industrial Bulletin, "Their goal: to become 'men in blue,'" vol. 45, no. 7, July 1966, pp. 2-4. (A publication of the New York State Dept. of Labor, State Campus, Albany, N. Y. 12226)

Manpower Development and Training Act (MDTA) money was used in this program aimed at recruitment of Negroes and Puerto Ricans for the New York City Police Dept. Some 325 men started training in 1966. They were recruited by a mobile bus which ranged through their neighborhoods, similar to one in use in Washington, D. C. Applicants were screened out only for convicted felonies or obvious lack of scholastic ability.

Kirkbride, Joe B., "Familiar faces bridge police-ghetto gap," *Manpower,* vol. 1, no. 3, April 1969, pp. 24-27.

Fifteen men, ages 20 to 39, are being trained under a new careers program in Oakland, Calif., to become general services police employees. The police department suspended educational and other professional requirements and used the U.S. Employment Service to recruit the men for the two-year program. (See Institute for the Study of Crime and Delinquency.)

Misner, Gordon E.
The development of "New Careerist" positions in the Richmond Police Department. Walnut Creek, Calif., Contra Costa Council of Community Services, Jan. 1966. 70 p. (pub. no. 103, $1.00)

The complete story of the development of the community aide program in the city police department, from the original agreement of cooperation, through the training of five persons, to the projection of such a project to larger metropolitan areas. A sound report.

Shearer, Lloyd, "Cops and copouts: ex-cons join the police force," *Parade,* Aug. 24, 1969, pp. 4-5.

The Los Angeles Police Dept. took advantage of Dept. of Labor Concentrated Employment Program of New Careers funds to set up a program utilizing hard-core unemployed as community relations aides. Eighteen of the first 20 applicants were ex-convicts and this highly-journalistic account indicates the program has been a success.

Social Development Corporation
New careers police-community relations. (For Dept. of Labor Manpower Administration, Contract no. G-8912-99), [n.d.] 40 p. Single copies free.

In addition to providing useful careers, the police-community relations aide position is seen as a bridge between the dangerously polarized disadvantaged community and the police. The article contains practical explanation of the role of the aide and how to establish the position, including a report on the successful Los Angeles police aide program.

SPECIFIC PROGRAMS: PSYCHIATRIC AND MENTAL HEALTH AIDES

Christmas, June Jackson, "Group methods in training and practice: nonprofessional mental health personnel in a deprived community," *American Journal of Orthopsychiatry,* vol. 36, no. 3, April 1966, pp. 410-419.

The Group Therapy Program of Harlem Hospital (which recently threatened to close its doors for lack of funds) was using indigenous aides in 1965 to "not only provide new types of mental health services, but also make . . . possible identification of the effect of these new roles on patient progress, family, community and professional attitudes." Men and women of all ages were recruited through clubs, churches, and community agencies or from neighborhood projects. Trained casework aides (two full time and four part time) work with a group of 20 patients under professional direction. Each aide also performs case service to specific patients. The training is by group and includes a two-to-three week orientation period, on-the-job training by graduated tasks, and continuous training-group experience. Reports are made daily by tape recorder rather than in writing. The aides also have enrichment training, the cooperation of professionals on a structured basis, and are able to participate gradually in the total program.

Day, Max and Alice M. Robinson, "Training aides through group techniques," *Nursing Outlook,* vol. 2, no. 6, June 1954, pp. 308-310.

The techniques for in-service training of psychiatric aides used in the Boston State Hospital are the subject of this article in the magazine of the American Journal of Nursing Company (N. Y.). Problems and successes are described. The practical experiences reported would be pertinent to other fields.

Group for the Advancement of Psychiatry, 104 East 25th St., New York, N. Y. 10010. (Publications office)

Symposium no. 10: Urban America and the planning of mental health services, Nov. 3, 1964. 516 p. $2.00.

The only relevant article in this publication is "The mental health agent in the urban community" by James G. Kelly (pp. 474-494), which discusses the value of using trained indigenous personnel to link "the informal and the formal networks of health facilities." He suggests additional research in the field and long-range planning and appends an extensive bibliography directly related to the subject.

Hallowitz, Emmanuel and Frank Riessman, "The role of the indigenous nonprofessional in a community mental health neighborhood service center program," *American Journal of Orthopsychiatry,* vol. 37, no. 4, July 1967, pp. 766-778.

This is an account of a successful program utilizing indigenous nonprofessionals as mental health aides in Neighborhood Service Centers. These localized centers took their services to where the people were and depended largely on nonprofessionals who acted more as friends with "know how" than as social workers, intervening to give practical assistance in solving problems. The centers are aptly referred to as "psychological first-aid stations." A useful example of action that can be taken.

Robinson, Alice M.

The psychiatric aide: a textbook of patient care. Philadelphia, J. B. Lippincott, 1959. (2d ed.) 200 p.

Although it is ten years old, this is a fine, useful basic training text for those who want to provide more than just immediate patient care. It is simply written for use by student nurses and volunteers and could easily be used by those with a grade school education because it "concerns itself primarily with the relationships between people and the attitudes that are the essential tools . . ."

Savino, Michael T. and Frederic T. Schlamp, "The use of non-professional rehabilitation aides in decreasing re-hospitalization," *Journal of Rehabilitation,* vol. 34, no. 3, May-June 1968, pp. 28-31.

"The trained nonprofessional, especially those indigenous to low income and minority areas, can be uniquely effective in dealing with the problems of the returning ex-mental patient within his own subculture." Besides, they help overcome the shortage of professionals in the field and alleviate the "non-use" of professional help by those who need it most. An excellent article—clear, well-organized, with a practical description of the need for nonprofessionals, their role in patient work as well as in filling a gap in the profession, and how to initiate the jobs. Bibliography.

U.S. Dept. of Health, Education, and Welfare. Public Health Service, National Institute of Mental Health.

Highlights from survey of psychiatric aides. Bethesda, Md., 1964. 18 p.

A 1963 survey of 96,200 psychiatric aides in 282 state and county hospitals revealed that only 9% had some college education. There were 21% with eighth grade education or less, 31% with some high school, while 40% had completed high school. About 90% of the hospitals reporting indicated that they maintained formal training programs since 92% of their aides had had no previous training and 73% had had no previous relevant experience. Duties are described, but there is no discussion of recruitment methods.

SPECIFIC PROGRAMS: TEACHING AIDES

Alexander, S. Kern, "What teacher aides cannot do," *Nation's Schools,* vol. 82, no. 2, Aug. 1968, pp. 23-25+.

This useful article discusses the legality of hiring teaching aides and concludes that, in the absence of a statute to the contrary, the power to hire and pay teacher aides is within the authority of local school districts. He cites court decisions to this effect and reviews different states' actions in regard to authorizing the hiring of teaching aides. The authority and liability of teaching aides is also summarized and the article includes a 20-question quiz: "Paraprofessionals are in schools to stay—true or false?"

Anderson, Robert H., "Organizational character of education: staff utilization and deployment," *Review of Educational Research,* vol. 34, no. 4, Oct. 1964, pp. 455-469.

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The topic "subprofessionals and paraprofessional personnel" occupies only one page of this article, which otherwise deals with organizational teaching problems. As of 1964, says the author, few school districts utilized teaching aides in spite of widespread acceptance of them. He reviews the literature on the subject to that date.

Bowman, Garda W. and Gordon J. Klopf

New careers and roles in the American school. Report of phase one; a study of auxiliary personnel in education. New York, Bank Street College of Education for the Office of Economic Opportunity, Sept. 1967. 201 pp. (Clearinghouse pub. no. PB184883)

The text is a report of experiences with 15 demonstration programs operating in 1966. "In essence, the experience . . . seemed to indicate that it is not likely that the desired outcomes from the utilization of auxiliary personnel in a given school situation would be realized unless certain preconditions to their use were established . . .," say the authors. Although this volume begins with a summary of recommendations, the main body of the text covers only two areas of concern to this bibliography: role definition and development and training. Phase II, in another volume, focuses upon institutionalization.

As in other Bank Street publications done for the OEO, "auxiliary" means any assistance to teachers by other than professionals. A useful publication with good appendixes.

Bowman, Garda W. and Gordon J. Klopf

Training for new careers and roles in the American school. New York, Bank Street College of Education prepared for the U.S. Office of Education. Jan. 1969. 20 p. (Available from: Mr. M. Neben, Bureau of Educational Personnel Development, U.S. Office of Education, 400 Maryland Ave., Southwest, Washington, D. C. 20202)

This is a brief outline of the factors involved in re-arranging the teaching profession to include new careerists. Audio-visual and written training materials (the training guide is titled: "A learning team" by the same authors) are also available from the same source as is this pamphlet.

Connors, Joy, "Building a career ladder," *American Education,* vol. 5, no. 2, Feb. 1969, pp. 15-17.

This article in a Dept. of Health, Education, and Welfare magazine describes how paraprofessionals have been made an integral part of the revised structure of teaching in Temple City, Calif. The integrated career ladder includes a place for teachers' aides, resource center attendant, and laboratory assistant, all of whom may move up the teaching and administration ladder as they acquire additional education. The magazine is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402 for $4.50 a year or 45 cents a single copy.

Egerton, John, "Quasi-teachers: a growing breed," *Southern Education Report,* vol. 1, no. 4, Jan.-Feb. 1966, pp. 2-7.

The author points out the increasing need for teachers and the increasing use of "quasi-teachers." He suggests revision and standardization of certification requirements and refers to the suggestion by Dr. Richard C. Lawrence that teacher's colleges utilize the training techniques of the Peace Corps, Job Corps, and VISTA volunteers. He mentions Francis Kappel's case histories of teachers lost to the profession because of rigidity of standards. In addition, he reviews favorably the suggestions of Pearl and Riessman in "New careers for the poor" that a ten-year career-development program of teachers is needed, from noncompleted high school to certified professional by on-the-job training. The magazine is published by the Southern Education Reporting Service of Nashville, Tenn.

Esters, Allee, *et al*

New careerist casebook number one: school community workers. Walnut Creek, Calif., Contra Costa Council of Community Services, March 1967. 56 pp. (pub. no. 112, $1.00)

The cases handled by five Richmond, Calif., school community workers are presented without comment or analysis to show what can be done. Each worker wrote his own chapter.

Glovinsky, Arnold, Director, The Paraprofessional Study, 1500 Guardian Bldg., Detroit, Mich. 48226, 313/224-5595

The practice and the promise: paraprofessionalism in the schools of Wayne County, Mich. Studying the contribution of the paraprofessional and planning for their recruitment, selection, training, and use in the Wayne County Public and nonpublic schools—the paraprofessional study. Title III, ESEA, USOE no. 67-2998; Detroit, Wayne County Intermediate School District, Sept. 1968. 49 p.

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This is an excellent publication on a project that studied the use of paraprofessionals in a school district that employs over 7,000 of them. (This includes the City of Detroit school district as well as 42 much smaller districts.) The report poses and answers four basic questions on the limits of paraprofessionalism, the kinds of paraprofessionals (currently employed, estimated needs, salaried and/or volunteer, and types of aides), the need for training, and the content of a training program. Included also are recommendations that are guidelines for use of paraprofessionals with emphasis on career ladders and upward mobility. An appendix lists specific tasks performed by various kinds of aides.

North Carolina. State Dept. of Public Instruction, 326 State Education Bldg., Raleigh, N. C.
The teacher aide in North Carolina's Comprehensive School Improvement Project, May 1966. 30 p. Prepared by Frank C. Emmerling and Kanawha Z. Chairs. Pub. no. 395.

This is a valuable discussion of the how's and why's of teacher's aides with conclusions and recommendations based on successful experience. Two other publications describing the North Carolina experience are:

"Born a-growing," Nov. 1968, 48 p., Pub. no. 419, which provides additional background information on the overall program as well as a useful section on teacher's aides; and

"Aides for better schools: a report on the use of teacher aides, library aides, and health room aides in the public schools of North Carolina under Title I, ESEA," July 1967, 47 p., which contains statistical information on salaries, hours worked, duties performed, and a general guide to the program.

Pope, Lillie and Ruth Crump, "School drop-outs as assistant teachers," *Young Children,* vol. 21, no. 1, Oct. 1965, pp. 13-23. (Published by the National Association for the Education of Young Children, New York, N. Y.)

The authors describe an encouraging and successful program in which school drop-outs were trained as teachers' assistants. They report on the training techniques and the course of study.

Richmond, Charlotte, "The teacher aide," *Occupational Outlook Quarterly,* vol. 12, no. 4, Dec. 1968, pp. 1-3.

In this popularized article designed to sell the career, the author gives brief descriptions of the roles teachers aides may perform. There is a general statement of entry requirements.

U.S. Office of Economic Opportunity. Community Action Program.
Community action: the nonprofessional in the education system, Washington, D. C., July 1966. 20 p. (pamphlet no. 5)

The pamphlet provides a brief discussion of the training of nonprofessionals as teacher aides, describing the jobs that can be performed by them. It also cites training programs that have been conducted and how to organize this type of project.

SPECIFIC PROGRAMS: YOUTH

See also various titles in "Personnel practices" above and Center for the Study of Unemployed Youth in "Sources."

Benjamin, Judith G., Seymour Lesh, and Marcia K. Freedman
Youth employment programs in perspective. Washington, D. C. 20402, U.S. Government Printing Office, [1965]. 121 p. 45 cents (no. JD-2001-1965). (Prepared by the National Child Labor Committee/National Committee on the Employment of Youth for the Office of Juvenile Delinquency and Youth Development of the U.S. Dept. of Health, Education, and Welfare)

The report describes and assesses various programs and focuses on the choices of selection criteria made, specific groups of youth served, and the effectiveness of the efforts. There is a useful summary of the attempts made to make young "unemployables" employable and an appendix provides guidelines for establishment of youth employment programs.

Bingham, William C.
Counseling services for unemployed youth. New York, Center for the Study of Unemployed Youth, Summer 1967. 66 p.+. (Manpower training series)

This review of what is known and what is unknown in the field of counseling (see Project Cause) would be of use to anyone responsible for giving advice to potential employees who are poorly prepared to fill jobs. Three pages of references. A useful guide and summary.

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Cole, Edward

Work programs and the youthful offender. New York, Center for the Study of Unemployed Youth, June 1966. 18 p. (Training series)

Youthful offenders are defined as young men 16 through 21 "who are out of school, out of work, and have come to the attention of legal enforcement officials." The work training programs sponsored by the Federal government for these individuals are reviewed briefly in this monograph.

Cassell, Frank H., "New dimensions in employment services for youth," *Employment Service Review*, vol. 3, no. 5, May 1966, pp. 1-6.

The head of the U.S. Employment Service describes its counseling and placement services which utilize Youth Opportunity Centers and other Federal programs.

Gordon, Jesse E., "Project CAUSE, the Federal anti-poverty program, and some implications of subprofessional training," *American Psychologist*, vol. 20, no. 5, May 1965, pp. 334-343.

Discussing the reasons for and the extent of youth unemployment, the author uses as an example of efforts to combat it Project CAUSE of the Dept. of Labor (see "Sources") which in 1964 recruited about 1,900 people for intensive eight-to-ten week training courses conducted by 27 universities. They were prepared for subprofessional roles at Youth Opportunity Centers. The problem was that professionals in the field have raised standards higher and higher and did not wish to make room for subprofessionals no matter what the manpower shortage. He makes some specific suggestions for changing the minds of professionals.

Herman, Melvin and Stanley Sadofsky

Youth-work programs: problems of planning and operation. New York Univ. Graduate School of Social Work, Center for the Study of Unemployed Youth, 1966, 208 p.

"The study described in this report, conducted between September 1964 and August 1965, focused on nine youth-work programs in various parts of the country." It is a "broad survey of the problems of youth-work programs rather than an analysis in depth." The conclusions and recommendations of the study seem far more concerned with recommending further research, improvement of methodology, and training of research personnel than with the main subject, but the book may be of interest to those who want information on specific projects dealing with youth. The 89th Congress report is far better (see below).

Nellum, Albert A., *et al*

An analysis of summer youth demonstration programs. Washington, D. C., U.S. Dept. of Labor Office of Manpower Policy, Evaluation, and Research, Dec. 1966. 145 p. (Prepared by A. L. Nellum and Associates)

A private research firm reviewed 13 of the 33 summer youth projects under the jurisdiction of OMPER for usable techniques. They combined a study of the original proposals with interviews and observation. The 13 projects were chosen at random and most deal with the training of 13- to 15-year olds for private employment. In Kansas City, however, 150 youths were placed at a nearby air force base. The authors recommend more of this approach to nearby government installations. In general, they say, "we sought to determine *what* was accomplished and *how* it was accomplished."

U.S. Congress. Senate. Committee on Labor and Public Welfare. Subcommittee on Employment, Manpower, and Poverty.

Profile of Youth—1966. Washington, D. C., U.S. Government Printing Office, 1966. (89th Cong./2d sess., Sen. doc. no. 24, pts. 1 and 2) 908 pp.

Anything anybody could possibly want to know about American youth and the economy will be found here. Part I covers data on unemployment, employment, job training, educational and income levels, physical conditions, and special problems. This is followed by a detailed listing of all national organizations having anything to do with youth and their programs. Part II is concerned with a state-by-state breakdown of all activities dealing with youth. This covers many job training programs as well as those dealing with health, education, and general welfare. This is a basic compendium for those interested in youth employment.

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MF AVAILABLE IN VT-ERIC SET.
Organisation for Economic Cooperation and Development, 2 Rue Andre-Pascal, Paris SVI, France.
PUB DATE - Jun70 12p.Presented at International Conference on Continuing Training and Education During Working Life (Copenhagen, July 7-10, 1970).

DESCRIPTORS - *INPLANT PROGRAMS; *ON THE JOB TRAINING; *ENTRY WORKERS; *PROMOTION (OCCUPATIONAL); *ADULT VOCATIONAL EDUCATION; CAREER OPPORTUNITIES
IDENTIFIERS - AMERICAN TELEPHONE AND TELEGRAPH COMPANY; AT AND T

ABSTRACT - This report describes the training activities of American Telephone and Telegraph Company (AT and T) and related Bell System operating subsidiaries covering roughly 300,000 employees engaged in the physical plant operations. Due to the traditional policy of AT and T, all employees are hired as youths and expected to continue for life with the company. The problem of upgrading employees from their entry jobs to more complex ones (during constant technological change) therefore falls upon the company. AT and T's classroom training program, its laboratory training, and the development of instructors are described. (Author/BH)

VT 012 291

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SOCIAL AFFAIRS DIVISION

PROGRAMME FOR EMPLOYERS AND UNIONS

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INTERNATIONAL CONFERENCE ON CONTINUING TRAINING AND EDUCATION DURING WORKING LIFE

COPENHAGEN, 7th-10th July, 1970

2. C. Cases of Individual Enterprises :

U.S.A.

by

Fred G. Wells

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Manpower and Social Affairs Directorate

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THE AMERICAN TELEPHONE AND TELEGRAPH

(United States of America)

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with the assistance of
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INTRODUCTION

Through ninety years of providing telephone communications service to the people of the United States of America, the Plant Department of the Bell System has installed and maintained the customer's telephone equipment, maintained the switching equipment, installed and maintained the interconnecting wire and cable, and maintained the equipment required for the intercity network. The Plant Department also maintains the buildings and the automobile and truck fleets, but its primary job has been the provision of quality telephone communication service.

One of the strengths of the Bell System has been the assignment of one department to operate and maintain the total local and intercity telephone network. This has required a multi-skilled work force. Effective training programmes have served as the mechanism to develop the skills and expertise of this force. This report addresses itself to training experience in the Plant Department of the Operating Companies, the Long Lines Department and the A. T. & T. Company.

HISTORY

The training experience of the Bell Telephone Companies has spanned four distinct eras. The first era began with the formation of the Bell System during the last decade of the nineteenth century. During this era manual switchboards were introduced, and aerial wire and pole lines were built to interconnect cities. Manual switchboard installations grew to enormous proportions to manually switch local and long distance calls. This era also saw the introduction of vacuum tube devices to amplify intercity circuits.

The first installation of automatic dial switching equipment in the early 1900s ushered in the second era. A customer dialled his call and the switching equipment connected him with the customer he dialled and automatically provided the ringing. Electron tube multiplexing equipment introduced greater numbers of intercity circuits.

The use of common control switching equipment with its great switching speed and switching flexibility marked the threshold of the third era. Coaxial cable and L Carrier multiplexing equipment were placed in service and miniaturized transitorized equipment appeared to supplant electromechanical relay equipment. The era also saw the establishment of an automatic intercity switching network carried by intercity microwave radio routes with radio channel multiplexing. This last development provided as many as 600 circuits per radio channel, and the building of coaxial cable routes provided additional thousands of intercity circuits.

The development and introduction of electronic switching systems announced the beginning of today's era, the fourth of the series. The speed of switching is now stepped up significantly, dialling time is decreased with TOUCH-TONE equipment being used by the customer and the size of central office switching equipment is much reduced. Radio and coaxial cable routes now carry increased numbers of circuits as a result of new technology, and 90 per cent of intercity circuits are carried on radio and coaxial cable. In addition to the technological changes, another significant development is the admission of females to all vocational jobs in our industry.

Today's training programme addresses itself to skills that have accumulated throughout ninety years of telephone communications. However, the rate of technological change has increased rapidly in the last two decades. Today, new telephone service offerings are frequent and new equipment technology must be planned for weekly. More than fifty training courses are under development to meet new equipment introduction or technological change.

PLANT DEPARTMENT ROLE

Consider the multitude of vocational skills and technical know-how required of telephone craftsmen. Today the Bell Telephone Companies serve 52 million customers using 93 million telephones, ranging from the simple residence telephone to a complex business telephone system employing sophisticated electronic switching systems located on the customer's premises. These telephones are switched by 14,500 dial switching systems of all types in local central offices. The central offices are connected with the customer telephones and interconnected with other central offices by 4,700,000 wire miles of aerial wire, 1,300,000 sheath miles of cable, 329,000 duct miles of underground conduit, and 19,700,000 poles. The climbing of poles, so important in the early days of telephone development, still occupies an important role in the maintenance of telephone service.

Today the intercity long distance network in the United States has 515,800 intercity circuits, 10 regional switching centres and 57 sectional switching centres. The intercity facilities carrying these circuits have 110,600 microwave route miles and 18,800 route miles of coaxial cable.

The vehicular fleet has 25,000 automobiles, 81,250 small trucks, and 18,750 large construction trucks, many equipped with special apparatus such as hole-boring equipment, aerial ladders and baskets, and cable placing equipment.

The installation, operation and maintenance of the "plant" described above require a Plant Department employee force that numbers 260,000 craftsmen supervised by 30,000 foremen with many thousands of middle and executive management providing other levels of back-up.

The increasing complexity of equipment to furnish telephone service has also meant that each employee must be more skilled and acquire background knowledge for a greater variety of tasks. While contract and itinerant workers furnished many of the skills required in the early days, today's employee must be the product of an effective training programme and possess the ability to perform many skills efficiently and correctly.

TRAINING PROGRAMME SIZE

The classroom training programme of today requires more than 1,400 classrooms with as many management employees providing the instruction. These classrooms are located in 100 major training centres throughout the Bell System. If we tally only those classes of eight continuous hours or more and given in the training centres, we provided 11,700,000 classroom hours of vocational training for craftsmen during 1969. Foremen attended 1,150,000 hours of classroom training.

Each day more than 8,000 craftsmen and foremen attend classroom sessions in established training centres. During 1969, 166,000 craftsmen and foremen attended classes ranging in length from 1 day to 120 days. The average classroom training equated to 45.5 hours per craftsman or 2.7 per cent of the productive time. If we included the shorter conferences and brief training sessions, the total vocational training for craft employees would exceed 15,000,000 hours during 1969. These additional hours included 700,000 hours of driver training 1,100,000 hours of safety training. Only one educational programme by a single university or industry in the United States is larger than the Bell Telephone Companies' Plant Department training programme.

ILLUSTRATION OF CAREER PATH AND TRAINING

The new craft employee today is usually a young man (or woman) who is just out of high school or who has just completed military service. In general, he is unfamiliar with telephone craft work and in a growing percentage of cases he is entirely unskilled with hand tools. Generally, he applies for employment at one of our employment centres. He is interviewed by a trained employment counsellor and thoroughly tested with Bell System Qualification Tests to determine if he will make a suitable employee for the telephone job. When he has completed the qualification tests with an acceptable score, he is then shown examples of the type work he will do and what he can expect if he accepts employment.

In an illustrative case we will employ him in the entry level job of lineman. Now we begin the planning and execution of his development as a craftsman and technician. First he receives instruction in climbing poles (5 days) and then in basic construction skills (10 days). In addition to these skills he must be given background knowledge (3 days) concerning his new career and knowledge of his benefits as a Bell System employee, i.e., Sickness and Pension Plans, Hospitalization Benefits, and Vacations. Additionally he is oriented in protection of telephone resources, secrecy of telephone communications, customer relations, and other subjects. He is given vehicle driver's training (1 day) that awards him a Bell System Driver's Certificate and first aid training (1 day) that qualifies him for an American

Red Cross first aid certificate. He receives indoctrination in safety, usually generously intermixed with the pole climbing course and basic construction skills. After 20 days of training he is now ready to be assigned to a small construction crew.

Although the employee being described was employed as a lineman, other entry level jobs are telephone installer, frameman, and cable splicer's helper. The type of entry level employment depends on the needs at the employing location.

Now, return to our illustrative case. With one to two years of line construction experience, he will move to a telephone station installation assignment and receive station installation training (10 days). After one to two years of telephone installation he is moved to a more complex telephone installation job, the installation of key telephone systems in small businesses. For this job he will receive training in basic key telephone systems (15 days). This prepares him to install small multi-line business communications systems. After one to two years of installing small to medium size key telephone systems he is moved to a job where he installs complex key telephone systems. Again he will return to the training centre for training related to advanced key telephone systems (15 days). He is additionally trained in relay adjustment (8 days) and circuit and blueprint reading (5 days). We may also elect to give him the background knowledge of basic electricity (8 days).

Two years later he is moved to a group that installs and maintains small and large dial switching systems for larger businesses. Initially, he receives training in step-by-step type switching systems (15 days) and later he is instructed in common control type switching systems (20 days). During his career as a small business switching system installer, we return him to the training centre to receive instruction in an advanced electronic switch unit (20 days) located on the customer's premises. Two years later we move him to a central office repairman's job where he will be located in a large central office location with electronic switching equipment. Again we return him to the training centre for instruction, on this occasion in an electronic switching system (110 days). After two years' experience in electronic switching systems he may be promoted to management and become a foreman in an electronic office.

This typical career path may vary slightly in different Bell Telephone Companies in the Bell System depending on their contractual arrangements with organisations that represent labour and depending on tradition in that territory. After careful assessment of these differences, such as competitive job bidding versus craft progression, we have concluded that they do not seem to significantly affect the requirements of a training programme.

In our illustrative case we have only considered craftsman skills for our employee. Now another universe of training and development is considered and we plan for his transition to a foreman and member of management. The new foreman receives indoctrination training (5 days) as quickly as practical and initial management development takes place within a few months. It includes on-the-job training (5 days) and "Initial Management Development" (10 days). He also attends a class of "Job Administration For Central Office Foremen" (5 days) and studies the "Controlled Maintenance Plan" (2 days). After a few months we instruct him in "Transmission Administration" (3 days). In our illustrative case we find this new foreman technically proficient so we won't consider him for additional technical training; however, he will

not be overlooked when new equipment arrives. We will continue his management development in future months and years. We explore this additionally in a later section entitled "Foreman Training".

This illustrative case will probably leave you with the impression that the cost of developing craftsmen and foremen is high. We have proven conclusively that costs of not developing them are higher and telephone service suffers in this event.

The Bell System Companies are autonomous in determining training needs and planning their programmes. As a result, there are some variations in the administration of training applied throughout an employee's career; however, the basic pattern for the Bell System is similar to our illustrative case described here. In several locations in the United States, the large cities principally, the career paths are modified because of the high specialization in craft work, because of management-labour organisation agreement, and because of tradition.

A SYSTEM'S APPROACH TO TRAINING

While it's apparent that career paths are sometimes complex and challenge management with responding with exact and timely training, the Bell System has used a system's approach that has been successful for many years. Contributing to this success has been the Bell System's recognition of the constantly improving methods of education and the increase in knowledge of the instructor-trainee process and our willingness to adopt these methods as they evolve. A measure of the Bell System success is the excellent telephone service furnished to its customers and because of the long history of excellent service, our customers are quick to detect flaws and impatient for them to be corrected.

The major elements of the System's approach to training are the following:

1. A known entry level of employees.
2. Training the foreman to plan for the development needs of his employees.
3. A plan for classroom training which includes the development of training courses and instructional materials, the development of instructors, the provision of adequate classrooms and training laboratories, and a classroom training administration plan for responding to the foreman's planned needs.
4. On-the-job training programme that includes self-instructional training packages.
5. Opportunities for self-development through correspondence courses, tuition aid plans, and Company library services.
6. A plan for the training of foremen, their indoctrination, their continual technical update, their instruction in job administration and management development to prepare them for their future in the Bell System.
7. Constant planning for the many new training courses required for newly introduced services and ever-increasing technological changes.
8. And a plan that assures that training is of the highest quality, is effective, and is efficient.

These important ingredients deserve a more complete description and we will enlarge on each.

EMPLOYEE ENTRY LEVEL

The entry level has been established for all new Bell System employees with minimum acceptable scores on pre-employment qualification tests. Training courses for new employees are keyed to this level and are successful in inducting the new employee and making him productive quickly. We have significant exceptions today where new employees are not tested for qualifications. Those not tested are given instruction in basic manual skills and other disciplines. When they have satisfactorily reached the level required by the qualification tests for other employees they are then included in the normal training activities.

Entry levels in most training courses are considered to be important and certain prerequisite skills and background knowledge are specified for all trainees. If the prerequisite skills are in doubt, we usually provide a prerequisite test to determine if the trainee meets the minimum entry level.

FOREMAN'S ROLE IN DEVELOPMENT OF EMPLOYEES

Each foreman is responsible for the job oriented development of craft employees reporting to him. This development is meant to fully prepare the craftsman for the skills required for his job and develop him to his full capability. Since many variances in work content exist, as well as differences in individuals, the foreman is in the best position to plan an orderly development of those individuals reporting to him. He is provided with a training administrative guide and has many resources available.

The foreman has been instructed in the relationship between classroom training, on-the-job training, and self-development. For example, separate training classes in training centres for each type of apparatus would require more classroom training than economically feasible. A philosophy of total classroom training for all subjects weakens the initiative of craftsmen and foremen to develop themselves. However, the complexity of present day equipment eliminates the possibility of doing all training on the job and the possibility of employees achieving technical and administrative competence through self-development activities alone is remote. The development programme of each individual represents a balance between classroom training, on-the-job training and self-development.

The foreman prepares a development portfolio for each employee. This portfolio inventories the job skills and knowledge requirements for the employee's specific assignment. In some instances the requirements represent only skills in one specific job. In other cases the requirements are a composite of several craft skills. The portfolio documents the employee's present capabilities and the skills he brought to the job. For example, he may be a graduate of a trade school or acquired communication experience during military service. The foreman compares the job requirements and the employee capabilities and determines the training and development that expand the employee's capabilities to match the job requirements. The foreman now plans the classroom training, that portion that cannot feasibly be done on the job, or training that is more effectively and economically done in a classroom, then he plans the on-the-job training. Next, he places an order on the training centre for the classroom training.

The foreman reviews the employee's progress frequently and reviews the development portfolio. As training or development occurs, the foreman enters the credit in the portfolio records. When development takes place through on-the-job training or self-development, the foreman can validate it by administering an equivalency test.

The responsibility for self-development, both job and academically oriented, clearly lies with the individual. It is the responsibility of the foreman to encourage self-development and give guidance if the employee seeks it.

CLASSROOM TRAINING - TRAINING COURSES AND INSTRUCTIONAL MATERIALS

Development of standard training courses and uniform instructor guides for use in the Bell System began in 1960. The standard training packages use the drawings and practices the trainee normally finds at the job location. The packages contain all text material relevant to the training, specify the apparatus components and standard test equipment, and include the instructor guide with trainee exercises. The training package includes a supplemental short training exercise for middle management.

Development of a standard training course begins with a careful job study and analysis of the skills required to perform the job. The objectives of the training are then prepared, stated in measurable terms. Criterion tests are prepared to test the reaching of the objectives and the instructional strategy is developed. The instructional materials are written and assembled, then tested for validity and relevance. The complete course is then field trialled to insure its effectiveness. Instructional material includes a variety of media and instructional tactics and has Bell System policy and safe working methods intermixed with the technical material. Instructional materials are both group paced and individual paced. Programmed instruction is also used.

The training resources of the Bell System are pooled to develop standard training courses. Some are developed by an individual Bell Telephone Company, and some are developed by a group of Bell Telephone Company personnel at A. T. & T. Company Headquarters. A few courses are contracted to commercial training course firms. All teletypewriter training courses are prepared by Teletype Corporation, a subsidiary of Western Electric Company. Recently Western Electric began the preparation of training courses for Electronic Switching Systems. One hundred and thirty standard Bell System training packages have been completed to date and thirty new courses are under preparation. In addition, the Bell Telephone Companies have prepared 2,500 other training courses for use in their respective Companies. A key point to mention again is that all courses are developed to meet Bell System training course standards and a classroom instructor trained to understand these standards can achieve excellent results with his trainees.

INSTRUCTOR DEVELOPMENT

The classroom instructors play a key role in development of the trainees attending their classes. Under training conditions, separated from the normal job influences, the trainee is unusually receptive to exercises that change his behaviour and increase his skills and knowledge. The standards of the classroom become the standards of the normal job, particularly if the trainee's normal foreman reinforces

and insists on the same standards when the trainee returns to the job. For these reasons the classroom instructor is carefully chosen considering his overall management ability, interpersonal skills, technical qualifications, and promotability rating.

The development of an instructor emphasizes the influential aspect of his assignment with respect to trainees in classes, and includes instruction in the instructor-trainee transaction. He becomes skilled at recognizing the factors influencing learning and dealing with problem learners by actual practice in front of television cameras. He receives practice in developing training objectives, and practices with audio and visual training aids. He receives practice in preparing skill tests and written tests, and learns to recognize learner oriented instructional materials. Now he is ready to prepare for instructing his first class on a subject in which he is technically qualified. The instructor's supervisor will monitor portions of his first class closely and assist the instructor in correcting his weaknesses.

After instructing classes for two to three years the instructor is re-assigned to a management job appropriate for his qualifications.

CLASSROOMS AND TRAINING LABORATORIES

Classrooms are designed for four to ten trainees and careful consideration is given to the environment. The classrooms are not sterile but also they are not cluttered. Distracting influences are minimized, work tables and chairs are comfortable, temperature and fresh air are controlled, and windows are shaded to limit light. Intensity of overhead light is 30 to 40 foot candles and these lights, along with visual aids, can be remotely controlled. "Hands-on" equipment is made mobile unless a permanent installation of the equipment is necessary for operational purposes. In the latter case, permanent "hands-on" laboratories are adjacent to classrooms but separated by accordian folding walls to eliminate distractions. "Hands-on" training equipment of unusually high cost, such as electronic switching systems, is provided at central locations for all Bell Telephone Companies to share.

ADMINISTRATION OF CLASSROOM TRAINING IN TRAINING CENTRES

The primary role of training centres is to respond to the foreman's requests for training for craftsmen. They are a resource for the foreman and other management in providing training of top quality and classes are scheduled to occur in the time frame planned by the foreman. Classrooms are provided, hands-on equipment is acquired, instructors are developed, classes are planned and announced, and the dozens of other details are co-ordinated to assure that the classroom experience will be orderly and effective for the trainees. Evaluations of each craft trainee are made during the training and returned to the foreman. The foreman is encouraged to comment on any unsatisfactory element and these comments become considerations for future changes.

ON-THE-JOB TRAINING

On-the-job training is given by the foreman to an individual craftsman in the actual work situation. This training might take the form of short remedial training for an observed work defect, or be a longer planned session to fit into the individual's development programme. In either case the foreman is prepared to instruct the

craftsman effectively with the skills acquired in training early in his foreman career. These skills in the instructor-trainee transaction are adequate for this situation and further enhance the foreman-craftsman rapport. Additionally, the foreman establishes standards for quality and production and reinforces his own technical expertise.

OPPORTUNITIES FOR SELF-DEVELOPMENT

As we stated earlier, the responsibility for self-development, either job related, avocation related, or academically related, clearly lies with the individual. If the employee seeks guidance or counsel, the foreman encourages his participation in the correspondence learning programmes furnished by the Bell Telephone Companies without cost to the employee, or encourages the employee to participate in the tuition aid plan in which the Companies contribute substantially toward the employee's costs. The employee is also informed of the textbook loan services offered by the Company sponsored libraries.

Plant Department employees participate heavily in correspondence learning programmes. The curriculum offered ranges from elementary mathematics to differential equations, from basic electronic theory to advanced electronics, from reading skills to letter writing, and also includes management skills. For the craftsman there is one restriction - he cannot enroll in a course teaching a skill or knowledge related to a subject needed only in the telephone vocation. This restriction satisfies a requirement of labour laws in the United States.

Most of the colleges and universities in the United States offer extension programmes either at night or through a satellite campus. For the employee who wishes to continue his education or accrue credits toward a degree, the Bell Telephone Companies contribute towards the employee costs, sometimes the complete cost. The employee's motivation may be to gain knowledge not available in Company training or to prepare himself for an administrative role in job management, or he might wish to keep his learning skills sharp. Many employees have completed work necessary for degrees with Company tuition plan financial assistance.

FOREMAN TRAINING

The foreman is a "key" member of management and can only manage effectively if he is thoroughly trained in both the objectives and the mechanics of his specific job. Training for foremen is separated into four categories, (1) Indoctrination, (2) Management Development, (3) Job Administration, and (4) Technical Development.

Ideally, a new foreman begins Indoctrination training the first day of his assignment. This one-time activity is meant to familiarize the new foreman with basic management responsibilities and has two broad objectives. (1) Instruct the new foreman in Company policy, procedures, and practices regarding organisation structure, accident prevention, service and cost objectives, quality standards, production goals, labour organisation contract matters, etc., (2) Provide an exercise that results in the transition from non-management to management with skills to work through others.

At this time the foreman's supervisor plans his future development in the three additional development areas, Management Development, Job Administration, and Technical Development.

Management Development includes initial development and continuing development. Initial development takes place within a few months of the new assignment. The foreman gains the skill of instructing a craftsman on-the-job and he is instructed in Initial Supervisory Training to identify attitudes and behaviour which are appropriate to his job and to better understand his effect on others in work situations. Continuing development applies to those skills that can be mastered over a long time period and require practice and application to actual job situations.

Job Administration training provides the foreman with the administrative "tools" required to manage his assignment. It instructs him in skills to analyse job situations and develop detailed administrative plans to improve operations. For example, a foreman assigned with the responsibility of ten station installers is instructed in the most effective methods of planning and managing his work force to achieve maximum quality and productivity, consistent with furnishing excellent telephone service.

Technical Development is often required of a new foreman since several years may have elapsed since the foreman performed technical work in the job area he will manage. Foremen are expected to be technically proficient in the jobs their people perform. Among reasons for this is the need for on-the-job training for craftsmen reporting to him. Additionally, the foreman establishes clear-cut technical standards, as well as performance standards and safety standards, and must recognize deficiencies in either and take corrective action.

PLANNING FOR FUTURE TRAINING COURSES

Telephone equipment complexity is increasing rapidly despite human engineering techniques employed in its design. This results in increased skill requirements and lengthens training time. As each equipment or system is initially planned, we too begin to plan the training course for its completion simultaneous with the introduction of the equipment in service. After introduction of the equipment we must keep pace with the design changes that often occur after a few months of use by our customers. Field use of the new equipment often results in improved maintenance techniques and operation methods.

TRAINING PROGRAMME EVALUATION

An important element of the system's approach to training is the plan that measures the quality and effectiveness of the on-going training activities. The plan judges the middle and upper management commitment and identifies training roadblocks. It identifies deviations from acceptable course development procedures and checks the validity of course objectives and criterion tests. It determines the effectiveness of instructor development and the degree of failure of the instructor to adhere to accepted instruction standards. It reviews the administration of training centres, the methods of establishing class volumes, the adequacy of numbers of classrooms, classroom environment, and trainee evaluation. It gauges the effectiveness of the "hands-on" laboratories and their adequacy. It also looks at the procedure established for feedback from the field to the course development and classroom training administrators. Obviously we have not mentioned all items that deserve evaluation but the essential aspects are listed above.

CONCLUSION

The cost of Plant training is a major economic factor in the operation of Bell Telephone Companies. These costs are increasing each year because of several influences. Wages have increased, number of employees have increased, force loss has increased in employee groups with high training rates, equipment is more complex, and the variety of equipment continues to grow. We have heard that the 1960s brought an explosion in communication technology and the size of our training programme substantiates this; however, the 1970s will bring greater challenge. Our continuing dedication to the "systems" approach to training will result in a programme within our economic ability and meet the challenge of greater numbers of employees and greater variety in needs.

The recent emergence of Instructional Technology(1) shows the greatest promise for dramatic improvement in our training programmes. Instructional materials presently being developed through use of Instructional Technology offer significant economies through shortening of training time, through the trainee being made productive earlier in his assignment, and through defect-free work with the resulting trouble-free telephone communication service. Combining Instructional Technology with the modular or building block concept will increase flexibility and decrease the cost of updating existing training courses.

In the past the Bell Telephone Companies have consistently and quickly adopted the improvements in training methods and employee development. The challenges of the next decade will test our training resources and responsiveness to the utmost, but we are confident we can meet the need.

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(1) The Commission on Instructional Technology reported to the President of the United States in March 1970 as follows: "Instructional Technology can be defined in two ways. In its more familiar sense, it means the media born of the communication revolution which can be used for instructional purposes alongside the teacher (instructor), textbook (trainee materials), and blackboard (chalkboard) .... It is a systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication, and employing a combination of human and non-human resources to bring about more effective instruction. The widespread acceptance and application .... belongs to the future".

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VT 012 311
Walther, Charles C.
A Comparison of the Self Concept of
Vocational and Technical Students.

Missouri Univ., Columbia.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 24p.

DESCRIPTORS - *VOCATIONAL EDUCATION;
*COMPARATIVE ANALYSIS; *ACHIEVEMENT; *CAREER
CHOICE; SOCIAL ADJUSTMENT; TECHNICAL
EDUCATION; FAMILY BACKGROUND; *SELF CONCEPT

ABSTRACT - Many students select programs that
are not in keeping with their demonstrated
abilities. Believing that the student's self
concept influences such decisions, this study
compared the self concepts of students
selecting 1-year programs to students
selecting 2-year vocational programs. A
comparative analysis of student achievement
in these two groups, however, revealed little
concrete data concerning such a relationship.
Further research is recommended for this
area. (Not recommended for hard copy
reproduction due to marginal legibility of

original document). (JS)

VT 012 311

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A COMPARISON OF THE SELF CONCEPT OF VOCATIONAL AND TECHNICAL STUDENTS

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No factor is more fundamental to a persons success and happiness than his evaluation and acceptance of self. The self concept is a product of many experiences and interactions with a multitude of people of various social, economic, political and hierarchal levels. Included are parents, siblings, relatives, friends, peer groups, teachers, counselors, and, to a lessor extent, individuals that a person interacts with infrequently in his day to day living. Undoubtedly the self concept evolves out of ones total life experiences.

Many studies have been made to ascertain the extent to which the self concept influences vocational choice and achievement. Other studies have been concerned with establishing the person or group of persons that are most influential in affecting the choice.

While some studies have demonstrated that the self concept influences vocational choice (Field, 1963; Holland, 1963; Korman, 1967; Osipow, 1966 & Stockin, 1964) few studies have been undertaken to determine the extent to which the self concept influences the level of educational aspiration and program choice. This then provides a

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lucrative field for investigation.

Problem

The vocational, technical and adult schools in the state of Wisconsin have an open door admission policy that permits students to enroll in programs of their choice. Among other things, these schools offer one year diploma programs and two year associate degree programs. Residents of the state may enroll in either type program tuition free.

Although a freedom of choice exists, some students select programs that are not in keeping with their demonstrated abilities as indicated by high school achievement and test scores. Often, average and superior students enroll in one year diploma programs. Many of them, in addition to having adequate intellectual capability, have personal characteristics and attributes that justify enrollment in associate degree programs. These programs are more rigorous and prepare the student for more lucrative job opportunities.

The purpose of this study was to compare the self concepts of students selecting one year diploma programs with students selecting two year associate degree programs.

Review of the Literature

The development of the self concept is a continuing process and the self concept at any given time is

the culmination of all ones life experiences up to that particular time.

In their study of sixth grade students Williams and Cole (1968) found that a positive relationship existed between the student's self appraisal and his academic achievement. Coincident with this they found that there was a marked relationship between self appraisal and peer appraisal. They contend that assessment of self concept, in the school situation, is just as important as determining IQ or level of achievement. They suggest that since academic reinforcement is a factor that alters the self concept that the classroom teacher has a responsibility for enhancing the self concept of the student that is not achieving. The implication being that lack of a positive self concept inhibits the intellectual growth and development of the child. Paschal (1968) noted that a positive correlation existed between academic achievement and self concept in all areas except mathematics.

Spivack (1956) used a 132 item check list to determine self concept. This list had responses that were both positive and negative. Characteristics of an imagined person were described and the students were required to respond with, "thats like me," "thats not like me" or "?." Spivack found that the self accepting individual respects himself, lives very comfortably with himself, recognizes his wishes, fears, emotional tendencies and generally likes

himself. The person with a poor self concept was found to view himself in a derogatory way, lacked confidence and felt that others viewed him in the same manner. The self view not only affected academic performance and achievement but determined level of aspiration.

Since parents exert a great deal of influence on vocational choice it logically follows that their impact on self and level of aspiration must also be profound. Anderson (1965) found that persons or groups influence occupational selection in the following order; parents, peers, friends, teachers and counselors. The importance of parents in the selection was further emphasized by Marr in 1965. She found that students that could relate to a father, or father substitute, could make more positive vocational choices than students that could not identify with the role model. She found evidence that those without the model were confused and had difficulty in making a choice.

Schutz and Blocher (1961) were interested in testing the level of vocational choice in relation to the self concept. In addition to using the Occupation Level scale (OL) of the Strong Vocational Interest Blank (SVIB) they also employed a check list that they had developed. Their findings suggest that self evaluation, or self concept, can be measured indirectly by a scale of occupational content such as the OL of the SVIB. Undoubtedly there is

some correlation between the choice of occupational level and self concept but, in this investigators opinion, merely determining occupational level does not logically justify concluding what a persons self concept is. It merely relates to the vocational self concept which is a part of the total self concept. As Givens (1961) says, "self evaluation is related to vocational choice", the choice is not necessarily a reflection of self appraisal.

Some researchers have criticized the use of inventories and questionnaires to determine self concept. Paschal (1968) notes that the validity of these inventories is quite low. Nevertheless, he concedes that even though these measurement tools merely result in what he calls a self report they do in fact give some indication of the self concept. Combs (1963) used 63 children in his study and found that the self report is rarely identical to the self concept. Caplin (1968) agrees that self reports provide some insights about a person but he cautions against taking the report at face value. This was also noted by Holland and Lutz (1968) in their study of the predictive value of a students choice in vocation. They noted that the expressed, or verbalized occupational choice was a more valid predictor of occupational selection than the choice indicated by the Vocational Preference Inventory. Based on the results of their study they concluded that the use of inventories could be abandoned for freshman

students except those that are undecided and fail to verbalize a choice.

While the limitations of current inventories are manifest it is not practical to substitute personal interviews and extensive observation to ascertain self concept for large groups. For this reason currently available instruments must be used keeping in mind their limitations.

Method

Students enrolled at Kenosha Technical Institute (KTI) in Kenosha, Wisconsin were used in this study. The sample consisted of all first year students enrolled in Auto Tune-Body (AT-1), Machine Tool Operations (MT-1), Fluid Power Maintenance (FP-1), and Clerk Typist (CS-1) diploma programs and all first year students enrolled in Automotive Technology (AT-2), Mechanical Technology (MT-2), Fluid Power Technology (FP-2), and Secretarial Science (CS-2) associate degree programs.

Diploma and associate degree programs were considered comparable if the course content was similar. The distinction between diploma and associate degree programs being that the material covered in the associate degree programs was broader in scope and more comprehensive than that contained in diploma programs. Thus AT-1 is comparable to AT-2, MT-1 is comparable to MT-2 etc.

The counseling form of the Tennessee Self Concept

Scale (TSCS), (Fitts, 1965) was administered to all students present on April 6, 7, and 8, 1970. To assure equivalence of directions the same person administered all scales.

An F test for simple main effects was made for each scale of the TSCS. For an interpretation of simple effects refer to pages 174-178 of Winer (1962). In instances where there were significant main effects Duncan's a posteriori multiple range test for multiple comparison was used to determine which specific means differed significantly. The .05 level of significance was used as a basis for rejecting the null hypothesis.

Results

Table 1 shows the number (N) of students from each group, the means ($\bar{X}$) and standard deviation (SD) by group for the Physical Self scale. This construct has to do with how the individual views his body, state of health, physical appearance and skills. Table 2 reflects the simple main effects, sum of squares (SS), degrees of freedom (df) and F ratio on the Physical self scale.

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Insert Tables 1 and 2 about here

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The mean score achieved by students from FP-2 differed significantly from the mean achieved by persons enrolled in FP-1. In addition the FP-2 scores were

significantly different from those achieved by persons enrolled in AT-2 and MT-2. The FP-2 mean scores were lower than the means of their counterparts.

Tables 3 and 4, 5 and 6, and 7 and 8 show means, SD, SS, df, and F ratios for Moral Ethical Self, Personal Self, and Family Self in that order. There were no significant differences between the various groups.

- -

Insert Tables 3, 4, 5, 6, 7, and 8 about here

- -

Table 9 gives the means and SD for the Social Self scale.

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Insert Table 9 about here

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Social Self is a description of the self as perceived by the individual in relation to other persons. In general it reflects the person's sense of adequacy and worth in his social interaction with society.

Table 10 indicates that there was a significant difference in the way the FP-2 group perceived itself compared to the FP-1 group. Mean scores of the FP-2 group were statistically lower than the mean scores of the FP-1 group.

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Insert Table 10 about here

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Mean and SD scores for Identity are contained in Table 11. This score is made up of "what I am" items. It is a description of the self as the individual perceives himself.

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Insert Table 11 about here

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Table 12 shows that there was a significant difference in the way the FP-2 group perceived itself in relation to the FP-1 group and in relation to the other three associate degree groups. The difference between the FP-2 and FP-1 group was significant at the .01 level whereas the difference between associate degree groups was significant at the .05 level. In both cases the FP-2 mean scores were lower than those of their counterparts.

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Insert Table 12 about here

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Tables 13 and 14 summarize data on the Self Satisfaction scale. There was no significant differences between the various groups.

- -

Insert Tables 13 and 14 about here

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Means and SD on the Behavior scale are contained in Table 15.

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Insert Table 15 about here

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This scale measures the individual's perception of his own behavior. The score comes from items that say "This is what I do" and "this is the way I act."

Table 16 shows that there was a perceived difference in behavior patterns between FP-2 and FP-1 students. As with the other scales the mean score for the FP-2 group was the lessor.

- - - - - - - - - - - - - - - - -

Insert Table 16 about here

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The total, or P score, is the most important score in the TSCS. Persons that score high generally have a high level of self esteem, like themselves, believe they are socially adequate, have confidence in their decision making ability, and generally act accordingly. Those that score low may be anxious, depressed, and view themselves as unworthy personages. Mean and SD scores on the Total, or P scale, are reflected in Table 17.

- - - - - - - - - - - - - - - - -

Insert Table 17 about here

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Table 18 contains statistical data about the Total, or P score. As with some of the other scales the FP-2 group scored significantly lower than their FP-1 counterparts. There were no other significant differences.

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Insert Table 18 about here

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Discussion

Results of the study show that scores achieved by the FP-2 group were statistically lower than scores achieved by their FP-1 counterparts and several of the associate degree groups on five scales of the TSCS. While the results suggest rejection of the null hypothesis on these scales is warranted the investigator is reluctant to reach any firm conclusions or make predictions based on them. This is especially true since there were no differences indicated between diploma and degree groups overall or within the categories. Further, there are several other equally tenable reasons that could explain the differences.

It is conceivable that the difference results from a type one or sampling error. Furthermore, in retrospect, it is noted that the study had several limitations or shortcomings. Paramount was the fact that the scale was administered during the second semester in lieu of prior

to the start of classes. In conjunction with this it is reasonable to hypothesize that the self concept of students enrolled in a meaningful educational experience could have been materially changed, from first to second semester, and that persons that had a poor self concept at the beginning of the year may have dropped out prior to second semester. Thus, while differences may have existed at the outset of training they may have been eradicated by the training and dropouts.

Williams and Cole (1968), and other researchers, have suggested that academic reinforcement does in fact alter the self concept. In regard to this since positive academic reinforcement enhances the self concept it logically follows that the converse could have had a debilitating effect. In conjunction with the latter it is plausible that persons who were enrolled in the FP-2 program, by being exposed to a different instructional staff, may have had their self concepts materially altered in a negative way. Another possibility is that the instructional staff may have created a type of anxiety that caused students with a high self concept initially to drop out ultimately resulting in a selective retention.

Since the limitations of the study are apparent and because it is still desirable to have information concerning the comparative self concepts of diploma and associate degree groups, for both practical and intellectual

reasons, it is both necessary and desirable to replicate the study. Ideally the study should be undertaken, and the scale should be administered, prior to the start of classes. Additional information relevant to how self concepts are modified as a result of the educational experience could be obtained by administering the scale at the conclusion of the first semester. In effect this would be pre and post testing.

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TABLE 1

Mean and standard deviation within groups on the TSCS:

Physical Self

GROUP	N	$\bar{X}$	SD
AT-1	21	67.24	9.48
AT-2	21	72.80	6.53
MT-1	6	67.33	10.19
MT-2	18	69.28	5.48
FP-1	14	70.07	6.92
FP-2	14	64.29	8.73
CS-1	12	68.75	7.91
CS-2	17	67.53	6.38

GRAND MEAN 68.67

TABLE 2

Simple main effects of variance on the TSCS

Physical Self

SOURCE	SS	df	F Ratio
AT-1, AT-2	206.08	1	3.573
MT-1, MT-2	25.05	1	0.434
FP-1, FP-2	222.21	1	3.852*
CS-1, CS-2	9.91	1	0.172
Columns Diploma	71.58	3	0.414
Columns Associate Degree	503.08	3	2.908*
Within Cell Error	6632.38	115	
Totals	7208.18	122	

*$<.05$

TABLE 3

Mean and standard deviation within groups on the TSCS:

Moral Ethical Self

GROUP	N	$\overline{X}$	SD
AT-1	21	64.14	8.08
AT-2	21	68.05	8.88
MT-1	6	66.33	5.16
MT-2	18	64.94	7.14
FP-1	14	69.57	6.78
FP-2	14	64.21	7.16
CS-1	12	69.08	8.39
CS-2	17	68.06	6.38
GRAND MEAN 66.68			

TABLE 4

Simple main effects of variance on the TSCS:

Moral Ethical Self

SOURCE	SS	df	F Ratio
AT-1, AT-2	101.25	1	1.771
MT-1, MT-2	12.76	1	0.223
FP-1, FP-2	190.52	1	3.332
CS-1, CS-2	6.90	1	0.121
Columns Diploma	255.66	3	1.491
Columns Associate Degree	163.80	3	0.955
Within Cell Error	6573.75	115	
Totals	7018.73	122	

TABLE 5

Mean and standard deviation within groups on the TSCS:

Personal Self

GROUP	N	$\bar{X}$	SD
AT-1	21	64.28	8.83
AT-2	21	67.43	6.69
MT-1	6	65.33	5.75
MT-2	18	66.00	4.91
FP-1	14	65.93	8.39
FP-2	14	62.07	5.80
CS-1	12	63.83	8.61
CS-2	17	62.88	6.16
GRAND MEAN 64.82			

TABLE 6

Simple main effects of variance on the TSCS

Personal Self

SOURCE	SS	df	F Ratio
AT-1, AT-2	65.56	1	1.299
MT-1, MT-2	2.96	1	0.585
FP-1, FP-2	98.76	1	1.957
CS-1, CS-2	5.97	1	0.118
Columns Diploma	36.67	3	0.242
Columns Associate Degree	256.44	3	1.694
Within Cell Error	5804.25	115	
Totals	6099.13	122	

TABLE 7

Mean and standard deviation within groups on the TSCS:

Family Self

GROUP	N	$\bar{X}$	SD
AT-1	21	64.86	10.74
AT-2	21	68.33	9.34
MT-1	6	68.83	9.30
MT-2	18	66.16	6.71
FP-1	14	70.36	9.15
FP-2	14	64.07	7.22
CS-1	12	69.50	9.09
CS-2	17	67.29	9.72
GRAND MEAN 67.16			

TABLE 8

Simple main effects of variance on the TSCS:

Family Self

SOURCE	SS	df	F Ratio
AT-1, AT-2	80.19	1	0.977
MT-1, MT-2	47.15	1	0.575
FP-1, FP-2	262.30	1	3.197
CS-1, CS-2	32.32	1	0.394
Columns Diploma	236.53	3	0.961
Columns Associate Degree	132.73	3	0.539
Within Cell Error	9435.44	115	
Totals	9903.45	122	

TABLE 9

Mean and standard deviation within groups on the TSCS:

Social Self

GROUP	N	$\bar{X}$	SD
AT-1	21	64.25	6.27
AT-2	21	66.67	6.47
MT-1	6	66.00	3.85
MT-2	18	67.17	6.63
FP-1	14	66.64	7.37
FP-2	14	61.29	6.43
CS-1	12	65.50	9.25
CS-2	17	66.24	7.90
GRAND MEAN 65.50			

TABLE 10

Simple main effects of variance on the TSCS

Social Self

SOURCE	SS	df	F Ratio
AT-1, AT-2	39.16	1	0.801
MT-1, MT-2	9.08	1	0.186
FP-1, FP-2	190.57	1	3.896*
CS-1, CS-2	3.63	1	0.074
Columns Diploma	41.55	3	0.283
Columns Associate Degree	296.80	3	2.022
Within Cell Error	5625.19	115	
Totals	5965.91	122	

*$P < .05$

TABLE 11

Mean and standard deviation within groups on the TSCS:

Identity

GROUP	N	$\bar{X}$	SD
AT-1	21	118.48	12.49
AT-2	21	123.57	9.26
MT-1	6	123.17	6.05
MT-2	18	122.61	8.62
FP-1	14	125.50	7.30
FP-2	14	113.50	12.13
CS-1	12	124.67	11.06
CS-2	17	124.76	6.70

GRAND MEAN 121.89

TABLE 12

Simple main effects of variance on the TSCS

Identity

SOURCE	SS	df	F Ratio
AT-1, AT-2	172.36	1	1.809
MT-1, MT-2	2.02	1	0.021
FP-1, FP-2	956.06	1	10.038**
CS-1, CS-2	0.05	1	0.000
Columns Diploma	392.50	3	1.374
Columns Associate Degree	1057.41	3	3.701*
Within Cell Error	10953.00	115	
Totals	12491.65	122	

*$P < .05$

**$P < .01$

TABLE 13

Mean and standard deviation within groups on the TSCS:

Self Satisfaction

GROUP	N	$\bar{X}$	SD
AT-1	21	101.48	16.05
AT-2	21	107.95	13.86
MT-1	6	99.33	19.39
MT-2	18	102.39	10.91
FP-1	14	105.21	13.64
FP-2	14	100.00	10.50
CS-1	12	102.50	17.44
CS-2	17	100.24	14.15
GRAND MEAN 102.80			

TABLE 14

Simple main effects of variance on the TSCS

Self Satisfaction

SOURCE	SS	df	F Ratio
AT-1, AT-2	278.44	1	1.374
MT-1, MT-2	61.98	1	0.306
FP-1, FP-2	180.51	1	0.891
CS-1, CS-2	34.08	1	0.168
Columns Diploma	238.03	3	0.392
Columns Associate Degree	546.03	3	
Within Cell Error	23298.00	115	
Totals	24088.90	122	

TABLE 15

Mean and standard deviation within groups on the TSCS:

Behavior

GROUP	N	$\bar{X}$	SD
AT-1	21	104.05	14.25
AT-2	21	112.19	12.87
MT-1	6	111.33	9.18
MT-2	18	108.56	8.86
FP-1	14	112.07	13.95
FP-2	14	102.36	9.52
CS-1	12	109.50	11.39
CS-2	17	107.24	10.99
GRAND MEAN 108.15			

TABLE 16

Simple main effects of variance on the TSCS

Behavior

SOURCE	SS	df	F Ratio
AT-1, AT-2	440.17	1	3.125
MT-1, MT-2	51.25	1	0.364
FP-1, FP-2	626.53	1	4.448*
CS-1, CS-2	34.08	1	0.242
Columns Diploma	524.30	3	1.241
Columns Associate Degree	659.57	3	1.561
Within Cell Error	16197.00	115	
Totals	17452.65	122	

*$p < .05$

TABLE 17

Mean and standard deviation within groups on the TSCS:

Total

GROUP	N	$\bar{X}$	SD
AT-1	21	324.00	38.69
AT-2	21	343.67	31.30
MT-1	6	333.83	28.36
MT-2	18	333.56	19.73
FP-1	14	343.50	31.19
FP-2	14	315.86	28.21
CS-1	12	336.67	36.16
CS-2	17	332.24	28.29
GRAND MEAN 332.90			

TABLE 18

Simple main effects of variance on the TSCS

Total

SOURCE	SS	df	F Ratio
AT-1, AT-2	2567.74	1	2.676
MT-1, MT-2	0.00	1	0.000
FP-1, FP-2	5073.25	1	5.287*
CS-1, CS-2	130.30	1	0.136
Columns Diploma	2608.41	3	0.906
Columns Associate Degree	5274.91	3	1.832
Within Cell Error	110352.00	115	
Totals	118502.50	122	

*$p < .05$

VT 012 319
The Tennessee State Advisory Council on Vocational Education; For Continued and Further Improvement of Education in Tennessee.

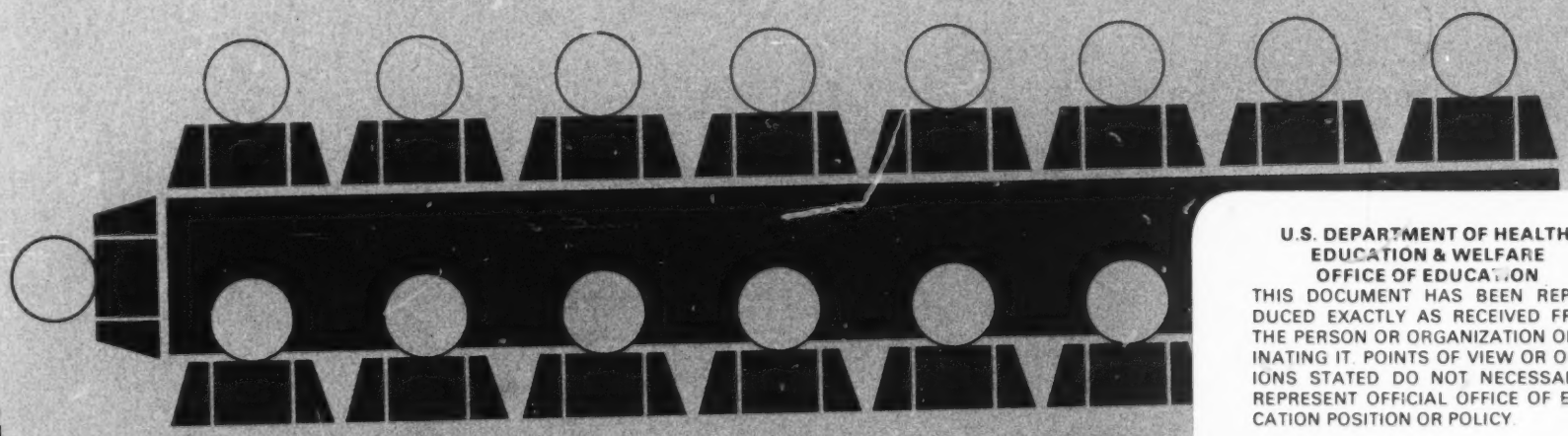
Tennessee Vocational Curriculum Lab., Murfreesboro.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 31p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *ADVISORY COMMITTEES; STATE PROGRAMS; *PERSONNEL SELECTION; PROGRAM IMPROVEMENT; PROGRAM EVALUATION
IDENTIFIERS - TENNESSEE

ABSTRACT - The State of Tennessee established the State Advisory Council on Vocational Education to advise the State Board on the administration and evaluation of new programs and to make an annual evaluation of vocational education. The 17 members of the advisory committee represent the various areas affecting this aspect of the education process. This booklet presents information concerning the role of the Council and a profile of each of its members. (JS)

VT 012 319

The Tennessee State Advisory Council on Vocational Education



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for continued and further improvement of education in Tennessee

EUO 07254
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TENNESSEE
EXECUTIVE CHAMBER
NASHVILLE 37219

BUFORD ELLINGTON
GOVERNOR

Tennessee's progress in education is well known to all who have studied the record. More strides toward educational quality have been realized in the past few years than in the entire history of education in this State. Progress came and advancements flowed because the people and their leaders clearly recognized that an unprecedented investment would have to be made if our educational system were to produce desired results. That investment was made and is being made today in nearly one million students.

We must assure that today's vocational-technical education program is in tune with today's and tomorrow's job challenges. Under the provisions of the 1968 Amendments for Vocational Education, we shall, indeed, be able "to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education . . . for all persons of all ages in all communities of our State."

Vocational-technical education, designed to meet the occupational training needs of youths and adults, has become increasingly important in recent years. Steps are being taken at the local, state and national levels to further increase these opportunities for our citizens. A part of this effort is the establishment of the State Advisory Council with which the State Board for Vocational Education may consult on matters pertaining to policy and administration.

I am confident that this seventeen member Council, composed of qualified people with wide experiences, will be of great value in the expansion and future development of Vocational-Technical Education in our State.

Sincerely,

Buford Ellington

3434

BUFORD ELLINGTON
GOVERNOR

TENNESSEE
EXECUTIVE CHAMBER
NASHVILLE 37219

January 10, 1969

CERTIFICATION OF APPOINTMENT OF STATE ADVISORY COUNCIL

I, Buford Ellington, Governor of the State of Tennessee, hereby certify to the United States Commissioner of Education the establishment of a State Advisory Council, to be known as State Advisory Council for Vocational Education, for purposes of section 104(b) of the Vocational Education Act of 1963, as amended by the Vocational Education Amendments of 1968 (P.L. 90-576).

The members of said Council have been appointed by me as Governor in view of the fact that a majority of the members of the State Board for Vocational Education are not individuals elected directly by the eligible voters of the State or of the districts which they represent. (Tennessee Code Annotated--Sections 49-106 and 49-2701).

To the best of my knowledge and belief the members of the State Advisory Council meet the qualifications specified in section 104 (b)(1)(A) of the Vocational Education Act of 1963, as amended by P.L. 90-576.

1-24-69
(Date of Certification)

Buford Ellington
(Signature of Governor)

We are extremely grateful to each member of the Tennessee State Advisory Council on Vocational-Technical Education for accepting their appointments by Governor Buford Ellington. Since each member is actively engaged in some full-time position, the willingness to assume this additional duty without compensation is certainly indicative of a strong dedication and belief in our program in Tennessee.

The State Board has always recognized the need for council and advice in administering the several programs for which it has responsibility. It is becoming increasingly important, particularily as we become more involved with the complex problems of today's society and the technological age in which we live.

We are confident that Tennessee's Advisory Council fulfills the intent and purpose of Congress. The service of the members of our Council is going to be a vital importance to the future of Vocational-Technical Education in assisting with planning and in determining needs so that we may provide even more of our citizens with realistic occupational training. The purpose of this booklet is to present information on the Tennessee State Advisory Council and the members in order that all interested persons may be knowledgeable of our efforts to provide continued improvement in education in Tennessee.

Local and State advisory committees have been used for years in the planning, establishment and operation of vocational education classes. Through this means instructional programs are kept in tune with the reality of occupational requirements.

While vocational educators are trained in and knowledgeable of the instructional process, the technical advise and knowledge of others must ever be sought.

The appointment of the State Advisory Council on Vocational Education is another forward step in the continuing process of keeping vocational education relevant. As it fulfills its responsibility of advising the State Board on development of annual and long range program plans, evaluating and reporting on the many activities in the field, significant improvements and accomplishments are anticipated.

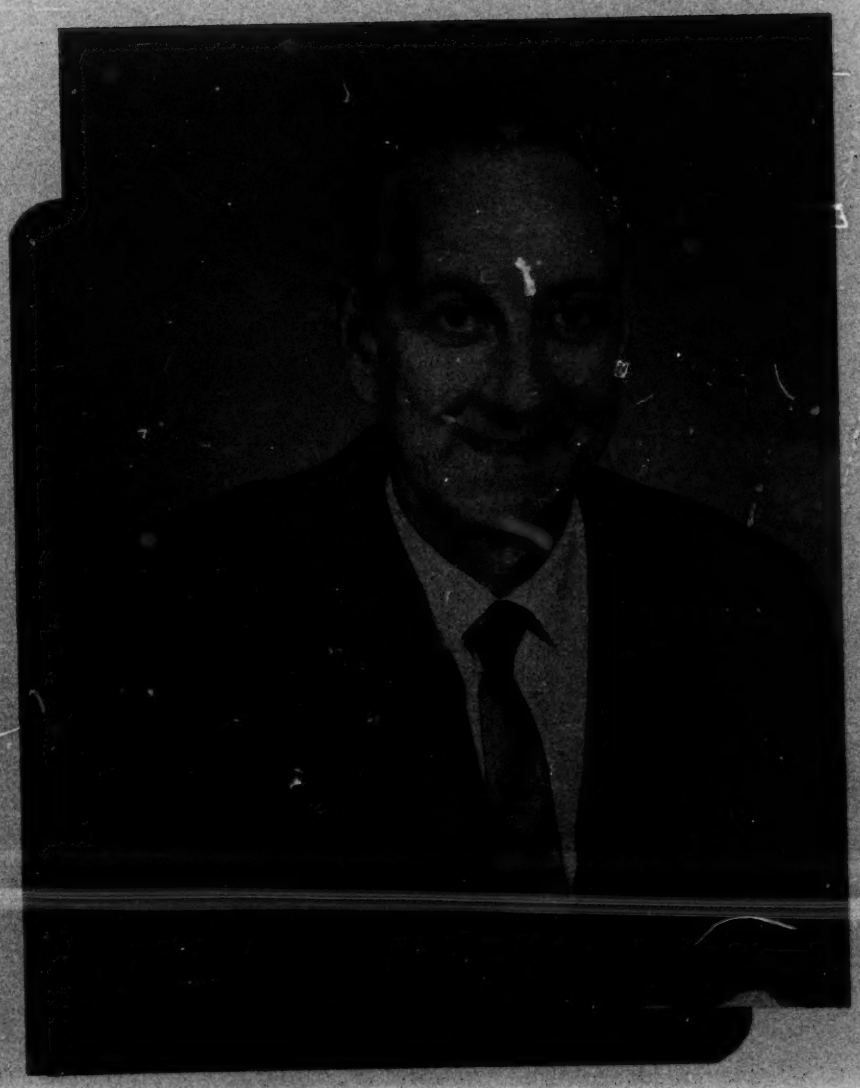
The entire vocational education staff welcomes the opportunity to work with this experienced and dedicated group to more effectively meet the vocational education's needs of persons at all ages in all sections of the State.

The growth of educational services in Tennessee during the next decade must demonstrate a more appropriate balance of effort for occupational education as compared with expenditures for college level educational programs.

Our educational institutions are being challenged in this decade to provide more meaningful programs and to demonstrate administrative sensitivity to the needs of individuals in our society today. Educational leadership must reflect appropriate concern in its varied educational programs for those youth and adults seeking occupational skills in business, industrial, technical, and health occupations.

Tennessee has made significant progress these past few years in the development of area vocational-technical schools, technical institutes, and community junior colleges. The role and scope of these institutions in terms of more comprehensive occupational education programs should be examined periodically. The same could be suggested for secondary schools in the state where the college preparatory program is the only choice for the high school student.

Education is important in the development of our state. Vocational and technical education is an essential service to the people of this state and to industries which provide a desirable economic base for Tennessee. It has been said that "real evaluation in education is just beginning." The Tennessee State Advisory Council for Vocational-Technical Education has a responsibility to make a constructive contribution to this evaluation.



AUTHORIZATION

On October 16, 1968, President Lyndon B. Johnson signed the Vocational Education Amendments of 1968, P.L. 90-576. Title I of this legislation amends the Vocational Education Act of 1963. The new legislation provides for greatly expanded program activities as well as for increased Federal assistance to Vocational-Technical Education.

A Presidentially-appointed National Advisory Council is created by these Amendments to advise the U. S. Commissioner of Education on program policy, to review the administration and operation of the programs, to make an annual report, and to conduct independent evaluations of the programs across the Nation.

In addition, each State must establish an independent State Advisory Council to advise the State Board on the administration and evaluation of new programs and to submit an annual evaluation report through the State Board to the U. S. Commissioner of Education.

> "Any State which desires to receive a grant under this title for any fiscal year shall establish a State advisory council, which shall be appointed by the Governor or, in the case of States in which the members of the State Board are elected, by such board . . ."
>
> P.L. 90-576, Sec. 104 (b) (1)

PURPOSE AND INTENT

The report of the Committee on Education and Labor of the U. S. House of Representatives explains more clearly the intent of Congress in writing into the Amendments provisions for Advisory Councils:

"The establishment of such advisory councils in each state is passed on the testimony of many witnesses appearing before the committees in support of the creation of the advisory council . . .

"Members of the State Advisory Council under the language of the committee bill would assure that all aspects of expertise in occupational training and all facets of the academic, vocational, industrial and commercial communities would be brought to the assistance of the State Board in strengthening vocational education in the states . . ."

In considering this legislation, the Senate and House apparently listened to the many recommendations that Vocational-Technical Education be evaluated. The Senate pushed for a strong National Advisory Council with power to make recommendations concerning policy to the U. S. Commissioner of Education and to evaluate in detail the programs in each State. The House, on the other hand, felt that policy recommendations and evaluation should be conducted independently by each State and the process of compromise yielded a National Council which can make policy recommendations but whose duties with regard to evaluation are largely unspecified. State Advisory Councils are charged, however, with the responsibility of evaluation as suggested by the House of Representatives.

DUTIES AND RESPONSIBILITIES

Tennessee was among the first four States to have a Council appointed. Thus, the Council will provide advice to the State Board in Tennessee and will also serve as a model for other states in helping them to organize and to utilize such an agency.

TO ADVISE...
The Council will advise the State Board for Vocational Education on policy matters relating to the development of the State Plan and annual and long-range program plans and to the allocation of Federal funds among the various uses.

TO EVALUATE...
The Council is charged with the responsibility of evaluating vocational education program services and activities to determine the effectiveness in terms of the annual and long-range program plans. Recommended changes will be made which seem to be called for as a result of such evaluation.

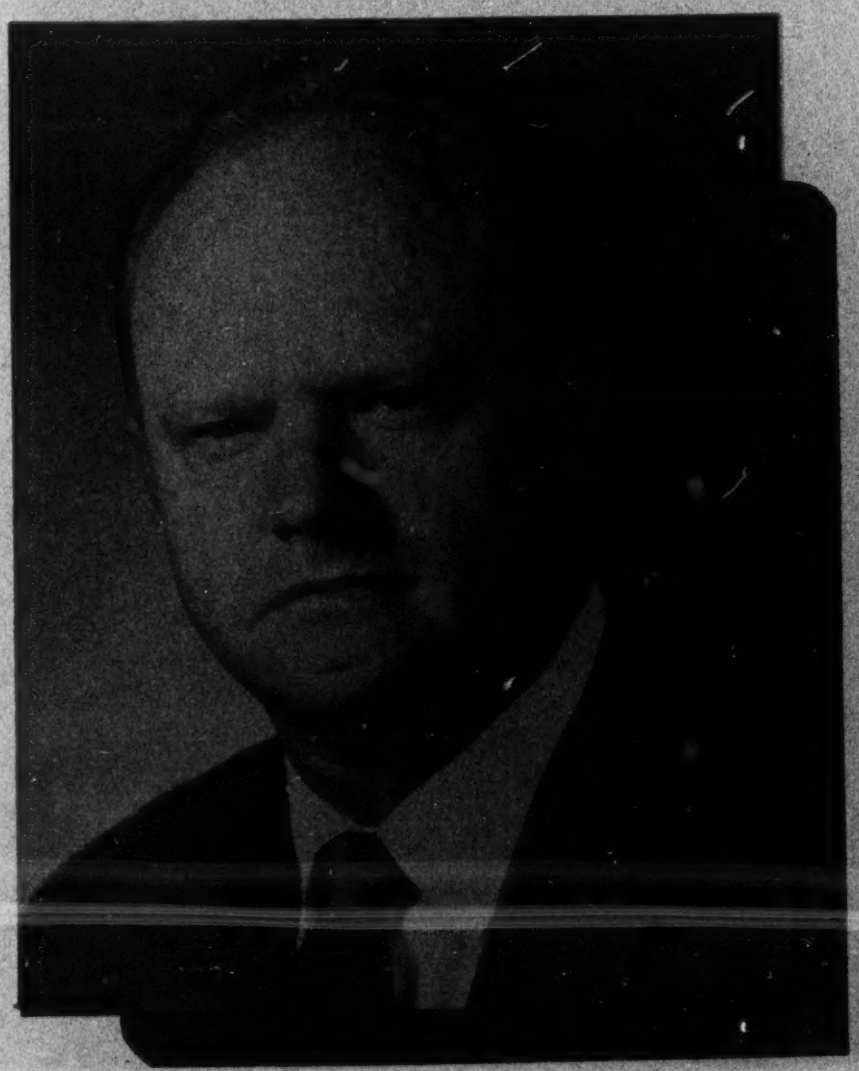
TO REPORT...
The Council will publish and distribute evaluation findings and will prepare and submit, through the State Board to the U. S. Commissioner of Education and to the National Advisory Council, an annual evaluation report.

Council meetings are planned to precede each of the four required meetings of the State Board in order that recommendations may be prepared and submitted to the Board for consideration. All meetings will be open to the press and public although at least one meeting will be conducted specifically for the purpose of giving the public opportunity to express views concerning vocational education.

ROLE OF THE ADVISORY COUNCIL IN THE TOTAL PROGRAM OF VOCATIONAL EDUCATION

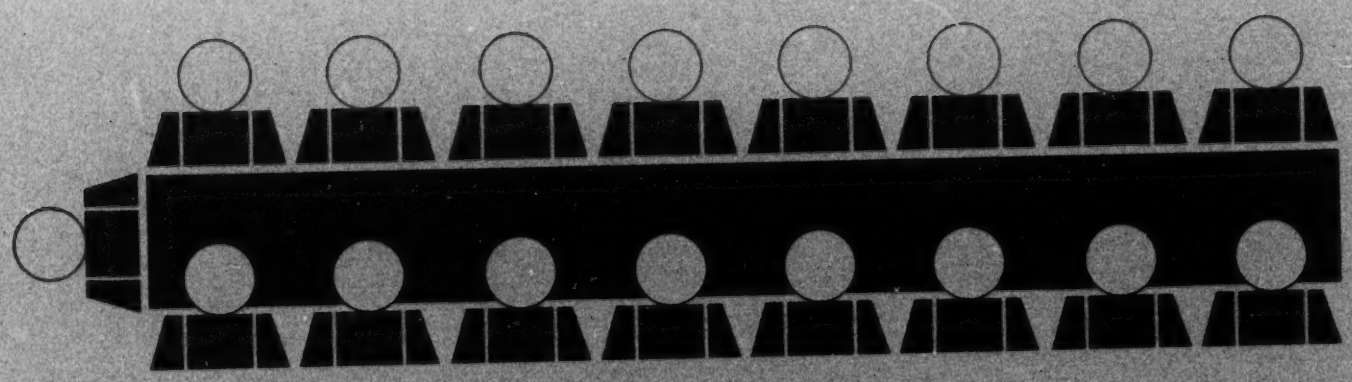
The primary role of the State Advisory Council is the improvement of Vocational-Technical Education in Tennessee. To be successful in this important endeavor, the Council must be so informed on Vocational-Technical Education that they may be able to identify roadblocks to quality programs and to make recommendations that will remove them. In order for any evaluation to be valid, it must be made in terms of the objectives of the program; therefore, the Council will need to be knowledgeable about the State Plan and its implementation.

Although the Council is designed as an independent agency, it will be dependent upon the State Staff for information and data needed for a meaningful evaluation. Even though the evaluation by the Council will be independent in nature, it will be beneficial to all if a closely coordinated effort is maintained with the Division of Vocational-Technical Education, especially the Program Planning and Evaluation Section and the Research Coordinating Unit in the collecting and sharing of data. The cooperation of regional coordinators and field service supervisors in arranging for Council visits to vocational-technical education facilities will be solicited.



The State Advisory Council, composed of persons who are engaged in other responsibilities, cannot be expected to accomplish its objective without professional and consultative assistance. Consequently, provisions were made in the Amendments whereby the Council can employ such professional and clerical staff as it deems necessary to carry out the duties for which it is charged. At its first meeting on March 14, 1969, the Council authorized the State Board to employ for the Council an Executive Director. On August 1, 1969, Commissioner Warf appointed William M. Harrison to this position.

The duties of the Executive Director, in general, are to administer the activities of the State Advisory Council and its professional and clerical staff and to maintain its executive office. The Director will serve as liaison officer between the State Advisory Council and the State Board for Vocational Education, direct the preparation of instruments for the collection of data to be used by the Council in its evaluation of programs and compile and assemble information required for the annual report. Mr. Harrison, who did his undergraduate and graduate studies at Auburn University, Purdue University, and the University of Tennessee, holds the B. S. and M. S. Degrees and has completed 55 hours beyond the M. S. Degree. He has served as a vocational teacher, high school principal, supervisor of adult education, supervisor of teacher education, and Assistant State Director of Manpower Development and Training.



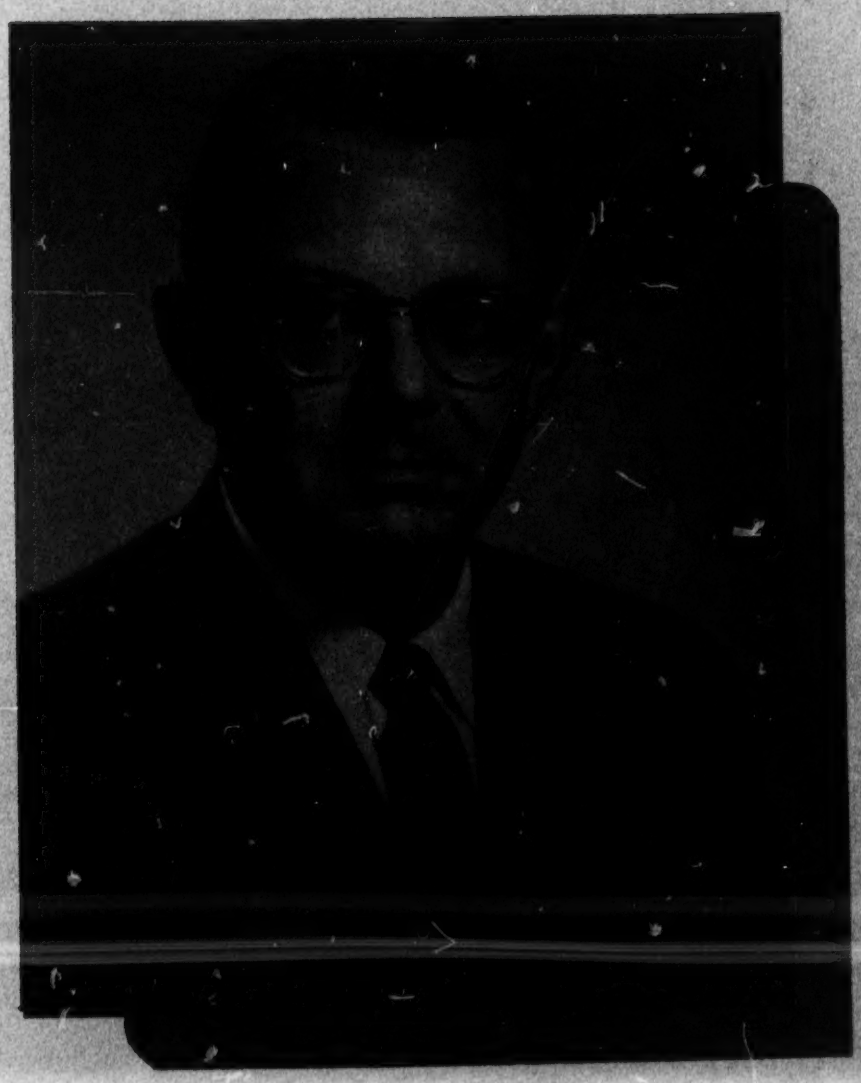
THE STATE ADVISORY COUNCIL MEMBERS

The United States Congress, by its unanimous approval of the 1968 Vocational Education Amendments, has in effect created a new agency in each State and charged it with the task of seeing that there is continued and further improvement in education. Specific duties and Federal funds were provided to assure that the Council could carry out its mission. The Council membership categories, designed to assure an independent point of view, are established in the legislation.

These specific membership categories written into the legislation emphasize the representation of people who are to comprise the Council. This is further explained in the report of the Committee on Education and Labor of the U. S. House of Representatives:

> "'Representative' as it is used in this section does not mean elective nor merely representative of those special interests. Rather it means familiar with or having special expertise in, or having worked in, the field specified."

Each Council member appointed by Governor Ellington uniquely fits, by virtue of education and experience, into his or her particular category and is eminently qualified to provide sound advice and council on the needs and achievements of Vocational-Technical Education in Tennessee.



"Person familiar with the vocational needs and problems of management":

Fred D. Wright
Owner and Manager
Fred D. Wright Company, Inc.
Nashville, Tennessee

Mr. Wright began his career as a machinist apprentice and entered the field of management upon establishment of his own business, a die making industry. His firm conducts quite an extensive in-plant training program.

Mr. Wright has served on a special committee with the Southern Association of Secondary Schools and Colleges for development of plans for accreditation of area vocational-technical schools.

"Person familiar with the vocational needs and problems of labor":

Matthew Lynch
President
Tennessee Labor Council
Nashville, Tennessee

Mr. Lynch has over thirty years of work with labor in Tennessee. He worked in a local hosiery mill while earning his degree from the Chattanooga College of Law. His first labor work was with the United Textile Workers, AFL, in 1930 from which he transferred to the American Federation of Hosiery Workers. Here he worked as a full-time organizer until 1939.

In 1946 Mr. Lynch became a Legislative Representative for the Tennessee Labor Council. Since that time he has devoted full time to labor legislation.

"Representing State Industrial and economic development agencies":

James H. Alexander
Governor's Staff Director
Industrial Development
Nashville, Tennessee

A native of Carroll County, Mr. Alexander graduated from the University of Tennessee with a major in business education. He has served as president of the Rotary Club and of the Tennessee School Boards Association and is a former member of the State Board of Elections.

Mr. Alexander served for a two-year term, beginning in 1963, as State Treasurer. Since 1965, he has been the Governor's Staff Director of Industrial Development in Tennessee.

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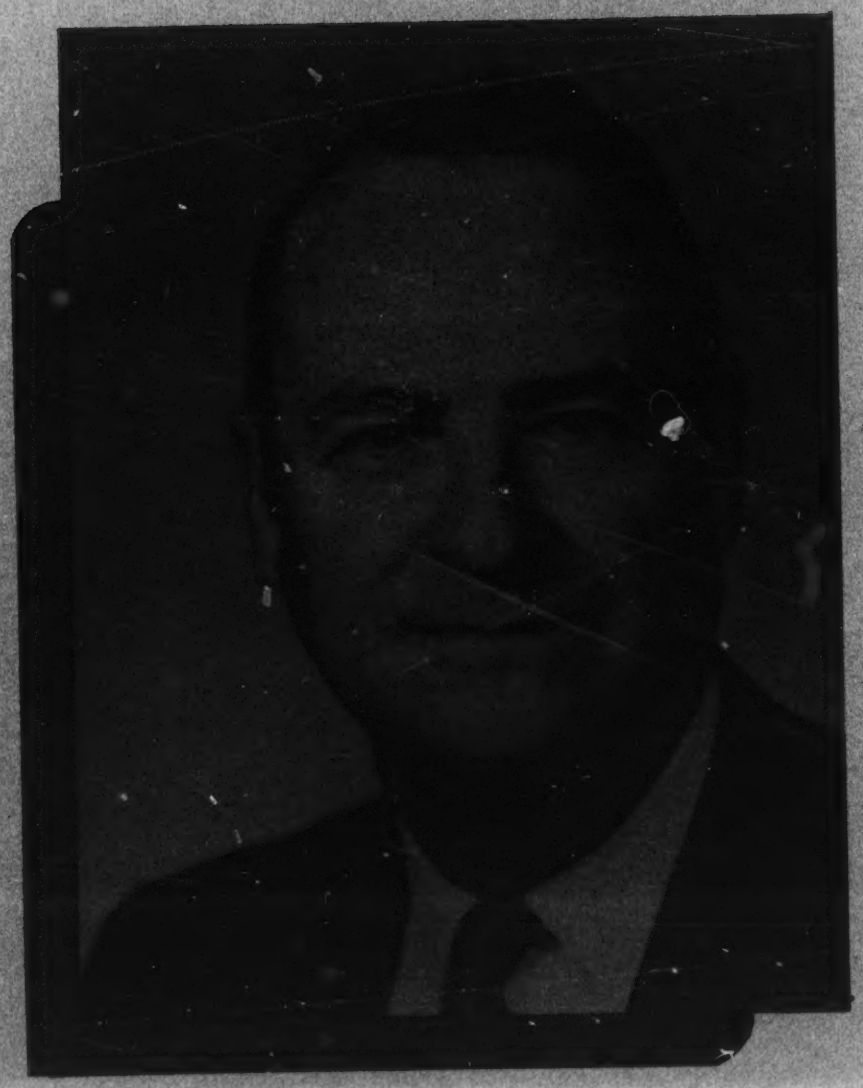
"Person representing community colleges":

Dr. Darrell D. Simmons, Director
Vocational and Technical Education
Columbia State Community College
Columbia, Tennessee



Dr. Simmons completed his undergraduate work in industrial arts and vocational education at Arkansas State Teachers College and received a M. S. Degree from both Oklahoma State University and the University of Tennessee. His doctorate degree was awarded at the University of Tennessee.

His industrial experience includes work with the Ford Motor Company and Buehl Construction Company for a total of four years. After six years as a high school instructor, Dr. Simmons served as a teacher trainer in the technologies at Memphis State University for sixteen years. He has served as Director of Technology at Columbia State Community College since June, 1966.

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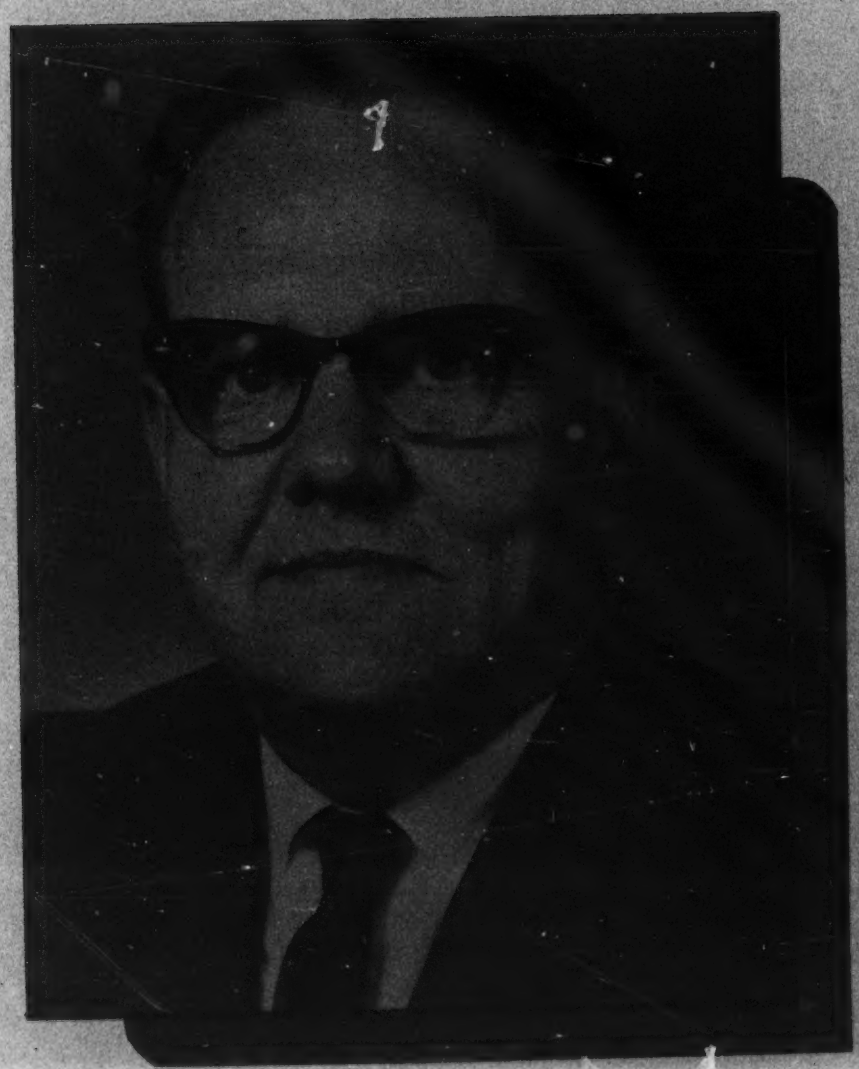


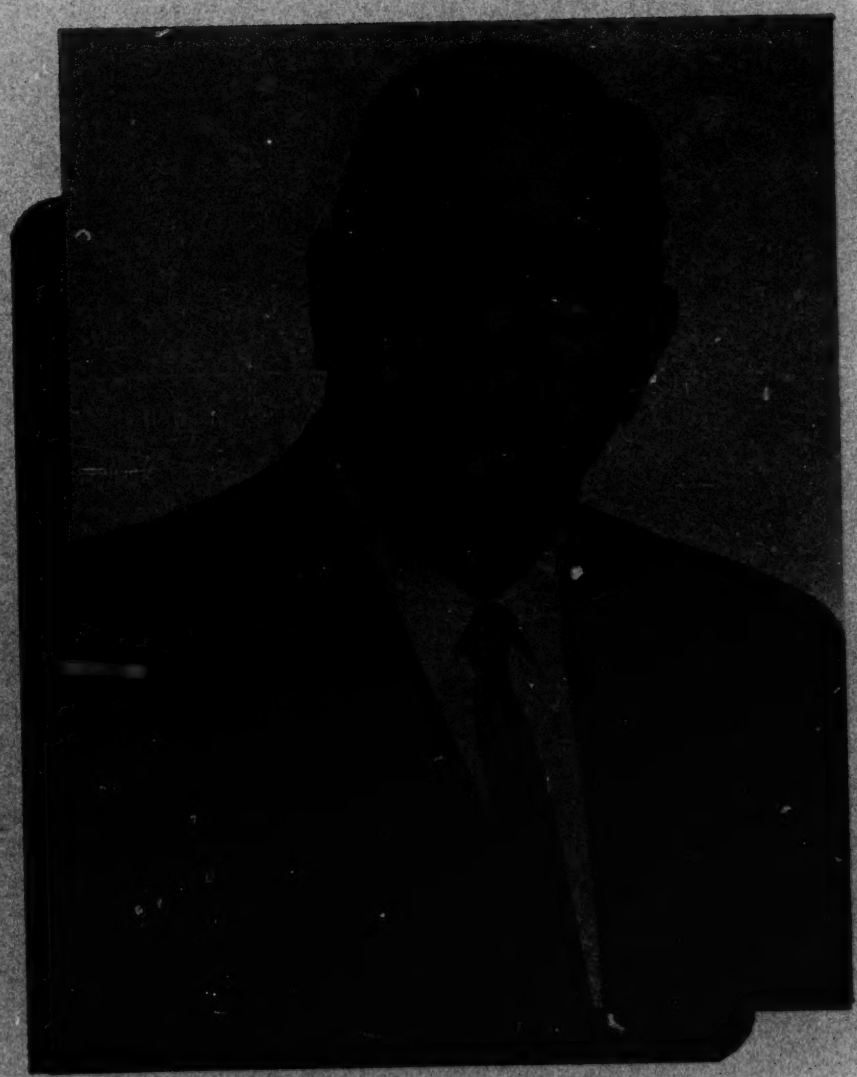
"Person representing technical institutes":

Charles O. Whitehead
Director
State Technical Institute at Memphis
Memphis, Tennessee

Mr. Whitehead's undergraduate and graduate work was completed at Mississippi State and the University of Mississippi where he received his degree in mechanical engineering. After seven years of school administration, he trained electronic technicians for the U. S. Navy during World War II and the Korean War.

He was Director of Training of the Philco Corporation for nine years and Director of the Philco Technical Institute for a period of three years. He has served as Director of the Chattanooga State Technical Institute and is presently Director of the State Technical Institute at Memphis.

"Person representing area vocational-technical schools":



Guy R. Kirk
Superintendent
State Area Vocational-Technical School
McKenzie, Tennessee

Mr. Kirk completed his Bachelor's Degree at Bethel College in McKenzie, Tennessee. His Master's Degree in Vocational subjects at the University of Tennessee included 135 hours so that he could also qualify as a vocational teacher. He has additional graduate work at the University of North Carolina.

For twenty-five years, Mr. Kirk served as a vocational teacher in Tennessee secondary schools. He was appointed Superintendent of the State Area Vocational-Technical School at McKenzie on July 1, 1964.

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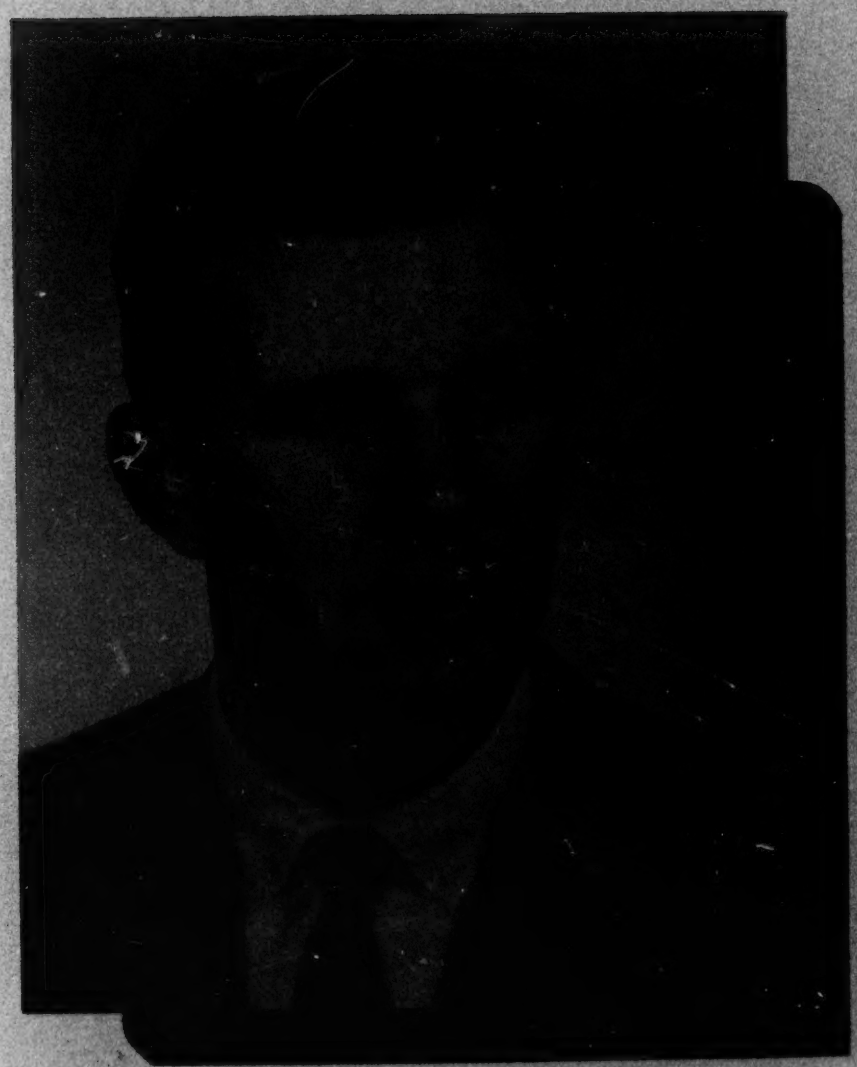


"Person familiar with programs of technical and vocational education including programs in comprehensive secondary schools":

Jack Carr
Coordinator, Secondary Education
Chattanooga City Schools
Chattanooga, Tennessee

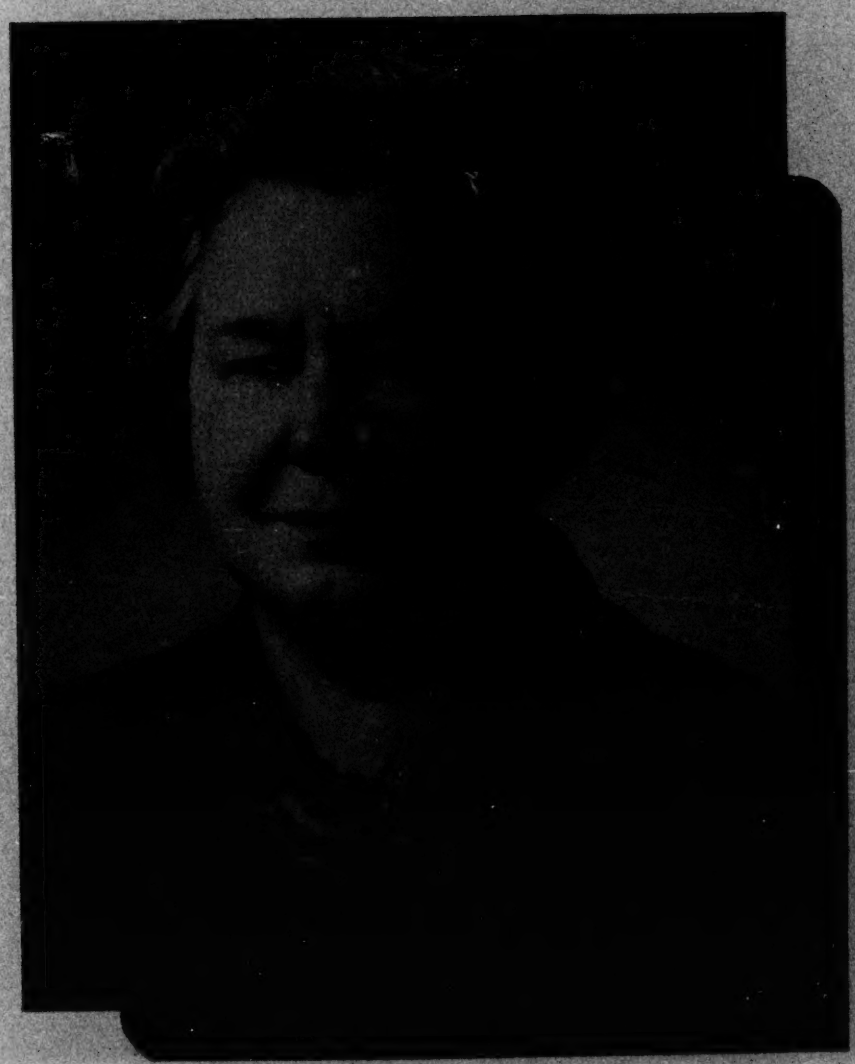
After receiving his M. S. Degree from the University of Chattanooga, Mr. Carr was an instructor for nine years at Chattanooga Kirkman Technical High School. He served this school for three years as Assistant Principal and nine years as Principal. For the past three years, he has been Coordinator of Secondary Education for the Chattanooga City Schools.

He has responsibility for the program of instruction in the comprehensive secondary schools of Chattanooga where programs of vocational-technical education are being developed rapidly.

"Person familiar with the administration of State and local vocational education programs and who is not involved in the administration of State or local vocational education programs":

Dr. Fred Thornton
Education Director
Tennessee Eastman Company
Kingsport, Tennessee

Dr. Thornton received his B. S. from East Tennessee State University and completed the Masters and Doctorate Degrees at the University of Tennessee. After teaching vocational subjects in secondary schools, Dr. Thornton taught engineering drawing at the University of Tennessee. He has also served as principal of a vocational-technical high school, an area supervisor for technical education for the Florida State Department of Education and as visiting professor in industrial education for the Universities of Tennessee, North Carolina, and Florida. In his present position, Dr. Thornton has been in close contact with the State and local educational agencies which offer vocational-technical education.



"Person representative of local educational agencies":

Miss Mildred Doyle
Superintendent
Knox County Schools
Knoxville, Tennessee

After receiving B. S. and M. S. Degrees from the University of Tennessee and the Doctorate Degree from Maryville College, Miss Doyle served as a classroom teacher for six years and as a principal for sixteen years. She has been Superintendent of the Knox County Schools since 1946. Under her leadership, Knox County built the first comprehensive high school in Tennessee. She has been Chairman of the Superintendent's Study Council since 1948.

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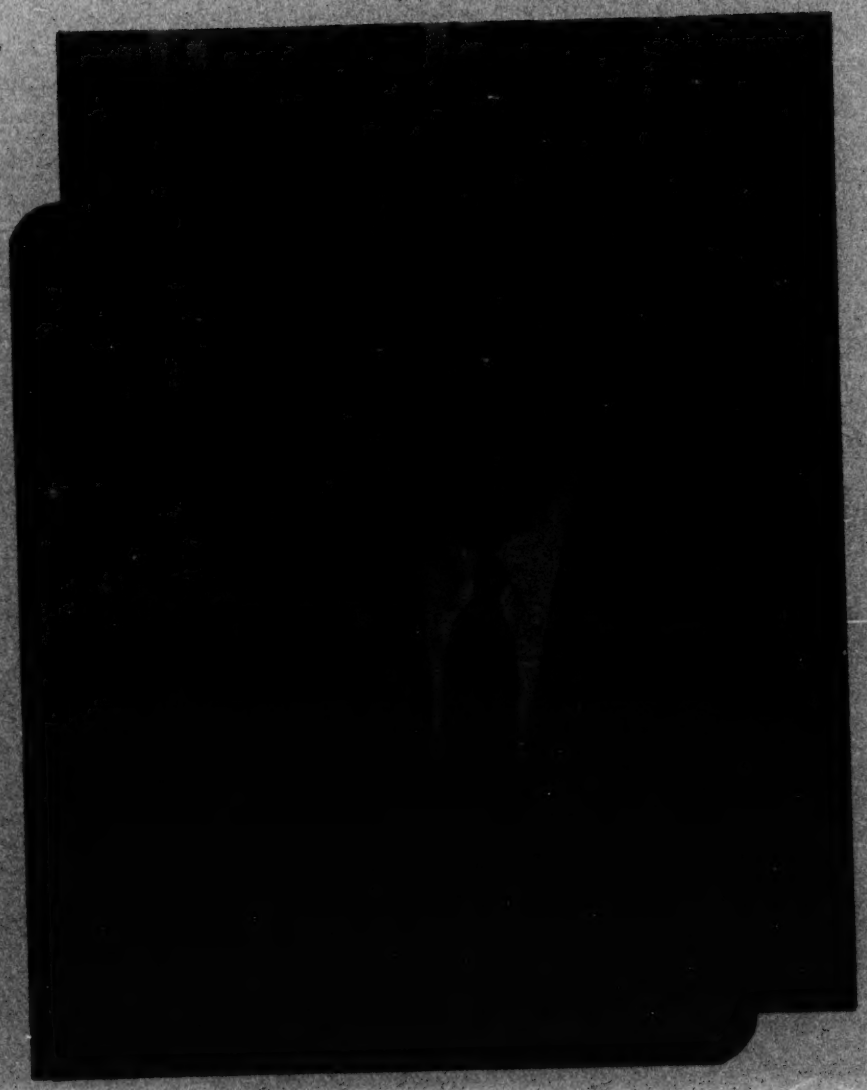
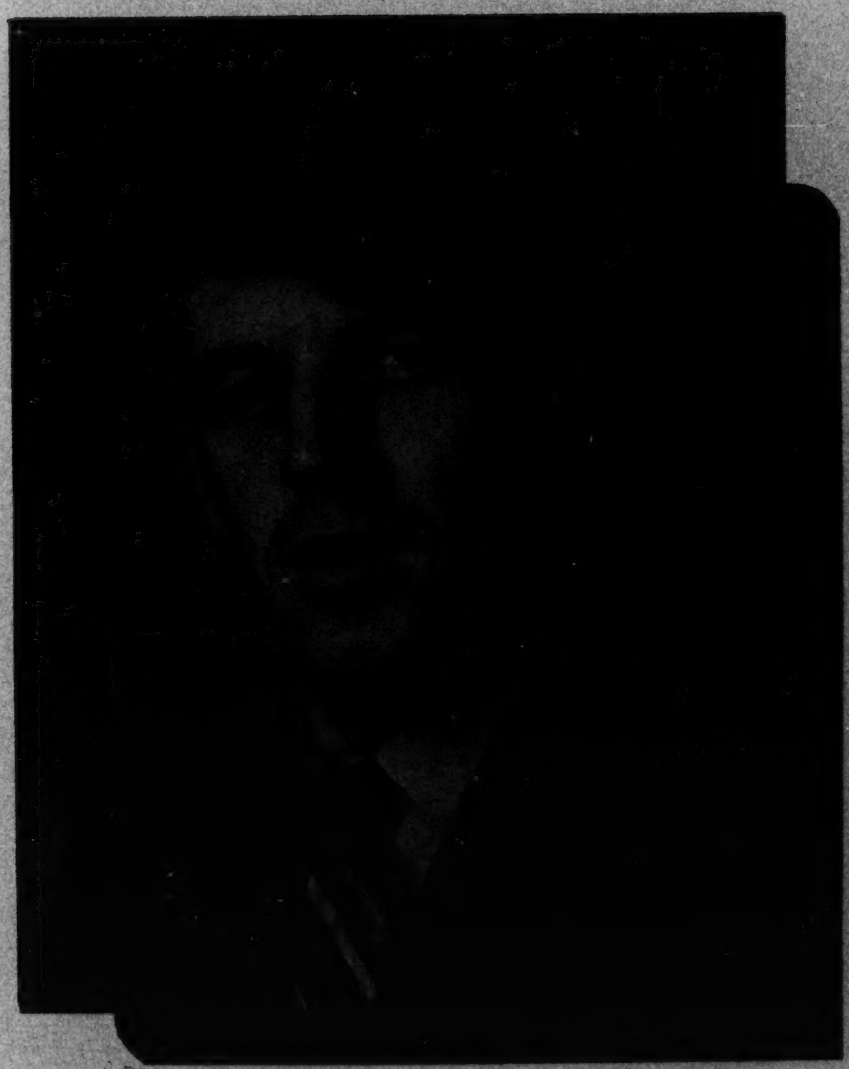
"Person representative of manpower and vocational education agencies in the State and the Comprehensive Area Manpower Planning System of the State":

Henry Burkitt
Director of Employment Services
Tennessee Department of Employment Security
Nashville, Tennessee



Mr. Burkitt received his LLD Degree from Law College at Cumberland University. After a general legal practice in Nashville from 1931 to 1938, he joined the staff of the State Department of Employment Security.

After serving in a number of capacities with the Department, he has served as Director for several years. Mr. Burkitt has been chairman of the CAMPS Committee in Tennessee since its formation.



"Person representative of local school boards":

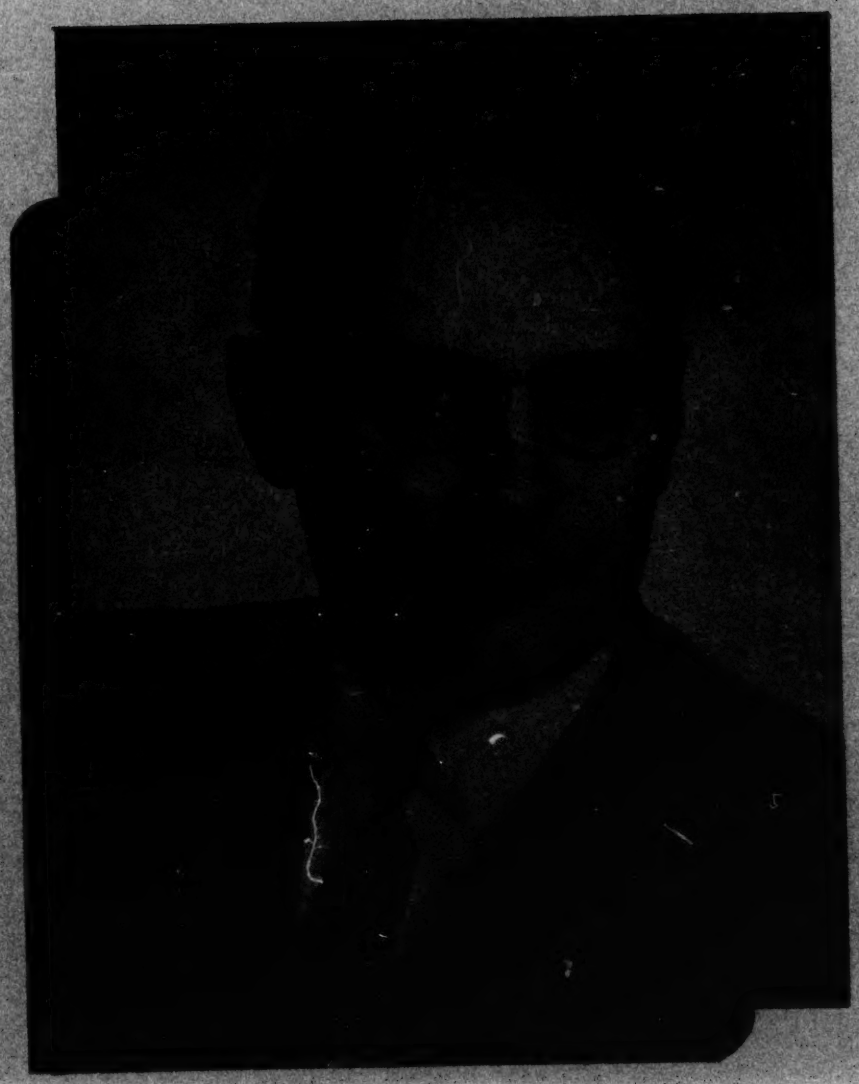
Charles Tollett
Executive Secretary
Tennessee School Boards Assoc.
Nashville, Tennessee

Mr. Tollett graduated with honors from Carson-Newman College in 1956 and received his M. S. Degree from the University of Mississippi in 1963. In 1964 he earned his M. A. from George Peabody College and is now completing requirements for the Ed. D. at the University of Tennessee.

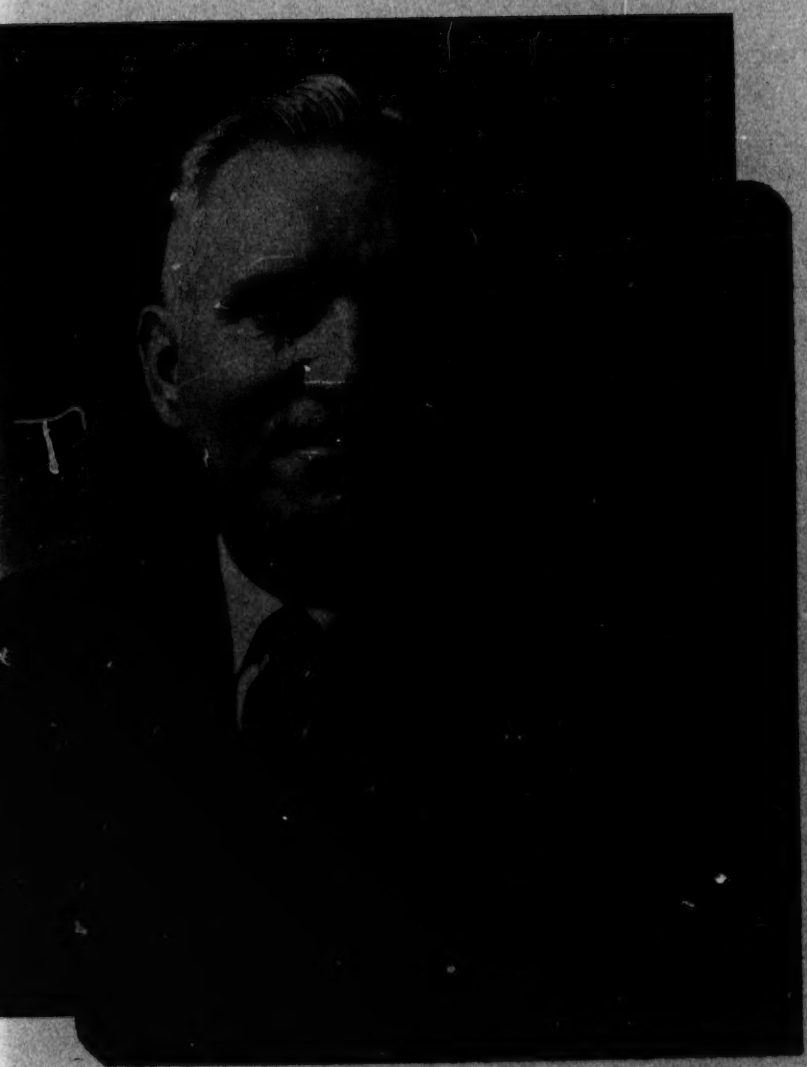
Before serving as Cumberland County Superintendent of Schools from 1964 to 1968, Mr. Tollett taught in the Cumberland County Schools, Mississippi State College for Women and Tennessee Technological University. He was selected as Executive Secretary of T.S.B.A. in 1969.

"Person representing school systems with large concentrations of academically, socially, economically, and culturally disadvantaged students":

E. C. Stimbert
Superintendent
Memphis City Schools
Memphis, Tennessee



Mr. Stimbert's undergraduate work was completed at Nebraska Wesleyn and his Master's Degree in school administration was earned at the University of Nebraska. He holds a LHD Degree from Southwestern University at Memphis. He has served the Memphis City School System for a total of twenty-three years as Director of Instruction and Assistant Superintendent. In 1957 he was elected Superintendent. He is a member of the Board of Trustees for the Southern Association of Colleges and Schools.



"Person with special knowledge, experience or qualifications with respect to the special education needs of mentally handicapped persons":

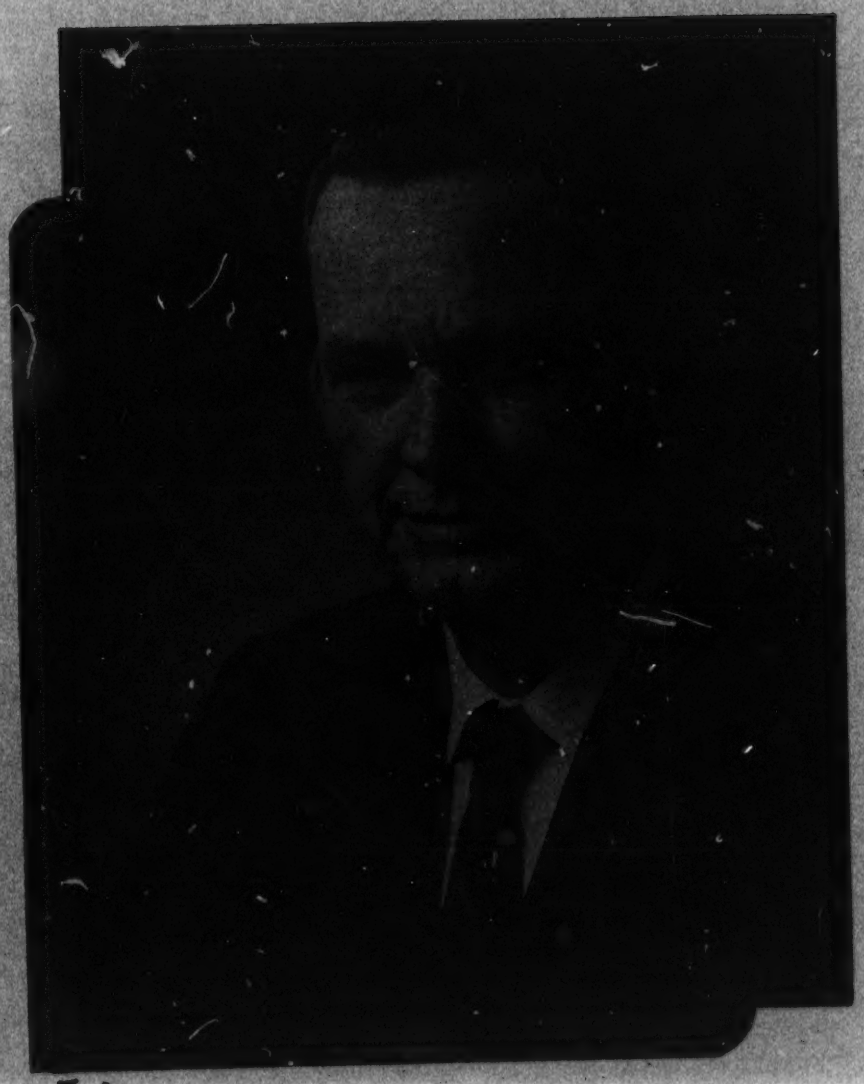
Vernon L. Johnson
Coordinator of Special Education
Tennessee Department of Education
Nashville, Tennessee

Mr. Johnson completed his undergraduate work with a major in school administration at West Kentucky State University and received his Master's Degree at George Peabody College in the area of special education. Before coming to the Department of Education, he served as a classroom teacher and principal and as a visiting professor at Peabody College.

He joined the Department of Education in 1955 as Supervisor of Instruction and has been Coordinator of Special Education since 1959. He holds membership in five education associations, all related to special education for exceptional and retarded children.

"Person with special knowledge, experience or qualifications with respect to the special educational needs of the physically handicapped":

O. E. Reece
Assistant Commissioner
Vocational Rehabilitation
Nashville, Tennessee



Mr. Reece, a graduate of Memphis State University, has completed a number of courses selected as professional improvement in the area of rehabilitation. Part of these were taken at Universities of Oklahoma, Tennessee, Georgia, and Brookings Institute and Harbridge House.

Mr. Reece was appointed Coordinator for Vocational Rehabilitation in 1952. Prior to this he had served as a counselor for this service. Presently, he is responsible for coordinating the work of 325 employees who serve approximately 18,000 persons per year.

3455 B

"Person representative of the general public":

Joe Jared
President
Free Service Tire Company
Johnson City, Tennessee

Mr. Jared instituted the time-payment plan in Tennessee through his stores. His personal contact with thousands of customers, his active participation in civic endeavors and his church eminently qualify him to represent the general public.

Mr. Jared completed his B. S. Degree at Milligan College and took his post-graduate work at Harvard. For three years he served in the Johnson City secondary schools. He entered the business world in the retail area of automobile tires and accessories and home appliances. From one store, he has expanded his retail outlets to sixteen with 240 employees.

"Person representative of and knowledgeable about the poor and disadvantaged":

Dr. N. A. Crippens, Director
Urban Education Improvement Project
Fisk University
Nashville, Tennessee

After receiving his B. S. Degree from Knoxville College, Dr. Crippen earned his master and Doctorate Degrees at the University of Chicago. He served as a high school teacher for one year and as principal for ten years. For fifteen years he worked with the Tennessee Department of Education and Tennessee State University as a consultant for all Negro schools and schools where Negroes were enrolled.

For two years he served as Dean of Admissions and Records at TSU. Since 1965 he has been Director of the Urban Improvement Project. Under his leadership disadvantaged children in the Nashville area are helped to achieve better in school and to develop characteristics related to success in adult life.

"Representative of the general public including a person or persons knowledgeable about the poor and disadvantaged":

H. T. Lockard
Administrative Assistant to the Governor
Nashville, Tennessee

Mr. Lockard received his B. A. Degree from LeMoyne College and the LLB Degree from Lincoln University School of Law. Post-graduate work in this area was taken at Sorbonne University in Paris, France. During his sixteen years of law practice in Memphis, Mr. Lockard was active in many civic and community affairs. He received the Tri-State Defender Award in 1957 and the NAACP Merit Award in 1958. In 1954 he was elected to the Shelby County quarterly court. In addition to legal work in the Governor's office, he also assists in the coordination of programs within the State.

The appointment of the Tennessee State Advisory Council represents a giant step toward the utilization of Human Resources for the improvement of Education in Tennessee.

The seventeen members have diverse backgrounds in labor, management and education and each posesses special expertise in the membership category for which he was appointed.

The combined efforts of this group properly applied to the task of evaluation and policy recommendation can effect changes that will assure the quality vocational programs that are so vital in attracting and keeping those types of industries which provide a desirable economic base for the State of Tennessee, and perhaps more important they can assure that every individual who desires and can benefit from training will be developed to his maximum potential.

W. M. Harrison

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801-00098
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Edited and Published by
Vocational Curriculum Laboratory
Box 1114
Murfreesboro, Tennessee 37130

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VT 012 324
Annual Evaluation Report--FY 1970.

North Carolina State Advisory Council on
Vocational Education, Raleigh.
MF AVILABLE IN VT-ERIC SET.
PUB DATE - Aug70 17p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *STATE
PROGRAMS; *PROGRAM EVALUATION; PROGRAM
PLANNING; ADVISORY COMMITTEES; ANNUAL REPORTS
IDENTIFIERS - NORTH CAROLINA

ABSTRACT - This annual report by the Advisory
Council with the help of The Center for
Occupational Education at North Carolina
University, evaluates North Carolina's
program for vocational education in fiscal
year 1970. The report lists 16
recommendations in six areas: (1) priorities,
(2) interagency coordination and data
collection in human resources development,
(3) effects of the Vocational Education
Amendments of 1968 upon State efforts, (4)
effectiveness in serving the people and their
needs, (5) consideration of employment
opportunities when providing vocational
programs, and (6) other factors affecting
vocational education opportunities. (CH)

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North Carolina

ANNUAL EVALUATION REPORT - FY 1970

State Advisory Council on Vocational Education

Raleigh, North Carolina

August, 1970

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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SUMMARY STATEMENT/RECOMMENDATIONS

The Fiscal Year 1970 Annual Evaluation Report of the North Carolina State Advisory Council on Vocational Education was drafted by the Council staff and personnel of the Center for Occupational Education at North Carolina State University. It was reviewed and revised by the Evaluation and Special Studies Committee of the Council and other appropriate persons, and submitted to the Council for review, revision, and adoption. Some of the findings/conclusions are in areas for which objective data were not systematically collected. Other data had not been analyzed in the State agencies in time for this evaluation. Therefore, the FY 70 Annual Evaluation Report is somewhat more subjective than we would wish. We believe, however, that our findings and recommendations are appropriate. We believe also that implementation of these recommendations would lead to improved vocational education opportunities in the State and to methods for more objectively evaluating the effectiveness of programs, services, and activities.

Recommendations

1. That either the State Plan be organized so as to display goals, objectives, and priorities in an interrelated fashion, or that the state agency do so in a separate document.

2. That objectives be stated in terms of output measures, or be written so as to show input-output relationships

3. That the Department of Community Colleges continue to study its resource allocation formula to assure that it reflects those factors assuring equality of opportunity for occupational education programs as well as demands of the labor market.

4. That long-range plans for program enrollment and output be supported by a coordinated plan for preservice and inservice education of professional personnel, so that program redirection and expansion efforts will be staffed by properly prepared personnel.

5. That the State Board of Education move towards rewarding efficiency, and effectiveness, and indicate priorities through modifications of its resource allocation formulas, both to local agencies and to institutions preparing professional personnel.

6. That the State Board of Education initiate a major effort to annually collect, analyze, and publish data interrelating public and private programs of vocational education.

7. That the 17 planning areas recently designated by the Governor be adopted by the State Board of Education and its agencies for planning and reporting purposes.

8. That the state agencies develop a long-range plan for state-level management, research, evaluation, exemplary programs, teacher education, cooperative programs, and comprehensive planning in order to assure effective leadership to local educational agencies in the implementation of their long-range plans.

9. That the State Board of Education develop and implement a system which will yield current and continuing information on the efficiency and effectiveness of its programs of occupational education in terms of target groups of people, target geographical areas, outputs from the system, and outcomes (interaction between outputs and the work force).

10. That the State Board of Education adopt and fund a Master Plan for the Evaluation of Occupational Education in North Carolina, and that the Plan include provisions for evaluating the effectiveness of the Board's agencies.

11. That sufficient agency resources be acquired and devoted to developing and implementing a method for comparing program enrollments and output to present and projected job opportunities, by six-digit OE codes.

12. That continuing efforts to articulate general and occupational education at all levels in the State be encouraged by financial support.

13. That the development and wide distribution of a manual explaining the administration of occupational education in the secondary schools be given high priority in FY 71; the manual should include appropriate State Board policies and administrative procedures used in the state agency.

14. That strong emphasis be given to assuring that comprehensive vocational education opportunities be made available for all students in secondary schools.

15. That when major redirections of programs and/or resources are to be made, strong efforts for communicating impending changes should be made as early and effectively as possible to assure adequate planning by local educational agencies.

16. That the percentage of state support for secondary occupational education programs be adjusted as rapidly as possible in a manner which will encourage program expansion.

Goal I: Evaluation should focus on the State goals and priorities set forth in the State Plan.

a. Items Evaluated: An analysis of program emphases, vocational education objectives, target populations, and target areas.

b. Findings/Conclusions: We found it difficult to make an accurate evaluation of this area because of limited data for some of the objectives, the fact that objectives required only input data, and because some of the goals and areas of emphasis were not supported with measurable objectives. The format of the plan does not interrelate goals, objectives and priorities in an organized way.

In some areas, we found accomplishment of the State goals and objectives substantial. These included emphases on occupational orientation and exploration programs, the begining of articulation efforts at all levels, and emphasis on consumer and homemaking education programs at the secondary level. Substantial progress was made in working with disadvantaged and handicapped populations in terms of persons served (particularly at the secondary level) and in the search for more effective ways of serving these groups. While the objectives set forth in the State Plan were completely met in regard to public service occupations, we believe the objectives were grossly unrealistic.

We find the new resource allocation formula (for secondary programs) and its application to next year's allotments a very positive step in overcoming past inequities. Although six of the larger urban areas enroll only approximately 25% of the state's K - 12 students, local

educational agencies in these areas will receive slightly more than 50% of the allotment for additional teachers. Similarly, 9 local educational agencies in areas with severe unemployment rates will receive approximately 40% of the additional set-aside allotments. However, a substantial increase in appropriations for occupational education is needed to fully operationalize the formula at the level of need in the State.

At neither the secondary nor the post-secondary level does the State resource allocation formula provide differentials for high-cost or high-risk programs. This severely limits the flexibility of local administrators to meet the needs of people. Similarly, neither formula rewards efficiency or effectiveness.

We found no evidence that the State has applied any Federal vocational education resources to narrowing the guidance counselor-student ratios. This narrowing is essential to implementing a full program of student personnel services to serve as a basis for sound decision-making concerning vocational education opportunities. There is a need to develop profiles of characteristics of students entering secondary and post-secondary occupational programs to insure that curricula are appropriate to their needs and capacities.

While the goals for research were only partially accomplished, there were indicators of the promise for strong research programs in the future.

We found excellent summer workshops and institutes for limited numbers of teachers and counselors during the year under review. We believe these should be expanded to include a larger population. We believe that as

programs of occupational education expand and new priorities are developed there should be a corresponding increase in support for professional development programs. We further believe that a coordinated plan for retraining persons given new teaching assignments should be implemented.

c. Recommendations: 1) That either the State Plan be organized so as to display goals, objectives, and priorities in an interrelated fashion, or that the state agency do so in a separate document.

2) That objectives be stated in terms of output measures, or be written so as to show input-output relationships.

3) That the Department of Community Colleges continue to study its resource allocation formula to assure that it reflects those factors assuring equality of opportunity for occupational education programs as well as demands of the labor market.

4) That long-range plans for program enrollment and output be supported by a coordinated plan for preservice and inservice education of professional personnel, so that program redirection and expansion efforts will be staffed by properly prepared personnel.

5) That the State Board of Education move towards rewarding efficiency, and effectiveness, and indicate priorities through modifications of its resource allocation formulas; both to local agencies and to institutions preparing professional personnel.

Goal 2: Evaluation should look into all parts of human resource development in the State.

a. Items Evaluated: Evaluation in this area (for fiscal year 1970) was limited to (1) determining whether data concerning non-public vocational education programs being operated in the State were being collected and analyzed and (2) examining the extent of coordination between the state education agencies and other state agencies.

b. Findings/Conclusions: We found that some data on non-public programs were being collected by various state agencies, but not accumulated and analyzed by the Division of Occupational Education nor the Department of Community Colleges for their effects on public programs.

We find the need for more effective coordination between State Employment Security Commission personnel and state staff in occupational education in providing planning information appropriate for educators.

c. Recommendations: 6) That the State Board of Education initiate a major effort to annually collect, analyze, and publish data interrelating public and private programs of vocational education.

7) That the 17 planning areas recently designated by the Governor be adopted by the State Board of Education and its agencies for planning and reporting purposes.

Goal 3: Evaluation should focus upon the effects the Vocational Education Amendments of 1968 had upon the State in the year under review.

a. Items Evaluated: A limited review of the Vocational Education Amendments of 1968 and a comparison with major thrusts of the State Board's agencies.

b. Findings/Conclusions: We find a positive relationship developing between the State Board of Education and the State Advisory Council on Vocational Education.

We find a positive move to a more equitable distribution of occupational education resources taking into account manpower needs and job opportunities, vocational education needs, excess costs, and relative ability to pay. We encourage the further development and refinement of the data base supporting each of the four factors.

We find an increased emphasis on research and evaluation evidenced by action of the State Board in assuring the continuation of the Occupational Research Unit. We would encourage a more substantial funding level for research activity, and consideration of allocating some research money to local institutions and units for the conduct of practical management-oriented projects.

We find evidence of activity in the area of exemplary programs and projects, especially those dealing with occupational orientation and exploration.

The State has no plans to develop residential vocational education schools, thus there has been no activity in this area. The lack of residential schools restricts attendance at post-secondary institutions,

especially by some potential students who are without private transportation and by some potential students who wish to enroll in curricula not offered in institutions within commuting distance of their home.

There was considerable planning done at the post-secondary level to implement the emphasis of the Amendments on expanding cooperative programs and work-study programs, but little activity due to the lateness of funding.

We find little expansion of pre-service vocational teacher education programs or of counselor education programs. There was substantial activity in the area of in-service programs and graduate level programs.

With assistance from the Center for Occupational Education, the Division of Occupational Education produced and implemented a new format for local planning, which emphasized the key points in the 1968 Amendments. Concurrently, the Department of Community Colleges contracted for the development of a statewide long-range plan for post-secondary programs, with the intention of involving all local institutions in the planning effort in FY 71. Both of these efforts are highly commendable.

c. Recommendation: 8) That the state agencies develop a long-range plan for state-level management, research, evaluation, exemplary programs, teacher education, cooperative programs, and comprehensive planning in order to assure effective leadership to local educational agencies in the implementation of their long-range plans.

Goal 4: Evaluation should focus upon the effectiveness with which the people and their needs are served.

We did not find data in the State agencies which would allow us to evaluate this goal for FY 70.

Recommendation: 9) That the State Board of Education develop and implement a system which will yield current and continuing information on the efficiency and effectiveness of its programs of occupational education in terms of target groups of people, target geographical areas, outputs from the system, and outcomes (interaction between outputs and the work force).

10) That the State Board of Education adopt and fund a Master Plan for the Evaluation of Occupational Education in North Carolina, and that the Plan include provisions for evaluating the effectiveness of the Board's agencies.

Goal 5: Evaluation should consider the employment opportunities within the State and the vocational education services provided to meet these opportunities.

a. Items Evaluated: The basic item evaluated was the relationship between manpower projections developed by the Research Triangle Institute and occupational education enrollment data reported by Office of Education codes.

b. Findings/Conclusions: We found a large imbalance between manpower projections by occupational groups and occupational education program enrollments, with enrollment shortages in the areas of health occupations, (excluding practical nursing), food service occupations, and protective service occupations.

At the present time the State agencies are not comparing projected job opportunities with program output.

c. Recommendation: 11) That sufficient agency resources be acquired and devoted to developing and implementing a method for comparing program enrollments and output to present and projected job opportunities, by six-digit OE codes.

Goal 6: Evaluation should focus upon other factors affecting the availability, quality, and quantity of vocational education opportunities.

a. Items Evaluated: These included the image of vocational education, the availability of accessible comprehensive programs, and the morale of teachers, administrative, and supervisory personnel.

b. Findings/Conclusions: The State is to be commended for its initiation of middle grades programs in occupational education, and for involving general educators in the implementation of this program. We support expansion of the middle grades program.

In the minds of many people vocational education (1) was and still is associated with training for lower-level jobs, (2) was designed only for the person who would not pursue a baccalaureate degree, and (3) lacked the quality, rigor, and respectability of academic programs.

We found that comprehensive programs (three or more fields) of vocational education were still not available to students in 41% of the secondary schools.

At the secondary level we found evidence of low morale of vocational teachers, centering on the issues of man-months allocations and reorganization of the Division of Occupational Education. The concerns were reflected in fears concerning possible negative effects on local occupational education programs allowed by these changes.

There is evidence that many programs in the universities for training educational administrators either ignore the existence of occupational

education or devote less time to it than is needed to develop a sufficient understanding of it.

c. Recommendations: 12) That continuing efforts to articulate general and occupational education at all levels in the State be encouraged with financial support.

13) That the development and wide distribution of a manual explaining the administration of occupational education in the secondary schools be given high priority in FY 71; the manual should include appropriate State Board policies and administrative procedures used in the state agency.

14) That strong emphasis be given to assuring that comprehensive vocational education opportunities be made available for all students in secondary schools.

15) That when major redirections of programs and/or resources are to be made, strong efforts for communication impending changes should be made as early and effectively as possible to assure adequate planning by local educational agencies.

16) That the percentage of state support for secondary occupational education programs be adjusted as rapidly as possible in a manner which will encourage program expansion.

TO: United States Commissioner of Education and National Advisory Council on Vocational Education

We recommend:

1. That the date for submission of the annual evaluation reports of State Advisory Councils on Vocational Education to the Commissioner and the National Advisory Council be not earlier than December 1 following the end of the fiscal year under review.

2. That the Commissioner and the National Advisory Council urge Congress to provide full funding for vocational education and to provide early funding for all educational programs.

PROPOSED EVALUATION FOCUS FOR FY 71

In looking ahead to its FY 71 evaluation, the Advisory Council expects to make a closer examination of Goal Area 4. It would like to examine data showing the output of programs, and outcome data showing the effectiveness of programs in meeting the needs of target groups and geographical areas, and in improving the match between job opportunities and program completions. The Council encourages the use of trend lines covering fiscal year 1967-71 to graphically show program redirection achievements.

A second area the Advisory Council expects to examine more closely is that of program comprehensiveness. At the secondary level, this refers to the number of occupational fields available to any given student in the state. At the post-secondary level, this refers to the distribution of enrollment of full-time students between college parallel, technical, and vocational curricula, and to the number of fields available to any given student, in any institution.

In addition, evidence will be sought to determine the extent to which each of the sixteen commendations in this report was accepted and implemented.

APPENDIX

NORTH CAROLINA STATE ADVISORY COUNCIL ON VOCATIONAL EDUCATION

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Committees of the Council

Steering Committee
Personnel Committee
State Plan Committee
Professional Development Committee
Program Operations Committee
Legislation and Funding Committee
Special Studies and Evaluation Committee

VT 012 334
First Annual Report of the Arizona State Advisory Council for Vocational Education.

Arizona State Advisory Council for Vocational Education, Phoenix. Office of Manpower Planning.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 10ct70 79p.

DESCRIPTORS - *PROGRAM EVALUATION; *VOCATIONAL EDUCATION; *EDUCATIONAL ADMINISTRATION; *ADVISORY COMMITTEES; *ANNUAL REPORTS; EDUCATIONAL NEEDS; STUDENT NEEDS; RESEARCH NEEDS; MANPOWER NEEDS; ADULT EDUCATION; PROGRAM COSTS; COOPERATIVE EDUCATION; EVALUATION CRITERIA; POPULATION TRENDS

ABSTRACT - In accordance with the Vocational Education Amendments of 1968, the Arizona State Advisory Council prepared this first annual report concerning vocational education in the state. Based on an analysis and evaluation of vocational programs, the Council suggests that state agencies can bring about major innovations in the management of the schools to make the educational experience more relevant. The Council goes on to make 18 recommendations directed primarily to the administrative functions of existing state agencies. Data supporting the recommendations are included in the report. (JS)

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FIRST ANNUAL REPORT

OF

THE ARIZONA
STATE ADVISORY COUNCIL FOR VOCATIONAL EDUCATION

PHOENIX, ARIZONA

OCTOBER

1970

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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STATE ADVISORY COUNCIL
FOR
VOCATIONAL EDUCATION

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REX R. WAITE
DIRECTOR

October 1, 1970

Arizona State Board of Education
Dr. Howard C. Seymour, President
Suite 165, State Capitol Building
Phoenix, Arizona 85007

Gentlemen:

In accordance with the provisions of the Vocational Education Amendments of 1968, the Arizona State Advisory Council for Vocational Education respectfully submits this First Annual Report.

The Vocational Education Amendments of 1968 provide for, and the National Advisory Council for Vocational Education recommends, the use of professional services in the analysis and evaluation of the programs, services, and activities of Vocational Education in Arizona.

In keeping with these provisions, the Arizona State Advisory Council for Vocational Education engaged the services of Betti C. Goldwasser, an economist, to make this First Annual Report.

Seven copies of the report are submitted for your transmittal to the Commissioner of Education.

Respectfully,

F.R. Vihel

F.R. Vihel, Executive Secretary
Arizona State Advisory Council
for Vocational Education

FRV:r

RECOMMENDATIONS OF THE STATE ADVISORY COUNCIL FOR VOCATIONAL EDUCATION

The quality of education in Arizona is in the hands of the State government -- the Governor, the legislature, the Superintendent of Public Instruction, and the State Board of Education.

The time has come to find ways of offering a comprehensive program of vocational education in the secondary schools of Arizona.

The State Advisory Council for Vocational Education suggests that State agencies can bring about major innovations in the management objectives of the schools to make educational experience more relevant to the needs of the youth of Arizona.

Effective vocational education is more inclusive than simply training for job skills. It also develops abilities, understandings, attitudes, work habits, and appreciations which contribute to a satisfying and productive life.

In view of the above statements, the State Advisory Council for Vocational Education makes the following recommendations:

1. That the State Department of Vocational Education, and the planning and research staff of the Department of Public Instruction work with the Arizona State Employment Service research staff in establishing a universe of need that is tailored to the requirements of communities of the State and defined areas, yet does not lose sight of the patterns emerging in the State and national labor market. It must also reflect the arrival and departure of businesses and industries and the flow of workers to and from the State or area labor markets.

2. Cooperative education programs should be expanded and developed with consideration to the universe of need as recommended in Item 1. This is comparatively easy to do with a rising economy. Consideration should be given to planning during the declining economy as well as the stabilized economy.

3. That every secondary school develop a world of work orientation and placement program coordinatively with the business and industrial community and the Arizona State Employment Service to assure that trained people are available to meet employment demands. This is needed to help develop an understanding on the part of students of the relationship between academic work and life in the world of work.

4. That the State Department of Vocational Education continue to improve its data gathering system relative to the placement of graduates and also information regarding the retention in employment of graduates in the fields in which they received vocational training.

5. That the State Department of Vocational Education continue in its effort to formulate some system toward uniform cost accounting.

6. That the disadvantaged be brought into the mainstream of the vocational education programs with its existing facilities which would eliminate the duplication of effort evident in many programs; concurrently then vocational education programs must strive for more relevancy to meet the changing attitudes of those they are to educate.

7. That available federal funds be used in established institutions such as public schools, private schools, and businesses and industries rather than duplicate similar training facilities.

8. That the State Department of Vocational Education, the planning and research staff of the Department of Public Instruction, and the State Office of Manpower Planning conduct a cost comparison

survey between the public schools, manpower programs, and private training institutions.

9. That the State Board of Education urge the universities to develop a plan for professional development related to vocational education. It should provide in-service training for those currently employed and a long-range program for increasing leadership capabilities, especially in guidance and counseling patterns.

10. That a public relations program be inaugurated to improve the image of vocational education, expand the philosophy of vocational education, and to attract and retain students to the programs.

11. That, wherever possible parents be included in the make-up of the membership of committees, advisory councils, boards, etc.

12. The State Department of Vocational Education and the Arizona State Employment Service take steps to contact top management in business and industry relative to cooperative education, services which the departments can provide, and establish a relationship conducive to the acceptance of graduates from vocational training programs.

13. That the State Department of Vocational Education with the Arizona State Employment Service maintain a close liaison with top management of business and industry relative to changing job requirements based on new contracts, retraining of personnel, improved methods of production, and the changing status of the art of the various trades and processes and technology.

14. That existing training facilities be available the year around for vocational education so that graduates become available to meet the needs of business and industry, just as private training institutions do.

15. That the State Board of Education exercise its leadership to establish a definite commitment from secondary schools to expand from the college preparatory to career cluster curricula, so that career preparation management becomes an objective of the secondary schools.

16. That the State Board of Education exercise its leadership at the elementary school level in developing attitudes and orientation toward vocational education. (Suggested reading, the Wyoming Model, which includes a program from kindergarten through the twelfth grade.)

17. That the State Board of Education and the State Department of Vocational Education make a dedicated effort to retain every potential dropout and to reenroll previous dropouts.

18. That the State Department of Vocational Education, the State Board of Education, and the State Advisory Council for Vocational Education maintain continuous surveillance as a means of establishing and continuing quality control in Vocational Education. This becomes very important in consideration of the evaluation of the programs as related to accreditation by appropriate accrediting agencies and the U.S. Office of Education.

The State Advisory Council wishes to direct your attention to the fact that the above recommendations are directed primarily to the administrative functions of existing State agencies rather than to proposed legislation. The Advisory Council will however, at the appropriate time, make suggestions for preparing legislation.

The State Advisory Council believes, as a result of the findings of the First Annual Report, that many vehicles in existing State agencies are not being utilized to the best advantage in the programs, services, and activities of Vocational Education; that better coordination of the existing

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agencies will help produce a more effective program of Vocational Education; and finally that a working relationship between the State Department of Vocational Education and the State agencies on the one hand, and the business community and industry on the other, is mandatory in order to give full meaning to the program of Vocational Education.

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FIRST ANNUAL REPORT

OF

THE ARIZONA
STATE ADVISORY COUNCIL FOR VOCATIONAL EDUCATION

PREPARED FOR
THE ARIZONA
STATE ADVISORY COUNCIL FOR VOCATIONAL EDUCATION

BY
BETTI C. GOLDWASSER

OCTOBER 1970

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SUMMARY AND RECOMMENDATIONS

It has been impossible, because of lack of data, to cover each topic systematically and in comparable detail in this report; as a result it has been equally impossible to lay out a meaningful summary topic by topic. This summary is instead a general assessment of vocational education in Arizona, and includes the most important recommendations specified in the text.

If one were to go through the FY 1970 program objectives item by item, to ascertain whether or not they had been reached, it would be necessary to say "Data not available" (at least at this point in time) for most of them. Yet in general, the State's vocational education system came close to achieving the objectives of the FY 1970 plan, as modified by the shift to FY 1971 plan objectives. A major constraint underlying both the FY 1970 and the FY 1971 plans is lack of a definitive agreement on the proper aims of vocational education and its relation to other manpower programs. The vocational programs and other training programs are all subject to CAMPS review, particularly to establish linkages, but the establishment of priorities is largely dictated by the availability of funds (particularly Federal funds), and not by a conscious decision that it is more important to train one client group than another.

There are three other major constraints on achievement of vocational education goals. One concerns the demand for completors of vocational education programs, which is difficult to project and requires more flexibility in shifting programs than the vocational education structure presently permits. The second results from the population dispersion within the State, the autonomy of local school districts, and the inability of sparsely populated and/or depressed areas to support diversified vocational programs, problems with which the vocational education department has been wrestling. And the third results from the lack of data to appraise the validity and success of the programs. Development of internal computerized reporting systems is well-advanced in Arizona (which appears to lead other states in this regard), and most of the statistical information required by the U. S. Office of Education is already available and will require relatively little reprogramming. Adequate data on occupational demand, on universe of need for vocational education (which ties in with the need for agreement on the aims of vocational education), and on follow-up, require much work over the next

few years. For cost-benefit or cost-effectiveness analysis, cost data by program and by type of service (e.g., counseling) are also urgently needed.

The following major recommendations follow the order of the text of this report. These are either in addition to, or emphasize, the subjects covered in the FY 1971 plan, the objectives of which are all, in a sense, recommendations, and do not require duplication here.

I. General aims of vocational education. Guidelines and definitions are needed on such questions as:
   a. Who should get vocational education?
   b. What is the universe of needs for vocational education?

   The active cooperation of the business community, private educational institutions and the labor organizations, as well as the assistance of the Office of Education, should be sought in establishing basic objectives.

II. Methods of estimating manpower needs and job opportunities require further development, and means of making the vocational education system more quickly responsive to labor market changes must also be developed. Maximum use should be made of the CAMPS mechanism to accomplish this and also to prevent duplication of other training programs. The business community should be enlisted.

III. The geographic dispersion of Arizona's population and its industrial structure require the further development of multi-district secondary vocational education centers, as part of a comprehensive program in existing school facilities in order to provide vocational program choice to students without undue strain on the financial resources of the individual school districts. Job development, career guidance and use of the Statewide job information system should be incorporated into the planning and activities of such multi-schools. The business community should actively participate in order to assure that enrollees learn really saleable skills.

IV. Industrial arts and home economics programs in elementary and middle schools should be made the vehicle for prevocational education purposes. This implies a much closer working relationship between the Vocational Education Staff and the Elementary and Secondary Education Divisions than presently exists.

V. The State should take prompt legislative action to provide free textbooks and supplies to all secondary students. In the interim, they should be made available, on loan if necessary, to all disadvantaged students. Modest stipends should also be considered if needed to

keep children of poor families in school. Work study or cooperative education programs (as well as NYC in-school) could be used for this purpose.

VI. Female students should be encouraged to move into a wider range of occupational programs.

VII. The research program needs drastic overhaul. Research priorities need early definition, and research must be made more responsive to the needs of the Vocational Education Department and the Advisory Council.

VIII. Cooperative education should be expanded as far and as fast as opportunity permits.

IX. Expansion of career or vocational guidance, separated from general guidance, is recommended. Experimentation with three-man circuit-riding counseling teams, including a general guidance counselor, a college preparatory counselor, and a vocational counselor, to serve several schools and/or school districts, is suggested in lieu of attaching a single do-it-all counselor to each school. Standards for certification of career counselors should be established.

X. Arizona's routine evaluations of its vocational education activities are under constant scrutiny and improvement, and as frequent as resources permit. However, program evaluation, in the sense of examining the basic goals and objectives of vocational education, and the State's success in meeting them, exists only on the most informal level. In particular, lack of adequate data make cost-benefit and cost-effectiveness analysis impossible. While the kind of evaluation required by the Office of Education does not require this kind of review, Arizona is sufficiently ahead of other states in collecting relevant information that it should begin to develop such evaluations and the instruments necessary for it.

XI. Data for evaluation are late or lacking! The lateness is the result of the set of deadlines imposed by the Office of Education, which should be changed before next year's reports are undertaken. Reports (except for follow-up) should continue to be due by October 1, with follow-up due by December 1, but the evaluation should not be required before January 1. Further, there is great duplication as well as the accumulation of large stacks of paper, in the preparation of (a) the current year plan, (b) the Statistical report forms, (c) the descriptive report, (d) the evaluation, and (e) the next-year plan. OE should review its reporting requirements to minimize this burden to the states.

ACKNOWLEDGMENTS

As many as possible of the specific sources of numerical data have been acknowledged in the text. Much material was provided directly from the computer print-outs of the Vocational Education Department and from the draft of the RCU's Learning A Living. (Page references to the latter are to the draft; final copy is not to be available until mid-October). Particular thanks are due to officers of the Vocational Education Department, especially Dr. Eugene Dorr, its Assistant Director, who was most generous and cooperative. Dr. Arthur Lee and Mrs. Dorris Fitzgerald of RCU were helpful in making their materials available. The State Employment Service was very efficient in preparing demographic and labor market data. Staff members of various schools and skill centers were also very helpful.

Particular appreciation is due Miss Nancy Hahn, who was assigned by the Human Resources Advisory Council to work with me. Her knowledge of data resources was indispensable, and without her contribution to the statistical materials this report would not have been possible. All errors of omission or commission are, of course, my own.

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INTRODUCTION

Any evaluation of a social program should obviously focus on the extent to which the program goals have been achieved. Unfortunately, the program goals for Arizona's vocational education programs for FY 1970 were established in such haste, in order to meet unrealistic deadlines, and under such changing ground rules, as continually revised by the U. S. Office of Education, that they represent a paper token of intent. They were unrealistic to begin with, and they were presented in terms for which no adequate statistical measures exist.

These defects in the FY 1970 State Plan were recognized at the outset both by the State and the Federal Government. Consequently, the program began at once to move in the direction of the kinds of goals established in the FY 1971 program, and it is in part these latter goals--traced back to FY 1969 and FY 1970--which will be the point of reference for this evaluation.

This introduction is the place to bring up a problem of the philosophy and applicability of vocational education which has not been solved at the State level, and on which guidance is urgently needed from the Office of Education for the preparation of future evaluations. To assure comparable evaluations from the States, the Office of Education should move rapidly in establishing guidelines and definitions concerning the universe of need for vocational education, which will enable both the States and the Federal Government to establish the extent to which those needs are being met.

The philosophical question at issue is: Who should get vocational education and at what ages (or grade levels)? Much has been written on the desirability, for example, of every secondary school graduate, including college preparatory students, being "employable" or having a saleable skill, and the State of Arizona's vocational education system subscribes to this objective. And until the carrying out of this principle results in a surplus of trained employables who are in fact unemployable because no jobs exist for them, the objective raises no pressing problems.

But--speaking in the most general orders of magnitude, and recognizing the slippages resulting from young people leaving (or not entering) the labor market for military service, post-secondary education and/or marriage and homemaking--the following argument might be made. Currently we are giving between 70 and 80 percent of our youth a college preparatory or general education, with little or no vocational component,

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though less than 20 percent will actually go on to careers requiring an academic degree.[1] A reversal of these magnitudes, which would provide 70 to 80 percent of our youth with primarily vocational preparation, would not only raise the well-known dangers inherent in Western European education of too-early vocational choice (and the concomitant separation of the sheep and the goats, however disguised), but would also and more immediately require the adjustment of the radically increased supply of "employable" graduates to the existing demand for their services. The greater the numbers of vocational education students, the greater the problem. And while neither vocational education nor manpower programs have yet reached a sufficient number of individuals to make the problem acute, the frequent experience under MDTA of routing applicants to existing training courses (established to meet employment needs), rather than to training of choice, indicates that the problem is a real one to which all interested in vocational education should be giving attention in planning for the future. For Arizona, with a relatively limited industrial spectrum, the problem may well be more imminent than for other states. The State has no quick answers, and would welcome help from the Office of Education in establishing criteria for selection of students, establishing estimates of needs, and laying out courses of study which will produce really employable graduates, without undue restriction of either their freedom of choice of career or their ability to switch careers to meet their own desires and capabilities.

An associated problem is the kind of vocational education to be given. Training in specific occupations will be obsolete as technology and industrial structure change. It is likely that the more specific training, and hence the more immediately saleable the skill, the earlier it will become obsolete. Much study is required, nationally as well as in the State, to determine the optimum content of vocational education curricula in order to minimize (or postpone) obsolescence, facilitate lifetime learning and retraining, and to teach the student to deal with occupational problems. The Silberman Report, Crisis in the Classroom, published after this paper was completed, makes the point. As quoted in the New York Times of 20 September 1970 (p. 70), Silberman says:

> "Students need to learn far more than the basic skills. For children who may still be in the labor force in the year 2030, nothing could be more wildly impractical than an education designed to prepare them for specific vocations or professions or to facilitate their adjustment to the world as it is.

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[1] It is reluctantly admitted by both economists and educators that, whether or not four years of college equips a student with a career skill, it does perform a very useful socio-economic function in keeping him out of the labor market. The same can be said for military service.

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> To be "practical," an education should prepare them for work that does not yet exist and whose nature cannot even be imagined. This can only be done by teaching them how to learn, by giving them the kind of intellectual discipline that will enable them to apply man's accumulated wisdom to new problems as they arise — the kind of wisdom that will enable them to recognize new problems as they arise."

Finally, it should be stressed that this report must inevitably appear to be highly critical of vocational education in the State. Arizona is unquestionably one of the more advanced states in its vocational education program, and probably first in the collection of data for vocational education planning and analysis. But an evaluation which systematically lists what is good and requires no change is not a very useful instrument in pointing out the needs for improvement. This report therefore emphasizes the areas where I believe change is necessary, and makes recommendations accordingly.

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MANPOWER NEEDS AND JOB OPPORTUNITIES IN ARIZONA

While the prescriptions for vocational education vary from what are at present vaguely-defined hopes of a vocationally-oriented education for all, through "cluster" training for groups of occupations, to very specific skill-training for specific occupations, it is clear that optimum use of limited resources requires that training opportunities be related to job availability. There are three kinds of difficulty which arise in applying this principle:

(1) Vocational education in the narrower sense covered by the Vocational Education Act and its amendments, is not the only--or even the principal--source of trained personnel. The existing work force, inmigration from other areas, training on the job, and various manpower programs (MDTA, Job Corps, NYC, CEP, WIN, etc.) provide replacements and expansion in numbers which at present cannot be estimated with any degree of promptness or accuracy.

(2) The twin arts of estimating and forecasting employment opportunities are in their infancy; experience indicates that even short-range forecasts can be wide of the mark. (Cf. Table 1.) Further, benchmark data are available only for Census years; for 1970 these were ten years old, out-of-date, and provided unreliable guides for planning.

(3) Most vocational education programs of the kind provided in secondary and post-secondary schools (as distinguished from some of the short-term training courses available under MDTA, for example) require two-three years' lead time. An industrial or technological shift or a cyclical turnabout can invalidate even short-range forecasts of employment which were correct at the time they were made.

In spite of these problems, occupational training under vocational education auspices must be related to the best available appraisals of employment opportunities. These were presented in the FY 1970 and 1971 plans.

In Table 1, there is set forth a comparison of current employment in Arizona, as of April, 1970, by OE code and educational program, with the projected 1970 labor demands for the most nearly comparable occupational category as set forth in Table 1, Section II of the FY 1970 plan.

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TABLE 1. - COMPARISONS OF CURRENT AND PROJECTED EMPLOYMENT, NEED FOR NEW AND REPLACEMENT EMPLOYEES, AND PROJECTED AND ACTUAL VOCATIONAL OUTPUT, FY 1970, BY INSTRUCTIONAL PROGRAM

OE Code	Instructional Program	Current Employment April, 1970[1]	Projected Labor Demand, 1970[2]	Excess (+) or Deficit (-) in Current Employment As Compared With Projected Labor Demand	Projected Need For New And Replacement Employees[2]	Vocational Education Output, 1970	
						Projected 1970 Plan[2]	Actual (Secondary And Post-Secondary)
01.	AGRICULTURE						
1.0100	Agricultural Production	13,900	37,300	- 23,400	400	206	240
1.0200	Agricultural Supplies	2,000	1,000	1,000	50	70	19
1.0300	Agricultural Mechanics	11,500	400	11,100	40	60	127
1.0400	Agricultural Products	580	2,000	- 1,420	--	10	22
1.0500	Ornamental Horticulture	320	75	245	--	51	53
1.0600	Agricultural Resources	2,600	2,000	600	50	60	56
1.0700	Forestry	130	200	- 70	--	86	63
1.0800[3]							
1.0900[4]							100
1.9900	Other						
	TOTAL	31,030	42,975	- 11,945	540	543	680
04.	DISTRIBUTIVE EDUCATION[5]						
4.0100	Advertising Services (n.a.)	650	--	650	--	--	52
4.0200	Apparel & Accessories (4.0102)	40,000	9,900	30,100	450	10	206
4.0300	Automotive (4.0103)[6]	3,000	6,000	- 3,000	300	130	58
4.0400	Finance & Credit (4.0104)	1,900	3,700	- 1,800	150	38	31
4.0500	Floristry (n.a.)	--	--	--	--	--	--
4.0600	Food Distribution (4.0105)	3,250	5,200	- 1,950	200	143	51
4.0700	Food Services (4.0106)	3,700	3,000	700	150	25	45
4.0800	General Merchandise (4.0108)	7,800	10,600	- 2,800	500	293	180
4.0900	Hardware (n.a.) (4.0109)	--	--	--	--	--	21
4.1000	Home Furnishings (4.0110)	900	n.a.	900	n.a.	n.a.	46
4.1100	Hotel & Lodging (4.0111)	3,300	4,000	- 700	400	40	18
4.1200	Industrial Marketing (4.0114)[7]	--	--	--	--	--	--
4.1300	Insurance (4.0112)	2,100	4,000	- 1,900	400	20	5
4.1400	International Trade (n.a.)	--	--	--	--	--	23
4.1500	Personal Services (n.a.)	--	--	--	--	--	--
4.1600	Petroleum (4.0103)[6]	--	--	--	--	--	--
4.1700	Real Estate (4.0116)	1,500	4,400	- 2,900	200	370	13
4.1800	Recreation & Tourism (n.a.)	--	--	--	--	--	--
4.1900	Transportation 94.0118)	3,700	2,400	1,300	100	5	73
4.2000	Retail Trade, Other (4.0117)	3,300	4,550	- 1,250	250	113	161
4.3100	Wholesale Trade, Other (4.0119)	5,800	3,600	2,200	250	15	13
	Distribution, Other[8]	--	17,650	- 17,650	850	511	372
4.0199	Other Instructional Programs	--	--	--	--	--	151
	TOTAL	80,900	79,000	1,900	4,200	1,713	1,519

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TABLE 1. - COMPARISONS OF CURRENT AND PROJECTED EMPLOYMENT, NEED FOR NEW AND REPLACEMENT EMPLOYEES, AND PROJECTED AND ACTUAL VOCATIONAL OUTPUT, FY 1970, BY INSTRUCTIONAL PROGRAM

OE Code	Instructional Program	Current Employment April, 1970[1]	Projected Labor Demand, 1970[2]	Excess (+) or Deficit (-) in Current Employment As Compared With Projected Labor Demand	Projected Need For New And Replacement Employees[2]	Vocational Education Output, 1970	
						Projected 1970 Plan[2]	Actual (Secondary And Post-Secondary)
07.	HEALTH OCCUPATIONS						
7.0101	Dental Assistant	1,350	850	500	50	56	7
7.0102	Dental Hygiene	225	175	50	25	33	15
7.0103	Dental Laboratory Technician	150	100	50	20	--	--
7.0200	Medical Laboratory Technician	--	--	--	--	--	5
7.0202	Histology Technician	1,350	1,050	300	50	17	5
7.0203	Medical Lab. Assistant						
7.0303	Nurse's Aid (7.0206)	3,700	4,150	- 450	250	320	77
7.0903	Hospital Food Serv. Sup. (7.0208)	140	75	65	9	--	--
7.0903	Inhalation Therapy Technician	110	75	35	15	25	34
7.0500	Medical X-ray Technician (7.0211)	850	550	300	50	25	3
7.0600	Optician (7.0212)	135	150	- 15	20	--	--
7.0305	Surgical Technician (7.0213)	275	160	115	5	19	--
7.0401	Occupational Therapy Ass't. (7.0214)	30	12	18	2	--	--
7.0402	Physical Therapy Ass't.	50	30	20	2	--	--
7.0302	Licensed Practical Nurse	1,500	--	1,500	--	--	204
7.9900	Other Health	--	--	--	--	--	52
7.0301	Nursing (Associate Degree)	--	--	--	--	--	85
	TOTAL	9,865	7,377	2,488	498	495	487
09.	HOME ECONOMICS[9]						
9.0201	Care & Guidance of Children	--	--	--	--	--	9
9.0202	Clothing Management, Production	5,400	3,700	1,700	180	87	6
9.0203	Food Management, Production	250	4,200	- 3,950	200	128	41
9.0204	Home Furnishings (See 4.1000)	--	--	--	--	--	--
9.0205	Institutional & Home Management	4,200	4,300	- 100	180	117	11
9.0299	Occupational Preparation, Other	--	--	--	--	--	--
9.9900	Other Home Economics	--	--	--	--	--	28
	TOTAL	9,850	12,200	- 2,350	560	332	95
14.	OFFICE EDUCATION[10]						
14.0100	Accounting & Computing	8,300	9,200	- 900	455	95	133
14.0200	Business Data Processing	2,100	1,500	600	125	410	300
14.0300	Filing, Office Machines, Etc.	3,700	2,550	1,150	250	5,038	1,078
14.0400	Information, Communications	2,700	2,300	400	150	260	69
14.0500	Materials Support Occupations	1,400	3,600	- 2,200	150	65	11
14.0600	Personnel Training,	1,250	1,000	250	50	120	29
14.0700	Stenographic	22,000	4,500	5,350	300	1,745	1,127
14.0900	Typing & Related		12,150		600	656	743
14.0800	Supervisory & Administrative	2,000	--	2,000	--	--	49
14.9900	Office Occupations, Other (14.1000)[5]	--	1,100	- 1,100	100	185	312
	TOTAL	43,450	37,900	5,550	2,180	8,574	3,851

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TABLE 1. - COMPARISONS OF CURRENT AND PROJECTED EMPLOYMENT, NEED FOR NEW AND REPLACEMENT EMPLOYEES, AND PROJECTED AND ACTUAL VOCATIONAL OUTPUT, FY 1970, BY INSTRUCTIONAL PROGRAM

OE Code	Instructional Program	Current Employment April, 1970[1]	Projected Labor Demand, 1970[2]	Excess (+) or Deficit (-) in Current Employment As Compared With Projected Labor Demand	Projected Need For New And Replacement Employees[2]	Vocational Education Output, 1970: Projected 1970 Plan[2]	Vocational Education Output, 1970: Actual (Secondary And Post-Secondary)
16.	TECHNICAL EDUCATION						
16.0100	Engineering Related Technology	n.a.	--	--	--	--	42
16.0101	Aeronautical Technology	250	--	250	--	--	--
16.0104	Automotive Technology	n.a.	n.a.	--	n.a.	52	61
16.0106	Civil Technology	850	400	450	25	33	9
16.0107 16.0108	Electrical Technology Electronic Technology	1,450	900	550	50	52	166
16.0111	Industrial Technology	n.a.	n.a.	--	n.a.	36	4
16.0113	Mechanical Technology	n.a.	n.a.	--	n.a.	n.a.	8
16.0114	Mineralogical & Mining Technology	--	--	--	--	--	1
16.0117	Scientific Data Processing	550	400	150	25	31	232
16.9901	Aviation (AEP) Technology	--	n.a.	--	n.a.	12	21
16.9902	Professional Pilot Technology	250	600	- 350	50	30	9
16.0197	Drafting Design	--	--	--	--	--	110
16.0198	Welding Technology	--	n.a.	--	n.a.	10	54
16.9905	Other Related Technology	--	--	--	--	--	21
	TOTAL	3,350	2,300	1,050	150	256	738
17.	TRADE & INDUSTRIAL						
17.0100	Air Conditioning	550	500[12]	50	50	5	--
17.0200	Appliance Repair	750	800	- 50	50	71	2
17.0300	Automotive Services	3,475	7,250[13]	- 3,775	350	1,074[13]	463
17.0400	Aviation Occupations	1,350	1,700	- 350	100	67	14
17.0500	Blueprint Reading	Not Applicable	--	--	--	--	3
17.0600	Business Machine Maintenance	400	185	215	10	38	--
17.0700	Commercial Art Occupations	Cf. Graphic Arts	--	--	--	--	20
17.0900	Commercial Photography	300	550	- 250	25	50	25
17.1001	Carpentry	4,400	9,400	- 5,000	450	395	48
17.1002	Electricity	2,550	2,200	350	100	96	13
17.1003	Heavy Equipment	2,000	3,700	- 1,700	150	24	1
17.1004	Masonry	1,250	4,050	- 2,800	200	263	3
17.1005	Painting/Decorating	2,900	4,350	- 1,450	200	51	--
17.1006	Plastering	400	375	25	25	153	--
17.1007	Plumbing/Pipefitting	2,400	3,000	- 600	150	153	1
17.1099	General Building Trades	--	--	--	--	--	--
17.1100	Custodial Services	3,400	7,000	- 3,600	300	--	2
17.1200	Diesel Mechanics	Cf. 17.03	1,150	- 1,150	50	14	35
17.1300	Drafting	1,600	2,500	- 900	150	135	89
17.1400	Electrical Occupations[11]	1,300	6,200[14]	- 4,900	300	340[14]	3
17.1500	Electronics Occupations	600	1,000	- 400	50	69	82
17.1600	Fabric Maintenance	1,750	3,500	- 1,750	150	--	3
17.1700	Foremanship	1,400	--	1,400	--	--	1
17.1800	General Continuation	Not Applicable	--	--	--	--	5

003500

TABLE 1. - COMPARISONS OF CURRENT AND PROJECTED EMPLOYMENT, NEED FOR NEW AND REPLACEMENT EMPLOYEES, AND PROJECTED AND ACTUAL VOCATIONAL OUTPUT, FY 1970, BY INSTRUCTIONAL PROGRAM

OE Code	Instructional Program	Current Employment April, 1970[1]	Projected Labor Demand, 1970[2]	Excess (+) or Deficit (-) in Current Employment As Compared With Projected Labor Demand	Projected Need For New And Replacement Employees[2]	Vocational Education Output, 1970: Projected 1970 Plan[2]	Vocational Education Output, 1970: Actual (Secondary And Post-Secondary)
17.	TRADE & INDUSTRIAL (Continued)						
17.1900	Graphic Arts	1,400	1,750	- 350	100	205	79
17.2100	Industrial Maint. & Repair	250	275	- 25	25	--	--
17.2301	Foundry	200	330	- 130	5	100	--
17.2302 17.2303	Machine Shop Machine Tool Operation	2,900	2,950	- 50	150	273	74
17.2304	Metal Trades	3,200	3,800	- 600	200	19	25
17.2305	Sheet Metal	2,000	1,650	350	75	77	16
17.2306	Welding	2,850	3,250	- 400	150	329	41
17.2399	General Metalwork	--	--	--	--	--	--
17.2600	Personal Services	10,700	5,000[15]	5,700	250	104	92
17.2800	Public Service Occupations	4,100	4,950[16]	- 850	450	2,324[18]	51
17.2900	Quantity Food	14,950	18,300[17]	- 3,350	1,000	590	68
17.3000	Refrigeration	650	475	175	25	248	13
17.3300	Textile Production	175	100	75	--	96	82
17.3400	Leatherworking	175	100	75	--	--	5
17.3500	Upholstering	Not Applicable	475	- 475	25	86	8
17.3600	Woodworking Occupations	700	900	- 200	50	43	15
17.3700	Industrial Cooperative Education	Not Applicable	--	--	--	--	72
	TOTAL	77,025	103,715	-26,690	5,365	7,492	1,454
TOTAL FOR ALL PROGRAMS		255,470	285,467	-29,997	13,493	19,405	8,850[19]

SOURCES: 1970 and 1971 State Plans; RCU computerized data on output of vocational education in Arizona. Data for the two years have been grouped to make them as nearly comparable as possible; see footnotes.

NOTES:

[1] FY 1971 State Plan, Part II, Table 1.

[2] FY 1970 State Plan, Section II, Table 1, Secondary and post-secondary only.

[3] Error in coding; 1.0800's included in 1.9900: 21

[4] Error in coding; 1.0900's included in 1.9900: 31

[5] Numbers in parenthesis indicate 1970 OE Code where included in FY 1970 State Plan.

[6] Formerly Automotive and Petroleum.

[7] Formerly Marketing-General.

[8] FY 1970 OE Codes 4.0113-Management; 4.0114-Marketing-General; and 4.0115-Mid-Management, have been grouped together under Distribution, Other. This balancing figure in part compensates for the apparent discrepancy under 4.0200-Apparel and Accessories.

[9] "Useful" not included; only "Gainful" home economics classes.

[10] FY 1970 labor demand projections excluded at least three national businesses whose headquarters were to be located in Arizona. The projected vocational output reflected the real anticipated demand.

[11] See also 16.0107.

[12] Cooling (17.0101), Heating (17.0102), Ventilating (17.0103).

[13] Body and Fender (17.0301)--700; and Mechanics (17.0302)--6,550.

[14] Industrial Electrician (17.1401)--1,600; Lineman (17.1402)--3,100; and Motor Repairman (17.1401)--1,500.

[15] Barbering (17.2601)--1,900; and Cosmetology (17.2602)--3,100.

[16] Fireman Training (17.2801)--1,350; and Police Science (17.2802)--3,600.

[17] Includes Cook, Chef (17.2902)--5,550; Meat Cutter (17.2903)--1,750; Waiter/Waitress (17.2904)--10,000; and a correct OE Code but obviously wrong instructional program, 17.2901-Barber--1,000.

[18] Includes 2,250 in-service training for policemen already on the job.

[19] Total may exceed sum of component parts due to miscoding on computer print-out.

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The excess (+) or deficit (-) in current, as compared with projected, employment is also presented as an indication of how far off the projections were, and how misleading they were as guides to vocational education and manpower training programs. The statement of these differences is certainly not critical of the vocational education staff of the State, which was not responsible for the estimates, nor of the Arizona State Employment Service, which made them. They are shown here only to indicate the crudity of the available data and estimating techniques, the unreliability of the projections as a guide to preparing training slots, and the need for program flexibility to meet rapidly changing needs.

Table 1 also indicates projected FY 1970 educational output, by occupational specialty, and actual output as reported by the vocational education authorities.

When actual 1970 employment turned out to be substantially higher than projected, or when projected and/or actual vocational output were only a small fraction of the demand, the resulting difficulties are on the demand side for labor--that is, the State was not producing enough trained personnel to meet employers' needs for them.

On the other hand, if actual current employment was substantially less than projected, any training might have been superfluous; at most, training should have been limited to replacements. And in these cases, if projected output was not modified, so that actual output equalled or exceeded projected, it is not only the estimates which were wrong, but there was also apparent lack of flexibility in the system to meet changes in demand through the year.

The table itself is clear on these points, but it might be useful to point out some examples.

According to these data, agricultural pursuits required almost 12,000 fewer employees than had been estimated, yet 543 were to be trained. The figures for current employment in the distribution of apparel and accessories appear unbelievably high, but if they are accepted at face value, indicate much too low a projection, and certainly too low a training effort. Even employment in the health occupations, which is more readily forecast and on which much study has been done, indicates poor forecasts. Many more dental assistants, lab assistants and medical X-ray technicians were employed than were projected, and very few were trained. On the other hand, there were fewer nurse's aides required than anticipated, and 320 were trained. In office skills, it would appear that far too many

students received training in filing and office machines, too few in stenographic and related skills. And so on. Note also that although the projected and actual employment refer to the entire State utilization of these skills, the training figures refer only to those slots under the vocational education system. An unknown portion of the gap has undoubtedly been filled from other sources, including other training programs. But where vocational education output exceeded demand, the problem is accentuated, not reduced, by skill availability from other sources.

Two occupational categories suggest themselves as particular problems. The data show an excess of projected requirements for draftsmen, (projected needs much higher than actual employment); the cutbacks in defense expenditures in Arizona clearly indicate lesser need for draftsmen; yet Phoenix Union (for example) is continuing training in this area.

Although the data in Table 1 do not show a surplus of sewing machine operators either under textile production (17.3300) or clothing management and production (9.0202), the U.S. Department of Labor has for the past few years not sanctioned the training of such operators under manpower programs. Yet Arizona is carrying out vocational programs for operators in seven centers, Clarkdale, Phoenix Inner City, Buckeye, Douglas, Tucson, Yuma, and Nogales.[1] If in fact there is a surplus of such operators, in a trade parts of which are notoriously seasonal, it is at least suggestive that the training effort is likely to produce an excess of skilled workers who may have to work at low (or substandard) wages to get a job at all--a possibility which is accentuated by two further elements, first the lack of union organization in the needlework trades in the State, and second, the piecework pay schedule.

In those cases where FY 1970 output exceeded estimated needs, it may of course only be the estimates themselves which are bad. The test of program success would lie in the number of graduates placed and in the unemployment rate in that occupation. Neither of these statistics are readily available:

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[1] The fact that these training programs for operators have been initiated on the instigation of EDA, but without the approval of the State CAMPS also suggests that the need has not been fully substantiated, and of course violates the CAMPS procedure.

(1) Recorded placements, reported in response to questionnaires 90 days after graduation, are probably grossly understated, as the response rate is low.[2]

(2) Unemployment data, by occupation, are unavailable. Nonetheless, the Employment Service is well aware of occupations with surplus supply.

(3) Follow-up data are collected as of October 1. Consequently, none are presently available as a check on the FY 1970 vocational education output. Postponement of this annual report, recommended elsewhere in this evaluation for other reasons, would also permit follow-up data to be used in the evaluation of the vocational education program. In addition, a 30-or-60-day placement report, as of July 31, would be extremely useful; this to be collected from the local school districts, not by questionnaire as is the case with the October 1 follow-up.

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[2]Where the fate of particular individuals is known by their former teacher, it is apparent that many who do not return the questionnaires are in fact employed in training-related jobs.

THE UNIVERSE OF NEED FOR VOCATIONAL EDUCATION PROGRAMS

Table 2, Population Characteristics, of the Arizona FY 1970 plan indicates the raw population estimates related to vocational education needs, which will not be duplicated in this report. But nowhere in the plan, and as far as can be determined by this evaluator, nowhere in the State, has there been made any systematic attempt to estimate the universe of need for vocational education programs, elementary, secondary and post-secondary, much less determine the relation and priority of these needs to training needs under other programs (continuing adult education and remedial programs under MDTA, etc.).

Without in any way minimizing the difficulties of making such estimates and in establishing the necessary priorities, an adequate evaluation of the programs cannot be made until such data are available. They are necessary in order (1) to assess the impact of the program on the target population and its subgroups, (2) to ascertain the effectiveness with which priorities are being met, and (3) to relate vocational education to other human resource programs within the State.

Establishing definitions, securing agreement on priorities, and making estimates of the universe of need, by population category, will require years of effort, experiment and refinement. The process should have started in FY 1970, as soon as it became apparent that the outcomes programmed in the plan were not based on a valid assessment of need. With the new bench-mark data of the 1970 Census soon to be available, it is imperative that resources be set aside for this effort and that work begin and continue on it.

It is particularly necessary that this task be undertaken promptly in order to bring into the forum of political as well as educational discussion the policy problems of establishing priorities. These are, of course, partially dealt with in CAMPS, but within the vocational education segment priorities are also required. The newly established Office of Manpower Planning in the Governor's Office is clearly the place to initiate this work and to coordinate it with the estimating procedures and priorities for other human resource programs.

The State also needs help in this area. The Federal Office of Education requires this information in a fairly uniform pattern from all

003505

TABLE 2. - ARIZONA POPULATION CHARACTERISTICS, 1970

	State[1]
Total Population (April 1, 1970 preliminary Census data)	1,749,456
Age Distribution	
5-17 years	480,724
18-24 years[2]	193,442
25-44 years[2]	387,465
45 + years	469,869
Ethnic Distribution[3]	
Anglo	1,301,963
5-17 years	357,659
18-24 years	143,921
Mexican-American	262,418
5-17 years	72,109
18-24 years	29,016
Black	60,689
5-17 years	16,825
18-24 years	6,770
Indian	116,321
5-17 years	31,728
18-24 years	12,767
All Other	8,065
5-17 years	2,404
18-24 years	967
Male[4]	855,484
5-17 years	235,074
18-24 years	94,593
Female	893,972
5-17 years	245,650
18-24 years	98,849
Disadvantaged (Poor)[5]	36,659
5-17 years	10,081
18-24 years	4,069
Other Poor	9,538
5-17 years	2,623
18-24 years	1,059

[1] Corresponding data for the counties may be found in Appendix B. Data used, unless otherwise indicated, were estimates provided by the Arizona State Employment Service.

[2] ASES age distribution for these groups was the combined age bracket, 18-44 years. The breakout was made by applying the ratios found in the (Continued on next page)

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50 States if it is to evaluate the national program; it should, therefore, also be working on definitions of need, priorities, and estimating procedures, to be issued as guidelines to the States. A possible issue for future Belmont conferences? The Belmont reporting system itself implies certain criteria, but much more needs to be done.

As an example of the need for such information, consider the vocational education objectives stated in Section II, 5.0 ff. of the FY 1970 plan. On what basis was it decided that the percentage of secondary school students enrolled in vocational education should be increased from 14.3 in 1969 to 16.8 in 1970 and 21.0 in 1974 for urban students? Or from a current 25.6 percent to 27.9 percent in 1970 and 29.8 percent in 1974 for rural students? Not the underlying philosophy that all students should receive some vocational training, certainly! Not an assessment of priority of need! The State cannot be faulted in what it prepared under unrealistic time pressures and continuously changing ground rules for FY 1970. But more should have been done to establish needs and priorities during the past fiscal year.

The omission has an immediate consequence for this evaluation. Even where the State has met or more than met its FY 1970 objective, there is a fundamental and unanswered question concerning the validity of the objective itself, which cannot be answered with the information currently available.

Needs can be defined in two ways. The number of disadvantaged high school students to be served under the 1968 amendments are an example of one kind of definition; these can be estimated from existing information. The other kind of need is related to the State goals for vocational education: if the aim is to reach X percent of secondary students, how many students, and with what characteristics, will be involved? There is clearly no rigorous method of making this kind of estimate, and the estimate itself would change as new patterns of vocational education

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(Continued) Fiscal Review Study's population projections (Table II-4), which showed the 18-24 year olds to be 33.3 percent of the total age group 18-44.

[3] The ethnic distribution applied to the new age brackets were: Anglo, 74.4 percent; Mexican-American, 15.0 percent; Black, 3.5 percent; Indian, 6.6 percent; and All Other, 0.5 percent.

[4] The sex distribution applied to the new age brackets were: Male, 48.9 percent and Female, 51.1 percent.

[5] The "universe of need" breakouts were provided by the Arizona State Employment Service, to which the age ratios were applied: 5-17 years, 27.5 percent; 18-24 years, 11.1 percent of total population.

are developed, but such estimates are necessary in planning for vocational education in order to establish priorities, to calculate the costs of alternative courses of action, and to assess possible outcomes. Some of this has of course been done, and is reflected in the projected enrollment figures in the FY 1971 plan, particularly for special programs, but a more detailed break-out with more demographic characteristics is required.

In the Section "Analytical Evaluation Outline and Related Data Requirements" below, I have indicated some of the data breakouts I believe to be necessary in establishing estimates and priorities of need. These should, of course, be set up to be comparable with similar estimates for other human resources programs.

STRUCTURE AND AVAILABILITY OF CAREER PREPARATION IN ARIZONA

Vocational education and career training take place within a variety of organizational units within the state.

Prevocational training is provided to a very limited degree in the elementary and middle schools, to a slightly greater extent through industrial arts and home economics courses in secondary schools. Some of the arts training these schools might also be considered prevocational.

Vocational and skill training is provided in secondary schools, usually as part of the local high school; post-secondary schools, technical institutes and junior colleges; private training schools; and through a variety of primarily remedial programs such as MDTA skill centers and other courses, employer on-the-job training, NYC, JOBS and WIN training etc. (Cf. Table 3). The structure is complicated by cooperative Federal, State and local funding, physical location of programs, utilization of local school staff and facilities for MDTA and skill center courses, and the added complexities of cooperative and work-study programs. Inefficiencies resulting from the overlaps or occasional duplication of these efforts, partly modified by the fact that they are designed for different clienteles, are impossible to measure.

Another kind of structural problem arises from the geographic and industrial dispersion of the State. Except for reservation Indians, who have consistently showed reluctance to leave the reservations for employment, it must be assumed that members of the labor force will move freely about the state or even out of the state wherever job opportunities exist; in general this implies movement to the urban areas and away from the small towns. On the other hand, most young people - - particularly at the secondary school level - - will receive whatever vocational training they get at the local high school or the nearest consolidated high school. Even though the local high school attempts to respond to statewide projected employment needs (by occupation), a small high school usually cannot afford the diversity of occupational training required to meet employment demands or to satisfy the different aims of the students themselves; Phoenix and Tucson are large enough to meet these demands, Douglas, Flagstaff and Yuma are probably borderline. It is likely that the great emphasis on a standardized pre-college curriculum results as

TABLE 3. - SOURCES OF SKILL TRAINING IN ARIZONA, FY 1970

Program[1]	Authorized Slots, FY 1970	Current Enrollment	Net Transfers And Terminated	Completors FY 1970
MDTA				
Institutional	1,876	203	294	899
OJT-Arizona	547	199	38	61
OJT-National	75	51	29	47
WIN	1,800	1,052	604	160
JOB CORPS[2]	607	388	n.a.	89
NYC				
In-school	353	650	n.a.	n.a.
Out-of-school	114	240	n.a.	n.a.
Summer	2,801	3,850	n.a.	n.a.
VOC. ED.				
Secondary	n.a.	39,621	n.a.	6,605
Post-secondary	n.a.	6,166	n.a.	2,245
JOBS[3]	3,418	2,300	1,971	681
CEP[4]	n.a.	2,408	455	425
APPRENTICESHIP[5]	n.a.	2,530	443	293

[1] Manpower program information was received from the respective operating agencies.

[2] Authorized slots are actually FY 1970 Goals, set by Job Corps Western Regional Office; current enrollment represents total FY 1970 enrollments: low due to closures of 59 Job Corps Centers in April-May 1969, which stopped departures to all centers for a two-month period.

[3] Authorized slots represent the total job pledges received from employers.

[4] Net transfers and terminations and completion figures are from October 1, 1969 through June 30, 1970.

[5] Net transfers and terminations are the result of 484 transfers out and 41 reinstatements: 443.

much from this shortfall in resources as it does from any misconceptions concerning the career applications of such training. And as a long-range policy problem, the solutions must lie in two simultaneous developments: first, industrial growth and diversification throughout the State, and second, the development of more residential or other centralized multi-school-district school opportunities for students to receive desired training not economically feasible in their home communities.[1] Research and long-range planning should be initiated for both of these, the first by EDA, the Four Corners Commission and other planning and development agencies, the second by the State Education System itself.

As of the present, the city of Bisbee, all the Indian reservations and Apache County are designated as depressed areas; Phoenix's inner city and Santa Cruz County[2] have requested such designation. But even in the non-depressed areas, the population is too scattered to justify comprehensive, local vocational high schools; proliferation into other types of vocational education might be even more difficult to justify. Only two cities have populations in excess of 100,000, two more have from 50 to 100 thousand, nine 10 to 50 thousand, and twenty-nine have 2500 to 10,000. According to the FY 1971 Plan, there are at present 119 secondary schools in the State, of which 104 offer one or more vocational programs. The distribution of occupational fields offered is indicated in Tables 4 and 5, which demonstrate the limited availability of vocational education to the client groups for which needs have been expressed. Another indication is the number of schools with limited vocational enrollment. There are 17 secondary schools with 25 or fewer; 15 with 26-50; 28 with 51-100; 45 with 101-250; 19 with 251-500; 3 with 501-1000; and only one, Phoenix Union, with over 2,000 vocational enrollees.

One illustration will suffice to illustrate the problem. According to the FY 1970 Plan, Greenlee County, with three secondary schools, was to offer only three vocational programs (including both secondary and adult programs), one in agriculture, two in consumer-homemaking, and one of the three schools offered no vocational programs. Actual FY 1970 enrollment figures show vocational enrollment only in Duncan, and only in agriculture. Obviously, students of these schools have no choice of vocational training, and equally obviously, very few will be graduated with saleable skills. The largest town is Clifton, with a current population of 4,950; Duncan is second with less than 1,000. No MDTA programs

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[1] Another possibility is the addition of high-school level vocational training to the Junior Colleges. This is already being tried with some success.

[2] Santa Cruz and Graham Counties have also been designated for purposes of Title I as Public Works Grants Areas.

TABLE 4. - NUMBER OF SCHOOLS[1] WITH VOCATIONAL PROGRAMS

County	Occupational Fields Represented by Number of Schools — Fields: Five or more	Four	Three	Two	One
Secondary Schools					
State Total	8	16	21	42	41
Apache	---	---	---	4	1
Cochise	1	4	1	---	5
Coconino	2	---	---	---	5
Gila	---	---	1	2	---
Graham	---	1	1	1	3
Greenlee	---	---	---	---	1
Maricopa	2	5	8	16	10
Mohave	---	---	1	---	2
Navajo	---	---	2	3	1
Pima	2	3	4	8	4
Pinal	---	---	3	4	2
Santa Cruz	---	---	---	1	2
Yavapai	---	1	---	2	3
Yuma	1	2	---	1	2
Post-Secondary Schools					
State Total	6	2	1	1	2
Apache	---	---	---	---	---
Cochise	1	---	---	---	---
Coconino	---	---	---	---	---
Gila	---	---	---	---	---
Graham	---	1	---	---	---
Greenlee	---	---	---	---	---
Maricopa	3	1	---	---	1
Mohave	---	---	---	---	---
Navajo	---	---	---	---	---
Pima	---	---	---	1	1
Pinal	1	---	---	---	---
Santa Cruz	---	---	---	---	---
Yavapai	---	---	1	---	---
Yuma	1	---	---	---	---

[1] Due to classification difficulties, these figures may not sum to those mentioned on page 22 of the text, but are included to indicate choices of vocational education programs in the schools.

TABLE 5. - SUMMARY OF ARIZONA VOCATIONAL EDUCATION PROGRAMS, FY 1970

Program	Elementary & Middle School			Secondary Schools			Post-Secondary Schools		
	Number of Schools	Enrollment	Completors	Number of Schools	Enrollment	Completors	Number of Schools	Enrollment	Completors
Agriculture				41	2,600	645	2	276	35
Distributive Ed.				44	2,611	1,384	4	472	135
Health Education				7	119	42	9	996	445
Home Economics				11	25,402	63	1	167	41
Office Education				88	5,955	3,387	6	1,327	464
Technical Ed.				1	41	16	5	2,202	722
Trade & Industry				50	2,875	1,062	6	725	392
Prevocational Ed.									
Industrial Arts		42,400							
Home Economics [1]		42,400							

[1] No actual figures are available for the home economics enrollments in the elementary and middle schools, but, based on a 60 percent return questionnaire, the Vocational Education officials estimated that they were approximately equal to the enrollment in industrial arts on this level.

TABLE 5 A. - SCHOOLS OFFERING VOCATIONAL EDUCATION, BY TYPE, NUMBER AND ENROLLMENT, ACTUAL FY 1970 AND PROJECTED FY 1971

Type of School [1]	1970		1971	
	Number of Schools	Enrollment	Number of Schools	Enrollment
Regular or comprehensive secondary	119	39,621	104	38,108
Vocational-technical post-secondary [2]	1	2,112	1	1,875
Junior or community college [3]	7	6,166	11	25,627
College or university (Adult non-credit)	3		3	12,972
Private (under contract)	n.a.	n.a.	12	400
TOTAL	130	78,097	131	78,982

[1] There are no specialized secondary or secondary post-secondary institutions.

[2] Phoenix Union High School Area Vocational Center.

[3] Some adult enrollment included.

SOURCES: Research Coordinating Unit, Vocational Education Department print-out, and 1970 and 1971 State Plans.

are available in the county. In this county, where there is real need for vocational training, it is practically non-existent and neither the resources nor the scale of the schools make such training practicable.[3] The problem crosses school district lines; additional research and planning at the State level are required to design feasible vocational education for such small and geographically dispersed populations.

The State Plan does in fact recognize this problem and provides for expanded vocational education in economically depressed areas and for increased multi-schools. The danger lies in the possible perpetuation of vocational education as a second-class education to be foisted on the disadvantaged. It should be emphasized, to the credit of the vocational education staff, that the state is giving priority to changing the image of vocational education as second class, and is attempting to integrate vocational and academic education in such a way that the finger is not pointed at vocational students.

Much has been written on this subject. This report is not the place to expand on the problem, but does present recommendations for action. The goal should be "integrated" schools, not only in the racial and ethnic sense, but also in the bringing together of the academic and vocational programs in such a way that the individual student can choose academic, vocational, or mixed programs without jeopardizing his graduation certification. Achieving this objective will require research, planning, and experimentation, in order to incorporate separate schools, skill center and educational tracks into the educational and social mainstream of the academic high schools. It is a goal which cannot be achieved overnight. And it should be recognized that the establishment of a consolidated vocational school serving several school districts (such as Phoenix Union), while it improves the vocational education effort, runs counter to the effort to unite vocational and academic training.

One step, currently under consideration as a demonstration project in Tuscon, is to establish an experimental school framework to test out an integrated program. The model for the Tucson experiment will be the Emily Griffith Opportunity School in Denver, a public post-secondary school for adult education, modified to meet the educational, economic and legislative requirements of Tucson and the State's educational system. The Tucson experiment is only in the planning stage and it is not clear whether it will be a secondary or post-secondary institution. This experiment should have high priority in the state's vocational activities, and its successes incorporated into other school districts as they appear.

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[3]To the extent that the mines are providing entry level jobs and on-the-job training, the local problem in Greenlee County is somewhat alleviated. But the young people of the county still have little choice.

Another kind of structural constraint is associated with the occupational structure of the industries in the State. If job skill requirements, particularly for highly skilled jobs, can be broken down into lesser skill components, as they were during World War II, increased numbers of entry-level and semi-skilled jobs openings can be made available; these will provide career opportunities especially for the disadvantaged who might not be ready for training for the more highly skilled occupations. Industry generally does little to break down or simplify job requirements unless forced to it by labor shortages. The vocational education department should, however, especially in its negotiations for cooperative education arrangements, contribute its good offices to encourage employers to break down job requirements, and assist in laying out, as well as training for, the simplified qualifications.

Meeting the demand for trained workers: On the demand side (for trained and employable workers) the vocational education department needs to do much more than it is currently carrying out in working with industry to develop job opportunities, to conform training to actual employer job requirements, and to assure that job candidates sent to job interviews really meet the employer requirements. This last is difficult; employers tend to overstate requirements and the schools and the Employment Service make a valiant attempt to place the disadvantaged and the handicapped. But little is accomplished and there is frustration from unrealistic expectations when a clearly unsuitable candidate is encouraged to apply for a job, a situation which incurs running criticism from industry that employers are not sufficiently consulted about the training offered.

There are no job developers as such in the vocational education system, though individual teachers perform this function to the best of their ability. The extent to which the Employment Service job developers perform this service for vocational secondary school graduates varies; if their services cannot be upgraded, more should be made available within the secondary vocational schools themselves. This could be accomplished by setting up job developers - - or even better - - combining this function with that of career guidance within the schools offering varied vocational programs. However, in the smaller secondary schools where only one or two vocational programs are offered, the appointment of such an additional officer would add to the strain on their resources discussed above, would obviously be unrealistic, and would result in the further short-changing of the vocational students in those schools, another indication of the need for consolidating such vocational efforts.

One additional difficulty inherent in all vocational school efforts lies in the lack of flexibility with respect to both teaching staff and equipment. The tenure of teachers and the capital sunk into equipment make it difficult to cut back on programs for which there is diminishing need.

Vocational teachers in Arizona's post-secondary schools do not have tenure, but at present, secondary school teachers do. Discussions are currently under way on the possible elimination of tenure, which would add greatly to flexibility in vocational education, even though it would undoubtedly work hardships on the faculty.

As for equipment, an economist would say that sunk costs should be ignored in planning for the future; school district and state budget officers are likely to take the contrary view. In industries with rapidly changing technologies, it is likely that some teaching equipment will be obsolescent, if not obsolete, presenting a continuing problem for school authorities.

Secondary Programs

There were 112,327 secondary school students in Arizona at the end of the 1969-1970 academic year, and vocational enrollments during the year totalled 39,621. Though the time periods do not correspond, this would indicate that about 35 percent of secondary school students were receiving some vocational training. If the number of those taking useful, rather than gainful, home economics programs is subtracted, 14,457 secondary students were enrolled in gainful programs - between 12 and 13 percent. Figures for the 1969 current status in the FY 1970 plan indicated 14.3 percent urban (Maricopa County only) and 25.6 percent rural, which would indicate a decline rather than an increase during FY 1970.[4] Table 6 shows secondary enrollments and completions by sex and occupational group.

Recognition of the need for multi-school vocational programs appears to be the most important key to upgrading the secondary school vocational education programs in the state. Three such programs were available in FY 1970, and it is proposed to add ten more in areas of high unemployment. While more are needed, they should not be placed in areas of high unemployment with the expectation that jobs will suddenly materialize in those areas for graduates; more needs to be done to find jobs for enrollees who may receive their training in depressed areas but who are likely to have to look for jobs elsewhere. The professed objective is really only half the necessary step, and it is strongly recommended that in instituting the new multi-school programs, the other half, the necessary job development, career guidance, and statewide job information system be integrated into the planning and activities of the multi-school programs.

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[4] Unless the 1969 figures included useful home economics, in which case there was a substantial gain; the FY 1970 Plan (page II-40) is not clear on this point.

TABLE 6. - ENROLLMENTS AND COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS, BY MAJOR OCCUPATION AND SEX, FY 1970

	Total Enrollments	Secondary Enrollments	Post Secondary Enrollments	Adult Preparatory Enrollments	Adult Supplementary Enrollments	Special Needs Enrollments	Completions Secondary	Completions Post Secondary
AGRICULTURE, TOTAL	3,371	2,600	276	44	163	288	645	35
Male	3,185	2,453	257	37	155	283	610	31
Female	185	147	19	7	8	4	35	4
Sex Unknown	1	---	---	---	---	1	---	---
DISTRIBUTIVE EDUCATION, TOTAL	10,916	2,611	472	944	6,567	322	1,384	135
Male	7,203	1,045	385	599	5,095	79	547	117
Female	3,075	1,565	86	343	1,468	243	836	18
Sex Unknown	8	1	1	2	4	---	1	---
HEALTH OCCUPATIONS, TOTAL	2,222	119	996	568	352	187	42	445
Male	197	7	126	36	23	5	3	47
Female	2,024	112	869	532	329	182	39	398
Sex Unknown	1	---	1	---	---	---	---	---
HOME ECONOMICS, TOTAL	28,117	25,402	167	1,165	679	704	63	41
Male	2,766	2,561	13	80	58	54	25	---
Female	25,210	22,841	153	1,084	501	631	38	41
Sex Unknown	141	---	1	1	120	19	---	---
OFFICE, TOTAL	12,588	5,955	1,327	1,775	2,557	944	3,387	464
Male	1,806	521	225	350	620	90	315	114
Female	10,743	5,434	1,100	1,421	1,935	853	3,072	349
Sex Unknown	9	---	2	4	2	1	---	1
TECHNICAL EDUCATION, TOTAL	7,688	41	2,202	1,672	3,716	57	16	722
Male	6,837	40	2,003	1,473	3,264	57	16	605
Female	848	1	199	196	452	---	---	114
Sex Unknown	3	---	---	3	---	---	---	3
TRADE & INDUSTRIAL, TOTAL	13,112	2,875	725	2,522	5,767	1,223	1,062	392
Male	11,710	2,471	685	2,367	5,562	625	901	283
Female	1,396	404	38	154	202	598	161	109
Sex Unknown	6	---	2	1	3	---	---	---
"MISCODED" OCCUPATIONS, TOTAL	113	18	1	1	82	11	6	11
Male	11	5	---	1	4	1	2	2
Female	80	11	1	---	62	6	3	3
Sex Unknown	22	2	---	---	16	4	1	6
ALL OCCUPATIONS, TOTAL	78,097	39,621	6,166	8,691	19,883	3,736	6,605	2,245
Male	33,715	9,103	3,694	4,943	14,781	1,194	2,419	1,199
Female	44,191	30,515	2,465	3,737	4,956	2,517	4,184	1,036
Sex Unknown	191	3	7	11	145	25	2	10

NOTE: This tabulation was prepared directly from the computer print-out for OE form 4048. No attempt was made to correct for miscodings or incorrect sex designations.

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Post-Secondary Programs

In the FY 1970 plan it was estimated that 21.5 percent of post-secondary (2-year) students was enrolled in vocational education in the academic year 1968-69; 18.8 percent (for some unexplained reason, a decrease) was the objective for 1970. The actual figure for FY 1970 was 6,166 out of an estimated total of 32, 104, or less than 20 percent, as compared to an estimated 30 percent set forth in the FY 1971 plan.[5] While the achievement of the projected 38 percent by FY 1975 would seem to be substantially more difficult in view of the FY 1970 deficiency, it is possible that the opening of new post-secondary institutions and the rapid expansion of programs will make the FY 1975 objective feasible.

It is planned to develop evaluation criteria and procedures for post-secondary institutions in the state and to carry out at least one such evaluation annually. None were performed in FY 1970. The rapid growth of these schools, including the substantial initial investments in buildings and equipment, make it particularly urgent to institute routine evaluations at an early date.

Non-Federally Funded Related Education

In both elementary and secondary schools there are courses in industrial arts and home economics which serve a variety of prevocational and vocational functions. The extent to which they provide students with sufficient vocational exposure for them to make intelligent vocational choices is unknown. Also unknown is the extent to which these courses provide saleable skills, or are limited to useful arts.

Such limited data as are available indicate the following 1970 enrollments in these programs:

	Industrial Arts[1]	Home Economics
Elementary Schools	42,400	n.a.[2]
Secondary Schools	50,835	24,485
Gainful	n.a.	512
Useful	n.a.	23,973
Totals	93,235	n.a.

[1] Projections based on 60 percent returns.

[2] Approximately equal to the number of boys taking elementary school industrial arts courses.

[5] Page II-26.

While these programs are primarily designed to provide useful rather than saleable skills, the large enrollments in them suggest that they should be made the vehicle for vocational exposure as well, an effort which would better carried out with the knowledge and expertise of the Vocational Education Department. The fact that these classes are not under the administrative auspices of the Vocational Education Department, makes for a minor administrative problem in utilizing them for prevocational education purposes (attitudes, world of work, career orientation and exploration). A closer working relationship between the Elementary and Secondary School Divisions and the Vocational Education Department is recommended.

Special Needs

In addition to the data difficulties which plague all parts of this report, there is a further problem in appraising the vocational education system's response to special needs. This item receives Federal financing under more than one section of the amended act; the assignment of these funds has been administratively handled by Arizona both by assigning whole schools to the special needs category and by assigning individual students within other schools to it. For example, all 129 vocational education enrollees in Chinle School are listed as special needs students, whereas only 30 of Douglas' 371 vocational education enrollees are in this category. Consequently, the comparisons of special needs to total enrollment is not meaningful at the county or school level, and may even overstate the special needs at the state level if the total vocational enrollment at the special needs schools actually overstates the numbers in need. The general orders of magnitude are probably reliable at the state level.

By these definitions, a total of 4,570 special needs enrollees (including 92 in the junior colleges, 124 in work-study, and 365 in summer youth programs) in vocational education account for 5.85 percent of the total of 78,097 vocational education enrollees. This figure may be compared with over 14 percent of the expenditures from Federal and State funds going to special needs under Sections 102B and Parts B-4A, 4B, 4F, and 4H. (The comparison is only suggestive because, if local school funds were included, the ratio would be very different.) The FY 1970 state plan called for total expenditures in these categories as follows:

Part B - Disadvantaged	$771,100
Handicapped	223,700
Total	$994,800

or 19 percent of total projected expenditures for the year, a clear indication of the greater need for services than their numbers would suggest, by this segment of the vocational education community.

There is some duplication in the count, reflecting the coupling of special needs programs in other manpower programs with those financed by the vocational education system; basic education and work orientation under WIN, summer youth programs, skill center training under MDTA are included, as is vocational education in the industrial school, the detention center, the state prison, and the Maricopa County Accommodation School (for the educable and trainable retarded).

State enrollment data for special needs are not broken out by type of need--disadvantaged, handicapped, etc.--so it is impossible to assess the degree to which the FY 1970 plan goals for each group were met, or what the ordering of priorities actually was.

One recommendation which is of the greatest importance to the disadvantaged group, though it should be applied to all secondary school students, concerns the purchase of textbooks. At present all secondary students in the State purchase their texts, to the tune of about $50 a year. While some individual students receive financial assistance to cover these purchases, it is manifestly unrealistic to expect the children of poor families to meet this expense plus the other normal expenses required to keep up with their peers.

No statistical measure of this need exists. However, the director of the Phoenix Residential Job Corps Center claims that the reason its enrollees come to the Center with a substantially higher-than-average Job Corps grade level achievement level, is because many of them have dropped out of school because of cash shortages to meet the costs of books and supplies and the other normal expenses of high school students, rather than for reasons of alienation, discipline, etc. At the Residential Center they receive stipends, and their training expenses are completely covered.

At a minimum, Arizona should provide (by loan of books if necessary) the required texts (or the money for them) to disadvantaged students, even if this requires changes in State legislation. It would be desirable also to provide allowances or stipends where need exists.

Adult Education

Adult enrollments in preparatory and supplementary programs totalled 28,574 in FY 1970 (Cf. Table 6), with men accounting for almost 70 percent of the total, and women predominating only in the health occupations and home economics programs. An unknown number of the special needs enrollments may also be adults. These numbers include adults registered in junior colleges; in future years these will be included in junior college enrollment totals. They account for 2.8 percent of the estimated 1970 population age 16-64 (1,023,100) in the State. This compares with the 2.9 percent estimated for FY 1969 and 3.1 percent projected for

FY 1970 for urban areas only, as presented in the FY 1970 plan.[6] If rural areas were included, FY 1970 enrollment would probably be fairly close to target.

Vocational Education For Women

Arizona's major vocational education effort specifically on behalf of girls and women has been to expand the home economics and consumer education segments of the vocational education programs. Other typically female occupational programs also include cosmetology and the health professions. Table 6 indicates enrollments and completions by major occupational groupings for FY 1970.

Females account for 56.6 percent in secondary schools, 40.0 percent in post-secondary, and 34.7 percent in the adult and special needs categories.

Females predominate in health occupations, office occupations and of course in consumer and home economics. However, in the latter category the great preponderance are those students who are enrolled in the so-called "useful" rather than "gainful" programs; these number 22,657 in secondary programs, 21 in post-secondary, 937 in adult preparatory, 448 in adult supplementary, and 273 in special needs. Of the completors, 11 secondary and 2 post-secondary were in "useful" programs. In part these numbers represent the emphasis on consumer economics and homemaking for WIN enrollees.

As might be expected, females account for a minority of enrollees in agriculture, distributive education, technical education, and trade and industrial programs. At the few sites visited, these programs were open to girls and women, but there was neither active encouragement or discouragement of their enrollment, and few undertook conventionally male courses on their own initiative.

Consumer And Home Making Education

The FY 1970 plan did not indicate as one of its objectives a specific number of enrollees in the home economics programs, nor was it clear what proportion of these would receive training in the "gainful" rather than "useful" category. Unduplicated FY 1970 enrollments in gainful consumer and home economics programs totalled 238 in the secondary schools, 146 in post-secondary, 167 in adult preparatory, 189 in adult supplementary,

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[6] Page II-27.

and 411 in special needs, adding to a total of 1151, predominantly female. (Cf. Table 7). In useful programs, there were 25,164 in secondary programs, 21 in post-secondary (suprisingly low!), 998 in adult preparatory, 490 in adult supplementary, and 293 in special needs, a total of 26,966. These figures are well in excess of the FY 1971 projections of 20,214 in secondary (both gainful and useful), but the three adult categories fall far short of the 4,525 projected FY 1971 adult enrollees. The FY 1971 plan had no projections for post-secondary enrollments in this program area.

The growth of the hospitality industries in Arizona indicates increasing needs for programs in the gainful segment, even though Table 1 showed a great over-estimate of such needs in FY 1970. In any event, actual secondary and post-secondary output of 95 is less than 30 percent of the projected FY 1970 output of 332. Since this is a rapidly growing field, it is of the greatest importance that occupational needs and training be better coordinated.

Cooperative Education

Probably the most promising development in Arizona's vocational education system is the increasing emphasis on cooperative education. It provides the means for insuring that the vocational course is truly relevant to the job, and at the same time cultivates the active support of the business community. In addition, it provides both the status and the income of a real job to the student. At the same time, of course, it takes time and energy to enlist that support; it is inevitable that the growth of cooperative education will be slow and not achieved by fiat. Expenditure data for FY 1970 indicate the difficulties in setting up such programs, which were not well under way until near the close of the academic year.

Secondary school cooperative education programs by the end of FY 1970 included 70 programs in 42 schools[7], with an enrollment of 1,921 students. Courses are offered in merchandising, food merchandising, office education and industrial cooperative education. Cochise, Eastern Arizona, Phoenix and Mesa[8] Community Colleges also provided cooperative courses to an additional 76 enrollees in courses in mid-management, office education and industrial cooperative education. No summer coop programs were available in FY 1970, though 10 are planned for FY 1971.

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[7] Computer print-outs showed 42 schools. Revised Funding Requests for Coop G Programs, FY 1971, dated July 29, 1970 showed only 40 schools in FY 1970.

[8] As indicated by computer print-outs. Revised Funding Requests for Coop G Programs, FY 1971, dated July 29, 1970 showed small old programs also in Arizona Western and Maricopa Technical College.

TABLE 7. - ENROLLMENTS AND COMPLETIONS IN HOME ECONOMICS PROGRAMS, USEFUL AND GAINFUL, BY SEX, FY 1970

	Total Enrollments	Secondary Enrollments	Post Secondary Enrollments	Adult Preparatory Enrollments	Adult Supplementary Enrollments	Special Needs Enrollments	Completions Secondary	Completions Post Secondary
HOME ECONOMICS, TOTAL	28,117	25,402	167	1,165	679	704	63	41
Male	2,766	2,561	13	80	58	54	25	---
Female	25,210	22,841	153	1,084	501	631	38	41
Sex Unknown	141	---	1	1	120	19	---	---
USEFUL, TOTAL	29,966	25,164	21	998	490	293	11	2
Male	2,630	2,507	---	61	42	20	---	---
Female	24,336	22,657	21	937	448	273	11	2
Sex Unknown	---	---	---	---	---	---	---	---
GAINFUL, TOTAL	1,151	238	146	167	189	411	56	39
Male	136	54	13	19	16	34	25	2
Female	874	184	132	147	53	358	31	37
Sex Unknown	141	---	1	1	120	19	---	---

NOTE: This tabulation was prepared directly from the computer print-out for OE form 4048. No attempt was made to correct for miscodings or incorrect sex designations.

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The late start in these programs is also attested to by the comparison with FY 1970 planned outcomes, which called for participation by 44 secondary schools and 7 post-secondary institutions, and an enrollment of 2800. (However, the 1970 plan indicated that the then current enrollment in such programs was 2,400, which appears to have been an overstatement.)

No scientifically valid survey has been taken of changes in attitudes toward vocational education stimulated by the cooperative programs, but conversations and correspondence with employers, plus enthusiastic letters from individual graduates, indicates increasing acceptance.

Special mention should be made of the Sears distributive education project. Sears has established pilot projects in each of its territories; one has been located in Phoenix. Sears provides the on-the-job training, the Arizona Department of Vocational Education, the coordination, and the Arizona State University College of Business Administration, the teacher training and sponsor-development; actual student training and coordination were provided by Phoenix Union, Glendale and Scottsdale High School Districts and Phoenix College. As a result of the success of the pilot project--30 distributive education students as of mid-September 1969 and 20 students receiving summer work experience--, the Sears project is continuing with a goal of 40 trainees for 1971. While there are still unresolved problems, the projected expansion of the program to additional Sears stores in other states is an indication of its success.

Cooperative education is necessarily constrained by the willingness of the business community to accept it. The labor organizations also have to be convinced that it does not represent a threat to their members. The State Advisory Council, the Human Resources Advisory Committee, and the State and local CAMPS committees, as well as local Chambers of Commerce, should all be enlisted in the promotion of this activity.

A summary comparison of FY 1970 objectives and achievements, based on the presentation in Section II, 5.65 of the FY 1970 plan, was possible and is shown in Table 8.

Work Study Programs

The original FY 1970 program made no provision for such programs, but as Federal funds became available, 20 programs were actually started late in the year. It is possible to compare actual FY 1970 outcomes with FY 1971 programmed outcomes.

TABLE 8 - COOPERATIVE EDUCATION

	FY 1969	FY 1970			FY 1971	
		Outcome Sought		Actual	Outcome Sought	
		Coop (B)	Coop (G)		Coop (B)	Coop (G)
NUMBER OF INSTRUCTIONAL PROGRAMS						
Counting an OE Code Once	7	7	9	6	6	7
Total Number of Programs	50	50	18	80	80	90
NUMBER OF SECONDARY SCHOOLS OFFERING PROGRAMS	44	44	4	48	44	40
NUMBER OF POST-SECONDARY COLLEGES OFFERING PROGRAMS	7	7	2	7	7	9
NUMBER OF EMPLOYEES PARTICIPATING	400	400	50	450	470	400
NUMBER OF TRAINING STATIONS	2400	2400	400	1200	1250	1500

TABLE 9. - WORK STUDY PROGRAMS

	FY 1970 Actual Outcomes	FY 1971 Outcomes Sought
Number of secondary schools offering programs	20	25
Urban	6	15
Rural	14	10
Number of post-secondary schools offering programs	4	6
Percentage of secondary vocational education students enrolled	2%	4%
Percentage of post-secondary vocational education students enrolled	0.5%	2%

Revisions to the FY 1971 programs specified the initiation of a minimum of 50 work study programs within schools having high percentages of disadvantaged students, but did not specify the numbers of such schools.

Services To The Handicapped

The estimate of the population of the handicapped for FY 1970, as tabulated in the FY 1970 plan, is 10,600, an increase of 2,405 over the FY 1969 level. It is not clear what this figure means--whether it covers all age groups, those eligible for vocational rehabilitation and/or other training programs, or whatever. In any event, the program called for vocational education enrollment of only 266 of these, of which 246 were secondary school, 20 adult. Total actual vocational enrollments of the handicapped are not currently available, but all of the secondary enrollments are included in the totals tabulated by school or occupational program.

It is quite evident that only a small number of the handicapped are being reached by vocational education, even with the 10 percent set-aside of Federal funds and the programs cooperatively sponsored with Special Education and the Division of Vocational Rehabilitation. Programs are currently under way in Tucson, Mesa and Dysart.

The multi-agency Comstock Project in Tucson currently serves about 100 17-18 year olds who are potential dropouts, mentally retarded, or special education students, including Anglos, Mexican-Americans, Blacks and Indians. Some 350 youth in special education programs are being served.

Other Occupational Training Programs

Table 3 indicates authorized training slots, current enrollments, net transfers and terminations, and completors, for FY 1970, for major manpower programs, as contrasted with secondary and post-secondary vocational education. While neither the numbers nor the time periods are strictly comparable, the orders of magnitude are reasonably so.

With the exception of NYC and the Job Corps, the manpower programs are designed for adults and are remedial in nature and are designed primarily to compensate for socio-economic disadvantages and inadequate or obsolete occupational training. The program slots and enrollments are not additive, so that it is not possible to compare totals in manpower programs with totals in vocational education; moreover there are overlaps, with MDTA skill centers, some WIN basic education and home economics and NYC in-school programs which are either administered by the school system, or include students enrolled in the school system.

It should be noted that though there may be no overlap between adults and young people in training, the completors of the manpower programs do compete in the labor market with the completors of vocational education programs. Reference to Table 1 will indicate the probability that the manpower programs for adults will further aggravate problems arising from vocational training of young people in occupations for which there is not sufficient demand. Timing is important here, as well as decisions on priorities. Vocational education programs must be set up well in advance of the school year, and many of them require two or three years lead time. Most manpower programs, on the other hand, tend to be shorter, and would therefore provide greater flexibility in adjusting to demand. But the needs of the manpower clients are perhaps more pressing than those still in the school system, and the manpower program funding is there to be used, so there is no clear-cut either-or solution as to which group should be trained for a limited number of jobs. Each situation needs to be resolved on its merits; CAMPS (state and/or local) is the obvious vehicle for discussion and decision.

A state map is included which shows the location of secondary vocational education programs (not the number of schools) and MDTA projects. With very few exceptions, the MDTA projects are located in areas which also have vocational programs (though in many the programs are limited); the reverse is not true and there are many more schools with such programs than there are MDTA projects.

Vocational Guidance

The need for more and better career guidance within the state is clear. I have great reservations about the National Council's recommendation that the "school district avoid creating vocational counselors who are

Geographic Distribution of Secondary Vocational Education Programs and MDTA Projects, 1970

x - Area in which secondary school vocational education programs are carried on in one or more schools or skill centers.

o - MDTA projects.

Sources: Vocational Education Department.
RCU, Learning & Living, page 97.

distinct from the college preparatory counselors." While the student should have basic and unbiased guidance concerning choice of curriculum, including the choice of college vs. occupational preparation, it does not appear that once that fundamental choice has been made, he will be able to secure knowledgeable guidance from the same counselor who advises on college preparatory work. The need for up-to-date knowledge of employment opportunities, technological developments, skill requirements, skill interchangeability, aptitudes and attitudes, alone would take the full time of a counselor, without the additional full-time burden of college preparatory counseling. Perhaps the ideal situation, in a school large enough to support a counseling staff of three, would be a general guidance counselor to help students make the basic choice between college preparation, vocational training, or a combination, with follow-up to be carried on by a specific college preparation counselor (help in choosing courses, in deciding which colleges to apply for, etc.) or a vocational counselor, as appropriate. Where the school or the school district is not large enough to justify a team of three, a circuit-riding team to serve several schools (and possibly more than one school district) might prove more useful than a single resident counselor; it would be worth an experimental project.

This subject has been briefly discussed in the section on the structure and availability of career preparation in Arizona, and suggestions were made concerning career counseling and job development. Arizona is moving in the direction of vocational counselors, as indicated in the FY 1971 plan to "provide the services of at least one (1) vocational counselor in each secondary and post-secondary school in Arizona having occupational programs, using a county concept where necessary or applicable in terms of personnel."[9] But the plan points out that at present "there are no county vocational counselors," though each community college has one.

It is not clear what standards are to be applied for certifying such counselors. There appears to be no a priori reason for them to have the graduate degrees required for guidance counselors. It is therefore recommended that in addition to the elements included under this heading in the FY 1971 Plan, work be initiated on establishing appropriate standards for certification for vocational or career guidance staff.

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[9] FY 1971 Plan, page II-35.

COSTS OF VOCATIONAL EDUCATION

The entire financial distribution and financial reporting system for vocational education was changed in 1970, and is now based on specific proposals by the schools. As is pointed out in Learning a Living [1]:

> "The State budget, therefore, is a performance budget, and the schools receive their money to achieve stated objectives in terms of students to be trained in designated courses. Each educational agency desiring to receive such grants submits an application to the State Department which includes the following: 1) a detailed description of the proposed program or programs; 2) justification of the funding levels requested; 3) details indicating that the programs were designed after consideration of other educational and training resources available in the area; 4) information about how the proposed programs will aid those taking them in preparing for their careers; 5) a five-year plan indicating expected future needs of career education programs in the area; and 6) details on the ways the programs will be operated so as to allow them to achieve the goals identified earlier.
>
> The State Department approves all programs that meet the requirements and carry out the objectives of the State Plan, and when the total amount of combined State and Federal funds for the year is known they are allocated to these programs according to a formula in the State Plan. The formula takes into consideration present and future manpower needs and opportunities, the career education needs of various segments of the population (including those who are unemployed and those with special educational needs), the financial capability of local agencies to provide needed levels of career education programs, special situations which may impose greater cost burdens for a given program in one area than in other areas, and the tax effort of the area.

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[1] Page 144.

While this formula is fairly rigid, the State has sufficient flexibility to determine priorities for special situations. For example, programs serving the disadvantaged or handicapped will receive priority over other programs, especially if there are relatively large numbers of such persons to be served by the local agency. Likewise, economically depressed areas will receive funding on a preferred basis. No school district will be deprived of a grant simply because it cannot supply a portion of the funds needed to operate a given career education program."

Conceptually this shift marks a great improvement in budgetary planning and practice. It will undoubtedly be modified as the result of experience. At present it is difficult to comment on it; there is no way to make comparisons with earlier non-comparable data, and experience is too limited to permit detailed recommendations for change.

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EXPENDITURES FOR VOCATIONAL EDUCATION

Tables 10 and 11 indicate the pattern of Arizona's expenditures for vocational education in 1970. Comparisons, by category, with 1969 expenditure data are not possible, because of the change in reporting systems. For 1970, local expenditures had not been compiled at the time of writing this report, so that comparisons of actual with projected expenditures could be made only for the Federal and State components.

Insofar as the comparisons can be made, the State's actual and projected expenditures coincide fairly well in most categories; in three, however, the State did not accomplish what was planned (as measured by inputs). The shortfalls were substantial in programs for the disadvantaged, cooperative programs and in exemplary programs, because these programs were late in starting. Since they have been set-up during 1970, it is to be expected that 1971 projected and actual expenditures will be more in line with each other. On the other hand, the planned expenditures were substantially exceeded by actual expenditures for Part B programs, as least insofar as Federal funds are concerned.

This type of comparison, through limited to inputs rather than outputs, can be very useful in yielding a quick comparison of actual and projected program activity. As with other data cited in this report, the materials come in too late to be used for an evaluation report due by October 1.

These expenditure data can also be used - as they become available - to estimate average costs[1] of vocational education, as needed in cost-benefit analysis. Unit costs could be computed per enrollee, per completer, and per "successful" student, using any agreed-on definition of success, as for example, a student placed in a training-related job, whether or not he completed the course.

Further, these per capita costs can be broken down by type of programs and/or by geographic area or even by individual school. While

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[1] Cost-benefit analysis should be based on marginal costs, but these are unlikely ever to be reported; average costs must be assumed to be reasonable surrogates.

TABLE 10. - VOCATIONAL EDUCATION EXPENDITURES, BY CATEGORY, FY 1970

Expenditure Category And Fiscal Year	Total Funds	Federal	State	Local	Subtotal: Federal and State (For Comparison Purposes
102B, SPECIAL NEEDS					
1970 projected	Not funded, according to 1970 Plan				
1970 actual	n.a.	$ 123,954	$ 7,930	n.a.	$ 131,884
Part B, excluding 4A & 4B					
1970 projected	$5,219,038	1,677,750	1,663,905	1,877,383	3,341,655
1970 actual	n.a.	2,015,237	1,886,310	n.a.	3,901,546
Part B-4A: DISADVANTAGED					
1970 projected	771,100	335,550	335,550	100,000	671,100
1970 actual	n.a.	305,205	7,057	n.a.	312,262
Part B-4B: HANDICAPPED					
1970 projected	223,700	223,700	-------	-------	223,700
1970 actual	n.a.	206,591	2,191	n.a.	208,782
Part C: RESEARCH					
1970 projected	80,960	15,000	65,960	-------	80,960
1970 actual	n.a.	15,000	134,465	n.a.	149,465
Part D: EXEMPLARY					
1970 projected	110,000	110,000	-------	-------	110,000
1970 actual	n.a.	21,966	-------	n.a	21,966
Part F: CONS. & H.E.					
1970 projected	1,482,000	141,000	141,000	1,200,000	282,000
1970 actual	n.a.	136,399[1]	159,492	n.a.	295,891
Part G: COOP.					
1970 projected	228,000	228,000	-------	-------	228,000
1970 actual	n.a.	160,969	-------	n.a.	160,969
Part H: WORK-STUDY					
1970 projected	-------	-------	-------	-------	-------
1970 actual	n.a.	32,798	8,321	n.a.	41,119
TOTALS					
1969 Actual	8,610,882	2,183,009	2,192,297	4,235,576	4,375,306
1970 projected	8,114,798	2,731,000	2,206,415	3,177,383	4,937,415
1970 actual	n.a.	3,018,118	2,205,766	n.a.	5,223,884

[1] Includes $40,629 for Depressed.

Notes: Totals may not add because of rounding.
Local expenditures for vocational education were not compiled in time for this report.
1969 financial records cannot be broken out by comparable categories.

TABLE 11. - PART B EXPENDITURES, BY CATEGORY, FY 1970

Program	Total Funds	Federal[1]	State	Local	Subtotal: Federal and State (For Comparison Purposes)
Secondary					
1970 projected	$2,510,935	$ 586,945	$ 948,990	$ 975,000	$1,535,935
1970 actual	n.a.	747,551	1,143,578	n.a.	1,891,129
1971 projected	3,009,114	1,009,114	1,000,000	1,000,000	2,009,114
Post Secondary					
1970 projected	1,451,000	554,500	321,000	575,500	875,500
1970 actual	n.a.	649,602	512,190	n.a.	1,161,792
1971 projected	1,600,000	750,000	250,000	600,000	1,000,000
Adult					
1970 projected	375,000	125,000	125,000	125,000	250,000
1970 actual	n.a.	266,155	10,061	n.a.	276,216
1971 projected	435,000	200,000	110,000	125,000	310,000
Disadvantaged					
1970 projected	771,100	335,550	335,550	100,000	671,100
1970 actual	n.a.	305,205	7,057	n.a.	312,262
1971 projected	700,000	521,633	78,367	100,000	600,000
Handicapped					
1970 projected	223,700	223,700	-------	-------	223,700
1970 actual	n.a.	206,591	2,191	n.a.	208,782
1971 projected	397,492	397,492	-------	-------	397,492
Contracted Instruction					
1970 projected	90,000	45,000	45,000	-------	90,000
1970 actual	n.a.	-------	-------	n.a.	-------
1971 projected	70,538	31,424	39,114	-------	70,538
Guidance & Counseling					
1970 projected	99,000	10,000	39,500	49,500	49,500
1970 actual	n.a.	54,065	38,685	n.a.	92,750
1971 projected	120,000	40,000	30,000	50,000	70,000
Construction of Area Vocational Schools					
1970 projected	-------	-------	-------	-------	-------
1970 actual	-------	-------	-------	-------	-------
1971 projected	-------	-------	-------	-------	-------
Ancillary Services (Total)					
1970 projected	693,103	356,305	184,415	152,383	540,720
1970 actual	n.a.	297,863	181,796	n.a.	479,659
1971 projected	901,700	539,710	171,990	190,000	711,700

[1] Including carryover.

TABLE 11. - PART B EXPENDITURES, BY CATEGORY, FY 1970

Program	Total Funds	Federal[1]	State	Local	Subtotal: Federal and State (For Comparison Purposes)
Administration & Supervision					
1970 projected	359,103	241,305	109,415	8,383	350,720
1970 actual	n.a.	230,174	104,806	n.a.	234,980
1971 projected	531,700	369,710	136,990	25,000	506,700
Evaluation					
1970 projected	60,000	50,000	10,000	-------	60,000
1970 actual	n.a.	5,020	-------	n.a.	5,020
1971 projected	25,000	25,000	-------	-------	25,000
Teacher Training					
1970 projected	250,000	55,000	55,000	140,000	110,000
1970 actual	n.a.	47,660	76,990	n.a.	124,650
1970 projected	310,000	120,000	30,000	160,000	150,000
Research & Demonstration Projects					
1970 projected	-------	-------	-------	-------	-------
1970 actual	n.a.	5,010	-------	n.a.	5,010
1971 projected	5,000	-------	5,000	-------	5,000
Curriculum Development					
1970 projected	24,000	10,000	10,000	4,000	20,000
1970 actual	n.a.	10,000	-------	n.a.	10,000
1971 projected	30,000	25,000	-------	5,000	25,000
TOTALS					
1970 projected	6,213,838	2,237,000	1,999,455	1,977,383	4,236,455
1970 actual	n.a.	2,527,033	1,895,558	n.a.	4,422,591
1971 projected	7,233,844	3,489,373	1,679,471	2,065,000	5,168,844

[1] Including carryover.

many diverse elements enter into these costs, the comparisons would provide rough indications of the relative efficiencies of different programs, areas or schools. If the present values of benefits are also estimated, the expenditure data can be utilized for rough cost-benefit analysis. Since the complete data are not yet available for 1970, no attempt has been made in this report to make such calculations.

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RESEARCH

It is difficult to understand from the FY 1970 plan what either the objectives or the activities of the Research Coordinating Unit are. There is a somewhat clearer exposition in the FY 1971 plan, though even here the specifics are not given. Based on the FY 1971 plan statement[1] for "research development" (a statement adopted October 29, 1969, by the Arizona Research Council), activities in research development are to "identify, design and develop research which will assist the schools and the state department:

> "1. To develop programs based on employment demand, economic requirements, and student needs.
>
> "2. To develop efficiency in terms of cost, use of instructional personnel and equipment, student effort, career selection and job placement.
>
> "3. To explore new concepts in Vocational Education, new and emerging occupations, and new relationships with other educational disciplines.
>
> "4. To move as rapidly as possible toward an educational system in which vocational and academic education are inter-related."

Under the category of "research dissemination" are listed the obvious requirements for reviewing research, publishing it, and providing library facilities (including search and retrieval services) for disseminating research results.

And under "data systems" there is a limited proposal for collection and computer processing of selected vocational education data and follow-up.

While the emphasis might be different, it would be hard to quarrel with any of these objectives as stated, though it is difficult to see whose research needs are being served, or which research needs have priority. It seems clear that the first objective of research development, the

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[1] FY 1971 State Plan, page II-30.

estimation of the demand for and supply of vocational education, is basic, yet little has been done in the past year to develop estimating procedures. The list of objectives actually included in the 1970 plan has even less indication either of priority or the needs to be served. When the RCU is transferred to the Vocational Education Department, it should be possible to direct its activities to the department's most pressing needs, as well as to the needs of the State Advisory Council. It is to be hoped that this control can be achieved without crushing the creativity in research which produces break-throughs in educational policy.

Another subject which should be given a high priority is the kind of vocational curriculum which would minimize the effects of technological obsolescence and contribute to the greatest flexibility of the labor force in meeting the technical changes which will affect their working careers. This is a national problem, as indicated in the introduction, and the only reason I can see why the universities -- faculty and students alike -- are not giving it the priority it deserves, is that it is an extraordinarily difficult one, requiring a thorough knowledge both of industrial structure and technology, but also of pedagogy and curriculum content. Surely the newly-constituted RCU should give early attention to the question, and the State universities should be encouraged to work on it through their research projects, graduate school theses, etc.

Whatever may be said of the adequacy of the FY 1970 plan for research, it was the plan accepted, and it would be desirable to explore the extent to which it was met. As of the date of writing, however, no report on the current status of research is available.

EVALUATION

The U.S. Office of Education requires annual evaluation of vocational education by the States; this report is, of course, responsive to that requirement. But in addition, the state itself should be carrying out continuing evaluation of its programs to make its own planning most efficient. This section of the report appraises what is feasible in evaluation of the state programs, and makes recommendations for future activity.

Evaluation of social programs, including vocational education, includes two major components. The first, which for brevity will be referred to as monitoring, consists of regular examination, centrally and in the field, to see that performance is up to established standards; it includes financial accounting, regular reports concerning numbers served as compared with numbers planned for, qualitative project and personnel ratings, and similar reflections of current operations. The second, referred to as program evaluation, is the more difficult of the two, inasmuch as it seeks answers to the fundamental question -- not whether the performance is good, given the program, but rather, is the program adequately designed to achieve its objectives.

Monitoring

Monitoring is generally a part of the ongoing operations of a state agency. While it may be improved, it usually does not raise any difficult conceptual problems. In any event, monitoring of a single program must conform to the existing standards set by the state, leaving a relatively narrow field susceptible to change unless the program itself is changed.

However, this evaluation would be incomplete without some mention of the problems of monitoring Arizona's vocational education program. The first of these is the inadequacy and incompleteness of data now being collected; data needs are discussed in detail below.

The second problem is inherent in the decentralized educational system in Arizona and is perhaps best viewed as one of the costs of that decentralization and local school board control. Two example will suffice:

(1) The State imposes qualification standards for teachers, but does not actively monitor their performance.

(2) Except for those occupations requiring licensing (nursing, cosmetologists, etc.) there are no statewide tests of performance of vocational education course graduates. The nearest to a statewide standard of performance is the legal requirement of a certain number of instructional hours - a criterion which not only does not measure quality, but may actually impede creative and experimental vocational teaching plans.

The practical limitations on performance monitoring resulting from local school board control pose a policy problem for the state vocational education system and for the State Advisory Council. The solution is not an "either-or" proposition; a compromise must be found between the advantages of decentralization and the disadvantages of inadequate statewide performance measures. This is an area in which analytical research is required over the next four years.

Arizona has made considerable progress in establishing routine "evaluations" ("monitoring" as used in this report). Schools are accredited on a seven-year cycle in accord with the procedure of Colleges and Secondary Schools for Accrediation. School districts may request in-depth evaluations of schools or school districts, which are contracted for with the state universities, and similar evaluations of vocational education departments may be requested of state staff.

In addition, an experimental and developmental evaluation procedure is being applied and tested for vocational education in the Sunnyside School District of Pima County. This a far-ranging evaluation designed to measure the success of vocational education by follow-up of both graduates and dropouts; the analysis is not limited to the conventional employment information but is designed to explore attitudes of former and present students toward their past training; future interests and aspirations, academic attitudes and performance; needs, interests and performance in consumer and family roles; socio-economic backgrounds of students; and labor market needs in the Sunnyside area. The outcome of this evaluation should provide the basis for a much more complete evaluation procedure to be standardized and applied to other school districts, possibly on a cyclical schedule in conjunction with the accrediation procedure.

The State plan calls for further development of evaluation procedures and instruments, and requires at least five evaluations each year in local school district. Three were made in FY 1970.

Obviously, a great deal of additional information and valid -- though somewhat subjective -- appraisal of local school districts' vocational education performance can be acquired by systematic visitation, with standard criteria for judgment, of local systems. However, this study

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has been carried out during the summer vacation; visits were necessarily few and in most instances programs were not operating. About all this report can say is that the few installations visited appeared to be very well equipped.

One further comment should be made on the location of the monitoring (as contrasted with the program evaluation) function. Monitoring should be carried out by the operating agency, the State Department of Vocational Education. It should be continuing and routine. Research support is required to develop and refine monitoring criteria and standards. The proposed relocation of the Research Coordinating Unit within the vocational education department will better enable the latter to direct research in this necessary direction. In addition, the monitoring should be responsive to the informational needs of the State Advisory Council, which should be able to secure answers to questions on performance from the department; this will require a close working relationship between the department and the council.

Program Evaluation

This report is itself an initial effort in program evaluation, and is severely limited by the inadequacy of available information for this purpose. This section is primarily a comment on the appropriate location and carrying out of the program evaluation function.

The function should be assigned either to the Human Resources Office or to the Advisory Council. It should be an analytical audit of the state's vocational education programs, and as such, must be independent of the vocational education department which carries them out.

Conventionally, an Advisory Council advises and recommends, and does not enter into this kind of evaluation, maintain staff to carry it out, or have the power to initiate or require program changes. But the 1968 Amendments requiring that the evaluation come from the Council appear to impose unusual responsibilities on an advisory body; this poses a problem to be considered in the legislative planning for the Human Resources Office and its advisory units.

The process of evaluation should be a continuing one, and staff and resources should be made available to carry it out. What is required is a unique combination of the skills of systems analyst, economist, and statistician, who can apply these skills and methodologies to the problems of vocational education. Experience indicates that this combination is not likely to be found in the ranks of those whose primary training is in education. Ideally, at least, the State Advisory Council or the Human Resources Office should have on its own payroll for this function at least one senior evaluation staff member with these skills who could use the research, statistical and computer resources of the vocational education system.

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Such skills are costly, however, and as an alternative it may prove necessary to employ a part-time advisor-consultant who can lay out the work to be done and then pull it together.

This recommendation may appear to place too much emphasis on program evaluation. Nothing could be further from the truth. Program evaluation is the key to the formulation of new vocational education objectives demanded by the constant change in this rapidly progressing state, as well as the plans and programs needed to achieve those objectives.

The State Vocational Education Department has recognized the need for continuing evaluation, and is in process of designing an evaluation system using both state and local resources. An early draft of the proposal indicates good coverage of the monitoring aspects of evaluation, somewhat less concern with program evaluation as defined in this report.

DATA PROBLEMS

In practically every paragraph of this report lies an implicit, if not explicit, need for additional data, and above all, data adapted to evaluation purposes. This section is an attempt to pull together in organized form the basic data needs (without going into great detail), and to discuss first, the timing of data collection and analysis in relation to the annual evaluation required for the advisory council and second, the possible application of sampling.

Two sets of standardized data collection instruments should be mentioned. The Office of Education has developed a series of annual vocational education report forms required of each State, as listed below.[1]

OE Form	Title	Due Date
3129	Financial Statement and Adjustments of Federal Funds for Vocational Education	October 1
3131	Expenditures for Vocational Education by Source, Purpose, and Level	October 1
3132	Expenditures for Vocational Education by Object, Purpose, and Location	October 1
3133	Project Expenditures for Area Vocational School Construction	October 1
3136	Number of Teachers and Status of Teacher Training in Vocational Education	October 1
3138	Enrollments in Vocational Education Programs	October 1
3139	Follow-Up of Program Completions in Secondary and Post-secondary Vocational Education Programs	December 1
3140	Descriptive Report of Program Activities for Vocational Education	October 1

[1] Source: U. S. Office of Education, "General Instructions and Definitions for the Annual Vocational Education Report Forms", pp. 1-2.

The compilation of these reports will at the same time of course provide the necessary data for evaluations, though the standardization, programming and tabulation of these materials have not yet been tested in practice and the 1970 data will undoubtedly raise many problems.

Late in the writing of this report there became available the final report of The Center for Vocational and Technical Education at Ohio State University entitled A System for State Evaluation of Vocational Education[2]. This manual, which has been under development for some time, is designed to assist the States in continuing self-evaluation, mostly of the "monitoring" type, on a recurring cycle within the State vocational education system. It too includes an elaborate and detailed data collection system, which does not match in detail the OE reporting system.

In addition, Arizona has instituted and programmed through its computer a data system of its own, and is now making the additions and modifications needed in order to meet Federal reporting requirements.

Finally, none of these three reporting systems has been designed to be compatible with reporting of the various Federally-funded manpower programs (which themselves do not have mutually compatible data systems).

I have no desire to add to the confusion, but rather will outline the kinds of information necessary for evaluation analysis.

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[2] Harold Starr, Richard A. Dieffenderfer, B. B. Archer, Mireille Ernst, A System for State Evaluation of Vocational Education, Research Series No. 58, The Center for Vocational and Technical Education, Ohio State University, Columbus, Ohio, May 1970.

ANALYTICAL EVALUATION OUTLINE AND RELATED DATA REQUIREMENTS

UNIVERSE OF NEED

I. Priority of needs--lifetime retraining versus initial training of young people. This is a qualitative statement of State goals.

II. What people need vocational programs and services; estimates of those who would profit most from Vocational Education, by category, and those who would profit from other Manpower and Training programs, also by category.

   A. Total numbers
   B. Breakout by:
      1. Age
      2. Race
      3. Sex
      4. Minority status
      5. Income level
      6. Previous education level
      7. Previous work experience

III. What people were actually served.

   A. By Vocational Education--breakout by same categories.
   B. By other manpower and training programs--breakout by same categories.

IV. Assessment of effectiveness with which the universe of need is reached.

   A. Percentage of universe of need reached, by category.
   B. Reasons why services did not reach the population.
      1. Geographic distribution
      2. Inadequate programs or inadequate budget
      3. Inadequate quality of services
      4. Unavailability of job openings

RELATION OF EMPLOYMENT OPPORTUNITIES TO TRAINING AND VOCATIONAL EDUCATION SERVICES (Primary Source: Arizona State Employment Service)

I. Available occupational opportunities, present and future (5-year projection).

II. Programs to develop new occupational opportunities.

III. Relationship of Vocational Education activities and other manpower activities to occupational opportunities.

IV. Relationship of employment opportunities to priorities for training.

COMPLETION RATES

I. Percentage of students by category of education or training completing Vocational Education and other manpower programs, broken out by category of student if possible.

II. Reasons for non-completion and indicated possible program changes to increase completion.

III. Follow-up of non-completors and comparison with follow-up of completors.

EMPLOYMENT RATES OF TRAINEES

I. Percentage of students or trainees (including drop-out and non-completors) available for work.

II. Percentage placed in jobs following training.

III. Percentage in training-related jobs.

IV. Geographic or other economic barriers to employment by category of trainees.

V. Evidence, if any, that trainees do better either by virtue of higher earnings or unemployment than non-trainees.

VI. Comparison of employment rates of Vocational Education trainees and other manpower trainees by category of training.

ATTITUDES TOWARD VOCATIONAL EDUCATION
(Possibility of Sample Survey)

I. Employers' attitudes toward usefulness of different kinds of training.

A. Relevant statistical data on employer training, either federally-financed or not.

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B. Relation of JOBS Program and cooperative education to other training opportunities.

II. Trainees' attitudes (Cf. completion rates as one indicator of trainee attitudes).

III. Non-trainees and non-completors: why do they not participate or complete?

COMPARISON OF MANPOWER AND OTHER TRAINING PROGRAMS WITH VOCATIONAL EDUCATION PROGRAMS

I. Extent to which these are duplicative?

II. Extent to which they apply to different populations?

III. Extent to which they meet priority needs?

IV. Optimum level for Vocational Education--elementary, secondary, post-secondary, or adult--what is appropriate for each, what kind of skills should each be adapted to?

V. Optimum size, location, and programs for schools; limitations with respect to subgroups of the universe of need and available jobs.

ANALYSIS OF STAFF AND SERVICES AVAILABLE

I. Staffing of Vocational Education (professional and administrative).

A. Qualifications.
B. Upgrading and continuing training.
C. Salary scale.

II. Counseling, placement and guidance staff and services.

A. Availability, numbers; student-counselor ratios.
B. Relationship to rest of school system, employment service, employers.
C. Follow-up of trainees; post-training services.
D. Use of separate vocational counselors instead of, or in addition to, general guidance counselors.

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QUALITY AND QUANTITY OF TRAINING AVAILABLE

I. Comparison with Federal standards.

II. Adequacy to meet State objectives.

PROGRAM INPUTS FOR BOTH VOCATIONAL EDUCATION AND OTHER TRAINING

I. Financial inputs--federal, state, or local--total and per person served.

II. Staff inputs--same breakout.

III. Construction inputs.

IV. Equipment inputs.

The time periods for which data are collected and the dates on which reports are due appear to be incompatible.

All the report forms required by Office of Education cover the fiscal year (and this is consistent with the close of the academic year) except the follow-up report, which is based on data to be collected in October and is due on December 1. However, the vocational education evaluation is also due on October 1. Since the material is compiled for an October 1 deadline, it is not available for evaluation analysis due the same date, as this report amply demonstrates. Further, any valid evaluation of the success or failure of vocational education must rely on follow-up data; this is true of cost-benefit or cost-effectiveness analysis as well. This report is necessarily deficient because it has had to be completed before follow-up has even started.

These deadlines cannot be altered by the State's initiative. Nor can the State get the basic data needed for evaluation ready much before October 1. End-of-fiscal-year data come in slowly from the school districts, which are swamped at the end of the school year. Furthermore, by State law, past-year expenditures are not complete until August 31, leaving little time to assemble expenditure data. Two alternatives suggest themselves:

1. Have a 60-day (rather than a 90-day) follow-up, to be carried out between September 1 and 15, the Advisory Council evaluation to be prepared for November 15 rather than October 1.

2. Continue the 90-day follow-up, with the due date for the Advisory Council evaluation set for January 1.

If evaluation and its application to planning and practice are to be a continuing activity, the delay until mid-November or the end of the year will have no deleterious effect on the vocational education system, and will be very helpful in securing valid evaluation results.

One other recommendation should be made on data presentation. Though the Office of Education apparently did not require it, the annual State plans and the evaluations made from them would be much more useful if each table (where appropriate) provided information for the time periods indicated below, using FY 1971 plan as an example:

FY 1969 actual
FY 1970 projected (in FY 1970 plan)
FY 1970 actual
FY 1971 projected
FY 1972 projected
FY 1973 projected
FY 1974 projected
FY 1975 projected

The addition of data for the first three items would permit the comparisons necessary for evaluation, and also enable the reader to judge for himself the likelihood of future year projections being attained. Since the information is usually available, and is in fact utilized in arriving at the future year plan levels, it would be neither difficult nor expensive to include it.

On the question of sampling versus complete reporting, the suggestion has been made that data--particularly on follow-up--be secured through sample surveys. In a state as sparsely populated as Arizona, sampling can be used only for the most gross information. For analytical purposes, by the time data were broken out by age, race or ethnic group, sex, vocational program, school district and school, completor and non-completor, and allowance made for non-response, the cells would be too small to be useful or reliable. For example, the output data (completors) for FY 1970 show 3 or even fewer graduates of some occupational programs. Sample surveys should be used therefore for such information as student attitudes, but not for follow-up-data, at least in the near future. And for those questions for which sample surveys are utilized, the sample should be stratified with great care, perhaps with total coverage in outlying areas and sampling only in Phoenix and Tucson.

The question of follow-up on non-response questionnaires has also been raised. Whether on a complete count or sample basis, the return on a follow-up survey is likely to be low and biased in favor of the more

successful students. Therefore every effort should be made to get the necessary information, using teachers to secure it and report, if necessary, since they frequently have information on job placements of their students.

And finally, follow-up should be carried out on all students who leave the system, drop-outs and non-completors as well as completors. Those non-completors who leave to take training-related jobs must be rated as at least partial successes; for evaluative purposes the entire spectrum from drop-outs through non-completors and completors (a) not entering the labor force, (b) going into military service, (c) getting non-training related jobs, and (d) getting training-related jobs is required.

NUMBER OF TEACHERS

Table 12 indicates the number of teachers in vocational education as projected in the FY 1970 plan, and those actually serving. The actual total only slightly exceeded the projected, but there were greater differences by occupational group, particularly in office education at the secondary level, in health occupations in post-secondary programs, and in adult training for trades and industry. In the first two of these the difference would be lessened if reckoned in full-time teacher equivalents, in the last, where all the teachers are part-time, the need was over-estimated in the FY 1970 plan.

Not included in this table is one teacher aide, serving the handicapped at the secondary level. It would appear likely that greater use could be made of teacher aides in vocational education.

TABLE 12. - NUMBER OF TEACHERS IN VOCATIONAL EDUCATION, PROJECTED AND ACTUAL, FY 1970

	Total - Unduplicated		Secondary			Post-Secondary			Adult	
				Actual			Actual			Actual
	Projected	Actual	Projected[1]	Full-time	Part-time	Projected	Full-time	Part-time	Projected	Part-time
Agriculture	72	65	59	31	20	12	8	2	1	4
Distribution	94	110	48	33	21	9	4	2	37	50
Health	109	181	10	9	12	85	64	64	14	32
Comprehensive Homemaking	306	259	247	221	27	10	---	11	49	---
Occupational Preparation	---	43	---	3	21	---	---	11	---	8
Office Education	204	275	108	19	156	13	8	31	83	61
Technical Education	214	213	---	---	---	68	78	7	146	128
Trades and Industry	464	342	120	67	71	54	14	12	290	178
Unduplicated Totals	1,463	1,488	592	383	328	251	176	140	620	461
Group Guidance			338	---	---	6	---	---	6	---
Cooperative, Part G			---	24	---	---	3	---	---	---
Disadvantaged			42	19	---	---	---	---	---	---
Handicapped			---	10	---	---	---	---	---	---

[1] Including all teachers for the disadvantaged and handicapped.

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APPENDIX A

CHECKLIST OF EVALUATIVE CRITERIA PROVIDED BY NATIONAL ADVISORY COUNCIL ON VOCATIONAL EDUCATION

The Office of Education Guidelines

Attached to a memorandum to Chairmen of State Advisory Councils on Vocational Education, dated 19 June 1970, from Grant Venn, then Associate Commissioner for Adult, Vocational and Technical Education, was a series of recommendations for evaluation of vocational education. To the extent data and time have permitted, these recommendations have been followed in the body of this report. But the data limitations are such that most of the draft of Appendix A to the evaluation recommendations, a "Framework for Consideration of Planning and Evaluating Vocational Education" could not be implemented. The following paragraphs enumerate specified items in the proposed framework for which little or no information is currently available in Arizona. Data should be collected and used in future evaluations.

A. Groups to be served.

1. Elementary Students. Total numbers are available, but there are no data on prevocational training, past, present or future.

2. Secondary Students and Post-secondary Students. Data are projected in the State plan, but there is insufficient socio-economic and demographic break-out. Further, there is little information on the recipients of occupational instruction (industrial arts, home economics, art) in the academic channels.

3. Adults. Estimates totally inadequate except for remedial manpower programs. If lifetime education and re-education are necessary to meet rapidly changing technology, adults should participate in training programs periodically through their working lives. Estimates of training needs (numbers, frequency of retraining, variations by occupational cluster) are required.

4. Disadvantaged. Better estimates are required for the group which does not qualify for manpower programs.

5. Women. Better estimates of numbers of women in the labor force, their movement in and out with changing economic situations, and their employment by occupation are required.

6. Handicapped. Estimates are needed for those who need services, in addition to projected enrollments.

B. Objectives for the 1970's.

1. Availability in Relevant Categories. This has been discussed in the body of the report under universe of need and the structure of the vocational education system.

2. Ability to Attract Potential Clientele. The measures proposed are completely unavailable. Arizona collects no data on high school students not enrolled in vocational programs who intend to (or do) enter the job market directly. About the best that can be done would be a year-by-year comparison of total high school graduates, vocational education graduates, college entrants, and drop-outs. (See D. 7., below.)

C. Diffusion. The separation of vocational education from the academic program in the organization of Arizona's state education system makes it bureaucratically difficult to secure adequate measures of the type suggested. No such measures are currently available. Steps should be taken to assure appropriate data collection in the future.

D. Quality.

1. Output Data. See section on follow-up data requirements. Follow-up data are being improved. Currently there are no plans to do a sample survey on self-image, and I have grave doubts as to the validity of such surveys or their justification in terms of the cost of a really well-designed survey.

2. Input Data. The new financial reporting system is in accord with Federal requirements. However, the autonomy of the local school boards means that there is no uniformity among school districts either in expenditure patterns (within limits set by Federal and State legislation) or in availability or use of facilities and equipment.

3. Student Characteristics. The inadequacy of this material corresponds, by category, to the inadequacy of the universe of need information.

4. Administrators and Teachers. There are no existing data on competence and attitude of educational personnel. Again, even a sample survey would be expensive. The decentralization and local autonomy of the Arizona School System make it difficult to secure uniform quality.

5. Guidance, Placement and Follow-up. These are covered in the body of this report.

6. Curriculum Materials. Evaluation of curriculum materials should be part of the continuing monitoring of all education programs within the state. It is not included in this report; neither time or resources permitted. Nor is this kind of assessment within the professional competance of this evaluator.

7. Community Attitudes. The state of Arizona is making every effort to insure that vocational education programs attract potential students, and to improve community attitudes. Perhaps the most significant activity, in connection with the cooperative education programs, has been the holding of employer-employee banquets at which the aims and activities of these programs are presented. These banquets reach hundreds of people each year, including many influential employers; the growth of the cooperative education programs indicates their success.

While no statistics are available on attitudes toward vocational education (See B2, above), there is a substantial body of anecdotal evidence in the form of letters to vocational instructors and counselors that the students themselves have appreciated their training and the career opportunities it opened up for them; similarly, letters and calls from employers have expressed appreciation and approval of the cooperative education plan.

8. Willingness to Experiment. The new vocational education ideas being tried elsewhere are being disseminated throughout the state; this has been a regular function of the Research Coordinating Unit. The actual initiation of experimental projects depends largely on the initiative of the local school boards, which demonstrate a wide spectrum between educational convervatism and willingness to experiment with new ideas and techniques.

9. Employer Participation. Employers are represented on the state advisory council. As indicated above, they are actively participating in cooperative programs. (Work-study programs involve public rather than private employers.)

E. Non-economic Constraints. These have been pointed out in the body of this report. In Arizona these are centered around the relation of the economics and geography of the state (relatively few industries, low population densities, long distances between population centers) to the organization of the school system, built on autonomous school districts. Contributions to the problem of a "negative environment" is the large part of the area of the state which is designated as Indian reservation, as well as local prejudices against Indians, Chicanos and Blacks, and discrimination in the hiring of the state; these established attitudes are slow to change.

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APPENDIX B. - ARIZONA POPULATION CHARACTERISTICS, BY COUNTY, 1970[1]

	Apache	Cochise	Coconino	Gila	Graham	Greenlee	Maricopa	Mohave	Navajo	Pima	Pinal	Santa Cruz	Yavapai	Yuma
Total Population (April 1, 1970 preliminary Census data)	34,037	60,394	47,355	28,412	16,327	10,105	962,91[illegible]	25,110	45,951	344,635	67,876	13,656	35,186	60,077
Age Distribution														
5-17 years	13,908	15,621	16,010	8,133	4,983	3,230	255,125	6,218	15,287	91,883	21,345	4,173	7,098	15,258
18-24 years[2]	2,974	11,311	5,219	3,130	1,695	1,145	109,435	2,469	4,600	36,281	6,966	1,168	2,701	7,780
25-44 years[2]	5,956	22,655	10,454	6,270	3,394	2,293	219,199	4,945	9,213	72,672	13,952	2,341	5,411	15,583
45 + years	4,758	14,349	8,005	7,605	4,771	2,813	260,094	6,098	9,209	102,629	18,463	4,173	16,630	14,113
Ethnic Distribution[3]														
Anglo	5,303	42,372	25,032	17,377	11,199	7,882	793,637	21,567	18,891	262,819	37,983	4,793	30,056	42,643
5-17 years	2,170	10,966	8,469	4,977	3,148	2,519	210,223	5,341	6,283	70,107	11,953	1,465	6,062	10,852
18-24 years	464	7,940	2,761	1,916	1,163	893	90,174	2,121	1,891	27,682	3,901	410	2,307	5,524
Mexican-American	1,219	15,847	5,110	6,526	3,035	2,021	117,476	1,248	3,281	59,174	19,786	8,281	3,385	12,748
5-17 years	501	4,093	1,729	1,871	927	646	31,125	311	1,085	15,804	6,233	2,529	681	3,235
18-24 years	107	2,963	564	720	315	229	13,351	123	327	6,240	2,034	708	259	1,649
Black	902	1,540	2,212	148	470	51	36,495	108	850	11,407	3,937	436	306	2,049
5-17 years	362	391	736	41	145	16	9,695	25	290	3,032	1,238	134	64	519
18-24 years	77	566	240	16	49	6	4,159	10	87	1,197	404	37	24	265
Indian	26,015	151	14,723	4,333	1,571	149	11,459	2,067	22,668	9,788	5,939	68	1,348	2,253
5-17 years	10,626	47	4,979	1,236	478	48	3,061	510	7,536	2,573	1,857	21	270	580
18-24 years	2,272	34	1,623	476	163	17	1,313	202	2,268	1,016	606	6	103	296
All Other	598	484	278	28	52	2	3,851	120	261	1,447	231	78	91	384
5-17 years	250	125	96	8	15	---	1,021	31	92	367	64	25	21	92
18-24	54	90	31	3	5	---	438	12	28	145	21	7	8	47
Male[4]	16,950	30,861	22,373	14,149	8,164	5,154	464,127	13,107	22,930	166,459	33,734	6,841	17,734	33,283
5-17 years	6,926	7,982	7,733	4,050	2,492	1,647	122,970	3,246	7,628	44,379	10,608	2,091	3,577	8,453
18-24 years	1,481	5,780	2,521	1,559	848	583	52,748	1,289	2,295	17,524	3,462	585	1,361	4,310
Female	17,087	29,533	24,482	14,263	8,163	4,951	498,791	12,003	23,021	178,176	34,142	6,815	17,452	26,794
5-17 years	6,982	7,639	8,277	4,083	2,491	1,583	132,155	2,972	7,659	47,504	10,737	2,082	3,521	6,805
18-24 years	1,493	5,531	2,698	1,571	847	561	56,687	1,180	2,305	18,757	3,601	583	1,340	3,470
Disadvantaged (Poor)[5]	2,857	804	1,562	603	246	179	18,727	312	2,120	8,083	1,495	246	491	1,920
5-17 years	1,169	208	528	172	75	57	4,963	77	706	2,158	469	75	99	488
18-24 years	258	150	172	66	25	20	2,135	31	212	849	154	21	38	248
Other Poor	259	73	142	55	22	16	6,252	28	192	2,119	136	22	45	174
5-17 years	106	19	50	16	7	5	1,657	7	64	566	43	7	9	44
18-24 years	23	14	16	6	2	2	713	3	6	222	14	2	3	22

Note: Table notes on following page.

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[1] Data used, unless otherwise indicated, were estimates provided by the Arizona State Employment Service.

[2] ASES age distribution for these groups was the combined age bracket, 18-44 years. The breakout was made by applying the ratios found in the Fiscal Review Study's population projections (Table II-4), which showed the 18-24 year olds to be 33.3 percent of the total age group, 18-24.

[3] The ethnic distribution applied to the new age brackets varied per county; they were as follows:

	Apache	Cochise	Coconino	Gila	Graham	Greenlee	Maricopa	Mohave	Navajo	Pima	Pinal	Santa Cruz	Yavapai	Yuma
Anglo	15.6	70.2	52.9	61.2	68.6	78.0	82.4	85.9	41.1	76.3	56.0	35.1	85.4	71.0
Mexican-American	3.6	26.2	10.8	23.0	18.6	20.0	12.2	5.0	7.1	17.2	29.2	60.6	9.6	21.2
Black	2.6	2.5	4.6	0.5	2.9	0.5	3.8	0.4	1.9	3.3	5.8	3.2	0.9	3.4
Indian	76.4	0.3	31.1	15.2	9.6	1.5	1.2	8.2	49.3	2.8	8.7	0.5	3.8	3.8
All Other	1.8	0.8	0.6	0.1	0.3	---	0.4	0.5	0.6	0.4	0.3	0.6	0.3	0.6

[4] The sex distribution applied to the new age brackets also varied with each county; they were:

	Apache	Cochise	Coconino	Gila	Graham	Greenlee	Maricopa	Mohave	Navajo	Pima	Pinal	Santa Cruz	Yavapai	Yuma
Male	49.8	51.1	48.3	49.8	50.0	51.0	48.2	52.2	49.9	48.3	49.7	50.1	50.4	55.4
Female	50.2	48.9	51.7	50.2	50.0	49.0	51.8	47.8	50.1	51.7	50.3	49.9	49.6	44.6

[5] The "Universe of need" breakouts were provided by the Arizona State Employment Service, to which the age ratios to total population for each county were applied as follows:

	Apache	Cochise	Coconino	Gila	Graham	Greenlee	Maricopa	Mohave	Navajo	Pima	Pinal	Santa Cruz	Yavapai	Yuma
5-17 years	40.9	25.9	33.8	28.6	30.5	32.0	26.5	24.8	33.3	26.7	31.4	30.6	20.2	25.4
18-24 years	8.7	18.7	11.0	11.0	10.3	11.3	11.4	9.8	10.0	10.5	10.3	8.6	7.7	12.9

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VT 012 337
Everard, Kenneth E.
Testing and Grading Practices and Opinions of Secondary Teachers in Business and Distributive Education.

Trenton State Coll., N.J. Dept. of Business.
MF AVAILABLE IN VT-ERIC SET.
Department of Business, Trenton State College, Trenton, New Jersey 08625 (no charge).
PUB DATE - 70 36p.

DESCRIPTORS - *BUSINESS EDUCATION; DISTRIBUTIVE EDUCATION; *TESTING; *STUDENT EVALUATION; OPINIONS; EDUCATIONAL NEEDS; RESEARCH NEEDS; *EDUCATIONAL PRACTICE; SECONDARY EDUCATION; SECONDARY SCHOOL TEACHERS; STATE SURVEYS; *GRADING

ABSTRACT - This survey of New Jersey business and distributive teachers was made to ascertain the nature of current practices regarding testing and grading. From the 206 usable instruments received (34 percent return) educators revealed that testing and grading still remains a major problem area for teachers. The survey strongly indicates a need for a testing and grading rationale as a means of helping teachers with these related problems. Included in the recommendations is the need for meaningful dialogues on the part of business and distributive educators regarding testing and grading. (JS)

VT 012 337

ED0 57254

(C1)

U.S. DEPARTMENT OF HEALTH,
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TESTING AND GRADING PRACTICES AND OPINIONS OF SECONDARY TEACHERS IN BUSINESS AND DISTRIBUTIVE EDUCATION

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1970

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I. INTRODUCTION

Testing and grading have always been primary problems of teachers. While the nature of evaluation problems by educators has changed somewhat over time, the literature suggests that fundamental difficulties still exist. In a comprehensive study of the problems of 271 beginning business teachers, Gress found that out of a total of 46 difficulties identified, testing and grading ranked first (1).* From a more recent study by Schenk (2) and from informal discussions with beginning and experienced business teachers, it would appear that conditions have not changed materially since the Gress study was reported in 1952.

A host of questions usually accompanies conversations dealing with the entire area of student evaluation, such as: Are objective tests better than essay tests? What is the best way to derive test grades? To what extent should "effort" be included in a report card grade? Is a "pass-fail" marking system better than traditional grading approaches? These are only a few of the many types of questions that stir the mental fires of business and distributive educators.

The problem and purpose. Regardless of the answers to such questions by tests and measurements experts, the practices and beliefs of teachers often do not seem consonant. Before considering either preventive or remedial action to teachers' problems in the testing and grading area, it would seem mandatory to first determine where we stand. The study, thus, attempted to answer the question: What is the nature

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*Numbers in parentheses refer to numbered references in the bibliography.

of the current practices and opinions of business and distributive teachers about testing and grading in secondary schools?

The purpose of the study was twofold. First, secondary school personnel may use the results of the study to re-examine policies pertaining to testing and grading. Second, institutions that prepare secondary business teachers may find clues for the improvement of instruction.

Procedure and limitations. To gather the practices and opinions of business and distributive educators, a data-collection instrument was prepared by the researcher and two senior business education students enrolled at Trenton State College. The completed questionnaire (Appendix A) consisted of 25 highly-structured items. Many of the items were modifications of questions appearing in a comprehensive, national study (3) sponsored by the National Association of Secondary School Principals in 1966. While the NASSP study was directed at all types of secondary school teachers, it proved to be of value in designing the data-collection instrument for this study.

The questionnaire covered three categories of information: background data, testing, and grading. From one to three instruments (varied with school size) were sent to the chairmen of business departments at four hundred of New Jersey's public secondary schools. The chairmen were asked to distribute at random a copy of each form received to teaching members of the staff in different subject fields within business and distributive education. Returned were 206 usable instruments, or 34 percent of the total.

The results of the study are, of course, limited by the procedures used. The self-report technique has inherent weaknesses with regard to

producing valid data, even though attempts were made to guarantee confidentiality of the respondents' replies. While the generalizations emanating from the study apply to New Jersey, there may be implications for the country at large.

For the interest of the reader, data are presented for each of the subject areas within business and distributive education. Findings, however, for each of the subgroups were minimized due to the inadequate size of some of the groups. The generalizations growing out of the study, therefore, are restricted to the composite replies of all 206 respondents.

II. REPORTING METHODOLOGY

In the first section of the self-report, data-collection instrument, general data about the 206 teachers and the schools were gathered. The first item asked for the general subject area primarily taught by each respondent. While most teachers could clearly label one of the areas included in the checklist, eleven percent of the teachers checked more than one area due to the diversity of teaching assignments. The breakdown of the subject areas and the number of respondents in each are as follows:

Secretarial Studies, e.g., typewriting, shorthand and office practice	94
Accounting, e.g., bookkeeping, recordkeeping, data processing, and business arithmetic	47
General Business, e.g., general business, law, consumer economics, and business organization	25
Distribution, e.g., retailing, salesmanship, and advertising	17
Other--combinations of above subject areas	23

The above groups used in reporting the data are for the benefit of the reader; in areas other than secretarial and accounting, the findings are tenuous due to the small size of the groups. No attempt was made to generate findings about those teachers in the "other" group due to the wide diversity in combinations of subjects taught.

The data in all tables are reported in percents. When percents do not equal one hundred, it may be due to (a) rounding to whole numbers, (b) not reporting omissions to questions, or (c) eliciting more than one response to questions.

The findings are reported in three categories: school characteristics, teacher practices, and teacher opinions and problems. The conclusions, inferences, and recommendations constitute the last section of the report.

III. SCHOOL CHARACTERISTICS

Background information about the schools was obtained from the teachers so that the findings would be more meaningful. For these data no attempt was made to report by subject areas unless marked variances existed.

Various school sizes were represented in the sample as revealed by responses to a question asking for student enrollment in grades ten through twelve. Eleven percent of the respondents represented schools enrolling under 500 pupils, 63 percent enrolling between 500 and 1500, and 23 percent enrolling over 1500. When asked to indicate the number of full-time teachers in business and distributive education, ten percent checked the "1-3" category, 53 percent checked "4-7," 18 percent checked "8-11," and 17 percent checked the "12 or more" category.

The teachers indicated that average class sizes varied considerably. Ten percent of the teachers checked the "0-15" category. The most popular category for average class size, "16-25," was checked by 69 percent of the respondents. Most of the remaining teachers, 19 percent, checked the "26-35" category.

As to the question of how students are generally grouped, 74 percent checked "heterogeneous" and 22 percent checked "homogeneous." Distributive education teachers, however, were equally divided between homogeneous and heterogeneous classes.

The typical school situation represented in the study by the respondents was a secondary school enrolling 500 to 1500 students in grades ten through twelve, an average business class size of 16 to 25 students, and heterogeneously grouped classes.

Three questions were asked about the existence of school and/or departmental policies on grading and standards (Table I). Most schools in which the respondents taught did provide general grading guidelines and performance standards for specific content areas, but they did not generally specify a breakdown for a required percent of grades to cover each of the marking categories. It is possible that some of the teachers were unaware of existing general school and/or departmental guidelines. The fact that one fifth of the teachers did not know of any general guidelines is significant.

TABLE I

QUESTIONS ON THE EXISTENCE OF SCHOOL AND/OR DEPARTMENTAL POLICIES AND STANDARDS REGARDING EVALUATION

Questions	Responses* Yes	No
Are there school and/or departmental guidelines for grading?	79	20
Does your school and/or department have a policy in relation to the distribution of grades, e.g., 10% A's, 20% B's, etc.?	12	88
Does your department have performance standards for certain courses, e.g., speed standards for typewriting and shorthand?	86	10

*Omitted responses have been excluded and percents have been rounded to the nearest whole number.

IV. TEACHER PRACTICES

With general background information about the schools presented, the actual practices of the 206 teachers regarding testing and grading follows. The practices are divided into four areas: types of tests and questions; frequency, purpose, and disposition of tests; bases for determining grades; and recording and reporting grades.

Types of tests and questions. To the question "What is the origin of the following three types of tests used?" the respondents were permitted to check more than one source and were asked to respond on the basis of short, unit, and term or final exams.

The primary origin of all three types of tests--short, unit, and term or final--was the teacher (Table II). Teacher-prepared tests were used most frequently for short tests and least often for the unit exam.

Text publishers' exams were used most frequently for unit tests, nearly as often as the teacher-prepared tests. Published standardized tests were not used too frequently for any type of test, though unit tests were used by 12 percent of the teachers. Departmentally prepared tests were seldom used by teachers with the possible exception of term tests.

In relation to the subject areas, the distributive education teachers appeared to be most unlike the others. This group placed more reliance on self-made tests. Text publishers' exams were reported used less frequently than by other teachers and in no case were departmentally prepared exams used by the distributive educators. The accounting teachers were heavy users of both text publishers' exams and standardized tests.

TABLE II

ORIGIN OF SHORT, UNIT, AND TERM EXAMINATIONS BY GROUPS*

Group	Self-Made	Text Publishers	Published Standardized	Departmentally Prepared	N/A and Omit
		SHORT TESTS			
Secretarial (94)**	93	14	3	0	1
Accounting (47)	89	14	2	0	4
General Business (25)	100	21	0	0	0
Distribution (17)	100	6	0	0	0
Others (23)	100	14	4	0	0
All Groups (206)	94	13	2	0	2
		UNIT TESTS			
Secretarial	60	46	10	3	6
Accounting	45	66	17	0	4
General Business	56	64	8	0	8
Distribution	82	29	6	0	0
Others	74	65	22	4	0
All Groups	59	53	12	2	5
		TERM TESTS			
Secretarial	76	17	9	16	3
Accounting	77	15	6	15	2
General Business	68	36	4	8	4
Distribution	88	12	12	0	6
Other	83	17	9	9	9
All Groups	77	18	8	13	4

*Percents exceed 100 in that respondents were permitted to check more than one source.

**Actual number of teachers in each group.

With regard to the types of test questions that the teachers used, the order from the most frequently to the least frequently used was: problem or performance, completion, multiple choice, matching, alternative choice, and essay (Table III). By combining the "usually" and "occasionally" categories, the order remains unchanged except that the multiple choice and matching type of questions exchange places--but barely so.

TABLE III

TYPES OF TEST QUESTIONS AND FREQUENCY OF USAGE BY GROUPS

Group	Alter. Choice			Comple-tion			Multiple Choice			Matching			Problem/ Perform.			Essay		
	U	O	N*	U	O	N	U	O	N	U	O	N	U	O	N	U	O	N
Secretarial	21	45	29	45	34	17	32	45	19	25	52	16	81	15	2	16	42	28
Accounting	19	49	30	34	60	6	26	53	17	26	60	13	89	11	0	15	45	36
Gen. Bus.	56	40	4	60	36	4	48	44	4	44	40	12	52	44	4	24	56	20
Distribution	29	53	18	35	47	12	24	53	18	18	59	18	47	41	6	41	47	6
Others	17	74	9	35	65	0	52	44	0	44	52	0	57	35	0	9	65	17
All Groups	25	49	23	42	45	11	34	47	15	30	52	13	74	22	2	18	47	26

*U--Usually; O--Occasionally; N--Never

When one looks at the subject areas, the distributive education and general business teachers appear to be most unlike the average of all teachers. The distributive education teachers most used the problem or performance, essay, and completion types of questions (in that order) and used least alternative choice, multiple choice, and matching question types. The general business teachers, however, most used completion, alternative choice, and problem or performance test items (in that order) and least used multiple choice, matching, and essay types of items.

Purpose, frequency, and disposition of tests. Closely related to the types of tests and questions used is the purpose for giving tests. In an attempt to determine the purposes for which teachers give tests--other than to determine achievement for grading purposes--the teachers were asked to check purposes provided and to fill in any they desired. The most cited responses were: diagnosing individual student difficulties, 82 percent; guide to teaching effectiveness, 77 percent; and guide to remedial teaching, 59 percent. Two percent of all teachers indicated that testing served a disciplinary purpose. Only 17 percent of the distributive education teachers used tests as a guide for remedial teaching. The most popular items added to this open-end question were: to serve as a basis for study and review; to prepare for business entrance tests; and to stimulate home study.

The teachers were asked how frequently they gave short tests (20 minutes or less in length) and long tests (over 20 minutes). The norm for giving short tests for all teachers appeared to be one or two per week (Table IV). Over four out of five teachers, 83 percent, gave short tests between two a week and one every two weeks. Again, the distributive education teachers appeared to be most unlike the average; only 29 percent indicated giving as many as one or two tests a week whereas 63 percent of the average of all teachers gave a test as frequently.

As regards long tests (over 20 minutes), the most frequently checked time span for administering such exams was one every two weeks (48 percent), though 30 percent of the teachers gave a long test once a month. Over three quarters of all teachers (78 percent) gave a major test once or twice a month. General business teachers departed most

from the norm, with 76 percent preferring to give a long test twice a month. In summary, the frequency mode for short tests was one or two a week and for long tests, one every two weeks. Testing occurs frequently, therefore, in most business and distributive education classes.

TABLE IV

FREQUENCY WITH WHICH SHORT AND LONG TESTS ARE ADMINISTERED BY GROUPS

Group	Daily	1 or 2 a week	1 every 2 weeks	1 every month	1 every 2 months	Never	Omit
			SHORT TESTS				
Secretarial	1	65	14	4	0	1	15
Accounting	2	60	32	0	0	2	4
General Business	0	64	16	4	0	8	8
Distribution	0	29	35	12	6	0	18
Other	0	83	17	0	0	0	0
All Groups	1	63	20	3	1	2	10
			LONG TESTS				
Secretarial	0	18	35	30	10	0	7
Accounting	0	6	55	32	4	0	2
General Business	4	4	76	12	0	4	0
Distribution	0	12	35	47	6	0	0
Other	0	9	61	30	0	0	0
All Groups	1	12	48	30	9	1	4

For maximum learning value, tests should be returned as soon after they are given as possible, preferably the next class period. Nearly sixty percent of the teachers, 58 percent, returned tests the next class period; another 38 percent returned tests within a week (Table V). The distributive education teachers took slightly longer than the majority to return tests.

TABLE V

TIME NEEDED TO RETURN RESULTS TO STUDENTS BY GROUPS

Group	Next Class	2-3 Days	One Week	Over 1 Week	Never	Omit
Secretarial	57	31	10	1	0	1
Accounting	53	36	4	4	0	2
General Business	68	24	8	0	0	0
Distribution	42	35	18	0	0	6
Other	74	17	4	0	0	4
All Groups	58	30	8	2	0	2

Basis for determining grades. In addition to test results, what else does the typical teacher consider when arriving at report card grades? One element would seem to be homework, so a question was asked about the typical practice concerning the disposition of homework submitted by students.

The most significant finding, as can be seen from Table VI, is the lack of uniformity in handling homework. While asked to check a single practice, 21 teachers checked several. A few teachers do not collect homework (only 2 percent) while 30 percent do but without checking for quality. This might have been expected from the secretarial group, due to shorthand homework; it was not anticipated for other groups. About half the teachers, 52 percent, collected the homework and checked it in some way for quality though a mark was not recorded in classbooks. Only one in four teachers on the average collects and grades homework. The distributive teachers graded homework nearly twice as much, 47 percent, as the average teacher for all groups.

TABLE VI

PRACTICE WITH REGARD TO COURSES INVOLVING HOMEWORK BY GROUPS

Group	Usually Not Collected	Collect & Check in Classbook	Collect and Check for Quality Only	Collect and Grade	Omit
Secretarial	1	35	56	14	2
Accounting	2	28	43	30	4
General Business	4	28	44	36	4
Distribution	0	24	41	47	0
Other	0	22	65	30	0
All Groups	2	30	52	25	2

While tests, homework, and other factors influence grades, what is the underlying rationale for arriving at grades? The teachers were asked to check the one criterion that best represents the basis upon which they assign student grades for report card purposes. The choices were: absolute achievement, achievement with regard to ability, achievement with regard to class, and achievement with regard to self-improvement. As with the question regarding homework disposition, teachers were asked to check one choice only but 17 selected two.

There appears to be a considerable lack of agreement among teachers within and between subject fields as to the rationale underlying marking (see Table VII). Just half the teachers graded achievement with regard to student ability. The second most popular rationale for marking was with regard to self-improvement, 23 percent. Absolute achievement and achievement with regard to class were checked frequently, too, 18 and 16 percent respectively. The majority of the 17 teachers who checked two

categories used grade achievement with regard to ability and self-improvement. A few teachers indicated the self-improvement basis was used particularly for students with special needs.

The greatest divergence within a field was among the secretarial teachers and the greatest divergence between fields was between secretarial and distributive education groups. The majority of secretarial teachers (69 percent) preferred absolute achievement or achievement with regard to ability as marking bases while the majority of distributive education teachers (53 percent) preferred grading students in relation to class or self improvement.

TABLE VII

BASES FOR DETERMINING ACHIEVEMENT FOR REPORT CARD PURPOSES BY GROUPS

Group	Absolute	W/R to Ability	W/R to Class	W/R to Self-Improvement	Omit
Secretarial	25	44	13	25	1
Accounting	13	53	21	17	4
General Business	12	56	16	20	0
Distribution	6	53	18	35	0
Other	13	57	17	26	4
All Groups	18	50	16	23	2

Of greatest concern to students would be the teacher's rationale underlying the marking system used and the specific elements which have a direct bearing on the final course grade. To obtain this type of information, teachers were asked to indicate for each of eight common factors whether it was given major, moderate, light, or no consideration when

determining the final course grade for students. The eight factors were: tests, homework, special projects, oral participation, attendance, discipline, effort, and personal traits, such as attitude.

Upon analysis of teacher practices on all eight factors, one is struck by the general consensus on some factors and the great discrepancies among teachers on others. Divergent practices also existed among the various groups of teachers on various factors that are considered when arriving at final course grades. Some of the divergencies can be accounted for by the nature of the subject matter, others cannot.

Regarding the first factor, 98 percent of the teachers gave heavy emphasis--"major" plus "moderate" categories checked--to tests in determining final course grades. This consensus on the value of tests was less pronounced (82 percent) by the distributive education teachers.

As to the importance of homework, 72 percent of all teachers checked "major" or "moderate" choices while 25 percent checked "light" or "none." The secretarial teachers weighted homework less than other teachers for arriving at the final course grade; 37 percent checked the "light" or "none" categories.

The weight of special projects varied among the teachers. While 68 percent gave special projects heavy emphasis ("major" plus "moderate"), 26 percent gave them slight weight ("light" or "none"). However, 96 percent of the distributive education teachers gave special projects heavy emphasis.

Oral participation as a course grade factor received a heavy emphasis ("major" plus "moderate") by 69 percent of the teachers and slight emphasis ("light" or "none") by 27 percent. The distributive education teachers, 95 percent, gave heavy emphasis to oral participation.

TABLE VIII

FINAL COURSE GRADE FACTORS WEIGHTED BY TEACHERS

Group	Tests				Homework				Special Projects				Oral Participation			
	1*	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Secretarial	63	35	1	0**	13	47	34	3	27	43	15	10	13	49	29	5
Accounting	66	34	0	0	34	47	17	2	30	21	30	11	13	57	23	4
General Bus.	92	8	0	0	16	72	12	0	32	32	16	12	12	48	28	4
Distribution	53	29	18	0	24	59	18	0	47	47	6	0	24	71	6	0
Other	61	39	0	0	26	61	9	0	30	57	4	4	35	57	9	0
All Groups	66	32	2	0	20	52	23	2	30	38	17	9	16	53	23	4

	Attendance				Discipline				Effort				Personal Traits			
Secretarial	25	37	21	12**	11	20	29	37	52	34	11	0	23	44	18	6
Accounting	15	38	17	23	4	21	34	36	40	51	6	0	23	47	9	13
General Bus.	24	20	24	28	4	20	32	36	76	20	4	0	28	48	12	12
Distribution	18	24	29	29	6	35	24	29	53	47	0	0	35	59	6	0
Other	26	30	22	17	4	30	26	26	57	35	4	0	30	39	22	0
All Groups	22	34	21	18	7	23	30	35	53	37	7	0	26	46	15	7

*1--Major; 2--Moderate; 3--Light; 4--None
**Omissions have been excluded from the table; thus totals may not equal 100%

Attendance was one factor that teachers did not agree upon as to its value in final evaluations. Only 56 percent agreed that they weight attendance heavily while 39 percent assigned it slight weight. Perhaps the following condensed statement by a respondent sheds some light on this grading factor:

> Attendance in school is viewed too lightly by too many administrators. Many students are passing subjects even when they have a high absentee rate. From September through January, I totaled over 800 absentee days for five classes. This saps the energy of a teacher and is a lot of record keeping. I wish we could enforce a minimum number of days required in class to receive credit. We make a big fuss about school being 180 days but ignore the number of days a student attends. This is my biggest problem.

The last course grade factors concern personal characteristics of the learners. Two specific ones that often affect teacher marking behavior greatly, discipline and effort, were separated from a general category entitled "attitude and other personal characteristics." Discipline was given considerable importance. Thirty percent of the teachers assigned "heavy" emphasis to it and 65 percent assigned "slight" emphasis.

Effort seemed to draw a much greater consensus than discipline as a marking factor. Teachers apparently gave less emphasis to the negative factor of discipline than they did to the positive factor of effort. Ninety percent gave heavy emphasis to effort as opposed to 30 percent for discipline.

The "attitude and other personal characteristics" factor was given heavy emphasis ("major" plus "moderate") as a grading factor by 72 percent of the teachers. The distributive education teachers were most unlike the other groups in this regard by giving heavy emphasis, 94 percent, to attitude and other personal characteristics.

A number of teachers did affix comments to their returned instruments, which supported the significance of attendance, effort, attitude, and other personal characteristics in the business world.

If the "major" and "moderate" categories are combined for all eight factors, the following is the rank order: tests, effort, homework, attitude and other personal characteristics, oral participation, special projects, attendance, and discipline. If only the "major" category is used to arrive at the significance given the various factors, the rank order is: tests, effort, special projects, attitude and other personal characteristics, attendance, homework, oral participation, and discipline. Two highly subjective factors to rate, effort and attitude and other personal characteristics, are ranked in the top half of all eight factors. It would appear that a student with a favorable attitude could offset failing grades if he only gave outward signs of trying!

Test grades and the reporting of evaluations. As a final area in actual testing and grading practices, the teachers were asked to indicate how they arrive at and record test grades and how they report evaluations on report cards.

There was a great deal of consistency among the groups of teachers on the methods employed to arrive at test grades but there are decidedly two schools of thought represented (Table IX). About two out of every three respondents, 64 percent, marked tests on an absolute basis--percentage--and one out of three, 30 percent, employed a relative basis--some form of a curve.

TABLE IX

GRADING METHODS EMPLOYED BY TEACHERS FOR TESTS BY GROUPS

Group	Percent	Curve	Other	Omit
Secretarial	66	27	4	3
Accounting	68	26	6	0
General Business	56	40	0	4
Distribution	59	41	0	0
Other	57	30	13	0
All Groups	64	30	35	2

Once a teacher has scored and graded a test, how is it reported in his classbook? Are the raw scores or percents converted in some way, say, to a letter grade, and then dropped for future consideration when arriving at report card marks? Only 18 percent of the teachers indicated retaining the raw scores of students. The majority of teachers, 52 percent, converted test scores to the form required for report card purposes, such as a letter grade, and placed that rating only in their classbooks.

Teachers were then asked how grades are reported on report cards. By far the most popular method indicated was the letter grade, i.e., A through F. While 79 percent of the teachers recorded a letter grade, 10 percent were required to use percentages. Eleven percent of the teachers indicated variations to the letter and percentage methods. In particular, eight percent of the respondents were required to use a set of numbers, such as one through four or five to represent levels of achievement; a few teachers reported that percentage grades are rounded to the nearest five percent (100, 95, 90, etc.).

In summary, the typical business teacher in New Jersey marks on a percentage basis and records grades in keeping with those required for report card purposes, usually a letter grade.

V. TEACHER OPINIONS AND PROBLEMS

In addition to obtaining evidence regarding the actual practices of teachers, a series of questions were asked calling for opinions. Four specific questions of this type were presented and the teachers were invited to add additional comments about testing and grading. These opinions, of course, have a direct bearing on some of the practices reported earlier.

Two questions asked for reactions to the school or departmental guidelines and standards provided. As revealed via Table I, 79 percent of the teachers reported their schools and/or departments have grading guidelines. Of this group, 19 percent believed that the guidelines were of little or no help while 81 percent indicated they were of some or great help. When combining those teachers who reported that the school and/or departments had no grading policies with those who felt the existing policies had little or no value, more than one third of the teachers, 35 percent, were provided no or little help in developing a grading policy.

The second question asked for opinions about the departmental performance standards that might exist for certain courses, such as speed standards for typewriting and shorthand. As reported earlier, 86 percent of the teachers indicated that their departments had such standards. Nearly all the teachers, 93 percent, believed those standards were satisfactory; and only 7 percent thought the standards were too easy or too hard.

The last two opinion questions were related to the final examination in a course and grades in general. For the final course evaluation, the teachers were asked to indicate whether they would prefer written tests, oral tests, or no tests. Over two thirds, 69 percent, preferred written tests but a sizeable group, 22 percent, preferred no tests. An observation volunteered by a small number of secretarial teachers might have provided the rationale behind many of these responses: "Everyday classwork is the true evaluation of students' achievement." Six percent of the respondents preferred only oral tests. The distributive education teachers differed greatly from the other groups of teachers; only six percent preferred no final tests, 24 percent preferred oral tests, and the remaining 71 percent desired written examinations. The final item in the series of opinion queries was a revelation of attitudes toward grades in general. Nearly one third of the teachers, 31 percent, have a negative attitude toward them as can be seen by the first two columns in Table X. And 66 percent revealed a positive attitude by indicating grades had either "some" or "great" value. As regards teaching groups, the general business teachers had the most negative attitudes toward grades, 40 percent; and the secretarial teachers had the most positive attitudes, 72 percent.

The respondents were asked to expand upon or to add new ideas. Most comments received were in the area of general attitudes toward grades. A few representative comments follow:

> A mark or a grade motivates the student--it is an incentive to do well. I once made a two-week study with one of my classes and said I would give them only "P" for pass, "F" for fail. The students didn't study and their attitude toward their work 'sloughed' off. A grade stimulates competition and also represents an award to the student. We all want to be rewarded for what we do!

> I would like to experiment with a pass-fail system for some courses, such as shorthand, as I feel attainment of a high level of skill should be quality that is emphasized--not grades.
>
> I hope someday that grades will be abolished and students will be able to progress at their own pace. Unfortunately, until that time comes grades are necessary.

The attitudes expressed in the comments ranged from strong favoritism for grades to the desire for total abolishment of tests and grades.

TABLE X

TEACHERS' GENERAL ATTITUDES TOWARD GRADES BY GROUPS

Group	Should Be Abolished	Necessary Evil	Some Value	Great Value	Other or Omit
Secretarial (94)	7	18	53	19	2
Accounting (47)	2	28	47	21	4
General Business (25)	12	28	44	16	0
Distribution (17)	0	29	35	29	6
Other (23)	4	39	44	4	9
All Groups (206)	6	25	48	18	3

In addition to asking the teachers about their opinions and practices, they were also asked to indicate via a checklist the severity of common problems encountered regarding the entire area of tesing and grading. This highly structured, closed-end question asked whether the following problems were of great, some, little, or no concern: writing effective questions, finding effective questions, scoring test papers, grading tests and completing report cards, and giving make-up tests. The results are summarized in Table XI.

TABLE XI

DEGREE OF CONCERN OVER COMMON TESTING-GRADING PROBLEMS

	Writing Questions				Finding Questions				Scoring Tests				Grading & Report Cards				Makeups			
	1*	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Secretarial	70	14	4	1	60	22	4	1	79	14	2	0	76	14	0	0	39	48	6	1
Accounting	55	32	4	2	45	23	9	6	62	21	4	0	51	34	4	0	32	49	15	0
General Bus.	80	16	0	0	68	32	0	0	80	4	0	0	92	8	0	0	36	44	16	4
Distribution	88	6	0	0	77	18	0	0	65	18	6	6	47	41	6	0	35	47	18	0
Other	87	13	0	0	70	26	0	0	65	22	0	4	70	26	4	0	65	35	0	0
All Groups	71	18	3	1	60	24	4	2	72	16	2	1	69	21	2	0	40	46	10	1

*1--great concern; 2--some concern; 3--little concern; 4--no concern
**Omitted responses have not been included.

There was a great deal of agreement among teachers as to their general problems. All of the problem areas in the checklist were of either "great" or "some concern" to the large majority of teachers. On the basis of those who checked "great concern" only, the rank order of problems was: scoring test papers, writing effective questions, grading tests and completing report cards, finding effective questions, and giving make-up tests. However, if the degrees of concern "great" and "some" are combined, then the rank order changes but the degree of distinction between each problem area is small indeed. By either method, the post test-administration phase was deemed of slightly greater concern than the pre-test-administration phase; that is, scoring, grading, and reporting problems gave teachers a little more concern than writing or finding test questions.

Also, the more unstructured the subject area, general business and distribution, the greater the degree of concern over the pre-test-

administration phase (writing and finding questions). The general business and distributive teachers generally gave more weight to most of the problems in the checklist, and the accounting teachers as a group had slightly less concern over testing-grading problems than the average teacher, especially in the pre-test administration, or construction phase. This could be due in part to the greater reliance by accounting teachers on publishers' and standardized tests, as revealed in Table II.

The extent of instruction in tests and measurements at teacher-training institutions does not appear to minimize the testing-grading problems. Nearly two-thirds of the teachers, 63 percent, reported having had at least one or more courses in tests and measurements; and about one-third of the teachers, 36 percent had either a unit within a larger professional education course or no instruction.

In summary, it would appear that teachers rank the selected problems of testing and grading high on their list of general teaching problems, whether they have or have not received formal instruction. This finding gives support to the Gress study (1) which identified testing and grading as the primary problem of beginning business teachers.

VI. CONCLUSIONS, INFERENCES, AND RECOMMENDATIONS

The testing and grading practices and opinions of business and distributive educators in New Jersey vary enormously, reflecting a lack of justification and standardization in marking policies. These conditions make testing and grading one of the primary professional concerns for the large majority of teachers.

Inferences. The following inferences emerge from the findings:

1. Practices and standards for measuring and evaluating student achievement are derived to a great extent by the individual philosophies of the business and distributive education teachers. Testing and grading are the private professional domains of the teacher, which produce a wide variety of practices and opinions. Evidence of this is abundant. The typical teacher gets a limited amount of assistance from the school or department in arriving at a grading system or in developing effective testing instruments. Most tests are prepared by the individual teacher. Departmentally prepared tests are quite uncommon and teachers seek outside help in test construction; viz., reliance on book publishers' tests.

Further evidence that the teacher is left to solve his own testing-grading problems is the great diversity of practices by teachers within and among rather well-defined subject areas. The diversity shows itself in the underlying grading rationale used by teachers as well as in the factors considered in arriving at report card grades.

The lack of standardization in marking policies is probably caused to a great extend by secondary school administrators leaving such matters in the hands of the individual teachers. The acceptance of the professional judgment of teachers within their own classrooms is probably the benchmark for the existence of this condition. Yet the large majority of teachers indicated that they had specific problems of great importance with the entire testing-grading function. The frustrations of many teachers in solving such problems is perhaps reflected in the relatively high incidence of negative attitudes toward grades.

2. A marking rationale that is educationally sound and practical is lacking among business and distributive educators. There is not only

a lack of agreement as to how much emphasis should be given various factors that comprise a grade but there is no consensus on the factors that should be included. An internally consistent schema for evaluation in business and distributive education that is known, accepted, and used by teachers is lacking.

Teachers' practices are not always in keeping with the recommended practices of tests and measurements experts. In part, the teachers' practices may be beyond their control or impractical or for some reason not accepted by teachers. As a part of report card grades, teachers gave great weight to highly subjective factors, such as personality and character traits that are not easily measured in an objective, reliable manner. Effort, for example, was given nearly as much consideration in report card grades as tests.

What the rationale for testing and grading should be cannot be determined from the data. But the evidence does indicate that there is a need for a rationale, whatever the form.

3. Neither secondary school administrations nor higher educational institutions have provided adequate direction in assisting teachers to solve their testing and grading problems.

While the large majority of schools in this study did provide guidelines for marking, the value of the guidelines to the teachers may be subject to question. One teacher in three either indicated guidelines were lacking or were of limited worth.

Teacher education institutions have met with limited success in aiding teachers with their testing-grading problems. Nearly every teacher had been exposed to instruction in tests and measurements; about two out of three had one or more courses dealing solely with the subject. How

effective is the instruction if testing and grading problems are paramount and the teachers' practices are so divergent and opinions so varied?

Recommendations. The recommendations growing out of the conclusions and inferences are as follows:

1. The professional personnel in business and distributive education need to conduct meaningful dialogues regarding testing and grading. The present state of conditions is deplorable, and dialogues are needed on many fronts. Teacher preparation institutions certainly should re-examine the value of instruction in common tests and measurements courses. Professional associations via their literature and conferences should discuss the rationale and methodology behind successful student evaluations. With the current move toward more individualized instruction, there appears to be a great need by all business and distributive educators to examine past methods and present proposals.

At the secondary school level, administrators and department chairmen should ask themselves: What can be done to help the classroom teachers do a better job of testing and grading? The teachers need and want help. Policies should be derived so that all teachers within a department are using the same rationale within subjects or subject areas for testing and grading. A student taking a course from one teacher and doing the same quantity and quality of work should receive about the same grade as from another teacher in the same department. The evidence suggests that this would not always be the case since teachers have so many different rationales behind their marking systems.

The best thinking and the known knowledge of the experts in how to test and grade should be reflected in the practices and opinions of the teachers. The lack of consensus among the teachers may in part be caused

by teachers working independently rather than jointly regarding testing and grading. If we could work more cooperatively, then there would be more uniformity of practice which is so desperately needed.

The students have the most to gain or lose from grades. For business and distributive educators not to arrive at marks in some valid and consistent manner is an injustice to those served. It is imperative that we arrive at some consensus within and among institutions if we are to treat learners fairly.

2. A periodic inventory of practices and opinions should be conducted on a national scale. The inventory would provide a basis for measuring changes on a national and regional basis. The effectiveness of programs designed to improve testing and grading in business and distributive education would be quantified in part by such a national inventory. The effect of preservice and inservice programs would be revealed and a barometer of national opinions and trends would be available.

3. While the nature of the best testing and grading practices was not a purpose of this study, several suggestions might be worthy of future consideration by teachers based on the researcher's investigation and experience.

Usually a teacher does not have adequate time to prepare the best classroom tests possible. He therefore seeks help from publishers and experienced teachers. Because finding or creating good tests is a paramount problem, state education departments, institutions of higher learning and/or individual school systems might establish test item banks. With a few basic rules, test items, which might be stored in a computer, could be deposited and withdrawn from the bank. A teacher

could obtain a series of well-constructed and tested items for any major examination by merely specifying his needs.

A second and final suggestion would be that as long as standard marking systems are employed by schools, grades be divided into two categories for those courses where teachers by consensus feel that very subjective factors be weighted heavily in relation to achievement in content mastery. For example, one grade could be for academic achievement based on such factors as tests, homework, and special assignments. The second grade could cover such factors as oral participation, attendance, effort, and personal traits. Combining all of these factors into one composite grade makes the mark less reliable and less meaningful to those who use them (teachers, employers, colleges, and the like).

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APPENDIX

TESTING AND GRADING QUESTIONNAIRE

Preface

What are the current testing and grading practices of business and distributive education teachers in New Jersey? The purpose of this questionnaire is to find the answers. The results--assuming sufficient responses are received--will be submitted for publication in the NJBEA OBSERVER.

We would greatly appreciate your cooperation. Would you answer each question that follows as frankly and accurately as possible. The information, of course, will be kept strictly confidential. Omit your name on the questionnaire and the envelope.

So that the results can be immediately tabulated, would you complete the form as soon as possible. It should only require a few minutes to do so. For your convenience a self-addressed envelope is provided for returning the questionnaire to the

Department of Business & Distributive Education
Trenton State College
Trenton, New Jersey 08625

Background Information

1. Subject area in which you most teach: (check one)
   _____Secretarial Studies, e.g., typewriting, shorthand, and office practice
   _____Accounting, e.g., bookkeeping, recordkeeping, data processing, and business arithmetic
   _____General Business, e.g., general business, law, consumer economics, and business organization
   _____Distribution, e.g., retailing, salesmanship, and advertising

2. Number of full-time teachers in business & distributive education: (check one)
   _____ 1 - 3 _____ 4 - 7 _____ 8 - 11 _____ 12 - 15 _____ 16 or more

3. Total school enrollment in grades 10 - 12 _____Under 500 _____500-1,500 _____Over 1,500

4. Average number of students in your own classes: ____0-15 ____16-25 ____26-35 ____36+

5. Grouping for most classes: _____Homogeneous _____Heterogeneous

6. How much training have you had in the area of testing? (Check one)
   _____None _____Unit in a college course _____Course(s) in Tests & Meas.

Testing

7. What is the origin of the following three types of tests used?:

	Self-Made	Text Publishers	Published Standardized	Departmentally Prepared	Not Applicable
a. Short Exams	____	____	____	____	____
b. Unit Exams	____	____	____	____	____
c. Term or final	____	____	____	____	____

8. For self-made tests, how often do you use each of the following types of questions:

	Usually	Occasionally	Never
a. True-False; Yes-No	___	___	___
b. Completion	___	___	___
c. Multiple Choice	___	___	___
d. Matching	___	___	___
e. Problem or Performance	___	___	___
f. Essay	___	___	___

9. With about what frequency do you give short and long tests:

	Daily	1 or 2 a week	1 every two weeks	1 every month	1 every two months	Never
a. Short tests-- 20 min. or less	___	___	___	___	___	___
b. Long Tests--more than 20 min.	___	___	___	___	___	___

10. How soon after a test is given do you normally return it to students? (check one)

___Next Class Period ___2-3 Days ___One week ___More than 1 week ___Never

11. Other than for determining grades, check other purposes for which you use tests:

___Discipline ___Guide to Remedial Teaching ___Guide to Teaching Effectiveness

___Diagnosing Individual Student Difficulties ___ Other (Fill in)_____

12. What degree of concern do you give to each of the following problems:

	Great Concern	Some Concern	Little Concern	No Concern
a. Writing effective questions	___	___	___	___
b. Finding effective questions	___	___	___	___
c. Scoring test papers	___	___	___	___
d. Grading tests & report cards	___	___	___	___
e. Giving make-up tests	___	___	___	___

13. As a part of your final evaluation for students, what would you prefer: (check one)

____Written Tests ____Oral Tests ____No Tests

Grading

14. In determining test grades what method do you normally use:

___Straight Percentage ___Curve

15. How are individual test scores recorded in your class book?

___Raw Score ___Percent ___Letter or Number (e.g., A-F or 1-5)

16. How are grades reported on report cards? (check one)

___Percent ___Letter (A-F) ___Other (indicate) _____

17. Are there school and/or departmental guidelines for grading? ___Yes ___No

18. If your answer to #17 is yes, what is your feeling about them:

____Great Help ___Some Help ___Little Help ___No Help

19. Does your school and/or department have a policy in relation to the distribution of grades, e.g., 10% A's, 20% B's etc.? ___Yes ___No

20. Does your department have performance standards for certain courses, e.g., speed standards for typewriting and shorthand? ___Yes ___No

21. If your answer to #20 is Yes, how good are the standards in your opinion?

___Too Easy ___Satisfactory ___Too Hard

22. What is your usual practice with regard to courses involving homework? (check one)

___Usually not collected
___Collected and check off only in classbook
___Collected and check for quality (no grade)
___Collect and assign a grade or rating

23. Which of the follwoing best represents the basis you use for determining individual student grades for report card purposes: (check one)

___Absolute achievement
___Achievement with regard to ability
___Achievement with regard to class
___Achievement with regard to self-improvement

24. How much consideration do you give to each of the following factors in arriving at a FINAL COURSE GRADE?

Factor	Major	Moderate	Light	None
a. Tests	___	___	___	___
b. Homework	___	___	___	___
c. Special Projects	___	___	___	___
d. Oral Participation	___	___	___	___
e. Discipline	___	___	___	___
f. Attendance	___	___	___	___
g. Effort	___	___	___	___
h. Attitude & Other Personal Characteristics	___	___	___	___

25. Which best represents your general attitude toward grades in general?(check one)

___Should be abolished ___Some Value ___Other (fill in) _____
___Necessary evil ___Great Value

IF YOU WISH, PLEASE LIST BELOW ANY ADDITIONAL INFORMATION OR EXCEPTIONS TO ANY OF THE ABOVE QUESTIONS.

VT 012 346
Arnold, Barbara L.
The Development of a Procedure for Continuous Evaluation of the Green River High School Business Education Program.

Green River High School, Wyo.
Wyoming Research Coordinating Unit in Vocational-Technical Education, Cheyenne.
Office of Education (DHEW), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
OEG-4-6062729-2083 08
BR-6-2729
PUB DATE - Aug70 50p.

when special interest groups try to achieve preferential treatment. By overcoming these obstacles, a police-community relations program can result in a smoother relationship with the community, reduced crime rates, and a more professional police department with a better image in the community. (BH)

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THE DEVELOPMENT OF A PROCEDURE FOR CONTINUOUS EVALUATION OF THE GREEN RIVER HIGH SCHOOL BUSINESS EDUCATION PROGRAM

Barbara L. Arnold
Green River High School
Green River, Wyoming

U.S. DEPARTMENT OF HEALTH, EDUCATION, & WELFARE
OFFICE OF EDUCATION
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August, 1970

The work reported herein was performed pursuant to grant No. OEG-4-6062729-2083, Project No. 6-2729, with the office of Education, U.S. Dept. of Health, Education and Welfare (i.e., the establishment of Research Coordinating Unit). Persons undertaking such projects under Wyoming Research Coordinating Unit sponsorship or support are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official State Dept. of Education or U.S. Office of Education position or policy.

VT012346

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FORWARD

The problem of this study was to develop and initiate an evaluation procedure by which the Green River, Wyoming, High School business education curriculum, instruction, equipment and facilities, and staff can be continuously and objectively appraised and subsequently improved to provide an optimum program that will meet the needs of the student in the classroom and the requirements of a constantly changing business world.

Although this study is somewhat limited, and although its major worth is that of pointing out areas of more work, it is at least a beginning--a foundation upon which subsequent studies in Green River High School can be based. It is felt this study presents findings that should prove of real benefit to other Wyoming high schools in evaluating their own business education programs and sets forth survey instruments and data-gathering techniques that could be adopted or adapted by schools wishing to make similar studies.

INTRODUCTION

The remarkable progress made in overhauling mathematics and science programs in American schools has touched off a movement to restructure and update all the subject fields Business education, like the other subject areas, is feeling the impact of this reform movement. Today's business and economic world is very dynamic; thus, it follows that business education must be equally as dynamic.

A review of pertinent literature reveals important research being undertaken, especially by the "experts" or "authorities" in the field of business education, to revamp subjects and course patterns to meet the demands of a rapidly changing world. Some of the important innovative studies recently undertaken have involved the following areas: evaluation of the philosophy and objectives of business education; evaluation of curriculum practices, trends, and standards; the impact of automation on occupational patterns, retraining for new jobs; new instructional methods such as programmed instruction and team teaching; incorporation of automation into business education; new audio-visual developments; new directions in the training of secretaries, clerical workers, bookkeepers, and distributive personnel; concern for dropouts; improvements in adult education; and federal involvement in vocational education.

Authorities in business education have taken the first steps in the reform movement and now as an advancing step are encouraging, or perhaps pleading with, business educators as a whole to fully commit themselves to an organized, full-fledged attack on revitalizing business programs and

subjects through a serious re-evaluation at all levels. The following excerpt, taken from the January, 1968, Business Education Forum, is typical of what is being said in the majority of current literature:

> Business educators cannot afford to offer pushcart programs in an era dominated by jet-powered airplanes, electronic computers, space travel, research and experimentation. The content of business subjects and methods of teaching them must undergo genuine critical study and be brought up to date. Taking this step is the only sure way to nail down a future for business education in tonorrow's secondary schools.

The average business teacher in the secondary schools reads some professional literature, intermittently conducts some type of survey, tries to be aware of what is happening in the business world, and is interested in what fellow business educators are doing in their various schools. The results of these scattered attempts at improvement point to the benefits that could come from full-scale reform. The sad fact is, however, that only a small amount of actual research or innovating or even intensive evaluating is being done on the high school level. Wyoming is an example of this--most of the innovating is being done by university officials, by graduate students, or by the Wyoming State Department of Education.

Ultimately, the most effective curriculum work is done at the local level. State and national curriculum study may provide the superstructure; but in order to reach the real curriculum objective--the pupil in the classroom--local educators must reshape, adjust, and often originate ideas and concepts that ensure the process of a reasonable chance of success.

The study which follows concerning the development and initiation of an evaluating procedure for a high school is aimed at getting the local business teacher deeply involved in a concern over what he is to teach, why, and how. This is a basic step that must be taken in the process of full-scale reform.

THE PROBLEM

The overall problem of this developmental proposal was to set up and initiate a five-phase evaluation procedure for the Green River High School business education program. Information gathered from this procedure is being used to appraise, revise, and improve the quality and outcomes of business education in this school to keep the program abreast with changing pupil and societal needs. The immediate objectives were:

1. Develop (or adapt) an instrument for and initiate a follow-up study of recent graduates of the business education program of Green River High School.

2. Develop (or adapt) an instrument for and initiate a Green River business community survey.

3. Set up an advisory board representing the local business community.

4. Apply a standardized criterion instrument to the business education program.

5. Set up an inter-departmental business curriculum committee.

The long-range objectives are:

1. To develop a curriculum that meets the foundational, preoccupational, and occupational needs of the students and that meets the needs of business

2. To revise and improve instructional activities, methods, and procedures.

3. To determine the extent and quality of the physical facilities and equipment necessary to carry out an effective program.

4. To encourage and promote professionalism and growth of the business education staff members.

ADMINISTRATION

The principal investigator was Barbara Arnold, chairman, department of business education, Green River High School, Green River, Wyoming. Qualifi-

cations of this person include: B. A. in Business Education, University of Wyoming, 1964; currently working on M. S. in the same field; six years of teaching experience; former member of the Wyoming Business Education Executive Board; president-elect of the Green River Education Association; and Green River Jaycees' "Outstanding Young Educator" of 1969-70. She was assisted by Green River business teachers, Beverly Wagner and Cheryl Johnson, by high school principal Ed Rich, and by Green River students in senior secretarial and clerical office practice classes.

Two consultants were utilized: Bruce Perryman, Director, Research Coordinating Unit, State Department of Education, Cheyenne, Wyoming; and Keiji Okano, Director, Business, Office, and Distributive Education, State Department of Education, Cheyenne, Wyoming.

This project was funded through the Wyoming Research Coordinating Unit, Research and Development Section.

PROCEDURES

As this evaluation covered the broad areas of the business education program; namely, curriculum, instruction, equipment and facilities, and staff; and as each of these major areas consist of many smaller components, a combination of five separate approaches were used in making a comprehensive, objective appraisal. (The developmental time and the initial evaluation took approximately 12 months.)

1. Follow-up study of business graduates of Green River High School. A questionnaire consisting of three parts (a) general questions, (b) questions for those who are working, and (c) questions for those attending a post-high school institution was adapted (see appendix) and initially sent in March, 1969, to 130 graduates of Green River High School in the years of

1964-68. Forms were sent to graduates who had completed at least three business courses. A second questionnaire was sent in May to those who failed to respond to the first survey. A total of 101 (78%) of the questionnaires were returned.

A revised form of this questionnaire will be sent annually in the spring to the approximately 25 students who were Green River High School graduates three years before (i.e., the survey in 1972 will follow-up the graduates of 1969). The purpose of the three-year interval between graduation and follow-up is to give the student a chance to become more or less "established" at a job or in some type of career preparation.

The purpose of this questionnaire is to determine the adequacy of instruction as it relates to the goals of the high school graduates, to determine the appropriateness of course content and instructional equipment, to throw a light on the nature of the entry jobs of graduates, and to analyze choices of graduates in post-high school education. A summarization and interpretation of this data is being used to evaluate and revise the curriculum and instructional and guidance services.

2. Survey of the Green River business community. A questionnaire consisting of three parts (a) occupational information, (b) office equipment, and (c) business standards was developed. The initial form was mailed to 30 of the major business and governmental offices in the immediate Green River area who employ at least two persons in a clerical, secretarial, or bookkeeping capacity. Senior students in the secretarial practice class picked up the questionnaires from the respective offices. Only two offices failed to complete a form.

In forthcoming surveys, the endorsement and assistance of the Green River Junior Chamber of Commerce will be sought to gain the support of the

businessmen. Approximately 50 businessmen, representing all businesses and governmental agencies in the community which hire at least one employee in a clerical, secretarial, or bookkeeping capacity, will be contacted personally by one of the investigating personnel and given a questionnaire which will be mailed back to the school. This revised survey will be repeated in the spring of every third year (the first survey being in 1970).

The information being secured; such as, the different occupations in the community, the number of males and females employed in each occupation, requirements for employees, wage patterns, opportunities for advancement, types and numbers of equipment being used, business standards, and the feasibility of cooperative work experience programs, is being systematically summarized and interpreted to be used in curriculum revision, equipment purchasing, and evaluation of instructional methods.

3. Establishment of an advisory board representing the local business community. An advisory board consisting of ten people was selected by school authorities in cooperation with the chairman of the business education department from outstanding men and women (both employers and employees) in the Green River business community. Those selected have an unselfish interest in public education and have experience in hiring or supervising high school graduates. The board will begin meeting at regular intervals with the curriculum committee and the school administrators in September, 1970. The board will be free to point out weaknesses as well as strengths of the business education program in terms of the needs of the business world. Confrontations with this board will assist in developing curriculum, setting desirable standards of achievement, setting up cooperative programs, purchasing equipment, promoting public relations, and providing means for guidance.

4. Application of a criterion instrument. A standardized criterion instrument, "Evaluation Criteria for Secondary School Business Education Programs," developed by Eugene Wyllie of Indiana University and available commercially from South-Western Publishing Company, was used to "test" the program areas of (a) curriculum; (b) instructional content; (c) instructional activities, methods, and procedures; (d) instructional materials; and (e) staff. This instrument provides a list of standards under each of the foregoing classifications, and the evaluators (members of the GRHS business education staff) were asked to indicate whether or not their particular high school meets these standards. The instrument is constructed in such a way that it will indicate how well or how poorly a standard is met. Evaluation by the criterion method reveals (a) what should be done and (b) what actually is being done. This instrument will be applied to the Green River business program annually in the spring.

5. Establishment of a curriculum committee. A business education curriculum committee consisting of all full and part-time Green River High School business teachers and headed by the chairman of the business department was established, with the high school principal and the high school guidance counselors as ex officio members. This curriculum committee is the "core" of the whole evaluation procedure, for here in regularly scheduled meetings is where the data brought in by the various evaluative techniques is being studied, discussed, interpreted, correlated, and synthesized in terms of an optimum business education program. A portion of the meetings are being devoted to the review and study of such things as relative professional literature, changing conditions in the business world, current research, and new methods, ideas, and techniques. At least once a year, the committee hopes to visit innovative business education departments in surrounding areas.

FINDINGS

The findings of this investigation are organized in terms of (a) a follow-up study of graduates, (b) a survey of the business community, and (c) application of a criterion instrument, followed by a discussion of the establishment of (d) a curriculum committee and (e) an advisory board.

SECTION A--FINDINGS: FOLLOW-UP STUDY

Graduates of the department under study were questioned to gain information on the adequacy of their high school preparation for employment in the business world and for post-high school training. It is appropriate at this time to state that concrete assessments of the students' preparation are relative to time and place and human error and are very difficult to validate on a study such as this.

One hundred and thirty questionnaires containing 21 questions were mailed to all business graduates (a business graduate being defined as one who completed three business courses) of the last five years, with 101 being returned. A more detailed breakdown of students is as follows:

Total students surveyed: 101
males 12 females 89
Year of graduation: 64 10 65 23 66 21 67 17 68 30
Current status: (devotion of major am't of time)
employed 36 attending school 26 military 5
housewives 32 other 2

Elementary data analysis of the graduate follow-up survey follows:

The largest enrollments, following national norms, were in typewriting, shorthand, and bookkeeping. As opposed to the skill subjects, a rather low enrollment was found in the basic business courses. A large number of students took only the beginning courses offered in typewriting and shorthand and did not take advantage of the advanced work provided for in secretarial

and clerical practice. Few male students have been high school business majors. The majority of the students in general business and clerical practice have not been business education majors. Table 1 shows the percentages of graduates polled who were enrolled in individual courses:

Table 1
BUSINESS COURSES TAKEN BY GRHS GRADUATES
IN ORDER OF FREQUENCY OF ENROLLMENT

Subject	% Grads Enrolled
Typewriting I	92.1%
Shorthand I	70.3
Bookkeeping	59.4
*Typewriting II	58.4
Business Law	35.6
*Shorthand II	33.7
Consumer Economics	26.7
+Secretarial Practice	23.8
General Business	17.8
+Clerical Practice	6.9

*Classes discontinued in 1966-67
+New courses incorporated in 1967-68

Question #1: Why did you take business courses while in high school?
(several reasons could be marked)

Sixty-three out of the 101 surveyed indicated they majored in business courses in high school in order to prepare for a job. An equal number of 63 replied that they took the courses for personal use, indicating that a program of business studies must provide for the dual purpose of business education and vocational preparation. Many who said they took business courses for "personal" use commented that these skills helped them prepare for a career in other areas. The combination of well-liked teachers and challenging courses accounts for a high percentage of enrollment. Only four graduates indicated that they were guided into business courses by a school guidance counselor. The breakdown is as follows:

Table 2
REASONS FOR TAKING BUSINESS COURSES

Reason	Percentage of Grads
To prepare for a job	62.4%
Personal use	62.4
Liked the teachers	30.7
Challenging courses	20.8
Parents asked them to	7.9
Friends took the classes	6.9
Counselor recommended	3.9
Easy courses	1.9

Question #2: How useful have the skills and knowledge acquired in the following high school business courses been to you?

Vocational secretarial practice and office practice, advanced secretarial training programs offered the past three years, were rated among the most useful courses. Thirty percent of the graduates indicated that Shorthand I had proved to be of little or no use to them, with 16.9% saying the same thing of bookkeeping. Business law and consumer economics were rated basically as being of "some" use. An incongruity appears with graduates saying basic business knowledge is of small value, and employers saying employees are lacking in this background.

Table 3
USEFULNESS OF SUBJECTS

	% of Grads			
Subject	Very	Some	Little	None
Typing I	82.1%	13.7%	4.2%	0.0%
*Typing II	88.7	9.7	1.6	0.0
Shorthand I	38.6	31.4	21.4	8.6
Bookkeeping	35.2	47.9	14.1	2.8
*Shorthand II	53.9	25.6	20.5	0.0
+Secretarial Practice	91.3	8.7	0.0	0.0
General Business	65.0	30.0	5.0	0.0
+Clerical Practice	100.0	0.0	0.0	0.0
Business Law	26.5	64.7	8.8	0.0
Consumer Economics	32.1	53.6	10.7	3.6

Question #3: If you could repeat your high school education, would you take more, less, or the same of the following?

Table 4
IF HIGH SCHOOL COURSES
COULD BE REPEATED

Subject	% of Grads More	Same	Less
Bookkeeping	81.8%	18.2%	0%
Typing	61.5	38.5	0
Secretarial Practice	82.8	14.1	3.1
Shorthand	61.6	33.7	4.7
General Business	78.2	18.2	3.6
Clerical Practice	81.8	13.6	4.6
Business Law	63.2	31.6	5.3
Consumer Economics	63.6	32.7	3.6

As can be seen from the above table, if the graduates had it all to do over, they would take more secretarial practice, bookkeeping, clerical practice, and general business. Very few reported that they would take less of any subject. Well over one-third felt they would take the same amount of typing, and one-third felt the same about consumer economics.

Question #4: What courses would you have taken if they had been offered at Green River High School?

Skill courses again are shown preference over basic business subjects. Seventy-one students said they would liked to have taken data processing had it been offered. Two-thirds of those surveyed would liked to have had more training in business machines than is presently offered. Interest in supervised office work experience is high (the small interest in distributive education possibly could be explained as unfamiliar terminology and lack of information about the subject).

Table 5
COURSES DESIRED IN HIGH SCHOOL

Desired Subjects	% of Grads
Data processing	70.3%
Business machines	66.3
Supervised office work experience	65.4
Human relations	58.4
Machine shorthand	52.5
Bookkeeping II	49.5
Business English	49.5
Business mathematics	40.6
Business management	33.7
Economics	31.7
Advertising	27.7
Retailing/Merchandising	23.8
Distributive education	18.8
Salesmanship	16.8

Question #5: What do you consider to be the strengths of your high school business department?

A summarization of the following remarks could be "good equipment and facilities and good teachers."

--good teaching staff and facilities
--good instruction
--teachers poorly selected
--good equipment and a variety of equipment
--Barbara Arnold
--variety of business equipment and good teachers
--the teachers
--teacher cooperation, up-to-date equipment
--way the courses are presented
--teachers
--good teachers, adequate equipment, and a variety of classes
--outstanding teachers
--variety of business courses offered
--new machines
--they help the student understand and put to use business practices in business and personal affairs
--new equipment, small classes
--qualified teachers and good supply of machines
--I noticed that at junior college many of my business classes were very easy because I knew much of what other students had not learned in high school
--very good instructors
--up-to-date equipment--interested teachers--variety of courses--good teachers--individual help
--excellent facilities and instructors

--the teachers
--good teachers
--the stress on punctuality, completion, and correctness of both classwork and outside assignments; the willing cooperation of outside help from teachers; the individuality of each person and the individual attention and counseling that each one receives
--good teachers
--really good and helps people get jobs
--well equipped--variety of machines
--quality of teachers and new equipment
--department excellent for size of the school
--actual usage of equipment provided and first-hand experience with the subject
--quality of teachers and facilities
--business machines
--the department is offering more and better opportunities to those who are interested
--good business machines; the business classes cover almost everything you are confronted with on the job
--good instructors, up-to-date programs, new books and machines
--the shorthand department was excellent--higher speeds seem to be obtained here than in intermediate shorthand in college. Also, the machines available were the most important ones for basic knowledge
--the equipment available--teachers efficient
--good secretarial practice teacher; good experience on machines available
--good teachers and very well equipped with materials and machinery
--basic introduction--it gave me an idea what business courses would be like in college as well as the basic tools needed in those courses
--Mr. Schlattman--the business law instructor

Question #6: Check any definite difficulties you have experienced through lack of such skills as:

Table 6
AREAS OF DIFFICULTY

Difficulty	% of Grads
Spelling	34.7%
Arithmetic	29.7
Penmanship	27.7
Speed and skill	20.8
Self-evaluation of work	17.8
Accuracy	16.8
English or grammar	12.9
Business ethics	12.9
Work habits	11.9
Punctuality	8.9

Con't on p. 14

AREAS OF DIFFICULTY, CON'T

Difficulty	% of Grads
Initiative	5.9
Cooperation	3.96
Interest	3.96
Neatness in work	.99
Good grooming	0.0

Recognizable weaknesses in personality traits, human relations, initiative, etc., were not apparent to graduates. Answers to this question make an interesting comparison with what was reported by employers. Other difficulties reported by graduates include meeting the public, human relations, ability to find a job, and typing numbers.

Question #7: How do you evaluate your overall business training received at Green River High School?

26.7%			44.6%		20.8%		5.9%		1.9%	
10	9	8	7	6	5	4	3	2	1	0
(Outstanding)			(Very Good)		(Good)		(Fair)		(Poor)	

The overall rating of business training received at Green River High School was very good.

Question #8: How do you evaluate your job entry training received at Green River High School?

21.8%			39.6%		26.7%		8.9%		2.9%	
10	9	8	7	6	5	4	3	2	1	0
(Outstanding)			(Very Good)		(Good)		(Fair)		(Poor)	

The overall evaluation of job entry business training received at Green River High School was very good.

Question #9: How effective was the vocational guidance you received in Green River High School?

14.9%			29.7%		23.8%		23.8%		7.9%	
10	9	8	7	6	5	4	3	2	1	0
(Outstanding)			(Very Good)		(Good)		(Fair)		(Poor)	

Forty-eight students rated the vocational guidance they received in high school as good or fair. Thirty rated it as very good.

Question #10: What have you done since graduating from high school? (Some have done more than one of the following)

65 have attended college for some length of time
92 have worked either full or part time
5 have been in the military service
47 are married

Question #11: If you worked, for whom did you work?

Much of the employment has been part time, with most of those surveyed having worked for several different employers for a short time. 33.6% have worked only part time or held a job for less than one year. The mobility of the students has been small, with all but approximately 15 students still living in Wyoming (with the majority still Southwestern Wyoming residents). Largest areas of employment have been clerical and waitress work. The largest single employer has been the tourist and restaurant center 20 miles west of Green River of Little America.

Table 7
AREAS OF EMPLOYMENT

Area	% of Grads
Office clerical	26.7%
Waitresses and maids	25.0
Secretarial	12.5
Selling	12.5
General labor	8.3
Receptionist	4.2
Machines operator	4.2
Beautician	3.3

Following is a breakdown of the employment:

Length of time	Position	Employer
one summer	bookkeeper	Service Automotive--Green River
6 months	ass't bookkeeper	Service Automotive--Green River
4 months	clerk in courthouse	Sweetwater County--Green River
9 months	car hop	A & W--Green River
2 years	waitress	Rock Springs
5 months	clerical	Tri-State Movers--Rock Springs
6 months	clerical	Adams Sales--Green River
3 years	office clerk	Little America
2 years	checker	Wm. Barker--Laramie
4 months	waitress	Little America
5 months	parts maker	UNIVAC--Salt Lake City
3 years	waitress	Little America
1 year	clerical	Adams and Courthouse--Green River
3 years	receptionist and secretary	Pacific Tel. & Tel.--California
summers	general laborer	Green River
2 years	secretary	H & J Supply--Green River
1 year	secretary	Nielsen CPA--Ogden
1 year	receptionist and clerical	Colorado Pipe Lines--Colorado
3 years	mechanic, painter, electric.	Green River and Washington
1 year	waitress	Green River
4 yrs. part time	waitress	Green River
1 yr. part time	librarian assistant	WWCC--Rock Springs
3 months	clerk	Little America
summers	clerk-typist	Adams Sales--Green River
8 months	waitress	Little America
2 years	telephone operator	Green River and Rock Springs
2 1/2 years	plumber, station attendant	Green River
3 1/2 yrs. part t.	store helper	Dell's Market--Green River
1 1/4 years	barber	Utah and Green River
3 months	sales clerk	Little America
3 months	receptionist and clerical	FMC--Green River
5 summers	waitress, maid, cashier	Green River
2 years	secretary	FMC--Green River
1 1/2 years	NCR operator	FMC--Green River
6 years	clerk-typist-cashier	Green River and California
1 year	clerk-steno	Washington, D.C.
1 1/2 years	desk clerk, bookkeeper	Coachman Inn--Green River
3 1/2 years	senior secretary	Reynolds Elec. & Engr.--Las Vegas
7 months	clerical	Little America
7 months	waitress-	Little America
2 1/2 years	key-punch operator	Southern Pacific--California
2 yrs. part time	clerical	WWCC--Rock Springs
2 yrs. part time	clerk	Rock Springs
5 years	waitress and clerk	Little America
10 months	post office clerk	Green River
1 year	grocery clerk	Dell's Market--Green River
1/2 year	clerical	Laramie
2 1/2 years	secretary	FMC--Green River

Length of time	Position	Employer
2 months	chamber maid	Jackson, Wyoming
6 months	service station attendant	Little America
1 1/3 year	waitress	Sugar Bowl--Green River
1 year	checker	Dell's Market--Green River
summers	concession manager	City of Green River
summers	sales clerk	Little America
3 years	waitress	Little America
1 year	secretary	U. S. Gov't--Yellowstone
1/2 year	clerical	Little America
1 year	maid and waitress	Little America and Rock Springs
2 years	cook	Little America
1 year	waitress	Rock Springs
1 year	waitress and clerk	Little America and Green River
1 1/2 years	secretary	Lexington, Massachusetts
6 months	clerk	Cheyenne
1 1/2 years	secretary	Cheyenne
summers	clerical	Utah
4 1/2 years	private secretary	FMC--Green River
6 months	receptionist	FMC--Green River
2 years	sales clerk	Tomahawk--Green River
2 years	payroll clerk	Sweetwater County--Green River
2 1/2 years	waitress, clerk	Little America
1 year	grocery clerk	Dell's Market--Green River
1 year	postal clerk	Post Office--Green River
1/2 year	clerical, receptionist	Univ. of Wyoming--Laramie
2 1/2 years	secretary	FMC--Green River
4 summers	waitress	Little America
4 years	secretary	Agric. Exten. Service--Rock Springs
1 year	secretary and draft typist	Reynolds Mining--Texas, Colorado
2 years	waitress	Little America
6 months	bookkeeper	Kemp's--Green River
6 months	cashier	Mustang Cafe--Green River
1 year	waitress	Little America
6 weeks	dishwasher	Little America
2 months	cleaning lady	GEM Mobile Homes--Rock Springs
1 year	waitress	Chef Cafe--Laramie
1 year	beautician	Roy, Utah
4 years	steno-clerk	UPRR--Green River, Cheyenne
4 months	clerk-typist	Little America
2 years	clerk-steno	Small Business Admin.--Casper
1 year	claims division clerk	Social Security Office--Casper
3 years	beautician	Rock Springs, Green River
summers	park and general labor	City of Green River
summers	checker, bookkeeper	Gosar's--Green River
4 months	clerk-typist	Little America
4 months	clerk-steno	Small Business Admin.--Casper
1 year	receptionist	Stauffer Chemical--Green River
7 months	clerical	Weber College--Ogden, Utah
3 years	secretary	Hill Air Force Base--Utah
5 months	Kordex operator	Baker Oil Tools--Texas
9 months	clerical	Continental Life & Accident--Idaho

Length of time	Position	Employer
1 year	secretary	Idaho First National Bank--Idaho
2 1/2 years	secretary	Idaho Statesman--Idaho
3 months	clerical	Electro Oceanics--California
1 month	clerical	High school office--Green River
6 months	clerical	Utah
6 months	Multigraph operator	Utah
1 year	waitress	Little America
1 1/2 years	cashier	Little America
5 months	waitress	Teton--Green River
1 1/2 years	cashier and waitress	Little America
summers	clerk and waitress	Green River
7 months	secretary	Gordon Wilson--Salt Lake
4 months	sales clerk	Little America
1 month	clerical	Outlaw Inn--Rock Springs
4 years	waitress	Little America & Green River
2 years	beautician	Green River--Rock Springs
summers	carpenter	UPRR--Green River
2 years	kitchen help	Little America
summers	construction and general labor	Green River

Question #12: Through what means did you obtain your first job?

The following figures indicate that the largest portion of students found their own jobs or found them with the help of relatives or friends. Only eight students indicated that teachers or the school guidance department had helped them obtain initial employment.

Table 8
HOW GRADS OBTAINED INITIAL JOBS

Means	% of Grads
Own initiative	30.7%
Parents or relatives	24.8
Employment office	9.9
Civil Service	6.9
Teacher's recommendation	6.9
Newspaper ad	4.95
College placement	2.97
High school counselor	1.98

Question #13: Which of the following machines have you operated on your job?

Nearly all of those surveyed have operated typewriters on the job with other most frequently operated machines being adding and duplicating machines. Only a small number reported working with automatic data processing equipment.

Table 9
MACHINES OPERATED ON THE JOB

Machine		% of Grads
Typewriter		93.1%
electric	54.5	
manual	38.6	
Adding machines		64.4
Mimeograph		34.7
Photograph		30.7
Calculator		24.8
Communication equipment		22.8
Posting machines		15.8
Transcribing machines		10.9
Spirit master (ditto)		10.9
Accounting machines		8.9
Card "key" punch machines		5.9
Verifier and sorter		4.95
Cash register		2.97
Computer		.99

Question #14: What schools or colleges have you attended?

Sixty-five of the 101 graduates started post-high school training, leaving 36 terminal students. Of these 65, seven have received a degree from a business college, ten have received an AA from a junior college, to date one individual has earned a BA from a four-year institution, and three have received a license from a beauty school. One person is still attending a business school, three are currently enrolled in a junior college, and 17 are still attending a four-year college.

Of the 65 who began post-high school training, 32 majored in some phase of business. Seven earned a certificate from a business school, and two received AA's in business. Two of those currently attending junior colleges have business majors as has one enrolled in a four-year institution. Addition of 23 college dropouts to the 36 terminal high school students gives a total of 59 students (3/5 of those surveyed) who have little or no training beyond high school.

Table 10
POST-HIGH SCHOOL TRAINING

BUSINESS COLLEGE	Started	Still Attending	Received Degree in Business	Degree Other than Business	Dropped Before Rec'ing Degree
	13	1	7	0	5
JUNIOR COLLEGE	17	3	2	8	4
(Ten of the 17 enrollees initially had business majors)					
FOUR-YEAR INSTITUTION	32	17	0	1	14
(Nine of the 32 enrollees initially had business majors)					
BEAUTY COLLEGE	3			3 (license)	

Following is a breakdown of post-high school training:

Schools attended	Major	Degree	
WWCC--Rock Springs	education	1 1/2 years	none
NWCC--Powell	business education	1 year	none
U. of Las Vegas	business education	3 yrs. night	none
MTI Business School	key punch	3 1/2 months	certificate

Schools attended	Major	Degree	
WWCC	business education	1 1/2 years	none
Parks Business School	computer programming	1 year	none
L.D.S. Business College	business	4 months	none
WWCC	business	1 1/2 years	none
BYU	social work	4 years	none
University of Wyoming	social work	4 years	none
University of Wyoming	business	1 year	none
BYU	elementary education	3 years	none
University of Wyoming	elementary education	4 years	BA
WWCC	home ec and business	2 years	AA
University of Wyoming	physical education	1 1/2 years	none
University of Wyoming	recreation	1 1/2 years	none
University of Wyoming	elementary Education	1 year	none
Utah Technical	business	1 quarter	none
WWCC and Univ. of Wyoming	zoology	3 years	AA
University of Wyoming	business education	1 year	none
Stevens-Henager	business	9 months	none
WWCC	business	1 year	none
WWCC	business education	2 years	none
WWCC	history	1 1/2 years	none
BYU and Stevens-Henager	education and business	1 year each	Private Secretarial
Colorado State	business education	3 1/2 years	none
WWCC	secretarial science	2 years	AA
WWCC	general	1 semester	none
WWCC	elementary education	2 years	AA
WWCC	elementary education	2 1/2 years	AA
WWCC and Univ. of Wyoming	elementary education	1 1/2 years	none
Weber State	general	1 quarter	none
Ricks	business admin.	1 year	none
BYU	accounting	1 year	none
WWCC and Univ. of Wyoming	elementary education	2 1/2 years	AA
Stevens Henager	business	1 quarter	none
WWCC	business	1 year	none
San Diego College	accounting	1 year	none
Links Business School	IBM secretarial	7 months	diploma
WWCC	business education	1 1/2 years	none
WWCC	languages	1 year	none
BYU	education	1 year	none
Links Business School	IBM secretarial	8 months	diploma
University of Wyoming	psychology	1 year	none
WWCC	sociology	2 years	AA
Links Business School	accounting, data process.	1 year	none
BYU, CSU	special education	3 1/2 years	none
WWCC	education	1 year	none
BYU	social work	4 1/2 years	none
Parks Business School	key punch	3 months	none
University of Wyoming	music	3 years	none
Mary's Beauty College	hairdressing	1 year	license
WWCC	special education	2 years	AA
Ex-Cel-Cis Beauty School	hairdressing	1 year	license
WWCC, Univ. of Wyoming	education	2 1/2 years	AA

Schools attended	Major	Degree	
University of Wyoming	education, sec. sci.	2 years	none
University of Wyoming	education	2 1/2 years	none
University of Wyoming	education	1 year	none
WWCC	languages	1 year	none
Boise Secretarial Center	secretarial	5 months	none
WWCC	art and history	1 1/2 years	none
Ricks Business College	business	1 semester	none
University of Wyoming	special education	1 year	none
Stevens-Henager	business management	2 years	Comm. Science
Casper College	education	2 years	none
University of Wyoming	speech pathology	3 1/2 years	none
WWCC	business	1 year	none
Mary's Beauty College	hairdressing	1 year	license
Casper College and U. of Wyo.	business admin.	3 years	none
University of Wyoming	education	3 years	none

Question #15: Did the training you received in typewriting in high school help you in your classwork?

Question #16: Did the training you received in shorthand in high school help you in any of your classwork?

Question #17: Did the training you received in bookkeeping in high school help you in any way in your classwork?

Answers to foregoing Questions 15 and 16 were obviously "yes," with an equal amount of "yes" and "no" answers for bookkeeping. It was reported that typewriting helped them in their studies more than any other business course.

Question #18: Have you worked part-time while attending school?

Twenty-five graduates reported that they had worked part-time while attending post-high school training; 40 did not work. Only four of those employed reported using their high school shorthand to any extent; 13 used their typing and five used their bookkeeping on the job.

Question #19: Have you taken any more courses in shorthand, typing, or bookkeeping (accounting)?

Twenty-four enrolled in additional courses in shorthand, 25 in additional typing classes, and 17 in accounting. Other courses taken in post-high school institutions are listed below according to the frequency of enrollment:

Table 11
POST-HIGH SCHOOL COURSES
(Listed by frequency of enrollment)

Business machines
Filing
Business math
Business English
Economics
Marketing and Management
Data Processing
Accounting

Comments:

--I think that the business department at GRHS is very good. I have heard nothing but good comments from students and adults. I only wish it were offered to people like me who would like to keep their skills sharp and up to date.
--I definitely feel it would help students if they got opportunities to work in offices so they could be doing "the real thing" and feel the actual pressure.
--The high school courses just open the doors to further education. It makes one see what opportunities there can be.
--Data processing would be helpful to students of all categories.
--The teachers were very interested in our learning and kept pushing us on. The business equipment was excellent--especially for a high school. Secretarial practice is an excellent class, as it introduces many different phases of business education.
--I feel the personal feelings involved in the classroom with the teacher helped me a great deal in the kind of work I turned out. The school offered me a very good program in business. My training in typing and shorthand helped me a great deal in college and typing term papers and taking notes in class.
--When I went to business college, all my courses were a repeat of high school.
--If the department continues to grant each individual student who needs encouragement the special and unselfish attention that teachers have given in the past, it could continue to be and prove to be one of the strongest links in favor of GRHS. I know that, on my behalf, the individual encouragement and help that I received led me to better myself and to believe in myself. Without that individual help and attention and encouragement, I may not have driven myself to college and the civil service.
--Need distributive education.
--The business courses I took in high school gave me the foundation, then business school just improved on these skills.
--I wish I had taken more business courses because I have found a lack of shorthand and bookkeeping has made finding a job other than that of a waitress difficult.
--If I'd known I wouldn't finish college, I would have taken more business and less math and science in high school.

--Business "--------" when I was in high school, and I'm glad to see you and your department are taking an interest in improving it.

--Secretarial practice and clerical practice would have been extremely helpful had they been offered earlier. I feel a work-study program of some kind would help business education students use their technical knowledge in actual office practice.

--I received absolutely no vocational guidance (or guidance of any kind for that matter) while in high school. I chose to attend the University of Wyoming and become a secretary without his "guidance." He did nothing to guide me other than "recite" the scores I had received on various aptitude tests, I.Q. tests, etc., that I had taken. I believe a guidance counselor should be one of the student's most influential advisors or guides with whom he comes in contact during his pre-college education. I certainly hope this situation has changed since I attended Green River High School.

SECTION B--FINDINGS: SURVEY OF GREEN RIVER OFFICES

In order to learn information as to the different occupations in the community, requirements for employees, types of equipment being used, business standards, the feasibility of cooperative work experience programs, and deficiencies and strengths of employees, a two-page questionnaire (see appendix) was sent to 30 business and governmental offices in Green River who employ at least two persons in a secretarial, clerical, or bookkeeping capacity. Twenty-eight of the forms were returned. Information gained from the questionnaires is as follows:

Question #1: Indicate by number the positions in your office, which if they were vacant, would be filled by students completing the high school business education course:

The largest number of initial positions for office workers in the Green River area are clerical in nature. Shorthand skill is needed for at least 30% of the jobs. Approximately 15% of the 47 jobs which would be available to graduates are for bookkeepers.

Table 12
POSITIONS IN OFFICES
WHICH COULD BE FILLED BY
HIGH SCHOOL BUSINESS GRADS

Position	Employees
Clerical	23
Stenographic	14
Bookkeeping	7
Selling	3
	47

Question #2: Approximately how many graduates of the business education department do you employ over a five-year period?

Employers surveyed indicated that over a five-year period they hired around 25 Green River High School graduates to work in their offices as

clerks, secretaries, and bookkeepers. This figure can be compared with a five-year total of approximately 150 business graduates. Green River offices are employing about 14.3% of these graduates.

Question #3: List the deficiencies most prevalent in the high school graduates that you employ in your office:

General

When asked to list the most noticeable general deficiencies in workers, 25% of the employers rated lack of initiative as the quality most frequently wanting; 16% said workers failed to use common sense on the job. Looking at the bottom part of the list, 8% of the employers listed failure to follow directions and poor attendance as the deficiencies. In comparison, graduates on their survey recognized almost no deficiencies whatsoever in these areas.

Table 13
GENERAL DEFICIENCIES OF OFFICE WORKERS
(Rated according to prevalence)

1. Lack of initiative
2. Failure to use common sense on the job
3. Tendency to waste time on the job
4. Indifference
5. Lack of willingness to do little "extras"
6. Lack of pride in work and in seeing the job to completion
7. Tardiness
8. Failure to follow directions
9. Poor attendance

Other comments:
--lack comprehension of employment duties and skills
--we have tried numerous GRHS graduates--all of which were unsatisfactory
--four out of five of the last girls we have employed have lacked greatly in maturity and in accepting the business atmosphere (a major Green River employer)

Skill Deficiencies

Thirty-two percent of those surveyed said the most prevailing skill deficiency in their employees was lack of accuracy. Twenty-four percent indi-

cated that inability to spell was a major weakness along with insufficient shorthand speed. However, only 8% listed typing speed as a deficiency, and only 4% mentioned poor organization of work and poor punctuation.

Table 14
SKILL DEFICIENCIES OF OFFICE WORKERS
(Rated according to prevalence)

1. Failure to check work for accuracy
2. Inability to spell
3. Insufficient speed in taking dictation
4. Illegible handwriting
5. Inability to type with speed
6. Inability to answer the telephone correctly
7. Poor organization of work
8. Poor punctuation

Other comments:
--inability to set up typing material
--they have the skills but don't know how to use them
--they are generally okay after a training period

Question #4: What are the strengths of the high school graduates you employ in your office?

Employers indicated strong points in workers as follows. Many did not bother to write an answer to this question. These are random answers in no special order.

Table 15
STRENGTHS OF OFFICE WORKERS
(Random order)

1. Business math and good grooming
2. Reliable, they do accurate work--are enthusiastic
3. Capable--prompt--reliable
4. Filing skill
5. Hard workers
6. Technical skill
7. Congeniality, adaptability, efficient

Question #5: What recommendations can you make for the high school to improve its business education course?

Table 16
RECOMMENDATIONS FOR IMPROVEMENT
OF GRHS BUSINESS DEPARTMENT

1. Haven't had enough experience with it
2. Presently I do not know its strengths or weaknesses
3. Teach them to THINK--teach them to work without supervision
4. Teach them to do a complete job on the job--don't just teach mechanics
5. Emphasize spelling and filing and neatness in steno work
6. More emphasis on spelling, handwriting, accuracy, neatness, and pride in finished job
7. Teach them to have more common business sense (basic selling knowledge, etc.)
8. Give them an understanding of economics
9. Possibly a distributive education program would be feasible in Green River

The cross-section of answers to this question shown in Table 16 point out the need for a cooperative, working relationship between employers and the business department. They also argue for broad, general training with emphasis on problem solving, original thinking, common sense, and a proper attitude toward work. One employer suggested the feasibility of a cooperative work experience program, but ironically he indicated that he would not be in favor of his business being used for a work station.

Question #6: What machines are used by employees in your office?

Typewriters, adding machines, and copying and duplicating equipment compose a group of most frequently used machines in Green River offices. Data processing equipment as such is used in a minority of local offices--probably due to their size. The following list points out that the day of the carbon copy is over with the takeover of photographic equipment.

Table 17
MACHINES IN
GREEN RIVER OFFICES

Machines		% of Offices Using
Typewriters		100.0%
electric	47.6%	
manual	52.4%	
Adding machines		74.0
Photographic		50.0
Calculators		36.0
Accounting machines		20.0
Communication equipment		16.0
Mimeographic		12.0
Posting machines		12.0
Transcribing machines		12.0
Cash register		4.0
Data processing equipment		4.0
High speed printer (EDP)		4.0
Offset		4.0

Question #7: What is your most frequent source of obtaining new office employees?

Table 18
SOURCES OF SECURING WORKERS

Source	% of Businesses
Personal applications	59.3%
Contact school personnel	18.5
Employment office	11.1
Newspaper ads	11.1

Most new workers are obtained through personal applications. School personnel are infrequently contacted as to an applicant's qualifications. Few businesses use the services of want ads or employment agencies.

Question #8: Would you be willing to participate in a cooperative office education program by letting a high school secretarial practice student train in your office part time?

The following table indicates that there is interest in such a cooperative program and that enough training stations are available to initiate this program immediately.

Table 19
POSSIBILITIES OF WORK STATIONS
FOR COOPERATIVE OFFICE EDUCATION

Business	Degree of Cooperation		
	Yes	Possibly	No
Adams Sales	x		
Dell's Market	x		
Bell Telephone	(no commitment)		
State Farm Insurance	x		
Dean Clark, Attorney			x
Cable Television	x		
City Hall	x		
Courthouse (3 offices)	x		
Green River Star		x	
H & J Supply		x	
L. Marty, Attorney			x
Mountain Fuel		x	
L. Nebeker, Attorney	x		
Pacific Power & Light		x	
Roosevelt School	x		
Junior High School	x		
UP Railroad		x	
Park Service			x
Wyoming Game & Fish			x
High School Office	x		
Terry-Brooks Agency			x
Doctors' Offices		x	
Nelson Engineering		x	
State Bank		x	
First National Bank	x		
FMC Corporation		(probably)-----	x
Allied Chemical			x
Texas Gulf Sulphur	x		
Stauffer Chemical		x	
Mr. D's Grocery		x	

Question #9: Would you be willing to serve on a high school business education advisory committee?

The following (12) businessmen and employees have agreed to serve on an advisory committee:

Table 20
BUSINESS PEOPLE WHO WILL SERVE
ON AN ADVISORY COMMITTEE

Clark, D. W.
Emerson, Eugene
Heagney, Emory
Hill, Glenn
Masterson, Jack
Morck, Arnold
Nebeker, Lee
Roth, Vera
Smith, Norma Jean
Wallace, Grant
Williamson, Reo
Zrolhovki, Edward

SUMMARY OF SURVEYS

1. Business courses with the highest enrollments in Green River High School have been Typewriting I, Shorthand I, and bookkeeping.

2. Students have been taking business courses to prepare for jobs and for personal use.

3. Secretarial practice, clerical practice, and Typewriting I were rated as the most useful courses.

4. Students are unaware of intangibles gained in basic business courses and consider them only partially useful.

5. Business graduates would have liked to have had an opportunity to enroll in data processing, business machines, supervised office work experience, and human relations while still in high school.

6. The strengths of the Green River High School business department lie in good equipment and facilities and in good teachers.

7. Graduates recognize weaknesses in spelling, arithmetic, speed and skill; but they seem unaware of any deficiencies in personality traits, human relations, and initiative.

8. The rating of the overall business and job entry training received at Green River High School was very good, with the rating of vocational guidance at good to fair.

9. Nearly all of the graduates surveyed (92) have worked. Their mobility has been almost nil, and most were employed as clerical workers or as waitresses. Most of the jobs have been held just for temporary periods.

10. Sixty-five of the 101 graduates surveyed began college; however, 23 have dropped out leaving a total of 59 students with little or no post-high school occupational training. Nearly half of the students who began post-high school training enrolled in some phase of business.

11. Businesses indicated some 47 positions which, if they were vacant, could be filled by students completing the high school business education course.

12. Businesses in the immediate Green River area have employed only 25 graduates of Green River High School in the last five years out of a total of approximately 150.

13. Lack of initiative, failure to use common sense on the job, tendency to waste time, failure to check work for accuracy, inability to spell, and insufficient speed in taking dictation were indicated as the most prevalent deficiencies of high school graduates employed in local offices.

14. Businessmen indicated a lack of knowledge about the high school business program. They also argued for broad, general business training with emphasis on problem solving, original thinking, common sense, and proper attitude toward work.

15. Typewriters, adding machines, and copying and duplicating equipment compose the group of most frequently used machines in Green River offices.

16. Most local office workers are obtained through personal applications.

17. The foundations for a cooperative office work experience program in Green River High School are being built.

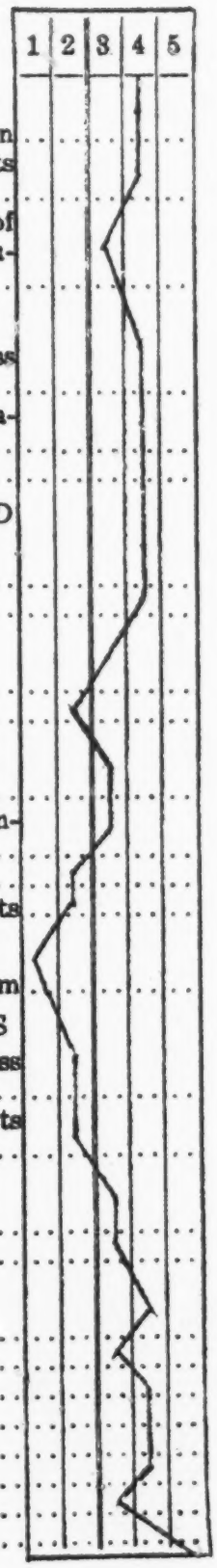
SECTION C: APPLICATION OF A CRITERION INSTRUMENT

The criterion instrument evaluative procedure, "An Evaluation Plan for Business Education Programs in High Schools" by Eugene Wyllie, covered nine sections (see Profile Sheet on next page) each of which had subsections. Each subsection was introduced by a criterion which was a comprehensive general statement of the optimum practice of a standard by which conditions, practices, and characteristics of the business education program were to be judged. Following each criterion was a series of check-list items which were specific statements of optimum conditions, practices, and characteristics relating to the comprehensive general criterion. A check-list rating scale (good, so so, weak, void, bad) was provided for rating each item in the subsections.

After the items were rated by the specific evaluation rating scale, the check-list items provided a basis for assigning a rating in the general evaluation statement at the end of each subsection. After a value of one to five was assigned to the general evaluation statement, the statement reflected the degree or extent to which the criterion exists in the Green River High School business department.

After the three business teachers arrived at a departmental evaluation for each subsection, the total department evaluation was plotted. This profile presents in graphic form a summary of all evaluations made for all 27 subsections. From the subsection ratings and the line graph, one can see wherein the weaknesses of the program lie. Ratings of one and two (to the left of the double vertical lines on the profile sheet) are actually negative ratings indicating considerable improvement is needed. A rating of three indicates average attainment of the criterion, and a rating of five indicates full attainment of the criterion.

DEPARTMENTAL PROFILE



I. CURRICULUM
- A. Program Provides for Dual Purpose of Business Education
- B. Department Provides for Continuous Evaluation of Its Program
- C. Departmental Administration Enables the Attainment of the Philosophy, Objectives, and Purposes of Business Education

II. INSTRUCTIONAL CONTENT
- A. Common Core Learnings in both Aspects of the Business Program
- B. Core Learnings — General Business and Economic Education
- C. Core Learnings — Vocational Business Education

III. INSTRUCTIONAL ACTIVITIES, METHODS, AND PROCEDURES
- A. Geared to Maturity and Ability Levels of the Students
- B. Evaluation Procedures

IV. INSTRUCTIONAL MATERIALS
- A. Extent and Variety
- B. Procedures for Selection and Evaluation

V. GUIDANCE
- A. Guidance — A Responsibility of the Business Staff
- B. Availability and Use of Occupational and Educational Information
- C. Accessibility and Use of Student Personnel Records
- D. Cooperation Between Business and Guidance Departments

VI. EXTRACLASS ACTIVITIES
- A. Supplements and Complements the Instructional Program

VII. HOME, BUSINESS, AND COMMUNITY RELATIONS
- A. Cooperation Between Business Department and Business Community
- B. Relationship Between Business Department and Students and Parents

VIII. PHYSICAL FACILITIES AND EQUIPMENT
- A. Extent and Quality of Physical Facilities
- B. Quantity and Quality of Equipment

IX. STAFF
- A. Personal Qualifications
- B. Work Experience
- C. Professional Qualifications
- D. Participation in School and Community Activities
- E. Professional Growth and Development
- F. Qualifications of a Master Teacher
- G. Department Chairman — Leadership Responsibilities
- H. Department Chairman — Service to Department

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Analysis of Profile Sheet

Strong points of the Green River High School business department as shown on the preceding Departmental Profile include: The program provides for the dual purposes of business education--(1) general education for all youth and (2) vocational preparation for business jobs and careers. Instructional materials, methods, and procedures are adaptable to the students (i.e., students of all levels of ability) available to take business courses. A wide variety of instructional materials are maintained and used by teachers and students, and occupational and career guidance of students is participated in actively by business teachers. Good equipment and adequate facilities are major strengths of the department, although these must be constantly up dated and added to. Finally, the staff has the necessary personal and professional qualifications to enable them to be effective teachers and citizens.

The Profile shows weaknesses in the area of guidance as far as student personnel records and continuous supplementation and complementation with the central guidance office in the high school. An individual budget is needed and a more carefully planned procedure for the selection and evaluation of instructional materials has to be incorporated. A coordinated program of extra-class activities in conjunction with the instructional program is woefully lacking. Although there is "somewhat" of a cooperative working relationship with representatives of the local business community, much closer contact is needed with local employers, employees, and even parents. Needless to say, the sizeable number of subsections marked "average" need to be studied carefully and improved upon.

SECTION D: ESTABLISHMENT OF A CURRICULUM COMMITTEE

A business education curriculum committee consisting of three full-time Green River High School business teachers (Arnold, Johnson, Wagner) was set up with the high school principal (Rich) and the high school guidance counselor (Rawlings) as ex-officio members.

The committee met informally during the 1969-70 school year, discussing pertinent local issues including curriculum change, grading, equipment purchasing, correlation of the Green River business program with that of Western Wyoming Community College, cooperative education, audio-visual materials, public relations, job placement of students, and Federal legislation concerning vocational education in Green River High School. Several times all immediate problems were set aside, and a meeting was devoted to such things as review and study of relative professional literature, changing conditions in the business world, current research, and new methods, ideas and techniques. A new curriculum offering, "Business Techniques," covering human relations, business math, business machines, and business English is one outcome of the work of this committee.

Much cooperation, goodwill, and improvement initiation came from these meetings this first year. Members of the committee felt involved personally in the planning of goals and in initiating policies with the results being receptivity and acceptance. With this initial foundation firmly established, the curriculum committee will be the "core" of this continuous evaluation and improvement procedure--for here in regularly scheduled meetings is where the data you are reading in this report will continue to be studied, discussed, interpreted, correlated, and synthesized in terms of an optimum business education program.

ESTABLISHMENT OF AN ADVISORY BOARD

The "core" of any successful high school business education program is an active advisory committee chosen from knowledgeable and interested employers and employees from the immediate business community.

A ten-person advisory board selected by Green River High School officials from a list of businesmen and workers who indicated on a survey that they would serve on such a committee will begin functioning in September, 1970. The board will meet at regular intervals with the curriculum committee and high school authorities and will assist in determining the strengths as well as the weaknesses of the business program in terms of the needs of the business world. Confrontations with the advisory board will assist in developing curriculum, setting desirable standards of achievement, setting up cooperative programs, purchasing equipment, promoting public relations, and providing means for guidance. More specific assistance expected from the board includes:

1. Assisting the school in organizing its business education curriculum.
2. Helping with the development of new courses and the revision of others.
3. Establishing standards for performance in courses.
4. Acquainting the school and teachers with current practices and developments in the business world.
5. Aiding in the planning of facilities and the acquiring of necessary community support in financing the same.
6. Assisting in the selection of equipment.
7. Helping sell the community on cooperative work experience programs.
8. Acting as program coordinators to generally guide training so as to best fit current needs of the community's business and industry.
9. Aiding in job placement of high school students.
10. Volunteering facilities and staff for field trips and lectures and work experience programs.
11. Aiding in the establishment of guidelines for selection of materials for reference and audio visual resources.
12. Assisting in establishing scholarships and funds for graduates.

This advisory board will reprimand a lot of the weaknesses which have been pointed out in other areas of this evaluation, especially the link with the business community. Business faculty members from Green River High School are serving on advisory boards connected with Western Wyoming Junior College in Rock Springs with businessmen, laymen, and teachers and should gain valuable experience and assistance from this work.

CONCLUSIONS AND RECOMMENDATIONS

1. A cooperative work experience program--either in office education or distributive education--should be started immediately for on-the-job training.

2. A trained coordinator to initiate and supervise a work-experience program should be hired by the school district.

3. An FBLA Chapter should be organized starting in September of the next school year.

4. More room for expansion of typing classes and business machines classes is badly needed. Addition of more machines is at a standstill because of crowded conditions.

5. The business teachers should become more involved in the school testing and counseling programs by volunteering their assistance to school guidance personnel.

6. More information pertaining to scholastic aptitude, occupational and interest inventories, and general achievement of business students; diagnosis of learning difficulties or personal problems and personal interests, likes and dislikes, abilities and capabilities should be sought from the central guidance office and utilized in more careful guidance of students.

7. General business should be moved to the ninth grade level, and a more advanced basic business course such as retailing, salesmanship, or economics should be offered in its place.

8. More students successfully completing Typewriting I and Shorthand I should be guided into advanced work in secretarial and office practice.

9. Basic business courses of business law and consumer economics must be streamlined and promoted so the objective of a broad basic business background for students can be met.

10. The new business techniques class covering human relations, business English, business math, and business machines must be carefully implemented to cover some of the weaker areas in the business curriculum.

11. Shorthand I classes should have accessibility to typewriters, as they are terminal courses for many students.

12. At least one semester of typewriting should be required of every student in high school.

13. More cooperation and coordination with Western Wyoming Community College is in order to give students the data processing classes that they indicate they would like to take. Also other cooperative programs between Rock Springs High School, Green River High School, and Western Wyoming Community College should be studied carefully.

14. More emphasis should be on teaching students how to work rather than on just teaching skills.

15. Enrollment trends in the business subjects, employment trends in the area, and educational opportunities available to business graduates should be made known to students.

16. Additional supplementary instructional materials such as films, filmstrips, tapes, teaching units prepared by governmental agencies and business firms, reference books, etc., need to be obtained, organized, and filed.

17. Student personnel records covering such things as skills, speeds, grades, test scores, attendance and punctuality, and work experience should be maintained in business department files.

18. Appropriate public relations through a planned, continuous information program to the public through news releases, radio and television, bulletins, pamphlets, etc., should be carried out to publicize business department objectives, goals, activities and accomplishments of students pursuing business studies.

19. Students working in the main school office should be under the supervision of a business teacher.

20. The business teachers must become thoroughly acquainted with local businessmen and their problems, for the community should be a key factor in the development of any program.

21. More boys should be guided into taking business courses.

22. More transcribing machines and shorthand machines should be purchased or rented by the school.

23. Plans for a full-year machines class should be drawn up to be implemented as soon as the space is available.

The staff members can improve a great many of the above areas without extra financial assistance or addition of personnel. Most of these steps of improvement can be initiated in the upcoming school year. The Green River Curriculum Committee headed by Barbara Arnold will be responsible for carrying out the phases of improvement.

APPENDIX

FOLLOW-UP STUDY OF
BUSINESS EDUCATION
GRADUATES OF GREEN RIVER HIGH SCHOOL

INSTRUCTIONS: This questionnaire is divided into five sections of questions. Answer all questions in the sections that pertain to you.

I. GENERAL QUESTIONS TO BE ANSWERED BY ALL GRADUATES:

Name_____
(last) (first) (maiden)

Current Mailing Address: _____

Current Status: Employed _____ Military Service_____
Attending College _____ Housewife_____ Other (Please list)_____

Year Graduated from High School: 1964_____ 1965_____ 1966_____ 1967_____ 1968_____

Check the business courses you took at GRHS: Shorthand I _____ Shorthand II_____
Typewriting I_____ Typewriting II _____ Bookkeeping_____ General Business_____
Clerical Practice_____ Business Law_____ Secretarial Practice_____ Consumer Education ____

1. Why did you take business courses while in high school? (Please check one or more)
Parents asked me to_____ Wanted to prepare for a job_____ Challenging courses_____
Liked the teachers _____ Personal use_____ Friends took the classes_____
Easy courses_____ Counselor recommended_____ Other reasons (list)_____

_____

2. How useful have the skills and knowledge acquired in the following high school business courses been for you? Check one column for each subject you took.

Subject	Very Useful	Of Some Use	Of Little Use	Of No Use
Shorthand I----------	_____	_____	_____	_____
Shorthand II----------	_____	_____	_____	_____
Typewriting I----------	_____	_____	_____	_____
Typewriting II----------	_____	_____	_____	_____
General Business----------	_____	_____	_____	_____
Bookkeeping----------	_____	_____	_____	_____
Secretarial Practice------	_____	_____	_____	_____
Clerical Practice---------	_____	_____	_____	_____
Business Law----------	_____	_____	_____	_____
Consumer Economics--------	_____	_____	_____	_____

3. If you could repeat your high school education, would you take more, less, or the same of the following?

Subject	More	Less	Same
Typewriting---------	____	____	____
General Business----	____	____	____
Shorthand----------	____	____	____
Bookkeeping---------	____	____	____
Secretarial Prac.---	____	____	____
Clerical Prac.------	____	____	____
Cons. Economics-----	____	____	____
Business Law--------	____	____	____

4. Please check the courses you would have taken if they had been offered at GRHS.

Bookkeeping II---------- _____
Economics---------- _____
Business English---------- _____
Business Mathematics---------- _____
Machine Shorthand---------- _____
Business Machines---------- _____
Distributive Education---------- _____
Retailing/Merchandising---------- _____
Data Processing---------- _____
Advertising---------- _____
Human Relations---------- _____
Business Management---------- _____
Salesmanship---------- _____
Supervised Office Work Experience--- _____
Others (Please list)_____

5. What do you consider to be the strengths of your high school business department?

_____

_____

_____

6. Check any definite <u>difficulties</u> you have experienced through lack of such skills as:

Accuracy----------	_____	Penmanship----------	_____
Arithmetic----------	_____	Punctuality----------	_____
Business Ethics----------	_____	Self-evaluations of Work--------	_____
Cooperation----------	_____	Speed and Skill----------	_____
English or Grammar---------	_____	Spelling----------	_____
Good Grooming----------	_____	Work Habits----------	_____
Initiative----------	_____	Others:_____	
Interest----------	_____	_____	
Neatness in Work----------	_____	_____	

7. How do you evaluate your overall business training received at GRHS?
(Please place an X on the scale.) _____

10 9 8 7 6 5 4 3 2 1 0
(Outstanding) (Very Good) (Good) (Fair) (Poor)

8. How do you evaluate your job-entry business training received at GRHS?
(Please place an X on the scale.) _____

10 9 8 7 6 5 4 3 2 1 0
(Outstanding) (Very Good) (Good) (Fair) (Poor)

9. How effective was the vocational guidance you received in high school?
(Please place an X on the scale.) _____

10 9 8 7 6 5 4 3 2 1 0
(Outstanding) (Very Good) (Good) (Fair) (Poor)

10. What have you done since graduating from high school?

Attended College _____ How long?_____ Where?_____
Worked_____ How long?_____
Military Service_____ How long?_____ Where?_____
Married_____ How long?_____

II. ANSWER IF YOU HAVE WORKED:

11. For whom did you work?

First Employer_____ Address_____
Length of Time Employed_____
Job Title_____
Second Employer_____ Address_____
Length of Time Employed_____
Job Title_____
Third Employer_____ Address_____
Length of Time Employed_____
Job Title_____
Other Jobs_____ Address
Length of Time Employed_____
Job Title_____

12. Through what means did you obtain your first job?
Help of high school counselor_____ Principal's recommendation_____ Employment Office_____
Teachers' recommendation_____ Parents or relatives_____ Newspaper advertisement_____
Civil Service_____ Others (Please list)_____

13. Which of the following office machines have you operated on your job? Typewriter:
Electric_____, Manual_____, Adding Machine_____, Calculators_____, Duplicating Machines:
Mimeograph_____, Spirit Master_____, Photographic_____, Data Processing Equipment:
Card ("Key") Punch Machines_____, Verifier and Sorter Machines_____, Computers_____,
Accounting Machines_____, Posting Machines_____, Transcribing Machines_____,
Communication Equipment_____, Others (Please list)_____
_____

III. ANSWER IF YOU HAVE ATTENDED OR ARE ATTENDING COLLEGE OR A BUSINESS OR TRADE SCHOOL:

14. What college or schools have you attended?_____
Major_____ Minor_____
How long attended?_____ Degree or certificate received?_____

15. Did the training you received in typewriting in high school help you in your classwork?
Yes_____ No_____ Was this training adequate? Yes_____ No_____

16. Did the training you received in shorthand in high school help you in any way in your classwork? Yes_____ No_____ Was this training adequate? Yes_____ No_____

17. Did the training you received in bookkeeping in high school help you in any way in your classwork? Yes_____ No_____ Was this training adequate? Yes_____ No_____

18. Have you worked part-time while attending school? Yes_____ No_____ If so, did you use your shorthand? Yes_____ No_____; your typing? Yes_____ No_____; your bookkeeping? Yes_____ No_____

19. Have you taken any more courses in shorthand? Yes_____ No_____;in typewriting? Yes_____ No_____; in bookkeeping (accounting)? Yes_____ No_____; Other business courses taken
_____

IV. ANSWER IF YOU WERE OR ARE IN THE MILITARY SERVICE:

20. Have you used your business training in any way? Yes_____ No_____ If so, how?_____
_____

V. ANSWER IF YOU HAVE NOT WORKED, ATTENDED COLLEGE, OR SERVED IN THE MILITARY SERVICE:

21. Have you used your business training in any way? Yes_____ No_____ If so, how?_____
_____

COMMENTS (Use back if necessary)_____
_____
_____
_____

SURVEY OF GREEN RIVER BUSINESS OFFICES
Business Education Department
Green River High School

Firm Name_____
Address_____
Completed By_____Title_____

1. Indicate by number the positions in your office, which if they were vacant would be filled by students completing the high school business education course:_____a. Bookkeeping _____b. Clerical
_____c. Selling _____d. Stenographic

2. Approximately how many graduates of the business education department do you employ over a five-year period?_____

3. Below are listed deficiencies found in office employees. Please check those you find most prevalent in the high school graduates that you employ in your office:

General

_____a. Failure to follow directions
_____b. Failure to use common sense on the job
_____c. Inability to manage personal affairs efficiently
_____d. Indifference
_____e. Lack of Initiative
_____f. Lack of pride in work and in seeing the job to completion
_____g. Lack of willingness to do "little extras"
_____h. Poor attendance
_____i. Poor grooming
_____j. Tardiness
_____k. Tendency to waste time
_____l. Others:_____

Skills

_____a. Failure to check work for accuracy
_____b. Illegible handwriting
_____c. Inability to answer the telephone correctly
_____e. Inability to spell
_____f. Inability to type with speed
_____g. Insufficient knowledge of arithmetic
_____h. Insufficient knowledge of filing
_____i. Insufficient knowledge of bookkeeping
_____j. Insufficient skill in using duplicators and copying machines
_____k. Insufficient skill in using adding machines and calculators
_____l. Insufficient speed in taking dictation
_____m. Poor organization of work
_____n. Poor punctuation
_____o. Others:_____

OFFICE SURVEY--2

4. What are the strengths of the high school graduates you employ in your office?_____

5. What recommendations can you make for the high school to improve its business education course?_____

6. Please check the machines used in your office: Typewriter: Electric____, Manual____; Adding Machine____; Calculators____; Duplicating Machines: Mimeograph____, Spirit Master____, Photographic____; Data Processing Equipment: Card ("Key") Punch Machines____, Verifier and Sorter Machines____, Computers____; Accounting Machines____; Posting Machines____; Transcribing Machines____; Communication Equipment____; Others (Please list)_____

7. Please check your most frequently used source of securing new office employees: Newspaper Ads____, Employment Office____, Contact School Personnel____, From Personal Applications____, Other_____

8. Would you be willing to participate in a cooperative office education program by letting a high school secretarial practice student train in your office part time?_____

9. Would you be willing to serve on a high school business education advisory committee? Yes____ No____

THANK YOU.

ATTACHMENT #1

Budget Worksheet: Guide for Research Activities

Investigator Barbara Arnold
Institution or Agency Green River High School

Duration of Proposed Activity 12 months
Beginning Date 11-1-68 : Ending Date 11-1-69

Category		State	Local
A. DIRECT COSTS			
1. Personnel	Principal Investigator 150 hrs @ $3 hr.	$450	$
	Ass't Investigators (2) 50 hrs ea. @ $3 hr.	300	
	Consultant 8 hrs @ $10 hr.	80	
11. Employee Benefits (Social Security, retirement, etc. @ 8%)		66.40	
111. Travel (travel to Laramie to see consultant, 13¢ a mi. plus $13 a day)		65	
1V. Supplies and Materials			
a. Office Supplies		50	50
V. Communications		20	20
Vl. Services			
a. Duplicating and Reproduction		50	50
b. Testing (criterion test)			
Vll. Final Report Costs (25 copies)			25
Vlll. Other Direct Costs (postage)			25
1X. Subtotal, Direct Costs		$1,081.40	$170.00
B. INDIRECT COSTS (administrative costs to Green River High School)			800.00
C. TOTAL COSTS		$1,081.40	$970.00

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VT 012 363
Apprenticeship Coordinators.

Manpower Administration (DOL), Washington, D.C. Bureau of Apprenticeship and Training.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 28p.

DESCRIPTORS - *APPRENTICESHIPS; *FEDERAL PROGRAMS; *PROGRAM IMPROVEMENT; *COORDINATORS; PROGRAM ADMINISTRATION; ADMINISTRATOR RESPONSIBILITY; COST EFFECTIVENESS
IDENTIFIERS - JOINT APPRENTICESHIP AND TRAINING COMMITTEE

ABSTRACT - Using training trust funds established by the industries and unions participating in a new apprenticeship program, apprenticeship coordinators are hired to aid the newly-formed Joint Apprenticeship and Training Committee in conducting apprenticeship and other training programs. This pamphlet, which is intended for program administrators, describes the advantages and obligations involved in employing a coordinator. By screening applicants, maintaining records, and consulting with employers, the coordinator can contribute greatly to program efficiency and effectiveness. (BH)

VT 012 363

ED0 57254

(C1)

APPRENTICESHIP COORDINATORS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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U.S. DEPARTMENT OF LABOR
MANPOWER ADMINISTRATION

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This pamphlet, directed to Joint Apprenticeship and Training Committees and other sponsors of apprenticeship and training programs, points out the advantages and obligations of employing an Apprenticeship Coordinator. The coordinator, acting in a staff capacity, can improve the efficiency and effectiveness of the training program. Apprenticeship Coordinator positions can be financed by training trust funds established in accordance with Section 505 of the Labor-Management Reporting and Disclosure Act.

U.S. DEPARTMENT OF LABOR
MANPOWER ADMINISTRATION
Bureau of Apprenticeship and Training

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PREFACE

Apprenticeship coordinators, financed from training trust funds established by the various industries, carry out the policy of Joint Apprenticeship and Training Committees in administering and conducting apprenticeship and other training programs.

The coordinators assist the committees by screening apprentice applications and arranging for apprentice interviews and tests, by indenturing selected applicants, maintaining apprentice record files, arranging various meetings and ceremonies, consulting with employers, maintaining trust-fund records, and performing many other duties connected with administering and promoting the apprenticeship program.

The U.S. Department of Labor's Bureau of Apprenticeship and Training strongly recommends that all committees fully explore the benefits that would accrue from the employment of apprenticeship coordinators.

This pamphlet, describing the duties and obligations of apprenticeship coordinators, was prepared by the Office of National Industry Promotion of the Bureau of Apprenticeship and Training under the direction of Hugh C. Murphy, Administrator.

WHY A COORDINATOR

The coordinator is selected by the apprenticeship committee and acts on behalf of the joint committee to assure an effective and successful apprenticeship program.

Coordinators are paid through training trust funds established jointly by an employer and the union or by an employers' association and the union. (See Appendix A for a sample budget covering establishment of an Apprenticeship Coordinator position.)

Where a new program has been established, a Joint Apprenticeship and Training Committee (JATC) is formed, and standards are adopted after negotiation of a training trust fund. The employment of a coordinator is simply one more step toward developing a complete ongoing program.

The joint committee in no way relinquishes any of its prerogatives by employing an apprenticeship coordinator. On the contrary, many of the onerous tasks otherwise handled by the JATC can be delegated to a coordinator by the committee.

ESTABLISHMENT AND ADMINISTRATION OF A TRAINING TRUST FUND

Section 505 of the Labor-Management Reporting and Disclosure Act authorizes contributions by an employer to a training trust fund established by a union for the purpose of "defraying costs of apprenticeship and other training programs." It also imposes certain regulations on the establishment and administration of these funds.

Training coordinators may be paid from funds in a legally established training trust fund, which is used for general administration of the apprenticeship and other training programs.

Generally, provision for the establishment of a training trust fund is contained in the collective bargaining agreement. The following is an example of a section of a bargaining agreement dealing with a training trust fund:[1]

1. Individual employers, employer associations and unions recognize the need for apprenticeship and other on-the-job training programs and agree that the standards of apprenticeship will conform to the regulations as established by the U. S. Department of Labor's Bureau of Apprenticeship and Training.

2. So there may be continuing activity in the promotion of the apprenticeship program, a Joint Apprenticeship and Training Committee will be established. The principal function of this JATC is to administer the program and standards which have been adopted by the employers' association and the union.

3. The Joint Apprenticeship and Training Committee shall be composed of _____ members, half of whom shall be appointed by the employers' association and shall represent the employers, and half of whom shall be appointed by the union. All representatives serve staggered terms as specified in the Apprenticeship Standards.

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[1] See Appendix B for further information.

4. There shall be established a fund known as the joint apprenticeship and training trust fund, the purpose of which shall be to pay for the administration of the apprenticeship program and/or journeyman and other training in accordance with the provisions established by the trustees.

   Each employer shall make a contribution in the amount of _____ cents per hour for each hour worked by employees covered by the terms of the agreement. This shall be paid to the joint apprenticeship and training trust fund which shall be administered as provided for in the "agreement and declaration of trust" which covers the establishment and administration of the joint apprenticeship and training trust fund. This contribution shall be made on or before _____ day of each month thereafter until the expiration of the agreement.

5. Members of the Joint Apprenticeship and Training Committee may serve as trustees of the apprenticeship and training trust fund or trustees may be labor and management representatives who are not members of the JATC.

Administrators of the fund, the "trustees," must be comprised of equal representatives of employers and the union, together with agreed-upon neutral persons. In the event of a tie, and there are no neutral persons to break the deadlock, the trust agreement must provide for agreement upon an impartial umpire to decide the dispute. If the parties cannot agree upon an umpire, either group may petition the Federal court to appoint an umpire.

The trust agreement must also provide for an annual audit of the training trust fund by a registered certified public accountant. The results of the audit must be available for inspection at the principal office of the training trust fund. Banks carrying the trust account usually require a copy of the trust agreement.

QUALIFICATIONS OF A COORDINATOR

The coordinator of apprenticeship may not be a member of the joint committee, an instructor in related technical subjects, or serve as recording secretary to the committee.

The coordinator's salary depends on his experience (administrative and supervisory);[2] the size of the program; and whether he is employed full time or part time.

The applicant should:

* Be of good moral character.
* Be able to work with minority groups and members.
* Be in good physical condition.
* Have previous employment, experience as a general foreman, or work in industry training, or a union or management employers' association.
* Be highly skilled and respected in the trade or trades with which he will be working.
* Have experience as a platform speaker.
* Be able to deal with individuals of diverse temperaments.
* Be able to keep records, understand laws and regulations governing apprenticeship and other training, and be conversant with contracts and bargaining agreements.

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[2]See Appendix C for a sample application form.

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THE INTERVIEW

An interview should determine the applicant's:

* General knowledge of the trade(s) and industry.
* Physical fitness to perform the required work.
* Associations with employers and unions which would lead to serving the best interest of the JATC.
* Knowledge of Federal and State laws governing the training of apprentices.
* Evaluation of related technical study for apprentices.
* Capacity to command the respect and confidence of apprentices.
* Experience in dealing with clerical staff and office procedures.
* Views on equal opportunity in the employment and training of minorities.
* Confidence in his own ability.

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DUTIES OF THE COORDINATOR

This section describes in brief the typical duties of apprenticeship coordinators. As duties will vary in accordance with programs, every duty enumerated will not necessarily be required of each coordinator.

The coordinator's duties can be divided into four categories:

* Those related to the apprentice.
* Those pertaining to the Joint Apprenticeship and Training Committee (JATC).
* Those concerning the employer and union.
* Those of a general nature.

Related to the Apprentice

The coordinator must:

* Impartially accept and screen applications as prescribed in the Joint Apprentice and Training Committee's selection procedure.
* Arrange for each applicant to take the occupational aptitude test prior to appearing before the JATC for consultation.
* Arrange for the applicant to appear before the JATC.
* Indenture applicants selected by the JATC from the eligibility list maintained in the coordinator's office.
* Impress on each indentured apprentice that in signing the Apprentice Agreement, he voluntarily agrees to abide by the provision of the Apprenticeship Standards and assumes responsibilities and obligations imposed by the JATC.

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* Indoctrinate each apprentice as to his responsibility in the program.

* Furnish each apprentice an identification card showing he is properly indentured in accordance with the Apprenticeship Standards and also furnish him with a copy of the standards.

* See that all apprentices are enrolled in related technical instruction classes.

* Issue work-record books and see that they are properly filled out and kept current, stressing to the apprentice the importance of maintaining this record to assure proper credit and diversity of training.

* Maintain a file on each apprentice reflecting his status as to diversity of on-the-job training and progress in related instruction.

* Notify the apprentice when he is to appear before a JATC and arrange for his appearance when necessary.

* Notify the apprentice of any JATC action affecting him.

* Through personal contact, observe, determine and note the abilities of the apprentice to meet and satisfy the conditions of the job assignments.

* Visit the apprentice on the job prior to each advancement.

* Invoke any penalties the JATC levies against the apprentice.

* Transfer the apprentice from one employer to another, either to keep him employed or to assure diversified experience.

Pertaining to the Joint Committee

The coordinator must:

* Carry out the terms and conditions of the apprenticeship program as established in the Apprenticeship Standards.

* Report on matters pertaining to the transfer of apprentices from one job or shop to another to provide diversity of training or work opportunities.

* Arrange completion ceremonies.

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* Arrange apprentice contests.

* Make recommendations on ways and means to improve the apprenticeship program.

* Maintain a clear and adequate accounting system, reporting to the JATC the amount of income received, its source and disbursement.

* Provide for an annual audit of the training trust fund.

* Where necessary, prepare an operational budget for the JATC to submit to the negotiating committee.

* Supervise the activities of all technical and clerical staff and assume responsibility for the property of the JATC.

* Keep abreast of all trends and changes in the industry and provide this information to the JATC for their consideration.

* Develop a table for use of the JATC to determine how many apprentices should be trained to meet the needs of their industry.

Concerning the Employer and Union

The coordinator must:

* Contact employers who are members of the association to arrange for employment and training of apprentices.

* Contact employers who are not members of the industry association, to explain the advantages of employing and training apprentices; and make appropriate recommendations to the JATC.

* Consult with employers, foremen, and shop stewards concerning progress of apprentices.

* Send recommendation forms for advancement of apprentices to the employer and related technical instructor 30 days prior to each apprentice's advancement date.

* Report on advancement of apprentices, stipulating wage rate, period advanced, and effective date of the advancement for each apprentice.

* Notify employers and unions of actions taken by the JATC.

* Notify employers and unions when vacancies occur on the JATC or when terms are to expire.

Those of a General Nature

The coordinator must:

* Assemble and disseminate information and material concerning the training of apprentices and the general apprenticeship program.

* Attend meetings, conventions, and conferences on apprenticeship as instructed by the JATC.

* Check with related technical instruction staff to determine quality of instruction, and participation of apprentice.

* Maintain close relationship with other coordinators in the area to exchange ideas, and promote improvement of apprenticeship programs.

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TRAINING THE COORDINATOR

A representative of the Bureau of Apprenticeship and Training (BAT) is available as consultant to the joint committee to assist in training the coordinator.

Training should include a thorough orientation in:

* The history of apprenticeship in the industry in which he is working.

* Apprenticeship Standards (national, area, State and local).

* Structure and function of the national apprenticeship system.

* Training trust funds and operational financing.

* Cooperating agencies such as:

  –*State Vocational Education Department* and local vocational schools or junior colleges participating in related technical instruction, as well as the employment and training of related instructors.

  –*State Apprenticeship Council* where the State council is the registration and approving agency of standards and apprentice agreements.

  –*State Employment Service* which administers occupational aptitude tests, and conduct special counseling and recruitment of apprentice applicants.

  –*State Labor Department* which establishes wage, hour, and safety regulations.

  –*Veterans Administration* which is responsible for certain training allowances.

  –*Selective Service* as it applies to the deferment of apprentices.

The Bureau of Apprenticeship and Training representative can arrange for the Apprenticeship Coordinator to:

* Visit other coordinators' offices to observe procedures and record-keeping systems.

* Meet periodically with coordinators in the area.

* Visit employers, foremen, shop stewards, and journeymen who train the apprentices.

* Attend completion ceremonies and apprentice contests.

The field representative of the Bureau will also assist the coordinator with the techniques of interviewing applicants for apprenticeship programs.

He will also acquaint the coordinator with data on the demand for skilled journeymen in the industry, and furnish him with information about manpower surveys and local market reports.

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LAWS AND REGULATIONS AFFECTING APPRENTICESHIP

There are a number of regulations, both Federal and State, that apply to apprenticeship and with which the coordinator of apprenticeship should be familiar.

They include:

FEDERAL

* Age Discrimination in Employment Act
* Civil Rights Act of 1964, titles VI and VII
* Contract Work Hours Standards Act
* Davis-Bacon Act
* Economic Opportunity Act
* Fair Labor Standards Act
* Federal-Aid Highway Act
* Foreign Assistance Act
* Labor Management Relations Act
* Labor-Management Reporting and Disclosure Act
* Manpower Development and Training Act
* Military Selective Service Act
* National Apprenticeship Act

* National Employment System Act

* Service Contract Act of 1965

* Veterans Pension and Readjustment Act of 1967

* Vocational Education Amendments of 1968

* Walsh-Healey Act

Various other statutes authorizing Federal or federally assisted construction such as:

–Public housing

–Hospitals

–Airports

–Schools

* Executive Order 11246 requiring equal employment opportunity in all nonexempt government contracts and federally assisted construction contracts and subcontracts.

* Executive Order 11375 amending Executive Order 11246 to prohibit discrimination because of sex or religion.

* Regulation 29 CFR, part 30 requiring equal opportunity for employing. apprentices.

STATE

* Apprenticeship
* Employment service and unemployment compensation
* Fair or equal employment
* Highways
* Labor relations
* Public works
* Vocational education
* Wage-hour-safety
* Workmen's compensation

APPENDIX A

SAMPLE BUDGET

Budgets, which are financed through training trust funds, will vary from program to program depending on the size of the program, staff required, and the number of apprentices in training. The figures used here are for example only:

STAFF

Coordinator's salary - 52 weeks	$9,700.00
Clerk's salary - 52 weeks	5,200.00
	$14,900.00
Insurance and taxes on employees @ 12%	1,788.00
Total staff	$16,688.00

EQUIPMENT

1 Automobile (rental) - 12 months @ $175 per month	$2,100.00
1 Typewriter (rental) - 12 months @ $10 per month	120.00
1 Calculating machine (rental) - 12 months @ $10 per month	120.00
1 Office (rental) - 12 months @ $100 per month	1,200.00
Office furniture (rental) - 12 months @ $30 per month	360.00
Total equipment	$3,900.00

MATERIALS AND SUPPLIES

Telephone - 12 months @ $75 per month	$900.00
Postage - 12 months @ $15 per month	180.00
Office supplies - 12 months @ $60 per month	720.00
Fuel, oil, grease, and service for automobile - 12 months @ $110 per month	1,320.00
Related training material - 12 months @ $40 per month	480.00
Printing - 12 months @ $28 per month	336.00
Miscellaneous - 12 months @ $30 per month	360.00
Total materials and supplies	$4,296.00

OTHER EXPENSES

Travel - 12 months @ $100 per month	$1,200.00
Total other expenses	$1,200.00
Total budget	$26,084.00

APPENDIX B

ESTABLISHMENT OF A TRAINING TRUST FUND

The following will clarify a number of points that frequently arise in establishing a training trust fund:

1. *What type of apprenticeship or other training programs are affected by Section 302 (c)(6) of the Labor-Management Relations Act (LMRA) of 1947 (Taft-Hartley Act) as amended?*
   Only apprenticeship or other training programs established by unions to which an employer, or employers' associations make financial contributions. (NOTE: Training trust funds solely created and financed by employers are not subject to this provision.)

2. *Are such apprenticeship or other training program financing plans legal?*
   Yes, if set up in accordance with the requirements of Section 302 of the LMRA, as amended by Section 505 of the Labor-Management Reporting and Disclosure Act (LMRDA)[1] of 1959. As amended, Section 302 (c)(6), authorizes employer contributions "for defraying costs of apprenticeship or other training programs."

3. *What are the specific requirements that employer-financed programs must meet under Section 302 (c)?*

   * The employer payments must be made to a training trust fund.

   * The training trust fund must be established for the purpose of defraying the costs of apprenticeship or other training programs.

   * The basis on which payments are made is specified in a written agreement with the employer.

[1] 29 U. S. C. 186

* The union and employers are equally represented in the administration of the fund, together with:

  –Such neutrals as representatives of employers and the union agree on; *or*

  –If the trustees deadlock and there are no neutral persons empowered to break the deadlock, they shall agree on an impartial umpire; *or*

  –If they fail to agree within a reasonable length of time, an impartial umpire, on petition of either management or labor shall be appointed by the United States District Court for the district where the training trust fund has its principal office.

* The trust agreement shall contain provision for an annual audit of the training trust fund. The results shall be available for inspection at the principal office of the trust fund.

4. *Should a Joint Apprenticeship and Training Committee have a lawyer prepare its apprenticeship and training trust fund?*
   The trust document is a legal document and it is highly recommended that a lawyer be employed.

5. *How does the bargaining agreement relate to the apprenticeship and training trust fund?*
   The bargaining agreement is the legal contract between the employer, or employers' association and the union. The Joint Apprenticeship and Training Committee derives its authority from the bargaining agreement. Any method for raising apprenticeship and training trust funds should be covered in the collective bargaining agreement and details as to payments should also be spelled out in the bargaining agreement.

6. *Should the trust agreement be written into the bargaining agreement or into the apprenticeship program?*
   It should not be in either but in a separate document.

7. *What does the requirement of equal representation of employers and the union in the administration of the training trust fund mean?*
   To be certain that the requirement of equal representation is met, there should be an equal number of employer and union representatives and equality in their powers under the trust agreement.

8. *May the apprenticeship and training trust fund provide for the payment of salaries, materials, textbooks, and similar items?*
   Yes. Joint committees in setting up a training trust fund should write

into the trust instrument those items relating to apprenticeship or other training programs for which the funds may be used. Section 302 (c)(6) of the LMRA provides that funds be used for *"defraying costs of"* these programs.

9. *Are unions required to make reports to the Secretary of Labor on the training trust fund contributions received from employers?*
   No. Section 202 (a)(6) of the LMRDA specifically exempts from reporting requirements employer contributions made under Section 302 (c) of the LMRA.[2]

10. *Are employers required to report training trust fund contributions to the Secretary of Labor?*
    No. Section 203 (a) (1) of the LMRDA exempts employers from reporting Section 302 (c) LMRA contributions.[3]

11. *Are bonds required to protect the training trust funds?*
    Yes. Pursuant to Section 502 (a) of the LMRDA, Department of Labor regulations[4] require that trustees, administrative personnel, and employees of a trust be bonded if they receive, handle, or distribute training trust funds or other property. Bonds are required to protect against loss by fraud or dishonesty directly or through connivance. Penalty for violation of the bonding requirement may be a fine up to $10,000 or imprisonment up to 1 year, or both.

12. *What is the tax status of employer contributions to the training trust fund?*
    Employer contributions to the training trust fund is deductible as one of the ordinary and necessary expenses in conducting business.

13. *What is the tax status of interest earned on the trust funds?*
    Since such funds are usually conducted as a nonprofit operation, an application may be made to the Internal Revenue Service for an appropriate tax exemption.

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[2] 29 U. S. C. 432
[3] 29 U. S. C. 433
[4] 29 CFR 453.4-453.9

APPENDIX C

SAMPLE APPLICATION FOR AN APPRENTICESHIP COORDINATOR POSITION

Filed With Joint Apprenticeship and Training Committee

at

_____
Street

_____
City State

INSTRUCTIONS: To avoid delay in the consideration of your application, answer each question on this form clearly and completely. Type or print in ink. The Apprenticeship Coordinator's salary and car allowance will be set by the Joint Apprenticeship and Training Committee (JATC). You will be *subject* to the *policy* and *procedures* as established by the JATC. Your application *must* be mailed to the JATC, postmarked on or before midnight, _____ 19__.

1. Name (please print): _____
(Last) (First) (Middle)

2. Address: _____
(Street and number) (City) (State) (Zip)

3. Are you a citizen of the U.S.? _____ 4. Phone: _____

5. Date of birth: _____ 6. Age: _____ 7. Height: _____ 8. Weight: _____

9. Married: ___ 10. Single: ____ 11. No. of dependants: _____

12. Social Security No.: _____

13. Education:
(a) Circle highest grade completed: 1 2 3 4 5 6 7 8 9 10 11 12
(b) Name and location of high school attended: _____

14. Subjects studied in high school which apply to this position: _____

_____

15. Dates attended high school: From: _____ To: _____

16. Name and location of college or university attended: _____

Dates attended		Years completed		Degrees conferred		Semester-hour credits
From	To	Day	Night	Title	Date	

17. Did you serve an apprenticeship? _____ (a) What trade? _____

(b) Where? _____

(c) Date Completed? _____ From: _____ To: _____

18. Did you receive a Certificate of Completion of Apprenticeship? _____

(a) When? _____ (b) Where? _____

19. Did you attend related instruction classes? Yes: _____ No: _____

(a) When? _____ (b) Where? _____

20. Years experience as:

(a) Journeyman: _____ From: _____ To: _____

(b) Foreman: _____ From: _____ To: _____

(c) Superintendent: _____ From: _____ To: _____

(d) Employer: _____ From: _____ To: _____

21. What office have you held in any organization related to the position for which you are applying?

_____

_____

_____

22. Have you taught apprentice related instruction classes? Yes: _____ No: _____

If answer is yes, where: _____ From: _____ To: _____

23. Are you a member of a local union or employer association? Yes: _____ No: _____

If yes, give name: _____

24. Were you in the Armed Forces?____(a) Branch:_____ (b) Serial No.: _____

(c) Rating held: _____ From: _____ To: _____

(d) Do you have an honorable discharge? Yes: _____ No: _____

If no, explain: _____

(e) Do you have an other than honorable discharge? Yes:____ No: _____

25. Are you now or have you been a member of the Communist Party? Yes: __ No: __

If yes, explain: _____

_____

26. Have you ever been arrested, indicted, or summoned into court as a defendant in a criminal proceeding, or convicted, fined, or imprisoned, or placed on probation (excluding minor traffic violations)? Yes:__ No:_____

If answer is yes, state facts: _____

_____

_____

27. If you are willing to travel within the State, specify:

(a) Occasionally:_____ (b) Frequently:_____ (c) Constantly: _____

28. Are you willing to attend night meetings? (a) Occasionally:__(b) Frequently: ____

29. Do you own a car? Yes: _____ No: _____

30. Do you use a typewriter? Yes:_____ No: _____

31. Have you held a position that required public relations or labor relations?

Yes: _____ No: _____

If answer is yes, give title of position, where held, and how long: _____

32. State your reasons for filing this application: _____

_____

_____

_____

33. List any other qualifications you have which you feel are pertinent to this job:

_____

_____

_____

Before signing this application, check it to make sure you have answered ALL questions fully and correctly.

I CERTIFY that the statements made by me in this application are true, complete, and correct to the best of my knowledge.

Signature: _____ Date: _____
(Sign in ink)

WHERE TO GET MORE INFORMATION

Copies of this pamphlet and additional information about Apprenticeship Coordinators may be obtained from the U.S. Department of Labor's Regional Manpower Administrators, the Regional Offices of the Bureau of Apprenticeship and Training, or the State Apprenticeship Agencies, whose locations are listed on the following pages.

U.S. Department of Labor's Regional Manpower Administrators

Location	States served	
John F. Kennedy Fed. Bldg. Boston, Mass. 02203	Connecticut Maine Massachusetts	New Hampshire Rhode Island Vermont
341 Ninth Avenue New York, N.Y. 10001	New Jersey New York	Puerto Rico Virgin Islands
5000 Wissahickon Avenue Philadelphia, Pa. 19144	Delaware Maryland Pennsylvania	Virginia West Virginia
D.C. Manpower Administrator 14th and E Streets, NW. Washington, D.C. 20004	District of Columbia	
1371 Peachtree Street, NE. Atlanta, Ga. 30309	Alabama Florida Georgia Kentucky	Mississippi North Carolina South Carolina Tennessee
219 South Dearborn Street Chicago, Ill. 60604	Illinois Indiana Michigan	Minnesota Ohio Wisconsin
911 Walnut Street Kansas City, Mo. 64106	Iowa Kansas	Missouri Nebraska
411 North Akard Street Dallas, Tex. 75201	Arkansas Louisiana New Mexico	Oklahoma Texas
New Custom House 19th and Stout Streets Denver, Colo. 80202	Colorado Montana North Dakota	South Dakota Utah Wyoming
450 Golden Gate Avenue San Francisco, Calif. 94102	Arizona California Hawaii Nevada	American Samoa Guam Trust Territories
Smith Tower Bldg. Seattle, Wash. 98102	Alaska Idaho	Oregon Washington

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Regional Offices of the Bureau of Apprenticeship and Training

Location	States served	
Room 1703-A John F. Kennedy Fed. Bldg. Government Center Boston, Mass. 02203	Connecticut Maine Massachusetts	New Hampshire Rhode Island Vermont
Room 906, Parcel Post Bldg. 341 Ninth Avenue New York, N.Y. 10001	New Jersey New York	Puerto Rico Virgin Islands
5000 Wissahickon Avenue Philadelphia, Pa. 19144	Delaware Maryland Pennsylvania	Virginia West Virginia
Room 729 1371 Peachtree Street, NE. Atlanta, Ga. 30309	Alabama Florida Georgia Kentucky	Mississippi North Carolina South Carolina Tennessee
Room 854, U.S. Court House & Fed. Office Bldg. 219 South Dearborn Street Chicago, Ill. 60604	Illinois Indiana Michigan	Minnesota Ohio Wisconsin
Room 312, Mayflower Bldg. 411 North Akard Street Dallas, Tex. 75201	Arkansas Louisiana New Mexico	Oklahoma Texas
Room 2107, Fed. Office Bldg. 911 Walnut Street Kansas City, Mo. 64106	Iowa Kansas	Missouri Nebraska
Room 314, New Custom House 721 19th Street Denver, Colo. 80202	Colorado Montana North Dakota	South Dakota Utah Wyoming
Room 10451 450 Golden Gate Avenue San Francisco, Calif. 94102	Arizona California	Hawaii Nevada
Room 1809, Smith Tower Bldg. 506 Second Avenue Seattle, Wash. 98102	Alaska Idaho	Oregon Washington

State Apprenticeship Agencies

Arizona Apprenticeship Council
1623-B West Adams
Phoenix, Ariz. 85007

Division of Apprenticeship Standards
Department of Industrial Relations
305 Golden Gate Avenue
P.O. Box 603
San Francisco, Calif. 94102

Industrial Commission Offices
200 East Ninth Avenue
Denver, Colo. 80203

Apprentice Training Division
Labor Department
200 Folly Brook Boulevard
Wethersfield, Conn. 06109

D.C. Apprenticeship Council
Room 329
555 Pennsylvania Avenue, N.W.
Washington, D.C. 20212

Delaware State Apprenticeship
and Training Council
506 West 10th Street
Wilmington, Del. 19801

Bureau of Apprenticeship Standards
Florida Department of Commerce
Caldwell Building
Tallahassee, Fla. 32304

Apprenticeship Division
Department of Labor and
Industrial Relations
825 Mililani Street
Honolulu, Hawaii 96813

Department of Labor
Apprentice Training Division
Kansas Apprenticeship Council
401 Topeka Boulevard
Topeka, Kans. 66603

Kentucky State Apprenticeship Council
Department of Labor
Frankfort, Ky. 40601

Division of Apprenticeship
Department of Labor
State Capitol Annex
P.O. Box 44063
Baton Rouge, La. 70804

Maine Apprenticeship Council
Department of Labor and Industry
State Office Building
Augusta, Maine 04330

Maryland Apprenticeship and
Training Council
Department of Labor and Industry
State Office Building
301 W. Preston Street
Baltimore, Md. 21201

Division of Apprentice Training
Department of Labor and Industries
State Office Building
Government Center
100 Cambridge Street
Boston, Mass. 02202

Division of Voluntary Apprenticeship
Department of Labor and Industry
110 State Office Building
St. Paul, Minn. 55101

Montana State Apprenticeship Council
1136 Helena Avenue
Helena, Mont. 59601

Nevada Apprenticeship Council
Department of Labor
Capitol Building
Carson City, Nev. 89701

New Hampshire Apprenticeship Council
Department of Labor
State House Annex
Concord, N.H. 13301

New Mexico Apprenticeship Council
Labor and Industrial Commission
1010 National Building
505 Marquette, N.W.
Albuquerque, New Mex. 87101

Bureau of Apprentice Training
Department of Labor
The Campus, Building #12
Albany, N.Y. 12226

Division of Apprenticeship Training
Department of Labor
Raleigh, N.C. 27602

Ohio State Apprenticeship Council
Department of Industrial Relations
220 Parsons Ave., Room 314
Columbus, Ohio 43215

Oregon State Apprenticeship
and Training Council
Bureau of Labor
Room 466, State Office Building
Portland, Oreg. 97201

Pennsylvania Apprenticeship
and Training Council
Department of Labor and Industry
Room 1547
Labor and Industry Building
Harrisburg, Pa. 17120

Apprenticeship Division
Department of Labor
414 Barbosa Avenue
Hato Rey, P.R. 00917

Rhode Island Apprenticeship Council
Department of Labor
235 Promenade Street
Providence, R.I. 02908

Utah State Apprenticeship Council
Industrial Commission
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☆ U.S. GOVERNMENT PRINTING OFFICE : 1970 O - 389-648

3676

VT 012 369
Training and Technology; The Effects of a Manpower Training Program on the Personal Lives of Its Graduates.

Atomic Energy Commission, Oak Ridge, Tenn.
Department of Labor, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Nov70 41p.

DESCRIPTORS - *ADULT VOCATIONAL EDUCATION; *FEDERAL PROGRAMS; *CHANGING ATTITUDES; *COMMUNITY INVOLVEMENT; COMMUNITY BENEFITS; STUDENT ALIENATION; *TRAINEES; WORK ATTITUDES; SOCIAL ADJUSTMENT; GRADUATES
IDENTIFIERS - *TRAINING AND TECHNOLOGY; TAT

ABSTRACT - Efforts to evaluate the effectiveness of training programs have ignored the effects of training on the graduates' personal lives. This study seeks to fill that gap by examining the impact of the Training and Technology (TAT) program upon trainees. In particular, the study analyzes alienation, community participation, and attitudes toward work and society. Structured interviews and questionnaires provided data on 74 TAT graduates representing 21 percent of the total graduates of the first 2 years of the program. A control group consisted of 74 qualified applicants who were rejected because of lack of training openings. The results indicate that the program graduates participate to a greater extent in community and work organizations, feel less alienated, read more, and hold more skilled jobs at higher income levels. (BH)

VT 012 369

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special report

The Effects of a Manpower Training Program on the Personal Lives of its Graduates

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TRAINING AND TECHNOLOGY PROJECT

Conducted at the U.S. Atomic Energy Commission's Oak Ridge, Tennessee, Y-12 Plant

- Oak Ridge Associated Universities
- Nuclear Division, Union Carbide Corporation
- Tennessee Division of Vocational-Technical Education
- Tennessee Department of Employment Security
- University of Tennessee
- Organized Labor

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THE EFFECTS OF A MANPOWER TRAINING PROGRAM ON THE PERSONAL LIVES OF ITS GRADUATES

Training and Technology

November 1970
Oak Ridge, Tennessee

The work reported herein was performed with funds provided by the U.S. Department of Labor under an interagency agreement with the U.S. Atomic Energy Commission, Oak Ridge Operations, Oak Ridge, Tennessee.

II(III)R-4

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SUMMARY

Relatively little information has been generated and/or disseminated on the effect of manpower training programs on the personal lives of graduates. In this study, the impact of the Training and Technology (TAT) manpower training program on the personal lives of its graduates was examined by comparing an experimental group (TAT graduates) and a control group (TAT applicants) in terms of political, social, financial, and religious activities. Reading habits and feelings toward society were also examined.

The major findings suggest that the graduate group was leading more active and meaningful lives than their counterparts in the control group. In comparison to the control group, the graduates evidenced:

Δ higher levels of participation and involvement in the activities of mature citizens in the mainstream of American life;

Δ greater interest and activity in their community as reflected by a higher reading rate of local newspapers, higher membership in secular organizations, and a higher voting percentage in recent elections;

Δ more participation in work-related activities that were career oriented, as indicated by their higher level of membership in unions and professional organizations and by their more regular attention to technical and trade-related literature;

Δ less alienation, especially in the realm of powerlessness; and

Δ larger numbers employed in skilled industrial jobs and higher income levels.

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INTRODUCTION

How are trainees in a manpower training program, such as Training and Technology (TAT), personally affected by their participation in the program? We know that the public investment in the TAT Project is economically rational.[1] But, we know very little of the impact of the total experience of a training program on the personal lives of its trainees.

A survey of the literature revealed very little evidence of studies devoted to the validation of manpower training programs, much less studies of the effects of the training programs on the personal lives of its trainees. In the rare instances of methodologically sound validation studies, the criteria selected to measure the effectiveness of the training programs have been readily available indices, such as (1) the number of individuals trained, (2) the dropout rate, (3) the number of trainees employed at the conclusion of training, and (4) the starting wages for those trainees who find jobs. Such studies have provided the evidence to substantiate the economic effectiveness of these programs. The analysis of the benefits and costs of TAT, by Kirby and Castagna,[1] for the first two years of operation is this type of study.

Despite broadening of training program objectives[2] to include, along with teaching a job skill, modifying trainee outlooks and developing competences that will be useful to the trainees in their social and community environment, a thorough search of the literature disclosed a lack of instances of systematic efforts to measure the effects of manpower training programs on the personal feelings and habits of graduates.

The purpose of this study was to examine the impact of a manpower training program on the personal lives of its trainees. The effect of the training program on (1) feelings of alienation, (2) attitudes toward work and society, and (3) participation in community activities were of special concern in this research.

The subjects of the study were associated with the TAT Project, an experimental Manpower Development and Training Act (MDTA) program located in Oak Ridge, Tennessee. The TAT Project functions to train unemployed and underemployed persons for industrial entry-level jobs in the areas of machining, drafting, physical testing, mechanical operations, electronics, and welding.

The TAT Project combines the members of the staffs and some of the facilities of the Nuclear Division, Union Carbide Corporation (ND-UCC) and Oak Ridge Associated Universities (ORAU), along with numerous other cooperating organizations, to provide manpower training in a modern industrial complex, the Y-12 Plant, which is operated by ND-UCC for the U.S. Atomic Energy Commission.

COLLECTION OF DATA

The study consisted of constructing and administering either a structured interview or a similar questionnaire for mailing and a public opinion questionnaire to an experimental group and to a control group.

Participants

The subjects of the experimental group were graduates of either

(1) the first year of the program (Training Period 1), a 52-week training program that began September 1966; these first TAT trainees were graduated September 1967, or

(2) the second year of the program (Training Period 2), a 42-week training program that began September 1967 and ended June 1968.

A total of 74 TAT graduates — 37 graduates from each of the two above training periods — were randomly selected as the experimental group. Two of the 74 experimental group participants were female.

The 74 subjects represented approximately 21% of the 356 trainees[3] who were graduated from either the 42- or 52-week period. Since the study was begun in June 1969, the first-year graduates were contacted approximately 22 months after graduation, and the second-year graduates were contacted approximately 13 months after graduation.

The control group consisted of subjects who had applied for training, had met all qualifications, but could not be accepted because of the lack of available training positions. Applicants were chosen as the most appropriate control group because (1) the population of applicants was fairly homogeneous in terms of background and employment status, primarily because of the preliminary screening by the major referral agency; (2) the high selection to rejection ratio (1 to 11.61) made it

necessary to reject many applicants with qualifications equal to those who were accepted; (3) the volition to improve oneself through training, an important selective factor, was controlled; Harris and Vincent[4] discuss the confounding effects of selective factors in interpreting observed differences between a trained sample of "volunteers" and an untrained sample of "nonvolunteers."

In this control group, 37 were Training Period 1 *applicants* and 37 were Training Period 2 *applicants*, for a total of 74. The applicants who were chosen for the study most nearly matched the experimental group participants in terms of age, education, and intelligence. One of the 74 control participants was female.

Instruments

A structured interview (Appendix A) was developed by the junior author and was used to measure the amount and kind of social, political, financial, and religious activity in which *all* of the subjects engaged. Political and social activities were measured by responses to questions about voting, campaigning in behalf of a candidate, and participation in civic and social organizations. Religious activity was measured by the level of church attendance and participation in church functions. Financial activity was investigated by responses to questions about current employment status, living accommodations, transportation, charge accounts, savings, accounts, and charitable contributions. Reading habits — numbers and kinds of newspapers, magazines, and books — were also investigated in the interview.

Whereas 117 subjects within an 80-mile radius of Oak Ridge were contacted and interviewed in person, the 31 subjects outside this area

were mailed a questionnaire (Appendix A), which was based on the structured interview. Along with the junior author who conducted the majority of the personal interviews, eight members of the TAT staff also served as interviewers.

The Dean Alienation Scale[5] was administered under the title of a Public Opinion Questionnaire (Appendix B) and was used to obtain an indication of an individual's feelings about his place in society. For those subjects contacted and interviewed personally, administration of the alienation scale followed the interview; the alienation scale was not sent to those subjects who had to be contacted by mail.

The alienation scale, and thus the questionnaire, consists of 24 items based upon the Likert format and is designed to yield four alienation scores: scores for each of the three major components or subscales of alienation — powerlessness, normlessness, and social isolation — and a total alienation score that was derived from the scores on the three subscales.*

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*Although the theme of alienation — of estrangement, outcastness, and loss — has been played throughout human history and life, the meanings of alienation fluctuate with each writer.[6] Dean[5] sees the concept of alienation as having three major components:

1. *Isolation* is defined by Seeman[7] as a feeling of separation from the group or from its standards; it involves the assignment of "low reward value to goals or beliefs that are typically highly valued in the given society."
2. *Normlessness* is defined by Seeman[7] as a conflict of norms; it involves "high expectancy that socially unapproved behaviors are required to achieve given goals."
3. *Powerlessness* is defined by Kris and Leites[8] as a feeling that one possesses little "understanding or influence over the wants upon which their life and happiness is known to depend."

EXAMINATION OF DATA

Analysis of Responses

Data were collected from 114 of the 148 subjects of the study. Personal interviews were conducted with 95 subjects, which represents 81% of the 117 personal interviews scheduled. The questionnaires that were mailed were completed by 19 of the 31 subjects, which represents a response rate of 61%. Since information was not obtained from all pairs of the matched samples, the following, final sample mix occurred:

	Graduates	Control Group
Training Period 1	30	31
Training Period 2	22	31
	52	62

Although both samples were reduced in size from the original of 74 each, examination of Table 1 reveals that the two groups were still very similar in terms of age, intelligence, and education.

The comparability of the data obtained with the structured interview and with the mailed questionnaire was also studied. The results revealed that 17.7% of the graduate and 15.4% of the control data were obtained from the mailed questionnaires. A check of response rates to all the individual items did not reveal any important differences in the results obtained with the two data-gathering techniques either *between* or *within* groups. Therefore the data obtained with the structured interview and the data obtained with the mailed questionnaire were combined for all subsequent analyses.

Table 1. Arithmetic Means† and Standard Deviations†† of Matching Variables for Control and Graduate Samples.

Matching Variable	Graduates		Controls	
	$\overline{X}$	σ††	$\overline{X}$	σ††
		Age		
Training Period 1	24.18	5.56	24.62	8.05
Training Period 2	22.42	3.67	22.34	3.54
Combined	23.37	4.85	23.48	6.32
		Intelligence†††		
Training Period 1	104.67	9.28	103.00	8.29
Training Period 2	106.46	15.38	106.24	12.86
Combined	105.56	12.78	104.62	10.94
		Education, Grade Level		
Training Period 1	11.93	1.32	11.93	0.55
Training Period 2	12.25	0.72	12.41	0.83
Combined	12.08	1.07	12.17	0.74

†The mean, $\overline{X}$, is the sum of the scores divided by the number of cases.[9]

††The standard deviation, σ, is the unit used to express the difference between two specified score values; σ is equal to the square root of the mean of the squared deviation from the distribution's mean.[9]

†††The G (general learning ability) subscore of the General Aptitude Test Battery (GATB), ref. [10] which was administered by the state employment security office, was used for this variable.

Structured Interview and Mailed Questionnaire Responses

Social and Political Activities

Substantial differences were observed between the graduate and control samples in membership in, and work for, various social, business, and political organizations. Table 2 summarizes the data collected on social and political activities.

Membership in secular organizations was greater among the graduates (67.3%) than among the controls (41.9%). Qualitative differences were

found to exist in terms of the frequency with which the two groups joined various types of organizations; of the graduates (67.3%) and controls (41.9%) who reported affiliation with one or more secular organizations:

(1) 57.2% of the graduates, as opposed to 26.5% of the controls, were members of a union or professional group;

(2) the control group had a higher percentage of membership (58.8% control membership vs. 23.8% graduate membership) in social and recreational organizations;

(3) the graduates had a higher percentage of membership (19.0%) in community action and civil rights groups than the controls (14.7%).

Table 2. Summary of Political and Social Activity.

	Graduates %	Controls %	Critical Ratio†
Secular Organization Membership			
One organization	46.1	27.4	
Two or more organizations	21.2	14.5	
Total	67.3	41.9	2.71**
Eligible Voters Who Voted in Last Election	88.4	54.6	3.09**
Political Party Worker	9.6	12.9	0.55
Political Party Monetary Contributors	15.3	4.8	1.90*
Public Meeting Attendees Within the Last Year	32.6	19.4	1.63*

†The critical ratio is obtained by dividing the difference between the sample means by its standard error ($CR = D/\sigma_D$).[ref. 11]

*Significant at the $\alpha = 0.10$ level for a two-tail test.

**Significant at the $\alpha = 0.001$ level for a two-tail test.

In terms of political activity, the most outstanding difference between the two groups was in their voting behavior. Of those subjects

who were eligible to vote in the election most recent to the time during which the data were collected (the 1968 presidential election), 88.4% of the graduates voted, in contrast to 54.6% of the controls. Greater political activity was also reported among the graduates in terms of attendance at public meetings and contribution of money to political parties.

Financial Activities

Table 3 summarizes the data collected on the financial activities of the subjects. The reported figures generally indicate a higher level of spending and financial independence among the graduates. Greater percentages of graduates had savings accounts, charge accounts, and credit cards than their counterparts in the control group; this higher level of spending was probably a result of the higher wages commanded by the graduates. The average yearly incomes reported in Table 3 show the financial advantage enjoyed by the graduates; these figures may be biased because (1) information about average yearly income was sought only from the 95 subjects personally interviewed, and (2) a substantial number (41%) of the 95 subjects refused to provide income information. It is likely that the actual (unbiased) yearly income for each group would be lower than the Table 3 income figures,* since it is probable that those subjects who refused to supply income information were making low salaries.

The slightly higher employment rate among the controls was a function of a small percentage (4.8%) of control subjects who reported part-time employment. A substantial difference in the quality of work performed by the two groups emerged from the results of a content analysis on the job titles reported by the subjects. The modal category

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*Kirby and Castagna[1] reported a pre-TAT income of $2,287 and a post-TAT income of $5,716.

of work for the graduates was in the machining trades, whereas the usual work performed by the controls was that of general laborer.

Table 3. Summary of Financial Activity.

	Graduates	Controls	Statistical Tests
	(N = 26)	(N = 30)	
Average Yearly Income, Median†	$7,340	$5,780	—
Employed			
Part-time, %	0.0	4.8	
Full-time, %	86.4	83.9	
Total	86.4	88.7	z = 0.35††
Housing Accommodations			
Own home, %	44.3	27.9	
Rent, %	28.8	34.4	χ^2 = 3.39†††
Live with parents, %	26.9	37.7	
Own Automobile, %	94.2	87.1	z = 1.29
Savings Account, %	65.4	64.5	z = 0.10
Charge Account, %	71.1	62.9	z = 0.93
Credit Card, %	38.5	29.0	z = 1.06
Contributed Money to a Charity, %	79.8	64.5	z = 1.68*

†This information was requested only in the interview.

††The z function equals critical ratio, which is obtained by dividing the difference between the sample means by its standard error.[11]

†††In this study, chi square (χ^2) was generally used to evaluate whether a relationship existed between groups (e.g., graduate-control) and some other multi-category variable (e.g., type of housing accommodations).[12]

*Significant at the α = 0.10 level for a two-tail test.

More graduates gave money to charitable causes. Finally, the type of housing accommodations reflected the greater economic independence of the graduates: the highest (44.2%) percentage figure for the graduates was for purchasing their own homes, whereas the highest percentage figure for the controls (37.1%) was for living with their parents or in-laws.

Religious Activities

A summary of religious activities is presented in Table 4. A higher percentage of graduates than of controls both attended church and actually worked for the church.

Table 4. Summary of Religious Activity.

	Graduates %	Controls %	Critical Ratio†
Church Attendance			
Once or twice per month	19.2	11.1	
Three or four times per month	48.8	38.9	
Total	68.0	50.0	1.86*
Attend Church and Work for the Church	61.8	52.0	0.92

†The critical ratio is obtained by dividing the difference between the sample means by its standard error ($CR = D/\sigma_D$).ref. 11

*Significant at the $\alpha = 0.10$ level for a two-tail test.

Reading Habits

A summary of the amount and type of reading done by the two groups appears as Table 5. In each of the three reading material categories, the graduate percentages were higher than the control percentages. Furthermore, the graduates reported a greater amount of reading activity within two of the reading categories. Specifically, 61.5% of the graduates, as opposed to 45.2% of the controls, read two or more newspapers regularly. Similarly, 61.5% of the graduates, as opposed to 38.7% of the controls, read two or more magazines regularly.

In comparison to the controls, graduates had a higher newspaper reading rate which was proportional to their rate of reading small, local papers. That is, in addition to reading the prominent area newspapers with large circulations, a larger percentage of the graduates than

the controls (46.7% vs. 40.4%, respectively) read the small daily and weekly publications, which feature news primarily of local interest.

Table 5. Summary of Reading Activity.

Reading Material	Graduates %	Controls %	$\chi^{2\dagger}$
Regularly Read Newspapers, Including House and Trade Papers			
0 papers	5.8	8.0	3.02
1 paper	32.7	46.8	
2 or more papers	61.5	45.2	
Regularly Read Magazines			
0 magazines	21.2	38.7	6.33*
1 magazine	17.3	22.6	
2 or more magazines	61.5	38.7	
Read a Book(s) in the Past 6 Months			
0 books	44.2	51.6	1.94
1 or 2 books	23.1	12.9	
3 or more books	32.7	35.5	

$^{\dagger}\chi^2$ is used to evaluate whether a relationship existed between groups and some other multi-category variable.[12]

*Significant at the $\alpha = 0.05$ level.

The higher graduate magazine reading rate corresponded with more reading devoted to trade-related literature such as *American Machinist*,[13] *Machine Design*,[14] and *Materials Evaluation*.[15] Of those subjects who read any magazines at all, 30.7% of the graduates and 10.5% of the controls read some trade-related literature.

Alienation Scale Results

The means and standard deviations computed on the distributions of the four alienation scores on the Dean Alienation Scale are presented in Table 6. The scoring method is such that higher scores represent greater amounts of alienation. The control group was characterized by a higher level of alienation than the graduate sample on all four scales. However,

the difference between the means was statistically significant on only two of the scales — powerlessness and total alienation.

Table 6. Alienation Scores for Graduate and Control Samples.

Scale		Graduates	Controls	t test†
		(N = 44)	(N = 51)	
Isolation	$\bar{x}$	15.02	15.66	0.70
	σ	4.67	4.15	
Powerlessness	$\bar{x}$	13.55	16.51	2.74**
	σ	5.47	4.96	
Normlessness	$\bar{x}$	9.27	10.59	1.67
	σ	3.82	3.78	
Total Alienation	$\bar{x}$	37.70	42.78	2.26*
	σ	11.12	10.71	

†The t test is used for evaluating the difference between two means obtained from independent samples.[9]

*Significant at the $\alpha = 0.05$ for a two-tail test.

**Significant at the $\alpha = 0.01$ for a two-tail test.

DISCUSSION

A number of methodological issues must be considered at this time to clarify the reported findings. First, since a cross sectional experimental design was employed to validate the training and since pretests were not administered, it is impossible to determine whether change in any of the dimensions examined was associated with training.

Discussion of the results in terms of the magnitude of change was not attempted since the status of the personal lives and the feelings of the two groups prior to application for, and/or acceptance into, TAT were not known.

Second, in order to relate the differences between the groups to the training experience, it is necessary to assume that the two samples were equivalent in terms of the dependent variables when they applied for admission to the Program. Only by making this assumption is it reasonable to suggest or imply that the training was responsible for the differences observed. Careful matching of the two groups was performed in order to make this assumption of equivalence tenable, but there is always the possibility that equating the groups in terms of matching variables failed to make them similar in terms of pretraining criterion scores.

The composition of the two groups must also be considered in interpreting the results. Although approximately one-half of the statistical comparisons were significant, it is probable that the effects were attenuated to some extent by the higher proportion of blacks in the graduate sample (21.2%) than in the control sample (8.2%). It was impossible to match the two samples in terms of race because this information was available only for the graduates of the Program. The

application forms completed by the control subjects did not require indication of race; however, the race of the *control* subjects personally interviewed was identified by the interviewer. Thus the racial balance of the two groups could not be determined until the study was being finalized. It is common knowledge that equally qualified members of the black and white races have not enjoyed the same opportunities and advantages in this country. Consequently, the training effects observed in the present study are likely to be more modest estimates of the impact of training than those to be expected had comparable proportions of blacks and whites been represented in the graduate and control groups.

Finally, because of the nature of the trainees studied the generality of the findings of this study in relation to training the unemployed and underemployed may be somewhat restricted. Table 1 showed the rather high educational and intellectual level of the trainees in the present study. Although additional testing has shown that many of the trainees do not function as high school graduates and, in some cases, function at a level more typical of elementary school graduates, the groups observed in this study do not seem typical of enrollees in many of the manpower training programs.

Given the above reservations, a few summary remarks are in order concerning the validity of the TAT Program in creating a beneficial impact on the personal lives of the trainees. When viewed as a whole, the results obtained strongly suggest that, as a group, the graduates are leading more active, meaningful, and satisfying lives than their counterparts in the control group. In comparison to the controls, the graduates:

(1) displayed a higher level of participation and involvement in the activities of mature citizens in the mainstream of American life;

(2) appeared more interested and active in their community, a finding reflected in their higher reading rates of local newspapers, higher membership in secular organizations, and a higher voting percentage in recent elections;

(3) participated more in work-related activities that were career oriented, as indicated by their higher level of membership in unions and professional organizations and by their more regular attention to technical and trade-related literature;

(4) experienced less alienation, especially in the realm of powerlessness;

(5) had higher income levels and were employed more often in skilled industrial jobs.

In terms of all these dimensions it is possible to observe a marked group difference, which plainly favors the graduates and which appears to stem from their exposure to the TAT manpower training program.

Again, attributing the observed differences in the personal lives between the two groups to the training is not entirely justified given the limitations of the experimental design employed in the present study. However, it does not seem unreasonable to suggest that the pattern of results indicates that the training program was in fact responsible for the differences in the two groups. This interpretation or conclusion seems warranted because the differences appear to contain a certain logic, i.e., the differences were closely related to the stated objectives and the content of the curriculum of the training program. For example, the difference between the groups in terms of alienation was attributable to the powerlessness dimension, which is the most likely effect of training on alienation in that providing trainees with a marketable

skill would seem to improve their feelings concerning the amount of control they possess over their own destiny.

Furthermore, the differences in the economic sphere of activity appear reasonable when one considers the better jobs and higher pay among the graduates. The results do seem plausible since many of the reported differences in the consuming or spending habits are linked to the well-documented difference in incomes.

It is not unexpected that the graduates reported a greater amount of reading than the controls. All the graduates were exposed to formal training in reading and vocabulary development in their training. The changes in reading skill demonstrated by trainees on pre- and post-tests administered at the Project have been as great as three grade levels in some cases.[16] Therefore, a higher level of reading activity seems to flow naturally from the content of the training received.

While attention generally has been focused upon economic and financial criteria to assess the impact of manpower training programs, the most striking results obtained in this study were within the realm of the values and activities that comprise the personal lives of the graduates. It is interesting to note that a higher proportion of statistically reliable differences were observed in non-economic areas. The results suggest that researchers may have been overlooking the most dramatic effects of training programs for the unemployed and underemployed and that perhaps some modifications ought to be attempted in the nature of the criteria selected to validate training.

The methodology for conducting research that is not subject to the limitation of the present cross sectional study has been outlined carefully in other sources.[17,18] Although somewhat tentative, the

results of this study could serve as a point of departure for researchers with the interest and resources for conducting one of these more methodologically sophisticated studies on the effects of manpower training. That is, the variables identified and instruments developed in this cross sectional investigation might well be used as a longitudinal study of training effects that could potentially provide a more definitive picture of the impact of manpower training.

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Michael Gordon, senior author and a member of the faculty of the Department of Industrial Management at The University of Tennessee, served as Coordinator of University Participation for the TAT experimentation program. Richard Scott, junior author, was a graduate student in Organizational Psychology under Dr. Gordon's supervision.

APPENDIX A

Structured Interview

Name_____ Date_____

Interviewer_____

I. General Information

"Before we get into the major part of this interview, I would like to get some background information about you."

1. What is your age to your nearest birthday?_____

2. *a.* With the exception of temporary absences for school, military, etc., how long have you lived at your present address?_____

   b. With the exception of temporary absences, how long have you lived in the city (town, village, etc.) where you presently reside?_____

3. Are you currently employed? Yes____ No____

   a. If yes, (1) what is your current job title? (Note: make sure that you understand the type of work performed by the interviewee.)_____

   _____

   (2) is your job full time or part time?_____

   (3) how long have you worked for your present employer?_____

   b. If no, when was the last time you had a full time job?_____

   _____

II. Reading Habits

"Now I'd like to ask you some questions about your reading habits."

4. Do you read any newspapers regularly? Yes____ No____

   a. If yes, which ones do you read? (Note: if you are not familiar with the newspaper(s) named by the interviewee, find out what type of paper it is; e.g., house organ, trade paper, etc.)_____

   _____

5. Do you read any magazines regularly? Yes____ No____

   a. If yes, which ones do you read? (Note: Again, if you are not familiar with any magazine named, find out what type of publication it is.)_____

6. Have you read any books in the last six months? Yes____ No____

   a. If yes, (1) approximately how many books have you read during this period?_____

   (2) what types of books were they?
   (a) fiction_____
   (b) non-fiction_____
   (c) poetry_____

III. Financial Affairs

"Now I'd like to ask you a few brief questions about your financial affairs." (Note: If the interviewee strongly objects to providing this information, skip this section and go on to Part IV.)

7. Do you own or rent your home? Own____ Rent___

   a. If you neither own nor rent your home, are you currently living with relatives? Yes____ No____

8. Do you own, or are you now paying for one or more automobiles? Yes____ No____

   a. If yes, how many cars do you have?_____

   b. If no, what type of transportation do you use to get to work?_____

9. Do you have a savings account? Yes____ No____

   a. If yes, how long have you had it?_____

10. *a.* Do you own any life insurance? Yes____ No____

   (1) If yes, is this a group plan or a personal plan you purchased yourself? Group____ Personal____

   b. Do you own any health insurance? Yes____ No____

   (1) If yes, what kind? (Check all those which apply.) disability income____ hospitalization____ major medical____ sickness and accident____ other (please specify)_____

   (2) If you have health insurance, is this a group plan or a personal plan you purchased yourself? Group____ Personal____

11. Do you have charge accounts at any stores? Yes____ No____

    a. If yes, with which stores do you have these accounts?_____

    _____

    _____

12. Do you have any credit cards? (For example, BankAmericard, Carte Blanche, oil company, etc.) Yes____ No____

    a. If yes, which ones do you have?_____

    _____

    _____

13. Have you contributed to any charities within the last six to twelve months? (For example, Red Cross, Community Chest, Salvation Army, etc.) Yes____ No____

    a. If yes, to which charities have you contributed?_____

    _____

    _____

    _____

IV. Political Activity

"Now I'd like to ask you a few questions about your political activities."

14. Were you eligible to vote in the last election (local, state, or national)? Yes____ No____

    a. If yes, did you vote? Yes____ No____

15. During recent election campaigns, have you ever worked for a party or candidate? (For example, have you ever driven people to the polls, passed out leaflets, telephoned people about voting, etc.) Yes____ No____

16. Have you ever contributed money to a political party or candidate? Yes____ No____

    a. If yes, what type of election was involved? (For example, city, county, state, national, etc.)_____

    _____

17. Do you like to discuss politics with friends and acquaintances? Yes____ No____

a. If yes, in what political issues are you most interested?

_____

_____

18. Have you ever attended any public meetings of your local government? (For example, have you ever attended any meetings of your city council, board of education, etc.? Yes____ No____

a. If yes, which meetings did you attend?_____

_____

_____

b. When did you go to these meetings? That is, what issue or controversy prompted you to attend?_____

_____

_____

19. Do you belong to any political parties or clubs? (For example, Republican, Young Democrats, CORE, Socialist, etc.) Yes____ No____

a. If yes, to which parties or clubs do you belong?_____

_____

_____

V. Religious Activity

"I'd like to change course now and ask you a question or two about your religious activities."

20. Do you attend church (or synagogue) regularly? Yes____ No____

a. If yes, on the average how many times do you go to church each month?_____

b. If yes, have you done any type of work for your church? (For example, soliciting new members, donating your services or car for church functions, teach Sunday school, etc.) Yes____ No____

(1) If yes was the answer to 20*b*, what sort of work did you do?_____

_____

c. If yes, are you an office holder (Deacon, Deaconess, etc.) or are you on any committees of your church? Yes____ No____

(1) If yes was the answer to 20*c*, in what office or on what committee do you serve?_____

_____

VI. Social Activities

"Now I'd like to ask you three quick questions about your family and friends." (Note: Help the interviewee make his estimates.)

21. How many close friends would you say you had? By close friend I mean someone with whom you would discuss personal problems.

_____

22. About how often each year do you have friends or relatives over to your home?_____

23. How many times a year do you visit friends or relatives at their homes?_____

VII. Organizations

"In conclusion could you give me some information about the organizations to which you belong. (Use special data sheet to record interviewee's answers.)

24. To what organizations do you presently belong? This would include such organizations as clubs, lodges, civic organizations, PTA, etc.

25. What percentage of the meetings of each of these organizations did you attend last year?

26. Are you now, or have you ever been, a member of a committee or office holder in each of these organizations? If so, please indicate the office you held or the committee on which you served.

Column 1	Column 2	Column 3
Organizations of which I am now a member	% of meetings attended for each organization	Positions held or committees served on
Sample: PTA	40%	

Mailed Questionnaire

Name_____ Date_____

I. General Information

1. What is your age to your nearest birthday?_____

2. *a*. With the exception of temporary absences for school, military, etc., how long have you lived at your present address?_____

   b. With the exception of temporary absences, how long have you lived in the city (town, village, etc.) where you presently reside?_____

3. Are you currently employed? Yes____ No____

   a. If employed, (1) what is your current job title?_____

   _____

   (2) is your job full time or part time?_____

   (3) how long have you worked for your present employer?_____

   b. If unemployed, when was the last time you had a full time job?_____

II. Reading Habits

4. Do you read any newspapers regularly? Yes____ No____

   a. If yes, which ones do you read?_____

   _____

   _____

5. Do you read any magazines regularly? Yes____ No____

   a. If yes, which ones do you read?_____

   _____

   _____

6. Have you read any books in the last six months? Yes____ No____

   a. If yes, (1) approximately how many books have you read during this period?_____

(2) what types of books were they?
fiction_____
non-fiction_____
poetry_____

III. Financial Affairs

7. Do you own or rent your home? Own____ Rent____

a. If you neither own nor rent your home, are you currently living with relatives? Yes____ No____

8. Do you own, or are you now paying for, one or more automobiles? Yes____ No____

a. If yes, how many cars do you have?_____

b. If no, what type of transportation do you use to get to work?

_____

9. Do you have a savings account? Yes____ No____

a. If yes, how long have you had it?_____

10. *a.* Do you own any life insurance? Yes____ No____

(1) If yes, is this a group plan or a personal plan you purchased yourself? Group____ Personal____

b. Do you own any health insurance? Yes____ No____

(1) If yes, what kind? Check all those which apply. disability income____ hospitalization____ major medical____ sickness and accident____ other (please specify)____

(2) If you have health insurance, is this a group plan or a personal plan you purchased yourself? Group____ Personal____

11. Do you have charge accounts at any stores? Yes____ No____

a. If yes, with which stores do you have these accounts?_____

_____

_____

12. Do you have any credit cards? (For example, BankAmericard, Carte Blanche, oil company, etc.) Yes____ No____

a. If yes, which ones do you have?_____

_____

13. Have you contributed to any charities within the last six to twelve months? (For example, Red Cross, Community Chest, Salvation Army, etc.) Yes____ No____

    a. If yes, to which charities have you contributed?_____

    _____

    _____

IV. Political Activity

14. Were you eligible to vote in the last election (local, state, or national)? Yes____ No____

    a. If yes, did you vote? Yes____ No____

15. During recent election campaigns, have you ever worked for a party or candidate? (For example, have you ever driven people to the polls, passed out leaflets, telephoned people about voting, etc.) Yes____ No____

    a. If yes, what sort of work have you done?_____

    _____

    _____

16. Have you ever contributed money to a political party or candidate? Yes____ No____

    a. If yes, what type of election was involved? (For example, city, county, state, national, etc.)_____

    _____

17. Do you like to discuss politics with friends and acquaintances? Yes____ No____

    a. If yes, in what political issues are you most interested?

    _____

    _____

18. Have you ever attended any public meetings of your local government? (For example, have you ever attended any meetings of your city council, board of education, etc.?) Yes____ No____

    a. If yes, which meeting did you attend?_____

    _____

b. When did you go to these meetings? That is, what issue or controversy prompted you to attend?_____

_____

_____

19. Do you belong to any political parties or clubs? (For example, Republican, Young Democrats, CORE, Socialist, etc.) Yes____ No____

a. If yes, to which parties or clubs do you belong? _____

_____

_____

V. Religious Activity

20. Do you attend church (or synagogue) regularly? Yes____ No____

a. If yes, on the average how many times do you go to church each month?_____

b. If yes, have you done any type of work for your church? (For example, soliciting new members, donating your services or car for church functions, teach Sunday school, etc.) Yes____ No____

(1) If yes was the answer to 20*b*, what sort of work did you do?_____

_____

_____

c. If yes, are you an office holder (Deacon, Deaconess, etc.) or are you on any committees of your church? Yes____ No____

(1) If yes was the answer to 20*c*, in what office or on what committee do you serve?_____

_____

VI. Social Activities

21. How many close friends would you say you have? By close friend I mean someone with whom you would discuss personal problems.

_____

22. About how often each year do you have friends or relatives over to your home?_____

23. How many times a year do you visit friends or relatives at their homes? _____

VII. Organizations

24. To what organizations do you presently belong? This would include such organizations as clubs, lodges, civic organizations, PTA, etc. List these on the following page in Column 1.

25. What percentage of the meetings of each of these organizations did you attend last year? List these in Column 2 on the following page.

Column 1	Column 2
Organizations of which I am now a member	% of meetings attended for each organization
Sample: PTA	40%

APPENDIX B

Public Opinion Questionnaire

Below are some statements regarding public issues, with which some people agree and other disagree. Please give us your own opinion about these items, i.e., whether you agree or disagree with the items as they stand.

Please check in the appropriate blank as follows:

A (Strongly Agree)
a (Agree)
U (Uncertain)
d (Disagree)
D (Strongly Disagree)

1. Sometimes I feel all alone in the world.
___A ___a ___U ___d ___D

2. I worry about the future facing today's children.
___A ___a ___U ___d ___D

3. I don't get invited out by friends as often as I'd really like.
___A ___a ___U ___d ___D

4. The end often justifies the means.
___A ___a ___U ___d ___D

5. Most people today seldom feel lonely.
___A ___a ___U ___d ___D

6. Sometimes I have the feeling that other people are using me.
___A ___a ___U ___d ___D

7. People's ideas change so much that I wonder if we'll ever have anything to depend on.
___A ___a ___U ___d ___D

8. Real friends are as easy as ever to find.
___A ___a ___U ___d ___D

9. It is frightening to be responsible for the development of a little child.
___A ___a ___U ___d ___D

10. Everything is relative, and there just aren't any definite rules to live by.
___A ___a ___U ___d ___D

11. One can always find friends if he shows himself friendly.
___A ___a ___U ___d ___D

12. I often wonder what the meaning of life really is.
___A ___a ___U ___d ___D

13. There is little or nothing I can do towards preventing a major "shooting" war.
___A ___a ___U ___d ___D

14. The world in which we live is basically a friendly place.
___A ___a ___U ___d ___D

15. There are so many decisions that have to be made today that sometimes I could just "blow up."
___A ___a ___U ___d ___D

16. The only thing one can be sure of today is that he can be sure of nothing.
___A ___a ___U ___d ___D

17. There are few dependable ties between people any more.
___A ___a ___U ___d ___D

18. There is little chance for promotion on the job unless a man gets a break.
___A ___a ___U ___d ___D

19. With so many religions abroad, one doesn't really know which to believe.
___A ___a ___U ___d ___D

20. We're so regimented today that there's not much room for choice even in personal matters.
___A ___a ___U ___d ___D

21. We are just so many cogs in the machinery of life.
___A ___a ___U ___d ___D

22. People are just naturally friendly and helpful.
___A ___a ___U ___d ___D

23. The future looks very dismal.
___A ___a ___U ___d ___D

24. I don't get to visit friends as often as I'd really like.
___A ___a ___U ___d ___D

VT 012 376
A Study of Vocational Education in the Muscle Shoals Region.

Muscle Shoals Council of Local Governments, Ala.
Appalachian Regional Commission.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Jun70 169p.

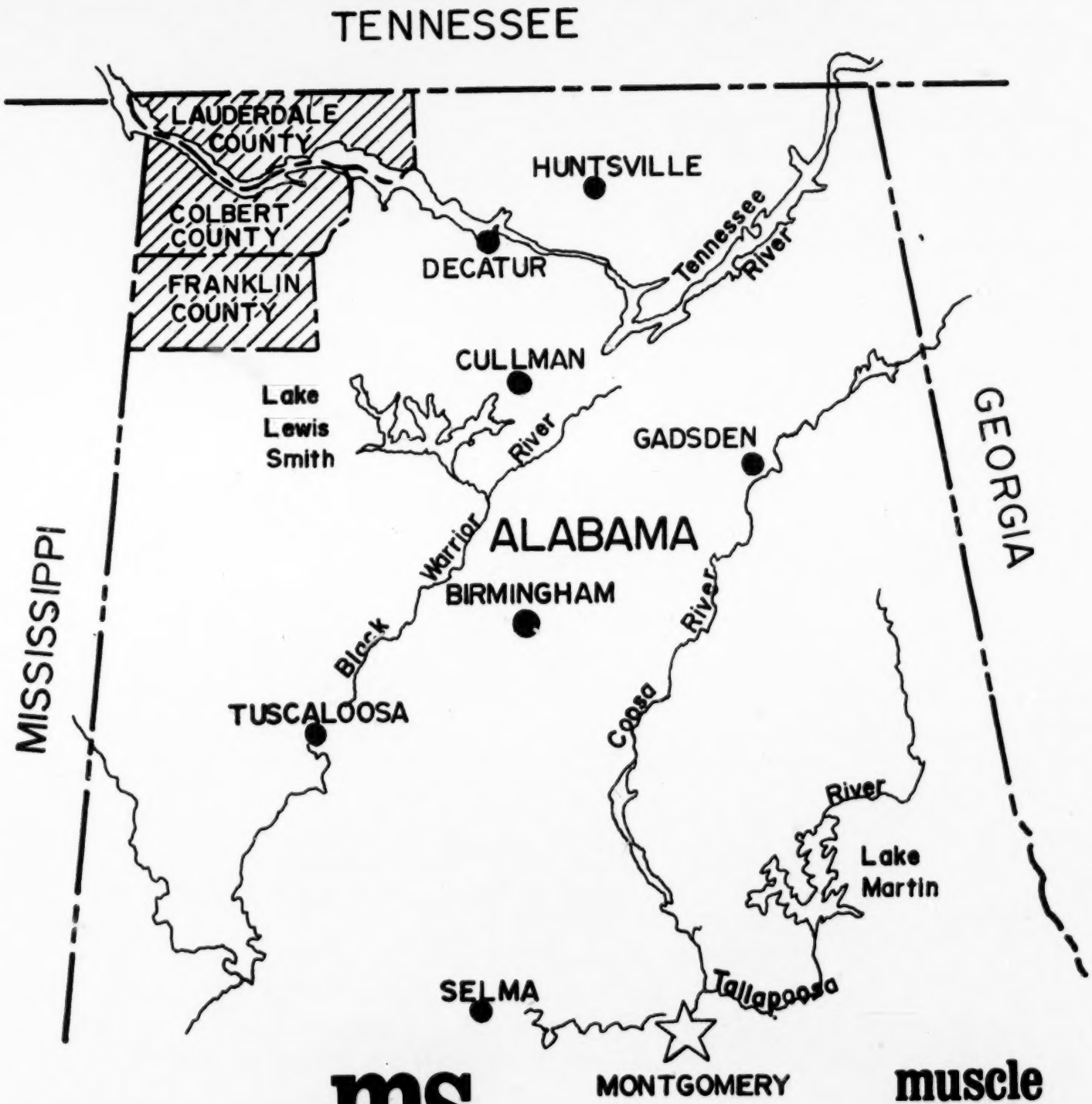
DESCRIPTORS - *DEMOGRAPHY; EMPLOYMENT TRENDS; EMPLOYMENT PROJECTIONS; *ECONOMIC CLIMATE; *REGIONAL PLANNING; *VOCATIONAL EDUCATION; *PROGRAM EVALUATION; PROGRAM IMPROVEMENT; ECONOMIC DEVELOPMENT

ABSTRACT - In response to a high dropout rate and a shortage of skilled manpower in the area, an evaluative study was made of vocational education in the Muscle Shoals region. This report describes the strengths and weaknesses of vocational education in the region within the framework of the regional economy and demography. Finding no inherent weaknesses in the existing system, the report makes recommendations for improvements in facilities, curriculum, policies, and public relations. Included in the report is a schedule for implementation of priorities in immediate, short-run, and long-run phases. (BH)

VT 012 376

ED0 57254

VOCATIONAL EDUCATION in the Muscle Shoals Region



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THE MUSCLE SHOALS COUNCIL OF LOCAL GOVERNMENTS
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The preparation of this report was financially aided through a Federal grant from the Appalachian Regional Commission, under the Assistance Program authorized by Section 302 of the Appalachian Regional Development Act, as amended.

A STUDY OF

VOCATIONAL EDUCATION IN THE MUSCLE SHOALS REGION

July, 1969 June 1970

MUSCLE SHOALS COUNCIL OF LOCAL GOVERNMENTS

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FOREWORD

This study is the result of the cooperation and assistance of many individuals and organizations. Most who were contacted gave freely of their time and resources. The cooperation in the study was more or less expected, and the degree of enthusiasm was gratifying. The cooperation of the region's school personnel, students, industrialists, officials and residents is appreciated. The information and encouragement furnished by the Alabama State Board of Education, Department of Vocational Education was invaluable. The willingness of agencies and organizations outside the region to furnish results of specific research was most helpful in guiding the study. The professional associations involved with education generally and vocational education specifically were most helpful in supplying requested information and in suggesting other sources of information. Appreciation for all this assistance, and more, is herewith expressed.

The desire of the people of this region to improve the quality of vocational education has been expressed in many ways many times during the life of this study. This desire, properly nourished and guided, can assure vocational education worthy of this region.

ABSTRACT

Title:	The Strengths and Weaknesses of Vocational Education in the Muscle Shoals Alabama Region with Recommendations
Author:	The Muscle Shoals Council of Local Governments
Subject:	The Demography, Economic Base, Strengths and Weaknesses of Vocational Education in the Muscle Shoals Region, with Recommendations and Phasing of Implementation of Recommendations.
Local Planning Agency:	The Muscle Shoals Council of Local Governments.
Date:	June, 1970
Source of Copies:	Appalachian Development Office Alabama Development Office Alabama State Office Building Montgomery, Alabama 36104

3728

Source of Copies: Appalachian Regional Commission
1666 Connecticut Avenue, N.W.
Washington, D. C. 20235

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Appalachian Regional Commission Project Number: 0-700-70

Series No: 1 (of 1)

Number of Pages: 140

Abstract: This study is concerned with learning the strengths and weaknesses of vocational education in the Muscle Shoals Region and formulating recommendations in overcoming needs discovered by the study. Part I of this report supplies essential background information of the demography and the economy of the region. Part II explores the strengths and weaknesses of vocational

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education in the region. Part III contains recommendations for utilizing the strengths and overcoming the weaknesses. Part IV charts the phases for implementation of the recommendations.

The findings of this study reveal that:

(1) There are many weaknesses in vocational education in the Muscle Shoals Region. However, with proper planning, coordination and timing, these weaknesses can be overcome.

(2) There are also many strengths in vocational education in the region. These strengths offer a firm foundation upon which can be erected vocational education offerings to meet the present needs of this region and which will assure continued development of the region.

As a result of the findings and conclusions of this study, recommendations concern these areas:

(1) Facilities

(2) Curriculum

(3) Policy

(4) Public Information and Relations

The phasing for implementation of the recommendations is:

Phase I - Recommended Immediate Implementation

1. Expansion as recommended in Part III, of the presently functioning temporary Vocational Educational Study Committee.
2. Continue the study of vocational educational needs of the region.
3. Define a Philosophy of Vocational Education for the Muscle Shoals Region.
4. Formulate a plan to determine vocational levels and define the method by which recognition of these levels can be utilized to improve vocational education in the region.
5. Study and plan a Regional Vocational Fair.
6. Continue, and expand downward at least one grade, the student visits to post secondary vocational facilities.
7. Study methods to provide transportation for students desiring to attend Russellville Area Vocational School.

8. Devise a plan to secure temporary vocational educational facilities for western Franklin and western Lauderdale Counties.

9. Study Conservation curriculum needs.

Phase II - Recommended Short Range Implementation

1. Secure temporary vocational facilities for western Franklin and western Lauderdale Counties.
2. Secure temporary facilities to relieve crowding in existing shops and classrooms.
3. Implement methods to provide transportation to Russellville Area Vocational School.
4. Initiate curriculum changes needed to teach Conservation courses.
5. Continue and expand downward to grade 9, the student visits to post-secondary vocational facilities.
6. Initiate the recognition and rewarding of vocational levels.
7. Conduct a Regional Vocational Fair for public school students.

8. Continue the activities of the temporary Vocational Education Study Committee and study the formation of a permanent Advisory Committee on Vocational Education for the Muscle Shoals Region.

9. Initiate an active continuing public information program.

10. Secure reporting by the U. S. Department of Labor of Employment and Earnings in the Muscle Shoals Region.

11. Study the possibility of benefits to be gained through schools sharing facilities, staffs and students.

12. Study and design curriculum to combat the drop-out problem.

13. Study and define methods to cope with discipline problem students.

14. Study and design a program to provide short-term intensive job training.

15. Promote the inclusion of counseling courses in the curriculum of Florence State University.

16. Define the proper approach to securing guidance counseling and social case worker counseling for all grade levels in all schools.

17. Secure change in the licensing requirement policy of the Alabama State Board of Cosmetology.

18. Study methods and make recommendations for expansion of, and at least partial funding thereof, night vocational course offerings on the post-secondary level.

19. Conduct a comprehensive study of the tax base of the region, and make recommendations to correct inequalities and weaknesses.

Phase III - Recommended Long Range Implementation

1. Implement the curriculum changes needed to overcome the drop-out problem.

2. Implement the recommendations resulting from the Phase II study of the discipline problem students.

3. Assure the availability of counseling courses leading to a graduate degree in counseling at Florence State University.

4. Continue, and utilize as needed, the programs for short-term intensive job training.

5. Establish a permanent Vocational Educational Advisory Committee for the Muscle Shoals Region, if the Phase II study of this matter indicates this as a need.

6. Study the advisability, implications and make-up of a duly established Muscle Shoals Regional Vocational Educational Board, and make recommendations.
7. Continue and expand the Regional Vocational Fair effort and promote this effort to other regions, seeking to establish a state-wide competition.
8. Promote the sharing of facilities, staffs and students if the Phase II study finds this as a need.
9. Implement the recommendations resulting from the findings of the Phase II study of approaches to securing guidance counseling and social case work counseling for all schools at all grade levels.
10. Implement the recommendations of the Phase II study of post-secondary night vocational course offerings.
11. Implement the recommendations resulting from the Phase II study of the tax base of the region.

Phase IV - Recommended Further Study

1. An intensive study of the best method of securing a Quality Vocational Education System for the Muscle Shoals Region should produce a Master Plan for such

a system with recommendations for implementation.

Areas to consider include:

A. Formation of a Regional Vocational Technical School?

B. Formation of Vocational - Technical School for each county?

C. Establishment of residential facilities for vocational technical education?

D. Establishment of comprehenseive high schools?

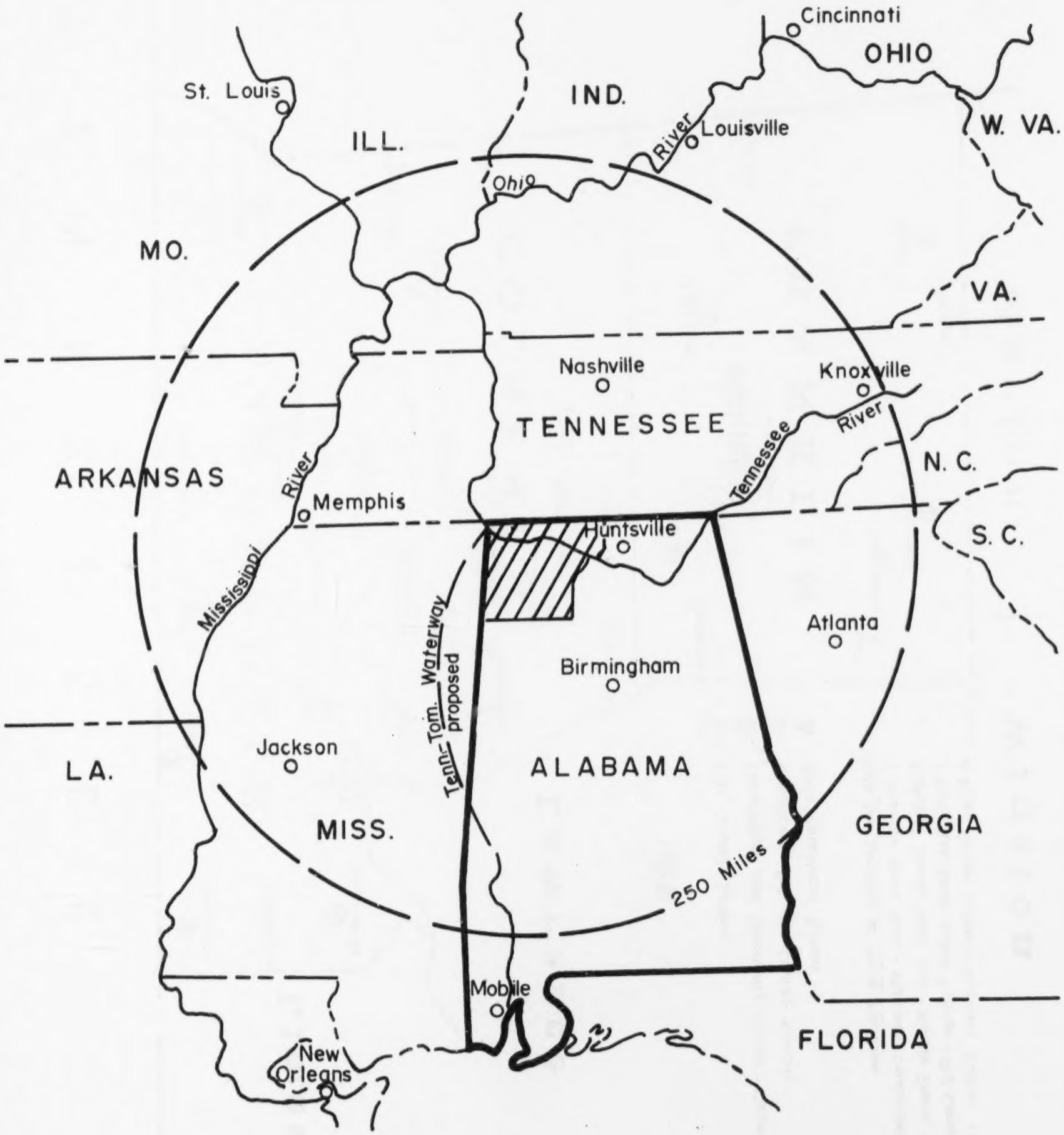
E. Consolidation of some, or all, school systems' efforts in vocational-technical education?

F. Innovative methods for securing funding and local support?

G. Formation of a Muscle Shoals Regional Vocational Board to administer programs?

H. A combination of these approaches?

MUSCLE SHOALS REGION



TENNESSEE
MISSISSIPPI
LAUDERDALE
Limestone
Lawrence
COLBERT
FRANKLIN
Marion
Winston
Cloverdale
Wilson
Greenhill
Lexington
Waterloo
Anderson
Central
Rhodesville
Oakland
Underwood
Killen
Elgin
Center Star
Rogersville
FLORENCE
Brick
Hatton
Margerum
SHEFFIELD
Cherokee
Barton
TUSCUMBIA
MUSCLE SHOALS
Allsboro
Valdosta
Colbert Heights
Leighton
Spring Valley
New Bethel
Underwood
Littleville
LaGrange
Mt. Star
Belgreen
Tharptown
RUSSELLVILLE
Red Bay
Rockwood
Union
Trapptown
Vina
Phil Campbell
Hodges
LEGEND
City School System
Elementary and Secondary School - County System
Elementary School - County System
Area Vocational School
Note the Location of these Facilities
1 Florence State Univ. - Florence, Lauderdale Co.
2 Muscle Shoals Tech. Inst. - Muscle Shoals, Colbert Co.
3 N.W. Ala. State Junior College - Phil Campbell, Franklin Co
4 Hope Haven School - Valdosta, Colbert Co.

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INTRODUCTION

The Muscle Shoals Council of Local Governments was incorporated on June 21, 1967, under the provisions of Section 230, Chapter 10, 1940 Code of Alabama. It is a non-profit corporation formed to study and promote matters of interest and concern of two or more of the member jurisdictions. Members are: Colbert, Franklin and Lauderdale Counties, and the municipalities of Sheffield, Tuscumbia, Muscle Shoals, Leighton, Phil Campbell, and Florence. The Board of Directors of the Council is composed of the chief elected officials of each of the member jurisdictions. Members elect from among themselves the Chairman and Vice Chairman. Financial support of the Council is afforded by a 25¢ per capita assessment of the member jurisdictions, a 701 (g) Department of Housing and Urban Development Planning Grant, and Appalachian Regional Commission Section 302 support. Completed planning activities of this Council include: Population and Economy, Colbert and Lauderdale Counties, Land Use Analysis, Regional Base Mapping, and Comprehensive Water and Sewer Plan. Current planning includes: Neighborhood Analysis, Thoroughfare Plan, Public Improvements, Land Development, Public Facilities, Sub Division Standards and Zoning. Future planning will include: Public Improvements Budgeting, Major Transportation Study, Major Recreation Plan, Reorganization Study for three major municipalities

(Sheffield, Tuscumbia and Muscle Shoals), Data Collection and Control Center Study, and the continuing Study of Housing, to enumerate only a few.

In order to enhance the social and economic planning and development in the region, the Council sought and secured an Appalachian Regional Commission designation as a Local Development District. Operations were begun July 1, 1969, with a two-fold work program for the first year: 1 - Determination of Vocational Education Needs of the Region and Proposals; and 2 - Determination of Needs of the Region and Design of Programs for Total Resource Development. This report will deal with the findings of the Vocational Education Study.

The study was commissioned by the Council because of its concern with the high drop-out rate in the region's schools and because of the shortage of local vocational-technically trained manpower. The tremendous scientific and technological advances of the past two decades have created a demand for a vocationally trained work force. These advances have out-distanced the capabilities of the vocational education system, not only in this region, but nationally. The economy of this area has improved somewhat in recent years, and is expected to continue in this direction. The shortage of vocationally trained persons to fill industrial jobs can become acute as development

continues. This shortage hampers area officials in their efforts to induce industry to locate in the region. Unless, and until, additional business and industry are secured, the region will not attain its potential in development. The natural resources necessary for development (i.e., moderate climate, adequate rainfall, abundance of good quality ground and surface water, availability of natural gas, dependable supply of low cost electricity, availability of timber and various minerals, and favorable location for highway and waterway tranportation) are present in the region, but the failure to fully develop our human resources is impeding progress. Knowing this to be true, the Council assumed for itself the task of determining the strengths and weaknesses of vocational education in the region, the formulation of recommendations on measures to overcome the weaknesses, and the promotion and implementation of corrective measures.

In order to intelligently discuss the very broad subject of vocational education, it is necessary to relate to a number of other subjects. It is necessary to discuss population - the number and characteristics of the present and future inhabitants of the region. It is necessary to know about the projected manpower needs of the region. For these reasons a brief analysis of the Muscle Shoals Area is submitted as a preliminary to the vocational education discussion. From this information, we are able to

to learn a great deal about the present and future needs of the region.

This report is divided into four major parts. The first part permits the reader to acquire the knowledge of the Muscle Shoals Region; a necessary factor in understanding needs and problems of vocational education. The second part identifies the strengths and weaknesses of vocational education in the region. The third part contains recommendations for utilization of the strengths and for overcoming the weaknesses defined in Part II. The fourth part contains the schedule for implementation of the recommendations.

The sources of data used in this study are many and varied. All of the prior, present, and future studies and planning of the Council have a direct relationship to vocational education in this planning region. Knowledge gained from the completed and current studies was used as background data in this study. Visits to all the vocational schools and most of the other schools of the region yielded valuable information. Interviews with persons in industry, business, the professions, and service trades supplied much of the substantive data. The financial statements of each school system revealed total expenditures for the current year. The 1968-69, 1969-71 Educational Appropriations (Act No. 91) and other individual appropriations measures passed during the 1969 Special Sessions of the Alabama Legislature disclosed the availability

of funds for education. Refer to table 26 , page 81 . Meetings of the Vocational Education Study Committee provided a wealth of information and ideas. A partial listing of materials used in this study include:

Comprehensive Manpower Plan, Fiscal 1970, State of Alabama

Alabama State Plan For The Administration of Vocational Education Under The Vocational Amendments of 1968, Alabama State Department of Education

American Vocational Journals, American Vocational Association, Inc.

The Status of Secondary Vocational Education in Appalachia-Research Report No. 10, Appalachian Regional Commission

Industrial Location Research Studies, Research Report No. 4-Appalachian Regional Commission

Manpower, U. S. Department of Labor

New Directory in Vocational Education, U. S. Department of Health Education and Welfare

Manpower Requests in Occupations for Which Vocational Education Prepares Workers, U. S. Department of Labor

Confidential Report, Manpower Needs, Alabama State Department of Education

The Appalachian Journal, Appalachian Regional Commission

Manpower Education in the North Carolina Appalachian Regional, Hammer-Greene-Siler Associates

Comprehensive Statewide Planning for Vocational Rehabilitation Service in the State of North Carolina, North Carolina Department of Public Instructors and North Carolina Committee for the Blind

SCORE 2nd Annual Report, School Counselor Task Force, Huntsville, Alabama

The methodology used in this report is largely analytical. The intent has been to gather the facts and analyze same, in order to present a concise picture of the strengths and weaknesses of vocational education in the planning region and from this data make recommendations which, when implemented, can overcome the deficiencies.

DEMOGRAPHY AND ECONOMICS

MUSCLE SHOALS REGION

PART I

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DEMOGRAPHIC ANALYSIS OF THE MUSCLE SHOALS AREA

It is recognized that both population characteristics and changes therein significantly affect the need for various public and private services. Therefore, this section of the report analyses: (1) general growth trends (2) components of population change (3) the composition of the population and (4) the future population.

GENERAL GROWTH TRENDS

The Muscle Shoals Region has witnessed a steadily increasing population over the past 69 years. In only one decade did it fail to show a significant gain; that decade being the twenties which produced an 0.8 percent decline due to the out migration of population from Colbert County which was scarcely off-set by Lauderdale County's meager 4.0 percent gain. Table 1 and Chart 1 illustrate these total population relationships within the Muscle Shoals Region and compare the trends with that of Alabama as a whole.

COMPONENTS OF POPULATION CHANGE

Population change in the Muscle Shoals Area has been affected by numerous occurances throughout its history. In 1916 the Federal Government selected Muscle Shoals as the site for construction of two nitrate plants and a steam-electric generating station. Construction of a dam, as part of a navigation flood control and power development plan for the area was authorized in 1918. The two occurances resulted in the boom in population from 1900 to 1920.

The out-migration from the area during the period from 1920 to 1930 resulted from the decision of the Federal Government to halt all wartime construction projects at Muscle Shoals following the end of World War I. Construction workers were forced to leave the area to seek employment, thus the reduction in population began.

In 1933, a combination of bills providing for the establishment of the Tennessee Valley Authority were passed into law. TVA quickly become the primary employer and principle generator of economic growth in the region.

With TVA and the expansion of the economy, the population out-migration pattern quickly reversed with new families pouring into the area. The 1940 Census of Population reflected the significant uptrend as Colbert County's growth rate sprang to 14.2 percent and Lauderdale County's rate increased to 12.4 percent.

World War II created a new industry for the Shoals Area - Aluminum. Reynolds has since grown tremendously as the market expanded. Consumption of aluminum and aluminum alloys by the transportation and construction industries attracted consumers to the reduction facilities in order to lower transportation costs.

The multiplier effect in growth rates showed its affect in increasing jobs in service, trade, finance, utilities and government as factory jobs increased,

and resulted in accelerated rates of growth in population for the region during the next two decades.

Due mainly to the effective utilization of her many natural resources and especially the development along the Tennessee River, The Muscle Shoals Region experienced an increase of more than 120 percent in population in less than 70 years.

COMPOSITION OF THE POPULATION

For a more basic understanding of how population effects the need for facilities and services, it is necessary to take a closer look at the detailed characteristics of the population in order to ascertain an accurate analysis of the Muscle Shoals Region make-up. These characteristics determine such things as employment, composition of the labor force, school enrollment and consumption patterns, all of which help to determine vocational education demands and needs within the region.

Tables 2 and 3 depict population trends as regards birth rates and mortality rates. Chart 2 illustrates age group trends for the last two decades. These tables and the chart show a general trend of both sexes toward a slight decrease in the population of children and a corresponding increase in the proportion of older residents, much like the U. S. as a whole. Improvements in the field of medicine and aged care centers, along with better diets, have resulted in a longer life span. Added to a diminished tendency to out-migrate on the

on the part of the older citizens, there has been an effect on the total population composition of the Shoals Region. Significant reductions in the proportions of young adults has resulted principally from out-migration to seek greater economic opportunities. The decline in the number of children by planned parenthood and young adult out-migration has aided in establishing this trend towards an older population for the region.

THE FUTURE POPULATION

In studying vocational education needs for the present and in the future, it is essential that we first consider the population growth trends in order to develop a basis from which to consider future educational demands. There are three basic methods of population projection in current use. Chart 3 reflects each of these methods.

Method II, based on the "Cobart - Survival" technique, provides the trend felt to be most useful. It was therefore accepted for our future assumptions.

Total population for Colbert County is expected to continue increasing above the 1960 Census level at a slightly increased rate. In 1970 an increase of 17.8 percent over 1960 is expected, giving a projected total of 54,762 and reaching 64,602 in 1980 - an increase of 18.8 percent over 1970. This will represent an addition over the projection period of 18,096 persons - an increase of 38.9 percent over 1960. This figure is a probable and is quite substantial, however, it can be considerably higher if the Muscle Shoals Area can create

the necessary new jobs to reverse the out-migration trend experienced during the previous decade and keep the young well-trained productive workers at home.

Lauderdale County's population is presently following a slightly different trend. The total population of the County is expected to climb to 70,838 - up 15.0 percent by 1970, and reach 80,898 by 1980 - up 14.2 percent over 1970.

Tables 4 and 5 , and Chart 4, illustrate current and future population for Colbert and Lauderdale Counties.

Proportionate increases and sizable numerical gains are expected to occur in all three counties within the young productive age group. For Colbert County, this climb should be from 26.9 percent to 28.5 percent, reflecting a net increase of 5,901 persons. Lauderdale County's net gain of 6,550 in the same group represents an increase from 28.1 percent in 1970, to 29.6 percent of the total in 1980. Detailed information is not yet available for Franklin County, but that County is expected to also experience gains.

The established productive group in both Colbert and Lauderdale Counties will increase at decreasing rates during the 20 year period as Colbert County adds 3,994 persons to this group and Lauderdale County adds 3,936 persons. The last of the groups - retired, while being smaller numerically in both Counties is expected to gain significantly during the forecast period. The retired

group in Colbert County should rise from 7.4 percent to 10.9 percent with a net gain of 3,652 persons. With Lauderdale County, adding 3,815 persons in the same group, the proportionate size grows from 7.3 percent in 1960 to 10.2 percent in 1980. The two primary reasons for the dynamic change expected in the 65 and over age group are: (1) increased life expectany, and (2) the relative effect of out-migration in the younger, highly mobile age groups.

Although information on Franklin County is extremely limited, the following basic data on population indicates that the picture in the third county comprising the Muscle Shoals Region is quite similar to Colbert and Lauderdale Counties.

The total population of Franklin County in 1960 was 21,988. This represents a decrease of 14.5 percent from 1950. The population of Alabama increased almost 7 percent during the same period of time.

The farm population of Franklin County decreased by 5,162 or 41.4 percent during the period from 1950-1960; in the state, the change was 48 percent. The urban population of the county increased by 616, or 1 percent over the 1950 figure, while the rural non-farm population increased by 829, or 11.5 percent.

The total decline in population for the county during the period 1940-1960 was 5,564 or 20.1 percent.

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The percentage of non-white population in the county remained almost constant at approximately 5.5 percent from 1950 to 1960. In 1959, there were 5,841 families in Franklin County, which gives an average of almost 3.8 people per family.

The population density of the rural areas in Franklin County is 24 people per square mile. Franklin County's future population is illustrated by Chart 5 on the following page.

SIGNIFICANCE OF FUTURE TRENDS

Muscle Shoals citizens are at a crucial point in planning for the changes in demand which will surely accompany the changing face of the population. The communities in the region must prepare to meet the changing demands based on the projection that total population of the Shoals Area is expected to increase by approximately 26,000 persons between 1960 and 1980, thus creating an absolute need for increased public services, public facilities and housing.

TABLE 1

POPULATION TRENDS FOR COLBERT AND LAUDERDALE COUNTIES AND ALABAMA 1900–1960

	Colbert County	Lauderdale County	Muscle Shoals Area	Alabama
1900	*22,341*	*26,559*	*48,900*	*1,828,697*
1910	*24,802*	*30,936*	*55,738*	*2,138,093*
percent change	*11.0*	*16.5*	*14.0*	*16.9*
1920	*31,997*	*39,556*	*71,553*	*1,348,174*
percent change	*29.0*	*27.9*	*28.4*	*9.8*
1930	*29,860*	*41,130*	*70,990*	*2,646,248*
percent change	*-6.7*	*4.0*	*-0.8*	*12.7*
1940	*34,093*	*46,230*	*80,323*	*2,832,961*
percent change	*14.2*	*12.4*	*13.1*	*7.1*
1950	*39,561*	*54,179*	*93,740*	*3,061,743*
percent change	*16.0*	*17.2*	*16.7*	*8.1*
1960	*46,506*	*61,622*	*108,128*	*3,266,740*
percent change	*17.6*	*13.7*	*15.3*	*6.7*

Source: U. S. Census of Population, 1900–1960.

TABLE 2

LIVE BIRTHS AND LIVE BIRTH RATES BY RACE
(Rate per 1,000 Population)

	1950				1960			
		Rate				Rate		
	Number	*Total*	*White*	*Non-White*	*Number*	*Total*	*White*	*Non-White*
Colbert County	1,072	27.0	25.5	32.8	1,066	22.8	21.8	27.2
Lauderdale County	1,442	26.1	35.6	32.2	1,487	24.1	23.4	29.0
Alabama	82,566	26.9	23.8	33.4	80,955	24.7	22.2	30.6
United States	3,631,512	24.1	23.0	33.3	4,257,850	23.7	22.7	32.1

	1965				1966			
		Rate				Rate		
	Number	*Total*	*White*	*Non-White*	*Number*	*Total*	*White*	*Non-White*
Colbert County	1,023	20.4	19.6	23.9	943	18.5	17.3	23.7
Lauderdale County	1,390	21.2	20.1	29.9	1,242	18.8	17.8	26.2
Alabama	70,589	20.3	18.1	25.5	66,455	18.9	17.2	23.1
United States	3,760,358	19.4	18.3	27.6	3,629,000[a]	18.5[a]	–[b]	–[b]

[a]*Provisional. By place of occurrence.*

[b]*Not available.*

Source: Alabama Department of Health, Bureau of Vital Statistics, Montgomery, Alabama; U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the U.S. 1967, Washington, D.C.: Government Printing Office, 1967.

TABLE 3

DEATHS AND DEATH RATES BY RACE
(Rate per 1,000 Population)

	1950				1960			
		Rate				Rate		
	Number	Total	White	Non-White	Number	Total	White	Non-White
Colbert County	323	8.1	6.8	13.3	375	8.0	6.3	15.1
Lauderdale County	432	7.9	7.4	11.7	460	7.4	6.8	12.2
Alabama	26,753	8.7	7.4	11.4	30,304	9.3	8.3	11.5
United States	1,452,454	9.6	9.5	11.2	1,711,982	9.5	9.5	10.1

	1965				1966			
		Rate				Rate		
	Number	Total	White	Non-White	Number	Total	White	Non-White
Colbert County	421	8.4	7.9	10.5	423	8.3	7.9	10.1
Lauderdale County	523	8.0	7.7	10.5	515	7.8	7.0	14.4
Alabama	32,520	9.3	8.6	11.1	33,008	9.4	8.7	11.0
United States	1,828,136	9.4	9.4	9.6	1,869,000[a]	9.5[a]	_[b]	_[b]

[a]*Provisional. By place of occurence.*

[b]*Not available.*

Source: Alabama Department of Health, Bureau of Vital Statistics, Montgomery, Alabama; U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1967, Washington, D.C.: Government Printing Office, 1967.

TABLE 4

PAST AND FUTURE POPULATION BY AGE GROUPS ACCORDING TO SOCIAL AND ECONOMIC SIMILARITIES, COLBERT COUNTY

Category	1960 Number	1960 Percent Distribution	1970 Number	1970 Percent Distribution	1980 Number	1980 Percent Distribution
Pre-School (under 5)	*5,403*	*11.6*	*6,097*	*11.1*	*7,029*	*10.9*
School (5–14)	*10,428*	*22.4*	*11,678*	*21.3*	*13,351*	*20.7*
Young Productive (15–34)	*12,514*	*26.9*	*15,094*	*27.6*	*18,415*	*28.5*
Established Productive (35–64)	*14,783*	*31.7*	*17,005*	*31.1*	*18,777*	*29.0*
Retired (65 and over)	*3,378*	*7.4*	*4,888*	*8.9*	*7,030*	*10.9*
Total	*46,506*	*100.0*	*54,762*	*100.0*	*64,602*	*100.0*

Source: U.S. Census of Population, 1960–Projections by Rust Engineering Company, Urban and Regional Planning Department.

TABLE 5

PAST AND FUTURE POPULATION BY AGE GROUPS ACCORDING TO SOCIAL AND ECONOMIC SIMILARITIES, LAUDERDALE COUNTY

Category	1960 Number	1960 Percent Distribution	1970 Number	1970 Percent Distribution	1980 Number	1980 Percent Distribution
Pre-School (under 5)	*7,260*	*11.8*	*7,893*	*11.1*	*8,851*	*10.9*
School (5–14)	*13,186*	*21.4*	*14,974*	*21.1*	*16,570*	*20.5*
Young Productive (15–34)	*17,340*	*28.1*	*19,933*	*28.2*	*23,890*	*29.6*
Established Productive (35–64)	*19,369*	*31.4*	*22,074*	*31.2*	*23,305*	*28.8*
Retired (65 and over)	*4,467*	*7.3*	*5,964*	*8.4*	*8,282*	*10.2*
Total	*61,622*	*100.0*	*70,838*	*100.0*	*80,898*	*100.0*

Source: U.S. Census of Population, 1960–Projections by Rust Engineering Company, Urban and Regional Planning Department.

CHART 1

POPULATION CHANGE FOR
COLBERT AND LAUDERDALE COUNTIES AND ALABAMA
1900 - 1960

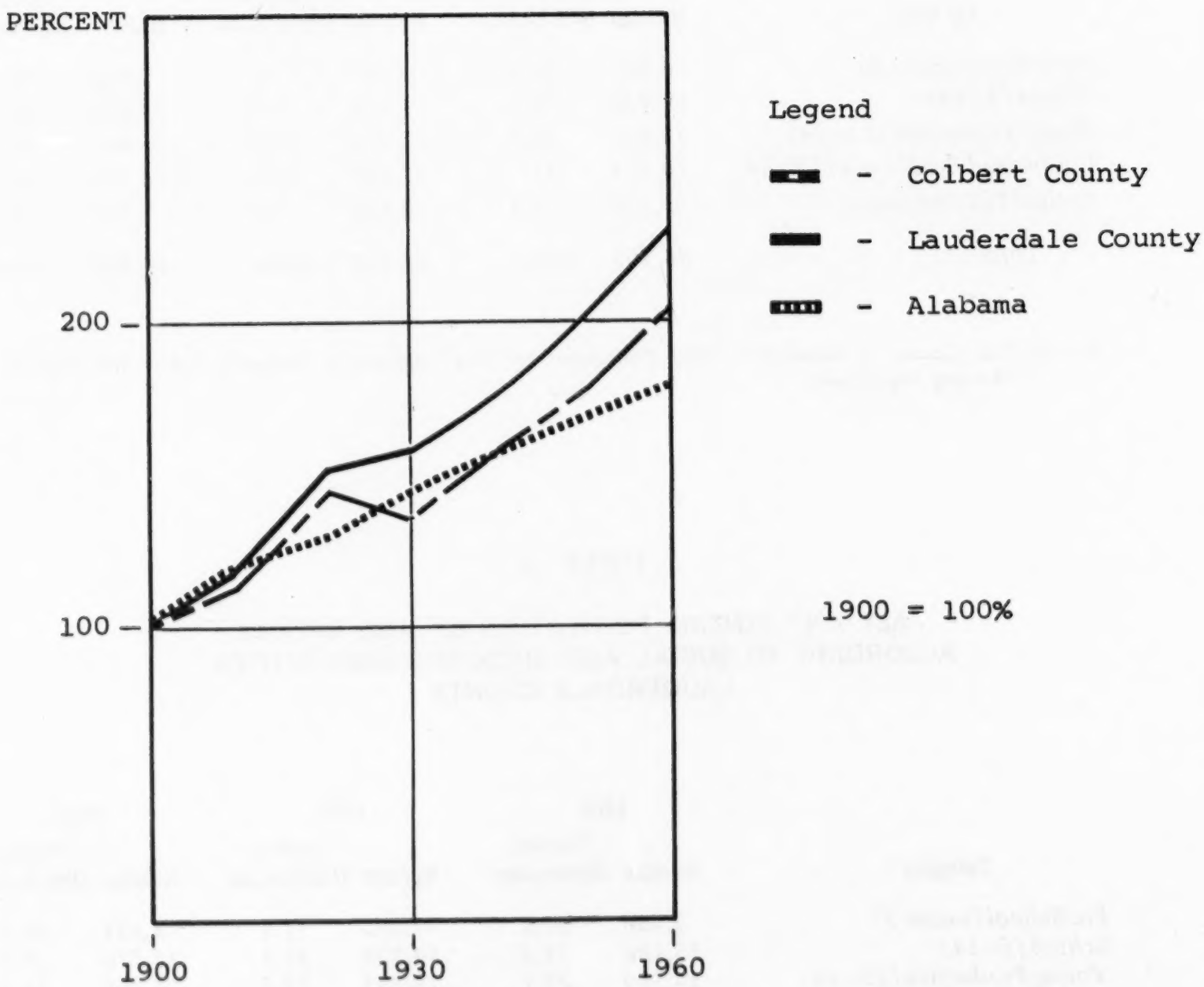

CHART 2

AGE GROUPS IN THE POPULATION BY SEX
1940 - 1950 - 1960

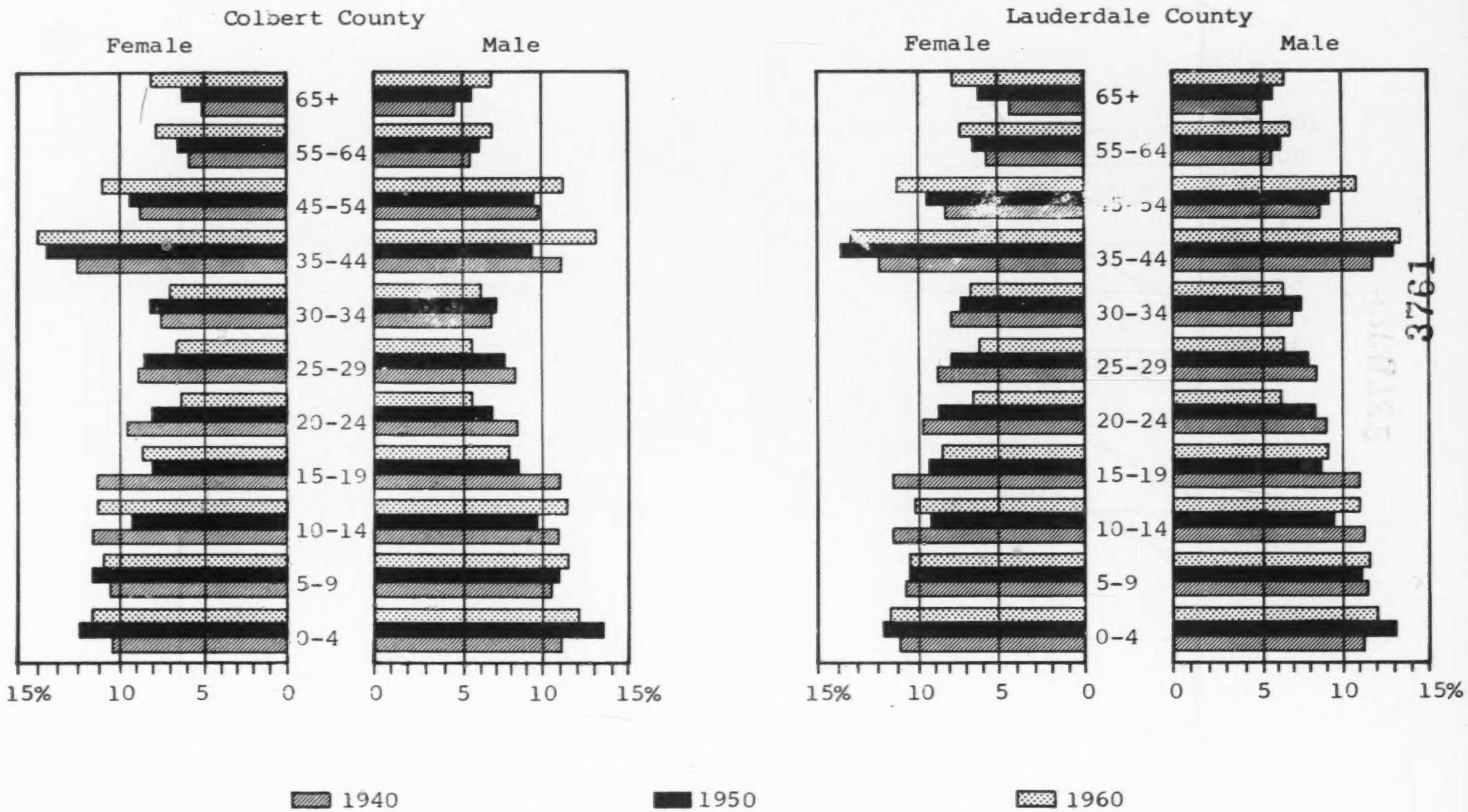

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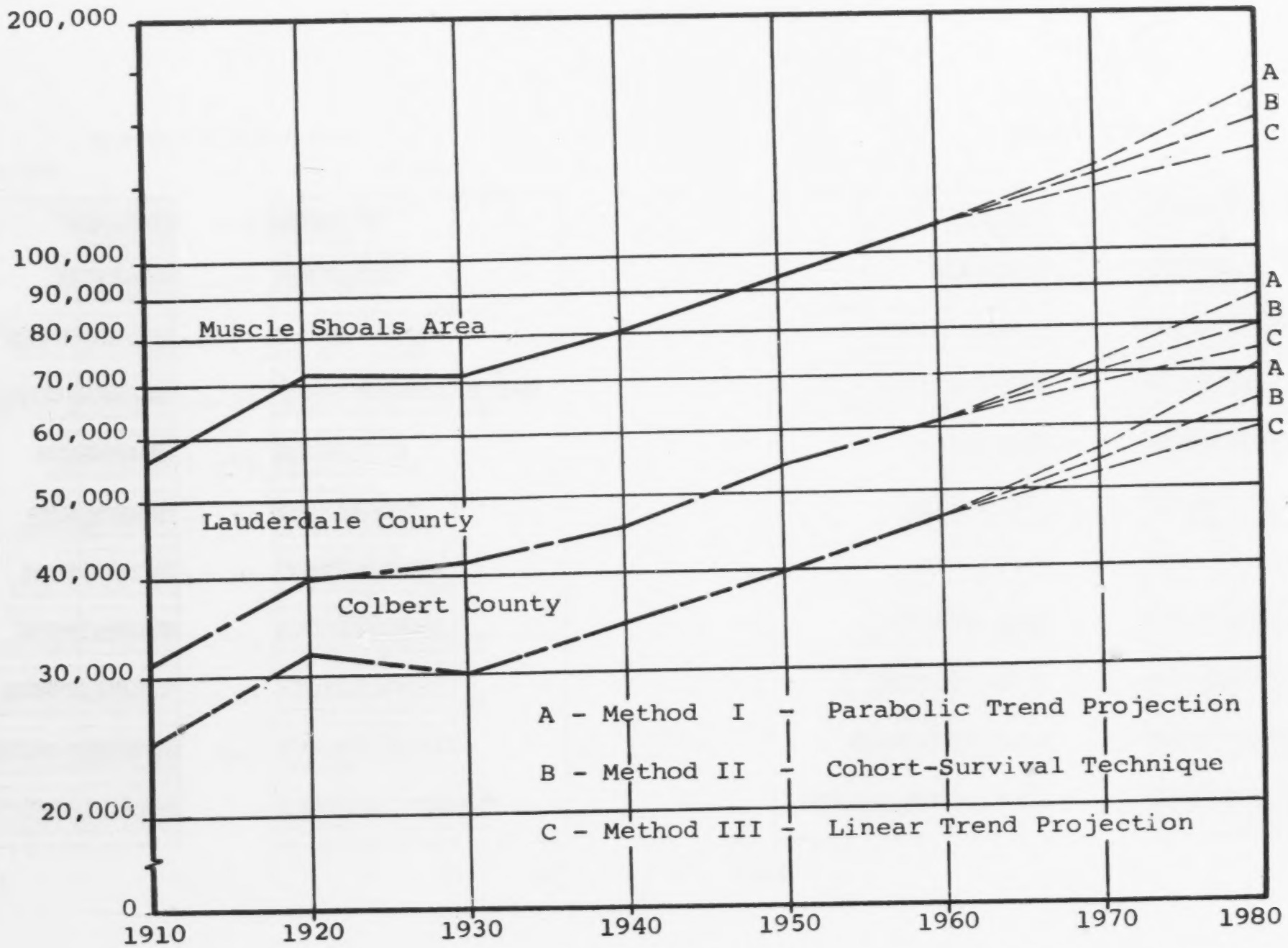
CHART 3

POPULATION PROJECTIONS FOR COLBERT AND LAUDERDALE COUNTIES
1960-1990



Source: Base Data - U. S. Census of Population, Projections by Rust Engineering Company, Urban and Regional Planning Department

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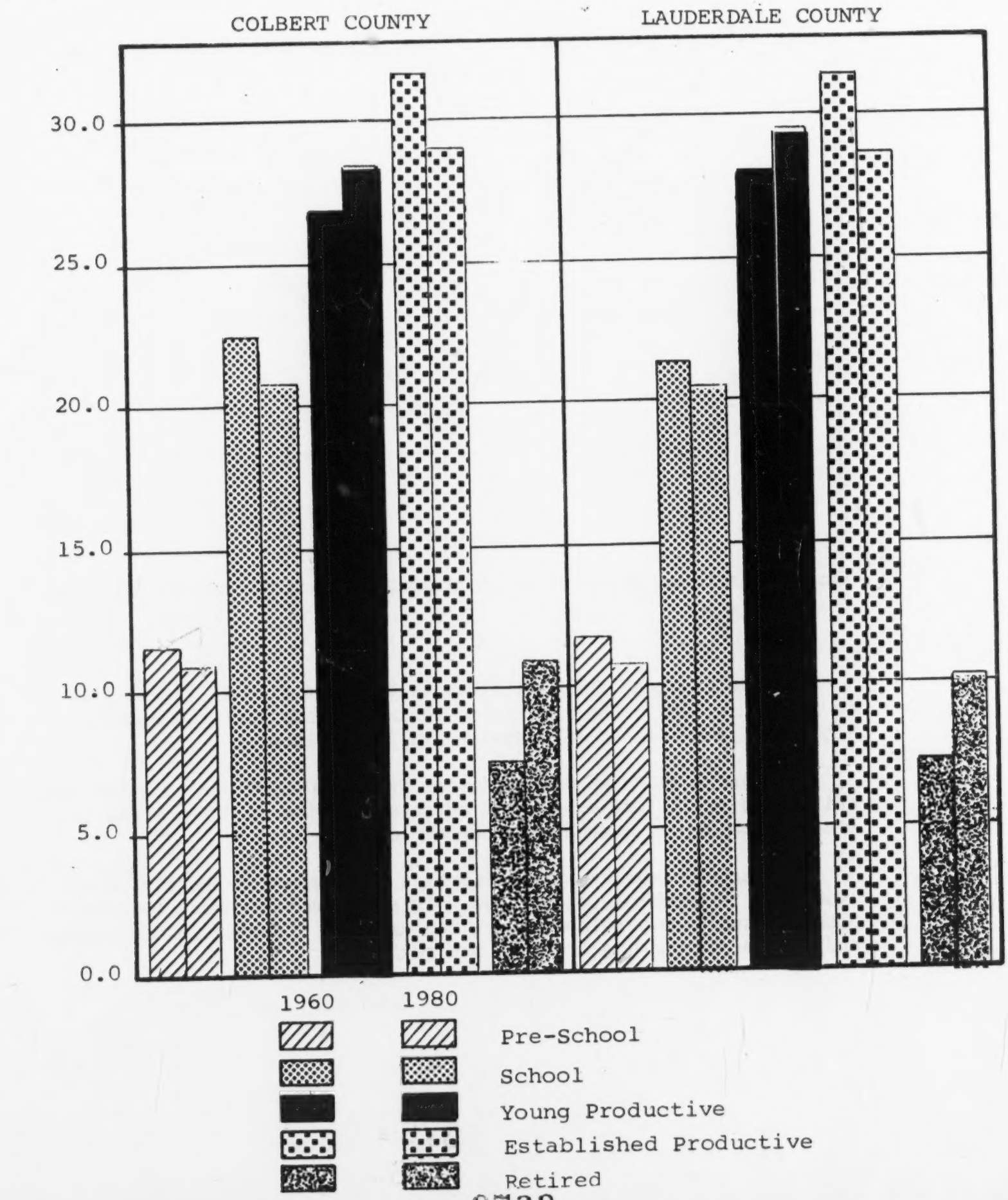
CHART 4

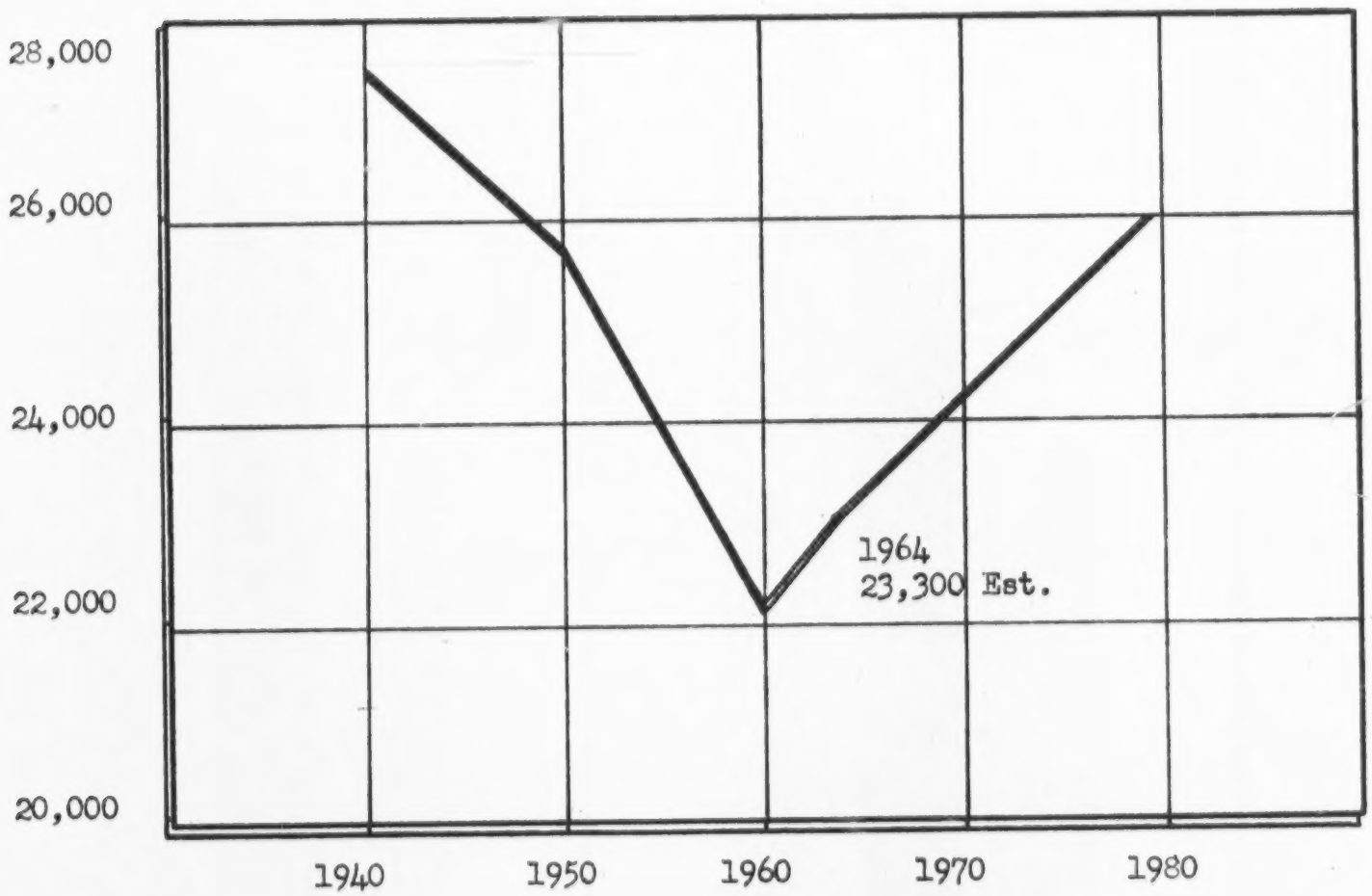
PERCENT DISTRIBUTION OF POPULATION BY
SOCIAL AND ECONOMIC GROUP,
COLBERT AND LAUDERDALE COUNTIES
1960 ——— 1980



FRANKLIN COUNTY - POPULATION FORECAST

1940 - 1980

CHART 5



The population of Franklin County declined from 27,552 in 1940 to 21,988 in 1960. The population began a steady increase shortly after 1960 and rose to an estimated 23,300 in 1964.

The large decrease in population from 1940-1960 can be attributed chiefly to small farm owners and operators moving to urban areas outside the county in search of other employment.

The county began a steady increase in population shortly after 1960 that is expected to continue. This growth was caused by better job opportunities provided by new and expanded industry in the county, and in the surrounding areas of the region.

THE ECONOMY OF THE MUSCLE SHOALS REGION

The purpose of studying the economy of an area is to analyze the existing and potential structure of the economic base of the region considered.

Due to the many significant interrelationships between Colbert and Lauderdale Counties and the availability of statistical data reflecting these relationships, it was considered most meaningful to evaluate the two counties as one economic unit and to study Franklin County, with its scant data, as a separate unit.

This section of the report attempts to provide a framework to assist in developing a meaningful vocational education plan for the future development of the Muscle Shoals Region. This section necessarily includes information on the various towns, the counties, the State and the Nation since the course of development of the local area is affected by developments in the larger regions of which it is a part. With an understanding of the changing economy in the other areas and its effect on local patterns of development, realistic guidelines for the future of the Muscle Shoals area can be developed. Sound planning, conducted by local dedicated leaders, can go far toward influencing favorable development of a meaningful vocational education system and aid in the development of the Muscle Shoals Region.

INCOME

As shown in Table 6 , in 1949, 22.5 percent of the families in Colbert County

and 29.1 percent in Lauderdale County subsisted on annual incomes under $1,000, and 62.8 percent and 68.3 percent of families in Colbert and Lauderdale Counties, respectively, subsisted on annual incomes under $3,000. Moreover, only 34.6 percent of Colbert County's families and 26.9 percent of Lauderdale County's families had incomes ranging from $3,000 to $7,000 a year. A comparison of median family incomes shows that Lauderdale County with $2,002, was almost $290 behind Colbert County with $2,289.

From 1949 to 1959, large improvements were realized in family income levels. Table 16 shows that the percentage of families in Colbert County with annual incomes less than $1,000 had fallen to 10.7 percent, and families with annual incomes less than $3,000 had fallen to 31.4 percent. Lauderdale County also experienced comparable improvement as families with incomes less than $1,000 dropped to only 11.5 percent and those reporting less than $3,000 in annual incomes fell to 35.5 percent. Unfortunately, the percentage of families with annual incomes ranging from $3,000 to $7,000 increased only slightly in both counties as Colbert County rose to 43.2 percent and Lauderdale County rose to 41.5 percent of all families.

Again comparing median family incomes, it can be seen in Table 6 , that during the decade from 1949 to 1959, both counties experienced gains in excess of $2,000. Also, as seen in Chart 6 Colbert County's median family income of $4,700 was $353 more than Lauderdale County's and $763 more than the

Alabama average, but fell short of the comparable income measure for the United States by $960. Therefore, while it is true that large improvement was made from 1949 to 1959, and consequently fewer families were having to subsist on inadequate incomes, it is likewise true that the Muscle Shoals Area still has room for improvement.

It should, however, be pointed out before passing, that the gains realized were unfortunately not as large as they may have appeared. Due to inflation, and the accompanying education in the purchasing power of the dollar, approximately 1/4 of this increase was negated. Returning to Table 6 , there is an evaluation of the 1949 median family income for both Colbert and Lauderdale Counties in terms of 1959 dollars. From this, it can be seen that, in terms of purchasing power, the increase from 1949 to 1959 was really only $1,942 in Colbert County, and $1.935 in Lauderdale County as opposed to $2,411 and $2,345, respectively, when measured in terms of total dollars.

NON-WHITE INCOME COMPARISON

Although income data are not available to establish trends in non-white families of the Muscle Shoals Area, it is, however, possible to compare non-white family incomes with total family incomes in each county and thereby observe and evaluate differences. As shown in Table 7 , of the total non-white families in Colbert County in 1959, 19.4 percent had incomes under $1,000, and 56.9 percent had family incomes of less than $3,000. Moreover, only 35.0 per-

cent of Colbert County s non-white families had incomes ranging from $3,000 to $7,000. In Lauderdale County, the distribution of income for non-whites was even worse, as 21.3 percent of non-white families had incomes of less than $1,000, and a full 2/3 had incomes of less than $3,000. Additionally, only 29.9 percent of Lauderdale County's non-white families had incomes in the range $3,000 to $7,000. One can readily see that a wide gulf exists between white and non-white family incomes in both Colbert and Lauderdale Counties. A comparison of median family incomes further emphasized this gulf, and shows that median family income for non-white families in Colbert County, at $2,554, is $2,146 less than median family income for the Country as a whole. Lauderdale County's median family income for non-whites, at $2,072, is $2,275 less than median family income for the Country as a whole. In terms of economics, this means the non-white segment of the population in both Colbert and Lauderdale Counties, is exerting a drag on the economy. If these income levels could be raised, it would serve to increase purchasing power, broaden the tax base, etc., and in the long run increase community prosperity, and thereby benefit the entire Muscle Shoals Area.

INCOME DISTRIBUTION

There are three measures commonly used to measure income of a given area. They are:

Mean Family Income - the total income of all families divided by the total families

Median Family Income - the point at which half the families had more and half the families has less income.

Per Capita Income - the total income of all families and individuals divided by the total population.

Chart 6 illustrates and compares the above defined measures for Colbert and Lauderdale Counties, Alabama, and the United States. In terms of mean family income, Lauderdale County at $5,422 is second only to the United States with $6,636, followed by Colbert County with $5,276 and Alabama with $5,147. However, in terms of median family income, Lauderdale with $4,347 is third behind the United States with $5,660 and Colbert County with $4,700. A comparison of per capita income shows Lauderdale County with $1.341 to be in fourth place behind the United States with $1.853, Colbert County with $1,840 and Alabama with $1,491.

One method used for evaluating income distribution is to note the span between mean and median income. A large span indicates an uneven distribution of wealth in which a large percent of the total income is concentrated in the hands of a few. In contrast, the smaller the span the more equal the distribution of income. The distribution of income is a very important factor in terms of community growth and prosperity. Those with high incomes, as a rule, have a lower propensity of consumption than do those with low or average incomes, and consequently have a large percentage of their capital

tied up in outside interest and activities. In contrast, those with low or average incomes have a tendency toward a high propensity to consume, thereby affording a rapid circulation of income, resulting in increased economic activity and prosperity for the entire community. One readily notes the desirability of having a reasonably equal distribution of wealth in order to create a sound and healthy economic environment in which to work and live.

As shown by Chart 6 , the gap between mean and median income in Lauderdale County is almost the same as that of Alabama and the United States; however, much larger than is the case with Colbert County, therefore, indicating a distribution of income almost identical to that of Alabama and the United States, but much poorer than that of Colbert County. However, due to the many economic interrelationships between Colbert and Lauderdale Counties, and the commuting patterns of workers in both counties, the combined unit reflects a reasonably good picture of income distribution.

On the basis of the above findings, it appears that Colbert County has a better defined middle class than does Lauderdale County. Since the middle class is the backbone of the community, it would seem wise for Lauderdale County to strive toward increasing the size of the group.

TABLE 6

FAMILY INCOME DISTRIBUTION
COLBERT AND LAUDERDALE COUNTIES

INCOME LEVEL		COLBERT COUNTY Families	COLBERT COUNTY % of total Families	LAUDERDALE COUNTY Families	LAUDERDALE COUNTY % of total Families
All Families	*1949*	*(9,780)*	*100.0*	*(14,035)*	*100.0*
Under $1,000		*2,205*	*22.5*	*4,085*	*29.1*
1,000–1,999		*1,920*	*19.6*	*2,770*	*19.7*
2,000–2,999		*2,020*	*20.6*	*2,725*	*19.4*
3,000–3,999		*1,715*	*17.5*	*1,850*	*13.2*
4,000–4,999		*775*	*7.9*	*1,085*	*7.7*
5,000–5,999		*655*	*6.7*	*585*	*4.2*
6,000–6,999		*240*	*2.5*	*255*	*1.8*
7,000–9,999		*175*	*1.8*	*220*	*1.6*
10,000 & over		*145*	*1.5*	*145*	*1.0*
Income not reported		*170*	*1.7*	*315*	*2.2*
Percent under $3,000		–	*62.8*	–	*68.3*
Percent $3,000–$7,000		–	*34.6*	–	*26.9*
Median Family Income (in 1959 dollars)			*$2,289* *$2,758*		*$2,002* *$2,412*
All Families	*1959*	*(11,751)*	*100.0*	*(15,678)*	*100.0*
Under $1,000		*1,255*	*10.7*	*1,806*	*11.5*
1,000–1,999		*1,313*	*11.2*	*1,971*	*12.6*
2,000–2,999		*1,117*	*9.5*	*1,782*	*11.4*
3,000–3,999		*1,303*	*11.1*	*1,694*	*10.8*
4,000–4,999		*1,268*	*10.8*	*1,689*	*10.8*
5,000–5,999		*1,373*	*11.7*	*1,626*	*10.4*
6,000–6,999		*1,132*	*9.6*	*1,484*	*9.5*
7,000–9,999		*1,965*	*16.7*	*2,351*	*15.0*
10,000–24,999		*988*	*8.4*	*1,154*	*7.4*
25,000 & over		*37*	*0.3*	*121*	*0.8*
Percent under $3,000		–	*31.4*	–	*35.5*
Percent $3,000–$7,000			*43.2*		*41.5*
Median Family Income			*$4,700*		*$4,347*

Source: U.S. Census of Population, 1950 and 1960.

TABLE 7

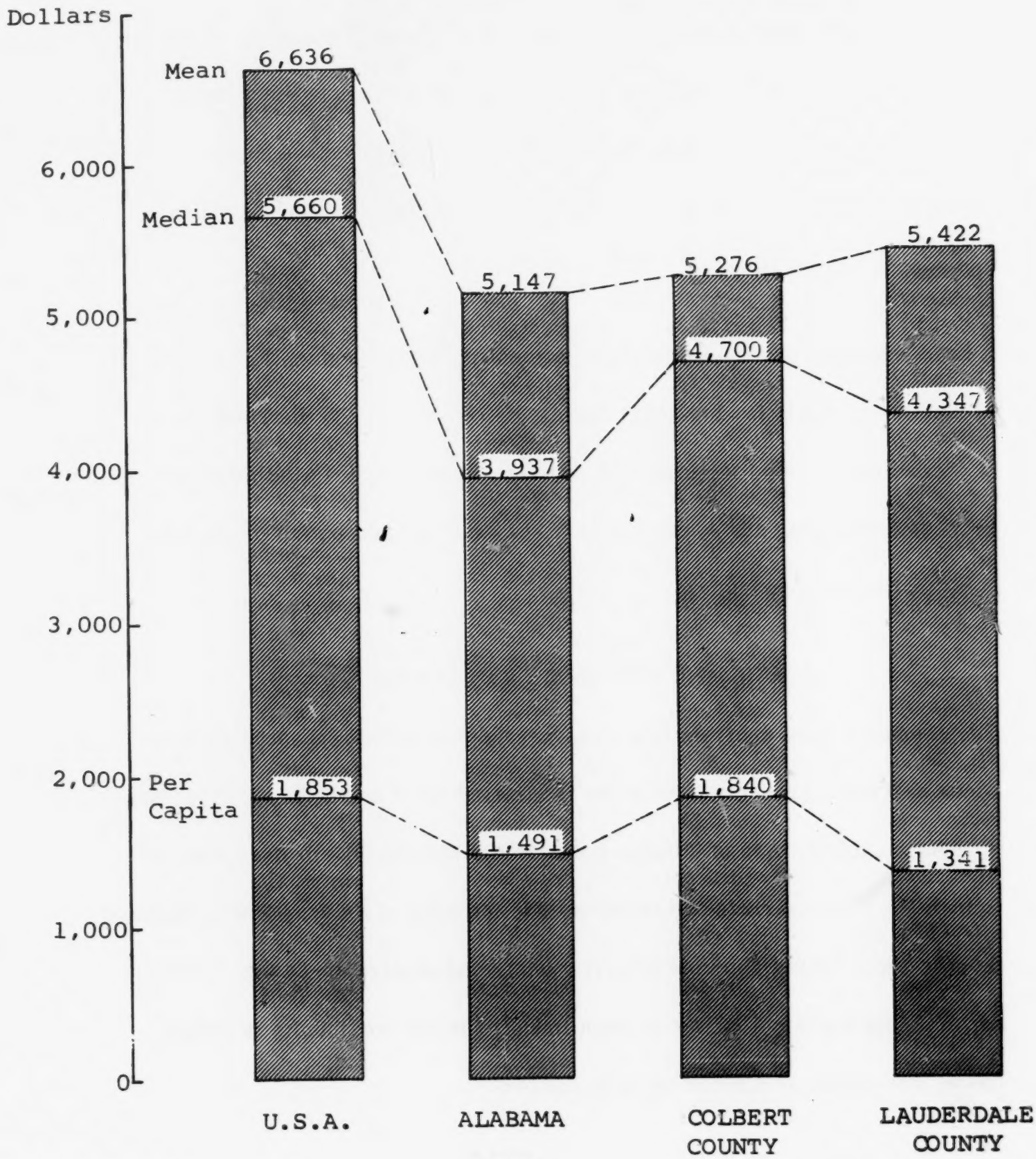
NON-WHITE FAMILY INCOME DISTRIBUTION COLBERT AND LAUDERDALE COUNTIES, 1959

INCOME LEVEL	COLBERT COUNTY		LAUDERDALE COUNTY	
	Number of Families	% of total Families	Number of Families	% of total Families
Under $1,000	354	19.4	346	21.3
1,000–1,999	399	21.9	444	27.4
2,000–2,999	285	15.6	291	17.9
3,000–3,999	193	10.6	195	12.0
4,000–4,999	189	10.4	156	9.6
5,000–5,999	158	8.7	84	5.2
6,000–6,999	96	5.3	50	3.1
7,000–7,999	96	5.3	22	1.4
8,000–8,999	40	2.2	12	0.7
9,000–9,999	4	0.2	9	0.6
10,000 & over	8	0.4	13	0.8
Total Families	1,822	100.0	1,622	100.0
Percent under $3,000	–	56.9	–	66.6
Percent $3,000–$7,000	–	35.0	–	29.9
Median Family Income		$2,554		$2,072

Source: U.S. Census of Population, 1960.

CHART 6

COMPARATIVE 1959 INCOME MEASURES



THE ECONOMIC BASE

This portion of the report identifies and analyzes current sources of employment and income, and determines which serve markets outside the area and which serve markets within the area. The purpose is to assist the area in question by providing detailed economic information about the local economy and its economic base in order to contribute to the quality of both public and private decisions concerned with local economic and education problems.

A local economy is the way people of a locality make a living; it is the production of goods for local and outside markets; it is the distribution of goods and services for local and outside consumers; it is the measure of income produced and spent; and it is the over-all process of production, consumption and possession.

BASIC AND NON-BASIC EMPLOYMENT

The economic base analysis takes into consideration that industries sometimes sell their products in both the export and local markets. For example, several manufacturers of durable goods in the Muscle Shoals Area may sell to both the local markets and those outside the area of study. Thus, employment at these establishments is partly basic and partly non-basic. It therefore follows that employment in each industry in the community is either basic, non-basic or divided between the two.

Tables 8 and 9 show the number of basic and non-basic workers in the Muscle Shoals Area in 1958 and 1968. One readily notes the dominance of the Manufacturing segment and especially the Primary Industry as the major basic industry. In 1958 Primary Metals constituted 40.8 percent of all basic employment in the area. In 1968 the proportion of Primary Metals workers had increaed to 62.9 percent of the total. When considering that all non-basic employment is dependent upon basic employment, the inherent danger of a situation such as this, when a large portion of basic employment is concentrated in one industry, can readily be seen.

In addition to Primary Metals Manufacturing, several other industrial groups account for the smaller proportions of basic workers. Due mainly to the concentration of Tennessee Valley Authority operations in the Muscle Shoals Area, total government employment accounts for 23.3 percent of the basic workers. Rubber, Stone, Clay and Glass and Chemicals Manufacturing and a small portion of employment in the Contract Construction industry account for the balance of the basic workers in the two-county area.

THE "MULTIPLIER" EFFECT OF BASIC EMPLOYMENT

In conjunction with the proceeding concept it would be logical to say that each basic worker directly creates employment for, and as a result indirectly supports, a certain number of non-basic or service workers. To carry this a step further, it would be reasonably accurate to say that together, the basic and non-basic workers are supporting a given number of

the population. However, one should keep in mind that wage and salary employment was used in the formula instead of total employment, thus, excluding self-employed, unpaid family, domestic and agricultural workers from the computation. Also, one should remember that employment statistics provide d by the U.S. Bureau of Employment Security are compiled on a place of employment basis and include in-commuters while excluding out-commuters.

It is shown that in 1968 each basic worker created employment for 2.27 non-basic workers. It therefore follows that if the same relationship should hold true in the future, the addition of each new basic job would increase the total employment level in Colbert and Lauderdale Counties by more than three workers. If one notes the change which occurred from 1958 to 1968, it can be seen that this relationship does not necessarily remain constant. It does, however, provide a reasonably accurate yardstick by which to measure the change which could occur as a result of the addition of basic workers.

An interesting set of related statistics were developed in a National study released recently by the Chamber of Commerce of the United States. According to this study, the addition of 100 new manufacturing jobs to the Labor Force of an average community will result in:

359 more people

100 more households

91 more school children

$710,000 more personal income per year.

$229,000 more bank deposits

97 more passenger cars registered

65 more workers employed in non-manufacturing

$331,000 more retail sales per year, and

3 more retail establishments

This study emphasizes that effects of increased manufacturing employment on any specific community will depend upon the type of factory; nature of the Labor Force; nature, size and utilization of present community facilities; and many other factors which, of course, are given consideration in the basic employment analysis approach.

TABLE 8

BASIC AND NON-BASIC EMPLOYMENT
MUSCLE SHOALS REGION
MARCH 1958

Industry	Muscle Shoals Area Wage & Salary Employment	Basic Employment	%	Non-Basic Employment	%
Total Manufacturing	8,640	4,820	57.1	3,820	22.7
Food & Kindred Products	480	0	0.0	480	2.9
Textile & Apparel Products	440	0	0.0	440	2.6
Lumber & Wood Products	210	0	0.0	210	1.2
Paper & Printing Industries	110	0	0.0	110	0.7
Chemical & Allied Products	220	0	0.0	220	1.3
Rubber Products	980	800	9.5	180	1.1
Stone, Clay & Glass Products	410	130	1.5	280	1.7
Primary Metals	4,020	3,440	40.8	580	3.4
Fabricated Metals	980	450	5.3	530	3.1
Machinery	460	0	0.0	460	2.7
Other Manufacturing	330	0	0.0	330	2.0
Mining & Quarrying	200	0	0.0	200	1.2
Contract Construction	2,340	1,130	13.4	1,210	7.2
Transportation, Communications and Utilities	1,140	0	0.0	1,140	6.8
Wholesale & Retail Trade	3,920	0	0.0	3,920	23.3
Finance, Insurance & Real Estate	600	0	0.0	600	3.6
Service & Miscellaneous	2,060	0	0.0	2,060	12.2
Government	6,380	2,490	29.5	3,890	23.1
Total Wage & Salary Employment	25,280	–	–	–	–
Total Basic Employment		8,440	100.0	–	–
Total Non-Basic Employment				16,840	100.0

Source: U.S. Bureau of Employment Security—Calculations by Rust Engineering Company, Urban & Regional Planning Department.

TABLE 9

BASIC AND NON-BASIC EMPLOYMENT
MUSCLE SHOALS REGION
MARCH 1968

Industry	Muscle Shoals Area Wage & Salary Employment	Basic Employment	%	Non-Basic Employment	%
Total Manufacturing	11,630	7,340	76.2	4,290	19.6
Food & Kindred Products	500	0	0.0	500	2.3
Textile & Apparel Products	720	0	0.0	720	3.3
Lumber & Wood Products	190	0	0.0	190	0.9
Paper & Printing Industries	240	0	0.0	240	1.1
Chemical & Allied Products	680	210	2.2	470	2.2
Rubber Products	1,060	810	8.4	250	1.1
Stone, Clay & Glass Products	540	260	2.7	280	1.3
Primary Metals	6,660	6,060	62.9	600	2.7
Fabricated Metals	610	0	0.0	610	2.8
Machinery	320	0	0.0	320	1.5
Other Manufacturing	110	0	0.0	110	0.5
Mining & Quarrying	70	0	0.0	70	0.3
Contract Construction	1,440	50	0.5	1,390	6.4
Transportation, Communications and Utilities	1,200	0	0.0	1,200	5.5
Wholesale & Retail Trade	5,190	0	0.0	5,190	23.8
Finance, Insurance & Real Estate	850	0	0.0	850	3.9
Service & Miscellaneous	3,100	0	0.0	3,100	14.2
Government	8,010	2,250	23.3	5,760	26.4
Total Wage & Salary Employment	31,490	–	–	–	–
Total Basic Employment		9,640	100.0	–	–
Total Non-Basic Employment				21,850	100.0

Source: U.S. Bureau of Employment Security—Calculations by Rust Engineering Company, Urban & Regional Planning Department.

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STABILITY OF THE ECONOMIC BASE

An important consideration of any comminity is to determine how stable is the economic base upon which the community is dependent. One method used to make this determination is to observe trends in employment and wages in the area economy. Charts 7 and 8 reflect employment and wages, respectively, for the period 1956-1965 for the combined two-county area

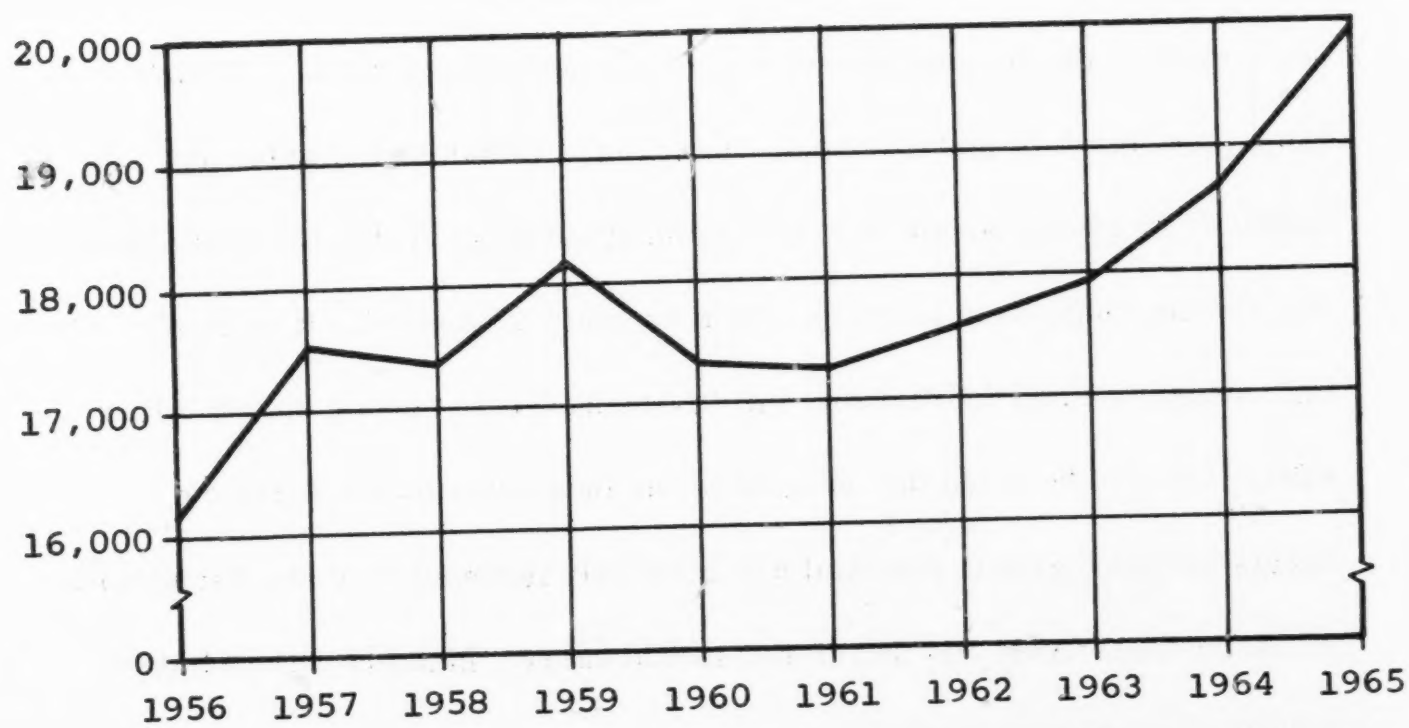
One will note, in reviewing the employment trend in Chart 7 , pronounced dips which occured in 1958 and then again in 1960-61. These dips followed closely the National trend in employment which reacted to these two recessionary periods, thus pointing up the sensitivity of Muscle Shoals Area industry to the National business cycle. Chart 8 illustrates the fact that although employment was somewhat erratic over the ten year period, average wages per worker increased at a steady rate in each year except for a slight dip in 1960.

The high degree of sensitivity to the National business cycle in Muscle Shoals employment further points up the need for a more diversified economic base. For example, an industry which is highly sensitive to the cyclical fluctuations of the National economy would find that the demand for its goods and services would go up and down with the slightest upward and downward movement of

the business cycle. As a result, its employment, and consequently its payroll, would follow the same pattern. This, in turn, would affect the total demand for goods and services in the community which would likewise affect total employment, income, and so on. In contrast, changes in the National business cycle would have very little, if any, affect on an industry which is highly insensitive. Very little change, if any, would be noted in demand; and consequently employment, income, and so on, as a result of the ups and downs of the National business cycle. With a large percentage of Muscle Shoals employment in industries which are highly or markedly sensitive to the National business cycle, it would appear that the economic base is not as stable as could be desired. It is likely that recessions and depressions will be keenly felt in Muscle Shoals. However, it should be noted that several of the industries in which Muscle Shoals has good growth potential are relatively insensitive to the fluctuations of the business cycle and therefore, should carry a high priority in future industrial development efforts.

CHART 7

ANNUAL AVERAGE COVERED* EMPLOYMENT
MUSCLE SHOALS REGION, 1956-65

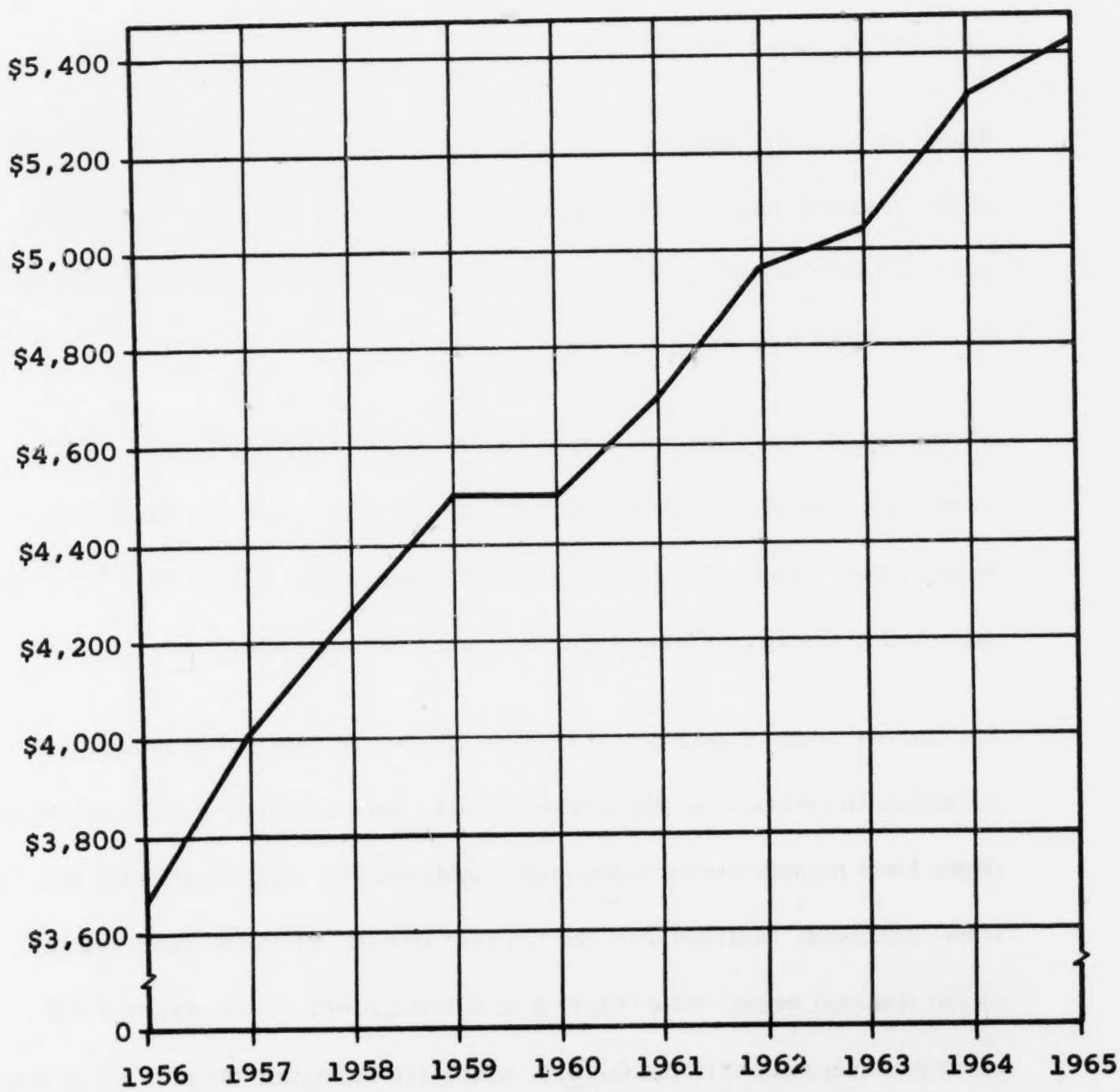


*Workers in industries covered under provisions of Alabama State Unemployment Insurance Law.

Source: Alabama Department of Industrial Relations

CHART 8

ANNUAL AVERAGE WAGES PER COVERED* WORKER
MUSCLE SHOALS REGION, 1956-65



*Workers in industries covered under provisions of Alabama State Unemployment Insurance Law.

Source: Alabama Department of Industrial Relations

EMPLOYMENT TRENDS

In the preceding section on stability of the economic base, "covered" employment was intentionally used to provide a continuous series which included the last two periods of recession in the National economy. In this section we will study trends in "total' employment which is available beginning in 1958 for the Muscle Shoals Area.

Table 10 reflects change in total employment by industry between 1958 and 1968. One will note that although sizable gains were made during this ten-year period in several industrial segments, overall total employment advanced by only 3.850 jobs or 11.2 percent.

Technological developments in the farming segment plus the appeal of the urban life, took its toll in reduced agricultural employment in the Muscle Shoals Area. During the ten-year period under study, a loss of 38.2 percent occurred in the agricultural segment - 1,280 farming jobs ceased to exist.

The factory segment added nearly 3,000 jobs since 1958 due principally to expansion in primary metals and chemicals - both excellent growth industries. Other local manufacturing industries registered only slight increases and, in some instances, declines over the ten year period, while the same industry on the National scene was exhibiting excellent growth. It is assumed that certain endogenous variable factors, which are not within the preview of this

study, influenced to some degree local growth patterns during the past ten years, however, future growth need not be tied to past experiences.

Local mining interests generally followed the National declining trend as employment reduced from 200 in 1958 to only 70 in 1968 - a drop of 65 percent.

Employment in contract construction reduced by 900 jobs over the comparison period. However, it is felt that a temporary lull in building activities is indicated by this drop and not an actual declining trend.

The transportation, communications and utilities group increased by only 60 workers since 1958. Declining employment in the railroad industry was partially responsible for the slow growth rate, but several other components with growth potential failed to expand to meet the needs of the community. Some of these industrial components which offer excellent growth potential in terms of degree of local specialization are: local and suburban transit, motor freight transportation, warehousing and water transportation.

During the past ten years, wholesale and retail trade establishments in the Muscle Shoals Area added 1,270 workers to their payrolls. This industrial growth kept reasonable pace with community growth but did not reach the potential for the trade segment. Due to a strategic location, the Muscle Shoals Region could easily become a regional trade center of major proportions of three states.

The finance, insurance and real estate segment added 250 workers since 1958; an advance of 41.7 percent. However, according to its degree of specialization relative to the National distribution, growth potential exists to properly meet the needs of the community.

Although an increase of 50.5 percent occurred during the ten-year period under study in service employment, this industry offers tremendous potential for additional expansion. As the society becomes more affluent, more business and personal services are required by it. If these services are not available in the local economy, they will be secured elsewhere, resulting in a loss of income to the local economy.

Government employment expanded by 1,630 jobs between 1958 and 1968, as new governmental services were required by a growing population. The expansion of TVA facilities in the area and rapidly growing Florence State University contributed heavily to the employment gain.

The "all other non-agricultural" segment which includes self-employed, unpaid family workers and domestic servants, reduced by 1,080 or 18.5 percent during the past ten years.

TABLE 10

MUSCLE SHOALS EMPLOYMENT TRENDS 1958–1968

Industry	1958	1968	Net Change	Percent Change
Total Employment	34,470	38,320	+3,850	+ 11.2
Agricultural	3,350	2,070	-1,280	- 38.2
Non-Agricultural	31,120	36,250	+5,130	+ 16.5
Wage & Salary Workers	25,280	31,490	+6,210	+ 24.6
Manufacturing	8,640	11,630	+2,990	+ 34.6
Food & Kindred Products	480	500	+ 20	+ 4.2
Lumber & Wood Products	210	190	- 20	- 9.5
Paper, Printing & Publishing	110	240	+ 130	+118.2
Chemicals	220	680	+ 460	+209.1
Rubber Products	980	1,060	+ 80	+ 8.2
Stone, Clay & Glass	410	540	+ 130	+ 31.7
Primary Metals	4,020	6,660	+2,640	+ 65.7
Fabricated Metals	980	610	- 370	- 37.8
Other Manufacturing	1,230	1,150	- 80	- 6.5
Non-Manufacturing	16,640	19,860	+3,220	+ 19.4
Mining & Quarrying	200	70	- 130	- 65.0
Construction	2,340	1,440	- 900	- 38.5
T. C. & U.[1]	1,140	1,200	+ 60	+ 5.3
Wholesale & Retail Trade	3,920	5,190	+1,270	+ 32.4
F. I. & R. E.[2]	600	850	+ 250	+ 41.7
Service & Miscellaneous	2,060	3,100	+1,040	+ 50.5
Government	6,380	8,010	+1,630	+ 25.5
All Other Non-Agricultural[3]	5,840	4,760	-1,080	- 18.5

[1] *Transportation, Communications & Utilities.*

[2] *Finance, Insurance & Real Estate.*

[3] *Includes Self-Employed, Unpaid Family & Domestic Service Workers.*

Source: Alabama Department of Industrial Relations.

LABOR FORCE TRENDS

The measure of unemployment used in this study is based on the following definition: "A count of persons who, during a specific week, were able, available and actively seeking gainful employment". Statistics on unemployment published by the U.S. Department of Labor and Commerce have historically used the above definition. The unemployment rate for an area is the percentage of unemployed persons in the total labor force. The labor force is comprised of three groups - the employed, the unemployed and any persons actively engaged in labor-management disputes.

Examination of unemployment rates for the period 1959-1968 (Chart 9) reveals that, with the exception of 1961, rates for the Muscle Shoals Area, Alabama, and the United States, have shown a general downward trend. However, abrupt fluctuations were evident in the Muscle Shoals Area series in 1963 and again in 1967 reflecting temporary layoffs in local firms. Of significance to note is the fact that the Muscle Shoals rate of unemployment consistently exceeded the United States rate during the ten-year period and dropped below the rate for the State of Alabama only in the year 1962. The trend indicates some improvement in the local job market picture since the recessionary period of 1961, but far too many unemployed persons for a healthy economy.

Although current estimates of labor force statistics, compiled by the U.S.

Department of Labor, are developed on a "total" basis and do not reflect characteristics of age, sex, or race for individual counties, some indication of these distributions can be obtained by reviewing the distribution of the labor force in the 1960 Census of Population.

Table 11 reflects the resident labor force distributions of Colbert and Lauderdale Counties in 1960, with break-outs of the non-white population. One readily notes non-white unemployment rates for both males and females far out of proportion for their share of the population in both counties. The distrubition of the labor force by age and sex, presented in Table 12, appears to be reasonably well distributed in both counties. However, it should be remembered from the discussion on population characteristics that since 1960, the effects of the so called "baby-boom" have seriously altered the age distribution of the National labor force, and currently a much larger proportion is concentrated in the younger age groups.

Before passing, another important segment should be considered which is not measured with current analytical tools used by the concerned governmental agencies. This segment might be termed "hidden unemployment". This term is used because any community, and the Muscle Shoals Area is no exception, contains a group of persons who have given up their search for work either due to educational deficiences or laziness or any number of real or imagined reasons or excuses.

For Franklin County, in 1960, 15,698 or 71.5 percent of the population in the county were persons 14 years old or over and 55.4 percent of this group was in the labor force. This was a rise of 12.3 percent from the number in the labor force ten years earlier. For the state as a whole, 67.9 percent of the population were persons 14 years and older and 52 percent of the latter were in the labor force. Unemployment in 1960 represented 5.1 percent of the total civilian labor force. In 1950, the ratio was 3.7 percent.

Total employment in 1960 in Franklin County was 6,315, but only 985 of the Franklin County workers were engaged in agricultural pursuits. Employment as a whole decreaed 13.4 percent from the 1950 level and farm employment decreased 63.2 percent. However, the non-agricultural work force rose 27.1 percent during this period of time. Approximately 3,763 of the non-agricultural workers were private wage and salary workers; 892 were government workers; 628 were self employed workers, and 47 were unpaid family workers.

Franklin County has shown a healty increase in its work force in the past six years. Agricultural workers have increased by 315; manufacturing wage and salary by 25; and non-manufacturing wage and salary by 912.

Table 13 shows trends in employment in Franklin County for the last six years.

TABLE 11

CHARACTERISTICS OF THE RESIDENT LABOR FORCE, BY SEX AND RACE, 1960

Item	COLBERT COUNTY Total	COLBERT COUNTY Non-White	LAUDERDALE COUNTY Total	LAUDERDALE COUNTY Non-White
Male (age 14 & over) – Population	15,096	2,575	20,307	2,040
Labor Force	11,408	1,712	15,038	1,420
Employed	10,739	1,558	14,125	1,291
Unemployed	669	154	913	129
Rate of Unemployment	5.9%	9.0%	6.1%	9.1%
Female (age 14 & over) – Population	16,341	3,106	21,870	2,580
Labor Force	4,015	1,036	5,901	1,128
Employed	3,778	955	5,639	1,062
Unemployed	237	81	262	66
Rate of Unemployment	5.9%	7.8%	4.4%	5.9%

Source: U.S. Census of Population–1960.

TABLE 12

DISTRIBUTION OF THE RESIDENT LABOR FORCE BY AGE AND SEX, 1960

	COLBERT COUNTY Male	COLBERT COUNTY Female	LAUDERDALE COUNTY Male	LAUDERDALE COUNTY Female
Total	11,412	4,015	15,071	5,901
Age 14–17	309	123	422	138
Age 18–24	1,389	586	2,109	1,049
Age 25–34	2,870	915	3,436	1,055
Age 35–44	2,811	971	3,822	1,532
Age 65 and over	290	84	585	160

Source: U.S. Census of Population, 1960.

Table 13

TRENDS IN EMPLOYMENT
FRANKLIN COUNTY
1960 - 1966
TOTAL EMPLOYMENT

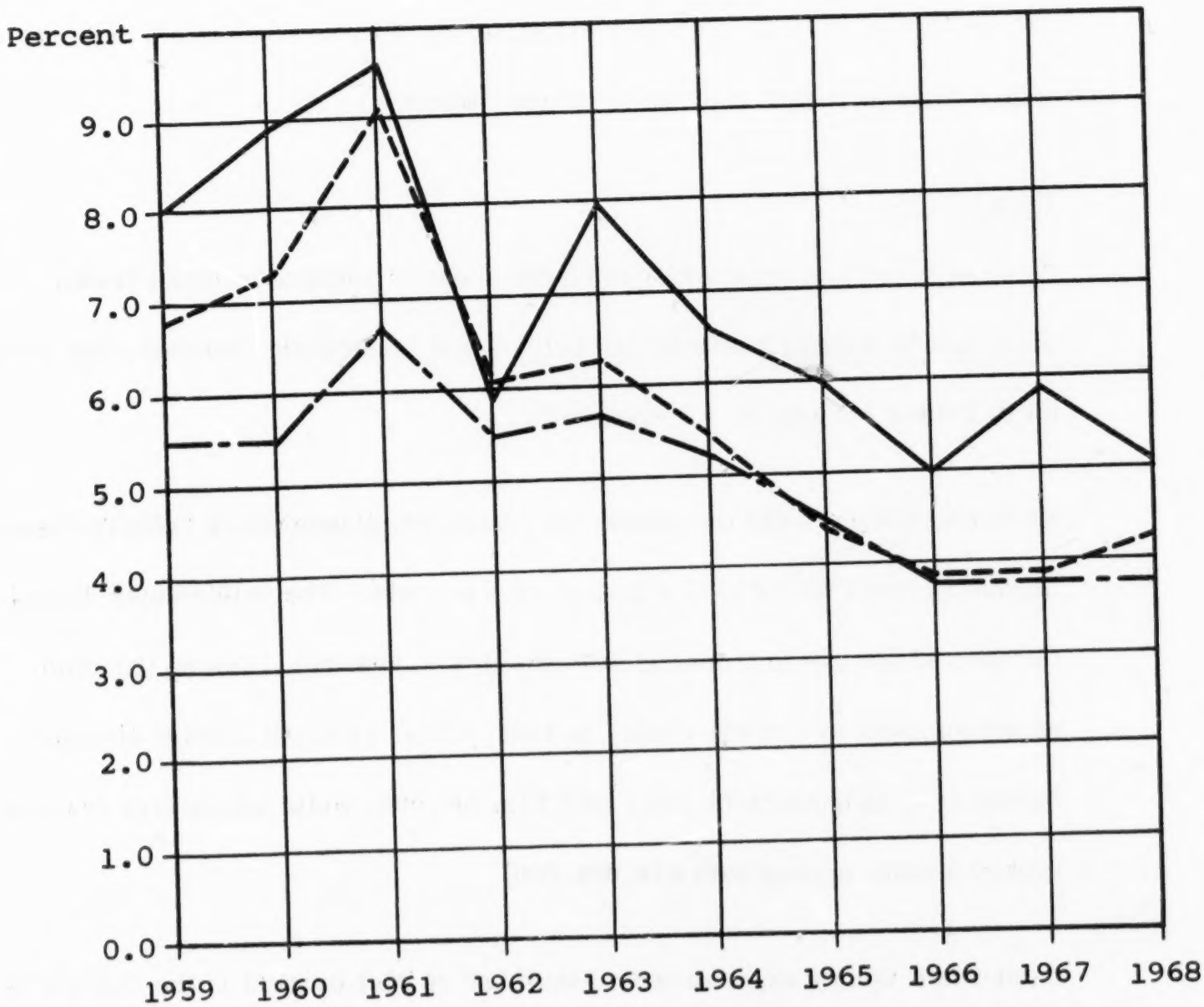
	May 1966	1960	Net Change	Percent Change
TOTAL EMPLOYMENT	7540	6315	+1225	19.4
Agricultural	1300	985	+315	32.0
Non-Agricultural	6240	5330	+910	17.1
Wage & Salary	4700	3763	+937	24.9
All other	1540	1567	- 27	1.7
NON-AGRICULTURAL WAGE AND SALARY	4700	3763	+ 937	24.9
Manufacturing	1670	1645	+ 25	1.5
Food & Kindred Products	120	94	+ 26	27.7
Apparel & Related Products	920	359	+ 561	156.2
Lumber, Wood & Furniture	220	332	- 112	33.8
Stone, Clay & Glass	150	*	+ 150	____
Primary Metal Industries	*	432	- 432	____
Other Manufacturing	260	428	- 168	39.2
*Not Reported				
NON-MANUFACTURING	3030	2118	+ 912	43.1
Mining & Quarrying	190	167	+ 23	13.8
Construction	180	99	+ 81	81.8
Trans., Comm. & Util.	150	120	+ 30	25.0
Wholesale & Retail Trade	880	420	+ 460	109.3
Finance, Ins. & Real Estate	80	82	- 2	2.4
Services	520	338	+ 182	53.9
Government	1010	892	+ 118	13.2
Other	20	0	+ 20	____

1966 figures are from Alabama State Employment Service

1960 figures are from U. S. Census of Population

CHART 9

UNEMPLOYMENT TRENDS
1959-1968*



LEGEND

—— Muscle Shoals Area

- - - Alabama

—·— United States

*Data for 1968 are preliminary and subject to revision.

Source: Alabama Department of Industrial Relations

SELECTED ECONOMIC INDICATORS

Numerous indicators of various types of business activity are available to reflect trends of economic movement in the Muscle Shoals Region. Following are several of the more significant of these economic indicators with a brief description of the trend movements.

Retail Trade

Sales at retail and the number of establishments engaged in retail trade, classified by kind of business for Colbert and Lauderdale Counties, are presented in Tables 14 and 15 , respectively.

Between 1956 and 1965 the number of retail establishments in Colbert County increased from 438 to 493, a gain of 12.6 percent. The dollar sales during this period increased from $31,967,000 to $73,950,000. Among the retail establishments in Colbert County in 1965, the 47 gasoline service stations ranked first in quantity of sales with $19,209,000, while automotive dealers ranked a close second with $18,676,000.

Lauderdale County experienced an increase of 24.1 percent in the number of retail establishments between 1956 and 1965, and gained in dollar sales volume from $37,422,00 in 1956 to $59,338,00 in 1965. Among Lauderdale County's retail establishments in 1965, the 49 automotive dealers ranked first in quantity of sales with $13,132,000, and food stores ranked second with $12,337,000.

Wholesale Trade

As mentioned in a previous section, the Muscle Shoals Region has definite potential for becoming a regional trade center drawing a large volume of customers from several nearby Alabama Counties plus sections of Mississippi and Tennessee. However, trade growth in the recent past has been relatively slow compared to the growth in the factory segment. In 1958 Colbert County had 52 wholesale establishments reporting annual sales of $32,551,000. In 1963 a total of 59 establishments reported that dollar sales reduced to $31,378,000. Lauderdale County s wholesale firms number 56 in 1958 with sales of $24,338,000. In 1963 this segment increased to 78 firms with only $33,712,000 in annual sales.

Wholesale trades, as basic industries with high growth potential, are of great importance to the economic development of the community. It would, therefore, be wise for Muscle Shoals to endeavor to attract more industry of this type.

Service Trade

Service trade establishments which include hotels, motels, personal and business services, repair services, and recreation services have, in recent years been tremendous growth industries nationally. Although considerable room exists for improvements in the Muscle Shoals Region, significant expansion has taken place during the past few years. Table 16 shows trends

in service trade in both Counties between 1958 and 1963. Colbert County experienced gains of 37 percent in the number of establishments and 32.1 percent in receipts. Lauderdale County enjoyed a much better gain as the total number of establishments increased 48.7 percent and total receipts gained 72.3 percent. In the Muscle Shoals Region in 1963, service trades accounted for an annual payroll of $3,149,000 and reported gross receipts of $12,678,000.

TABLE 14

RETAIL SALES IN COLBERT COUNTY, 1956–1965

Kind of Business	Number of Firms			Sales ($1,000)						
	1956	1960	1965	1956	1960	1961	1962	1963	1964	1965
Retail Concerns–Total	438	438	493	31,967	39,324	42,385	48,816	52,317	58,623	73,950
Food	128	121	120	9,030	12,195	12,748	13,298	12,500	12,835	13,504
General stores with food & gas	35	43	47	1,059	1,788	2,278	2,418	2,606	2,594	2,632
General merchandise	25	24	32	1,444	2,197	2,505	2,372	2,184	2,343	2,616
Apparel	18	16	22	1,436	1,461	1,590	1,654	1,615	1,790	2,157
Furniture, furnishings & appliances	20	21	22	1,256	1,624	1,543	1,703	1,614	1,597	1,907
Automotive	29	35	43	8,192	8,688	9,208	11,957	12,816	14,359	18,676
Gasoline service stations	38	36	47	1,975	2,374	2,522	4,744	8,526	11,028	19,209
Lumber and building materials	15	20	19	2,033	2,865	2,804	2,787	2,203	2,608	3,144
Hardware and farm implements	11	12	13	936	1,012	1,320	1,593	1,754	1,991	2,651
Eating places	63	48	50	1,903	1,490	1,767	1,802	1,598	1,995	1,728
Drug stores	10	11	14	1,016	1,527	1,678	1,846	1,807	1,960	2,120
All other retail concerns	46	51	64	1,687	2,004	2,423	2,644	3,094	3,523	3,606
Nonretail and unclassified concerns	139	168	170	7,198	13,174	12,761	15,634	14,536	15,556	15,562
Total, all sales at retail	577	606	663	39,885	52,498	55,146	64,450	66,853	74,179	89,512

Source: Bureau of Business Research, School of Commerce, University of Alabama, computed from data supplied by the Sales Tax Division, Alabama Department of Revenue.

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TABLE 15

RETAIL SALES IN LAUDERDALE COUNTY, 1956–1965

Kind of Business	Number of Firms			Sales ($1,000)						
	1956	1960	1965	1956	1960	1961	1962	1963	1964	1965
Retail Concerns–Total	493	551	612	37,442	46,142	46,219	51,913	58,985	54,818	59,338
Food	142	148	153	6,911	9,774	10,302	11,711	11,523	12,013	12,337
General stores with food & gas	28	36	35	921	1,004	1,269	1,102	999	922	890
General merchandise	63	59	54	4,509	4,837	5,208	5,724	7,026	5,990	5,993
Apparel	26	30	35	2,401	3,164	3,333	3,501	3,425	3,726	3,887
Furniture, furnishings & appliances	29	34	32	1,905	2,447	2,541	3,206	3,077	3,376	3,313
Automotive	30	31	49	8,733	9,467	8,902	11,761	17,011	11,366	13,132
Gasoline service stations	42	49	62	2,146	2,634	2,341	2,393	2,625	2,755	3,025
Lumber and building materials	15	20	23	2,880	3,354	3,170	3,152	3,108	3,408	3,794
Hardware and farm implements	10	13	10	1,398	1,877	1,673	1,764	1,797	1,819	2,114
Eating places	42	49	55	1,193	1,536	1,559	1,619	2,001	2,554	3,257
Drug stores	11	11	16	1,518	1,729	1,689	1,672	1,759	1,717	1,820
All other retail concerns	55	71	88	2,928	4,318	4,232	4,308	4,633	5,172	5,777
Nonretail and unclassified concerns	174	180	183	7,628	13,189	13,890	15,046	16,091	17,109	18,234
Total, all sales at retail	667	731	795	45,070	59,330	60,109	66,958	75,076	71,927	77,572

Source: Bureau of Business Research, School of Commerce, University of Alabama, computed from data supplied by the Sales Tax Division, Alabama Department of Revenue.

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Table 16

TRENDS IN SERVICE TRADES,
COLBERT AND LAUDERDALE COUNTIES
1958 - 1963

COLBERT COUNTY			
Number of establishments	184	252	+37.0
Annual payroll	$ 829,000	$1,141,000	+37.6
Total Sales	$3,404,000	$4,498,000	+32.1
LAUDERDALE COUNTY			
Number of establishments	238	354	+48.7
Annual payroll	$1,316,000	$2,008,000	+52.6
Total Sales	$4,748,000	$8,180,000	+72.3

Source: U. S. Census of Business - Selected Services, 1963

Agriculture

Once the largest employer and principal support of the two-county region's economy, agriculture has experienced a continuous employment decline over the past several decades. Low profit margins, increased capital requirements due to advancing mechanization, and the enticements of higher wage, non-agricultural occupations have prompted many to abandon farming. This change in agricultural economics has been accompanied by a gradual movement of the rural population to the urban centers.

The average farm size and average dollar investment per farm, shown in Table 17 , have increased while the number of workers has declined. Farming has become big business, requiring efficient management techniques, mechanization, and large-scale operations. These changes have been a major factor in the maintenance of the Muscle Shoals Region's farm income levels.

Estimates of 1965 farm income from the Agricultural Extension Service at Auburn University show that Colbert and Lauderdale Counties produced almost $20,500,000 worth of crops and livestock; roughly 10 percent of the Area's total income. The 1965 farm income estimates for both counties are shown in Table 18 .

Table 17

FARMS, ACREAGE AND VALUE
COLBERT AND LAUDERDALE COUNTIES, 1964

	COLBERT	LAUDERDALE
Farms (number)	926	2,133
Approximate land area (acres)	394,240	440,320
Land in Farms (acres)	179,263	248,462
Value of land and buildings		[illegible]
Average per farm (dollars)	33,034	20,851
Average per acre (dollars)	168.06	175,80

Source: U. S. Bureau of the Census, Census of Agriculture: 1964 (Preliminary Report)

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Table 18

ESTIMATED GROSS FARM INCOME IN
COLBERT AND LAUDERDALE COUNTIES, 1965

	COLBERT	LAUDERDALE	TOTAL AREA
Cotton	$ 4,300,000	$ 5,195,802	$ 9,495,802
Beef	2,275 000	2,023,290	4,298,290
Hogs	500,000	782,640	1,282,640
Poultry	190,000	746,750	936,750
Dairying	300,000	734,312	1,034,312
Corn	1,140,000	690,000	1,830,000
Forestry	715,000	461,300	1,176,300
Others	-	400,200	400,200
Total	$ 9,420,000	$11,034,294	$20,454,294

Source: Agricultural Extension Service, Auburn University

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Value Added by Manufacturing

The growth characteristics of manufacturing industries in the Muscle Shoals Region relative to the State of Alabama are reflected in Table 19 where the changes in value added to manufactured goods are traced from 1954 to 1963. Fifty-three percent of all counties in the United States had a higher 1958 dollar value added by manufacture than Franklin County.

DISPOSABLE INCOME

Table 20 reflects trends in effective buying income for Colbert and Lauderdale Counties and Alabama from 1950 through 1965. Effective buying income is defined as the amount of personal income which is available for consumption and/or savings. During the fifteen-year period under study, Colbert County gained 137.9 percent, reaching a level of $1,687 per person in 1965. Lauderdale County climbed to $1,783 per person in 1965 but this gain represented an increase of only 78.8 percent over the 1950 level. The Alabama average in 1965 was $1,664 per person; a gain of 115.8 percent over the period. In Franklin County in 1949, the median family income for all families was $1,368, as compared to $1,820 for the state and $3,107 for the nation. Franklin County's median family income more than doubled from 1949 to 1959, reaching $2,904 in the latter year, but was still far below the state median of $3,939 and little more than half the national family median income of $5,415. (See Tables 21 and 22.)

Approximately 51.5 percent of Franklin County's families earned less than $3,000 in 1959, compared to 39 percent for the state, and 23 percent for the nation. In 1949, almost 80 percent of the families in Franklin County had incomes of less than $3,000.

In 1959, only 2.8 percent of Franklin County's families had incomes exceeding $10,000, while in the state 8.0 percent of the families earned more than $10,000, and in the nation as a whole, 12.2 percent.

Almost 64 percent of Franklin County's farm families had incomes of less than $3,000 in 1959. The median farm family income for Franklin County in 1959 was $2,190, as compared to $3,877 for the urban families and $2,494 for all rural families. The median income for all farm families in Alabama in 1959 was $2,008 as compared to $2,800 for the nation.

From an occupational standpoint, all groups have median earnings considerably less than the state or nation. Median earnings of all males in the county was $2,754 as compared to $3,221 for Alabama and $3,996 for the nation.

Table 19

VALUE ADDED GROWTH COMPARISON

	($000) 1954	1963	Percent Change
State of Alabama	$1,319,192	$2,342,124	+77.5%
Colbert County	42,014	113,843	+171.0%
Lauderdale County	7,134	16,053	+125.0%

Source: U. S. Census of Manufactures, 1954 and 1963

Table 20

PER CAPITA EFFECTIVE BUYING INCOME,
COLBERT AND LAUDERDALE COUNTIES AND ALABAMA
FOR SELECTED YEARS

	Colbert County	Lauderdale County	State of Alabama
1950	$ 709	$ 997	$ 771
1955	$1,080	$1,055	$1,023
1960	$1,375	$1,369	$1,379
1965	$1,687	$1,783	$1,664
Percent change			
1950 - 1965	+$137.9%	+78.8%	+115.8%

Source: Sales Management Magazine, "Survey of Buying Power"

Table 21

FRANKLIN COUNTY
FAMILY INCOME

COUNTY STATISTICS	TOTAL	PERCENT
Total families	5,841	
Families earning less than $1,000	1,048	17.9 %
Families earning $1,000 - 1,999	1,111	19.0 %
Families earning $2,000 - 2,999	842	14.4 %
Families earning $3,000 - 3,999	851	14.6 %
Families earning $4,000 - 4,999	607	10.4 %
Families earning $5,000 - 5,999	488	8.4 %
Families earning $6,000 and over	894	15.3 %

MEDIAN FAMILY INCOME - $2,904

Table 22

BREAKOUT OF FAMILY INCOME - 1960
FRANKLIN COUNTY

	Number	Percent	Ala. Percent	U.S. Percent
URBAN FAMILIES				
Total Number of families	1,761	100.0		
Under $1,000	184	10.4	7.5	3.3
$1,000 - $1,999	233	13.2	10.1	6.7
$2,000 - $2,999	239	13.6	11.2	8.5
$3,000 - $3,999	256	14.6	11.4	9.5
$4,000 - $4,999	215	12.2	11.4	11.6
$5,000 - and over	634	36.0	48.4	60.3
% under $3,000		37.2	28.8	18.5
% under $5,000		64.0	51.6	39.6
Median Family Income	$3,877		$4,853	$5,755
RURAL FAMILIES				
Total Number Families	2,706	100.0		
Under $1,000	506	18.7	16.4	5.3
$1,000 - $1,999	593	21.9	17.3	8.2
$2,000 - $2,999	371	13.7	14.1	8.7
$3,000 - $3,999	403	14.9	12.7	10.3
$4,000 - $4,999	287	10.6	11.0	12.4
$5,000 - and over	546	20.2	28.5	55.1
% under $3,000		54.3	47.8	22.2
% under $5,000		79.8	[illegible]	44.9
Median Family Income	$2,648		$2,177	$5,361
RURAL FARM FAMILIES				
Total Number of Families	1,374	100.0		
Under $1,000	358	26.0	27.3	17.0
$1,000 - $1,999	285	20.7	22.5	19.0
$2,000 - $2,999	232	16.9	14.6	16.8
$3,000 - $3,999	192	14.0	10.2	13.8
$4,000 - $4,999	105	7.7	8.1	9.9
$5,000 and over	202	14.7	17.3	23.4
% under $3,000		63.6	64.4	52.8
% under $5,000		85.3	82.7	76.5
Median Family Income	$2,190	$2,008		$2,800

SOURCE: U. S. Census of Population, 1960 3808

Financial Activities

Recent trends in banking activities are presented in Table 23. Significant growth is reflected in all our activities studies. Bank debits include debits to demand deposit accounts of individuals, partnerships, corporations, and of the State, counties, municipalities, and other political subdivision. Demand deposits include deposits to checking accounts plus certified and cashier's checks.

Growth in Muscle Shoals Area financial indicators, during the period under study, compared closely and in some instances exceed comparable indicators for larger metropolitan areas in Alabama such as the Tuscaloosa, Huntsville and Gadsden areas.

Table 23

FINANCIAL ACTIVITIES IN MUSCLE SHOALS
AREA FOR SELECTED YEARS

	Bank Debits	Demand Deposits	Savings Deposits	Savings in Savings & Loan Associations
1950	$294,193,000	$19,497,000	$ 4,254,000	1/
1955	$483,143,000	$28,031,000	$ 5,106,000	$20,355,000
1960	$715,434,000	$32,414,000	$11,977,000	$36,954,000
1965	$939,318,000	$47,907,000	$25,538,000	$58,646,000

1/ Information not available

FUTURE PROSPECTS FOR THE MUSCLE SHOALS AREA

In the previous sections of this report, we have analyzed historical patterns and trends of the economy and population of the Muscle Shoals Area. We have considered trends in local economic measures relative to comparable measures in larger areas and studied implications of local changes in terms of their consequence within the National economy.

In this section, we will attempt to use the knowledge gained through historical analysis of the economy, and the people served by this economy, in order to provide reasonable and logical assumptions concerning future growth prospects in the Muscle Shoals Area. This section is primarily concerned with trends toward the future but makes no predictions. Rather, trends in economic and population resources are evaluated in terms of consequences of their continuation. Projections thus made are in terms both of local trends of local consequences of national trends. Local development strategy involves enhancement of projected trends for growth and betterment of living standards, while minimizing effects of decline and decay. This report will be considered successful if consideration of its analysis aids the citizens of the Muscle Shoals Region in making an upward revision of indicated trends in the future.

THE ECONOMIC SECTOR

Projections of the economic sector of an area always present many problems and at best are mere estimates. However, projections to the year 1980 have been made of several indicators for which historical series of data were available and adequate for trend extrapolation.

The dollar sales volume of all retail establishments in Colbert County is expected to increase by more than $12 million by 1970 - up 14 percent, and continue the rising trend for the following decade reaching a level of approximately $150 million in the year 1980.

Lauderdale County retail establishments also are expected to produce significant gain in dollar sales volume during the forecase period but should grow at a slower rate than Colbert County. Retail sales are projected to reach $100 million in 1970 and then climb to $142 million in 1970 and then climb to $142 million by 1980.

Assuming a continuation of past local employment trends, adjusted for influence of trends in the national economy, a sizable increase is expected in total employment by 1980. Table 24 reflects changes in Muscle Shoals Region employment between 1960 and 1965 with trend projections for each major industrial group for 1970 and 1980. Total employment is expected to increase

by 33.2 percent by 1980, representing an addition of 11,630 new jobs to the local economy during the twenty-year period. Significant gains in manufacturing, trade, service and government are expected to more than offset the expected 36.3 percent decline in the self-employed and domestic servant category and 47.9 percent decline in the agricultural worker segment. Moderate to large increases in employment are expected in all other industrial segments except mining and quarrying where continuation of the declining trend is expected, however, this segment involves few jobs.

One should keep in mind that these projections are not predictions, and indeed, many variables, such as the ability and desire to attract new industries, etc. are not taken into consideration. Their importance lies in the fact that they enable the people of the Muscle Shoals Area to see where they are heading in the future if they continue as they have in the past. Projections aid the people in altering the future course if that which is expected is not that which is desired.

As employment totals rise in basis industries, complementary employment gains will occur in non-basic industries. As more jobs are created, out-commuting will reduce, the out-migration trend will be reversed and in-migration will occur, thus producing population growth above the natural increase.

Improved local employment opportunities and higher wage potentials will increase family income and contribute to an overall higher standard of living. This will result in a community attractive to its younger citizens, a better trained and educated labor force, higher per capita incomes resulting in increased demand for goods and services, improved housing standards and a population capable of supporting, through taxation, necessary government services such as schools, recreation facilities and utilities.

In short, the potential for future economic growth in the Muscle Shoals Region is there. The problems to achieve this growth are not insurmountable. Goals and policies to achieve this growth must be established and implemented.

TABLE 24

MUSCLE SHOALS REGION EMPLOYMENT BY MAJOR INDUSTRY GROUP 1960, 1965 WITH PROJECTIONS TO 1970 AND 1980

	1960	1965	1970	1980	Percent Change 1960-1980
Total Employment	35,010	37,800	40,770	46,640	+33.2%
Manufacturing	9,910	10,960	12,350	16,000	+61.5%
Mining & Quarring	160	80	70	40	-75.0%
Contract Construction	1,380	1,300	1,650	2,300	+66.7%
Transportation, Communications & Utilities	1,010	1,200	1,300	1,500	+48.5%
Trade	4,200	4,640	5,400	6,600	+57.1%
Finance, Insurance & Real Estate	700	760	900	1,150	+64.3%
Service and Miscellaneous	2,370	2,680	3,300	4,250	+79.3%
Government	6,400	7,810	8,500	9,500	+48.4%
*All Other Non-Agriculture**	5,810	5,810	5,000	3,700	-36.3%
Agriculture	3,070	2,560	2,300	1,600	-47.9%

**Includes self-employed, unpaid family workers, and domestic servants.*

Source: Alabama Department of Industrial Relations—projections by Rust Engineering Company, Urban and Regional Planning Department.

VOCATIONAL EDUCATION IN THE MUSCLE SHOALS REGION

PART II

STRENGTHS AND WEAKNESSES

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STRENGTHS AND WEAKNESSES

INTRODUCTION

Before it is possible to make an intelligent evaluation of anything, it is necessary to know the basis upon which the evaluation is to be made. In defining the strengths and weaknesses of vocational education in the region, it is necessary to know the criteria upon which each item is classified as a strength or weakness. From many authorities in education, it is possible to learn the components which form standards for quality vocational education. These components comprise the standards which were used in this evaluation of strengths and weaknesses of vocational education in the region.

Quality Vocational Education should:

1. Provide vocational education to every resident who can benefit therefrom, no matter (a) where located in the region; (b) of what age; (c) of what school, employment or unemployment status, and (d) of what physical or mental condition, if trainable.
2. Begin early to provide occupations information.
3. Continue and expand this information through the elementary level and include exploration of occupations in the middle years.
4. Teach vocational education in clusters at the early secondary level, and advance into specialized study in the later secondary years.

5. Assure that all study is relevant to the student's pursuits, whether in the academic or vocational field.
6. Provide continuous guidance and counseling.
7. Operate as a continuing education, allowing student entry and exit at any point or level.
8. Prepare the student to perform well in the many phases and areas of his life.
9. Utilize fully all resources, facilities, equipment and staff.
10. Provide for effective evaluation of its role and its successes and failures.
11. Be flexible and capable of change when the need is indicated.
12. Involve the parent and the student in the planning processes.
13. Prepare for job entry and assist in placement.
14. Provide for short-term intensive job training designed specifically to meet the needs of locating, expanding or changing, industry, business or the professions.
15. Maintain an interest in the student and be prepared to offer programs relevant to the student's advancing age, experience and needs.

VOCATIONAL EDUCATION IN THE MUSCLE SHOALS REGION

STRENGTHS

VOCATIONAL EDUCATION IN THE MUSCLE SHOALS REGION

STRENGTHS

AVAILABILITY OF VOCATIONAL COURSES

Vocational courses, though very limited in some schools, are available in every high school in the region. Several schools offer on the home campus only Agriculture, Home Economics and Office Occupations. Some of these schools transport students by bus to an Area Vocational School for other vocational courses.

AREA VOCATIONAL SCHOOL IN EACH COUNTY

Eash county has an excellently equipped Secondary Area Vocational School for use of the high school students in that county. The students are bused daily from their home schools for two and one half hours of vocational instruction. In addition, these schools offer night adult classes on the secondary level. While the curriculum varies with different schools, all Area Vocational Schools offer the following:

Auto Mechanics

Business and Office Education

Drafting

Electronics

Refrigeration and Air Conditioning

Welding

Other courses offered in some of the schools include:

Commercial and Institutional Food Preparation

Cosmetology

Computer Programming

Graphic Arts

Industrial Electricity

Machine Shop

Occupational Clothing and Textiles

Shoe Repair

Sheet Metal

Vocational Home Economics

AREA AND NATIONAL MANPOWER REQUIREMENTS

Area school officials who design curriculum carefully evaluate area and national manpower requirement projections in order to design programs which will best prepare students to fill job demands upon completion of their study course. There is a current interest in the coordination of curriculum in the secondary school with the offerings available at post-secondary schools.

FIVE YEAR PLANS

Each secondary school and each system has formulated a "Five Year Plan"

for Vocational Education. These plans will be updated annually to reflect changes in demands. The plans provide for anticipated requirements, as well as follow-up studies of students leaving school.

DEDICATED SCHOOL PERSONNEL

Most school personnel involved in vocational education in the three county region are dedicated and sincerely interested in giving the student the best possible education. The same can be said of the residents of the communities. Vocational education teachers, counselors, and administrative staff members attend many professional seminars and in-service training sessions, in an effort to keep abreast of new developments. Some attend counseling courses at night at the Huntsville Branch of the University of Alabama. Others attend summer school at various universities, and several have had summer employment in programs which up-grade their counseling and teaching abilities.

CAREER DAYS PROGRAM

In order to inform students of available opportunities, and to stimulate an interest in vocational education, the Lauderdale County School System is planning for a Career Days Program. Initially, it will involve grades 11-12, and will be expanded in successive years. Other schools have expressed an interest in such a program.

VISITS TO POST-SECONDARY VOCATIONAL EDUCATION FACILITIES

Many schools arrange for seniors to visit post-secondary facilities. These visits are designed to acquaint students with opportunities for advancing their skills, and often result in students continuing their education. Experience shows that many students will not, or cannot, make these trips individually, but they are eager to do so when with their school group.

EDUCATIONAL INSTITUTIONS IN THE THREE COUNTY REGION

This three county Muscle Shoals Region has existing institutions which could be the basis for a Regional Vocational Educational System. These institutions are: three elementary and secondary county school systems, six elementary and secondary city school systems, one junior college, one post-secondary technical school, one university, one school for mentally retarded children, one child study center, and one rehabilitation center. There is one post-secondary institution located in each county.

THE MUSCLE SHOALS TECHNICAL INSTITUTE

The Muscle Shoals Technical Institute, Colbert County, a state supported post-secondary technical school, is a well equipped and well staffed school opened in 1966. The school is operating (for day classes) at its capacity of

300 students. Space is available for expansion, and plans are in process for additional buildings. Fourteen courses are offered for day classes, and the curriculum is revised to accomodate a real demand. In January, 1970 the school announced an initial offering of three night courses. This is the first time that vocational-technical courses on the post-secondary level have been available at night in the area. The night classes will allow semi-skilled day workers to study at night and up-grade their skills, thus qualifying them to move up the employment ladder, leaving an entrance slot for a semi-skilled worker. The night program can be expanded as the need arises.

THE NORTHWEST ALABAMA STATE JUNIOR COLLEGE

The Northwest Alabama State Junior College, Franklin County, a state supported liberal arts school which also offers courses in forestry, law enforcement, and office skills, is presently coordinating with the Muscle Shoals Technical Institute and the State of Alabama Department of Education in an effort to establish an Associate Degree Program for certain courses. Under the proposal, students will receive half their instruction at each school and will be awarded, upon successful completion of the two year program, an Associate Degree. Some, if not all, credits will be transferable to a four year college program.

FLORENCE STATE UNIVERSITY

Florence State University, Lauderdale County, is an excellent four year college with rapidly expanding facilities and curriculum. The University, a liberal arts school, has an excellent teacher preparation program. In addition, twelve departments offer degree programs, several of which offer Master's degrees. Over 3,000 students are currently enrolled.

STATE SUPPORT OF VOCATIONAL EDUCATION

The region's school officials and legislators are keenly aware of the need for quality vocational education. The region's legislators, on both the state and federal levels, have actively pursued programs to expand vocational education. Partially as a result of these efforts, local and state financial support for vocational education has been substantially increased in recent years. Reference to Table 25 at the end of this section discloses that of almost five and one half million expended in 1966 in Alabama for vocational education, almost four and one half million was derived from state and local sources. Only two states in Appalachia, New York, and Pennsylvania, had larger expenditures for vocational education. Alabama's proportionate state and local support for Vocational Education was greater than these states. The financial records from the schools in this three county region reveal that $974,732.97 was

received for vocational education expenditures during the school year 1969-70. Alabama has placed a great deal of emphasis on quality education in recent years. This emphasis continues and is evidenced by the fact that the 1969 Alabama legislature passed the largest education appropriation measure in state history. A record $348,405,326, for 1969-70 and $358,235,237 for 1970-71 was allocated, with an additional $47 million contingent upon the availability of funds and upon approval of the governor. Table 26 at the end of this section shows the continuing emphasis on vocational education. The state appropriations increased from almost eight and one half million in 1968-69 to almost eleven million in 1969-70, to over eleven million in 1970-71 with an additional conditional appropriation of over one half million. These increases will allow continued emphasis on education in Alabama.

FEDERAL SUPPORT OF VOCATIONAL EDUCATION

On the federal level, the emphasis in education is on vocational education. Federal funds for many education programs have been reduced, or held to previous levels. However, funding for vocational education was increased in fiscal 1970 and 1970-71. In fiscal 1970, the increase over 1969 was

$123,610,000. In fiscal 1971, the increase over fiscal 1970 is *$66,400,00. Hence, within these two fiscal years, the increase has been $190,010,00. Refer to Table 27 at the end of this section for details of increase.

In conclusion, this study has found that the strengths of vocational education in the region are such that they offer a very firm foundation upon which can be built a greatly expanded quality vocational education program.

*Passed by The House of Representatives and the Senate Hearing Committee. At this writing, the bill is expected to reach the Senate floor very soon.

TABLE 25

Expenditures on Vocational Education in Appalachia in 1966 by Source of Support

State & Source of Program Support	Total	Agriculture	Distribution	Health	Home Economics	Office	Technical	Trades and Industries
APPALACHIA	$45,524,676	$ 9,692,990	$ 1,703,739	$ 1,161,806	$ 9,307,162	$ 7,449,670	$ 3,169,162	$ 13,040,147
Federal	11,135,579	2,213,540	435,231	491,105	976,108	1,990,365	1,361,594	3,667,636
State	15,786,399	3,814,132	714,408	493,763	3,694,220	2,603,930	448,680	4,017,266
Local	18,602,698	3,665,318	554,100	176,938	4,636,834	2,855,375	1,358,888	5,355,245
ALABAMA	5,387,877	1,633,133	256,033	139,691	1,497,668	496,309	----	1,365,043
Federal	1,057,215	309,421	61,893	52,396	147,535	226,822	----	259,148
State	3,961,884	1,319,139	194,140	34,827	1,347,504	67,282		998,992
Local	368,778	4,573	---	52,468	2,629	202,205	----	106,903
GEORGIA	1,768,939	601,468	23,805	28,041	762,346	108,309	29,370	215,600
Federal	292,190	73,905	3,695	14,055	26,072	59,799	17,429	97,235
State	270,137	66,145	---	12,036	77,195	5,970	10,861	97,930
Local	1,206,612	461,418	20,110	1,950	659,079	42,540	1,080	20,435
KENTUCKY	1,767,803	601,240	40,105	---	603,125	100,271	423,062	---
Federal	303,128	42,988	1,578	---	15,947	15,865	226,750	---
State	1,362,563	526,438	37,912	---	558,914	42,987	196,312	---
Local	102,112	31,814	615	---	28,264	41,419	----	---
MARYLAND	749,850	80,975	342	---	95,999	334,719	35,121	202,694
Federal	161,330	22,674	342	---	4,998	57,282	21,477	54,557
State	307,633	32,380	---	---	51,732	142,656	6,617	74,248
Local	280,887	25,921	---	---	39,269	134,781	7,027	73,889
MISSISSIPPI	1,260,160	470,953	9,330	9,329	387,379	32,269	59,025	291,875
Federal	355,780	154,414	2,301	4,327	33,563	27,196	33,727	100,252
State	416,237	100,887	2,044	2,376	145,167	2,973	22,593	140,197
Local	488,143	215,652	4,985	2,626	208,649	2,100	2,705	51,426
NEW YORK	$ 7,577,357	$1,303,247	$ 445,248	$ 295,284	$ 228,086	$ 1,736,952	$ 17,843	$ 3,550,697
Federal	2,563,756	421,632	82,848	165,864	84,115	277,187	17,843	1,514,267
State	3,548,643	646,630	256,266	91,785	93,221	1,028,884	---	1,431,857
Local	1,464,958	234,985	106,134	37,635	50,750	430,881	---	604,573
NORTH CAROLINA	2,104,619	757,668	167,490	---	660,014	5,290	171,087	343,070
Federal	702,912	373,341	92,182	---	63,361	---	30,607	153,421
State	944,937	194,910	55,810	---	431,649	5,290	136,243	121,035
Local	456,770	189,417	29,498	---	165,004	---	4,237	68,614
OHIO	2,462,927	618,100	73,129	21,470	881,715	448,892	47,062	372,559
Federal	195,297	54,635	6,176	10,192	42,476	43,927	4,665	33,226
State	260,305	---	8,784	---	---	220,556	---	30,965
Local	2,007,325	563,465	58,169	11,278	839,239	184,409	42,397	308,368
PENNSYLVANIA	13,688,441	1,617,597	342,448	331,854	2,081,688	2,975,968	1,916,394	4,422,492
Federal	3,327,683	284,769	110,708	96,511	230,519	875,292	788,446	941,439
State	2,330,857	226,345	46,611	235,025	361,397	1,050,338	---	411,140
Local	8,029,901	1,106,483	185,129	318	1,489,772	1,050,338	1,127,948	3,069,913
SOUTH CAROLINA	1,585,062	470,867	51,412	42,782	487,804	172,328	---	359,869
Federal	423,864	97,395	14,693	25,268	83,233	86,164	---	117,111
State	493,772	215,564	7,418	16,114	140,264	---	---	114,412
Local	667,426	157,908	29,301	1,400	264,307	86,164	---	128,346
TENNESSEE	1,145,596	209,220	62,358	143,189	224,001	35,671	141,732	329,425
Federal	384,854	66,914	21,026	48,707	76,219	12,135	48,218	111,635
State	380,371	71,153	20,666	47,241	73,891	11,768	46,757	108,895
Local	380,371	71,153	20,666	47,241	73,891	11,768	46,757	108,895
VIRGINIA	2,183,722	695,270	172,537	32,383	555,912	71,035	71,355	585,230
Federal	482,164	200,055	36,434	12,630	43,929	37,191	35,050	116,875
State	1,038,085	311,614	74,700	13,142	321,820	16,628	11,393	288,788
Local	663,473	183,601	61,403	6,611	190,163	17,216	24,912	179,567
WEST VIRGINIA	3,842,323	633,252	59,502	117,783	841,425	931,657	257,111	1,001,593
Federal	885,405	111,397	11,355	61,155	124,141	271,505	137,382	168,470
State	470,976	102,927	10,057	41,217	91,466	8,598	17,904	198,807
Local	2,485,942	418,928	38,090	15,411	625,818	651,554	101,825	634,316

SOURCE: STATE DEPARTMENT OF EDUCATION

TABLE 26

1968-69, 1969-71 EDUCATIONAL APPROPRIATIONS

(Act No. 91 and other individual appropriation measures passed during 1969 Special Session of the Alabama Legislature)

	1968-69 Appropriations*	1969-70 Absolute Appropriations	1969-70 Conditional Appropriations	1970-71 Absolute Appropriations	1970-71 Conditional Appropriations
Alabama College	$ 1,567,006	$ 1,825,562	$ 200,000	$ 1,886,329	$ 157,185
Auburn University	15,600,750	18,161,077	500,000	18,756,879	1,565,827
Auburn University – Montgomery	—0—	1,000,000	—0—	1,135,480	64,520
Total Auburn University	15,600,750	19,161,077	500,000	19,892,359	1,630,347
U. of A. – Main Campus	10,786,831	12,566,607	781,000	13,006,041	1,599,694
U. of A. – Huntsville	1,666,123	2,191,033	—0—	2,242,202	127,406
U. of A. – Birmingham	1,313,500	2,430,227	—0—	2,432,773	138,235
U. of A. – Medical Center	5,878,842	7,186,990	525,000	7,510,866	428,838
Total University of Alabama	19,645,296	24,374,857	1,306,000	25,191,882	2,294,173
Alabama A & M	2,548,113[1]	2,339,452	750,000	2,417,325	137,357
Alabama State College	2,029,185	2,364,000	—0—	2,442,690	888,798
Florence State University	1,587,775	1,970,966	121,200	2,039,071	223,273
Jacksonville State University	2,716,292[2]	3,123,569	192,100	3,227,734	357,631
Jacksonville St. U. Nursing School	250,000	250,000	—0—	250,000	—0—
Total Jacksonville State University	2,966,292	3,373,569	192,100	3,477,734	357,631
Livingston State University	1,113,531[3]	1,071,934	315,900	1,111,474	118,913
Troy State University	1,582,204	1,964,051	320,800	2,031,461	422,971
University of South Alabama	3,133,155	3,650,125	300,000	3,771,625	514,311
Elementary Teachers Scholarship Fund	25,000	25,000	—0—	25,000	—0—
Medical Scholarships	135,000	135,000	—0—	135,000	—0—
Dental Scholarships	83,000	83,000	—0—	83,000	—0—
Marion Institute	75,000	75,000[4]	—0—	75,000[4]	—0—
Lyman Ward	42,617	42,617[4]	—0—	42,617[4]	—0—
Tuskegee Institute	470,000	470,000[4]	—0—	470,000[4]	—0—
Walker County Junior College	44,460	75,000[4]	—0—	75,000[4]	—0—
Minimum Program	172,690,214	201,230,264	—0—	207,899,362	11,813,221
Minimum Program Exceptional Children	318,690	371,274	—0—	383,632	21,799
Free Textbooks	2,078,500[5]	1,756,452	—0—	1,744,508	127,537
Removal of Illiteracy	100,000	116,500	—0—	120,378	6,840
Vocational Education	8,383,171	10,766,394	—0—	11,037,719	627,183
Coord. In-School TV Program	23,397	50,000	—0—	49,677	2,823
National Defense Education	127,250	148,246	—0—	153,181	8,704
State Department of Education	653,257	761,044	—0—	786,377	44,683
Civil Defense	9,038	10,528	—0—	10,879	618
Plans and Surveys	29,605	34,490	—0—	35,638	2,025
State Tenure Commission	2,000	2,000	—0—	2,000	—0—
Civilian Rehabilitation	1,335,434[6]	1,987,726	—0—	2,010,032	113,645
Phys. Rest. of Crippled Children	1,092,361	1,372,600	—0—	1,409,584	80,095
Ala. Boys Industrial School	442,389	515,384	—0—	532,539	30,260
Ala. Inst. for Deaf and Blind	1,701,147	1,981,836	—0—	2,051,332	112,833
Ala. Indust. School for Negroes	334,686	389,909	—0—	402,888	22,893
Ala. State Hospital for Schools	25,000	29,125	—0—	27,559	1,566
Partlow State School	193,582	225,523	—0—	233,030	13,241
Regional Education	—0—	220,000	—0—	100,000	—0—
State Training School for Girls	246,329	311,973	—0—	321,526	16,849
Anniston Memorial Hospital Nurse Training	40,000	—0—	—0—	—0—	—0—
Sylacauga Nurses Training School	40,000	40,000	—0—	40,000	—0—
Mobile Gen. Hospital Nur. & Med.	370,000	370,000	200,000	370,000	200,000
Alabama Educational TV Commission	731,545	1,052,250	—0—	1,068,919	61,738
Debt Service – Estimated	1,258,876	1,276,014	—0—	1,273,120	—0—
Social Security	12,900,000	13,643,000	—0—	14,604,165	829,835
Teachers' Retirement System	19,751,237	24,926,500[7]	—0—	25,546,448[7]	1,386,052
Trade Schools	6,910,325	9,050,529	—0—	9,264,739	526,439
Trade School – Draper Prison	126,250	147,081	—0—	151,976	8,636
Junior Colleges	6,747,403	9,360,724	—0—	9,541,732	542,179
Veterans Education Benefits (Estimated)	400,000	400,000	—0—	400,000	—0—
Ed. of Dependents of Blind Parents	5,000	5,250	—0—	5,250	—0—
Ala. Trade School & Jr. College Auth.	—0—	1,000,000	2,000,000	—0—	3,000,000
Manpower Devel. Training Act	100,000	100,000	—0—	100,000	—0—
Teachers' Special Pension Fund	—0—	1,453,500	—0—	1,091,480	62,020
Employees Insurance (Estimated)	40,000	50,000	—0—	50,000	—0—
Driver Education	—0—	—0—	300,000	—0—	300,000
American Legion Auxiliary	3,000	3,000	—0—	3,000	—0—
Ala. Ed. Study Commission	32,973	155,000[8]	—0—	155,000[8]	—0—
Ala. Commission of Higher Education	—0—	90,000[9]	—0—	90,000[9]	—0—
The following Boards of Education:					
Geneva County (Hartford)	—0—	—0—	150,000	—0—	—0—
Elba City	—0—	—0—	160,000	—0—	—0—
Etowah County (Altoona)	—0—	—0—	400,000	—0—	—0—
Wilcox County (Camden)	—0—	—0—	180,000	—0—	180,000
Morgan County (Floretta)	—0—	—0—	—0—	—0—	200,000
Fayette County (Fayette)	—0—	—0—	400,000	—0—	—0—
Franklin County (Union Jr. H. S.)	—0—	—0—	145,000	—0—	—0—
Every School Board in State ($100,000 each)	—0—	—0—	11,900,000[10]	—0—	—0—
TOTALS	$291,891,043[11]	$348,405,326	$ 19,841,000	$359,235,237	$ 27,088,673

* Conditional appropriations included where released
[1] Includes $540,000 capital outlay
[2] Includes $200,000 for capital outlay—Act #202, 1969 Special Session
[3] Includes $250,000—Act #210, 1969 Special Session
[4] Act numbers 29, 30, 31, & 32 respectively, 1969 Special Session
[5] Includes $1,000,000—Act #25, 1969 Special Session
[6] Includes $50,000—Act #36, 1969 Special Session
[7] Includes $1,453,000 for 1969-70 and $1,153,500 for 1970-71—Act #23, 1969 Special Session
[8] Permanent Study Commission—Act #15, 1969 Special Session
[9] Act #14, 1969 Special Session
[10] Guntersville will become a city system in 1969-70
[11] Includes $1,500,000 appropriated in 1969 Special Session

FEDERAL FUNDING FOR VOCATIONAL EDUCATION

TABLE 27

PROGRAM	APPR. FY 1970	INCREASE OVER FY 1969
Basic Grants to States	$300,336,000	$ 70,000,000
Smith Hughes Act*	7,161,455	.....
Disadvantaged Youth	17,000,000	17,000,000
Work-Study	4,250,000	4,250,000
State Advisory Councils	2,380,000	2,380,000
Exemplary Programs	13,000,000	13,000,000
Consumer and Homemaking	15,000,000	1,000,000
Cooperative Education	14,000,000	14,000,000
Curriculum	880,000	880,000
Research	1,100,000	.....
Planning and Evaluation	900,00	900,000
National Advisory Council	200,00	200,000
Totals**	376,207,455	123,610,000

* Permanent appropriation, therefore not included as item in H. R. 15931.

** Totals include neither the estimated additional $5.9 million for research expected to be allocated to vocational education from the Bureau of Research to carry on existing programs nor the vocational education share of funds under the Education Professions Development Act, estimated at $5.5 million.

FEDERAL FUNDING FOR VOCATIONAL EDUCATION

Table 27 (Continued)

PROGRAM	FY 1971*	INCREASE OVER FY 1970
Basic Grants to States	$ 350,336,000	$ 50,000,000
Smith Hughes Act*	7,161,455	-0-
Disadvantaged Youth	20,000,000	3,000,000
Work-Study	5,500,000	1,250,000
State Advisory Counsils	2,380,000	-0-
*Exemplary Programs	20,000,000	5,020,000
Consumer and Homemaking	17,500,000	2,500,000
Cooperative Education	18,500,000	4,500,000
*Curriculum		
*Research		
Planning and Evaluation	900,000	-0-
National Advisory Council	330,000	130,000
Totals*	442,607,455	66,400,000

*Combined

Appropriations passed by the House of Representatives, Senate hearings are complete at this writing. It is possible that Senate action will be complete by time of publication.

VOCATIONAL EDUCATION IN THE MUSCLE SHOALS REGION

WEAKNESSES

WEAKNESSES

PAST WEAKNESS OF ACADEMIC TRAINING

The Vocational Education Study Committee has found that a very basic weakness in this region is that many students enrolled in vocational education are deficient in the comprehension, communication, and computation skills. This is not a weakness of vocational education; rather, it indicates a weakness in previous years, of the student's academic training. This weakness is vividly manifested when the student reaches grades 10-11 and enrolls in vocational education, or enrolls in post-secondary schools. The improved public education of the recent past and current period will do much to overcome this situation. The many remedial reading, writing and mathematics programs underway help to make a brighter picture.

The findings of the Hammer-Greene-Siler Associates in "Manpower Education in the North Carolina Appalachian Region" seem relevant to the local situation. This report found that there are two dimensions to the manpower problem:

1. The current backlog of unemployables ---- resulting from inadequate work preparation in the past and

2. The youth now in school who are receiving inadequate preparation for work.

Much of the current emphasis on vocational education and manpower problems deals with the current backlog. Not enough emphasis has been placed on difficulties with the public education system that affect the youth's academic performance. The report states that an adequate supply of skilled labor is essentially a problem of public school education, resulting from deficiences in basic education and work preparation for non-college bound youth. The present system of vocational education is not geared to provide a total curriculum which fits the background, needs, capabilities, and most import-interests, of a majority of students. This report states that the premise that every student who can should go to college is the basis of the difficulties within the public school system. Locally, approximately one in eight ninth grade students will enter a four year college, and probably one in ten will graduate. Dr. Joseph Blackston, Superintendent of Florence City Schools, has found that approximately 40% of students graduating from these schools do not enter college. Other systems report much higher percentages of students not entering post-secondary education.

There is another area of concern when considering systems not geared to the world of work. Per-pupil cost of preventive high school programs, compared.

with the cost of remedial manpower programs, was the subject of an article in the American Vocational Journal of May, 1970. Written by William A. Stanton, Associate Professor, Department of Industrial Education, Purdue University, the article presents a strong argument for preventive vocational education programs in the public schools. Mr. Stanton has found that the per-pupil expenditure of remedial programs is three times greater than the per-pupil expenditure for preventive programs. While recognizing the need for immediate remedial programs, Mr. Stanton maintains that the primary concern is with the welfare of the individual, not welfare for the individual. The article reports an annual generalized figure of $692 per pupil, cost for education with an additional cost of $185 per pupil for preventive vocational education in the last two years of public school. By way of comparison, the average Job Corps costs have run $9,000 to $10,000 per trainee. A survey of manpower programs shows an average cost of $2,632 per trainee.

STIGMA TO VOCATIONAL EDUCATION

Meetings of the Vocational Education Study Committee and interviews with school personnel reveals there is a very real stigma attached to vocational-technical education in the public school system. This stigma is not innate

with a young student but is often acquired through the influence of academically oriented school officials, counselors, teachers, students, and in come cases, the parent. Even if the parent is not academically oriented, the existing stigma is great enough to cause the parent to reject vocational education for the child. This situation exists even when both the parent and the student realize that the student is not college bound.

DROP OUT RATE

This region has a high drop-out rate. Studies of school reports and interviews with school personnel show that the rate varies with the locations for the region. The Alabama State Plan for Vocational Education lists the drop-out rates as: Lauderdale County - 40%; Colbert County - 54% and Franklin County - 64%. The study committee feels that not nearly enough emphasis is placed on providing programs which will prevent drop-outs. The testing programs of the schools, and personal observation, can usually identify the potential drop-out as early as the fourth grade. It would seem that ample time exists in which to devise means to retain that student past the sixteenth birthday, and until graduation.

SCHOOLS NOT ORIENTED TO THE WORLD OF WORK

The public school systems, as they exist in this region, are not geared

to the world of work. The systems are graduating, or losing, students who are unskilled and who are not work oriented. This is perhaps acceptable for those graduates who are college bound. However, this study has found that the majority of the students of this region are not college bound. The students who desire, and who would benefit from, vocational education know that the academic offerings are not relevant to their vocational pursuits. This is a contributing factor in the high drop-out rate. Many counselors of the region feel that if the curriculum is made relevant to the vocational education program, more students would remain in school, and the level of the academic achievements of all vocational education students would be raised. The Richmond Plan in California is an example - each academic subject is related to vocational projects underway.

OVER-CROWDED SCHOOLS

Area school personnel report that all schools in the region are overcrowded. The space limitations hamper the academic programs as well as the vocational programs. The crowded situation exists due to the closing of several schools, and in some cases, the influx of residents from the outlying areas. Each operating school needs additional classrooms and shop space. Until this is secured, the vocational programs at the schools cannot be adequately expanded. This situation exists with all the high schools, all the Area Vocational Secondary Schools, and the post-secondary technical school.

EMPHASIS ON AGRICULTURE

A study of the Five Year Plans for Vocational Education shows that some systems of the region continue emphasis on agriculture, even though the jobs in agriculture continue to decline. Vocational teachers and counselors of the region estimate that perhaps less than 5% of the agriculture graduates will earn a livelihood in production agriculture, and that a greater number will find employment in agriculture related fields. The knowledge gained will undoubtedly be put to use, but in many cases, it does not prepare the graduate to qualify for an existing job. The premise that "any knowledge gained is not a waste" would perhaps justify the emphasis on agriculture in those schools which do not have access to an Area Vocational School. However, the agriculture programs do not accomplish the goal of vocational education, i.e. - preparing the student for employment in jobs which are, or will be, available.

LOCATIONS OF AREA VOCATIONAL SCHOOLS

The Vocational Education Study Committee has found that the locations of the Area Vocational Schools are such that many students cannot, or will not, attend the vocational school. Theoretically, since each county has an Area Vocational School, a vocational education is available to every high school

student in that county. For practical reasons, however, this is not true. In some cases, the distance between the two is so great as to make transportation prohibitive. In some cases, the rugged terrain and the inferior roads make the Area Vocational School inaccessible. In still other cases, the shortage of funds prevents busing of students to the Area Vocational School. In Franklin County, the Area Vocational School is located at Russellville. Of the 195 vocational students enrolled in that school, only three are from outside the Russellville City School System. The County System is financially unable to provide bus transportation, and these three students provide their own tranportation from the nearby schools at Belgreen and Phil Campbell. The schools in western Franklin County have combined enrollments of well over 1,000 students. The distance to the Area Vocational School is 25 miles or more from the schools. The roads traverse hilly terrain and are narrow, crooked, and poorly maintained. A twice daily bus trip, even if the county had funds for busing, would be hazardous, and even impossible during times of ice and snow. Students at these schools have no vocational choices with the exception of Agriculture, Home Economics and Business Courses. Waterloo, in western Lauderdale County, is approximately 30 miles from Florence, and the Area Vocational School is located 12 miles east of Florence. A 45 mile twice daily bus trip is too time consuming to be feasible. Because of rugged terrain and

very poor roads, Waterloo is rather isolated. Only one road leads from Waterloo to Florence. No hard surface roads extend beyond Waterloo to the north. Students at Waterloo High School may participate in Agriculture, Home Economics, or Business Office courses, and all these classes are crowded. No other vocational programs are offered. Central High School, about midway between Waterloo and Florence, buses students to the Area Vocational School. However, because of the lengthy trip, some who need, and would profit from, vocational education do not attend the Area Vocational School. Some of these students leave home early for a lengthy bus trip in order to reach school, and they, as well as their parents, object to another lengthy bus trip to the Area Vocational School.

DISCIPLINE PROBLEM STUDENTS STEERED TO AREA VOCATION SCHOOL

The Vocational Education Study Committee reports that some counselors, at the feeder schools, steer their discipline problem students to the Area Vocational Schools. This removes the problem student from the home campus for one-half day and shifts the responsibility for discipline to the Area Vocational School. This policy is detrimental to the vocational education program. Frequently, these students have no interest in vocational education and they concentrate on destruction and disruption.

NIGHT CLASSES IN VOCATIONAL-TECHNICAL EDUCATION- POST-SECONDARY LEVEL

At the beginning of this study, it was apparent that the total absence of night classes of vocational-technical training at the post-secondary level was a glaring weakness. Some progress in correcting this weakness was made when the Muscle Shoals Technical Institute opened night classes in three courses in January 1970. However, no funding provisions were made, and the classes must be entirely student supported. Perhaps because of the high cost of this support, one class did not register the required number of students, and the offering was dropped. In order for each night class to support itself, there must be an enrollment of at least ten students who are each charged $1.50 per hour tuition fee. Classes are conducted in three sessions twice weekly for a period of twenty weeks, making the total course cost $180.00. A cash expenditure of this amount, even if spread over a five months period, is beyond the means of many semi-skilled workers, many of whom are married and supporting families. Many prospective students who want to enroll in night classes in order to up-grade their employment skills and improve their standards of living, feel that the tuition fee for night classes is excessive and discriminatory in comparison to fee charged day students who do not presently work, pay taxes and contribute to

the economy of the region. The day students attend classes 48 weeks a year, 8:00 a.m. to 3:30 p.m. daily, in one or two year courses, and are charged $2.00 regristration fee plus $15.00 monthly tuition. These are predominately students who are prepared to meet the expense of post-secondary education and chose technical-vocational school in preference to college. Many local persons feel that a joint federal-state-local night class program of assistance to the semi-skilled worker who wishes to qualify for more lucrative employment would bring positive and almost immediate economic returns to the region. Such a program would move the semi-skilled worker up the employment ladder to the skilled level, leaving an entrance slot for a semi-skilled worker.

LACK OF SUFFICIENT COUNSELORS

The lack of sufficient counselors is a very real weakness. The committee finds that more counselors are needed to guide and counsel students. From reports received, this situation exists in most of the public schools of the region as well as the post-secondary vocational school. The Muscle Shoals Technical Institute reports it has no counselor, and no space at present, to accomodate even one counselor. One county school system has three counselors to work with over 3,000 students. One high school has one counselor and over 800 students. Since counseling involves a great deal of record keeping and reporting, these counselors must devote as much, if not more time to these duties as counseling. One rural high school has counseling service. However, the person who counsels also teaches Office Occupations, and during the free period and lunch period, helps prepare and serve meals in the cafeteria.

SOCIAL CASE WORKERS NEEDED

The Vocational Education Study Committee found that the absence of social case workers in both the elementary and secondary schools is a weakness, and a contributing factor to student under-achievement as well as the high drop-out rate. If family, personality, and financial problems of students could be identified and corrected, many more students would successfully complete their education.

COUNSELING TRAINING NOT AVAILABLE LOCALLY

The fact that there are no counseling courses available at the local university is a weakness of both the academic and vocational programs. Presently, teachers and counselors desiring the courses must travel to Huntsville, Alabama, (80-150 miles distance) to take night courses at the University of Alabama, Huntsville Branch, or attend summer school away from this region. Interviews with teachers and counselors of the region reveal that more would attend these counseling courses if they were offered locally at night and during the summer. The Vocational Education Study Committee reports that many of the students majoring in education at the local university would minor in guidance counseling, if this course were available to them.

EVALUATION OF VOCATIONAL EDUCATION

The Vocational Education Study Committee recognizes that the lack of effective procedures for evaluating vocational education in the region, and the fact that, until 1969, there was no follow-up study of the vocational student, is a weakness of wide magnitude. These areas are vital to planning quality vocational programs. This weakness is also recognized on the National level and is receiving attention by the American Vocational Association.

Efforts leading to quality evaluation and follow-up studies are presently underway.

BETTER COORDINATION NEEDED

The lack of coordination among all persons and organizations interested in vocational education at the local, state, and federal level is a weakness of great importance. Locally, over 20 organizations are interested and/or involved in some form of vocational - technical training. Some of these organizations are: All public school systems, Muscle Shoals Technical Institute, the Child Study Center, Northwest Alabama Junior College, Northwest Alabama Rehabilitation Center, the Community Action Committee, the Tennessee Valley Authority, the Employment Security Division, the Muscle Shoals Mental Health Center, the AFL-CIO Appalachian Council, all industry, labor organizations and others. On the state level, other agencies and organizations have an interest in vocational -technical training. On the federal level, nine cabinet level departments, and 10 federal agencies, as well as the Office of Education of the Health Education and Welfare Department are involved with education and man-power training. The involvement of so many different agencies, at all levels, and without close coordination, results in over-laps, fragmentation, waste, duplications and undue expense;

and further, creates an almost insurmountable handicap for education.

COSMETOLOGY BOARD POLICY

Indicative of the lack of close cooperation is the situation which exists with costmetology training in a local secondary Area Vocational School. The Alabama State Board of Cosmetology, does not, for licensing purposes, recognize and accept, any study hours or credits earned by costmetology students at the local secondary Area Vocational Schools. Hence, a student who has studied cosmetology for two years must, upon graduation, enroll for the complete course in a local private school, or go out of the region to attend a state supported post-secondary school. (The course is not offered at the local post-secondary technical school.) Owners of beauty shops in this region report a severe shortage of well trained cosmetologists and that this is also the case in other areas of the state. With the current emphasis on vocational education and the shortage of trained, liscensed cosmetologists, it is ironic that this course, supported by local, state and federal funds, is denied recognition by a state licensing board. The graduates of the course for barbers do not experience this difficulty. Their study hours are applied to licensing requirements. Local vocational education officials have been unsuccessful in their efforts to arrange a change in the Cosmetology Board.

VOCATIONAL EDUCATION BEGINS LATE IN THE SECONDARY PROGRAM

The fact that, except for agriculture and home economics in the rural schools, most students have no access to vocational pursuits until grades 11-12 is considered by the Vocational Education Study Committee to be a very real weakness. At grades 11-12, most students have reached age 16, and can legally drop out of school. The committee found that many of these would remain in school if their needs and interests were satisfied through involvement in vocational knowledge. Children in the first grade are intensely interested in jobs and occupations. They like to explore the duties of fireman, policeman, doctors, nurses, etc. This information is available to them in attractive picture books with simple captions. At the second grade level, students are eagerly reading more details of occupations. This interest continues, and information is made available, throughout the elementary years. At this point, all involvement with vocations is withdrawn from the student, and not until grades 11-12, in most cases, can the student become involved with vocations. Counselors report that it is often too late - the student is no longer in the public school system. It is not suprising that many high school students feel frustration with a system which stimulates their interests in occupations during the formative years and deliberately creates a void at the time the students feel a need for active involvement.

KNOWLEDGE OF GOALS OF VOCATIONAL EDUCATION NEEDED

A definite weakness of vocational education in the region is the lack of knowledge of the need for, and goals of, vocational education. The Vocational Education Study Committee found that parents, students, school personnel, and the entire community should be better informed about the role of vocational education within the total education picture. As one committee member so aptly expressed it, "One of the greatest needs of Vocational Education in our region is education on Vocational Education". This knowledge would help remove the stigma attached to vocational education and thus help assure a vocational education tailored to the needs. Many students and parent think a student who pursues vocational education cannot enter college. It should be generally known that the student can enter college if she or he has the high school credits required for college entrance, and these can be attained in addition to vocational credits.

TRADITIONAL PROGRAMS NOT MEETING NEEDS

The committee found that the lack of innovative programs is a weakness in the vocational offerings in the region. The traditional programs are not adequately meeting the needs of students and industry. Students, counselors,

and industrial personnel officers report this as a weakness of the present vocational systems and feel that changes are needed. The Vocational Education Study Committee reports that programs which are challenging to the student and which are tailored to prepare the student for industry's needs is the answer to this problem.

In conclusion, this study has determined that the weaknesses of vocational education in the region are not insurmountable. Some of the problems lend themselves to early attention and solution while others will require lengthy planning and implementation. However, the problems and weaknesses can be overcome, if proper planning, guidance and funding can be secured.

VOCATIONAL EDUCATION IN THE MUSCLE SHOALS REGION

PART III

RECOMMENDATIONS

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RECOMMENDATIONS

The findings of this study indicate areas in which changes or improvements in vocational education are needed. Briefly, these are:

1. Facilities
2. Curriculum
3. Policy
4. Public Relations

The recommendations resulting from this study deal with each area.

RECOMMENDATIONS: FACILITIES

IMMEDIATE NEEDS IN FRANKLIN AND LAUDERDALE COUNTIES

Needed immediately are programs of vocational education in areas which presently have no vocational education programs beyond Agriculture, Home Economics and Business Office Education. It is recommended that a vocational facility be established in western Franklin County and in western Lauderdale County, and that, for the present, mobile shops and classrooms be utilized. In Franklin County, these mobile units should serve, at the minimum, the schools located at Red Bay and Vina. The units should be rotated between the schools, probably on a daily basis, and should be utilized for the instruction of the handicapped and disadvantaged. Night classes for adults and drop-outs should be instituted. In Lauderdale County, the units should serve the schools located at Waterloo and Central Heights and have offerings for the handicapped and disadvantaged, as well as night classes. Courses which could be housed and taught in these facilities include; Business Office Education, Drafting, Electronics, Barbering, Commercial and Institutional Food Preparation, Cosmetology, Graphic Arts, Printing, Bookbinding, Occupational Clothing, and Textiles. Needed immediately are courses teaching: Drafting, Printing, Bookbinding, and Textiles.

It is recommended that only three or four vocational courses be handled in this manner at the beginning. If it is found that vocational education needs cannot be adequately met in this manner, it is recommended that a Area Vocational School be established at these locations. The Alabama State Plan for Vocational Education lists an Area Vocational School for west Franklin County, with a target date of 1974. Use of mobile units now would help relieve the pressing need. It is possible that funding for the units can be arranged through the State's Plan for Exemplary Programs and Projects, and with the provisions of Sections 211 or 214 of the Appalachian Regional Development Act. It is recommended that, as early as possible, an Area Vocational School be established in the western portion of each of the three counties in this planning region.

OVERCROWDED FACILITIES

It is recommended that this same approach be utilized to alleviate the crowded conditions in shops and classrooms in all high schools. Traditionally, it is expected that construction of buildings is the logical method of correcting the shortage of space. It need not be the only method. More logically, more and better education per dollar spent can be attained by the use of mobile shops and classrooms which can be inter-changed on a daily, semester, or yearly basis, between schools.

FACILITIES FOR TRANSPORTING STUDENTS TO RUSSELLVILLE AREA VOCATIONAL SCHOOL

Needed immediately are provisions to transport students to the Russellville Area Vocational Schools. Vocational instruction for the students at Belgreen and Phil Campbell is included in the planning of this school. If the Franklin County Board of Education does not have sufficient funds for busing these students in the 1970-71 school year, it is strongly recommended that special provisions be diligently sought. Elected officials, working with school officials from the schools and the County Board of Education, and the Muscle Shoals Council of Local Governments should devise and implement a plan which will meet the immediate transportation needs of these students.

SHARING FACILITIES

Planners in the regional school systems should study together the advantages to be gained through sharing, or inter-change of facilities, staffs, and students. It is recommended that school planners coordinate planning in order to avoid overlaps in their programs. In order to enhance Vocational Education offerings in the region, persons in authority should plan for students and/or staff to cross jurisdictional boundaries. This is especially true when one school may be able to offer courses or facilities not available to other schools.

VISITS TO POST-SECONDARY VOCATIONAL FACILITIES

It is recommended that all schools arrange student visits to several post-secondary vocational education facilities. The present system of visits by graduating seniors only should be expanded downward to include grades 9-12 so that these students may be aware of facilities available to them, and be prepared to make curriculum choices. Schools should also work closely with industry to plan for students to make plant tours, where they may see industry in operation and may discuss operations with workers.

RECOMMENDATIONS: CURRICULUM

CURRICULUM DESIGN FOR DROP-OUT PREVENTION

It is recommended that all systems study and devise specific methods aimed at drop-out prevention. These methods must begin at the elementary level. Some systems have begun surveying areas of interest of students. These efforts should be expanded and curriculum designed to coincide with student's interest and manpower demands. Unless innovative methods are employed, this region will continue to experience a high drop-out rate, and a large unskilled labor force. If the innovative program needs exceed the capabilities of the individual systems, it is recommended that the systems devise joint sponsor-ship program. Funding provisions for innovative programs have been made on the federal and state level. It is possible that additional funding can be secured locally.

DISCIPLINE PROBLEM STUDENTS

The situation of discipline problem students being steered into Area Vocational Schools merits attention. It is recommended that "feeder" school counselors and Area Vocational School Counselors compile data on students considered discipline problems and/or possible drop-outs.

This data should identify numbers of students, problem areas, academic achievement levels, age levels and sex. The data should be compiled for each school system in the region. Representatives from each system should jointly study the severity of the problem. If the situation is serious enough to warrant action, it is recommended that special programs and curriculum be devised to cope with this problem. Special programs of work-study have been successful in several areas of the United States. Each of the three counties in this region have vacant school facilities. In order to keep down the "Starting up" costs, it is possible that these facilities can be utilized for pilot programs for these students. If such a program is indicated, it is likely that these programs can be operated at very little additional per pupil expenditure.

COORDINATION OF CONSERVATION EFFORTS

If the resources of this region are to be preserved and enhanced, strong efforts will be necessary. Conservation, pollution control, and wise use of the region's resources will be increasingly important as development occurs. It is strongly recommended that all public school systems coordinate curriculum planning with Northwest Alabama State Junior College, Florence State University and other Alabama Universities so that there can be a

continuity of offerings in courses dealing with conservation, and ecology. Northwest Alabama State Junior College is presently offering a course in Forestry. Other conservation programs will be offered as needed. Graduation from the two year courses will qualify the student as a technician, or will allow the student to transfer one years credits to a four year degree program. With the proper background and curriculum coordination, the secondary school Vocational Agriculture Graduate will have an easy transition into the two year junior college conservation courses.

LOCAL COUNSELING COURSES NEEDED

It is recommended that, as soon as possible, Florence State University introduce into its curriculum, courses leading to a degree in guidance counseling. The Vocational Educational Study Committee found this local lack to be a weakness in the educational offering of the region. All the public school systems suffer from a shortage of counselors. The counseling courses at Florence State University should be of the types which would qualify a student for either academic or vocational counseling. The curriculum should be coordinated with curriculum at Northwest Alabama State Junior College, so that a student studying vocational courses at the junior college could transfer to Florence State University and attain a counseling degree. Since many students majoring in teacher education

at the University would probably elect a counseling minor, it is recommended that Florence State University survey its students for interest in this field. Public school teachers of the region should also be surveyed for interest in this degree program. If interest proves great enough, the courses should be added to the curriculum.

SHORT-TERM INTENSIVE TRAINING

The Appalachian Regional Commission Research Report No. 4, Industrial Location Research Studies: Summary and Recommendations prepared by the Fantus Company, reports that "in selecting Appalachian locations, the mere existence of vocational and technical training programs is less a compelling consideration in the decision-making process than local or area quick-start capabilities for providing personnel, equipment and services critically needed in the anxious first months of breaking in a plant. As a competitive reality, the burden of proof is on the community to demonstrate that there is present responsiveness of a kind geared to minimizing start-up risks and costs." This report points out that in the last decade, the burden of training the unskilled and teaching intermediate skills has been shifting from business to government. The Muscle Shoals Region has made no provisions for short-term intensive training programs. It is recommended that persons and agencies concerned with industrial and resource development

work with the region's vocational educational systems to devise a program of intensive, short-term job training which will meet the specific needs of business and industry as it locates, expands, or changes in this region. Such a plan must of necessity be flexible. However, the needs of business and industry can be anticipated and the plans should be formulated and ready when the need arises. The quick-start intensive training programs do not substitute for the balanced vocational education programs, but they can offer what is all too often lacking in conventional education ---tailor--made help when it is most needed by the manufacturer.

The quick-start program utilized by South Carolina includes the following key elements:

(1) A state committee for technical education composed of experienced industrial engineers, educators, methods analysts, recruiters and other industrially oriented staff.

(2) A rather large equipment pool which can be moved from location to location for equipping special schools in the community where a new industry is starting.

(3) Temporary training quarters supplied by the community.

(4) Surveying the labor market, recruiting, screening and testing of applicants.

(5) Assignment of teaching personnel and methods engineers to the temporary schools.

It is recommended that persons in the region interested in development study the various methods of quick-start training programs and prepare the plan best suited to the region's needs and capabilities.

AGRICULTURE AND HOME MAKING AT EARLIER LEVELS

It is recommended that agriculture and homemaking courses be made available at grades 7, 8 and 9. The curriculum should offer basic information and develop skills useful to every student. There should be an interchange of students of these two courses, so that boys may learn basic consumer and home making information and girls may learn basic technical information. Some examples of useful information boys might be taught in the consumer and home-making courses include: nutrition, sewing on buttons, pressing trousers, use of household detergents, and home laundry methods. Girls would profit from: instruction in use of simple hand tools, basic knowledge of electricity, basic knowledge of the operation of certain machines and care and maintenance of different building materials. The basic curriculum offered in these grades should prepare students to continue their education in specialized curriculum in the latter three years of public schools.

RECOMMENDATIONS: POLICY

EXPAND VOCATIONAL EDUCATION STUDY COMMITTEE

It is recommended that the Vocational Education Study Committee presently functioning in conjunction with the Muscle Shoals Council of Local Governments be expanded to include representatives from industry, business, and the professions; and that the committee operate as a Permanent Advisory Committee on Vocational Education for the Muscle Shoals Region. This committee would be responsible for a continuing evaluation of vocational education in the region and would submit proposals for needed changes.

QUALITY VOCATIONAL EDUCATION SYSTEM

It is recommended that the region's school systems, through the Vocational Education Study Committee, define requirements of funds, facilities, and equipment necessary to provide for quality vocational education for grades 1-12. Further, the requirements necessary for at least two years of post-secondary vocational education should be defined. Once these needs are defined, it is recommended that each system seek to secure implementation of a quality vocational education plan. If the capabilities of the individuals systems prevent implementation of the plan, it is recommended that the systems jointly sponsor a Regional Quality Vocational Education System. This System should be one which serves grades 1-14 in all areas of vocational educational needs

without over-lap, duplication, or fragmentation.

The Appalachian Regional Commission is presently supporting programs of child development and educational upgrading. The Commission authorized funding of grants to states and localities for planning and demonstration programs designed to encourage local multi-jurisdictional education planning and service, improve the quality and number of Appalachian teachers, develop early childhood education programs throughout the region, and improve occupational information, guidance, and training in Appalachia. Priority will be given to projects designed to deal with these objectives within the framework of multi-school district education service agencies. These agencies, because they serve a population sufficiently large to furnish an adequate tax base, can provide educational services which are too expensive to be provided on an individual school district basis. It is recommended that the region's planners seriously study this method to ascertain if it is the best method of delivering a quality vocational education system in the most economical manner. Coordination of such an approach could be secured through an Educational Sub-Committee of The Muscle Shoals Council of Local Governments.

LABOR MARKET REPORTING

It is recommended that those persons and organizations interested in industrial and resource development join together in a concerted effort to secure U.S. Department of Labor reporting of employees and earning for this region. The Appalachian Research Report No. 4, conducted by The Fantus Co. Inc., "Industrial Location Research Studies: Summary and Recommendations" recommends that as an aid to securing industry in Appalachian, better local labor market information should be available. The specific recommendations states:

"We recommend the following:

(a) Action by the Bureau of Employment Security in each state to make available to the U.S. Department of Labor data for smaller labor markets for inclusion in Employment and Earnings. We propose that coverage include employment and earnings data for the following new small labor market areas:

Alabama

Anniston (Calhoun County)

Florence-Sheffield-Tuscumbia-Muscle Shoals (Colbert and Lauderdale Counties)

Huntsville SMSA (Limestone and Madison Counties)"

and

"(b) Development of systematic and uniform state plans for collecting and updating labor resources information on a county basis."

The Vocational Education Study Committee has not found any action taken toward implementing these recommendations. This reporting could be a powerful tool for development of this region. It is possible that the 1970 census will result in the classification of SMSA for the Muscle Shoals Region. Whether or not this occurs, it is recommended that action be taken to implement these two recommendations of this study.

ALABAMA STATE BOARD OF COSMETOLOGY LICENSING POLICY

It is recommended that school officials, together with the elected officials both on the local level and the state level, vigorously seek to secure a change in the licensing policy of the Alabama State Board of Cosmetology so that at least some of the study hours earned at the local Area Vocational Educational Schools can be applied toward licensing requirements of that board. This instruction is supported by a combination of local, state and federal funding. Surely, somewhere within these three levels of governments can be found the persuasion necessary to effect a relaxation of the restrictive licensing requirements of this board. It is recommended that the tools of persuasion be learned and applied, in order to secure equity for the students completing the two year secondary cosmetology course.

COMPREHENSIVE STUDY OF TAX BASE

It is recommended that a comprehensive study of the tax base of this region be made. This study should locate inequalities, loop-holes, and weaknesses; and should also identify strengths. Recommendations for methods to assure equalized local support and increased local support for education should result from the study. Sources for increased state support should also be explored. The findings of this study, with recommendations, should be made known to local elected officials, school personnel and the business and industrial communities, with the goal being improved public education in this region.

NIGHT COURSES ON POST-SECONDARY LEVEL

It is recommended those persons and organizations interested in economic and human development in the region study together the methods of funding night courses at the Muscle Shoals Technical Institute so that this facility can operate effectively both day and night classes. There should be very close cooperation between the region's business and industrial communities and the school so that the course offerings meet the local needs

RECOMMENDATIONS

PUBLIC INFORMATION-PUBLIC RELATIONS NEEDS

CONTINUING PUBLIC INFORMATION PROGRAMS

It is recommended that a strong, effective, public information-public relations program be initiated. It should operate on a continuing basis rather than a one time effort or an annual effort. It should be designed to inform all persons of the goals of vocational education, and the rewards to be gained from technical-vocational education and employment. It should be directed to youth of all ages in the public schools, the drop-outs, public school personnel, parents of school age children, the unemployed and the under-employed, community leaders, the disadvantaged, and the handicapped. The message should be tailored to the group for which it is intended and the media for delivery must be carefully chosen. The delivery should be handled by persons who are able to communicate with the group for which the message is intended. The choice of media is important since some persons are not receptive to the printed message and others do not receive radio and television messages. Some could best be reached by exhibits, plant tours, school visits, and such. Nevertheless, a well planned public information program is recommended as a measure by which the image of vocational training and employment can be enhanced and the quality of vocational education in this region can be improved.

VOCATIONAL ATTAINMENT AWARDS

It is recommended that the Vocational Education Study Committee study and design a program which will recognize and reward levels of student's vocational competency. This program should extend from elementary school through the high school level. From tests and observations teachers and counselors can recognize the student who displays vocational aptitudes. These aptitudes should be recognized and rewarded on an equal level with the scholastic aptitudes. This program should recognize at least three, and possibly four, levels of vocational competency. The first award should take place as the child leaves the elementary level. The next evaluation should probably come in two years. There should be another evaluation established at a point about midway through the high school program, and logically the fourth and final evaluation of vocational attainment would be upon graduation from high school. The student should be awarded the certificate of competency which accurately describes his level of attainment. It is recognized that students progress at different speeds. It is recommended, therefore, that the student be awarded the proper level attainment certificate at whatever time he achieves that level. It is recommended that these Vocational Achievement Certificates be of equal size and design as certificates awards, diplomas, etc., awarded for scholastic

achievements. It is further recommended that local and national firms be solicited to sponsor these certificates. This approach could benefit both industry and student. It is expected that industry will be receptive to the idea of sponsoring Vocational Achievement Certificates. By recognizing and stimulating the young student, the sponsoring industry could very well be the receipient of the student's talent. Much progress, as we recognize it, has been the result of works of the person who didn't know "It can't be done" - or - being told that "It won't work" has proved that it will. Recognition of the student's vocational competency in such a positive manner as recommended would be an asset in removing the stigma of vocational education, and in establishing improved public information.

ESTABLISH VOCATIONAL TECHNICAL FAIR

It is recommended that the public schools of the region, in conjunction with business, labor, and industry, sponsor an annual Vocational Fair or Competition similar to the local annual Regional Science Fair. Students in each course in each school should compete to represent their school at the Vocational Fair. The Fair should feature displays of winning vocational projects as well as live demonstrations of vocational skills. Winners of the Vocational Fair competition should receive suitable awards. Industry, business, the professions, and schools should be solicited to furnish the

awards and scholarships for post-secondary education. The Vocational Fair must be carefully planned, publicized extensively, and coordinated with all interested organizations. It should be located so as to be accessible to the greatest possible number of people. The timing of the Vocational Fair is important. Scheduling the Fair for late spring, when most students make curriculum choices for the following school year, might serve to increase vocational education interest. It is possible that the Fair would receive greatest exposure by holding it in conjunction with the North Alabama State Fair. Over 100,000 persons from Alabama, Tennessee, Mississippi and other states attended this Fair last September. A booth at this Fair would allow display of finished products and demonstrations of vocational-technical equipment in operation. The expense of such a Vocational Fair should be small and it is possible that contributions would cover all expenses. Such items as publicity, securing exhibit space, purchasing awards, furnishing supplies for exhibits, and equipment for demonstrations would be expense items that might be donated by interested organizations and individuals. It is recommended that planning for such a Fair begin with the opening of the 1970-71 school year and that the first Vocational Fair be held in late spring or early fall of 1971. This program would do much to relieve the stigma attached to vocational education and to stimulate a healthy interest in vocational education.

GUIDANCE AND SOCIAL COUNSELING

It is recommended that the region's school planners seek funding to employ sufficient personnel to offer guidance counseling and social case workers to serve every school at all grade levels. This need for guidance counseling, as well as social case worker counseling is recognized by the Vocational Education Study Committee. Such counseling will result in better adjusted students and will assist in the needed improvements in public information.

VOCATIONAL EDUCATION IN THE MUSCLE SHOALS REGION

PART IV

PHASING OF IMPLEMENTATION OF RECOMMENDATIONS

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SCHEDULE FOR PHASING OF IMPLEMENTATION OF RECOMMENDATIONS

In making recommendations for quality vocational education for this region, it is necessary to define the immediate needs as well as the long range needs and attack the problems of both simultaneously. The long range needs cannot receive exclusive attention since this obviously neglects the pressing immediate needs. Neither can exclusive attention be devoted to the immediate needs, allowing a perpetuation of the very factors which produced those needs. Therefore, a two-fold approach is needed---one of intensified remedial methods to serve those who are the product of inadequate vocational education, and secondly, one which will meet the needs of students presently in the schools. The first approach should fill the needs of the unemployed and underemployed who are not in the school systems. It must also fill the needs of students, presently in the last three grades of public schools, who will leave school unprepared for jobs. Both short range and long range planning and implementation must devise methods and programs to meet the needs students will experience in the next decade. In order to assure orderly development, goals must be established and met. The order of Implementation of Recommendations is set out in four phases. As quickly as the goals of a given phase can be accomplished, it will be necessary to move into the succeeding phase. This method,

without setting up the demands and limitations of a time table schedule, will assure the best possible vocational educational offerings in the shortest time possible. It is likely that some goals can be accomplished in earlier phases than is now expected.

PHASE I: RECOMMENDED IMMEDIATE IMPLEMENTATION

1. Expansion, as recommended in Part III, of the presently functioning temporary Vocational Education Study Committee.
2. Continue the study of vocational educational needs of the region.
3. Define a philosophy of Vocational Education for the Muscle Shoals Region.
4. Formulate a plan to determine vocational levels and define the method by which the recognition of these levels can be utilized to improve vocational education.
5. Study and plan a Regional Vocational Fair.
6. Continue, and expand downward at least one grade, the student visits to post-secondary vocational facilities.
7. Study temporary and permanent methods to provide transportation for students desiring to attend Russellville Area Vocational School, and if possible in this phase, secure temporary transportation.
8. Devise a plan to secure temporary vocational educational facilities for western Franklin and western Lauderdale Counties.

9. Study conservation curriculum needs.

PHASE II - RECOMMENDED SHORT RANGE IMPLEMENTATION

1. Secure temporary vocational facilities for western Franklin and western Lauderdale Counties.
2. Secure temporary facilities to relieve crowding in existing shops and classrooms.
3. Implement permanent methods to provide transportation to Russellville Area Vocational School.
4. Initiate curriculum changes needed to teach conservation course.
5. Continue and expand downward to grade 9, the student visits to post-secondary vocational facilities.
6. Initiate the recognition and rewarding of vocational levels.
7. Conduct a Regional Vocational Fair for public school students.
8. Continue the activities of the temporary Vocational Education Study Committee and study the formation of a permanent Advisory Committee on Vocational Education for the Muscle Shoals Region.
9. Initiate an active continuing public information program.
10. Secure reporting, by the U.S. Department of Labor, of Employment and Earnings in the Muscle Shoals Region.

11. Study the possibility of benefits to be gained through schools sharing facilities, staffs, and students.

12. Study and design curriculum to combat the drop-out problem.

13. Study and define methods to cope with discipline problem students.

14. Study and design a program to provide short-term intensive job training.

15. Promote the inclusion of counseling courses in the curriculum of Florence State University.

16. Define the proper approach to securing guidance counseling and social case workers counseling for all grade levels in all schools.

17. Secure change in the licensing requirements policy of the Alabama State Board of Cosmetology.

18. Study methods and make recommendations for expansion of, and at least partial funding thereof, night vocational course offerings on the post-secondary level.

19. Conduct a comprehensive study of the tax base of the region, and make recommendations to correct inequalities and weaknesses.

PHASE III - RECOMMEND LONG RANGE IMPLENENTATION

1. Implement the curriculum changes needed to overcome the drop-out problem.

2. Implement the recommendations resulting from the Phase II study of the discipline problem students.

3. Assure the availability of counseling courses leading to a graduate degree in counseling at Florence State University.

4. Continue, and utilize as needed, the programs for short-term intensive job training.

5. Establish a permanent Vocational Education Advisory Committee for the Muscle Shoals Region, if the Phase II study of this matter indicates this as a need.

6. Study the advisability, implications and make-up of a duly established Muscle Shoals Regional Vocational Educational Board and make Recommendations.

7. Continue and expand the Regional Vocational Fair effort and promote this effort to other regions, seeking to establish at least state-wide, and possibly, National competition.

8. Promote the sharing of facilities, staffs and students if the Phase II study finds this as a need.

9. Implement the recommendations resulting from the findings of the Phase II study of approaches to securing guidance counseling and social case work counseling for all schools at all grade levels.

10. Implement the recommendations of the Phase II study of post-secondary night vocational courses.

11. Implement the recommendations resulting from the Phase II study of the tax base of the region.

PHASE IV - RECOMMENDED FURTHER STUDY

1. Study the advisability of creating a Muscle Shoals Regional Vocational Education System. Study the approaches to such a system. Should we consider:

   A. Formation of a Regional Vocational Technical School?

   B. Formation of Vocational-Technical, Secondary and Post Secondary School for each county?

   C. Establishment of residential facilities for vocational technical education?

   D. Establishment of comprehensive high schools?

   E. Consolidation of some, or all, school systems efforts in vocational technical education?

   F. Innovative methods for securing funding and local support?

   G. Formation of a Muscle Shoals Regional Vocational Educational Board to administer programs?

   H. A combination of these approaches?

VOCATIONAL EDUCATION IN THE MUSCLE SHOALS REGION

CONCLUSION

The authority of the Muscle Shoals Council of Local Governments as defined in its by-laws, limits the Council to matters of planning, coordinating, and recommending actions to the member governments. There are no powers of implementation, or powers to compel implementation, granted to the Council. Hence, planning and persuasion are the major tools by which the Council serves this three-county region. It is regrettable that the Council is in the position of making studies and preparing plans to overcome regional problems, but has no assurance that member governments or regional organizations will act affirmatively on solutions to the problems.

Discovering the complete picture of vocational education in the region has been the object of this study. Presenting the valid information discovered with recommendations for corrective measures is the logical conclusion of this work. The reader's acceptance of the validity of the information and recommendations should constitute a firm committment to a regional action program which will result in Quality Vocational Education for the Muscle Shoals Region.

The reaction of numerous school persons interviewed seems relevant here. When asked about progress of improvement measures, a frequent reply went along these lines: "We have attended so many meetings and helped with so much planning that is never implemented. We'll be glad to work with your organization and we hope you can guarantee results".

Certainly one system or organization working alone cannot secure quality vocational education for the Muscle Shoals Region. Certainly, a strong joint effort of school systems and developers can result in improved vocational education and could be the first step in acquiring quality vocational education for the Region.

The timing is right for this type of effort. During our study, interviews, and meetings were held within the Region which generated considerable interest and enthusiasm for local action. At the state level, Alabama continues emphasis on quality education. At the federal level, vocational education is receiving emphasis as never before.

As the economy of this region matures, there will be a greater demand on our educational facilities to provide qualified manpower. A strong, well guided local effort now will almost certainly guarantee the needed improvements and will result in the Muscle Shoals Region being ready for continuing development.

APPENDIX

LISTING OF RESOURCE MATERIAL USED IN THIS STUDY

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AEA Legislative Summary, 1968-69, Alabama Education Association

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If Only I Could Get Some Household Help - Leaflet 51, 1969, Women's Bureau, Wage and Labor Standards Administration, United States Department of Labor

Industrial Location Research Studies, Research Report Number Four - Appalachian Regional Commission

Instructions And Procedures For Exemplary Programs And Projects In Vocational Education; Department of Health, Education, and Welfare, Office of Education, Bureau of Adult, Vocational, and Library Programs

Intensive High School Occupational Guidance Approaches For Initial Work And Technical School Placement - ERIC Clearinghouse on Counseling and Personnel Services - 1969

Intensive Training For Job Entry Skills: (Bibliography). ERIC Clearinghouse, 1969, Columbus, Ohio

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Manpower Education in the North Carolina Appalachian Regional, Hammer-Greene-Siler Associates

Manpower Requirements in Occupations for which Vocational Education Prepares Workers, United States Department of Labor

Manpower Resources Report - Smaller Communities Program - Crenshaw County, Alabama State Employment Service

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Special Catalog Of Federal Assistance Programs For Minority Business Enterprises, Department of Commerce, 1969

State of Alabama, State Department of Education, Division of Vocational Education, Agricultural Education Service Publications:

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Agri-Business Education In Vocational Agriculture

Agricultural Mechanics (Repair-Operation-Services)

Agricultural Mechanics Plans

Agricultural Products (Processing-Marketing-Inspection-Services)

Agricultural Resources (Conservation - Utilization - Services)

Agricultural Supplies (Processing - Marketing - Services)

Answer Book For Vo-Ag Shop Guide For First Year Students

Audio-Visual Aids For Teaching Agricultural Mechanics

Course Outline For Basic Trades (Tenth Grade)

Course Outline For Eleventh Grade Specialized Agri-Business

Course Outline For Introduction To Occupations (Seventh Grade)

Course Outline For Introduction To Occupations (Eight Grade)

Course Outline For Specialized Agri-Business (Twelfth Grade)

Course Outline For Specialized Basic Trades (Twelfth Grade)

Course Outline For Vocational Orientation (Ninth Grade)

Curriculum For Vocational Agriculture And Rural Industries

Equipment For Vocational Agriculture Departments In Alabama

Forestry (Production-Processing-Marketing-Services)

General Shop Guide For Vo-Ag Students

On Campus Work Experience Programs In Vocational Agriculture

Course Outline For Specialized Basic Trades (Eleventh Grade)

Originals For Preparing Overhead Transparencies For Vocational Agriculture (Three Volumes)

Ornamental Horticulture For Vocational Agriculture In Alabama

Ornamental Horticulture In Area Vocational Schools

Ornamental Horticulture (Production - Processing - Marketing - Services)

Personal Development For Successful Employment

Pre-Professional Agriculture

Standards and Plans For Vocational Agriculture Buildings and Facilities in Alabama

Suggested Teaching Outline For Agricultural Science And General Shop (Second Year)

Suggested Teaching Outline For Life Science And General Shop (First Year)

Vo-Ag Shop Guide For Second Year Students

Vocational Agriculture And Rural Industries In Alabama Public Schools

State of Ohio; Department of Education Publications:

1. A Copy of Project Outlines for Disadavantaged Youth and Handicapped Youth

2. A listing of all the Vocational Programs provided through the Penta County Joint Vocational School

3. A listing of all the Joint Vocational Schools in the State of Ohio

4. An outline of procedures used for conducting a county-wide Joint Vocational School Survey

5. Brochure of the Organization of Joint Vocational Schools in the State of Alabama

6. Outline of Programs Planned for Students with Special Needs

7. Position Paper For Technical Education

8. Position Paper For Vocational Education

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VT 012 386
Woodin, Ralph J.
Supply and Demand for Teachers of Vocational Agriculture in 1970.

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MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Dec70 33p.

DESCRIPTORS - *OCCUPATIONAL SURVEYS; *VOCATIONAL AGRICULTURE TEACHERS; AGRICULTURAL EDUCATION; *AGRICULTURAL OCCUPATIONS; VOCATIONAL EDUCATION; QUESTIONNAIRES; AGRICULTURE; *EMPLOYMENT TRENDS; TABLES (DATA); *TEACHER SUPPLY AND DEMAND

ABSTRACT - This annual study was conducted to determine the national supply and demand for teachers of vocational agriculture for purposes of planning a nationwide recruitment program. A questionnaire was completed and returned by head state supervisors and teacher educators in all institutions preparing teachers of vocational agriculture. The number of vocational agriculture teaching positions in the United States in 1970, the percentage of graduates entering various occupations, enrollment in colleges of agriculture, types of teaching positions, placement of graduates, teaching positions by states and regions, employment by states and regions, and a 6-year comparison of selected information on supply and demand of teachers in vocational agriculture are all contained in the report. A 70 percent gain in teacher supply is shown for a 6-year period, with 1,700 persons qualified for teaching vocational agriculture in the United States in 1970. The study concludes that a goal of qualifying 1,800 persons each year is a realistic one. This study should be useful to agricultural supervisors and teachers for preparing recruitment programs. (GEB)

VT 012 386

ED0 57254

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SUPPLY AND DEMAND FOR TEACHERS OF VOCATIONAL AGRICULTURE IN 1970

A Staff Study by Ralph J. Woodin

Issued by
The Department of Agricultural Education
The Ohio State University
Columbus, Ohio
43210
December, 1970

VT012386

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SUPPLY AND DEMAND FOR TEACHERS OF VOCATIONAL AGRICULTURE IN THE UNITED STATES 1969-70

Studies of the supply and demand of teachers of vocational agriculture have been made each year since 1965 at the direction of the Professional Personnel Recruitment Committee of the Agricultural Education Division of the American Vocational Association. This sixth annual report is designed to provide appropriate information for planning a nationwide recruitment program for teachers of vocational agriculture. During the six years in which these studies have been made there has been a serious shortage of teachers. The study shows that the shortage was still serious in 1970.

Procedures Used in the Study

This study is based upon information supplied by head state supervisors and teacher educators in all institutions preparing teachers of vocational agriculture. Each of these persons received a questionnaire about August 1, 1970 in which they were asked to provide information regarding the numbers of graduates qualified and the number of teaching positions available.

Responses were received from every state and every institution. A copy of the questionnaire is included in the Appendix.

Summary of the Study

The next three pages present a summary and overview of the major findings as well as certain recommendations and implications based upon this year's data.

The impact of a concerted recruitment effort for the past six years is shown in this year's study. In spite of an improved supply of teachers there were still serious shortages in many states indicating that recruitment efforts must be continued.

A Record Crop of Graduates

A record breaking 1,700 persons were qualified for teaching vocational agriculture in the United States in 1970, the largest group qualified in any one of the past six years. This 70% gain in teacher supply can be attributed in a large measure to the planned, united recruitment effort which has been made by the profession during the past six years.

The percentage of Agricultural Education graduates whose first occupation was teaching vocational agriculture has decreased consistently in the past six years, from 64.6% in 1965 to only 51% in 1970. This low per cent of persons entering the profession makes the task of recruitment greater. It has been attributed to the availability of employment in a wide variety of agricultural areas and also to the affect of the Asian war and services in the Armed Forces.

The high rate of turnover continues to add to the demand for teachers of vocational agriculture. Last year this per cent of turnover was approximately 10% which has been quite consistent and compares closely with that of other groups of teachers.

Number of Positions Stabilized

A comparison of number of teachers of vocational agriculture in the nation over the past six years shows that the number has stabilized just short of 11,000 positions, although supervisors predict 12,347 positions

by 1975. Since 1965 the number of positions has ranged from 10,221 in 1967 to 10,560 in 1969. This does not include 782 positions in teaching agricultural technicians in Technical Institutes and Community Colleges.

Although the number of positions in the nation has remained quite constant for the past several years there was considerable variation from state to state. During the past six years a number of states have shown steady and consistent growth but this has been offset by other states who have had reductions in numbers of teaching positions. These reductions have generally taken place in states which have been involved in extensive school consolidation programs.

Last year the four states with the largest gain in numbers of teaching positions were Ohio with 55, Minnesota with 42, Texas with 23, and Florida with 16.

Changing Teacher Responsibilities

There are several noticeable trends in teaching positions in vocational agriculture. About 95% of these positions were in general or comprehensive high schools and only about 5% in area vocational schools. About two-thirds of the positions involved teaching adults and young farmers as well as high school students. The number of teachers in multiple teacher departments has increased slowly and this year represented more than 35% of the total.

More teachers were offering specialized programs in Agricultural Education. Nearly half of all teachers were offering specialized courses in such areas as Agricultural Business and Supply, Ornamental Horticulture, and Agricultural Mechanics in 1970. Most of these programs were offered on a part-time basis rather than by full time teachers.

Only 597 teachers were employed full time in teaching in the specialized programs. Most vocational agriculture positions were filled by fully qualified persons holding a Bachelor's degree. In spite of a six year shortage of teachers only about 3%, or 338 teachers, held emergency or temporary certificates.

Finding Teachers For The 70's

If the past is a prelude to the future, then the problem of finding an adequate supply of teachers of vocational agriculture will continue during the 70's. While a continuation of the present recruitment effort on the part of the profession can do much to meet the situation it would appear that recruitment must be supplemented by other efforts to make use of qualified persons.

The following recommendations are supported by previous experience of the Professional Personnel Recruitment Committee for Agricultural Education in meeting teacher needs in vocational agriculture:

1. The present program of encouraging vocational agriculture teachers to recruit some of their best students for teaching vocational agriculture should be continued. The results of this effort during the past six years has markedly increased the supply of teachers.

2. An effort should be made to place a higher percentage of those qualified. In a highly competitive job market it would appear that students who graduate at different times of the year should be offered opportunities in teaching and that a carefully planned and systematic approach to placement should be made. Efforts should also be made to make salaries of teachers competitive with other fields which they might enter.

3. In addition to recruiting their own students of vocational agriculture, teachers may also be effective recruiters of carefully selected persons from the agricultural industries who may be especially useful as teachers in the specialized programs. Many of these persons may hold degrees from Colleges of Agriculture and may need only professional courses in order to fully qualify them for teaching.

4. The holding power of the teachers position must be increased. If the per cent of turnover could be reduced from its present level of 10% it would not only supply more teachers, but would tend to hold some of the best teachers who may be leaving for other positions.

5. Supervisors and teacher educators may need to make efforts to recruit across state lines. It is interesting to note that only 113 of 1,700 persons qualified in Agricultural Education took positions in another state. It is also worth nothing that 618 qualified persons were employed in some field other than teaching vocational agriculture. Some states had considerable numbers of teachers who were employed in fields other than teaching vocational agriculture last year. Among them were Texas with 152, Illinois with 59, Mississippi with 40. It would seem that such states might offer opportunities for other states with shortages of teachers.

6. A goal of qualifying 1,800 persons each year for teaching vocational agriculture should guide recruitment efforts. Such a goal was recommended by the Advisory Committee of the Agricultural Education Division of the American Vocational Association in 1969. This now appears to be a realistic goal which is close to being realized and probably can be met next year.

A word of caution may be raised in terms of going beyond this goal. Certainly there needs to be a reasonably good balance between supply and demand. It would appear, however, that by following the recommendations given above and preparing and qualifying about 1,800 teachers per year that the needs of Agricultural Education in the 70's may be well met.

MAJOR FINDINGS

The following pages provide additional and more detailed information regarding the supply and demand for teachers of vocational agriculture during the 1969-70 school year.

The demand for teachers of vocational agriculture in the nation is shown in Table 1. Last year a turnover of 10% required 1,029 teachers for replacements and for new teaching positions. This table indicates the seriousness of the teacher shortage in that 171 teachers were needed but not available August 1, 1970, and that 52 departments could not operate during the 70-71 school year. The fact that 338 teachers had only temporary or emergency teaching certificates is probably another indication of the shortage of teachers.

TABLE 1

NUMBER OF TEACHING POSITIONS IN VOCATIONAL AGRICULTURE IN THE UNITED STATES IN 1970

Item	Number	Per Cent
Total positions as of 6/30/70	10,520	
New and replacement positions filled during 1969-70 school year	1,029	9.8
New positions added during 1969-70 school year	183	1.7
Teachers needed but unavailable 8/1/70	171	1.6
Number of newly qualified teachers available 8/1/70	45	.4
Teachers with temporary or emergency certificates	338	3.2
Departments which will not operate in 1970-71 because of the teacher shortage	52	.5
Estimated number of teaching positions by 1975	12,347	117.4

*Does not include 782 positions in technical institutes and community colleges.

There was a slight decrease in the number of positions during the past year with a total of 10,520 compared to a total of 10,560 in the previous year. When supervisors were asked to project the number of teaching positions in their states by 1975 they indicated an increase of 1,827 positions, or an annual increase of 365 positions for the next five years.

Supply of Agricultural Education Graduates

A total of 1,700 teachers were qualified by 77 institutions last year and of these 866 assumed teaching positions in vocational agriculture representing 51% of the total. 12.7% entered the Armed Forces last year, leaving a balance of 36% of those qualified who entered other occupations such as, teaching other subjects, farm sales and service, farming and graduate work. Table 2 shows a comparison of the number of qualified graduates entering various occupations over a six-year period.

TABLE 2

PERCENTAGES OF AGRICULTURAL EDUCATION GRADUATES ENTERING VARIOUS OCCUPATIONS

Occupation	1965	1966	1967	1968	1969	1970
Teaching Vocational Agriculture	64.6	61.4	60.2	61.6	56.9	51.0
Graduate Work	9.2	10.0	12.4	7.8	9.3	9.0
Other Work	4.7	8.2	7.2	7.8	7.6	11.0
In Armed Forces	6.7	7.0	5.5	10.3	8.4	12.7
Teaching Other Subjects	6.2	5.4	8.2	7.5	11.4	7.3
Farm Sales, Service or Supply	5.6	5.4	3.2	2.0	2.7	4.1
Farming	3.0	2.6	3.3	3.0	3.7	4.9
Total Number Qualified	1038	1151	1233	1314	1566	1700
Total Number Placed in Vo-Ag	671	706	742	809	891	866

The major changes noted last year were an increase in the number entering the Armed Forces and entering farm sales, service and supply, and farming. The most important change, however, was in terms of the per cent teaching vocational agriculture. This percentage has decreased consistently for the past six years and made its sharpest decrease last year.

Comparative Enrollments
in Agricultural Colleges and
in Agricultural Education

It would appear that there should be a close relationship between the number of agricultural teachers qualified and the number of persons enrolled in agricultural colleges. A comparison of these enrollments is shown in Table 3. This table shows a more rapid increase in agricultural college enrollments than in enrollments in Agricultural Education. It does show, however, that the per cent of total college enrollments in Agricultural Education has remained about constant since 1965. Figure I shows the same figures in graphic form.

TABLE 3

ENROLLMENT IN COLLEGES OF AGRICULTURE
COMPARED WITH NUMBERS QUALIFIED IN AGRICULTURAL EDUCATION
1959-1970

Academic Year	Enrollment in Agriculture		Percent	Number Qualified in Agricultural Education		Percent	Percent of Agriculture Enrollment
1959-60	33,968	=	100%	1,324	=	100%	3.9
1964-65	39,623		116.6	1,110		83.8	2.8
1968-69	52,935		155.8	1,566		118.2	3.1
1969-70	57,517		169.3	1,700		128.4	3.0

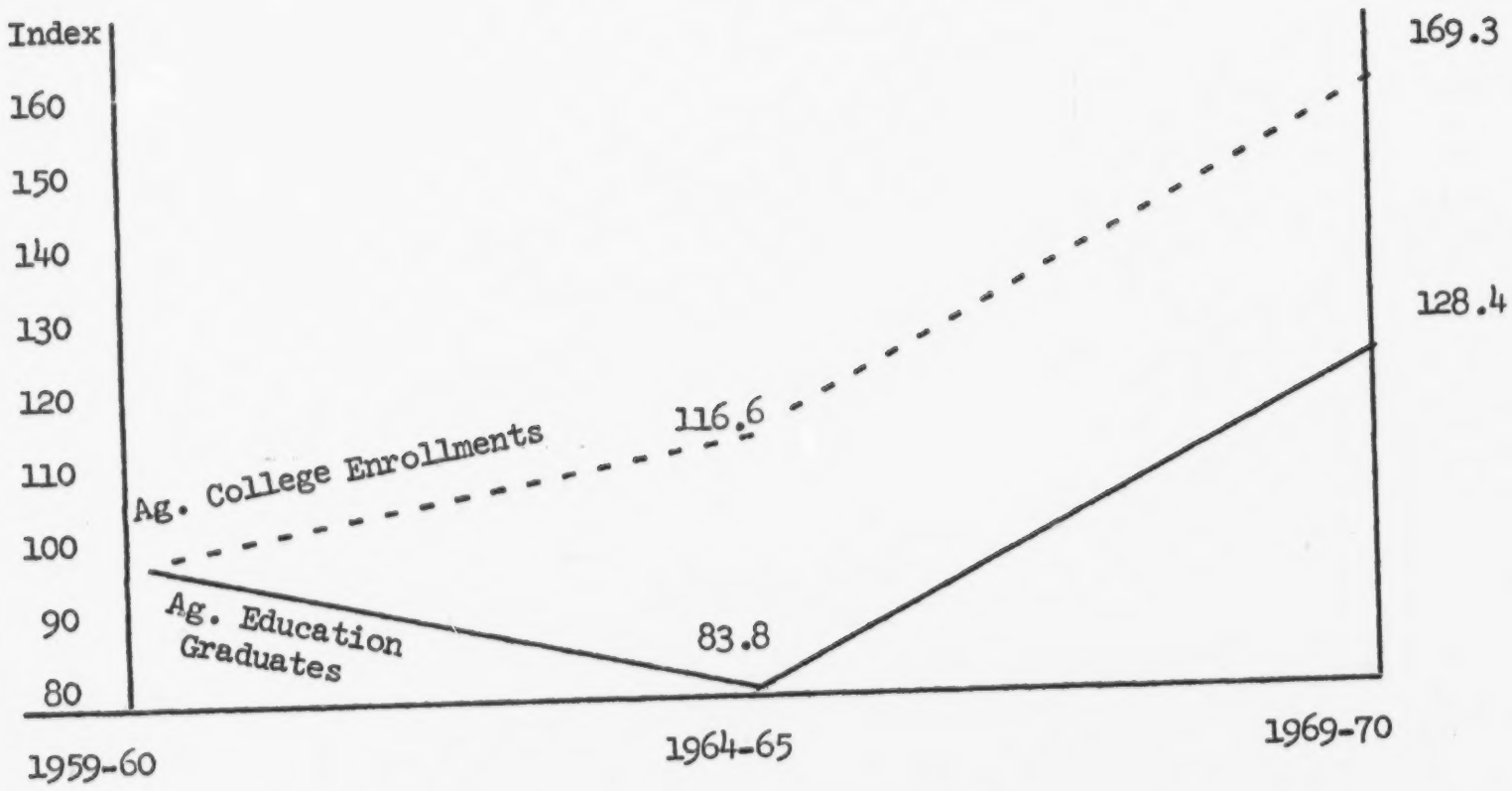

Figure 1. Comparison of Agricultural College enrollments and numbers qualified for teaching vocational agriculture.

A Six-Year Comparison of Teacher Supply and Demand

A six year comparison of the number of positions in teaching vocational agriculture shows little change during this period. The highest number of teaching positions was shown in 1968 when there were 10,606. Last year there were 40 fewer positions than in 1969.

The seriousness of the teacher shortage is shown in the column entitled "Teachers Needed But Not Available August 1." This indicates that the teacher shortage reached it's height in 1968 and has been somewhat alleviated since, but that last year 171 more teachers were needed than were available.

TABLE 4

A SIX YEAR COMPARISON OF SELECTED INFORMATION ON SUPPLY AND DEMAND OF TEACHERS OF VOCATIONAL AGRICULTURE

Year	Total No. of Positions	Teachers Needed But Not Available August 1	Total Qualified for Teaching	Percent Qualified Entering Vo-Ag Teaching
1965	10,378	120	1,038	64.6
1966	10,325	162	1,151	61.4
1967	10,221	232	1,233	60.2
1968	10,606	141	1,314	61.6
1969	10,560	121	1,566	56.9
1970	10,520*	171	1,700	51.0

* The figure for 1970 does not include 782 teachers of agricultural technicians in technical institutes, community colleges and similar institutions.

Types of Teaching
Positions in Teaching
Vocational Agriculture

Some of the changes in vocational agriculture teaching positions are shown in Table 5. This table shows that 63% of teachers taught both high school and continuing education classes for adult and young farmers. Only 244 were full time teachers of adult and young farmer classes. 95% of the vocational agriculture positions were located in comprehensive or general high schools and only about 5% in area vocational schools and vocational high schools. About 65% of the teachers were in single teacher departments, as compared to 70% in the previous year.

About 40% of all teachers were full time teachers of production agriculture, which was about the same as the previous year. The number of teachers combining production agriculture with one or more classes in specialized programs such as Agricultural Supply, Agricultural Mechanics, etc. represented 39% of the total which represented a slight increase over the previous year.

The number of teachers with full time responsibility for specialized programs, such as Agricultural Supplies, Agricultural Mechanics, Agricultural Products, etc. remained low. Only 597 such full time positions existed and this represented only about 6% of the total.

TABLE 5

TYPES OF TEACHING POSITIONS IN VOCATIONAL AGRICULTURE IN 1970

Type of Position	Number	Percent
By Kind of Students		
Teachers of adult and young farmer classes only	244	2.3
Teachers of high school classes only	3628	34.5
Teachers of both high school and out-of-school classes (adult and/or young farmer classes)	6648	63.2
Teachers of agriculture in Community or Junior Colleges, or Technical Institutes	782	
By Kind of School		
Teachers in general or comprehensive high schools	9928	94.4
Teachers in area vocational schools	487	4.6
Teachers in vocational high schools	105	1.0
By Size of Staff		
Teachers in single teacher departments	6819	64.8
Teachers in multiple teacher departments	3701	35.2
By Kind of Programs		
Teachers in full time production agriculture programs	4289	40.8
Teachers in part-time production agriculture programs and had one or more classes in specialized programs such as: Agricultural Supplies, Agricultural Mechanics, etc.	4128	39.2
Teachers in full time specialized programs such as: Agricultural Supplies, Agricultural Mechanics, Agricultural Products, etc.	597	5.7
Teachers in some combination of agricultural and academic subjects	1506	14.3

Agricultural Education Graduates
by States and Regions

Table 6 presents a brief summary of the numbers qualified in Agricultural Education and their placement by state and region in 1970.

There was a close relationship between the regions with the largest number of teaching positions and those producing the largest number of qualified graduates. The Southern Region, for example, had 4,968 teaching positions, produced 758 qualified graduates of which 347 were placed in teaching representing 45.8% of the total. The Pacific Region had the highest placement rate with 66.2%.

TABLE 6

PLACEMENT OF AGRICULTURAL EDUCATION GRADUATES
BY REGIONS IN 1970

Region	Teaching Positions	Number Qualified Graduates	Number Placed in Teaching Vo-Ag	% Placed in Teaching Vo-Ag
Southern	4968	758	347	45.8
Central	3354	616	328	53.2
Pacific	1216	210	139	66.2
North Atlantic	982	116	52	44.9

A comparison of the numbers of teaching positions in each of the states and regions in Shown in Table 7. The number of teacher replacements was highest in the Central Region which required 442 teachers, followed by the Southern Region which required 357. The Atlantic Region had a need for 84 teachers and the Pacific Region 146.

TABLE 7

TEACHING POSITIONS IN VOCATIONAL AGRICULTURE
BY STATES AND REGIONS, AUGUST, 1970

North Atlantic Region

State	Total Positions 8/1/70	Change in Total Positions Since 8/1/69	Estimated Number of Teachers Needed by 1975	Number of New and Replacement Teachers Employed to 8/1/70	Teachers Still Needed 8/1/70	Total Teachers Needed
Pennsylvania	287	0	325	29	1	30
New York	291	+ 6	310	22	6	28
West Virginia	99	+ 2	99	10	0	10
Maryland	72	+ 2	87	7	5	12
Massachusetts	57	+ 1	65	5	0	5
Connecticut	45	+ 1	48	0	0	0
New Jersey	42	+ 2	60	4	2	6
Vermont	27	0	40	2	1	3
Delaware	19	0	34	0	0	0
Maine	19	+ 3	30	2	3	5
Rhode Island	13	+ 1	20	1	1	2
New Hampshire	11	0	20	2	3	5
TOTAL FOR REGION	982	+18	1138	84	22	106

TABLE 7 (continued)

TEACHING POSITIONS IN VOCATIONAL AGRICULTURE
BY STATES AND REGIONS, AUGUST, 1970

Central Region

State	Total Positions 8/1/70	Change in Total Positions Since 8/1/69	Estimated Number of Teachers Needed by 1975	Number of New and Replacement Teachers Employed to 8/1/70	Teachers Still Needed 8/1/70	Total Teachers Needed
Illinois	457	+ 4	657	64	12	76
Ohio	462	+55	600	35	6	41
Minnesota	432	+42	500	53	15	68
Wisconsin	327	+ 7	340	43	6	49
Kentucky	284	+ 1	280	30	0	30
Indiana	265	- 3	325	37	7	44
Missouri	252	0	275	25	0	25
Iowa	241	+ 1	250	50	1	51
Michigan	185	-10	230	23	0	23
Kansas	182	- 1	195	30	0	30
Nebraska	127	+ 6	150+	30	6	36
North Dakota	74	+ 2	90	2	4	6
South Dakota	66	- 2	77	20	7	27
TOTAL FOR REGION	3354	+102	3969	442	64	506

TABLE 7 (continued)

TEACHING POSITIONS IN VOCATIONAL AGRICULTURE
BY STATES AND REGIONS, AUGUST, 1970

Pacific Region

State	Total Positions 8/1/70	Change in Total Positions Since 8/1/69	Estimated Number of Teachers Needed by 1975	Number of New and Replacement Teachers Employed to 8/1/70	Teachers Still Needed 8/1/70	Total Teachers Needed
California	446	-98	520	40	7	47
Washington	158	-54	200	21	3	24
Oregon	130	+ 1	135	25	3	28
Colorado	75	+ 2	95	15	1	16
Idaho	70	- 1	78	7	0	7
Utah	62	- 1	65	6	0	6
New Mexico	63	+ 1	82	12	2	14
Montana	62	+ 1	70	5	1	6
Arizona	51	- 1	70	5	0	5
Wyoming	51	0	48	0	0	0
Hawaii	31	0	35	5	0	5
Nevada	17	+ 1	24	5	0	5
TOTAL FOR REGION	1216	-149	1422	146	17	163

TABLE 7 (continued)

TEACHING POSITIONS IN VOCATIONAL AGRICULTURE
BY STATES AND REGIONS, AUGUST, 1970

Southern Region

State	Total Positions 8/1/70	Change in Total Positions Since 8/1/69	Estimated Number of Teachers Needed by 1975	Number of New and Replacement Teachers Employed to 8/1/70	Teachers Still Needed 8/1/70	Total Teachers Needed
Texas	1182	+23	1650	75	0	75
North Carolina	574	-26	600	20	10	30
Alabama	390	0	500	35	5	40
Oklahoma	387	+ 2	415	39	0	39
Georgia	358	- 3	400	35	12	47
Virginia	349	+ 9	375	24	3	27
Florida	326	+18	440	36	5	41
Mississippi	283	-19	253	9	7	16
Louisiana	292	- 4	290	12	2	14
Arkansas	286	- 9	290	28	12	40
South Carolina	271	-13	300	22	10	32
Tennessee	270	+ 1	300	22	2	24
TOTAL FOR REGION	4968	-21	5813	357	68	425
TOTAL FOR THE UNITED STATES	10,520	-50	12,342	1,029	171	1,200

* Plus 782 teachers of Agricultural Technicians in Technical Institutes, Junior and Community Colleges

Numbers Prepared For Teaching
Vocational Agriculture

Table 8 shows that of 1,700 persons prepared for teaching vocational agriculture in the United States in 77 different institutions, that 866 became teachers of vocational agriculture, 216 entered the Armed Forces, and 618 were otherwise employed. The largest number of teachers, 758, were prepared in the Southern Region, followed by 616 in the Central Region. 210 were prepared in the Pacific Region and 116 in the North Atlantic Region.

In most states one university has been designated for preparation of teachers of vocational agriculture. States with more than one institution preparing teachers of vocational agriculture included Texas with 9; Illinois with 4; Alabama, Arkansas, Louisiana and Wisconsin with 3 each; and California, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia each with two.

A comparison of the number of teachers qualified and the numbers employed but not teaching in Table 9, shows that all of the regions have an appreciable number of qualified persons entering other positions. It also shows that few persons, qualified as teachers, have left their home states to find employment.

Table 10 lists all states with 12 or more Agricultural Education graduates employed but not teaching vocational agriculture. These states may well represent desirable places to look for teachers of vocational agriculture by those anticipating a shortage. Table 10 shows that the first three states listed - Texas, Illinois and Mississippi - had over 250 qualified persons last year who were employed in occupations other than teaching vocational agriculture.

TABLE 8

EMPLOYMENT OF GRADUATES IN AGRICULTURAL EDUCATION
BY STATES AND REGIONS DURING THE 1969-70 SCHOOL YEAR

State	Institutions Reporting	Number of Qualified Graduates: Teaching Vo-Ag	In Armed Forces	Otherwise Employed	Total Qualified Graduates
	North Atlantic Region				
Connecticut	University of Connecticut	2	0	1	3
Delaware	University of Delaware	2	1	0	3
	Delaware State College, Dover	1	0	0	1
Maine	University of Maine	0	0	0	0
Maryland	University of Maryland	1	0	0	1
	University of Maryland, Eastern Shore	0	0	2	2
Massachusetts	University of Massachusetts	5	0	10	15
New Hampshire	University of New Hampshire	1	0	3	4
New Jersey	Rutgers University	2	0	2	4
New York	Cornell University	14	9	12	35
Pennsylvania	Penn. State University	13	3	12	28
Rhode Island	University of Rhode Island	3	0	4	7
Vermont	University of Vermont	1	1	4	6
West Virginia	West Virginia University	7	0	0	7
TOTAL FOR REGION		52	14	50	116

TABLE 8 (continued)

EMPLOYMENT OF GRADUATES IN AGRICULTURAL EDUCATION
BY STATES AND REGIONS DURING THE 1969-70 SCHOOL YEAR

State	Institutions Reporting	Number of Qualified Graduates: Teaching Vo-Ag	In Armed Forces	Otherwise Employed	Total Qualified Graduates
	Central Region				
Illinois	Illinois State University	12	6	37	55
	Southern Illinois Univ.	12	8	15	35
	University of Illinois	14	2	6	22
	Western Illinois University	4	2	1	7
Indiana	Purdue University	35	5	22	62
Iowa	Iowa State University	29	9	17	55
Kansas	Kansas State University	14	10	7	31
Kentucky	Murray State University	10	3	7	20
	University of Kentucky	17	0	9	26
Michigan	Michigan State University	24	0	10	34
Minnesota	University of Minnesota	27	1	10	38
Missouri	University of Missouri	19	3	5	27
Nebraska	University of Nebraska	21	6	14	41
North Dakota	North Dakota State Univ.	14	1	6	21
Ohio	Ohio State University	39	8	25	72
South Dakota	South Dakota State Univ.	13	5	2	20
Wisconsin	University of Wisconsin	3	0	1	4
	Wisconsin State Univ. - River Falls	15	4	12	31
	Wisconsin State Univ. - Platteville	6	5	4	15
TOTAL FOR REGION		328	78	210	616

TABLE 8 (continued)

EMPLOYMENT OF GRADUATES IN AGRICULTURAL EDUCATION
BY STATES AND REGIONS DURING THE 1969-70 SCHOOL YEAR

State	Institutions Reporting	Number of Qualified Graduates: Teaching Vo-Ag	In Armed Forces	Otherwise Employed	Total Qualified Graduates
		Pacific Region			
Arizona	University of Arizona	7	2	4	13
California	California State Polytechnic	22	0	3	25
	Univ. of California, Davis	20	0	2	22
Colorado	Colorado State University	11	4	6	21
Idaho	University of Idaho	5	2	7	14
Montana	Montana State University	12	4	4	20
Nevada	University of Nevada	1	0	0	1
New Mexico	New Mexico State University	13	1	10	24
Oregon	Oregon State University	14	2	2	18
Utah	Utah State University	15	0	8	23
Washington	Washington State University	12	0	5	17
Wyoming	University of Wyoming	7	3	2	12
TOTAL FOR REGION		139	18	53	210

TABLE 8 (continued)

EMPLOYMENT OF GRADUATES IN AGRICULTURAL EDUCATION
BY STATES AND REGIONS DURING THE 1969-70 SCHOOL YEAR

State	Institutions Reporting	Number of Qualified Graduates: Teaching Vo-Ag	In Armed Forces	Otherwise Employed	Total Qualified Graduates
		Southern Region			
Alabama	Alabama A & M College	4	0	2	6
	Auburn University	27	5	17	49
	Tuskeegee Institute	0	0	2	2
Arkansas	A. M. & N. College	4	0	4	8
	Arkansas State University	10	4	11	25
	University of Arkansas	5	6	3	14
Florida	Florida A & M University	3	3	1	7
	University of Florida	20	1	6	27
Georgia	Fort Valley State College	0	0	5	5
	University of Georgia	22	0	0	22
Louisiana	Louisiana State University	3	0	1	4
	Southern Louisiana	2	2	5	9
	University of S. W. Louisiana	6	1	7	14
Mississippi	Alcorn A & M College	5	3	24	32
	Mississippi State University	19	2	16	37
North Carolina	North Carolina State University	21	3	7	31
	A & T State University	2	2	4	8
Oklahoma	Oklahoma State University	42	21	17	80

Puerto Rico (no report)

TABLE 8 (continued)

EMPLOYMENT OF GRADUATES IN AGRICULTURAL EDUCATION
BY STATES AND REGIONS DURING THE 1969-70 SCHOOL YEAR

State	Institutions Reporting	Number of Qualified Graduates: Teaching Vo-Ag	In Armed Forces	Otherwise Employed	Total Qualified Graduates
	Southern Region (continued)				
South Carolina	Clemson University	10	2	7	19
	South Carolina State College	2	0	5	7
Tennessee	Tenn. A & I State University	1	0	0	1
	University of Tennessee	9	1	5	15
Texas	Texas A & M University	17	12	27	56
	East Texas State University	25	7	16	48
	Prairie View A & M College	1	2	6	9
	Sam Houston College	11	6	29	46
	South West Texas State College	5	5	4	14
	Stephen F. Austin State College	7	1	13	21
	Tarleton State College	18	3	18	39
	Texas College of A & I	8	2	11	21
	Texas Technological College	21	10	28	59
Virginia	Virginia State College	0	2	0	2
	Virginia Polytechnic Institute	17	0	4	21
TOTAL FOR REGION		347	106	305	758
TOTAL FOR THE UNITED STATES		866	216	618	1700

TABLE 9

AGRICULTURAL EDUCATION GRADUATES EMPLOYED
OUTSIDE THE STATE WHERE QUALIFIED
- BY REGION

Region	Teachers Qualified	Employed But Not in Teaching	Employed Outside the State
North Atlantic	116	50	15
Central Region	616	210	36
Pacific Region	210	53	17
Southern Region	758	305	45
TOTAL	1700	618	113

Locating Needed Teachers

Tables 9 and 10 are included in this year's study in order to aid those who may wish to find additional teachers from other states. Table 9 shows that a sizable number of persons who were qualified for teaching, 618 entered other fields. Probably some of these persons would have entered teaching had the opportunity been presented to them at the time they were first qualified. Another figure with implications for teacher placement is that only 113 persons, or less than 75% of those employed, were employed outside their home states. Table 10 presents a list of 16 states where 12 or more persons, who were qualified for teaching vocational agriculture, entered other employment. Such states should be promising sources of teachers for those willing to compete for them in the job market.

It should be emphasized that some of the states listed were also short of teachers for their own needs.

(continued on Page 26)

TABLE 10

STATES WITH TWELVE OR MORE
AGRICULTURAL EDUCATION GRADUATES EMPLOYED
IN POSITIONS OTHER THAN TEACHING
VOCATIONAL AGRICULTURE

State	Total Qualified	Employed in Other Positions
Texas	313	152
Illinois	119	59
Mississippi	69	40
Ohio	72	25
Indiana	62	22
Alabama	57	21
Arkansas	47	18
Wisconsin	50	17
Iowa	55	17
Oklahoma	80	17
Kentucky	46	16
Nebraska	41	14
Louisiana	27	13
Pennsylvania	28	12
New York	35	12
South Carolina	26	12

Interstate efforts at teacher placement have not been widely practiced in Agricultural Education in the past but would seem to offer one means of alleviating the shortage of teachers of vocational agriculture.

A P P E N D I X

Appendix I

Return to: Dr. Ralph J. Woodin, Chairman
Professional Personnel Recruitment Committee
Room 203, Agricultural Administration Building
The Ohio State University
2120 Fyffe Road
Columbus, Ohio 43210

by August 15, 1970.

SURVEY OF TEACHER SUPPLY AND DEMAND
IN VOCATIONAL AGRICULTURE

Name _____ Position _____ State _____

1. Number of teachers of vocational agriculture employed in your state during the 1969-70 school year. Do not include teachers in Technical Institutes and Community Colleges. _____

2. Number of replacements required for the above teachers during the past year. _____

3. Number of new and additional positions in teaching vocational agriculture which became available during the past year (7/1/69 to 6/30/70). _____ Number of positions discontinued. _____ Net gain in number of positions during past year. _____

4. Number of newly qualified candidates for teaching vocational agriculture still available (8/1/70). _____

5. Number of vocational agriculture teachers still needed (8/1/70) but not available in your state. _____

6. Number of vocational agriculture teachers last year who held emergency or temporary certificates. _____

7. Number of departments which probably will not operate this year because of a shortage of teachers. _____

8. Estimated total number of teaching positions in vocational agriculture in full-time equivalents in your state by 1975. _____

9. Of the total number of vocational agriculture teachers reported in Item 1, how many teachers:

   9.1 taught adult and young farmer classes only _____.

   9.2 taught high school classes only _____.

   9.3 taught both high school and out-of-school classes (adult and/or young farmer classes) _____.

   (9.1 + 9.2 + 9.3 should equal the number of teachers reported in Item 1.)

How many teachers reported in Item 1:

9.5 taught in general or comprehensive high schools _____.

9.6 taught in vocational high schools _____.

9.7 taught in area vocational schools _____.

(9.5 + 9.6 + 9.7 should equal the number of teachers reported in Item 1.)

How many teachers reported in Item 1:

9.8 taught in single teacher departments _____.

9.9 taught in multiple teacher departments _____.

(9.8 + 9.9 should equal the number of teachers reported in Item 1.)

How many teachers reported in Item 1:

9.10 taught full time in production agriculture programs _____.

9.11 taught part-time in production agriculture programs and had one or more classes in specialized programs such as: Agricultural Supplies, Agricultural Mechanics, Agricultural Products (processing), Ornamental Horticulture, Agricultural Resources and Recreation, and Forestry _____.

9.12 taught full time in programs such as Agricultural Supplies, Agricultural Mechanics, Agricultural Products (processing), Ornamental Horticulture, Agricultural Resources and Recreation, and Forestry _____.

9.13 taught some combination of agricultural and academic subjects _____.

(9.10 + 9.11 + 9.13 should equal the number of teachers reported in Item 1.)

10. In addition to the teachers of vocational agriculture reported in Item 1, how many teachers were employed as teachers of agriculture in:

Community or Junior Colleges _____.

Technical Institutes _____.

Number qualified for teaching vocational agriculture from your college or university 6/30/69 to 7/1/70 _____.

Of these qualified in 1970, how many had entered the following occupations by 8/15/70

Teaching Vo-Ag	_____	Farming	_____
Teaching other subjects	_____	Graduate work	_____
Farm sales service or supply	_____	Armed Forces	_____
		Other	_____

Of those qualified in 1969 how many were employed outside your state _____

Total enrollment in agriculture including agricultural education in your institution for the year 1969-70 _____.

Signed _____ Institution _____

VT 012 387
Ohio Schools of Nursing Notebook for School Counselors. Fourth Edition.

Ohio Nurses Association, Columbus.
MF AVAILABLE IN VT-ERIC SET.
Ohio Nurses Association, 4000 East Main St., Columbus, Ohio 43213 ($1.25).
PUB DATE - Oct70 77p.

DESCRIPTORS - *VOCATIONAL COUNSELING; *SECONDARY SCHOOL COUNSELORS; *NURSING; *SCHOOLS; ASSOCIATE DEGREES; BACHELORS DEGREES; HOSPITAL SCHOOLS; STUDENT COSTS; FINANCIAL SUPPORT; ADMISSION CRITERIA; EMPLOYMENT OPPORTUNITIES; *DIRECTORIES
IDENTIFIERS - *OHIO

ABSTRACT - Developed to assist counselors in helping students select high school preparatory courses and to acquaint them with opportunities available in the field of nursing, this handbook lists 64 Ohio schools of nursing offering basic nursing education programs approved by the State Board of Nursing Education and Nurse Registration. Listed as either baccalaureate degree, associate degree, or hospital diploma programs, the following information is provided for each school: (1) descriptive information, such as number of students, length of program, and housing, (2) costs, including tuition and fees, room and board, and other, (3) profile data of Fall 1969 freshmen class, (4) admission requirements, (5) financial aid information, (6) admission procedures, and (7) additional remarks. Test results of the National League for Nursing Pre-Nursing Guidance Examination and the location of the schools of professional nursing are appended. (SB)

VT 012 387

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Ohio Schools of Nursing Notebook

for school counselors

The Fourth Edition

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Ohio Nurses Association — 4000 East Main Street — Columbus, Ohio 43213

THE FOURTH EDITION OF THE

OHIO SCHOOLS OF NURSING NOTEBOOK

FOR SCHOOL COUNSELORS.

Published by

Ohio Nurses Association
4000 East Main Street
Columbus, Ohio 43213

October, 1970

3925

FOREWORD

The Fourth Edition of the Ohio Schools of Nursing Notebook provides information about the sixty-four schools of nursing in Ohio which will admit students in 1971.

Since the Third Edition of the Notebook was published in October, 1969, the associate degree program at Columbus Technical Institute has opened; and two hospital (diploma) programs have closed--Maumee Valley Hospital School of Nursing in Toledo, and St. Anthony Hospital School of Nursing in Columbus.

As in past editions, this publication lists only schools approved by the State Board of Nursing Education and Nurse Registration. Accreditation from the National League for Nursing (NLN) and/or the North Central Association of Colleges and Secondary Schools (NCACSS) is noted. NCACSS accredits baccalaureate and associate degree schools only.

The Notebook gives information about the basic nursing education programs only. Case Western Reserve University, The Ohio State University and the University of Cincinnati offer graduate programs at the master's level. Case Western Reserve University also offers a doctoral program.

Specific information is included on the number of academic credits earned through collegiate affiliation by students who enter hospital programs. The Appendix lists results of the National League for Nursing Pre-Nursing Guidance Examination for the schools which use this pre-entrance test. In the Profile Data, the percentile given under "high school rank" represents the percentage of students within that classification only.

The high school curriculum of a student interested in a nursing career should be tailored to the student's individual needs. The student should be encouraged to consider carefully career goals and expectations for the future. Serious thought should be given to which type of nursing program would be best suited to the student's abilities and goals.

The counselor can assist the student to appreciate the full range of opportunities available to both men and women in the field of nursing. In addition to the traditional roles, a nurse can be a highly-specialized, expert clinical practitioner; a scientist; a member of the armed forces; a university professor; or an executive in a health care agency. The counselor also can help the student to think about long-term goals as well as immediate ones.

Attention in high school to long-term and immediate career goals, and careful selection of the type of nursing education program from which the student can benefit most in terms of his individual desires and needs, will help the student maximize his capabilities and opportunities as a member of the nursing profession.

Counselors should point out that when graduates of associate degree and hospital programs seek further education, their educational needs must be assessed individually, in relation to the requirements of the baccalaureate programs they wish to enter.

The three types of basic nursing education programs and the types of care that graduates of the respective programs are prepared to give are described here.

The Baccalaureate Program

The educational program leading to a Baccalaureate Degree in Nursing is under the control of a senior college or university. The usual length of the program is four years. Completion leads to a Bachelor of Science in Nursing, and after successful state examination, the title Registered Nurse (R.N.).

Anyone who meets the regular college entrance requirements and passes the necessary college entrance examinations may be eligible for the program.

The curriculum is a balance of general and professional education, including clinical experiences in public health agencies, hospitals, clinics and other selected agencies.

The graduate is prepared to provide professional nursing care in any setting, including public health, and to direct nursing team members in providing nursing care. This program also is the foundation for graduate study and for positions of greater responsibilities and judgments.

The Associate Degree Program

The educational program leading to an Associate Degree is usually under the control of a junior or community college. The usual length of the program is two years. Completion leads to an Associate in Arts, Associate in Science, or Associate Degree, and after successful state examination, the title Registered Nurse (R.N.).

Anyone who meets the regular college entrance requirements and passes the necessary college entrance examinations may be eligible for the program.

The curriculum combines both nursing theory and practice with general education courses.

The graduate is provided a basic knowledge of nursing principles to be utilized in providing direct nursing care to the patients.

The Hospital Program

The hospital (diploma) program is located in a hospital school of nursing. The usual length of the program is three years. Completion leads to a diploma in nursing and after successful state examination, the title Registered Nurse (R.N.).

Anyone who meets the regular school entrance requirements and passes the required pre-entrance examinations may be eligible.

The curriculum is composed of nursing courses, practice and theory, and courses in related sciences. Some schools provide for enrollment of their students in a college or university for some general courses.

The graduate is provided a basic knowledge of nursing principles to be utilized in planning and giving direct nursing care.

The American Nurses' Association recommends minimum salaries for nurses currently entering the profession: $8,500 for those with bachelor's degrees in nursing; $7,500 for those with associate degrees or diplomas. Recommended salaries are appropriately higher for persons with additional educational preparation.

ACKNOWLEDGMENTS

The continued cooperation of directors of schools of nursing, who supply information about their schools, and that of the Division of Guidance and Testing of the State of Ohio Department of Education, which assists in the distribution of the Notebook, make it possible for ONA to provide guidance counselors with current information about Ohio schools of nursing.

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THE UNIVERSITY OF AKRON, COLLEGE OF NURSING

Baccalaureate degree

Simmons Hall, Akron, Ohio 44304
Telephone No. 762-2441 Area Code 216

Person Responsible for Admissions: Name Mr. Charles T. Salem
Title Director of Admissions

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 1 Women 208 Freshmen 100

Number of Applicants for Fall 1969 Freshman Class 130 No. Offered Admission 112

Length of Program 4 years * Housing Required to live in if not local student

****COSTS**

1st year:	Tuition and Fees $625	Room and Board $1,050	Other $100
2nd year:	Tuition and Fees $625	Room and Board $1,050	Other $100
3rd year:	Tuition and Fees $625	Room and Board $1,050	Other $100
4th year:	Tuition and Fees $625	Room and Board $1,050	Other $100

** Ohio Residents.

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS: (NOT AVAILABLE)

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 1, Natural Science 1, Social Studies 3

Recommended Courses Algebra, Geometry, Chemistry, Physics

Required Test CEEB, ACT Required Test Date Prior to admission Application Fee $15

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 9 Scholarship Range $120-$1000 Average Scholarship $450

Number Awarded Loans 11 Range of Loans $300-$1500 Average Loan $600

Total Number Receiving Financial Aid 49 For Further Financial Aid Information Contact:

Name Mr. Robert Larson Title Director of Student Financial Aid

Address The University of Akron, Akron, Ohio 44304

ADMISSION PROCEDURES

Filing Application: Suggested Date March 1 Deadline August 15

Deadline for Transcript and Recommendations August 15 Date of Notification to Student Rolling admission

Financial Aid Application Deadline March 1 Notification Date August 15 Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. Before enrollment in each quarter

Accreditation Reasonable Assurance by NLN, NCACSS

REMARKS: * First two years in The University of Akron's General College

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CAPITAL UNIVERSITY SCHOOL OF NURSING

2199 E. Main Street, Columbus, Ohio 43209
Telephone No. 236-6703 Area Code 614

Baccalaureate degree

Person Responsible for Admissions: Name Allan F. Herbst
Title Director of Admissions

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 133 Freshmen 41

Number of Applicants for Fall 1969 Freshman Class 85 No. Offered Admission 68

Length of Program 4 academic years plus 1 summer Housing Available

COSTS

1st year:	Tuition and Fees $1850	Room and Board $1010	Other $110
2nd year:	Tuition and Fees $2100	Room and Board $1010	Other $165
3rd year:	Tuition and Fees $2100	Room and Board $1010	Other $ 80
4th year:	Tuition and Fees $2100	Room and Board $1010	Other $ 85

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	36 %	700 and Above	0 %	3 %	30 and Above	%
Top Quarter	36 %	600 - 699	8 %	22 %	26 - 29	%
Top Third	9 %	500 - 599	54 %	38 %	21 - 25	%
Top Half	11 %	400 - 499	22 %	24 %	16 - 20	%
Top Two Thirds	8 %	Below 400	16 %	13 %	Below 16	%

NLN-PNG ____

ADMISSION REQUIREMENTS

Number of Credit Units 12 Specific Course Requirements English 4, Foreign Language 2 (of same), College Preparatory Math 2, Natural Science 2, Social Studies 2

Recommended Courses Chemistry, 3rd year of Mathematics

Required Test CEEB, 3 Achievement Required Test Date Not specified Application Fee $15

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 10 * Scholarship Range $400-$1000 * Average Scholarship $550 *

Number Awarded Loans 13 Range of Loans $100-$800 Average Loan $510

Total Number Receiving Financial Aid 15 For Further Financial Aid Information Contact:

Name Thomas C. Smallsreed Title Director of Financial Aids

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date December 15 Deadline Approx. May 15

Deadline for Transcript and Recommendations Approx. May 15 Date of Notification to Student 2 weeks after application completed

Financial Aid Application Deadline Approx. Apr. 15 Notification Date 2 weeks after application completed Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. $85

Accreditation NLN, NCACSS

REMARKS: * Refers to grants.

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CASE WESTERN RESERVE UNIVERSITY, FRANCES PAYNE BOLTON SCHOOL OF NURSING

Baccalaureace degree

2121 Abington Road, Cleveland, Ohio 44106
Telephone No. 368-2526 Area Code 216

Person Responsible for Admissions: Name Mrs. Charlene H. Harrison
Title Admission Counselor

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 4 Women 146 Entering Class 49

Number of Applicants for Fall 1969 Entering Class 84 No. Offered Admission 64

Length of Program 4 years with summers or 5 academic years for high school grads. 2 calendar years for college grads. Housing Required to live in *

COSTS

	Tuition and Fees	Room and Board	Other
1st year:	**	**	**
2nd year:	**	**	**
3rd year:	$2077	$1200	$225
4th year:	$2062	$1200	$110
5th year:	$2062	$1200	$185

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 ENTERING CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	56 %	700 and Above	5 %	2 %	30 and Above	%
Top Quarter	29 %	600 - 699	17 %	15 %	26 - 29	%
Top Third	4 %	500 - 599	58 %	71 %	21 - 25	%
Top Half	8 %	400 - 499	19 %	10 %	16 - 20	%
Top Two Thirds	2 %	Below 400	%	2 %	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 45 S.H. Specific Course Requirements Biology 6-8 Semester Hours Credit, Chemistry 6-8 S.H., Humanities 6 S.H., Political Science and/or Economics 3-6 S.H., Psychology 6 S.H., Sociology and/or Anthropology 6 S.H., Written and Oral Communication 3-6 S.H.

Recommended Courses 1 Semester College Mathematics

Required Test CEEB Required Test Date High School Application Fee $15.00

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 37 Scholarship Range Full tuition Average Scholarship Full tuition

Number Awarded Loans 21 Range of Loans $500-$1500 Average Loan $1234

Total Number Receiving Financial Aid 40 For Further Financial Aid Information Contact:

Name Charlene H. Harrison Title Admission Counselor

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date 1 year in advance of enrollment Deadline July 1

Deadline for Transcript and Recommendations date July 31 Date of Notification to Student Rolling

Financial Aid Application Deadline March 15 Notification Date Rolling Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $25

Accreditation NLN, NCACSS

REMARKS: * Unless married, living with parents, or over 21 years.
** The first 45 semester hours of liberal arts study may be completed at any accredited college or university; therefore costs will vary.

UNIVERSITY OF CINCINNATI, COLLEGE OF NURSING AND HEALTH

3110 Vine Street, Proctor Hall, Cincinnati, Ohio 45219 — Baccalaureate degree
Telephone No. 872-5509 Area Code 513

Person Responsible for Admissions: Name Nancy B. Dawson, Chairman, Committee on Admissions
Title Assistant to the Dean, University Office of Admissions
100 Old Commons Building, University of Cincinnati

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men 2 Women 277 Freshmen 91 *

Number of Applicants for Fall 19 69 Freshman Class 240 No. Offered Admission 159

Length of Program 4 academic years and 1 summer session Housing Out of town freshman may be required to live in

** **COSTS**

1st year:	Tuition and Fees $938	Room and Board $2320	Other $150
2nd year:	Tuition and Fees $615	Room and Board $1740	Other
3rd year:	Tuition and Fees $615	Room and Board $1740	Other
4th year:	Tuition and Fees $615	Room and Board $1740	Other

** Cincinnati residents

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? Yes

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	37%	700 and Above	0 %	0 %	30 and Above	2 %
Top Quarter	0%	600 - 699	10 %	14 %	26 - 29	40 %
Top Third	53%	500 - 599	48 %	48 %	21 - 25	45 %
Top Half	6%	400 - 499	36 %	26 %	16 - 20	12 %
Top Two Thirds	0 %	Below 400	6 %	12 %	Below 16	1 %
NLN-PNG						

ADMISSION REQUIREMENTS

Number of Credit Units 15 Specific Course Requirements English 4, Foreign Language 2 (of same), Mathematics 2 (college preparatory), Science 2 (1 must be Chemistry), Social Studies 2

Recommended Courses Physics and a third unit in Social Studies

Required Test CEEB or ACT Required Test Date None Application Fee $15

FINANCIAL AID INFORMATION (Freshmen 19 69-70)

Number Awarded Scholarships NA Scholarship Range NA Average Scholarship NA

Number Awarded Loans NA Range of Loans NA Average Loan NA

Total Number Receiving Financial Aid NA For Further Financial Aid Information Contact:

Name Mr. Glen Mitchell Title Director, Student Financial Aid

Address 206 Beecher Hall, University of Cincinnati, Cincinnati, Ohio 45221

ADMISSION PROCEDURES

Filing Application: Suggested Date October 15 Deadline None set

Deadline for Transcript and Recommendations None set Date of Notification to Student As accepted

Financial Aid Application Deadline March 1 Notification Date July or Aug. Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. $85

Accreditation NLN, NCACSS

REMARKS: * Number does not include R.N. students applying for admission.

KENT STATE UNIVERSITY SCHOOL OF NURSING

Baccalaureate degree

Kent, Ohio 44240
Telephone No. 672-7930 Area Code 216

Person Responsible for Admissions: Name Mr. Rex Simmons Linnea Henderson
Title Director of Admissions Dean, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 6 Women 309 Freshmen 150

Number of Applicants for Fall 1969 Freshman Class NA No. Offered Admission NA

Length of Program 4 academic years Housing Available

COSTS

1st year:	Tuition and Fees $672	Room and Board $1023	Other
2nd year:	Tuition and Fees $672	Room and Board $1023	Other
3rd year:	Tuition and Fees $672	Room and Board $1023	Other
4th year:	Tuition and Fees $672	Room and Board $1023	Other

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS: NOT AVAILABLE

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English, Foreign Languages, Laboratory Science, Mathematics, Social Studies

Recommended Courses As much science and mathematics as possible in high school

Required Test ACT Required Test Date Prior to regis. Application Fee $25 nonrefundable

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 10 Scholarship Range $1000-$1500 Average Scholarship $1346

Number Awarded Loans 27 Range of Loans $250-$1500 Average Loan $1864

Total Number Receiving Financial Aid 33 For Further Financial Aid Information Contact:

Name Mr. William Johnson Title Director, Student Financial Aid

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date First semester of senior year Deadline August 1

Deadline for Transcript and Recommendations After filing of application Date of Notification to Student When application completed

Financial Aid Application Deadline 3 weeks prior to registration Notification Date When appl. completed Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. $100

Accreditation Reasonable Assurance by NLN, NCACSS

REMARKS: The freshman year may be completed at a Kent State Branch campus or at any other accredited college or university. Arts and science courses only in the freshman year.

COLLEGE OF MOUNT SAINT JOSEPH ON THE OHIO

Mount Saint Joseph, Ohio 45051
Telephone No. 244-4511 Area Code 513

Baccalaureate degree

Person Responsible for Admissions: Name Sister Martha Ann
Title Director of Admissions

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 1 Women 151 Freshmen 49

Number of Applicants for Fall 1969 Freshman Class 83 No. Offered Admission 63

Length of Program 4 academic years (8 semesters) Housing Available

COSTS

1st year:	Tuition and Fees $1200	Room and Board $1060	Other
2nd year:	Tuition and Fees $1200	Room and Board $1060	Other
3rd year:	Tuition and Fees $1350	Room and Board $1060	Other $75
4th year:	Tuition and Fees $1350	Room and Board $1060	Other

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	39 %	700 and Above	2%	4 %	30 and Above	%
Top Quarter	25 %	600 - 699	11%	21 %	26 - 29	%
Top Third	9 %	500 - 599	39%	39 %	21 - 25	%
Top Half	18 %	400 - 499	46%	30 %	16 - 20	%
Top Two Thirds	7 %	Below 400	2%	6 %	Below 16	%
NLN-PNG						

ADMISSION REQUIREMENTS

Number of Credit Units 15 Specific Course Requirements Algebra 1, English 4, Foreign Language 2, Geometry 1, History 1, Laboratory Science 2, Electives 3 from these same fields

Recommended Courses Biology and Chemistry

Required Test CEEB Required Test Date Recommend by Jan. of senior year Application Fee $25

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 22 Scholarship Range $100-$1100 Average Scholarship $500

Number Awarded Loans 14 Range of Loans $200-$800 Average Loan $420

Total Number Receiving Financial Aid 22 For Further Financial Aid Information Contact:

Name Sister Martha Ann Title Director of Admissions

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date By January Deadline None

Deadline for Transcript and Recommendations None Date of Notification to Student Rolling

Financial Aid Application Deadline February 1 Notification Date Rolling Personal Interview Required No, but recommended

Amount of Deposit for Tuition, Room, etc. $100

Accreditation NLN, NCACSS

REMARKS:

THE OHIO STATE UNIVERSITY, SCHOOL OF NURSING

1585 Neil Avenue, Columbus, Ohio 43210
Telephone No. 422-5371 Area Code 614

Baccalaureate degree

Person Responsible for Admissions: Name Admissions Office, 190 North Oval Drive
Title The Ohio State University, Columbus, Ohio 43210

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 2 Women 445 Freshmen 153

Number of Applicants for Fall 1969 Freshman Class 256 * No. Offered Admission 186

Length of Program 1 year pre-professional, 3 years professional (including summers) Housing Available

COSTS

1st year:	Tuition and Fees $600	Room and Board $1014	Other $100
2nd year:	Tuition and Fees $800	Room and Board $1352	Other $200
3rd year:	Tuition and Fees $800	Room and Board $1352	Other $100
4th year:	Tuition and Fees $800	Room and Board $1352	Other $100

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	1.3%
Top Quarter	%	600 - 699	%	%	26 - 29	28.8%
Top Third	%	500 - 599	%	%	21 - 25	56.4%
Top Half	%	400 - 499	%	%	16 - 20	12.7%
Top Two Thirds	%	Below 400	%	%	Below 16	0.6%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 48-52 qtr. hours Specific Course Requirements Biology 100, Chemistry 101-102, English 101,102,103, Psychology 100, Sociology 101

Recommended Courses As many courses in Math and Science as possible in high school

Required Test ACT Required Test Date None Application Fee $10
Acceptance Fee $25

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 77 Scholarship Range $100-$1000 Average Scholarship $585

Number Awarded Loans 115 Range of Loans $35-$1333 Average Loan Varies with need

Total Number Receiving Financial Aid 192 For Further Financial Aid Information Contact:

Name Mr. Rodney Harrison Title Director, Student Financial Aids

Address 200 Student Services Bldg. 154 W. 12th Ave., Columbus, Ohio 43210

ADMISSION PROCEDURES

Filing Application: Suggested Date First semester of senior year Deadline May 1 (for Autumn Qtr.)

Deadline for Transcript and Recommendations May 1 (for Autumn Qtr.) Date of Notification to Student When application is complete

Financial Aid Application Deadline March 1 Notification Date June 1 Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. None

Accreditation NLN, NCACSS

REMARKS: Admission to the School of Nursing requires one year in pre-nursing studies, students apply for admission to the School February 1 - March 15 during pre-nursing year.
* Number does not include R.N. students applying for admission.

SAINT JOHN COLLEGE OF CLEVELAND

Cathedral Square, Cleveland, Ohio 44114
Telephone No. 771-2388 Area Code 216

Baccalaureate degree

Person Responsible for Admissions: Name Penelope H. Lips
Title Director of Admissions

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men _____ Women 232 Freshmen 67

Number of Applicants for Fall 1969 Freshman Class 120 No. Offered Admission 93

Length of Program 4 academic years and 3 six week summer sessions Housing Available

COSTS

1st year:	Tuition and Fees $1050	Room and Board $1000	Other _____
2nd year:	Tuition and Fees $1354	Room and Board $1200	Other _____
3rd year:	Tuition and Fees $1164	Room and Board $1200	Other _____
4th year:	Tuition and Fees $1278	Room and Board $1200	Other _____

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	19%	700 and Above	%	%	30 and Above	%
Top Quarter	40%	600 - 699	16 %	5%	26 - 29	%
Top Third	15%	500 - 599	36 %	37%	21 - 25	%
Top Half	22%	400 - 499	36 %	41%	16 - 20	%
Top Two Thirds	5%	Below 400	9 %	14%	Below 16	%
NLN-PNG _____		Not available	3 %	3%		

ADMISSION REQUIREMENTS

Number of Credit Units 15 Specific Course Requirements English 4 (College Preparatory), Mathematics 2 (College Preparatory - Algebra and Geometry preferred), Science 2 (1 Lab. must include Chemistry), Social Studies 2, Electives 5

Recommended Courses Additional Mathematics and Science courses

Required Test CEEB Required Test Date Recommend no later than March of senior year Application Fee $15

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 28 Scholarship Range $100-$1700 Average Scholarship $805

Number Awarded Loans 29 Range of Loans $250-$1500 Average Loan $821

Total Number Receiving Financial Aid 31 For Further Financial Aid Information Contact:

Name Penelope H. Lips Title Director of Admissions

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date After junior year Deadline June 1

Deadline for Transcript and Recommendations As soon as possible Date of Notification to Student Within 2 weeks of receiving all required information

Financial Aid Application Deadline February 1 Notification Date February 15 Personal Interview Required Recommended *

Amount of Deposit for Tuition, Room, etc. $25

Accreditation NLN, NCACSS

REMARKS: * Required for financial aid applicants.

CLARK COUNTY TECHNICAL INSTITUTE

570 East Leffels Lane, Springfield, Ohio 45505
Telephone No. 325-7016 Area Code 513

Associate degree

Person Responsible for Admissions: Name Margaret Riley
Title Student Services Officer

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 2 Women 88 Freshmen 54

Number of Applicants for Fall 1969 Freshman Class 64 No. Offered Admission 56

Length of Program 2 years Housing Not available

COSTS

1st year:	Tuition and Fees $450 *	Room and Board	Other $150
2nd year:	Tuition and Fees $450 *	Room and Board	Other $150
3rd year:	Tuition and Fees	Room and Board	Other
4th year:	Tuition and Fees	Room and Board	Other

* Residents of Springfield & Clark County

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	1 %	700 and Above	%	%	30 and Above	%
Top Quarter	14 %	600 - 699	%	%	26 - 29 NOT	%
Top Third	11 %	500 - 599	%	%	21 - 25 AVAILABLE	%
Top Half	21 %	400 - 499	%	%	16 - 20	%
Top Two Thirds	23 %	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units H.S. Grad. Specific Course Requirements

Recommended Courses Algebra, Biology, Chemistry

Required Test ACT Required Test Date Prior to accept. Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 21 Scholarship Range $150-$450 Average Scholarship $450

Number Awarded Loans 0 Range of Loans 0 Average Loan 0

Total Number Receiving Financial Aid 21 For Further Financial Aid Information Contact:

Name Financial Aid Office Title

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date January Deadline July

Deadline for Transcript and Recommendations Prior to accept. Date of Notification to Student Rolling admission

Financial Aid Application Deadline June 1 Notification Date Aug. 15 Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. None

Accreditation

REMARKS:

COLUMBUS TECHNICAL INSTITUTE *

550 East Spring Street, Columbus, Ohio 43215
Telephone No. 221-6743 Area Code 614

Associate degree

Person Responsible for Admissions: Name Mr. Bill March
Title Director of Student Services

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men _____ Women _____ Freshmen _____

Number of Applicants for Fall 1969 Freshman Class _____ No. Offered Admission _____

Length of Program 7 quarters Housing Not available

COSTS

1st year: Tuition and Fees $740 (approx.) Room and Board _____ Other $170 (approx.)

2nd year: Tuition and Fees $535 (approx.) Room and Board _____ Other $ 95 (approx.)

3rd year: Tuition and Fees _____ Room and Board _____ Other _____

4th year: Tuition and Fees _____ Room and Board _____ Other _____

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG _____

ADMISSION REQUIREMENTS

Number of Credit Units _____ Specific Course Requirements High School graduate or G.E.D.

Recommended Courses English, Mathematics, Natural Sciences, Social Studies

Required Test ACT Required Test Date Before May 1 Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships _____ Scholarship Range _____ Average Scholarship _____

Number Awarded Loans _____ Range of Loans _____ Average Loan _____

Total Number Receiving Financial Aid _____ For Further Financial Aid Information Contact:

Name Student Services Title _____

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date May 1 Deadline When class is filled

Deadline for Transcript and Recommendations Not established Date of Notification to Student Not established

Financial Aid Application Deadline Not estab. Notification Date Not estab. Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. _____

Accreditation NCACSS

REMARKS: * NEW SCHOOL, FALL 1970.

2900 Community College Avenue, Cleveland, Ohio 44115 Associate degree
Telephone No. 241-5966 Area Code 216
Ext. 351
Person Responsible for Admissions: Name (Miss) Nancy J. Voelker, R.N.
Title Department Chairman

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 12 Women 242 Freshmen 57

Number of Applicants for Fall 1969 Freshman Class Approx. 300 No. Offered Admission 60

Length of Program 2 academic years (6 quarters) Housing Not available

COSTS

1st year:	Tuition and Fees $450	Room and Board	Other $50
2nd year:	Tuition and Fees $400	Room and Board	Other
3rd year:	Tuition and Fees	Room and Board	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS: (NOT AVAILABLE)

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units Variable Specific Course Requirements None

Recommended Courses Biology, Chemistry

Required Test ACT Required Test Date As arranged Application Fee None

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 89 * Scholarship Range $200-$1000 Average Scholarship $500

Number Awarded Loans 89 * Range of Loans $200-$1499 Average Loan $400

Total Number Receiving Financial Aid 89 For Further Financial Aid Information Contact:

Name Dr. Culbreth B. Cook Title Director, Placement & Financial Aid

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date 2 quarters prior Deadline 8 weeks prior

Deadline for Transcript and Recommendations 6 weeks prior Date of Notification to Student 2 months before quarter begins

Financial Aid Application Deadline None Notification Date None Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. None

Accreditation NLN, NCACSS

REMARKS: * Combination of scholarships and loans.

CUYAHOGA COMMUNITY COLLEGE, WESTERN CAMPUS

Associate degree

7300 York Road, Parma, Ohio 44130
Telephone No. 845-4000 Area Code 216

Person Responsible for Admissions: Name Mr. Ernest H. Mielke
Title Director, Admissions and Records

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men 2 Women 115 Freshmen 62

Number of Applicants for Fall 19 69 Freshman Class 144 No. Offered Admission 72

Length of Program 2 academic years (6 quarters) Housing Not available

COSTS

1st year:	Tuition and Fees $450	Room and Board	Other $50
2nd year:	Tuition and Fees $400	Room and Board	Other
3rd year:	Tuition and Fees	Room and Board	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK: *		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	4 %	700 and Above	%	%	30 and Above	%
Top Quarter	32 %	600 - 699	%	%	26 - 29	3 %
Top Third	14 %	500 - 599	%	%	21 - 25	30 %
Top Half	10 %	400 - 499	%	%	16 - 20	46 %
Top Two Thirds	16 %	Below 400	%	%	Below 16	21 %

NLN-PNG

* Based on 50 ranks

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements High School graduate or equivalent

Recommended Courses Biology, Chemistry

Required Test ACT Required Test Date March 14 Application Fee None

FINANCIAL AID INFORMATION (Freshmen 19 69-70)

Number Awarded Scholarships 4 Scholarship Range $100-$400 Average Scholarship $250

Number Awarded Loans 5 Range of Loans $100-$500 Average Loan $250

Total Number Receiving Financial Aid 5 For Further Financial Aid Information Contact:

Name Paul M. Hinko Title Director, Placement & Financial Aid

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date January 1 Deadline April 1

Deadline for Transcript and Recommendations April 1 Date of Notification to Student June 15

Financial Aid Application Deadline 1 month prior to enrollment Notification Date Rolling Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. None

Accreditation NLN, NCACSS

REMARKS:

3325 West 13th Street, Ashtabula, Ohio 44004 Associate degree
Telephone No. 964-3847 Area Code 216

Person Responsible for Admissions: Name Mr. John K. Mahan
Title Director of Admissions

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 38 Freshmen 24

Number of Applicants for Fall 1969 Freshman Class 42 No. Offered Admission 29

Length of Program 2 academic years Housing Available in the community

COSTS

1st year:	Tuition and Fees $660	Room and Board ____	Other $55
2nd year:	Tuition and Fees $660	Room and Board ____	Other ____
3rd year:	Tuition and Fees ____	Room and Board ____	Other ____
4th year:	Tuition and Fees ____	Room and Board ____	Other ____

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	14%	700 and Above	%	%	30 and Above	%
Top Quarter	37%	600 - 699	%	%	26 - 29	8%
Top Third	14%	500 - 599	%	%	21 - 25	44%
Top Half	21%	400 - 499	%	%	16 - 20	36%
Top Two Thirds	14%	Below 400	%	%	Below 16	12%

NLN-PNG ____

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2, Science 2 (1 must be Lab Science), Social Studies 3, Others 5

Recommended Courses Algebra, Plane Geometry, Chemistry, Problems of Democracy

Required Test ACT Required Test Date September 28, 1970 Application Fee $25 nonrefundable

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 4 Scholarship Range $300-$900 Average Scholarship $550

Number Awarded Loans 6 Range of Loans $100-$1000 Average Loan $450

Total Number Receiving Financial Aid 10 For Further Financial Aid Information Contact:

Name Mr. Floyd A. Culver Title Director of Student Services

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Winter quarter Deadline Aug. 15 for fall qtr.

Deadline for Transcript and Recommendations Aug. 15 for fall Date of Notification to Student When application complete

Financial Aid Application Deadline April 1 Notification Date August 1 Personal interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation Reasonable Assurance by NLN, NCACSS

REMARKS:

KENT STATE UNIVERSITY, TUSCARAWAS COUNTY BRANCH

University Drive, N.E., New Philadelphia, Ohio 44663
Telephone No. 364-5561 Area Code 216

Associate degree

Person Responsible for Admissions: Name Mr. Harold Shade
Title Director of Admissions

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 21 Freshmen 21 *

Number of Applicants for Fall 1969 Freshman Class 32 No. Offered Admission 21

Length of Program 2 academic years Housing Available in the community

COSTS

1st year:	Tuition and Fees $660	Room and Board ____	Other $55
2nd year:	Tuition and Fees $660	Room and Board ____	Other ____
3rd year:	Tuition and Fees ____	Room and Board ____	Other ____
4th year:	Tuition and Fees ____	Room and Board ____	Other ____

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	8%	700 and Above	%	%	30 and Above	%
Top Quarter	39%	600 - 699	%	%	26 - 29	11 %
Top Third	23%	500 - 599	%	%	21 - 25	16 %
Top Half	15%	400 - 499	%	%	16 - 20	58 %
Top Two Thirds	15%	Below 400	%	%	Below 16	15 %
NLN-PNG ____						

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2, Science 2 (1 must be Lab Science), Social Studies 3, Others 5

Recommended Courses Algebra, Plane Geometry, Chemistry, Problems of Democracy

Required Test ACT Required Test Date September 28, 1970 Application Fee $25 nonrefundable

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships None Scholarship Range NA Average Scholarship NA

Number Awarded Loans 4 Range of Loans $180-$200 per qtr. Average Loan $185

Total Number Receiving Financial Aid 4 For Further Financial Aid Information Contact:

Name Mr. R. J. McCullagh Title Director of Student Services

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Winter quarter Deadline Aug. 15 for fall qtr.

Deadline for Transcript and Recommendations Aug. 15 for fall Date of Notification to Student When application complete

Financial Aid Application Deadline April 1 Notification Date August 1 Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation Reasonable Assurance by NLN, NCACSS

REMARKS: * First class entered September 1969.

KETTERING COLLEGE OF MEDICAL ARTS

3737 Southern Boulevard, Kettering, Ohio 45429
Telephone No. 298-0144 Area Code 513

Associate degree

Person Responsible for Admissions: Name Eugene R. Cowling
Title Registrar and Director of Admissions

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men 4 Women 131 Freshmen 80

Number of Applicants for Fall 19 69 Freshman Class 105 No. Offered Admission 80

Length of Program 21 months Housing Available

COSTS

1st year:	Tuition and Fees $1500 *	Room and Board	Other	
2nd year:	Tuition and Fees $1000 *	Room and Board	Other	
3rd year:	Tuition and Fees	Room and Board	Other	
4th year:	Tuition and Fees	Room and Board	Other	

* $35.00 per credit hour

Advanced Placement or Honors Program? Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	3 %
Top Third	%	500 - 599	%	%	21 - 25	30 %
Top Half	%	400 - 499	%	%	16 - 20	42 %
Top Two Thirds	%	Below 400	%	%	Below 16	25 %

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2, Science 2 (1 with laboratory experience), Social Studies 2

Recommended Courses Chemistry

Required Test ACT Required Test Date October Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 19 69-70)

Number Awarded Scholarships 5 Scholarship Range None Average Scholarship $200

Number Awarded Loans 18 Range of Loans None Average Loan $500

Total Number Receiving Financial Aid 44 For Further Financial Aid Information Contact:

Name Eugene R. Cowling Title Director of Student Finance

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date December Deadline March 15

Deadline for Transcript and Recommendations March 15 Date of Notification to Student May 1

Financial Aid Application Deadline July 1 Notification Date July 10 Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. $50

Accreditation Reasonable Assurance by NLN, Candidate Status by NCACSS

REMARKS:

LAKELAND COMMUNITY COLLEGE

Associate degree

Mentor, Ohio 44060
Telephone No. 946-7000 Area Code 216

Person Responsible for Admissions: Name F. M. Williams
Title Director of Admissions

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 2 Women 78 Freshmen 45

Number of Applicants for Fall 1969 Freshman Class 60 No. Offered Admission 45

Length of Program 2 years Housing Not available

COSTS 1st year: Tuition and Fees $613 Room and Board _____ Other _____

2nd year: Tuition and Fees $578 Room and Board _____ Other _____

3rd year: Tuition and Fees _____ Room and Board _____ Other _____

4th year: Tuition and Fees _____ Room and Board _____ Other _____

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS: (NOT AVAILABLE)

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG _____

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements Chemistry

Recommended Courses Mathematics, Lab Science

Required Test ACT Required Test Date Prior to admission Application Fee $5

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 3 Scholarship Range $350-$600 Average Scholarship $350

Number Awarded Loans 10 Range of Loans $40-$200 Average Loan $125

Total Number Receiving Financial Aid 13 For Further Financial Aid Information Contact:

Name Mrs. Barbara Seiter Title Financial Aid Officer

Address 109 North State Street, Painesville, Ohio 44077

ADMISSION PROCEDURES

Filing Application: Suggested Date Early as possible Deadline August 1

Deadline for Transcript and Recommendations August 1 Date of Notification to Student As soon as possible

Financial Aid Application Deadline July 15 Notification Date As soon as possible Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation _____

REMARKS:

OSU-Lima Campus, 4300 Campus Drive, Lima, Ohio 45804 Associate degree
Telephone No. 228-2641 Area Code 419

Person Responsible for Admissions: Name L. A. Marquette
Title Admissions Officer

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 1 Women 48 Freshmen 49

Number of Applicants for Fall 1969 Freshman Class 75 No. Offered Admission 54

Length of Program 2 years (6 quarters) Housing Not available

COSTS

1st year:	Tuition and Fees $555	Room and Board	Other
2nd year:	Tuition and Fees $540	Room and Board	Other
3rd year:	Tuition and Fees	Room and Board	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	21%	700 and Above	%	%	30 and Above	%
Top Quarter	40%	600 - 699	%	%	26 - 29	15%
Top Third	6%	500 - 599	%	%	21 - 25	42%
Top Half	20%	400 - 499	%	%	16 - 20	38%
Top Two Thirds	13%	Below 400	%	%	Below 16	5%
NLN-PNG						

ADMISSION REQUIREMENTS

Number of Credit Units H.S. Grad. or equivalent Specific Course Requirements None

Recommended Courses Algebra I & II, Biology, Chemistry, Physics

Required Test ACT Required Test Date Prior to acceptance Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 1 Scholarship Range $180 per qtr. Average Scholarship $180 per qtr.

Number Awarded Loans 4 Range of Loans $180 per qtr. Average Loan $180 per qtr.

Total Number Receiving Financial Aid 5 For Further Financial Aid Information Contact:

Name Mr. Boyd McClaskey Title Director of Research & Development, Student Services

Address Penta Technical Institute, Oregon Road, Perrysburg, Ohio 43551

ADMISSION PROCEDURES

Filing Application: Suggested Date Fall of senior year Deadline When class is filled

Deadline for Transcript and Recommendations As soon as avail. Date of Notification to Student When all application materials are received

Financial Aid Application Deadline August 15 Notification Date August 30 Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $25

Accreditation

REMARKS:

LORAIN COUNTY COMMUNITY COLLEGE

1005 North Abbe Road, Elyria, Ohio 44035
Telephone No. 365-4191 Area Code 216

Associate degree

Person Responsible for Admissions: Name Mr. Timothy V. Boylan
Title Director of Admissions and Records

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 2 Women 91 Freshmen 75

Number of Applicants for Fall 1969 Freshman Class 75 No. Offered Admission 75

Length of Program 2 academic years Housing Not available

COSTS

1st year:	Tuition and Fees $450	Room and Board	Other $145
2nd year:	Tuition and Fees $450	Room and Board	Other $145
3rd year:	Tuition and Fees	Room and Board	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS: *

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	20 %	700 and Above	%	%	30 and Above	0 %
Top Quarter	27 %	600 - 699	%	%	26 - 29	0 %
Top Third	31 %	500 - 599	%	%	21 - 25	26 %
Top Half	17 %	400 - 499	%	%	16 - 20	43 %
Top Two Thirds	5 %	Below 400	%	%	Below 16	25 %
NLN-PNG						

* Data based on 856 Freshman

ADMISSION REQUIREMENTS

Number of Credit Units H.S. Grad. or equivalent Specific Course Requirements None

Recommended Courses Chemistry, Mathematics

Required Test CEEB or ACT Required Test Date Prior to admission Application Fee $10 nonrefundable

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 5 Scholarship Range $300-$450 Average Scholarship $350

Number Awarded Loans 35 Range of Loans $300-$600 Average Loan $500

Total Number Receiving Financial Aid 40 For Further Financial Aid Information Contact:

Name Mr. Paul F. Boguski Title Director, Financial Aid and Placement

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Fall of senior year Deadline When class is filled

Deadline for Transcript and Recommendations Prior to regis. Date of Notification to Student When admission credentials are complete

Financial Aid Application Deadline None Notification Date Varies Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. None

Accreditation NLN, Candidate Status by NCACSS

REMARKS:

MIAMI UNIVERSITY, HAMILTON CAMPUS

Associate degree

1601 Peck Boulevard, Hamilton, Ohio 45011
Telephone No. 894-3231 Area Code 513

Person Responsible for Admissions: Name Mr. T. Michael Smithson
Title Director, Admission and Records

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 44 Freshmen 32

Number of Applicants for Fall 1969 Freshman Class 70 No. Offered Admission 35

Length of Program 2 academic years Housing Not available

COSTS

1st year:	Tuition and Fees $525	Room and Board ____	Other ____
2nd year:	Tuition and Fees $525	Room and Board ____	Other ____
3rd year:	Tuition and Fees ____	Room and Board ____	Other ____
4th year:	Tuition and Fees ____	Room and Board ____	Other ____

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	24 %	700 and Above	%	%	30 and Above	%
Top Quarter	28 %	600 - 699	%	%	26 - 29	6 %
Top Third	24 %	500 - 599	%	%	21 - 25	40 %
Top Half	24 %	400 - 499	%	%	16 - 20	35 %
Top Two Thirds	4 %	Below 400	%	%	Below 16	19 %

NLN-PNG Results not available

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements ____

Recommended Courses Biology, Chemistry, Physiology, Psychology, other Natural and Behavioral Sciences

Required Test NLN-PNG, ACT Required Test Date July 15 Application Fee $15

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 2 Scholarship Range $150-$300 Average Scholarship $250

Number Awarded Loans 5 Range of Loans $150-$1000 Average Loan $500

Total Number Receiving Financial Aid Approx. 7 For Further Financial Aid Information Contact:

Name Mr. Michael Smithson Title Director, Admission and Records

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date February Deadline July 1

Deadline for Transcript and Recommendations None Date of Notification to Student As soon as records completed

Financial Aid Application Deadline March 1 Notification Date As soon as possible Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation NCACSS

REMARKS:

MIAMI UNIVERSITY, MIDDLETOWN CAMPUS *

4200 Manchester Road, Middletown, Ohio 45042
Telephone No. 422-2741 Area Code 513

Associate degree

Person Responsible for Admissions: Name Mr. David Ballard
Title Director, Admission and Records

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men _____ Women _____ Freshmen _____

Number of Applicants for Fall 1969 Freshman Class _____ No. Offered Admission _____

Length of Program 2 academic years Housing Not available

COSTS

1st year:	Tuition and Fees $525	Room and Board _____	Other _____
2nd year:	Tuition and Fees $525	Room and Board _____	Other _____
3rd year:	Tuition and Fees _____	Room and Board _____	Other _____
4th year:	Tuition and Fees _____	Room and Board _____	Other _____

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG _____

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements _____

Recommended Courses Biology, Chemistry, Physiology, Psychology, other Natural and Behavioral Sciences

Required Test NLN-PNG, ACT Required Test Date July 15 Application Fee $15

FINANCIAL AID INFORMATION (Freshmen 1969-70) **

Number Awarded Scholarships _____ Scholarship Range _____ Average Scholarship _____

Number Awarded Loans _____ Range of Loans _____ Average Loan _____

Total Number Receiving Financial Aid _____ For Further Financial Aid Information Contact:

Name Mr. David Ballard Title Director, Admission and Records

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date February Deadline July 1

Deadline for Transcript and Recommendations None Date of Notification to Student As soon as all records completed

Financial Aid Application Deadline March 1 Notification Date As soon as possible Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation NCACSS

REMARKS: * NEW SCHOOL, FALL 1970.
** Financial Aid is available.

OHIO UNIVERSITY, PORTSMOUTH

940 Second Street, Portsmouth, Ohio 45662
Telephone No. 354-3205 Area Code 614

Associate degree

Person Responsible for Admissions: Name (Miss) Gladys Scott, R.N.
Title Nursing Coordinator

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men 1 Women 28 Freshmen 29

Number of Applicants for Fall 1969 Freshman Class 70 No. Offered Admission 29

Length of Program 2 academic years (6 quarters) Housing Approved housing Not available

COSTS

1st year:	Tuition and Fees $560	Room and Board	Other $170
2nd year:	Tuition and Fees $560	Room and Board	Other $110
3rd year:	Tuition and Fees	Room and Board	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Extensive

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units H.S.Grad. or G.E.D. Specific Course Requirements Same requirements as any Freshman entering the University

Recommended Courses

Required Test NLN-PNG, CEEB Required Test Date August Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70) *

Number Awarded Scholarships 0 Scholarship Range Average Scholarship

Number Awarded Loans 0 Range of Loans Average Loan

Total Number Receiving Financial Aid 0 For Further Financial Aid Information Contact:

Name Ohio University Title Student Financial Aids

Address 14 Haning Hall, Athens, Ohio 45701

ADMISSION PROCEDURES

Filing Application: Suggested Date June Deadline July

Deadline for Transcript and Recommendations July Date of Notification to Student August

Financial Aid Application Deadline June Notification Date August Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation NCACSS

REMARKS: * Financial aids will be available. The first class was admitted September 1969.

OHIO UNIVERSITY, ZANESVILLE CAMPUS

1425 Newark Road, Zanesville, Ohio 43701 — Associate degree
Telephone No. 453-0762 Area Code 614
Ext. 29

Person Responsible for Admissions: Name Mrs. Alice Tom
Title Director, Associate Degree Nursing Program

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 1 Women 80 Freshmen 51

Number of Applicants for Fall 1969 Freshman Class 66 No. Offered Admission 51

Length of Program 2 years (6 quarters) Housing Available in the community

COSTS

1st year:	Tuition and Fees $540	Room and Board	Other $170
2nd year:	Tuition and Fees $540	Room and Board	Other $120
3rd year:	Tuition and Fees	Room and Board	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS: NOT AVAILABLE

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements

Recommended Courses English 4, Foreign Language 2, Laboratory Science 2, Mathematics 2, Social Sciences 2, Biology and Chemistry strongly recommended.

Required Test CEEB Required Test Date Flexible Application Fee $20

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 9 Scholarship Range $150-$405 Average Scholarship $215

Number Awarded Loans 3 Range of Loans $1000 Average Loan $500

Total Number Receiving Financial Aid 12 For Further Financial Aid Information Contact:

Name Mike L'Heureux Title Director, Student Financial Aid

Address Ohio University, Athens, Ohio 45701

ADMISSION PROCEDURES

Filing Application: Suggested Date Varies Deadline Varies

Deadline for Transcript and Recommendations With application Date of Notification to Student As soon as received and reviewed

Financial Aid Application Deadline Varies Notification Date 8 to 9 wks. Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. Tuition is paid quarterly

Accreditation Reasonable Assurance by NLN, Conditional Approval by NCACSS

REMARKS: All applications must first be made through Ohio University in Athens.

SINCLAIR COMMUNITY COLLEGE

117 West Monument Avenue, Dayton, Ohio 45402
Telephone No. 223-7151 Area Code 513

Associate degree

Person Responsible for Admissions: Name Mr. Larry Cannon
Title Director of Admissions and Records

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 1 Women 23 Freshmen 24

Number of Applicants for Fall 1969 Freshman Class 44 No. Offered Admission 24

Length of Program 2 academic years Housing Not available

COSTS

1st year:	Tuition and Fees $403	Room and Board	Other $35
2nd year:	Tuition and Fees $403	Room and Board	Other
3rd year:	Tuition and Fees	Room and Board	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS: (NOT AVAILABLE)

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units H.S. Grad. Specific Course Requirements Algebra 1, English 3, Lab Science 1, Social Studies 1

Recommended Courses Foreign Language 2

Required Test Psychological Corp. Required Test Date Different each semester Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70) *

Number Awarded Scholarships Scholarship Range Average Scholarship

Number Awarded Loans Range of Loans Average Loan

Total Number Receiving Financial Aid For Further Financial Aid Information Contact:

Name Mr. A. Turner Title Counselor

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date None Deadline 1 month prior to beginning of semester

Deadline for Transcript and Recommendations 1 month prior to beginning of semester Date of Notification to Student When record is reviewed and student is accepted

Financial Aid Application Deadline August 1 Notification Date None Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. None

Accreditation NCACSS

REMARKS: * Scholarships and Loans are available.

UNIVERSITY OF CINCINNATI, RAYMOND WALTERS BRANCH

9555 Plainfield Road, Cincinnati, Ohio 45236
Telephone No. 793-6010 Area Code 513

Associate degree

Person Responsible for Admissions: Name Dorothy A. Oechsler
Title Director, Associate Degree Program in Nursing

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men _____ Women 47 Freshmen 47

Number of Applicants for Fall 19 69 Freshman Class 100 No. Offered Admission 55

Length of Program 2 academic years Housing Not available

COSTS

1st year:	Tuition and Fees $600	Room and Board _____	Other $175
2nd year:	Tuition and Fees $600	Room and Board _____	Other $100
3rd year:	Tuition and Fees _____	Room and Board _____	Other _____
4th year:	Tuition and Fees _____	Room and Board _____	Other _____

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? No

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK: *		CEEB RESULTS: **	SAT-V	SAT-M	ACT COMPOSITE RESULTS: **	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	4 %	8 %	26 - 29	%
Top Third	58 %	500 - 599	32 %	20 %	21 - 25	11 %
Top Half	%	400 - 499	28 %	60 %	16 - 20	72 %
Top Two Thirds	34 %	Below 400	36 %	12 %	Below 16	17 %

NLN-PNG _____

* Based on 26 ranks
** Based on 43 test results

ADMISSION REQUIREMENTS

Number of Credit Units 10 Specific Course Requirements English 3, Mathematics 2 (Algebra I,II, Plane Geometry), Science 2 (1 must be Chemistry), Social Studies 1, Remaining units in any of above or Foreign Language

Recommended Courses College Preparatory, Physics

Required Test CEEB or ACT Required Test Date May Application Fee $15

FINANCIAL AID INFORMATION (Freshmen 19 69-70) (NOT AVAILABLE)

Number Awarded Scholarships _____ Scholarship Range _____ Average Scholarship _____

Number Awarded Loans _____ Range of Loans _____ Average Loan _____

Total Number Receiving Financial Aid 13 For Further Financial Aid Information Contact:

Name Mr. Glenn Mitchell Title Director, Student Financial Aid

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Early fall Deadline July 1

Deadline for Transcript and Recommendations July 1 Date of Notification to Student After January

Financial Aid Application Deadline March 1 Notification Date None Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation NLN, NCACSS

REMARKS:

YOUNGSTOWN STATE UNIVERSITY

410 Wick Avenue, Youngstown, Ohio 44503
Telephone No. 747-1492 Area Code 216

Associate degree

Person Responsible for Admissions: Name Gilda M. DeCapita, R.N.
Title Chairman of Nursing Department

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 4 Women 200 Freshmen 97

Number of Applicants for Fall 1969 Freshman Class 257 No. Offered Admission 144

Length of Program 2 academic years (6 quarters) Housing Available for men. Off-campus housing for women at varying costs

COSTS

1st year:	Tuition and Fees $450	Room and Board $850 *	Other $195
2nd year:	Tuition and Fees $450	Room and Board $850 *	Other $115
3rd year:	Tuition and Fees	Room and Board	Other
4th year:	Tuition and Fees	Room and Board	Other

* For men only.

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	10.3 %	700 and Above	0 %	0 %	30 and Above	1.3 %
Top Quarter	34.2 %	600 - 699	0 %	0 %	26 - 29	4.0 %
Top Third	19.6 %	500 - 599	11.2 %	55.6 %	21 - 25	32.1 %
Top Half	18.5 %	400 - 499	44.4 %	22.2 %	16 - 20	45.3 %
Top Two Thirds	11.3 %	Below 400	44.4 %	22.2 %	Below 16	17.3 %
NLN-PNG						

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements Algebra 1, Biology or Physics 1, Chemistry 1, English 3, History and/or Civics 1

Recommended Courses College Preparatory

Required Test CEEB, ACT Required Test Date As scheduled Application Fee $15

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 20 Scholarship Range $200-$1000 Average Scholarship $450

Number Awarded Loans 20 Range of Loans $200-$1050 Average Loan $600

Total Number Receiving Financial Aid 22 For Further Financial Aid Information Contact:

Name John E. Wales, III Title Director, Financial Aids

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Anytime Deadline See bulletin

Deadline for Transcript and Recommendations Prior to regis. Date of Notification to Student When application is completed

Financial Aid Application Deadline 4-6 weeks prior to regis. Notification Date When appl. is completed Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. None

Accreditation Reasonable Assurance by NLN, NCACSS

REMARKS:

AKRON CITY HOSPITAL SCHOOL OF NURSING

41 Arch Street, Akron, Ohio 44304 — Diploma
Telephone No. 376-1083 Area Code 216

Person Responsible for Admissions: Name Ella Mae Murdie, R.N.
Title Director of Nursing Education

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men _____ Women 208 Freshmen 85

Number of Applicants for Fall 19 69 Freshman Class 137 No. Offered Admission 87

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees $630	Room and Board $318	Other $143
2nd year:	Tuition and Fees $417	Room and Board $105	Other $ 36
3rd year:	Tuition and Fees $272	Room and Board $133	Other $201
4th year:	Tuition and Fees $189	Room and Board $ 80	Other $ 15

Advanced Placement or Honors Program? No Employment Opportunities? No

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	13 %	700 and Above	%	%	30 and Above	%
Top Quarter	32 %	600 - 699	%	%	26 - 29	%
Top Third	19 %	500 - 599	%	%	21 - 25	%
Top Half	33 %	400 - 499	%	%	16 - 20	%
Top Two Thirds	3 %	Below 400	%	%	Below 16	%

NLN-PNG _____

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Biological or Physical Science 2 (Chemistry required), Mathematics 2 (Algebra required), Social Studies 2

Recommended Courses Physics

Required Test N.E. Ohio Guidance Required Test Date As soon as possible after junior year Application Fee $10 appl. fee $15 regis. fee

FINANCIAL AID INFORMATION (Freshmen 19 69-70)

Number Awarded Scholarships 13 Scholarship Range $100-$2539 Average Scholarship $450

Number Awarded Loans 27 Range of Loans $300-$1200 Average Loan $950

Total Number Receiving Financial Aid 34 For Further Financial Aid Information Contact:

Name Ella Mae Murdie Title Director of Nursing Education

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date As soon as possible--jr.-sr. year Deadline August 15

Deadline for Transcript and Recommendations August 15 Date of Notification to Student when application is complete

Financial Aid Application Deadline June 1 Notification Date July Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $50

Accreditation NLN

REMARKS: Affiliations: 35 quarter hours at The University of Akron

AKRON GENERAL HOSPITAL SCHOOL OF NURSING

Diploma

400 Wabash Avenue, Akron, Ohio 44307
Telephone No. 375-6700 Area Code 216

Person Responsible for Admissions: Name (Miss) Marjorie Grandon, R.N.
Title Dean

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 5 Women 120 Freshmen 44

Number of Applicants for Fall 1969 Freshman Class 83 No. Offered Admission 65

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees $789	Room and Board $165 *	Other * *
2nd year:	Tuition and Fees $395	Room and Board $220 *	Other
3rd year:	Tuition and Fees $395	Room and Board $220 *	Other $134
4th year:	Tuition and Fees	Room and Board	Other

* Room only. ** Books purchased as needed.

Advanced Placement or Honors Program? Yes, both *** Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	23 %	700 and Above	%	%	30 and Above	%
Top Quarter	21 %	600 - 699	%	%	26 - 29 NOT	%
Top Third	23 %	500 - 599	%	%	21 - 25 AVAILABLE	%
Top Half	23 %	400 - 499	%	%	16 - 20	%
Top Two Thirds	10 %	Below 400	%	%	Below 16	%

NLN-PNG See page 65

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2 (Algebra required), Science 2 (Chemistry required), Social Studies (History and/or Government)

Recommended Courses Advanced Algebra, Geometry, Biology, General Science, Physics, Social Studies.

Required Test NLN-PNG, ACT recommended Required Test Date Prior to accept. Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 3 Scholarship Range $50-$400 Average Scholarship $250

Number Awarded Loans 9 Range of Loans $149-$959 Average Loan $510

Total Number Receiving Financial Aid 12 For Further Financial Aid Information Contact:

Name (Miss) Marjorie Grandon, R.N. Title Dean

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Early senior year Deadline None

Deadline for Transcript and Recommendations None Date of Notification to Student When forms received

Financial Aid Application Deadline None Notification Date When processed Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $50 nonrefundable

Accreditation NLN

REMARKS: ***Available to qualified students presenting transferrable college credits. Affiliations: 39 credit hours at University of Akron (basic science and social science courses).

AULTMAN HOSPITAL SCHOOL OF NURSING

Diploma

2614 Sixth Street, S.W., Canton, Ohio 44710
Telephone No. 452-9911 Area Code 216

Person Responsible for Admissions: Name Jean Boyd, R.N.
Title Director, Nursing Education

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men _____ Women 215 Freshmen 83

Number of Applicants for Fall 1969 Freshman Class 151 No. Offered Admission 97

Length of Program 3 academic years and 1 summer session Housing Available

COSTS

1st year:	Tuition and Fees $860	Room and Board 00	Other $245
2nd year:	Tuition and Fees $255	Room and Board 00	Other $ 40
3rd year:	Tuition and Fees $250	Room and Board 00	Other $ 70
4th year:	Tuition and Fees _____	Room and Board _____	Other _____

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	20.4%	700 and Above	%	%	30 and Above	%
Top Quarter	30.1%	600 - 699	%	%	26 - 29	12 %
Top Third	20.4%	500 - 599	%	%	21 - 25	42 %
Top Half	17.0%	400 - 499	%	%	16 - 20	41 %
Top Two Thirds	12.1%	Below 400	%	%	Below 16	5 %

NLN-PNG See page 65

ADMISSION REQUIREMENTS

Number of Credit Units 17 Specific Course Requirements English 3 (4 preferred), Mathematics 2, Science 2 (Chemistry required), Social Studies 2, Electives 8

Recommended Courses Food and Nutrition, Foreign Language, Speech, Typing

Required Test NLN-PNG, ACT Required Test Date Before acceptance Application Fee $10 Aultman
$25 Kent State University

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 7 Scholarship Range $100-$1700 Average Scholarship $770

Number Awarded Loans 23 Range of Loans $780-$1284 Average Loan $1000

Total Number Receiving Financial Aid 30 For Further Financial Aid Information Contact:

Name Jean Boyd, R.N. Title Director, Nursing Education

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Early fall of senior year Deadline None

Deadline for Transcript and Recommendations None Date of Notification to Student Immediately after acceptance

Financial Aid Application Deadline After acceptance Notification Date As soon as possible Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $50 nonrefundable

Accreditation NLN

REMARKS: Affiliation: 43 credit hours at Kent State University, Stark County Branch.

BETHESDA HOSPITAL SCHOOL OF NURSING

Oak Street, Cincinnati, Ohio 45206
Telephone No. 961-0966 Area Code 513

Diploma

Person Responsible for Admissions: Name Miss Geneva Rubins
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 1 Women 132 Freshmen 53

Number of Applicants for Fall 1969 Freshman Class 225 No. Offered Admission 70

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees $486	Room and Board $300	Other $180
2nd year:	Tuition and Fees $431	Room and Board $225	Other $ 25
3rd year:	Tuition and Fees $351	Room and Board $225	Other $ 15
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 15 Specific Course Requirements English 4, Mathematics 1, Science with Lab 2 (Chemistry required), Social Studies 2 (American History required), Electives 6

Recommended Courses Algebra

Required Test Psychological Corp. Required Test Date May Application Fee $5

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 11 Scholarship Range $200 Average Scholarship $200

Number Awarded Loans 13 Range of Loans $400-$1500 Average Loan $800

Total Number Receiving Financial Aid 24 For Further Financial Aid Information Contact:

Name Miss Geneva Rubins Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Fall of senior year Deadline May

Deadline for Transcript and Recommendations With application Date of Notification to Student As soon as decision made by Admissions Comm.

Financial Aid Application Deadline May Notification Date June Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $25

Accreditation NLN

REMARKS:

THE CHRIST HOSPITAL SCHOOL OF NURSING

2139 Auburn Avenue, Cincinnati, Ohio 45219
Telephone No. 421-9600 Area Code 513

Diploma

Person Responsible for Admissions: Name Helen M. Williamson, R.N.
Title Director of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 134 Freshmen 49

Number of Applicants for Fall 1969 Freshman Class 92 No. Offered Admission 78

Length of Program Approximately 33 months Housing Available

COSTS

1st year:	Tuition and Fees $1018	Room and Board $300	Other $126
2nd year:	Tuition and Fees $ 304	Room and Board $225	Other $ 41
3rd year:	Tuition and Fees $ 227	Room and Board $225	Other $ 31
4th year:	Tuition and Fees ____	Room and Board ____	Other ____

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	33 %	700 and Above	%	%	30 and Above	%
Top Quarter	14 %	600 - 699	%	%	26 - 29	%
Top Third	16 %	500 - 599	%	%	21 - 25	%
Top Half	27 %	400 - 499	%	%	16 - 20	%
Top Two Thirds	10 %	Below 400	%	%	Below 16	%

NLN-PNG See page 65

ADMISSION REQUIREMENTS

Number of Credit Units 15 Specific Course Requirements Algebra 1, Geometry 1, Biological or Physical Science 2 (Chemistry required), English 4, American History 1, Government 1

Recommended Courses Foreign Language

Required Test NLN-PNG Required Test Date As soon as possible Application Fee $2

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 8 Scholarship Range $600 - Full Tuition Average Scholarship $600

Number Awarded Loans None Range of Loans None Average Loan None

Total Number Receiving Financial Aid 8 For Further Financial Aid Information Contact:

Name Helen M. Williamson, R.N. Title Director of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Early Fall Deadline June

Deadline for Transcript and Recommendations With application Date of Notification to Student 2 weeks after test results rec.

Financial Aid Application Deadline June Notification Date June Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $25 nonrefundable

Accreditation NLN

REMARKS: Affiliations: 30 credit hours at University of Cincinnati (basic science courses).

CLEVELAND METROPOLITAN GENERAL HOSPITAL SCHOOL OF NURSING

Diploma

1803 Valentine Avenue, Cleveland, Ohio 44109
Telephone No. 351-2857 Area Code 216

Person Responsible for Admissions: Name Florence Apltauer, R.N.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 2 Women 101 Freshmen 47

Number of Applicants for Fall 1969 Freshman Class 77 No. Offered Admission 60

Length of Program 32 months Housing Available

COSTS

1st year:	Tuition and Fees $655	Room and Board	Other $500
2nd year:	Tuition and Fees $200	Room and Board	Other $100
3rd year:	Tuition and Fees $225	Room and Board	Other $ 75
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	4.2 %	700 and Above	%	%	30 and Above	%
Top Quarter	21.4 %	600 - 699	%	%	26 - 29	8.1 %
Top Third	14.9 %	500 - 599	%	%	21 - 25	29.8 %
Top Half	21.4 %	400 - 499	%	%	16 - 20	37.8 %
Top Two Thirds	12.6 %	Below 400	%	%	Below 16	24.3 %

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements Biology, General Science or Physics 1, Social Science 1, Chemistry 1, English 4, Mathematics 1, American History or Problems of American Democracy 1

Recommended Courses Additional Science and Mathematics

Required Test ACT Required Test Date Before May 1 Application Fee $15

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 14 Scholarship Range $200-$800 Average Scholarship $565

Number Awarded Loans 26 Range of Loans $300-$1200 Average Loan $850

Total Number Receiving Financial Aid 31 For Further Financial Aid Information Contact:

Name Florence Apltauer, R.N. Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date January Deadline June 1

Deadline for Transcript and Recommendations June 15 Date of Notification to Student As soon as possible

Financial Aid Application Deadline August 1 Notification Date September Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation NLN

REMARKS: Affiliations: 41 credits at Cuyahoga Community College, Metropolitan Campus.

COMMUNITY HOSPITAL OF SPRINGFIELD AND CLARK COUNTY SCHOOL OF NURSING

2615 East High Street, Box 1228, Springfield, Ohio 45501 Diploma
Telephone No. 323-5531 Area Code 513

Person Responsible for Admissions: Name Louise D. Carroll, R.N.
Title Executive Director, Nursing

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men ____ Women 170 Freshmen 67

Number of Applicants for Fall 19 69 Freshman Class 150 No. Offered Admission 80

Length of Program 33 months (11 quarters) Housing Available

COSTS

1st year:	Tuition and Fees $930	Room and Board $230 *	Other ____
2nd year:	Tuition and Fees $490	Room and Board $260 *	Other ____
3rd year:	Tuition and Fees $370	Room and Board $ 65 *	Other ____
4th year:	Tuition and Fees ____	Room and Board ____	Other ____

* Room only.

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	13%
Top Third	%	500 - 599	%	%	21 - 25	36%
Top Half	%	400 - 499	%	%	16 - 20	42%
Top Two Thirds	%	Below 400	%	%	Below 16	9%

NLN-PNG ____

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 3 to 4, Mathematics 2, Social Studies 2, Science 2

Recommended Courses Chemistry, Physics

Required Test ACT Required Test Date June Application Fee None

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 24 Scholarship Range $100-$1500 Average Scholarship $575

Number Awarded Loans 16 Range of Loans $200-$1140 Average Loan $610

Total Number Receiving Financial Aid 40 For Further Financial Aid Information Contact:

Name Martha J. Stuckey Title Coordinator of Student Affairs

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date October Deadline June

Deadline for Transcript and Recommendations June Date of Notification to Student Early Winter

Financial Aid Application Deadline February Notification Date August Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation NLN

REMARKS: Affiliations: 53 credits at Central State University, Wilberforce, Ohio.

DEACONESS HOSPITAL SCHOOL OF NURSING

Diploma

415 Straight Street, Cincinnati, Ohio 45219
Telephone No. 861-6600 Area Code 513
Ext. 304

Person Responsible for Admissions: Name (Miss) Lina Drake, R.N.
Title Director

DESCRIPTIVE INFORMATION *

Number of Fall 1969 Students: Men ____ Women 99 Freshmen 37

Number of Applicants for Fall 1969 Freshman Class 72 No. Offered Admission 49

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees $600	Room and Board $300	Other ____
2nd year:	Tuition and Fees $630	Room and Board $300	Other ____
3rd year:	Tuition and Fees $505	Room and Board $225	Other ____
4th year:	Tuition and Fees ____	Room and Board ____	Other ____

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	10 %	700 and Above	%	%	30 and Above	%
Top Quarter	30 %	600 - 699	%	%	26 - 29	%
Top Third	14 %	500 - 599	%	%	21 - 25	%
Top Half	38 %	400 - 499	%	%	16 - 20	%
Top Two Thirds	8 %	Below 400	%	%	Below 16	%

NLN-PNG ____

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements Biology 1, Chemistry 1, English 4, Mathematics 2 (1 in Algebra), Social Studies 2

Recommended Courses Foreign Language, Physics

Required Test ACT Required Test Date By February Application Fee $5

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 0 Scholarship Range 0 Average Scholarship 0

Number Awarded Loans 19 Range of Loans $500-$1000 Average Loan $700

Total Number Receiving Financial Aid 19 For Further Financial Aid Information Contact:

Name Lina Drake, R.N. Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date September Deadline April

Deadline for Transcript and Recommendations April Date of Notification to Student 1 week after application completed

Financial Aid Application Deadline May Notification Date June Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $60

Accreditation NLN

REMARKS: * Classes start in June.
Affiliations: 50 credits at University of Cincinnati.

EAST LIVERPOOL CITY HOSPITAL SCHOOL OF NURSING

425 West Fifth Street, East Liverpool, Ohio 43920 — Diploma
Telephone No. 385-7200 Area Code 216

Person Responsible for Admissions: Name Lillian L. Ammon
Title Director of the School

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 52 Freshmen 25

Number of Applicants for Fall 1969 Freshman Class 32 No. Offered Admission 28

Length of Program 150 weeks Housing Available

COSTS

1st year:	Tuition and Fees $600	Room and Board 00	Other $245
2nd year:	Tuition and Fees $300	Room and Board 00	Other
3rd year:	Tuition and Fees $300	Room and Board 00	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	10%	600 - 699	%	%	26 - 29	10%
Top Third	30%	500 - 599	%	%	21 - 25	70%
Top Half	60%	400 - 499	%	%	16 - 20	20%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG See page 65

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2, Science 2, Chemestry 1, Social Science 2

Recommended Courses Physics

Required Test NLN-PNG, ACT Required Test Date July 15 Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 4 Scholarship Range $150-$300 Average Scholarship $300

Number Awarded Loans 15 Range of Loans $300-$600 Average Loan $600

Total Number Receiving Financial Aid 19 For Further Financial Aid Information Contact:

Name Lillian L. Ammon Title Director of the School

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date January Deadline July 15

Deadline for Transcript and Recommendations August 15 Date of Notification to Student Early as possible

Financial Aid Application Deadline July 15 Notification Date ____ Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $35

Accreditation NLN

REMARKS: Affiliation: 37 credits at Kent State University, East Liverpool Branch.

Elyria, Ohio 44035 Diploma
Telephone No. 322-3221 Area Code 216

Person Responsible for Admissions: Name Mrs. Gilda R. Gill
Title Office Manager/Registrar

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 6 Women 107 Freshmen 50

Number of Applicants for Fall 1969 Freshman Class 80 No. Offered Admission 61

Length of Program 32 months Housing Available

COSTS

1st year:	Tuition and Fees $1410	Room and Board $225	Other
2nd year:	Tuition and Fees $ 480	Room and Board $300	Other
3rd year:	Tuition and Fees $ 360	Room and Board $225	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	20%	700 and Above	%	%	30 and Above	%
Top Quarter	22%	600 - 699	4 %	4%	26 - 29	%
Top Third	26%	500 - 599	14 %	6%	21 - 25	%
Top Half	28%	400 - 499	51 %	61%	16 - 20	%
Top Two Thirds	4%	Below 400	31 %	29%	Below 16	%
NLN-PNG						

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements Algebra 1, Biology 1, Chemistry with Lab 1, English 4, History or Social Studies 2

Recommended Courses Geometry, Physics

Required Test CEEB, OSUPT Required Test Date Early senior year Application Fee None

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 7 Scholarship Range $100-$800 Average Scholarship $500

Number Awarded Loans 0 Range of Loans 0 Average Loan 0

Total Number Receiving Financial Aid 25 For Further Financial Aid Information Contact:

Name Margaret A. Krapp, R.N. Title Director of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date September Deadline June

Deadline for Transcript and Recommendations June 15 Date of Notification to Student Immediately after acceptance

Financial Aid Application Deadline July 15 Notification Date Immediately after acceptance Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $25

Accreditation NLN

REMARKS: Affiliations: 23 semester hour credits at Ashland College.

FAIRVIEW GENERAL HOSPITAL SCHOOL OF NURSING

Diploma

18101 Lorain Avenue, Cleveland, Ohio 44111
Telephone No. 252-1222 Area Code 216

Person Responsible for Admissions: Name Gayle Repschlager
Title Registrar

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 2 Women 139 Freshmen 51

Number of Applicants for Fall 1969 Freshman Class 128 No. Offered Admission 71

Length of Program 3 academic years (27 months) Housing Available for men and women

COSTS

1st year:	Tuition and Fees $420	Room and Board $270 *	Other $120
2nd year:	Tuition and Fees $240	Room and Board $270 *	Other $100
3rd year:	Tuition and Fees $240	Room and Board $270 *	Other $ 30
4th year:	Tuition and Fees	Room and Board	Other

* Room only.

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	14 %
Top Third	%	500 - 599	%	%	21 - 25	57 %
Top Half	100 %	400 - 499	%	%	16 - 20	29 %
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG Results not available

ADMISSION REQUIREMENTS

Number of Credit Units H.S. Grad. Specific Course Requirements 2 years of College Preparatory, Mathematics and Science

Recommended Courses Additional Mathematics and Science

Required Test NLN-PNG, ACT Required Test Date Early senior year Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships None Scholarship Range Average Scholarship

Number Awarded Loans 7 Range of Loans $150-$263 Average Loan $200

Total Number Receiving Financial Aid 15 For Further Financial Aid Information Contact:

Name Gayle Repschlager Title Registrar

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Early fall Deadline Spring

Deadline for Transcript and Recommendations Spring Date of Notification to Student 2 weeks after receipt of all credentials

Financial Aid Application Deadline After acceptance Notification Date Quarterly Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $25 nonrefundable

Accreditation NLN

REMARKS: Affiliation: 41 quarter hours at Cuyahoga Community College, Western Campus, or college of choice, for first year of college subjects (basic science courses).

3350 Collingwood Boulevard, Toledo, Ohio 43610 Diploma
Telephone No. 244-3711 Area Code 419

Person Responsible for Admissions: Name Miss Dorcas Crossman, R.N.
Title Director

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 84 Freshmen 33

Number of Applicants for Fall 1969 Freshman Class 106 No. Offered Admission 38

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees $1194	Room and Board ____	Other ____
2nd year:	Tuition and Fees $ 664	Room and Board ____	Other ____
3rd year:	Tuition and Fees $ 469	Room and Board ____	Other ____
4th year:	Tuition and Fees ____	Room and Board ____	Other ____

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	33 %	700 and Above	%	%	30 and Above	%
Top Quarter	33 %	600 - 699	%	%	26 - 29	%
Top Third	33 %	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG Results not available

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 3-4, Mathematics 1, Science 2, Social Science 2, Electives 8

Recommended Courses American History, American Government, Chemistry, Physics

Required Test NLN-PNG Required Test Date Varies Application Fee None

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 7 Scholarship Range $100-$1015 Average Scholarship $453

Number Awarded Loans 3 Range of Loans $929-$1015 Average Loan $972

Total Number Receiving Financial Aid 10 For Further Financial Aid Information Contact:

Name Admissions Office Title ____

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Junior year Deadline Until quota reached

Deadline for Transcript and Recommendations Immediately after graduation Date of Notification to Student As soon as approved

Financial Aid Application Deadline Varies Notification Date Varies Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $25

Accreditation NLN

REMARKS: Affiliations: 30 credits at University of Toledo (basic science).

GOOD SAMARITAN HOSPITAL SCHOOL OF NURSING

Cincinnati, Ohio 45220
Telephone No. 872-2493 Area Code 513

Diploma

Person Responsible for Admissions: Name Miss Jacqueline Boothe
Title Director of Nursing Education

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 2 Women 207 Freshmen 83

Number of Applicants for Fall 1969 Freshman Class 151 No. Offered Admission 83

Length of Program 3 years Housing Available

COSTS

1st year:	Tuition and Fees $425	Room and Board $250 *	Other $132
2nd year:	Tuition and Fees $300	Room and Board $250 *	Other $ 30
3rd year:	Tuition and Fees $320	Room and Board $250 *	Other $ 30
4th year:	Tuition and Fees	Room and Board	Other

* Room only.

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	20 %	700 and Above	%	%	30 and Above	%
Top Quarter	42 %	600 - 699	6 %	1 %	26 - 29 NOT	%
Top Third	18 %	500 - 599	21 %	29 %	21 - 25 AVAILABLE	%
Top Half	14 %	400 - 499	57 %	56 %	16 - 20	%
Top Two Thirds	6 %	Below 400	16 %	14 %	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, History 2, Mathematics 2, Science 2 (Chemistry required)

Recommended Courses

Required Test CEEB or ACT Psychological Corporation Test Required Test Date As scheduled Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 12 Scholarship Range $675-$1075 Average Scholarship $675

Number Awarded Loans 25 Range of Loans $300-$1000 Average Loan $798

Total Number Receiving Financial Aid 37 For Further Financial Aid Information Contact:

Name Miss Jacqueline Boothe Title Director of Nursing Education

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date September of senior year Deadline February

Deadline for Transcript and Recommendations June Date of Notification to Student 4 weeks after second test is taken

Financial Aid Application Deadline March 1 Notification Date May 1 Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. $25

Accreditation NLN

REMARKS:

1425 West Fairview Avenue, Dayton, Ohio 45406 Diploma
Telephone No. 278-2612 Area Code 513

Person Responsible for Admissions: Name Sister Ann Seton
Title Director

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 3 Women 191 Freshmen 86

Number of Applicants for Fall 1969 Freshman Class 200 No. Offered Admission 90

Length of Program 27 months (9 quarters) Housing Available

COSTS 1st year: Tuition and Fees $1004 * Room and Board $550 Other

2nd year: Tuition and Fees $ 686 * Room and Board $550 Other

3rd year: Tuition and Fees $ 130 * Room and Board $100 Other

4th year: Tuition and Fees Room and Board Other

* Includes books and uniforms

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	17 %	700 and Above	%	%	30 and Above	%
Top Quarter	28 %	600 - 699	%	%	26 - 29	%
Top Third	20 %	500 - 599	%	%	21 - 25	%
Top Half	22 %	400 - 499	%	%	16 - 20	%
Top Two Thirds	10 %	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2, Science 2 (Chemistry required)

Recommended Courses

Required Test ACT *, Psychological Corp. Required Test Date None Application Fee $5

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 6 plus 15 NEOG Grants Scholarship Range $400-$800 Average Scholarship $600

Number Awarded Loans 35 Range of Loans $300-$1500 Average Loan $1200

Total Number Receiving Financial Aid 50 For Further Financial Aid Information Contact:

Name Sister Ann Seton Title Director

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Fall Deadline None

Deadline for Transcript and Recommendations Prior to acceptance Date of Notification to Student 6—8 weeks after taking 2nd test

Financial Aid Application Deadline Filed after acceptance Notification Date May Personal Interview Required No, but recommended

Amount of Deposit for Tuition, Room, etc. $10 within 1 month after acceptance

Accreditation NLN

REMARKS: Affiliations: 52 credit hours at Sinclair Community College.
* Used for class admitted June 1970.

GOOD SAMARITAN SCHOOL OF NURSING

Diploma

730 Laurel Avenue, Zanesville, Ohio 43701
Telephone No. 452-3644 Area Code 614
Ext. 293

Person Responsible for Admissions: Name Sister M. St. Barbara
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 89 Freshmen 27

Number of Applicants for Fall 1969 Freshman Class 50 No. Offered Admission 37

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees $630	Room and Board $650	Other $176
2nd year:	Tuition and Fees $132	Room and Board $650	Other $ 30
3rd year:	Tuition and Fees $170	Room and Board $650	Other $ 43
4th year:	Tuition and Fees ____	Room and Board ____	Other ____

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS: NOT AVAILABLE

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG ____

ADMISSION REQUIREMENTS

Number of Credit Units 15 Specific Course Requirements English 4, Mathematics 2, Biological and Physical Sciences 2, Chemistry, Social Studies 2

Recommended Courses Journalism, Latin, Physics, Public Speaking, Typing

Required Test ACT Required Test Date May Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 8 Scholarship Range $650 Average Scholarship $650

Number Awarded Loans 9 Range of Loans $200-$600 Average Loan $475

Total Number Receiving Financial Aid 17 For Further Financial Aid Information Contact:

Name Sister M. St. Barbara Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date January Deadline June 1

Deadline for Transcript and Recommendations July 1 Date of Notification to Student As soon as accepted by Admissions Comm.

Financial Aid Application Deadline June 1 Notification Date June 15 Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. In full at beginning of semester

Accreditation NLN

REMARKS: Affiliations: 20 credits at Muskingum College, New Concord, Ohio (physical and social science courses, english).

308 East Town Street, Columbus, Ohio 43215 Diploma
Telephone No. 221-6451 Area Code 614
Ext. 202

Person Responsible for Admissions: Name (Miss) Norma R. Dusi, R.N.
Title Associate Director

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men _____ Women 131 Freshmen 66

Number of Applicants for Fall 1969 Freshman Class 165 No. Offered Admission 77

Length of Program 33 months (11 quarters) Housing Required to live in, unless married or older student

COSTS

1st year:	Tuition and Fees $856	Room and Board $816	Other $242
2nd year:	Tuition and Fees $826	Room and Board $816	Other $ 21
3rd year:	Tuition and Fees $650	Room and Board $324	Other $ 10
4th year:	Tuition and Fees _____	Room and Board _____	Other _____

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	18%	700 and Above	%	%	30 and Above	%
Top Quarter	32%	600 - 699	%	%	26 - 29	12 %
Top Third	17%	500 - 599	%	%	21 - 25	54 %
Top Half	18%	400 - 499	%	%	16 - 20	34 %
Top Two Thirds	15%	Below 400	%	%	Below 16	%

NLN-PNG _____

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2, Biological Science 2 (Chemistry required), Social Studies 2

Recommended Courses College Preparatory

Required Test ACT Required Test Date Before May 1 Application Fee None
Acceptance Fee $15

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 0 Scholarship Range 0 Average Scholarship 0

Number Awarded Loans 30 Range of Loans $800-$1500 Average Loan $1000

Total Number Receiving Financial Aid 40 For Further Financial Aid Information Contact:

Name Norma R. Dusi, R.N. Title Associate Director

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date September of senior year Deadline May 1

Deadline for Transcript and Recommendations 1 month after application Date of Notification to Student Approx. 2 weeks after interview

Financial Aid Application Deadline July 1 Notification Date August Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation NLN

REMARKS:

HOLZER MEDICAL CENTER SCHOOL OF NURSING

Diploma

514 First Avenue, Gallipolis, Ohio 45631
Telephone No. 446-2244 Area Code 614
Ext. 341

Person Responsible for Admissions: Name Berenice D. Skehan
Title Director, Nursing Education

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men _____ Women 80 Freshmen 34

Number of Applicants for Fall 1969 Freshman Class 69 No. Offered Admission 37

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees	$652	Room and Board	$340	Other	$247
2nd year:	Tuition and Fees	$699	Room and Board	$255	Other	$ 57
3rd year:	Tuition and Fees	$377	Room and Board	$255	Other	$ 30
4th year:	Tuition and Fees		Room and Board		Other	

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	25%	700 and Above	%	%	30 and Above	%
Top Quarter	55%	600 - 699	%	%	26 - 29	%
Top Third	11%	500 - 599	%	%	21 - 25	%
Top Half	9%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG See page 66

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements Algebra 1, English 3, Social Studies 1, Chemistry and Biology 2

Recommended Courses Additional units in the required subjects.

Required Test NLN-PNG or CEEB or ACT Required Test Date June 1 Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 13 Scholarship Range $250-$500 Average Scholarship $350

Number Awarded Loans 6 Range of Loans $250-$500 Average Loan $391

Total Number Receiving Financial Aid 13 For Further Financial Aid Information Contact:

Name Berenice D. Skehan Title Director, Nursing Education

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Fall Deadline June 1

Deadline for Transcript and Recommendations July 1 Date of Notification to Student When records are complete and received by school.

Financial Aid Application Deadline July 1 Notification Date August 10 Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation NLN

REMARKS: Affiliations: 33 credits at Off-Campus Division of Ohio University (English, Chemistry, Psychology, Sociology, Marriage and Family Living).

HURON ROAD HOSPITAL SCHOOL OF NURSING

Diploma

13951 Terrace Road, Cleveland, Ohio 44112
Telephone No. 851-7000 Area Code 216

Person Responsible for Admissions: Name Mary Margaret Miller, R.N.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men 1 Women 74 Freshmen 35

Number of Applicants for Fall 19 69 Freshman Class 112 No. Offered Admission 49

Length of Program 3 academic years (27 months) Housing Available

COSTS

1st year:	Tuition and Fees $600	Room and Board $450	Other (Books & Uniforms)
2nd year:	Tuition and Fees $300	Room and Board $100	Other
3rd year:	Tuition and Fees $300	Room and Board $100	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	14 %	700 and Above	%	%	30 and Above	%
Top Quarter	37 %	600 - 699 NOT	%	%	26 - 29	%
Top Third	3 %	500 - 599 AVAILABLE	%	%	21 - 25	%
Top Half	32 %	400 - 499	%	%	16 - 20	%
Top Two Thirds	14 %	Below 400	%	%	Below 16	%

NLN-PNG See page 66

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 1, Science 2 Chemistry with Lab required), Social Science 2 (American History required)

Recommended Courses The remaining units should not exceed 3 of commercial or applied arts

Required Test NLN-PNG, CEEB Required Test Date Prior to Aug. 1 Application Fee $5

FINANCIAL AID INFORMATION (Freshmen 19 69-70)

Number Awarded Scholarships 8 Scholarship Range $100-$1150 Average Scholarship $500

Number Awarded Loans 3 Range of Loans $350-$1050 Average Loan $633

Total Number Receiving Financial Aid 11 For Further Financial Aid Information Contact:

Name Mary Margaret Miller Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Prior to June 1 Deadline August 1

Deadline for Transcript and Recommendations August 15 Date of Notification to Student 2 weeks after application is complete

Financial Aid Application Deadline July 1 Notification Date August 15 Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $25

Accreditation NLN

REMARKS: Affiliations: 40 quarter hour credits at Cleveland State University (science and liberal arts).

THE JEWISH HOSPITAL OF CINCINNATI SCHOOL OF NURSING

3161 Harvey Avenue, Cincinnati, Ohio 45229
Telephone No. 872-3545 Area Code 513

Diploma

Person Responsible for Admissions: Name Helen J. Rigdon, R.N.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 3 Women 105 Freshmen 54

Number of Applicants for Fall 1969 Freshman Class 124 No. Offered Admission 75

Length of Program 2 years (1 calendar; 1 academic) Housing Available

COSTS

1st year:	Tuition and Fees $637	Room and Board *	Other $245
2nd year:	Tuition and Fees $458	Room and Board *	Other $ 40
3rd year:	Tuition and Fees	Room and Board	Other
4th year:	Tuition and Fees	Room and Board	Other

* Meals provided by school. Room optional at $163 per semester (five semesters).

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	6%	700 and Above	%	%	30 and Above	%
Top Quarter	40%	600 - 699	%	%	26 - 29	%
Top Third	16%	500 - 599	%	%	21 - 25	%
Top Half	24%	400 - 499	%	%	16 - 20	%
Top Two Thirds	14%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2 (Algebra required), Science 2 (Chemistry required), Social Studies 2 (American History required)

Recommended Courses Additional Science, Mathematics and Foreign Language

Required Test Psychological Corporation Entrance Examination Required Test Date At time application is filed Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships None Scholarship Range Average Scholarship

Number Awarded Loans 32 Range of Loans $400-$1500 Average Loan $950

Total Number Receiving Financial Aid 32 For Further Financial Aid Information Contact:

Name Helen J. Rigdon, R.N. Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date October 1 Deadline July 1

Deadline for Transcript and Recommendations July 1 Date of Notification to Student As soon as application completed and processed

Financial Aid Application Deadline None Notification Date As soon as possible Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $50

Accreditation NLN

REMARKS:

LUTHERAN HOSPITAL SCHOOL OF NURSING

Diploma

2609 Franklin Boulevard, Cleveland, Ohio 44113
Telephone No. 771-4200 Area Code 216

Person Responsible for Admissions: Name Margaret Kirschbaum, R.N.
Title Director of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men _____ Women 90 Freshmen 40

Number of Applicants for Fall 19 69 Freshman Class _____ No. Offered Admission _____

Length of Program 34 months Housing Available

COSTS

1st year:	Tuition and Fees $850	Room and Board $320	Other
2nd year:	Tuition and Fees $320	Room and Board $320	Other
3rd year:	Tuition and Fees $270	Room and Board $320	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? Yes

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	6 %	%	26 - 29	%
Top Third	%	500 - 599	43 %	40 %	21 - 25	%
Top Half	%	400 - 499	45 %	43 %	16 - 20	%
Top Two Thirds	%	Below 400	6 %	17 %	Below 16	%

NLN-PNG See page 66

ADMISSION REQUIREMENTS

Number of Credit Units 15 Specific Course Requirements _____

Recommended Courses Chemistry, Academic curriculum preferred

Required Test NLN-PNG, CEEB Required Test Date By April Application Fee $25

FINANCIAL AID INFORMATION (Freshmen 19 69-70)

Number Awarded Scholarships 7 Scholarship Range $300-$1800 Average Scholarship $700

Number Awarded Loans 13 Range of Loans $500-$1170 Average Loan $1000

Total Number Receiving Financial Aid 20 For Further Financial Aid Information Contact:

Name Margaret Kirschbaum, R.N. Title Director of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date September Deadline April

Deadline for Transcript and Recommendations April Date of Notification to Student 1 month after completion of appli.

Financial Aid Application Deadline July 1 Notification Date August Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation NLN

REMARKS: Affiliations: Valparaiso University.

MANSFIELD GENERAL HOSPITAL SCHOOL OF NURSING

Diploma

335 Glessner Avenue, Mansfield, Ohio 44903
Telephone No. 522-3411 Area Code 419
Ext. 282

Person Responsible for Admissions: Name (Mrs.) Virginia B. Uhl, R.N.
Title Director

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 2 Women 84 Freshmen 39

Number of Applicants for Fall 1969 Freshman Class 71 No. Offered Admission 50

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees $825	Room and Board $275	Other
2nd year:	Tuition and Fees $410	Room and Board $300	Other
3rd year:	Tuition and Fees $331	Room and Board $225	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	100 %	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements Algebra, Biology, Chemistry, English 4, Social Science 2

Recommended Courses Mathematics, Physics

Required Test ACT * Required Test Date Before May 1 Application Fee None

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 13 Scholarship Range $250-$1500 Average Scholarship $500

Number Awarded Loans 13 Range of Loans $250-$800 Average Loan $400

Total Number Receiving Financial Aid 15 For Further Financial Aid Information Contact:

Name (Mrs.) Virginia B. Uhl, R.N. Title Director

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date January Deadline June 15

Deadline for Transcript and Recommendations July 1 Date of Notification to Student When application reviewed

Financial Aid Application Deadline July 1 Notification Date August 1 Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $10

Accreditation NLN

REMARKS: Affiliations: 20 credit hours at Ohio State University, Mansfield Campus (Chemistry, Sociology, Psychology).
* Used for class admitted June 1970.

MASSILLON CITY HOSPITAL SCHOOL OF NURSING

Diploma

876 Amherst Road, N.E., Massillon, Ohio 44646
Telephone No. 832-8761 Area Code 216

Person Responsible for Admissions: Name (Miss) Barbara C. Mertes, R.N.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men ____ Women 85 Freshmen 31

Number of Applicants for Fall 19 69 Freshman Class 57 No. Offered Admission 36

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees $1020	Room and Board ____	Other $373
2nd year:	Tuition and Fees $ 397	Room and Board ____	Other $ 51
3rd year:	Tuition and Fees $ 297	Room and Board ____	Other $ 27
4th year:	Tuition and Fees ____	Room and Board ____	Other ____

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Limited

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	23 %	700 and Above	%	%	30 and Above	%
Top Quarter	50 %	600 - 699	%	%	26 - 29	7 %
Top Third	10 %	500 - 599	%	%	21 - 25	70 %
Top Half	10 %	400 - 499	%	%	16 - 20	23 %
Top Two Thirds	7 %	Below 400	%	%	Below 16	%

NLN-PNG See page 66

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements Biology, Chemistry, English 4, Mathematics, Social Studies 2 (American History required)

Recommended Courses Algebra, Geometry, Physics

Required Test NLN-PNG, ACT Required Test Date Early in senior year preferred Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 19 69-70)

Number Awarded Scholarships 6 Scholarship Range $50-$940 Average Scholarship $561

Number Awarded Loans 20 Range of Loans $196-$833 Average Loan $655

Total Number Receiving Financial Aid 26 For Further Financial Aid Information Contact:

Name (Miss) Barbara C. Mertes, R.N. Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date End of junior year Deadline August 15

Deadline for Transcript and Recommendations August 15 Date of Notification to Student After completion of application

Financial Aid Application Deadline July 1 Notification Date August 1 Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $50

Accreditation NLN

REMARKS: Affiliations: 41 quarter hours credit at Kent State University, Stark County Branch, Canton, Ohio (basic sciences).

MERCY SCHOOL OF NURSING

2015 12th Street N.W., Canton, Ohio 44708 — Diploma
Telephone No. 453-7011 Area Code 216
Ext. 428

Person Responsible for Admissions: Name (Mrs.) Katherine Rankin, R.N.
Title Director

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 102 Freshmen 48

Number of Applicants for Fall 1969 Freshman Class 70 No. Offered Admission 50

Length of Program 30 months Housing Available

COSTS

1st year:	Tuition and Fees $1581	Room and Board $250 *	Other $185
2nd year:	Tuition and Fees $ 379	Room and Board $150 *	Other $ 40
3rd year:	Tuition and Fees $ 361	Room and Board $150 *	Other $ 25
4th year:	Tuition and Fees	Room and Board	Other

* Room only.

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	29 %	700 and Above	%	%	30 and Above	%
Top Quarter	31 %	600 - 699	12 %	8 %	26 - 29 NOT	%
Top Third	29 %	500 - 599	35 %	40 %	21 - 25 AVAILABLE	%
Top Half	11 %	400 - 499	41 %	46 %	16 - 20	%
Top Two Thirds	%	Below 400	11 %	6 %	Below 16	%

NLN-PNG ____

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Foreign Language 2, Mathematics 2, Science 2 (Chemistry, Biology), Social Science 2

Recommended Courses Physics, Psychology, Sociology

Required Test CEEB, ACT Required Test Date None Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 7 Scholarship Range $100-$1800 Average Scholarship $1100

Number Awarded Loans 22 Range of Loans $500-$1000 Average Loan $850

Total Number Receiving Financial Aid 29 For Further Financial Aid Information Contact:

Name Katherine Rankin, R.N. Title Director

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date After completion of junior year Deadline Open

Deadline for Transcript and Recommendations Open Date of Notification to Student Upon acceptance of committee

Financial Aid Application Deadline Open Notification Date Open Personal Interview Required No

Amount of Deposit for Tuition, Room, etc. $50

Accreditation NLN

REMARKS: Affiliations: 34 semester hours credit at Walsh College, Canton, Ohio

MERCY SCHOOL OF NURSING

Diploma

2238 Jefferson Avenue, Toledo, Ohio 43624
Telephone No. 243-4281 · Area Code 419

Person Responsible for Admissions: Name Admissions Committee
Title

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 5 Women 151 Freshmen 56

Number of Applicants for Fall 1969 Freshman Class 116 No. Offered Admission 73

Length of Program 126 weeks Housing Available

COSTS

1st year:	Tuition and Fees $1300	Room and Board $480	Other $100
2nd year:	Tuition and Fees $ 600	Room and Board $360	Other $ 50
3rd year:	Tuition and Fees $ 600	Room and Board $360	Other $ 25
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS: (NOT AVAILABLE)

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 15 Specific Course Requirements Biology, Chemistry, English 4, Mathematics 2

Recommended Courses Science, Typing

Required Test CEEB, ACT, Sigma Assessment Evaluation Required Test Date Prior to May 1 Application Fee $5

FINANCIAL AID INFORMATION (Freshmen 1969-70) *

Number Awarded Scholarships 9 Scholarship Range $200-$517 Average Scholarship $342

Number Awarded Loans 16 Range of Loans $116-$1137 Average Loan $735

Total Number Receiving Financial Aid 31 For Further Financial Aid Information Contact:

Name Sister Sylvia Felsch, R.S.M. Title Director

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date September Deadline April 1

Deadline for Transcript and Recommendations 6 weeks after pre-entrance test Date of Notification to Student As soon as records are on file

Financial Aid Application Deadline May Notification Date Within 30 days after application is received Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $10

Accreditation NLN

REMARKS: * Other sources 6.
Affiliations: 12 credits at Mary Manse College.

MIAMI VALLEY HOSPITAL SCHOOL OF NURSING

122 East Apple Street, Dayton, Ohio 45409 — Diploma
Telephone No. 461-3990 Area Code 513

Person Responsible for Admissions: Name Theresa L. King
Title Assistant Director Student Personnel Services

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men 1 Women 263 Freshmen 93

Number of Applicants for Fall 19 69 Freshman Class 187 No. Offered Admission 111

Length of Program 34 months Housing Available

COSTS

1st year:	Tuition and Fees $582	Room and Board $495	Other $145
2nd year:	Tuition and Fees $285	Room and Board $495	Other $ 85
3rd year:	Tuition and Fees $285	Room and Board $495	Other $ 35
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? Honors program Employment Opportunities? Yes

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	1 %
Top Quarter	%	600 - 699	%	%	26 - 29	12 %
Top Third	%	500 - 599	%	%	21 - 25	52 %
Top Half	%	400 - 499	%	%	16 - 20	32 %
Top Two Thirds	%	Below 400	%	%	Below 16	3 %

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2 (Algebra, Geometry, General Mathematics), Natural Science 2 (Biology, Chemistry, Physics), Social Studies 2, (American History required)

Recommended Courses College preparatory

Required Test ACT, Psychological Corporation Required Test Date May 1 Application Fee $12

FINANCIAL AID INFORMATION (Freshmen 19 69-70)

Number Awarded Scholarships 20 Scholarship Range $100-$1500 Average Scholarship $575

Number Awarded Loans 28 Range of Loans $300-$1330 Average Loan $756

Total Number Receiving Financial Aid 38 For Further Financial Aid Information Contact:

Name Theresa L. King Title Assistant Director Student Personnel Serv.

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date September of senior year Deadline June 1

Deadline for Transcript and Recommendations July 1 Date of Notification to Student As soon as processed

Financial Aid Application Deadline June 1 Notification Date As soon as processed Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $40 nonrefundable

Accreditation NLN

REMARKS: Affiliations: 18 credit hours at Wright State University (social sciences).

MOUNT CARMEL SCHOOL OF NURSING

Diploma

127 South Davis Avenue, Columbus, Ohio 43222
Telephone No. 224 8163 Area Code 614

Person Responsible for Admissions: Name Sister Nancy Ganse, C.S.C.
Title Director of Admissions

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men _____ Women 169 Freshmen 62

Number of Applicants for Fall 19 69 Freshman Class 90 No. Offered Admission 78

Length of Program 28 months Housing Available

COSTS

1st year:	Tuition and Fees	$1644	Room and Board	$360 *	Other	$150
2nd year:	Tuition and Fees	$ 860	Room and Board	$300 *	Other	$100
3rd year:	Tuition and Fees	$ 898	Room and Board	$300 *	Other	$100
4th year:	Tuition and Fees		Room and Board		Other	

* Room only.

Advanced Placement or Honors Program? Yes, both Employment Opportunities? Yes

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	23 %	700 and Above	%	%	30 and Above	%
Top Quarter	43 %	600 - 699	6 %	13 %	26 - 29	5 %
Top Third	25 %	500 - 599	22 %	31 %	21 - 25	38 %
Top Half	5 %	400 - 499	55 %	36 %	16 - 20	49 %
Top Two Thirds	4 %	Below 400	16 %	19 %	Below 16	8 %

NLN-PNG _____

ADMISSION REQUIREMENTS

Number of Credit Units 15 Specific Course Requirements College Preparatory Mathematics 2 (Algebra required), English 4, History 1, Language 2 (of same), Laboratory Science 2 (Chemistry required), 3 additional units in English, Mathematics, Social Science, Physical or Biological Science or Language, 1 Unrestricted unit

Recommended Courses Physics, Psychology, Sociology

Required Test CEEB Required Test Date Early in senior year Application Fee $15

FINANCIAL AID INFORMATION (Freshmen 19 69-70)

Number Awarded Scholarships Limited funds to individuals from outside sources Scholarship Range $100-$500 Average Scholarship $300

Number Awarded Loans 30 Range of Loans $300-$1000 Average Loan $500

Total Number Receiving Financial Aid Approx. 100 For Further Financial Aid Information Contact:

Name Sister Nancy Ganse, C.S.C. Title Director of Admissions

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Early in senior year Deadline August 1

Deadline for Transcript and Recommendations August 1 Date of Notification to Student December 1

Financial Aid Application Deadline August 10 Notification Date _____ Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $50

Accreditation NLN

REMARKS: Affiliations: 24 credits at Ohio Dominican College.

THE OHIO VALLEY HOSPITAL SCHOOL OF NURSING

380 Summit Avenue, Steubenville, Ohio 43952
Telephone No. 283-4141 Area Code 614

Diploma

Person Responsible for Admissions: Name (Mrs.) Alice M. Ryan, R.N., B.S.
Title Acting Director

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 4 Women 89 Freshmen 30

Number of Applicants for Fall 1969 Freshman Class 90 No. Offered Admission 38

Length of Program 33 months Housing Required to live in, unless married

COSTS

1st year:	Tuition and Fees $566	Room and Board $120	Other $180
2nd year:	Tuition and Fees $292	Room and Board $310	Other $100
3rd year:	Tuition and Fees $164	Room and Board $ 90	Other $ 40
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2 (Algebra required), Science 2 (Chemistry required), Social Studies 2 (American History & Government required)

Recommended Courses 2 years of classical or modern languages

Required Test CEEB * Required Test Date Before June Application Fee $5

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 5 Scholarship Range $200-$1720 Average Scholarship $900

Number Awarded Loans 2 Range of Loans $1720 Average Loan $1720

Total Number Receiving Financial Aid 6 For Further Financial Aid Information Contact:

Name (Mrs.) Alice M. Ryan, R.N., B.S. Title Acting Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date 1 year before entrance Deadline June

Deadline for Transcript and Recommendations June Date of Notification to Student 1 month after completion of appli.

Financial Aid Application Deadline June Notification Date June Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $25

Accreditation NLN

REMARKS:

PROVIDENCE HOSPITAL SCHOOL OF NURSING

Diploma

1912 Hayes Avenue, Sandusky, Ohio 44870
Telephone No. 625-8450 Area Code 419

Person Responsible for Admissions: Name Sister Jeanne Stack
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 87 Freshmen 37

Number of Applicants for Fall 1969 Freshman Class 96 No. Offered Admission 41

Length of Program 30 months Housing Available

COSTS

1st year:	Tuition and Fees	$300	Room and Board	$225 *	Other	$150
2nd year:	Tuition and Fees	$600	Room and Board	$225 *	Other	$ 50
3rd year:	Tuition and Fees	$300	Room and Board	$225 *	Other	$ 40
4th year:	Tuition and Fees		Room and Board		Other	

* Room only.

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS: *	
Top Tenth	27 %	700 and Above	%	%	30 and Above	%
Top Quarter	32 %	600 - 699	%	%	26 - 29	46 %
Top Third	27 %	500 - 599	%	%	21 - 25	54 %
Top Half	11 %	400 - 499	%	%	16 - 20	%
Top Two Thirds	3 %	Below 400	%	%	Below 16	%

NLN-PNG See page 67

* Based on 13 test results

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements Biology, Chemistry

Recommended Courses Algebra, Physics

Required Test NLN-PNG, ACT recom. Required Test Date May 1 Application Fee $5
Transfer fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 14 ** Scholarship Range $200-$1800 Average Scholarship $765

Number Awarded Loans 11 Range of Loans $200-$1000 Average Loan $477

Total Number Receiving Financial Aid 18 For Further Financial Aid Information Contact:

Name Sister Jeanne Stack Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date May through December Deadline March 1

Deadline for Transcript and Recommendations May 1 Date of Notification to Student 4 weeks after adm. require. are complete

Financial Aid Application Deadline June 1 Notification Date 4 weeks after appl. is completed Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $10

Accreditation NLN

REMARKS: ** Including Grants.

RIVERSIDE HOSPITAL SCHOOL OF NURSING

Diploma

1530 Superior Street, Toledo, Ohio 43604
Telephone No. 726-3421 Area Code 419

Person Responsible for Admissions: Name (Mrs.) E. Wanda Quay, R.N.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 4 Women 72 Freshmen 34

Number of Applicants for Fall 1969 Freshman Class 61 No. Offered Admission 38

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees $750	Room and Board	Other $165
2nd year:	Tuition and Fees $375	Room and Board	Other $ 50
3rd year:	Tuition and Fees $625	Room and Board	Other $ 55
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	100%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG Results not available

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 1, Science 2 (Chemistry required), Social Studies 2 (American Government required)

Recommended Courses Algebra, Physics, Additional Science, Typing

Required Test NLN-PNG Required Test Date May Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 3 Scholarship Range $100-$250 Average Scholarship $175

Number Awarded Loans 15 Range of Loans $235-$875 Average Loan $525

Total Number Receiving Financial Aid 23 * For Further Financial Aid Information Contact:

Name (Mrs.) E. Wanda Quay, R.N. Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date April 30 Deadline May 31

Deadline for Transcript and Recommendations April 30 Date of Notification to Student As soon as records are complete

Financial Aid Application Deadline June 30 Notification Date July 31 Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $25

Accreditation NLN

REMARKS: *Additional students have financial aid from sources other than the school. Grants-in-aid 5.
Affiliations: 38 quarter credits at University of Toledo (basic science courses).

RIVERSIDE-WHITE CROSS SCHOOL OF NURSING

Diploma

3535 Olentangy River Road, Columbus, Ohio 43214
Telephone No. 267-7411 Area Code 614

Person Responsible for Admissions: Name Hazel Hurlburt, R.N.
Title Director of Nursing Education

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men 1 Women 243 Freshmen 85

Number of Applicants for Fall 19 69 Freshman Class 162 No. Offered Admission 102

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees $1964	Room and Board $120	Other $125
2nd year:	Tuition and Fees $1247	Room and Board $ 90	Other $ 50
3rd year:	Tuition and Fees $ 514	Room and Board $ 90	Other $ 25
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter NOT	%	600 - 699	4 %	7 %	26 - 29	%
Top Third AVAILABLE	%	500 - 599	38 %	41 %	21 - 25	%
Top Half	%	400 - 499	53 %	42 %	16 - 20	%
Top Two Thirds	%	Below 400	5 %	10 %	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units H.S. Grad. Specific Course Requirements English 4, Mathematics 2 (Advanced Algebra required), Science 2 (Chemistry required), History 2 (American History required)

Recommended Courses Foreign Language, Natural Sciences, Social Sciences

Required Test CEEB Required Test Date Prior to admission Application Fee None

FINANCIAL AID INFORMATION (Freshmen 19 69-70)

Number Awarded Scholarships 15 Scholarship Range $200-$2000 Average Scholarship $500

Number Awarded Loans 70 Range of Loans $1000-$2000 Average Loan $1500

Total Number Receiving Financial Aid 80 For Further Financial Aid Information Contact:

Name Hazel Hurlburt, R.N. Title Director of Nursing Education

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date 1 year prior to admission Deadline None

Deadline for Transcript and Recommendations Upon request Date of Notification to Student According to date of receipt of appli.

Financial Aid Application Deadline None Notification Date As soon as possible Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $50

Accreditation NLN

REMARKS: Affiliations: 60 quarter hours credit at Ohio Northern University, Ada, Ohio.

SAINT ALEXIS HOSPITAL SCHOOL OF NURSING

5303 McBride Avenue, S.E., Cleveland, Ohio 44127 — Diploma
Telephone No. 441-3300 Area Code 216

Person Responsible for Admissions: Name Sister M. Wilberta, O.S.F.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 69 Freshmen 38

Number of Applicants for Fall 1969 Freshman Class 59 No. Offered Admission 47

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees	$1175	Room and Board	$275 *	Other	
2nd year:	Tuition and Fees	$ 375	Room and Board	00 *	Other	
3rd year:	Tuition and Fees	$ 350	Room and Board	00 *	Other	
4th year:	Tuition and Fees		Room and Board		Other	

* Room only.

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	20%	700 and Above	%	%	30 and Above	%
Top Quarter	22%	600 - 699	6 %	3 %	26 - 29	%
Top Third	25%	500 - 599	25 %	20%	21 - 25	%
Top Half	20%	400 - 499	49 %	57%	16 - 20	%
Top Two Thirds	13%	Below 400	20 %	20%	Below 16	%
NLN-PNG						

ADMISSION REQUIREMENTS

Number of Credit Units 15 Specific Course Requirements Algebra, Chemistry, Geometry

Recommended Courses Biology, Physics, Typing

Required Test CEEB Required Test Date No later than May Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 21 Scholarship Range $100-$950 Average Scholarship $300

Number Awarded Loans 15 Range of Loans $260-$1095 Average Loan $725

Total Number Receiving Financial Aid 28 For Further Financial Aid Information Contact:

Name Sister M. Wilberta, O.S.F. Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date October Deadline May

Deadline for Transcript and Recommendations July Date of Notification to Student As soon as application is processed

Financial Aid Application Deadline May Notification Date May Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $10

Accreditation NLN

REMARKS: Affiliation: 33 credits at Saint John College of Cleveland.

SAINT ELIZABETH HOSPITAL SCHOOL OF NURSING

Diploma

1044 Belmont Avenue, Youngstown, Ohio 44505
Telephone No. 746-7231 Area Code 216

Person Responsible for Admissions: Name Sister Dorothy Zwick, H.M.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 19 69 Students: Men _____ Women 181 Freshmen 65

Number of Applicants for Fall 19 69 Freshman Class 130 No. Offered Admission 75

Length of Program 32 months Housing Available

COSTS

1st year:	Tuition and Fees	$390	Room and Board	$450	Other	$185
2nd year:	Tuition and Fees	$365	Room and Board	$450	Other	$ 69
3rd year:	Tuition and Fees	$365	Room and Board	$450	Other	$ 96
4th year:	Tuition and Fees		Room and Board		Other	

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? Yes

PROFILE DATA OF FALL 19 69 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	2 %	700 and Above	%	%	30 and Above	%
Top Quarter	40 %	600 - 699	%	%	26 - 29	%
Top Third	14 %	500 - 599	%	%	21 - 25	%
Top Half	35 %	400 - 499	%	%	16 - 20	%
Top Two Thirds	9 %	Below 400	%	%	Below 16	%

NLN-PNG See page 67

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements Algebra 1, Biology 1, Chemistry 1, English 4, Foreign Language 2 (of same), History 2

Recommended Courses Geometry, Notehand, Physics, Physiology, Sociology, Speech, Typing

Required Test NLN-PNG Required Test Date Prior to accept. Application Fee $5

FINANCIAL AID INFORMATION (Freshmen 19 69-70)

Number Awarded Scholarships 15 Scholarship Range $100-$500 Average Scholarship $250

Number Awarded Loans 50 Range of Loans $300-$800 Average Loan $500

Total Number Receiving Financial Aid 50 For Further Financial Aid Information Contact:

Name Sister Dorothy Zwick, H.M. Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date September Deadline June

Deadline for Transcript and Recommendations July Date of Notification to Student After acceptance

Financial Aid Application Deadline April Notification Date July Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $50

Accreditation NLN

REMARKS:

SAINT ELIZABETH MEDICAL CENTER SCHOOL OF NURSING

128 Hopeland Street, Dayton, Ohio 45408 — Diploma
Telephone No. 222-0411 Area Code 513

Person Responsible for Admissions: Name Sister M. Lucy Farrell, R.N., M.S.N.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 2 Women 84 Freshmen 86

Number of Applicants for Fall 1969 Freshman Class 171 No. Offered Admission 104

Length of Program 28 months Housing Available

COSTS

1st year:	Tuition and Fees $482	Room and Board $315 *	Other
2nd year:	Tuition and Fees $530	Room and Board $335 *	Other
3rd year:	Tuition and Fees $405	Room and Board $240 *	Other
4th year:	Tuition and Fees	Room and Board	Other

* Room fee only. Students may purchase meals in cafeteria at cost.

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	16%	700 and Above	%	%	30 and Above	%
Top Quarter	27%	600 - 699	%	%	26 - 29	%
Top Third	14%	500 - 599	%	%	21 - 25	%
Top Half	23%	400 - 499	%	%	16 - 20	%
Top Two Thirds	20%	Below 400	%	%	Below 16	%

NLN-PNG See page 67

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 1, Science (Chemistry required), Social Studies 2 (American History and Government required)

Recommended Courses Biology, Physics, Zoology or General Science, Foreign Language (2 of same)

Required Test Smeltzer Required Test Date By April Application Fee $10

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 27 Scholarship Range $100-$425 Average Scholarship $261

Number Awarded Loans 45 Range of Loans $500-$1300 Average Loan $549

Total Number Receiving Financial Aid 45 For Further Financial Aid Information Contact:

Name Sister M. Lucy Farrell, R.N., M.S.N. Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date September Deadline April 30

Deadline for Transcript and Recommendations At time of application Date of Notification to Student 4-5 weeks after Pre-Nursing Test

Financial Aid Application Deadline After final acceptance Notification Date Day of enrollment Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $40 acceptance fee

Accreditation NLN

REMARKS: Affiliations: 9 credits at Sinclair Community College.

SAINT THOMAS HOSPITAL SCHOOL OF NURSING

Diploma

444 North Main Street, Akron, Ohio 44310
Telephone No. 379-1111 Area Code 216

Person Responsible for Admissions: Name (Mrs.) Bernadette Griggy, R.N., M.N.Ed.
Title Director of Nursing Education

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 2 Women 96 Freshmen 47

Number of Applicants for Fall 1969 Freshman Class 100 No. Offered Admission 47

Length of Program 129 weeks Housing Available

COSTS

1st year:	Tuition and Fees $979	Room and Board $705	Other $320
2nd year:	Tuition and Fees $550	Room and Board $540	Other $ 83
3rd year:	Tuition and Fees $229	Room and Board $345	Other $147
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? Advanced placement Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	4%	700 and Above	%	%	30 and Above	%
Top Quarter	8%	600 - 699	%	%	26 - 29	4 %
Top Third	40%	500 - 599	%	%	21 - 25	18 %
Top Half	40%	400 - 499	%	%	16 - 20	88 %
Top Two Thirds	12%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2 (Algebra required), Science 2 (Chemistry required)

Recommended Courses

Required Test ACT, Special battery selected by Consultant Psychologist Required Test Date Prior to interview Application Fee $15

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 8 Scholarship Range $100-$500 Average Scholarship $250

Number Awarded Loans 30 Range of Loans $200-$1500 Average Loan $750

Total Number Receiving Financial Aid 38 For Further Financial Aid Information Contact:

Name (Mrs.) Bernadette Griggy, R.N., M.N.Ed. Title Director of Nursing Education

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date September to December Deadline April

Deadline for Transcript and Recommendations April Date of Notification to Student Ruling of admission committee

Financial Aid Application Deadline April Notification Date April Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $50 nonrefundable

Accreditation NLN

REMARKS: Affiliations: 41 credits at University of Akron.

SAINT VINCENT CHARITY HOSPITAL SCHOOL OF NURSING

2320 East 24th Street, Cleveland, Ohio 44115 — Diploma
Telephone No. 861-6200 Area Code 216

Person Responsible for Admissions: Name Sister M. Maurice, C.S.A.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 116 Freshmen 61

Number of Applicants for Fall 1969 Freshman Class 83 No. Offered Admission 61

Length of Program 145 weeks (1 academic year and 2 calendar years) Housing Available

COSTS

1st year:	Tuition and Fees $311	Room and Board $525	Other $167
2nd year:	Tuition and Fees $133	Room and Board $ 60	Other ____
3rd year:	Tuition and Fees $271	Room and Board $480	Other $ 41
4th year:	Tuition and Fees $181	Room and Board $525	Other $ 31

Advanced Placement or Honors Program? Honors program Employment Opportunities? No

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	11 %	700 and Above	%	%	30 and Above	%
Top Quarter	22 %	600 - 699	%	%	26 - 29	7 %
Top Third	23 %	500 - 599	%	%	21 - 25	37 %
Top Half	20 %	400 - 499	%	%	16 - 20	54 %
Top Two Thirds	24 %	Below 400	%	%	Below 16	2 %

NLN-PNG ____

ADMISSION REQUIREMENTS

Number of Credit Units 15 Specific Course Requirements English 4, Chemistry with Lab 1, History 2, Mathematics 2, Science 1, Electives 5

Recommended Courses Language in addition to English, Physics

Required Test ACT Required Test Date July Application Fee $10 nonrefundable

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 14 Scholarship Range $200-$1000 Average Scholarship $900

Number Awarded Loans 6 Range of Loans $200-$1000 Average Loan $533

Total Number Receiving Financial Aid 17 For Further Financial Aid Information Contact:

Name Sister M. Maurice, C.S.A. Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date November 1 to July 1 Deadline August 1

Deadline for Transcript and Recommendations July Date of Notification to Student After review by Admissions Committee

Financial Aid Application Deadline June 1 Notification Date August 1 Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $10

Accreditation NLN

REMARKS: Affiliations: 40 credit hours at Cuyahoga Community College.

SAINT VINCENT HOSPITAL SCHOOL OF NURSING

Diploma

2201 Cherry Street, Toledo, Ohio 43608
Telephone No. 244-1971 Area Code 419

Person Responsible for Admissions: Name (Miss) Eleanor Walsh, R.N., M.S.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 2 * Women 214 * Freshmen 88 *

Number of Applicants for Fall 1969 Freshman Class 134 * No. Offered Admission 98 *

Length of Program 126 weeks Housing Available

COSTS

1st year:	Tuition and Fees $615	Room and Board $300 *	Other $151
2nd year:	Tuition and Fees $365	Room and Board $300 *	Other $ 32
3rd year:	Tuition and Fees $365	Room and Board $300 *	Other $ 42
4th year:	Tuition and Fees	Room and Board	Other

* Room only.

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units H.S. Grad. Specific Course Requirements English 3, Mathematics 1, Science 2 (Chemistry required), Social Studies 2

Recommended Courses Additional Mathematics and Sciences

Required Test NLN-PNG, ACT recom. Required Test Date By April Application Fee $20

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 70 Scholarship Range $300-$1000 Average Scholarship $500

Number Awarded Loans 66 Range of Loans $100-$1000 Average Loan $500

Total Number Receiving Financial Aid 73 For Further Financial Aid Information Contact:

Name Miss Mary Kollarik Title Financial Aid Officer

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date End of junior year Deadline April

Deadline for Transcript and Recommendations Soon after application received Date of Notification to Student Month after all records complete

Financial Aid Application Deadline April Notification Date 4 weeks after application complete Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $25

Accreditation NLN

REMARKS: Affiliations: 32 semester hours at Mary Manse College, Toledo, Ohio.
* Figures reported for fall 1970.

SAMARITAN HOSPITAL SCHOOL OF NURSING

Diploma

1025 Center Street, Ashland, Ohio 44805
Telephone No. 324-1555 Area Code 419

Person Responsible for Admissions: Name (Miss) Marjorie Feth, R.N.
Title Director of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men ____ Women 54 Freshmen 23

Number of Applicants for Fall 1969 Freshman Class 60 No. Offered Admission 30

Length of Program 33 months Housing Required to live in, unless a married student

COSTS

1st year:	Tuition and Fees $650	Room and Board 00	Other $187
2nd year:	Tuition and Fees $139	Room and Board 00	Other $ 50
3rd year:	Tuition and Fees	Room and Board	Other $ 25
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	100 %	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG Results not available

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements English 4, Mathematics 2 (Algebra required), Science 2 (Chemistry required), Social Science 2 (American History required)

Recommended Courses Biology, Foreign Language, Physics, Psychology, Sociology

Required Test NLN-PNG Required Test Date As arranged with applicant Application Fee None

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 9 Scholarship Range $100-$280 Average Scholarship $150

Number Awarded Loans 3 Range of Loans ____ Average Loan $300

Total Number Receiving Financial Aid 12 For Further Financial Aid Information Contact:

Name Marjorie Feth, R.N. Title Director of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date September - October Deadline Open

Deadline for Transcript and Recommendations Open Date of Notification to Student As soon as all requirements met

Financial Aid Application Deadline Discussed at interview Notification Date As soon as all requirements met Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation ____

REMARKS: Affiliations: 12 credits at Ashland College (basic science courses).

TOLEDO HOSPITAL SCHOOL OF NURSING

Diploma

2701 Oatis Avenue, Toledo, Ohio 43606
Telephone No. 479-8281 Area Code 419
Ext. 306

Person Responsible for Admissions: Name (Miss) Beulah Klingler, R.N.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 1 Women 151 Freshmen 80

Number of Applicants for Fall 1969 Freshman Class 170 No. Offered Admission 92

Length of Program 33 months Housing Available

COSTS

1st year:	Tuition and Fees $855	Room and Board $120 *	Other $420
2nd year:	Tuition and Fees $352	Room and Board $120 *	Other $148
3rd year:	Tuition and Fees $280	Room and Board $ 90 *	Other $143
4th year:	Tuition and Fees	Room and Board	Other

* Room only.

Advanced Placement or Honors Program? No Employment Opportunities? Yes

PROFILE DATA OF FALL 1969 FRESHMAN CLASS: (NOT AVAILABLE)

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	%	700 and Above	%	%	30 and Above	%
Top Quarter	%	600 - 699	%	%	26 - 29	%
Top Third	%	500 - 599	%	%	21 - 25	%
Top Half	%	400 - 499	%	%	16 - 20	%
Top Two Thirds	%	Below 400	%	%	Below 16	%

NLN-PNG

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements H.S. Grad. with 13 academic credits English 4, Mathematics 2, Science 2 (1 must be Chemistry and 1 Biology), Social Studies 2, May have 6 electives--3 must be in academic subjects

Recommended Courses Physics

Required Test CEEB and Schools Pre-entrance Test Required Test Date As soon as appl. is processed Application Fee $5

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships None Scholarship Range None Average Scholarship None

Number Awarded Loans 14 Range of Loans $350-$800 Average Loan $630

Total Number Receiving Financial Aid 34 For Further Financial Aid Information Contact:

Name (Miss) Beulah Klingler, R.N. Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Late summer or early fall Deadline Usually July 15

Deadline for Transcript and Recommendations School sends for these after appl. is filed Date of Notification to Student When pre-test results are received

Financial Aid Application Deadline None Notification Date None Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. None

Accreditation NLN

REMARKS: Affiliations: 51 credits at University of Toledo.

TRUMBULL MEMORIAL HOSPITAL SCHOOL OF NURSING

Diploma

1350 East Market Street, Warren, Ohio 44482
Telephone No. 393-1561 Area Code 216

Person Responsible for Admissions: Name (Mrs.) Helen Ludwig, R.N.
Title Director, School of Nursing

DESCRIPTIVE INFORMATION

Number of Fall 1969 Students: Men 1 Women 179 Freshmen 82

Number of Applicants for Fall 1969 Freshman Class 142 No. Offered Admission 90

Length of Program 32½ months Housing Available

COSTS

1st year:	Tuition and Fees $915	Room and Board $440	Other
2nd year:	Tuition and Fees $240	Room and Board $330	Other
3rd year:	Tuition and Fees $135	Room and Board $330	Other
4th year:	Tuition and Fees	Room and Board	Other

Advanced Placement or Honors Program? No Employment Opportunities? Yes, Limited

PROFILE DATA OF FALL 1969 FRESHMAN CLASS:

HIGH SCHOOL RANK:		CEEB RESULTS:	SAT-V	SAT-M	ACT COMPOSITE RESULTS:	
Top Tenth	29%	700 and Above	%	%	30 and Above	%
Top Quarter	42%	600 - 699	%	%	26 - 29	22 %
Top Third	14%	500 - 599	%	%	21 - 25	61 %
Top Half	13%	400 - 499	%	%	16 - 20	17 %
Top Two Thirds	2%	Below 400	%	%	Below 16	%

NLN-PNG See page 67

ADMISSION REQUIREMENTS

Number of Credit Units 16 Specific Course Requirements Biological and Physical Sciences 2-3, English 3-4, Mathematics 1-2, Social Sciences 2-3, Algebra and Chemistry required.

Recommended Courses Biology, Anatomy and Physiology, Psychology, Sociology, Physics

Required Test NLN-PNG, ACT Required Test Date Variable Application Fee $ None

FINANCIAL AID INFORMATION (Freshmen 1969-70)

Number Awarded Scholarships 28 Scholarship Range $75-$1500 Average Scholarship $800

Number Awarded Loans 21 Range of Loans $50-$520 Average Loan $276

Total Number Receiving Financial Aid 37 For Further Financial Aid Information Contact:

Name (Mrs.) Helen Ludwig, R.N. Title Director, School of Nursing

Address Same as above

ADMISSION PROCEDURES

Filing Application: Suggested Date Before April Deadline Variable

Deadline for Transcript and Recommendations Variable Date of Notification to Student Usually after completion of records

Financial Aid Application Deadline Prior to enrollment Notification Date Prior to enrollment Personal Interview Required Yes

Amount of Deposit for Tuition, Room, etc. $70 for resident students, $20 for commuting students

Accreditation NLN

REMARKS: Affiliations: 35 quarter hours at Kent State University.

APPENDIX I

NLN-PNG TEST RESULTS

AKRON GENERAL HOSPITAL SCHOOL OF NURSING

Test	Percentile Norms DI
Academic Aptitude	
Total	58
Quantitative	55
Verbal	62
Reading Comprehension	
Speed	68
Level	67
Mathematics	54
Natural Science	59
Social Studies	64
Composite	61

AULTMAN HOSPITAL SCHOOL OF NURSING

Test	Percentile Norms ALL
Academic Aptitude	
Total	64.2
Quantitative	62.1
Verbal	61.3
Reading Comprehension	
Speed	62.9
Level	67.4
Mathematics	67.1
Natural Science	66.0
Social Studies	63.1
Composite	68.1

THE CHRIST HOSPITAL SCHOOL OF NURSING

Test	Percentile Norms DI
Academic Aptitude	
Total	57.0
Quantitative	53.5
Verbal	59.6
Reading Comprehension	
Speed	63.4
Level	63.7
Mathematics	58.0
Natural Science	62.6
Social Studies	60.7
Composite	61.5

EAST LIVERPOOL HOSPITAL SCHOOL OF NURSING

Test	Percentile Norms			
	DI	DE	ALL	COLL
Academic Aptitude				
Total	39	33	39	40
Quantitative	38	35	38	35
Verbal	58	43	58	53
Reading Comprehension				
Speed	75	62	75	67
Level	84	71	84	75
Mathematics	30	29	30	NA
Natural Science	72	58	72	68
Social Studies	90	76	89	84
Composite	62	45	55	NA

HOLZER MEDICAL CENTER SCHOOL OF NURSING

Test	Percentile Norms DI
Academic Aptitude	
Total	60
Quantitative	61
Verbal	56
Reading Comprehension	
Speed	65
Level	63
Mathematics	65
Natural Science	63
Social Studies	60
Composite	66

HURON ROAD HOSPITAL SCHOOL OF NURSING

Test	Percentile Norms DI	DE	AD	ALL	COLL
Academic Aptitude					
Total	66	53	68	65	58
Quantitative	56	50	64	56	47
Verbal	68	56	66	67	67
Reading Comprehension					
Speed	66	57	70	66	67
Level	66	53	66	62	67
Mathematics	58	51	67	58	
Natural Science	68	58	69	66	66
Social Studies	67	53	64	64	63
Composite	66	54	69	66	

LUTHERAN HOSPITAL SCHOOL OF NURSING

Test	Percentile Norms ALL
Academic Aptitude	
Total	62
Quantitative	57
Verbal	61
Reading Comprehension	
Speed	73
Level	73
Mathematics	63
Natural Science	61
Social Studies	63
Composite	61

MASSILLON CITY HOSPITAL SCHOOL OF NURSING

Test	Percentile Norms DI	ALL
Academic Aptitude		
Total	58	57
Quantitative	57	57
Verbal	56	55
Reading Comprehension		
Speed	67	66
Level	65	64
Mathematics	63	63
Natural Science	54	53
Social Studies	57	56
Composite	59	58

PROVIDENCE HOSPITAL SCHOOL OF NURSING

Test	Percentile Norms DI
Academic Aptitude	
Total	68
Quantitative	59
Verbal	68
Reading Comprehension	
Speed	76
Level	69
Mathematics	66
Natural Science	75
Social Studies	71
Composite	75

SAINT ELIZABETH HOSPITAL SCHOOL OF NURSING

Test	Percentile Norms DI
Academic Aptitude	
Total	59
Quantitative	56
Verbal	58
Reading Comprehension	
Speed	63
Level	58
Mathematics	57
Natural Science	55
Social Studies	60
Composite	57

SAINT ELIZABETH MEDICAL CENTER SCHOOL OF NURSING

Test	Percentile Norms DI
Academic Aptitude	
Total	62
Quantitative	61
Verbal	58
Reading Comprehension	
Speed	64
Level	68
Mathematics	65
Natural Science	61
Social Studies	62
Composite	65

TRUMBULL MEMORIAL HOSPITAL SCHOOL OF NURSING

Test	Percentile Norms ALL
Academic Aptitude	
Total	67
Quantitative	67
Verbal	62
Reading Comprehension	
Speed	73
Level	70
Mathematics	69
Natural Science	71
Social Studies	67
Composite	72

APPENDIX II

SCHOOLS OF PROFESSIONAL NURSING, BY LOCATION

AKRON
- Akron City Hospital
- Akron General Hospital
- Saint Thomas Hospital
- University of Akron

ASHLAND
- Samaritan Hospital

ASHTABULA
- Kent State University
  - Ashtabula Branch

CANTON
- Aultman Hospital
- Mercy Hospital

CINCINNATI
- Bethesda Hospital
- The Christ Hospital
- College of Mount Saint Joseph
- Deaconess Hospital
- Good Samaritan Hospital
- The Jewish Hospital
- University of Cincinnati
  - College of Nursing and Health
- University of Cincinnati
  - Raymond Walters Branch

CLEVELAND
- Case Western Reserve University
  - Frances Payne Bolton School
- Cleveland Metropolitan
  - General Hospital
- Cuyahoga Community College
  - Metropolitan Campus
- Fairview General Hospital
- Huron Road Hospital
- Lutheran Hospital
- Saint Alexis Hospital
- Saint John College
- Saint Vincent Charity Hospital

COLUMBUS
- Capital University
- Columbus Technical Institute
- Grant Hospital
- Mount Carmel Hospital
- Ohio State University
- Riverside-White Cross Hospital

Dayton
- Good Samaritan Hospital
- Miami Valley Hospital
- Saint Elizabeth Medical Center
- Sinclair Community College

EAST LIVERPOOL
- East Liverpool City Hospital

ELYRIA
- Elyria Memorial Hospital
  - (M.B. Johnson School)
- Lorain County Community College

GALLIPOLIS
- Holzer Medical Center

HAMILTON
- Miami University
  - Hamilton Branch

KENT
- Kent State University

KETTERING
- Kettering College of Medical Arts

LIMA
- Lima Technical Center
  - Division of Penta County
  - Technical Institute

SCHOOLS OF PROFESSIONAL NURSING, BY LOCATION, continued

MANSFIELD
Mansfield General Hospital

MASSILLON
Massillon City Hospital

MENTOR
Lakeland Community College

MIDDLETOWN
Miami University
Middletown Branch

NEW PHILADELPHIA
Kent State University
Tuscarawas County Branch

PARMA HEIGHTS
Cuyahoga Community College
Western Campus

PORTSMOUTH
Ohio University
Portsmouth Branch

SANDUSKY
Providence Hospital

SPRINGFIELD
Clark County Technical Institute
Community Hospital of
Springfield and Clark County

STEUBENVILLE
Ohio Valley Hospital

TOLEDO
Flower Hospital
Mercy Hospital
Riverside Hospital
Saint Vincent Hospital
Toledo Hospital

WARREN
Trumbull Memorial Hospital

YOUNGSTOWN
Saint Elizabeth Hospital
Youngstown State University

ZANESVILLE
Good Samaritan Hospital
Ohio University
Zanesville Campus

Published by

OHIO NURSES ASSOCIATION

4000 East Main Street — Columbus, Ohio 43213

Telephone (614) 237-5414

4000

5M/10-70

PRICE:$1.25

VT 012 388
First Annual Report of the Michigan Advisory Council for Vocational Education (April 1969 through June 1970).

Michigan State Advisory Council for Vocational Education, Lansing.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Oct70 47p.

DESCRIPTORS - *STATE PROGRAMS; *VOCATIONAL EDUCATION; *PROGRAM DESCRIPTORS; ANNUAL REPORTS; PROGRAM EVALUATION; ADVISORY COMMITTEES
IDENTIFIERS - MICHIGAN

ABSTRACT - This first annual report of Michigan's state advisory council describes the council's activities and discusses the numerous public and private vocational technical education activities in progress in Michigan. Emphasis is placed on accessibility and numbers enrolled. Recommendations are included in the broad areas of program planning, support, and accessibility. (BH)

VT 012 388

ANNUAL REPORT OF THE

State Advisory Council

ED0 57254

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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VT012388

for Vocational Education

4002

APRIL 1969 THROUGH JUNE 1970

THE FIRST ANNUAL REPORT

OF

THE MICHIGAN ADVISORY COUNCIL FOR VOCATIONAL EDUCATION

For the Period April 1969 Through June 1970

OCTOBER 1970

4003

FOREWORD

The report which follows was prepared for the period from April 1969 through June 1970 by the Michigan Advisory Council for Vocational Education. The Council was established in 1969 under the terms of the 1968 Amendments to the Vocational Education Act of 1963 (P.L. 90-576). Members of the Council during the fiscal year 1970 were:

Joseph Tuma, Chairman
Marvin Beekman
Barry Brown
Wayne Buell
Bernard Coker
Homer Copeland, Jr.
Mrs. Irma Craft
John R. Dimitry
William Early
Wayne Grimm
Mrs. Louise Grooms
Frank Heselton
George Keelean
Wilbur Landis
Russell Maples
Harold Matthews
George McWatt
William Shunck
Richard Whitmer
Mrs. Carole Williams

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INTRODUCTION

The Michigan State Advisory Council for Vocational Education was established in April, 1969 in accordance with the 1968 Amendments to the Federal Vocational Education Act of 1963. The Council is broadly representative of professional education, of labor, and of industrial management. Membership includes men and women with broad understanding and professional expertise in the needs and problems of labor and management, in secondary, post-secondary, and adult vocational-technical education, and in the needs and problems of handicapped and socially or educationally "disadvantaged" persons.

Two general beliefs which are shared by members of the Advisory Council have guided its work. First, members of the Council believe that vocational-technical education is an important part of an individual's total education and must be related to the rest of that education. That is, the attitudes, skills, and understandings that must be learned for work should be related to the individual's total needs. Second, Council members see a need for expanded vocational-technical education in Michigan in order that more individuals may receive this education and so that they may have a greater choice of vocational-technical offerings.

This report has two purposes. First, it is intended to address the above beliefs by clarifying the extent to which vocational-technical education is available to Michigan's youth and adults. Second, it will serve as the Council's first annual report to the United States Commissioner of Education as required by the above-mentioned Amendments.

The first part of the report describes the activities of the Advisory Council. General activities, evaluative activities, Council sponsored public meetings, and specific areas of Council concern are discussed in detail.

The second part of the report describes the numerous vocational-technical education activities presently under way in Michigan. Activities sponsored by four types of agencies are discussed: The Michigan Department of Education, other Michigan agencies, the Federal government, and private vocational-technical training schools. To the extent possible, the discussion of each agency centers on the accessibility of its programs to the people of Michigan and the number of persons enrolled in them.

The final part of the report presents recommendations for the improvement of vocational-technical education in Michigan. To the extent possible, these recommendations are related to information presented in the first sections of the report.

ACTIVITIES OF THE MICHIGAN ADVISORY COUNCIL FOR VOCATIONAL EDUCATION

The 1969-70 Michigan Advisory Council was organized with twenty-one members in April, 1969. The Council held six meetings in Fiscal Year 1970, including one in Detroit with the State Board of Education during which the two groups discussed common concerns and one in Albion during which the Council discussed plans for the evaluation of vocational-technical education in Michigan. Additionally, the Council sponsored public meetings in Marquette, Battle Creek, and Detroit in order that educators and citizens might express their views on vocational-technical education.

The remainder of this section outlines: (1) evaluation activities sponsored by the Council; (2) concerns expressed at the Council-sponsored public meetings; and (3) areas of concern as expressed by the Council.

Evaluation Activities

In October, 1969 two professional staff members from the Bureau of Research, Evaluation, and Assessment were assigned the task of developing procedures for the evaluation of vocational-technical education in Michigan. The initial phase of the project consisted of a review of literature dealing with the evaluation of vocational education, a review of existing evaluation procedures in other states, and a review of vocational-technical education data durrently collected by the Department of Education. After this review it was decided that evaluation procedures developed at the National Center for Vocational-Technical Education at Columbus, Ohio would be modified for use in Michigan. The procedures have been modified on the basis of a pilot test of six Michigan educational institutions and the availability of certain data in the Department of Education. The modified procedures will be used in a sample of public schools and community colleges in fall, 1970.

Additionally, a study of the attitudes of former vocational students, their parents and their employers has been contracted to a university. It will be completed in 1970. A follow-up study of former students is also planned for Fiscal Year 1971. This study will be conducted by the same staff as those conducting the other evaluation activities.

Information on labor market needs and projections will be related to the above evaluative data as it becomes available. Several joint meetings of staff from the Department of Education, the Department of Commerce, the Department of Labor, the Michigan Employment Security Commission, and the Great Lakes Regional Development Commission have been held to work out ways to gather better labor market data for planning and to develop a model for determining manpower needs on a regional basis.

Public Meetings

Three public meetings were held by the Council to provide opportunities for citizens to express their views about vocational education. Meetings were held in Marquette, January 30, Battle Creek, February 26, and Detroit, March 11. Attendance at the meetings was estimated at 90, 87, and 125 respectively. Among those in attendance were school administrators, vocational educators, legislators, teachers, school board members, parents and representatives from organized labor, state government, federal agencies, minority groups, business and industry, private trade schools and civic organizations.

It was the purpose of these meetings to allow people to share their concerns with members of the Council. A brief summary of the concerns expressed at the meetings follows. An outline of the comments made at the meetings is included as Appendix A.

A general tenor of the comments at meetings was that considerably expanded vocational-technical programs are needed. Data were presented to show the relatively low level of state support for occupational education compared with federal and local support. To accomplish the needed program expansion, several persons felt that Michigan must make a firm commitment to vocational education and back this commitment with state funds.

Several persons suggested the need for greater leadership in vocational education at the State level. In particular, comments referring to the need for state plans, and for the establishment of priorities in the State indicated the desire for stronger leadership.

The comments made at public meetings relative to curriculum and guidance focused upon the need for expanded vocational-technical offerings and increased accessibility of occupational programs to all persons. In addition, numerous persons expressed the need for pre-vocational programs to acquaint persons with greater knowledge of employment opportunities.

Several persons at the meetings expressed the belief that there is need for a comprehensive in-service teacher training program for use at the local level. Others suggested the need to re-examine current teacher education practices. They felt that teachers should continually update themselves.

Some persons at the meetings were concerned with the need for greater cooperation between private trade schools and public schools. Several stated the belief that something positive must be done with the image of vocational-technical education.

Areas of Council Concern

During the Council meetings and in the preparation of this report, Council members have expressed numerous concerns. In this section major areas of concern expressed by Council members are grouped for convenience under two major headings: A. Vocational-Technical Program Concerns and B. Concerns Related to Persons.

A. Vocational-Technical Program Concerns

Council members are concerned with three areas of program: program planning, program support, and program accessibility.

1. Program Planning. Council members are concerned about: (a) the need for high-quality pre-service and in-service training of vocational-technical teachers; (b) the often inflexible and capricious procedures whereby teachers are certified to work in the public schools, procedures which make it difficult sometimes to hire occupationally competent persons to teach vocational-technical subjects; (c) the need for more accurate labor market data regarding employment opportunities and projections--at the local, regional, and State levels; (d) the lack of involvement at times of all interested persons and groups in the planning and implementation of vocational-technical education programs; (e) the lack of follow-up data from vocational-technical education students; and (f) the general lack of use of private trade schools, which means that many students are denied the opportunities for quality education which are available in private schools.

2. Program Support. Council members are concerned about: (a) the relatively small support of vocational-technical education provided by the State; and (b) the poor image that vocational-technical education has in the State.

3. Program Accessibility. Council members are concerned about: (a) the need for expanded and better guidance, counseling, and placement services for all students, but especially those who have not generally received these services in proportion to their needs, namely vocationally-oriented students; and (b) the many students--particularly those who live in areas which have not passed millages--who cannot afford transportation to and tuition costs of area skills centers.

B. Concerns Related to Persons

The members of the Council have special concern for two groups of individuals who could be better served by vocational-technical education in Michigan: those who are considered socially or educationally "disadvantaged" and those who are handicapped. Council members are very concerned about the quantity and quality of vocational-technical education available to these persons.

VOCATIONAL EDUCATION ACTIVITIES IN MICHIGAN

This section describes vocational education activities presently in operation in the State. The activities are divided according to the type of agency which sponsors them. To the extent possible the discussion centers on the accessibility of programs to students and student enrollment in programs. For many agencies data adequate to describe vocational-technical activities were not available.

Activities Sponsored by the Department of Education

A. Activities of the Division of Vocational Education

1. Activities for Secondary Students

a. Student Access to Programs (Activities in Local Districts)

One index to the accessibility of vocational-technical programs is the availability of program areas within schools. Many students in Michigan may choose only from a limited number of program areas. For example, five and one half percent of the secondary students in Michigan had no opportunity to enroll in occupational programs (see Table 1). Students in 123 school districts had only one program area available in the 1969-70 school year, generally agriculture or home economics. In 83 of the school districts with two program areas, the combination was agriculture and home economics. Students in 193 (42.4%) of the 443 districts offering vocational programs had only a choice of either agriculture or home economics. This represented a relatively small portion of the secondary enrollment in Michigan; it did not include the major cities in the State where population is concentrated. At the other end of the spectrum, 71 schools (16%) provided the student a choice of five or more program areas. This represented about 43 percent of the secondary enrollment.

Tables 1, 2, 3 and 4 show data which are indicators of the accessibility of programs to students. Table 1

presents the number of school districts and the secondary and vocational enrollments within the districts, according to the number of program areas offered within the districts. The other tables show different breakouts of data from Table 1.

TABLE 1

NUMBER OF OCCUPATIONAL PROGRAM AREAS, SECONDARY STUDENTS AND VOCATIONAL STUDENTS BY DISTRICTS

NUMBER OF PROGRAM AREAS[a]	NUMBER OF SCHOOL DISTRICTS	SECONDARY ENROLLMENT[b]	VOCATIONAL ENROLLMENT[c]
0	91	32,145	------
1	123	61,123	11,317
2	124	73,528	22,040
3	66	63,143	18,007
4	59	107,427	25,045
5	55	140,920	49,205
6	15	42,227	13,505
7	1	72,622	21,799
TOTAL	534	593,225	160,918

[a] Agriculture, Home Economics, Trade and Industrial, Health, Distributive, Office, Cooperative.

[b] 1969-70 data

[c] 1968-69 data

TABLE 2

NUMBER OF SCHOOL DISTRICTS OFFERING SECONDARY VOCATIONAL-TECHNICAL PROGRAMS BY PROGRAM AREA
1968-69

PROGRAM AREA	NUMBER OF DISTRICTS
Home Economics	347
Office Education	225
Cooperative Education	213
Agriculture	184
T & I	155
Distributive	120
Health	37

TABLE 3

NUMBER OF SCHOOL DISTRICTS WITH SECONDARY VOCATIONAL-TECHNICAL PROGRAMS IN ONE PROGRAM AREA ONLY
1968-69

PROGRAM AREA	NUMBER OF DISTRICTS
Home Economics	89
Agriculture	21
Cooperative	9
Office Education	4
TOTAL	123

TABLE 4

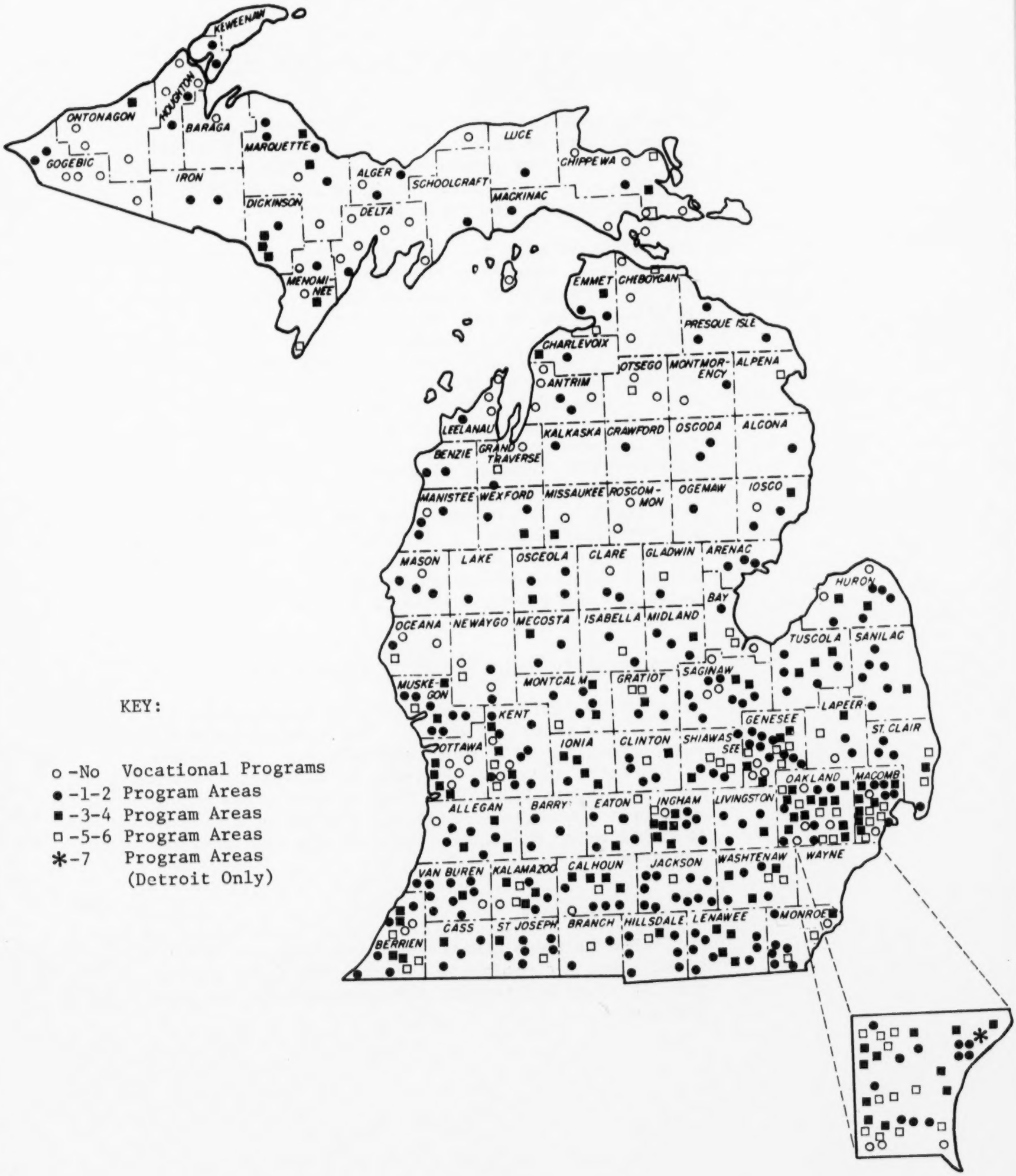
THE NUMBER OF SCHOOL DISTRICTS OFFERING SECONDARY VOCATIONAL-TECHNICAL PROGRAMS IN TWO PROGRAM AREAS

PROGRAM AREA COMBINATION	NUMBER OF DISTRICTS
Home Economics - Agriculture	83
Home Economics - Cooperative	15
Home Economics - Trade and Industrial	6
Home Economics - Office	5
Home Economics - Distributive	2
Cooperative - Office	6
Cooperative - Distributive	2
Cooperative - Agriculture	2
Cooperative - Trade & Industrial	1
Office - Agriculture	1
Office - Trade & Industrial	1
TOTAL	124

Map 1 shows general enrollment by county. Map 2 shows the distribution, by counties, of programs offered by school districts.

MAP 1 SECONDARY ENROLLMENTS BY COUNTY
(1969-70)

MAP 2 SCHOOL DISTRICTS OFFERING SELECTED NUMBERS OF VOCATIONAL PROGRAM AREAS BY COUNTY 1968-69



KEY:

- ○ -No Vocational Programs
- ● -1-2 Program Areas
- ■ -3-4 Program Areas
- □ -5-6 Program Areas
- ✱ -7 Program Areas (Detroit Only)

b. Student Access to Programs (Development of Area Skills Centers)

Area centers have the effect of increasing the accessibility of programs to people and of increasing the number of program choices students have. In Michigan,area centers are designed to complement local programs, not to replace them.

The tentative plan for the designation and development of area centers in Michigan includes a proposal for approximately 90 secondary area centers. Centers in eleven counties will be in operation during the 1970-71 school year. Twenty-five districts which now offer programs in only one vocational program area for students will be participating members of these centers. It is extimated that 2949 students are now served by occupational programs in area centers. Approximately 7100 students will be served in area centers by the fall of 1970. Present planning is for the development of five additional centers in 1972, eight in 1973, five in 1974, and another 44 after 1975. These plans are portrayed on Map 3. Preliminary estimates in the Department of Education indicate that, at current rates, it will require approximately 160 million dollars to build and equip area centers in the next ten years.*

c. Secondary Enrollment Trends by Program Area

Secondary vocational enrollments by program area for 1967-69 are shown in Table 5. The total vocational enrollments for 1969 equal approximately 28.5 percent of the total secondary students in Michigan. Although this percentage is greater than in past years it is well below the approximately 75 percent of students who will enter the labor market by the time they are nineteen.

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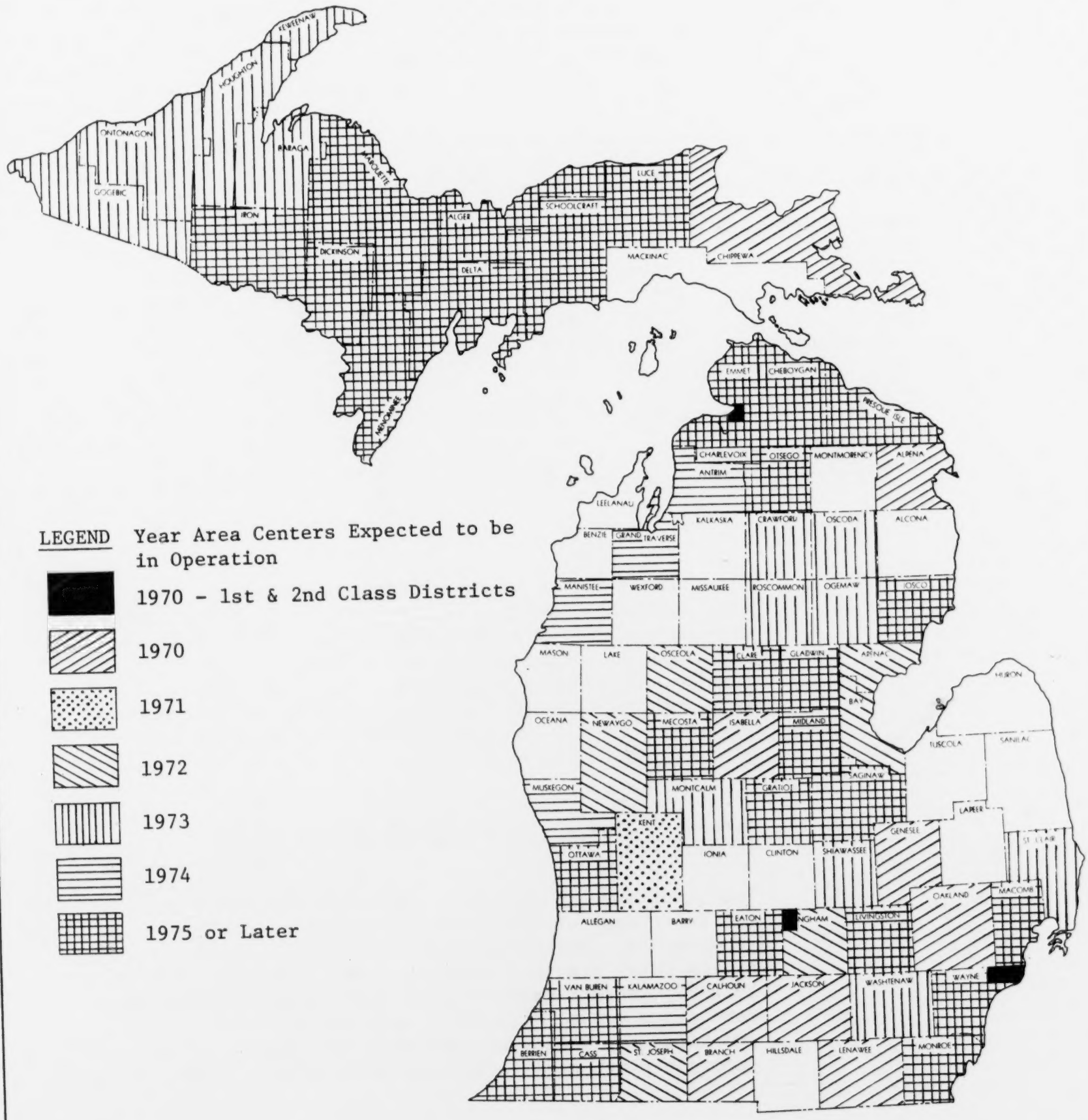
*The Advisory Council believes that, in addition to building and equipping centers, the State should provide money for tuition and transportation to area centers.

MAP 3 TENATATIVE PLAN FOR THE DEVELOPMENT OF SECONDARY AREA VOCATIONAL CENTERS IN MICHIGAN



LEGEND Year Area Centers Expected to be in Operation

- 1970 - 1st & 2nd Class Districts
- 1970
- 1971
- 1972
- 1973
- 1974
- 1975 or Later

TABLE 5

SECONDARY VOCATIONAL-TECHNICAL EDUCATION ENROLLMENTS
IN MICHIGAN BY PROGRAM AREA AND PERCENTAGES
OF THE TOTAL ENROLLMENT
(1967-69)

PROGRAM AREA	1969 NUMBER	1969 %	1968 NUMBER	1968 %	1967 NUMBER	1967 %
Agriculture	11905	7.2	11823	7.7	13451	8.2
Agriculture (Non-Farm)	(798)	---	(785)	---	(752)	---
Distributive Ed.	16147	9.9	15345	10.0	14579	10.6
Health	1844	1.1	1544	1.0	1107	.8
Home Economics	73669	45.0	69006	45.0	62678	45.2
Home Economics (Wage Earn.)	(5659)	---	(4402)	---	(1390)	---
Office	40763	24.9	39619	25.9	34039	24.5
Technical	---	---	---	---	289	.03
T & I	19491	11.9	16056	10.4	12977	9.4
TOTAL	163859	100	153393	100	139229	98.7

With the exception of agricultural enrollments, which have declined slightly, enrollments in all other program areas have increased. There has been a shift in agriculture enrollments in recent years toward the non-farm agricultural programs. Also, the number of wage earning programs in home economics has increased more rapidly than the non-wage earning programs in home economics.

d. Secondary Student Follow-up and Employment by Program Area

Follow-up data on secondary graduates available in the Department of Education are of little use for this report. Follow-up data are collected four months after students complete their programs. For 1968-69, Detroit graduates, as well as graduates from some other school districts, were not included. In addition, the follow-up data were collected only for programs which were reimbursed with federal funds.

The lack of useful follow-up data is a serious problem. Part of the evaluation project referred to in the section on Advisory Council activities the development of procedures with which to evaluate occupational education in Michigan, will focus on this problem. A sample of former Michigan students from secondary and post-secondary schools will be surveyed for follow-up data during the 1970-71 school year.

2. Activities for Post-Secondary Students

a. Student Access to Programs

Six four-year colleges and universities which meet the minimum requirements of the Vocational Education Act of 1963 and which serve the entire State, have been designated as post-secondary area vocational centers by the State Board of Education. Three of these are located in the upper peninsula, three in the southern half of the lower peninsula. In addition, 29 community colleges are operating in the State. Of these 27 have been approved as post-secondary area centers and each offers five or more occupational programs. A total of 141 different occupational education programs are offered by the public post-secondary institutions in Michigan.

Still, post-secondary programs are not as accessible to students as they might be.

The community colleges now in operation serve less than one-half of the State geographically; approximately 55 percent of the population resides in community college districts and has access to educational programs offered by these institutions. In addition, not all vocational-technical programs are offered in all institutions.

A long-range goal of the Department of Education is for every secondary district to become part of a community college district. Service areas of post-secondary vocational centers are shown on Map 4.

b. Post-Secondary Enrollment Trends

Post-secondary enrollments in vocational-technical

MAP 4 PUBLIC INSTITUTIONS OFFERING VOCATIONAL-TECHNICAL EDUCATION AT POST SECONDARY LEVEL

LEGEND

- 4 Year Colleges and Universities with Vocational-Technical Programs Serving Entire State
- Community Colleges

education from 1967 to 1969 are shown in Table 6. The number of students enrolled in reimbursed post-secondary programs has increased by 9.4 percent from 1967 to 1969.

TABLE 6

POST-SECONDARY VOCATIONAL-TECHNICAL EDUCATION ENROLLMENTS BY PROGRAM AREA AND PERCENTAGES OF THE TOTAL ENROLLMENT (1967-69)

PROGRAM AREA	1969 ENROLLMENT	1969 %	1968 ENROLLMENT	1968 %	1967 ENROLLMENT	1967 %
Agriculture	547	1.9	571	2.0	418	1.5
Distributive Ed.	2,683	9.2	3,359	11.7	3,832	14.5
Health	3,332	11.5	3,100	10.8	3,842	14.5
Home Economics	191	.7	---	---	12	---
Home Ec. (wage earn)	(191)	---	(35)	---	---	---
Office T	9,070	31.4	9,679	34.0	10,669	40.4
Technical	5,728	19.8	6,384	22.3	4,117	15.5
T & I	7,330	25.3	5,436	19.0	3,512	13.4
TOTAL	28,881	99.8	28,536	99.8	26,402	99.8

c. Post-Secondary Follow-up and Employment by Program Area

Comments which relate to the follow-up of secondary students (p.14) also apply to post-secondary follow-up.

3. Activities for Adults

a. Adult Enrollment Trends by Program Area

Adult education programs have generally been of a non-credit short-course type to prepare out-of-school people for job entry or to upgrade the skill level of those already employed. Some programs have been established for retraining in a different field. Enrollments of out-of-school youth and adults in vocational-technical education programs during 1967-69 are presented in Table 7.

TABLE 7

ADULT VOCATIONAL-TECHNICAL EDUCATION ENROLLMENTS
BY PROGRAM AREA AND PERCENTAGES OF
TOTAL ENROLLMENT
(1967-69)

PROGRAM AREA	1969 ENROLLMENT	1969 %	1968 ENROLLMENT	1968 %	1967 ENROLLMENT	1967 %
Agriculture	1,245	1.1	1,536	1.5	1,218	1.2
Distributive Ed.	19,111	17.2	19,932	19.6	18,677	18.7
Health	1,028	.9	747	0.7	514	.5
Home Economics	17,185	15.4	15,835	15.6	17,313	17.4
Office	8,602	7.7	7,294	7.2	5,870	5.9
Technical	3,046	2.7	2,546	2.5	3,863	3.9
T & I	61,023	55.0	53,814	52.9	52,394	52.4
TOTAL	111,240	100	101,704	100	99,849	100

4. Special Emphasis Programs

Special emphasis programs are discussed here since they are operated in the public school system and administered by the Division of Vocational Education. They generally apply to secondary, post-secondary and adult programs, except as noted.

a. Special Needs Programs

Few educational programs for persons with special needs--disadvantaged and handicapped--have been consciously designed; undoubtedly disadvantaged and handicapped persons have been served in regualar programs. Several specialized programs were offered in agricultural occupations in FY 70, e.g., landscape horticulture and agriculture mechanics (for adults). Fourteen schools offered home economics programs for disadvantaged students in 1968-69 and one community conducted a family project. Approximately 4100 disadvantaged students were enrolled in office and distributive programs in FY 69. Much of the data for fiscal year 1970 were not available when this report was printed.

b. Cooperative Education Programs (Applies to Secondary and Post-Secondary Only)

Enrollments in Cooperative Education Programs in the

state by program area for 1967-69 are shown in Table 8.

TABLE 8

SECONDARY AND POST-SECONDARY ENROLLMENTS IN COOPERATIVE EDUCATION PROGRAMS BY PROGRAM AREA (1967-69)

PROGRAM AREA	1969 SEC.	POST SEC.	1968 SEC.	POST SEC.	1967 SEC.	POST SEC.
Agriculture	427	370	---	---	---	---
Distributive Ed.	7,091	608	6,786	633	6,444	675
Health	699	53	668	---	753	18
Office	7,739	1,185	7,129	793	6,575	662
T & I	4,898	622	4,736	---	3,950	212
TOTAL	20,854	2,838	19,311	1,426	17,722	1,567

c. Work-Study Programs (Applies to Secondary and Post-Secondary Only)

Work-study programs are designed to provide part-time employment for full-time vocational students between the ages of 15 and 21 who need the income in order to remain in school. Federal funds for work-study programs were provided in the 1963 Vocational Education Act and were continued by the 1968 Vocational Education Amendments.

During the 1967-68 academic year work-study programs were offered to 1897 students in 80 secondary and eight post-secondary educational agencies in Michigan. During the summer of 1968, 950 students were in work-study programs.Federal funds expended for these projects amounted to $385,812 with an additional $128,604 contributed by the local agencies.

No federal funds for work-study were available in Michigan for the 1968-69 academic year. Some educational agencies conducted limited programs with local funds; however, no specific data are available as to number of students served.

Allocation of federal work-study funds for FY 70 was not received in time to fund programs during the 1969-70 academic year. Fifty-nine summer work-study programs were approved for operation in the period between May 1 and August 31, 1970.

d. Consumer and Homemaking Programs

Approximately 15 percent of the home economic secondary students not enrolled in wage earning programs during the 1968-69 school year were enrolled in a comprehensive consumer and homemaking curriculum. The remainder were enrolled in more traditional programs.

Special emphasis is to be placed upon the development of adult education programs in consumer and homemaking in the urban areas. Joint programs are being developed in cooperation with social welfare agencies.

5. Manpower Development Training Programs (MDTA)

Training programs for out-of-school youth and adults were conducted through 74 MDTA projects in FY 70. Approximately 3450 persons, primarily hardcore disadvantaged, were trained. These programs were operated in eight public secondary schools, eleven community colleges, nine private schools, three universities, two hospitals and three other agencies. The cost of these programs is approximately one dollar per trainee hour.

Information on job performance subsequent to training is incomplete. The state-wide completion rate through March 1970 was slightly over 63 percent. The placement rate was 79 percent for those who completed programs, or 53 percent of the total enrollment. More detailed follow-up information would be useful in planning future MDTA programs.

B. Activities of the Bureau of Research, Evaluation and Assessment;

Exemplary Programs

Two exemplary projects, totaling about $32,500 were funded on a trial basis in 1969-70 from research and other allocations. In FY 71, eleven will be funded from two federal sources: (1) Michigan's share of the first appropriation under Part D of the Amendments of 1968 and (2) a portion of funds designated for vocational guidance

and counseling. Part D funds total $309,446 and the guidance and counseling allocation is $100,000.

One project, in the amount of $154,773, will be funded from half of Michigan's Part D appropriation and administered by the Office of Education, as provided in the Amendments. Ten, funded from the remaining monies, will be administered by the Research Coordination Unit in the Bureau of Research, Evaluation, and Assesment.

C. Activities in the Division of Vocational Rehabilitation

The Division of Vocational Rehabilitation provides individuals with a variety of services to assist them to enter the world of work. Three types of cocupational training for handicapped persons were conducted by the Division of Vocational Rehabilitation in fiscal year 1970. These were: On-the-Job Training (OJT)*, institutional training, and training at the State Technical Institute and Rehabilitation Center.

1. On-the-Job Training

Training for 364 persons was conducted from May 1969 through April 1970 by individual employers under contract with DVR, and supervised by DVR coordinators. Written training objectives were developed for each trainee. In nearly all cases the training stations were in or near home communities of the trainees. The length of training ranged from two to 24 weeks.

The occupational areas for which these persons were trained is shown in Table 9. The home counties of the trainees is shown on Map 5.

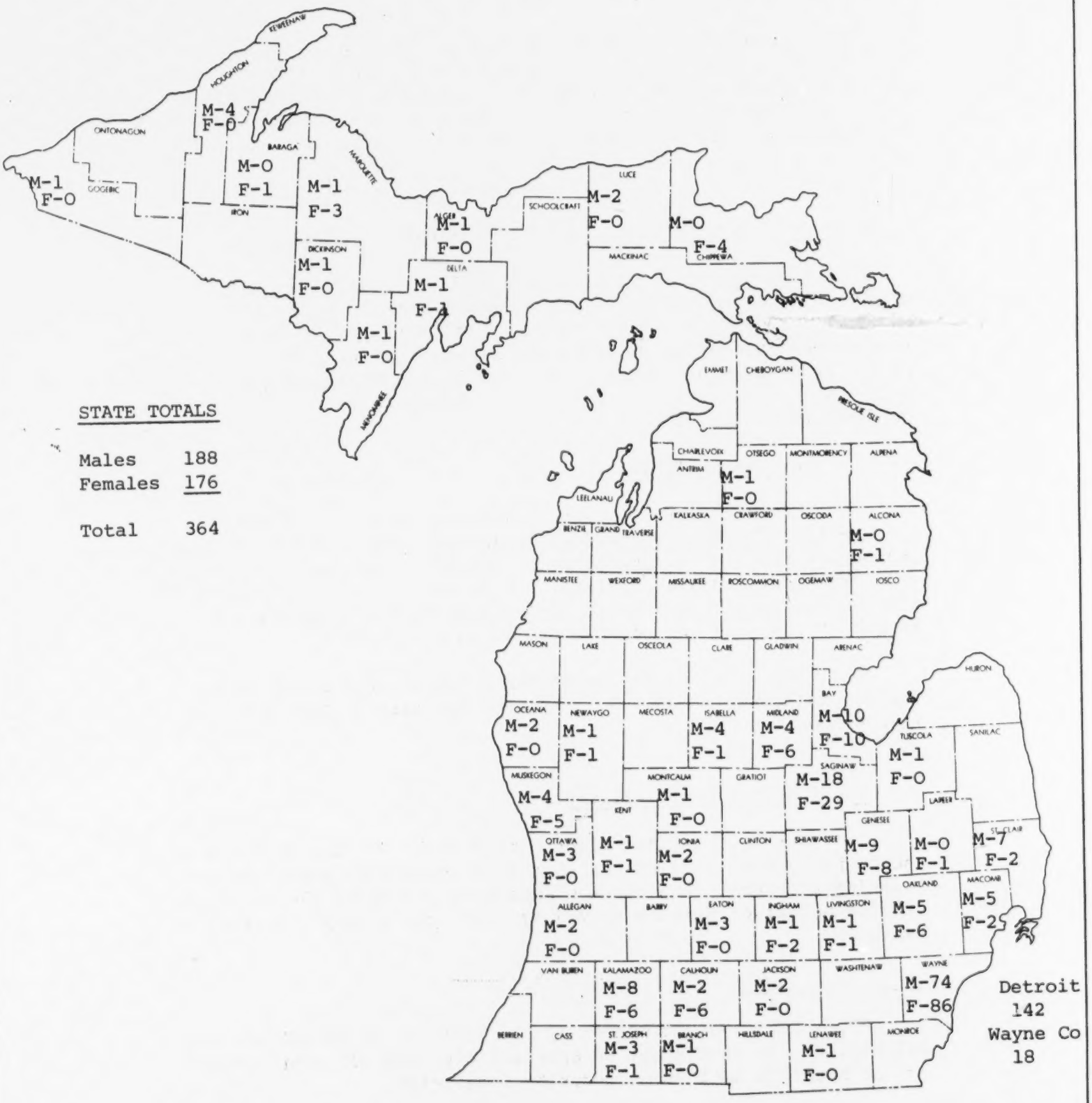
2. Institutional Training

During the first eight months of FY 70, the Division of Vocational Rehabilitation assisted 4354 persons in institutional training programs. The types of agencies providing the training and the number of persons served by each type agency are given in Table 10.

---

*This OJT is administered by the Division of Vocational Rehabilitation. It should not be confused with the OJT administered by the Michigan Employment Security Commission.

MAP 5 PERSONS TRAINED IN O.J.T. UNDER THE DIVISION OF VOCATIONAL REHABILITATION BY COUNTY (MAY 1969-APRIL 1970)



STATE TOTALS

Males	188
Females	176
Total	364

All of the Michigan private occupational schools shown in Table 10 are residential schools except five which are combination residential-correspondence schools. These five schools enrolled 68 DVR clients.

TABLE 9

NUMBER OF PERSONS BY JOB AREA RECEIVING OJT TRAINING
(MAY 1969-APRIL 1970)

JOB AREA	NUMBER RECEIVING TRAINING		
	MALES	FEMALES	TOTAL
Health Occupations	17	55	72
Service Occupations	14	26	40
Food Service Occupations	18	22	41
Office Occupations	10	27	37
Building Maintenance	30	1	31
Industrial Occupations	22	8	30
Automotive Trades	27	0	27
Appliance Repair	21	2	23
Miscellaneous	8	11	19
Sales	7	10	17
Personal Services	3	14	17
Printing Trades	7	0	7
Grounds Keepers	4	0	4
TOTAL	188	176	364

TABLE 10

NUMBER OF PERSONS RECEIVING INSTITUTIONAL TRAINING
FROM VARIOUS AGENCIES (1969-1970)[a]

TYPE OF AGENCY	NUMBER OF AGENCIES	NUMBER OF STUDENTS
Public Colleges and Universities	13	1,858
Public Community Colleges	28	1,081
Non Public Colleges and Universities	34	342
Private Occupational Schools (Michigan)	77	787
Private Occupational Schools (out state)	15	49
Cosmetology Schools (Non Public)	38	135
Barber Colleges	8	88
Other Public and Non Profit Agencies	6	14
TOTALS	219	4,354

[a] Represents approximately 2/3 of the FY 70.

Of the 15 out-of-state private occupational schools used by DVR clients, five are correspondence (35 persons), three are residential only (3 persons) and seven are combination residential and correspondence schools (11 persons).

Available data do not indicate the occupational area of training of the DVR clients in all cases. Some indication of occupational areas is shown in Table 11. These data are derived from the type of schools and can be shown only in broad categories.

TABLE 11

NUMBER OF DVR CLIENTS ENROLLED IN EDUCATIONAL INSTITUTIONS BY OCCUPATIONAL AREAS, 1969-70

OCCUPATIONAL AREA	NUMBER
Business Occupation	397
Automotive	144
Office Occupation	79
Electronics	77
Industrial Occupation	59
Data Processing	52
Tailoring	39
Commercial Art	35
Building Maintenance	26
Meat Cutting	13
Trucking Industry	6
Real Estate	2
Other Identifiable	6
TOTAL	1,035

[a] Medical, Floral, Dog Grooming, Hotel Management, Stationary Engineering and Heavy Equipment one each.

3. State Technical Institute and Rehabilitation Center

In addition to the above activities, the Division of Vocational Rehabilitation operates the State Technical Institute and Rehabilitation Center at Pine Lake in southwest Michigan. Pine Lake provides trade and technical training for disabled male adults. Enrollment by department is shown for FY 68 in Table 12. The average number of persons served during the year was 311.

TABLE 12

ENROLLMENT AT THE STATE TECHNICAL INSTITUTE AND REHABILITATION CENTER BY DEPARTMENTS FISCAL 1968

DEPARTMENT	NUMBER OF STUDENTS	DEPARTMENT	NUMBER OF STUDENTS
Occupational Adjustment	103	Food Services	16
Electronics	27	Deaf	15
Business	26	Floor Mechanics	13
Cabinet Making	23	Upholstery	9
Drafting	21	Printing	9
Office Machine	19	Watch & Clock Repair	8
Machine Shop	17	Janitorial	5
TOTAL			311

D. Activities of the Special Education Division

The purpose of Special Education is to teach handicapped persons the physical, social, and mental skills needed to function in society. The Division of Special Education generally works with mentally handicapped persons up to the age of 21, and with physically handicapped persons who are 25 years of age and younger.

Table 13 presents a projection for the number of handicapped persons who will be able to benefit from occupational education in 1970 and 1975.

TABLE 13

PROJECTED NUMBER OF HANDICAPPED CITIZENS BY AGE RANGES WHO COULD BENEFIT FROM OCCUPATIONAL EDUCATION PROGRAMS 1970 & 1975[a]

AGE RANGE	NUMBER OF DISADVANTAGED PERSONS 1970	1975
High School Age	39,000	41,000
Post-Secondary Age	9,000	11,000
Adults under 65	337,000	332,000

[a] Provided by the Special Education Division of the Michigan Department of Education.

Cooperative agreements between the Division of Special Education and the Division of Vocational Rehabilitation to provide more effective vocational training for handicapped persons were begun in 1963. In FY 70, there were 43 cooperative agreements between the two divisions, making vocational rehabilitation services available within 40 percent of the secondary school districts in Michigan.

E. Activities of the General Curriculum Division; Guidance, Counseling, and Placement Activities*

Little data are available on counseling and guidance service available to potential vocational students. Traditionally guidance activities have been directed toward college-bound students. Guidance, counseling, and placement services for students in occupational education have been incidental in most cases.

Several projects designed to increase and improve the number of guidance and counseling services offered to students not oriented toward a college education will be initiated soon in the State. One example is the Mobile Career Guidance Project** which will serve the Charlevoix-Emmet Intermediate School District, the Eastern Upper Peninsula Intermediate School District, and the Gogebic-Ontonogan Intermediate School District.

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*The Council is particularly concerned with the need for expanded and more effective guidance, counseling, and placement services for all students. Members believe that too much emphasis has been placed upon guidance for college-bound students in the past. For example, approximately 35 of 100 students beginning elementary school will enter college; about one half of these will earn baccalaureate degrees. Still, nearly 75 percent of all secondary students are enrolled in college preparatory or general education programs.

**The objectives of the project are to:

(1) Facilitate the career planning and exploration activities of students through the provision of occupational information in many forms and activities.

(2) Improve communications between business, industry and the school in the areas of job opportunities, trends, and needed levels of training.

(3) Provide inservice opportunities for counselors, teachers, and administrators in the areas of career development activities, awareness of the world of work and project orientation.

(4) Assist parents in becoming more aware of the career decision making processes of their children and increase the parents awareness of the world of work.

Efforts are being made in other educational agencies to improve the guidance activities for potential occupational students. For example, the Genesee Intermediate District is developing a computerized occupational diagnostic service and guidance system. This system allows the student to explore occupational areas on an individual basis.

Pontiac has implemented a pre-vocational orientation project for junior high level pupils, based on the Industrial Arts Curriculum Project developed in Ohio. Detroit is developing a "World of Work Program" which will provide occupational experiences for all students from kindergarten through secondary school.

F. Activities of the Teacher Certification Division

Teachers of vocational-technical education are trained in ten institutions which are approved by the State Board of Education. Vocational-technical funds were allocated to eight state-supported institutions to conduct teacher education activities in FY 70. Sixty percent of these funds were designated for use in continuing teacher education activities; the remaining 40 percent was used for special projects. One of these projects, a study of the professional personnel needs in vocational-technical education in the State, will be conducted in FY 71.

At present Michigan receives no funds under Part F of the Educational Professional Development Act (EPDA). A state plan for the development of professional personnel will be completed early in fiscal 71.

New procedures for teacher certification that will have all teacher certification administered by the Teacher Education and Certification Division are being developed. One purpose of the changes is to achieve better coordination of teacher certification activities.

Activities Sponsored by State Agencies Other Than the Department of Education

A. Department of Corrections

The State of Michigan, through the Department of Corrections operates 15 correctional institutions ranging from a maximum security prison to a minimum security technical school. Among this

number are ten conservation camps. Various types of occupational training are conducted as a part of the total rehabilitation program for persons confined in correctional institutions.

Inmates are employed in the various institutional industries such as furniture, cotton clothing, and metal works to provide goods and services for the Department of Corrections and other governmental agencies. The industrial and other occupational assignments performed by inmates and the number of persons performing them is given in Table 14.

TABLE 14

INDUSTRIAL AND OTHER OCCUPATIONAL ASSIGNMENTS PERFORMED BY CORRECTIONAL INSTITUTIONAL INMATES 1969-70

OCCUPATIONAL AREAS	NUMBER OF PERSONS
Institutional Operations	2743
Farms	679
Conservation Projects	472
Garment Manufacturers	198
Textiles	137
License Plates	108
Stamp Plant	97
Furniture	88
Laundry	81
Shoes	50
Snow Fence	11
Tobacco	11
Soap	8
Brushes	3
Miscellaneous	59
TOTAL	4,725

[a] Job titles in the table are titles used by the Department of Corrections

Source: Department of Corrections

Formalized vocational training programs are also offered in the correctional institutions. The areas of training and completions for FY 69 are given in Table 15.

TABLE 15

PERSONS COMPLETING VOCATIONAL TRAINING PROGRAMS
IN CORRECTIONAL INSTITUTIONS
BY OCCUPATIONAL AREAS
(FISCAL 1969)

OCCUPATIONAL AREA	NUMBER OF PERSONS
Welding	379
Auto Mechanics	242
Electronics	190
Machine Shop	175
Drafting & Blueprints	155
Food Service	135
Building Custodian	104
Home Appliance Repair	80
Data Processing	60
Computer Programming	50
Auto Body Repair	40
Sheet Metal	31
Dental Lab Technician	25
Building Maintenance	15
Carpentry	4
TOTAL	1,685

Source: Michigan Department of Corrections

In addition to the programs listed above, two MDTA projects were funded for inmates by the Department of Education and the Michigan Employment Security Commission. One of the projects provided 300 On-the-Job positions. The other provided institutional training for 76 men. The Department of Vocational Rehabilitation has funded two programs to assist inmates. The programs include the treatment of medical-physical handicaps, the provision of prosthetic devices, and the payment of tuition for additional training of parolees. Approximately 318 men were served in these programs last year.

B. Bureau of Group Care Services, Department of Social Services

The Bureau of Group Care Services operates 20 facilities for the care of neglected and delinquent children. Pre-vocational and vocational training is available to those individuals who can benefit from this type of program.

Pre-vocational programs are designed to develop acceptable work habits, personal relations, responsibility, and appreciation of the world of work. These experiences are offered in the following areas: food service, homemaking, sewing, tailoring, paint shop, woodworking and health assistant.

Vocational programs are available to older youth who will enter the labor market as: restaurant operators, cooks and bakers, service station attendants, cosmetologists, machinists and maintenance men. Data on number of persons trained were not available.

C. Michigan Employment Security Commission

The programs described in this section are administered through the Michigan Employment Security Commission (MESC). The funds available for training and the number of persons trained are estimates.

1. Work Incentive Program (WIN)

The Work Incentive Program is administered through the MESC in conjunction with the Department of Social Services. Basic education, orientation to work, and occupational training programs are usually conducted through public or licensed private educational agencies.

The purpose of WIN is to provide training and work experience for recipients of Aid to Dependent Children (ADC). An estimated 6,000 persons were trained in 1970 with a budget of $7,500,000.

2. Job Opportunities in the Business Sector (JOBS)

The purpose of JOBS is to involve business and industry in the training of disadvantaged poor persons in metropolitan areas for gainful employment. Contracts for training may be subcontracted to public or private training agencies. The training may or may not be undertaken while the individual is engaged in productive work.

The number of slots for training varies from year to year. Approximately $70,000,000 were available in FY 70 for a five-state region which includes Michigan. In 1968-69 JOBS contracts in Michigan were for $23,977,500 and 7,599 trainees.

3. On-the-Job Training (OJT)

The OJT program, administered through the MESC, is designed to involve business and industry in the training of individuals. Employers are partially reimbursed for training costs.

In FY 70 an estimated 2,700 slots and $1,603,000 were available.

Activities Sponsored by the Federal Government

A. National Contracts

The National Contracts program is administered through various federal departments (Departments of Labor, Health, Education and Welfare, etc.). Programs range from contracts let directly to a group of small employers in the state, to national associations or corporations which operate in several states. Training slots are assigned to each state. The purpose of national contracts is to provide training for small groups of individuals under one contract over a large geographic area which will have funding flexibility at the national level.

In addition to direct contracts at the national level, contracts may be written by the regional offices of the federal departments involved and within the states. Such contracts may involve other manpower programs such as JOBS, OJT and Job Corps.

Contracts vary in size from a few trainees at relatively low cost to the $13,500,000 Department of Labor/Chrysler contract under the JOBS program. The Department of Health, Education and Welfare and the Department of Labor are currently operating national contracts jointly in the amount of $1,344,812 (for educational costs only) to serve 2,365 trainees in Michigan.

B. Regional Office of Economic Opportunity, Community Action Program

CAP is designed to provide training and other services to disadvantaged persons. Data relative to the number of training slots and funds for 1970 were not available.

C. U. S. Department of Labor

1. Job Corps

The Job Corps is designed to provide training in a residential setting for unemployed youth. Presently there are no centers in Michigan; however, a contract for the training of 250 youth will be let in FY 71. Funds for the contract will be between $1,600,000 and $1,900,000.

Activities Sponsored by Private Occupational Schools

A. Approved and Licensed hy the Department of Education

One hundred and sixty-five private schools were licensed by the Department of Education in Michigan during fiscal 1969. Enrollment reports were available from 135 of these schools.

Resident trade and business schools enrolled 30,750 students in fiscal 1969 or nearly 2,000 more students than were enrolled in vocational-technical programs in public community colleges for the same year. An additional 7,319 students were enrolled in correspondence courses in Michigan private occupational schools.

There has been a steady increase in the number of private schools and the number of students served by them in recent years. Nearly one fourth of the people placed for post-secondary training by the Division of Vocational Rehabilitation were placed in private occupational schools of various types.

B. Schools Approved and Licensed by Other State Boards

Certain private occupational schools such as nursing, barbering, cosmetology and aeronautics are licensed by state boards other than the Department of Education. These schools have also increased in both number and enrollment. Available data are presented in Table 16.

TABLE 16

ENROLLMENTS IN PRIVATE OCCUPATIONAL SCHOOLS LICENSED BY AGENCIES OTHER THAN THE DEPARTMENT OF EDUCATION

TYPE OF SCHOOL	NUMBER OF SCHOOLS	1969 ENROLLMENT
Aviation (Flight)	105	525 (Estimate)
Cosmetology	134	5,700 (Estimate)
Nursing	30	2,957
X-ray Technology	43	130 (Estimate)
Barbering	8	585
TOTAL	320	9,767

ADVISORY COUNCIL RECOMMENDATIONS AND A RESOLUTION

The Advisory Council's numerous concerns and the suggestions made by educators and citizens at the Council-sponsored public meetings have led Council members to present a number of recommendations regarding vocational-technical education in Michigan. These are presented below. In addition, this section presents a Council resolution regarding occupational training programs.

Advisory Council Recommendations

The twelve recommendations listed below have to do with the three areas of concern listed in the first section of this report: program planning, program support, and program accessibility.

A. Program Planning

The need for better program planning is a concern of both Council members and a number of speakers at the public meetings. Consequently, the Council recommends that:

(a) the Department of Education develop an overall plan for administering vocational-technical education programs that will include a statement of priorities for different types of programs so that decisions regarding the expenditure of limited funds may be made more rationally;

(b) procedures be established so that personnel within the Division of Vocational Education can better anticipate Congressional actions regarding programs in and funding for vocational-technical education;

(c) all occupational training programs operated in the State be approved and coordinated at a State level through the Department of Education and its designated Divisions of Vocational Education or Vocational Rehabilitation;*

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*See the resolution which follows these recommendations.

(d) greater flexibility be given by the Department of Education to local school districts to plan and implement programs in vocational-technical education; and

(e) less centralized and more flexible procedures be developed to disburse federal funds from the State level to local

B. Program Support

The need for additional support for vocational education is a concern of the Council. It therefore recommends that the State provide money for membership allowance and the transportation of students to area centers in the State.

C. Program Accessibility

One of the sharpest concerns expressed by Council members is that all students have access to meaningful vocational-technical education experiences. Therefore, the Council recommends that:

(a) an increasingly greater emphasis be placed upon the rapid development of area centers;

(b) increased emphasis at the State level be placed upon guidance, counseling, and placement activities so that students who are vocationally oriented receive the benefits of these services (In particular, the Council recommends that greater emphasis be placed upon counseling in Manpower Development Training (MDT) programs.);

(c) communities develop placement services which will insure that all persons who receive vocational-technical education will be placed in jobs following their work in vocational-technical programs;

(d) the State and local school districts place a greater emphasis upon adult vocational-technical education;

(e) that every secondary school in the State be a part of a community college district; and

(f) the procedures for funding special needs programs at the State level be made more flexible so that money for well-planned and deserving programs may be expended quickly.

Resolution on Occupational Training

The resolution which follows was adopted by the Advisory Council during the meeting at Albion, April 3 and 4, 1970. The Council is concerned that substantial amounts of public money are being expended for occupational education in such a way that the State Board of Education cannot effectively fulfill its constitutional role of leadership, planning, general supervision, and coordination of all public education in Michigan.* The programs referred to in the opening sentence are described briefly on pages 30-31 of this report.

> With the proliferation of programming in occupational training which has developed in an attempt to solve the needs of a large segment of our population, it is the opinion of the State Advisory Council for Vocational Education that the State's educational institutions, both public and private, have a large investment in knowledge and facilities to properly utilize these funds in successful and economical programming.
>
> The State Advisory Council, therefore, goes on record in requesting the State Board of Education to take under advisement the recommendation that all occupational training programs operated in the State be approved and coordinated at a State level through the Department of Education and its designated Divisions of Vocational Education or Vocational Rehabilitation.

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*Article 8, Section 3 of the Michigan Constitution states: "Leadership and general supervision over all public education, including adult education and instructional programs in state institutions, except as to institutions of higher education granting baccalaureate degrees, is vested in a State Board of Education. It shall serve as the general planning and coordinating body for all public education, including higher education, and shall advise the legislature as to the financial requirements in connection therewith."

APPENDIX A

Comments Made At Council-Sponsored Public Meetings

Below, in outline and abbreviated form, are comments made by participants at the three public meetings on vocational education sponsored by the Advisory Council. The comments have been grouped arbitrarily under eight headings. Those items which are listed earlier in the lists were mentioned more often than those listed later.

Financial

A. The need for an increased state funding commitment
B. State allowance for transportation of students to the area center
C. The need for additional funds for area centers
    1. Construction funds
    2. General needs
    3. Operational funds
    4. Equipment funds
    5. Allowance for non-public vocational students
    6. Membership allowance for area center students
D. Additional state funds for program operation--all levels
E. Equipment funds, all levels
F. Post-secondary funds - construction, operation and development
G. Funding of local and area programs should be by state--Ohio principle
H. Specific funds for vocational guidance
I. Funds for additional staff for Division of Vocational Education
J. Minimize vocational funding of disadvantaged programs that qualify under other acts
K. Earmarking funds dangerous--should be local responsibility to determine best use
L. Spend as much federal money on "prevention" (vocational education) as on "cure" (welfare, retraining, etc.)
M. Federal and state lands in district lower tax base
N. Concern that certain reimbursement criteria will adversely affect U.P. districts--e.g., dropouts, millage

as only requirement of local effort; elimination of "double dipping" allowance for secondary students served by community colleges.

State Department of Education

A. Specific comments to the Department of Education
   1. Redirect education priorities with more attention to vocational education
   2. Improve procedures for community colleges to acquire program authorization
   3. Need state plan for development of area centers and community colleges
   4. Give vocational education bureau status
   5. Consolidate local districts and intermediate districts--maximum of 30 intermediate districts
   6. Actually promote an "Educating for Work" philosophy
B. Comments to the Division of Vocational Education
   1. Need master state plan for vocational education
   2. Enlarge division consultant staff
   3. Examine the state staff role
   4. Hold quarterly regional meetings for improved communication
   5. Give position statement concerning length of the school day
C. General
   1. Improve state leadership activities
   2. Additional services needed in rural areas
   3. Changes needed in area center designation
   4. MESC and other state services not available
   5. Should have appointed state board to avoid partisan politics in education
   6. Create "Division of Manpower and Utilization" to bridge gap between Department of Labor and Department of Education

Curriculum

A. Expand vocational education programs
B. Provide additional help in developing programs for the disadvantaged and special needs
C. Need pre-vocational programs
D. General education and vocational education should be combined--not separate programs

E. Vested interests of certain state licensing boards inhibit program development by unrealistic requirements
F. More attention to needs of older persons, apprentices
G. Expand program offerings in sparsely populated areas
H. Restructure existing programs to fit disadvantaged
I. Permit reimbursed cooperative programs for 14 and 15 year old youth
J. Clarify relationship of area center to apprenticeship program
K. Concern expressed over proposal for 300 minute school day in areas where long travel time is required

Guidance

A. More vocational guidance needed
B. Additional counseling is needed at post-secondary level.
C. Faculties must make a commitment to the work-bound.
D. Emphasis on program selection is at 11th and 12th grade--this emphasis is doing an effective job.
E. Emphasis on program selection is at 10th grade level, should be at post-secondary level.
F. Assistance is needed to aid vocational high schools to feed community college technical programs.
G. Issue is getting jobs for people.
H. Counselors should be aware of private trade school offerings.
I. Develop programs for employers to urge "dropouts" to return to school part-time

Teacher Education and Recruitment

A. Need for in-service training programs
B. Make released time available to staff to study and develop innovative programs
C. Provide incentives for innovative activities
D. Develop state policy statement on in-service education
E. Evaluate current teacher education programs--are they relevant to needs of today's teachers?
F. Require all prospective teachers to take at least one vocational course
G. Need incentives to attract skilled technicians to teaching
H. Problems in certifying non-degree teachers
I. Difficult to obtain good staff

Private Trade Schools

A. Consider use of private trade schools on contract basis
B. A need exists for cooperation between private trade schools and public institutions.
C. Should avoid duplication of services between private trade schools and public schools
D. Provide scholarships to private trade school students
E. State should be aware of existence of and contribution to be made by private trade schools.
F. Data presented on placement and employment of private trade school graduates

Public Relations

A. Need for citizens to inform legislators of vocational education needs
B. More business and industry involvement needed in developing vocational education
C. Need to change image of vocational education especially for teachers, counselors and parents
D. Need organized state-wide public relation program to promote vocational education
E. Discard use of term "dropout"

Other Comments

A. Some community colleges have a need for dormitories.
B. Lack of leadership at the county level
C. Should be a county-state action plan for developing vocational education--state leadership required
D. Community colleges have problems in meeting North Central Association accreditation
E. Leadership activities for State Advisory Council suggested. Relate generally to previously listed comments.

VT 012 389
Evaluation of the State Plan for the Administration of Vocational Education Under the Vocational Education Amendments of 1968.

Arkansas State Advisory Council for Vocational-Technical Education, Little Rock.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 2Sep70 24p.

DESCRIPTORS - *STATE PROGRAMS; *VOCATIONAL EDUCATION; TECHNICAL EDUCATION; *PROGRAM PLANNING; ADVISORY COMMITTEES; ANNUAL REPORTS; PROGRAM DEVELOPMENT; *PROGRAM EVALUATION
IDENTIFIERS - ARKANSAS

ABSTRACT - This report to the U.S. Office of Education evaluates Arkansas' State Plan for fiscal year 1971. The plan is analyzed in terms of goals, manpower development, effects of Federal laws, orientation toward the people and their needs, and the relationship between educational services and employment opportunities. The report recommends increased efforts to establish a comprehensive high school program throughout the State, with a shift in emphasis away from area vocational schools. (BH)

VT 012 389

ED0 57254

EVALUATION OF THE STATE PLAN FOR THE ADMINISTRATION OF VOCATIONAL EDUCATION UNDER THE VOCATIONAL EDUCATION AMENDMENTS OF 1968

by

The Arkansas Advisory Council
for
Vocational-Technical Education

September 2, 1970

VT012389

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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4050

The Arkansas Advisory Council for Vocational-Technical Education was created by Act 151 of the Sixty-Seventh General Assembly of the State of Arkansas, 1969. It is composed of 33 members from diverse backgrounds in business, industry, labor, agriculture and education. It is charged by law to advise the State Board for Vocational Education concerning the operation of vocational education programs; make recommendations concerning such programs; and evaluate the State Plan for the Administration of Vocational Education under the Vocational Education Amendments of 1968.

Arkansas Advisory Council
for
VOCATIONAL-TECHNICAL EDUCATION

416 Continental Building -
Little Rock, Arkansas 72201
[501] 374-6790

September 2, 1970

Mr. Rabie Rhodes, Chairman
State Board for Vocational Education
State Education Building
Little Rock, Arkansas 72201

Dear Mr. Rhodes:

The Advisory Council for Vocational-Technical Education is required by law to make an evaluation of the State Plan for the Administration of Vocational Education under the Vocational Education Amendments of 1968, and transmit its findings to the United States Commissioner of Education and the National Advisory Council on Vocational Education through the State Board for Vocational Education. A copy of the Council's evaluation of the FY 1971 Plan is attached.

Much time, thought, and research went into the preparation of this evaluation, and the Council sincerely hopes that the opinions expressed therein and the recommendations given will be of benefit to the Board in their preparation of future plans.

Sincerely,

Daniel H. Woods
Chairman

A. SUMMARY AND RECOMMENDATIONS

The goals stated in the State Plan for the Administration of Vocational Education in Arkansas meet the requirements set forth in the Vocational Education Amendments of 1968; and, if effectively carried out, would serve the needs of the people of Arkansas. However, the Plan does not adequately provide for meeting several of the stated goals.

First, there are presently too few vocational education opportunities for secondary school students in programs other than vocational agriculture and home economics education. The Department of Education is to be commended, however, in its efforts to update the vocational agricultural programs, to make the home economics programs more relevant to today's needs, and for starting a vocational orientation program.

Second, too much reliance is being placed in the State area vocational-technical schools to make up for the paucity of programs in the public school system. Also, these schools are being located in rural areas of declining population with few job opportunities for graduates. This also discriminates against persons in the more populous areas of the State where the training needs and job opportunities are concentrated. Nevertheless, the present schools do perform a vital role in the State's vocational education program.

Third, vocational teacher training programs in the State's colleges and universities are inadequate to meet the demands of even the present vocational programs in Arkansas. This situation will become even more critical over the five years projected in the Plan.

Finally, a *major* deficiency of the State Plan is the implicit assumption that in areas of high youth unemployment and/or depressed areas the basic cause is structural unemployment, *i.e.*, a mismatch between job vacancies (the kinds of jobs that are vacant and the kinds of workers that are unemployed), and that this situation can be corrected through vocational training programs.

While the Council does not argue that there is *no* mismatch in the labor market in these areas, and that training and educational opportunities are not needed there, an unemployment rate in excess of six or seven percent, and even greater, cannot be a mismatch. There are not that many unemployable people in any economy! Therefore, the problem is simply a *lack* of job opportunities in these areas, with a resultant large labor surplus. The problem is one that can only be solved by moving people to where the job opportunities are, or by creating jobs in those areas—and this is not the role of vocational education. Rather, the role of vocational education is to train people for existing or future job opportunities.

To perform this role adequately, urban areas cannot be ignored. We cannot continually refuse to recognize the fact that Arkansas is now a predominately urban State or the essential role which urbanization must play in the development of our rural areas. Therefore, the major criteria for providing training opportunities must be *job* opportunities. Urban centers such as Jonesboro, Fort Smith, Little Rock-North Little Rock, West Memphis, Fayetteville-Springdale-Rogers, Russellville, Conway, Texarkana, and even smaller communities that are market centers for their areas such as Monticello, Magnolia, Mena, De Queen, Mountain Home, and others must have vocational training facilities. The only economically and educationally feasible method for accomplishing this is through locally run comprehensive high schools with strong afternoon, evening and summer programs for adults and, in the larger communities, adult training centers, *i.e.*, area schools, or community colleges.

The Council realizes that, in the past, the State Constitution prohibited the use of public schools for educating those under 6 or over 21, but that provision has been repealed. Public schools can and should be used for both purposes.

Fayetteville High School is a good example; it serves both high school and adult students, as can other public schools if they are properly funded and motivated.

For these reasons, the Council believes that the goals stated will not and cannot be met if the course outlined in the State Plan is followed; therefore, the Council reiterates its recommendations contained in its First Annual Report:

(1) That emphasis on vocational-technical education should be directed to establishing a comprehensive high school program throughout the State.
(2) Additional post-secondary area vocational-technical schools should not be built until the existing ones have expanded their enrollment and curriculum.
(3) The present plan for constructing new schools should be abandoned, and any new post-secondary schools should be built where student needs and job opportunities are the greatest.
(4) Vocational-technical education should expand its cooperative training programs with business and industry and place more emphasis on industry needs.
(5) There is an immediate need for expanding and improving the training of vocational-technical teachers.

B. EVALUATION AREAS

The members of the Advisory Council are charged with the responsibility of evaluating the State Plan for the Administration of Vocational Education under the Vocational Education Amendments of 1968. The Council's evaluation must be made in terms of the stated goals in the State Plan to determine if, in their opinion, they meet the intent of the Vocational Education Act of 1968, and how effectively the people and their needs are being served and will continue to be served in the future.

However, the format used in presenting the State Plan makes the evaluation of the Plan extremely difficult. These data are not presented in a form that makes for ease of analysis, and the frequent use of percentages, without benefit of the absolute numbers to which these percentages are applied, is more concealing than revealing. Therefore, to properly evaluate the Plan, extensive research had to be conducted, not only to determine the accuracy of the statistics presented, but also to determine the accuracy of the interpretation of what these statistics meant in terms of reaching the stated objectives of the Plan.

This criticism is not directed toward the Staff of the Arkansas Department of Education, but rather to the U. S. Office of Education for not developing more useful guidelines for the State Plan.

Further, the guidelines were received so late in the planning cycle that the State Department of Education was forced to hurry the preparation of the Plan. This, combined with the relative inexperience of a new planning Staff, resulted in numerous errors in the presentation and interpretation of statistical data.

1. State Goals and Priorities

The Plan states: "The State Board shall give due consideration to the vocational education needs of (1) persons in high school, (2) persons who have completed or left high school who require preparation for entering the labor market, (3) persons already in the labor market who need training or retraining for employment (other than persons receiving training allowances under the Manpower Development and Training Act of

1962 or the Trade Expansion Act of 1962), (4) disadvantaged persons, and (5) handicapped persons as determined pursuant to 3.262 of the State Plan."

It further states that the following areas are to be served:

(1) Economically depressed and high unemployment areas,

(2) Areas of high youth unemployment and school dropouts, and

(3) Areas of high population density.

These goals meet the requirements set forth in the Vocational Education Amendments of 1968 and, if effectively implemented, would serve the needs of the people of Arkansas. But, the State Plan does not make adequate provisions for reaching some of the stated goals.

a. Secondary Schools

As stated in the Annual Report of the Arkansas Advisory Council dated April 28, 1970, our secondary school programs are *not* meeting the needs of our youth as shown by the large number of students who drop out of school each year, high college attrition rates, and high youth unemployment in Arkansas. Too many students are not adequately prepared for the world of work, for further education at a technical institute, or for college.

The dropout problem can be alleviated to a great extent by having meaningful vocational education programs in the secondary schools. Many students drop out of school because the curriculum is concentrated almost entirely on college preparatory education and thus holds little interest for them. Learning a skill that will be helpful to the student in finding employment after graduation creates interest and provides an incentive to remain in school. Also, such training would help to eliminate the need for remedial or makeup training should the student decide to further his education at a post-secondary technical school or community college.

In order to accomplish this, however, more consideration must be given to updating and expanding the present secondary vocational education program. In the 1969-1970 school year, about 31 percent of the high school students in Arkansas were enrolled in vocational agriculture and home economics courses but less than four percent were enrolled in other vocational education courses, such as office occupations education, distributive education, and trade and industrial education (see Appendix I). More emphasis should be placed on these latter programs.

The Department of Education is to be commended, however, in its efforts to update the vocational agricultural programs, to make the home economics programs more relevant to today's needs, and for starting a vocational orientation program.

Further, there are some areas where the Council feels the State Department of Education is making definite progress. For example, the State Plan reflects a decrease of 30 vocational agriculture departments in the next five years which can be contrasted to increases in the areas of office occupations education, trade and industrial education, home economics education (wage earning), and programs in the construction crafts.

The State Department of Education is to be especially commended for the vocational programs projected for the special disadvantaged programs (penal institutions), and for the number of instructional programs for the disadvantaged. Also, the trend toward increased cooperative training programs for handicapped persons is one the Council feels is relevant to today's vocational needs. There is a significant increase in the number of "Type G" cooperative programs– from 11 in 1970 to 137 in 1975. There are other areas where satisfactory trends have been established, but the Council feels there is no need to develop this further as they are in agreement with the projections in the State Plan.

Nevertheless, while the latest employment statistics of the Employment Security Division, Arkansas Department of Labor, show employment in agriculture declining both relatively and absolutely, vocational agriculture continues to be a *growing* segment of vocational education in the secondary school system. There are presently less than 59,000 agricultural workers in Arkansas, a decrease of over 30 percent just since 1960. But, according to the projections of the labor demand and supply shown in Table I, Part II, page 2, training will still be concentrated in agriculture in 1975. The labor demand in agriculture is projected to remain constant between 1971 and 1975, but the labor supply (output) is projected to increase. Stating it another way, even though agricultural employment, at best, will show no growth, the vocational education programs in agriculture are to increase their output.

The Plan also states that vocational education is available in each county in the State. While it is true that vocational agriculture, home economics, or some other vocational education course is taught in every county, certainly not every *student* in each county has an opportunity for vocational education. Further, in three-fifths of the counties only vocational agriculture or home economics courses are offered. Finally, of the 367 school districts in Arkansas, 60 districts do not have any type of vocational education programs (see Appendix I). In other words, vocational education is not available to every high school student in the State, and this situation will not improve materially over the next five years following the State Plan.

If vocational education is to make its full contribution to the economic well-being and development of the people of Arkansas, opportunities for such training must be made available to our youths in our public school systems *now*. The Council strongly recommends establishing area comprehensive high schools as the optimal method for achieving the best vocational programs, and the planned eleven additional specialized secondary schools by 1975 is a move in the *wrong direction.*

The Arkansas Advisory Council in its First Annual Report recommended that emphasis be directed to the secondary schools to include a comprehensive program of vocational-technical education. The Council's recommendations were reinforced by the First Annual Report of the National Advisory Council on Vocational Education, July 15, 1969, and the Report of the Technical Assistance Team from the Office of Education, U. S. Department of Health, Education, and Welfare to the State of Arkansas, April 21-23, 1970 (see Appendix II). These recommendations were virtually ignored in the State Plan even though the Arkansas Advisory Council's report and the National Council's report were available to the Education Department at the time the State Plan was prepared. In addition, the U. S. Office of Education's recommendations were presented orally to the Staff before the State Plan was prepared, even though their written report was not received until after the Plan had been completed.

b. Post-Secondary Schools

Too much reliance is being placed in State area vocational-technical schools to make up for the paucity of programs in our secondary schools. If emphasis were placed on development of comprehensive area high schools, then the area vocational-technical schools would be able to operate as true post-secondary schools. At the present time, however, these schools do perform a vital role in the State's vocational education program. But, there is a question as to whether they are meeting and will continue to meet the manpower needs of Arkansas.

Projected enrollment by the Department of Education (Table 4, Part II, page 31) for the

schools existing in 1971 is 5,735, or an average of 477 students per school. It should be noted, however, that although the number of schools and the total enrollment will both increase by 1975, the average enrollment per school will decline to 310 students. (There is a minor error in Table 4 as counting the Southwest Technical Institute and the two branch schools there would be a total of 25 schools, or not including the branch schools, a total of 23.) Furthermore, the total number that can be trained at this level will still be only about one-third of the 21,000 students that are dropping out of our public school system annually before completing the 12th grade. In short, the pool of undereducated and undertrained people will continue to grow under this plan.

Enrollment and curriculum must be expanded in the present area schools if Arkansas is to achieve a reasonable economy of operation and a training program that meets the needs of students and industry. The Education Department Staff has repeatedly stated that the smaller the post-secondary school's enrollment, the lower the per student costs are. This is not true as shown in the latest auditor's report (see Appendix III). Each of the area vocational-technical schools has approximately the same plant, maintenance, and administrative costs, and spreading these overhead or fixed costs over more students reduces the total cost per student. An examination of Appendix III shows that the average cost per day student is lowest in the two largest schools (The Pines and Petit Jean) and highest in the two smallest schools (Oil Belt and Foothills).

The curriculum in each of the schools should be expanded and emphasis directed to skill training for industrial, construction, and commercial trades. At the present time, only two schools (Pines and Petit Jean) offer more than 10 different courses.

2. State Human Resources Development Program

It was not feasible for the Council to make an evaluation of the State's overall development program at this time.

3. Effects of the Vocational Education Amendments of 1968

The effects of the 1968 amendments can only have an impact upon vocational education with the passage of time. Therefore, the Council limited its evaluation in this area to how effective the programs in the State Plan would be in providing the teachers required for carrying out the goals stated in the Plan.

The Plan has set forth specific requirements to be met by teachers and administrators in most areas of vocational education; it is comprehensive and leaves no doubts as to the qualifications required. In practically all cases the requirements are high enough to insure that capable people are employed and yet practical enough to recognize the needs of the students to be served. It also recognizes the difficulty of finding academically trained people with aptitude and interest in the vocational fields. Provisions are made in the Plan for in-service training of teachers and administrators which tends to strengthen performance.

However, there is a great need in Arkansas for teacher training programs in the various occupational areas. Persons are certified as teachers of occupational courses simply on the basis of their occupational experience; and while it is important for vocational teachers to have had such experience, it is also important that they have some academic training. The Plan does not include such a proposal. Therefore, it is recommended that teacher training be examined closely and that an ultimate goal of certifying teachers *only* after they have received both academic training and work experience be established. It is

also recommended that college credit continue to be given toward a degree for work experience.

A teacher training program that would prepare teachers for occupational education that will fit the above stated criteria has been proposed at the University of Arkansas at Fayetteville, and the Council strongly urges the State Department of Education to give serious consideration to this program to see if this, or a similar program, can be implemented.

Special attention should be given to the distributive education, trade and industrial occupational areas, and to some health service areas. There is only one approved program offered in distributive education. This is at the University of Arkansas with only two or three students graduating annually. A new one was started in the 1969-1970 school year at Southern State College; however, this program has not been approved by the State Board. There is also one in-service training program with two classes offered each summer by the University of Arkansas.

Reimbursed programs for training in trade and industrial education are available in only two colleges. Only 50 baccaulaureate degrees were granted during the 1969-1970 school year, which are inadequate to fill the needs for this service, especially if the programs in the secondary school system were commensurate with the needs.

There are no teacher preparatory programs in health science at the undergraduate level, but one new program granting a master of nursing education degree will be started in the 1970-1971 school year.

4. Serving People and Their Needs

The State Plan contains incorrect information for formulating future programs in vocational-technical education in Arkansas.

The Council questions the State Plan's unemployment figures. The map showing the high rates of general unemployment (Part II, page 14) contains many incorrect figures. The recognized source for unemployment rates by county is the Employment Security Division of the Arkansas Department of Labor. According to their latest labor force estimates, only 46 of the 75 counties, or 61 percent, show the correct unemployment rate. If unemployment is to be a major factor in determining the location of vocational programs, correct statistics must be used. Also the actual *number* of unemployed should be examined in conjunction with unemployment rates so as to give a clearer picture of the situation (see Appendix IV). Additionally, in Arkansas, for every unemployed person there are, on the average, four underemployed or persons not in the labor force. These persons are either working in jobs not commensurate with their skills and training, or they are not in the labor force because they know no jobs are available or because they have been turned away from jobs due to lack of education or occupational skill.

Concerning youth unemployment it appears that the map on page 15, Part II, of the State Plan shows only that youth unemployment is high in areas where there is at least one college or university—vocational programs are of little value in helping college students find employment.

The Council also questions the map showing the percent of school dropouts by county. The Research and Statistics Section of the State Department of Education does not have dropout data by districts or by county and the Guidance Service has only the number of dropouts in schools that have counselors, including elementary and junior high schools. The only published report on school dropouts was prepared by Mr. Frank W. Cannaday of the Department of Education in 1962.[1] This report, like the dropout data

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[1] Cannaday, Frank W., *Dropouts—A Major Educational Concern*, Arkansas State Department of Education, 1962.

in the Advisory Council's report prepared by the Council's consultants, was based on data applying to the entire State school system and is not and cannot accurately be broken down to school districts. Therefore, the validity and the accuracy of the dropout rates contained in the State Plan are highly questionable.

Finally, post-secondary area vocational-technical schools have primarily been placed in rural areas of low or declining population where unemployment rates are high due to lack of job opportunities. The urban areas, including most cities of over 10,000 population, have been virtually ignored. And, therefore, students in these areas do not have as great an opportunity of receiving vocational-technical training as a student in either the Ozark mountains or the Delta farmland. The Board has apparently ignored the fact that jobs are mostly in cities and that students, both in the cities and from the rural areas, should be trained to fill these jobs.

Arkansas has traditionally been a rural State (67 percent of the population in 1950 was rural, and 57 percent was rural in 1960). However, as the historical trends show, rural population has been declining since before 1950, and we are becoming more urbanized. The Population and Household Studies Section of the Industrial Research and Extension Center (the designated agency responsible for working with the Bureau of the Census under the Federal-State Cooperative Program for Local Population Estimates) estimated more than a year ago that Arkansas had become an urban State, by Census definition,[2] and the preliminary 1970 Census is proving this to be true (see Appendix V).

But the projections of population in the State Plan show rural population in 1970 and 1975 representing the same percent of the total as it did in 1960, and apparently the projected emphasis in agricultural programs is based on this incorrect assumption.

In addition, rural population is interpreted to mean primarily farm population. But, by Census definition, "The farm population includes only persons living in rural territory on places of 10 or more acres from which sales of farm products amounted to $50 or more, or on places of less than 10 acres from which sales of farm products amounted to $250 or more." This broad definition encompasses many persons who are not really farmers.

Preliminary Census figures indicate that Arkansas will have an urban population of about 51 percent, farm population will be approximately 11 percent and rural nonfarm population (small towns, cities of under 2,500 population, and urban fringe areas) will be about 38 percent (see Appendix V). While, by definition, urban includes only places of 2,500 inhabitants or more, there are many towns and communities in Arkansas with less than 2,500 population that definitely cannot be considered rural areas in terms of farming operations.

There are recognized, reliable sources for most of the economic and social information that is used as the basis for much of the planning for vocational-technical programs, but it appears that many of these sources have not been utilized. Also the inaccuracies in the statistics presented are not as important as the errors in interpretation and analysis of what these statistics mean or imply.

5. Employment Opportunities and Educational Services

It appears that many important facts concerning population, employment opportunities

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[2] The U. S. Department of Commerce, Bureau of the Census defines urban population as, "All persons living in urbanized areas (including the densely settled urban fringe) and in places of 2,500 inhabitants or more outside urbanized areas."

and industrial needs have not been utilized in determining the sites for area vocational schools.

The State's plan for new schools in the areas designated will not be a panacea for the needs of vocational education or for the economy of the areas. Also, in terms of spending public funds, the number of persons benefited by such expenditures is more significant than insuring that every geographic area, regardless of population density, has equal service. The Council feels that schools should be placed where the people are and where employment opportunities and industry needs are the greatest. It is believed that the concept of locating new area schools in sparsely populated areas should be abandoned in favor of locating schools to serve a greater number of people.

The foregoing should not be construed to imply that students in less urban areas should be forgotten. But, when a person is trained for a job that does not exist in the area where the training takes place and that person is not willing to move, the money, time, and effort are wasted. If the resources, however, are used to train a student where jobs exist, *i.e.*, urban areas, the student can be employed immediately upon graduation. Furthermore, the present system is inequitable as it discriminates against persons in the more populous areas of the State, where the training needs and job opportunities are concentrated.

An example of the plight of the more populous areas is the Little Rock-North Little Rock SMSA. While it is true that this area has the highest per capita income in the State and one of the lowest unemployment rates, it also has the most people and the greatest *number* of people unemployed. There are more unemployed people in this area than there are in the 22 smallest counties combined. This ratio of large numbers of unemployed is also evident in the other urban centers, even those with low unemployment rates. Also, there are greater *numbers* of poor, uneducated, and unskilled people (the disadvantaged and handicapped) in these urban centers, even though their percentage of total population in their area may be lower than in some rural areas (see Appendix IV).

Of the five largest cities (Little Rock, Fort Smith, North Little Rock, Pine Bluff, and Hot Springs) only two have a vocational-technical school—Pine Bluff and Little Rock. However, the Little Rock Vocational-Technical School (formerly the Little Rock Adult Vocational School) is not comparable to the other vocational-technical schools. It was begun by the Little Rock School District and offers only a few courses, most of which are M.D.T.A. and apprenticeship programs and adult education evening courses. This school will have to be greatly updated and expanded in order to be analogous to the other area schools, and at this time should not be considered to be an area vocational-technical school.

Appendix VI shows the location of the 10 existing schools and the proposed schools and branches. An examination reveals that three additional schools plus a branch school are planned for the North Central Planning and Development District (PDD) although the population in this area has not increased as a percent of the State's total population from 1960 to 1970. In other words, an area which contains only 7.4 percent of the State's population will have five of the 24 schools.[3] In contrast, the Central Arkansas PDD, which contains 21 percent of the State's population (an increase in its share since 1960), has no vocational-technical school and only one is planned for the District (see Appendix VII).

Additional schools are proposed in three districts which have shown losses in population between 1960 and 1970, the most notable area being the Southeast in which three additional

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[3] This does not include the Southwest Technical Institute as it is a residential school, primarily serving high school graduates from throughout the State. But, the branch schools are counted as separate schools.

schools are planned. The fastest growing Region in the State, the Northwest PDD, has only one school at the present and one more is planned. The area was at the top of the Board's priority list for a new school, but was removed because the prospects of obtaining Federal funds for the construction of the school were poor (see Appendix VIII). In other words, the priorities for the proposed schools were apparently made on the basis of obtaining maximum Federal construction funds and in complete disregard as to where the educational needs and opportunities were.

Furthermore, the service areas of many of the schools will overlap while other areas of the State will have no vocational education opportunities. For example, in 1975 the North Central PDD will have four schools, plus a branch school; assigning only a 25-mile service area to each school results in an extensive overlap between schools. In addition, part of the same area will be served by the proposed school in Randolph County. As all schools now operate buses in several directions up to a 50-mile radius (without charge to the student), many of the people in this Region will have access to a school located not only in five counties in the Region (Izard, Independence, Jackson, White, and Stone), but also schools located in Mississippi, Poinsett, Randolph, and St. Francis counties (see Appendix VI). The area simply does not have the population to support five schools; and as a result, building these schools would be a waste of construction, maintenance, and operating funds.

If Arkansas is ever to reach its potential in economic development, our limited public monies must be spent wisely and priorities carefully established. Obviously the greatest need, at this time, is for additional funds for vocational-technical education programs.

Respectfully submitted,

Daniel H. Woods
Chairman

Members of the Advisory Council

Rowan J. Altheimer
Grady P. Arrington
L. C. Baber
Russell Baxter
M. A. Blakely
Ken Boettcher
H. L. Bryles
W. H. Cluck, Jr.
Lloyd E. Curtis
James A. Dildy
John Fitzgerald
G. L. Glover
James W. Green
Mary W. Hall
Jefferson Haney
Ralph Hudson
Bob Lamb
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Robert M. Millwee, Jr.
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Harry Ragland, Jr.
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Leona A. Troxell
Harry Vandergriff
John Vandiver
William L. Walker
Adrian Williamson, Jr.
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APPENDIX

APPENDICES

I. Public Vocational Education in Arkansas by School Districts, 1969-1970

II. Report of the Technical Assistance Team, Office of Education, U. S. Department of Health, Education, and Welfare to the State of Arkansas, April 21-23, 1970

III. Vocational-Technical Schools - Average Student Costs

IV. Number of Unemployed and Unemployment Rates, Latest Available Data, Arkansas Employment Security Division

V. Population, Latest Available Data

VI. Location of State Area Vocational-Technical Schools

VII. 1970 Population, Area Vocational-Technical Schools, Number of Unemployed, and Unemployment Rate by Planning and Development Districts

VIII. Arkansas Gazette, Monday, March 9, 1970

APPENDIX I

PUBLIC VOCATIONAL EDUCATION IN ARKANSAS, 1969-1970

School Districts with Senior High Schools	Enrollment							
	Total	Voc-Ag.	Home Ec.	Bus. & Off. Edu.	Dist. Edu.	T. & I. Edu.	Health Occ. Edu.	Gen. Coop. Prog.
Districts with several reimbursed programs (44 districts)	41,108	1,879	5,463	642	1,108	1,509	97	142
Districts with only Home Economics and/or Vocational Agriculture (263 districts)	48,277	9,567	12,204	-	-	-	-	-
Districts with no vocational programs (60 districts)	4,937	-	-	-	-	-	-	-
Total (367 districts)	94,322	11,446	17,667	642	1,108	1,509	97	142
Percent of enrollment	100.0	12.1	18.7	0.7	1.2	1.6	0.1	0.2

Note: In 1969-1970 there were 268 programs in vocational agriculture; 352 programs in home economics; 31 programs in business; 25 programs in distributive education; 62 programs in trade and industrial education; 2 programs in health occupations; and 6 general cooperative programs.

There is some double counting of students in vocational education due to students in some school districts taking more than one vocational education course at the same time.

Source: Arkansas State Department of Education.

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APPENDIX II

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

MAY 26 1970

Our Reference: OAC-AVTE

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BY COMMISSIONER'S OFFICE

JUN 1 A.M.

REFER

Dr. A. W. Ford
Executive Officer, State Board for
Vocational Education
State Department of Education
State Education Building
Little Rock, Arkansas 72201

Dear Dr. Ford:

I am enclosing a report prepared by our visiting team which was in Arkansas on April 21, 22, and 23. The State Technical Assistance Team was chaired by Dr. Edwin L. Rumpf, Chief, Development Branch, Division of Vocational and Technical Education. The report of the team visit was prepared by Mr. William A. Dennis as team secretary and represents consensus of the team members. The program officers in the regional offices have been asked to follow up the general comments made by the team with the State Director.

We wish to express the gratitude of the Office of Education for the assistance shown us by you and your staff during this visit. The many fine things we saw going on in the vocational education program in this State are noted in the report. The suggestions or general concerns are expressed in the form of general comments on which follow-up discussions will be held. Please extend our thanks to the State Director and his staff members in the Division of Vocational Education for making this visit both pleasant and profitable.

Sincerely yours,

Grant Venn
Associate Commissioner for Adult,
Vocational, and Technical Education

Enclosure:

cc:
Mr. J. Marion Adams
Mr. M. A. Browning

APPENDIX II - (Cont'd.)

REPORT OF THE TECHNICAL ASSISTANCE TEAM TO THE STATE OF ARKANSAS

April 21-23, 1970

Three members of the Division of Vocational-Technical Education, U. S. Office of Education, and two members of the Region VII office met with the staff of the Division of Vocational, Technical, and Adult Education, State Department of Education in Little Rock, Arkansas. The purposes of the meeting were:

1. To determine the progress Arkansas is making in implementing the Vocational Education Amendments of 1968.
2. To review the structure and functions for carrying out the provisions of the Arkansas State plan for the administration of vocational education.
3. To meet with the State staff members and to discuss with them the strengths and limitations in fulfilling State plan provisions.
4. To observe new and exemplary programs and facilities that have been developed largely as the result of the Vocational Education Act of 1963 and the Vocational Education Amendments of 1968.

* * * * * * * * * * * * * * *

General Observations

While only a cursory view of vocational and technical education could be undertaken during a three-day visit, it was quite evident that the staff in Arkansas has accomplished much toward meeting the challenges of the 1968 Amendments. Mr. Adams and his staff are well aware of many needed improvements in the program and have, for the most part, already made efforts in this direction. Some considerations for the further development of vocational education in the State are:

1. Review the possibility of expanding cooperative education programs to further utilize community facilities for training opportunities. Good programs utilizing this technique for educating our youth have proven effective and will yield the concomitant result of further establishing excellent rapport between business, the community, the school, and the student.
2. Study and implement plans for strengthening and expanding vocational education opportunities for secondary school students. Expansion along these same lines is needed for the adult population also.
3. Consideration should be given to expansion of career guidance, counseling and placement programs with particular reference to secondary schools, and the disadvantaged and handicapped.
4. Recommend a study of methods to eventually develop and provide needed instructional materials which will be responsive to the new thrusts of Act of 1968 as well as the programs currently operating.
5. Continue to review the implementation of the procedures and process of allocating Federal funds as outlined in Section 3.27 of the Arkansas State plan for vocational education. Work thus far accomplished is commendable, but perhaps this could be further refined in terms of your experience.

Visiting Team

Dr. Edwin L. Rumpf, Chief, Development Branch, Division of Vocational and Technical Education, U.S.O.E. - Chairman.

Mr. M. A. Browning, Director, AVTE, Region VII, Co-Chairman.

Mr. William F. Sands, Program Officer, VTE, Region VII.

Miss Nancy A. Rhett, Program Officer - State Plan Unit, Division of Vocational and Technical Education, U.S.O.E.

Mr. William A. Dennis, Program Officer, Service Branch, Division of Vocational and Technical Education, U.S.O.E. - Team Secretary.

APPENDIX III

VOCATIONAL-TECHNICAL SCHOOLS - AVERAGE STUDENT COSTS

Date of Audit	School	Adjusted Operating Cost	Day* Students Enrolled	Average Cost Per Day Student	Average Daily Attendance	Average Cost ADA
Area V-T Schools						
6-30-69	Arkansas Valley V-T School	$236,913.46	215	$1,101.92	175	$1,353.79
6-30-68	Cotton Boll V-T School	220,995.40	237	932.47	126	1,753.93
6-30-69	Crowley's Ridge V-T School	213,900.73	301	710.63	133	1,608.28
6-30 69	Delta V-T School	209,147.46	260	804.41	129	1,621.30
6-30-68	Foothills V-T School	244,576.45	200	1,222.88	134	1,825.20
6-30-68	Oil Belt V-T School	258,677.10	145	1,783.98	140	1,847.69
6-30-68	Petit Jean V-T School	341.904.22	703	486.35	226	1,512.85
6-30-68	Pines V-T School	365,808.55	717	510.19	234	1,563.28
6-30-68	Red River V-T School	227,464.77	373	609.83	140	1,624.75
6-30-69	Twin Lakes V-T School	236,306.45	250	945.22	214	1,104.24
Total Area V-T Schools		$2,555,694.59	3,401	$ 751.45	1,651	$1,547.96
6-30-69	Southwest Technical Institute	$392,737.55	151	$2,600.91	151	$2,600.91

*Day students enrolled is not average daily attendance, but total number of students registered at the school during the year. The differences in enrollment and ADA does not indicate a high rate of absenteeism, rather it reflects enrollment in courses of less that one year's duration.

Sources: Legislative Audit Division and State Department of Education.

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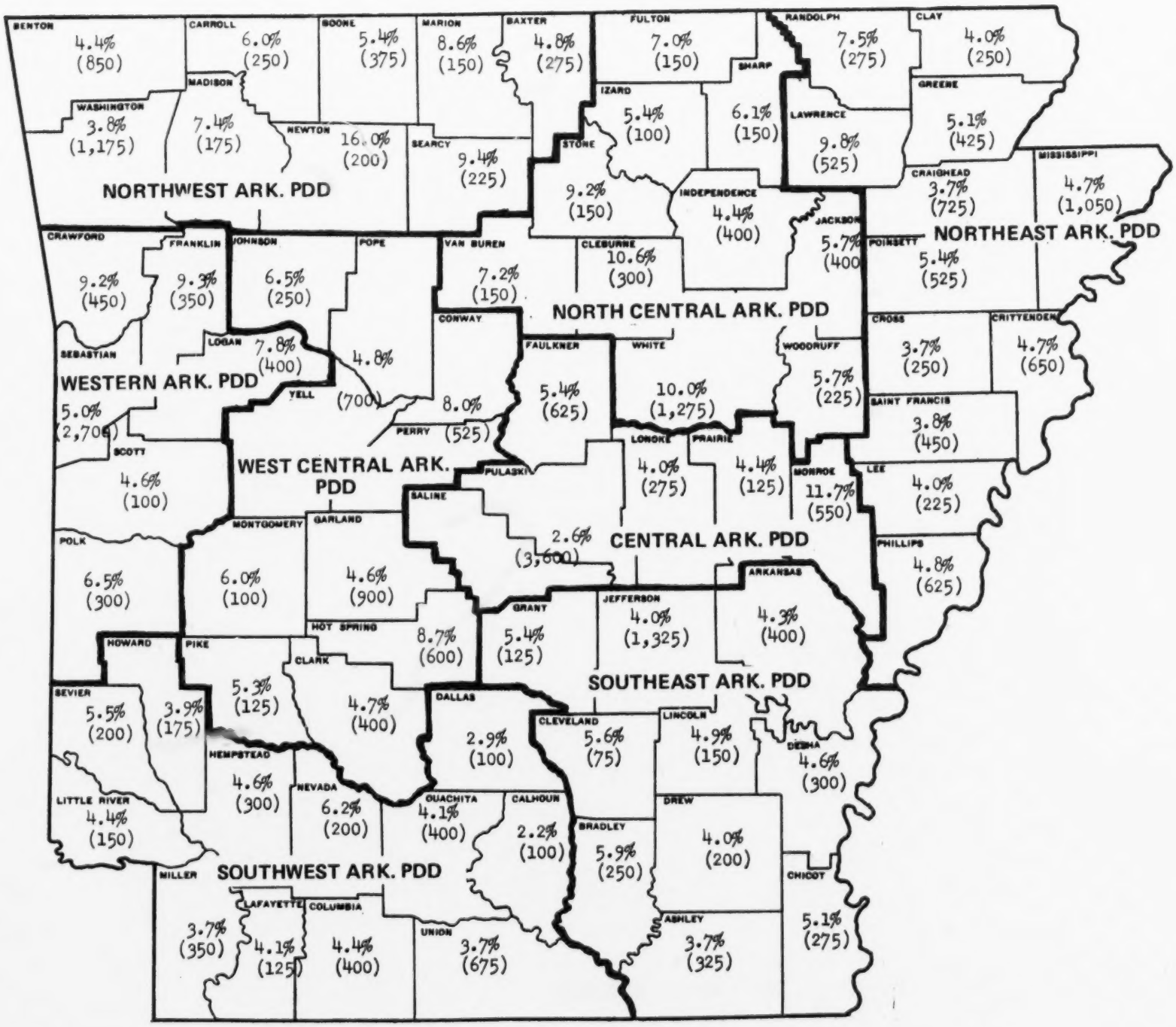
APPENDIX IV

NUMBER OF UNEMPLOYED AND UNEMPLOYMENT RATES
LATEST AVAILABLE DATA



Source: Employment Security Division, Arkansas Department of Labor.

APPENDIX V

Population
Latest Available Data

State Plan, Table 2, page 19, Part II

General population	2,027,000*
Urban	867,556
Percent of total	43%
Rural	1,159,444
Percent of total	57%

Industrial Research and Extension Center Estimates

General population	2,027,000*
Urban	1,034,000
Percent of total	51%
Rural nonfarm	768,000
Percent of total	38%
Rural farm	225,000
Percent of total	11%

Preliminary 1970 Census

General population	1,886,210
Urban	962,210
Percent of total	51%
Rural nonfarm	717,000
Percent of total	38%
Rural farm	207,000
Percent of total	11%

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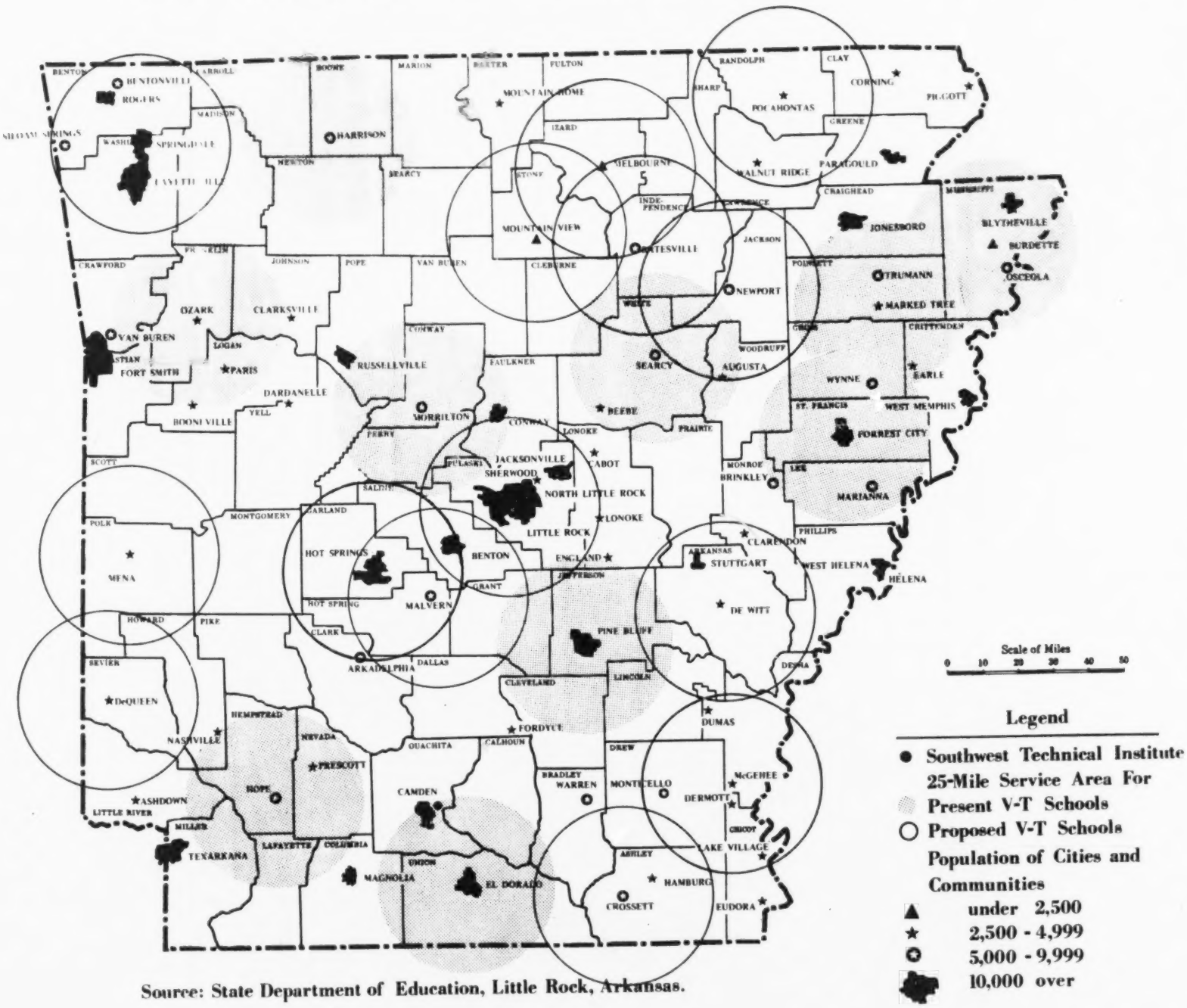
*U. S. Bureau of the Census estimate.

Source: Population and Household Studies Section, Industrial Research and Extension Center, Little Rock, Arkansas.

Appendix VI

LOCATION OF STATE AREA VOCATIONAL-TECHNICAL SCHOOLS



Source: State Department of Education, Little Rock, Arkansas.

APPENDIX VII

1970 POPULATION, AREA VOCATIONAL-TECHNICAL SCHOOLS, NUMBER OF UNEMPLOYED, AND UNEMPLOYMENT RATE BY PLANNING AND DEVELOPMENT DISTRICTS

	1970 Prel. Census Population	Percent of State Total	Number of Schools			Unemployment	
			Existing	Proposed	Total	Number	Rate
Central Arkansas PDD	397,079	21.0	0*	1	1	5,175	2.6%
Northeast Arkansas PDD	365,908	19.4	3	1	4	5,975	4.7%
Southeast Arkansas PDD	225,005	11.9	1	3	4	3,425	4.3%
Southwest Arkansas PDD	220,649	11.7	2	1	3	3,175	4.0%
Northwest Arkansas PDD	196,494	10.4	1	1	2	3,675	4.9%
West Central Arkansas PDD	186,932	9.9	1	2	3	3,600	5.6%
Western Arkansas PDD	151,217	8.0	1	1	2	3,850	5.5%
North Central Arkansas PDD	138,876	7.4	1	4	5	3,300	7.2%

*Little Rock Adult Vocational School is currently being operated by the State Department of Education, but in the Council's opinion does not qualify as an area vocational-technical school.

Sources: Population: 1970 Preliminary Census of Population; Schools: Arkansas Department of Education; and Unemployment: Employment Security Division, Arkansas Department of Labor.

APPENDIX VIII

Arkansas Gazette
March 9, 1970

State Drops School Plan At Springdale

The state Board of Education voted Sunday to drop plans for an area vocational-technical school at Springdale and remove the city from the top of the Board's priority list for new vo-tech schools.

Springdale had been at the head of the priority list since July, when the Board, which also acts as the state Board for Vocational Education, designated 12 sites for future schools. The 11 others were Batesville, Crossett, De Queen, DeWitt, Malvern, McGehee, Melbourne, Mena, Newport, Pulaski County and Pocahontas.

Those to be built first, in order of their priority, were Springdale, Malvern, Pocahontas, Melbourne and McGehee.

J. C. Ruppert, the state Education Department's administrator of area vocational-technical schools, said the prospects of obtaining federal funds for the construction of a vo-tech school at Springdale were poor. He said a vocational education program had been started at Fayetteville, near Springdale, and the federal Economic Development Administration, which would provide federal assistance for school construction, was reluctant to grant money for the Springdale facility.

VT 012 393
First Report, Advisory Council to the Oklahoma State Board of Vocational and Technical Education.

Oklahoma State Advisory Council for Vocational and Technical Education, Oklahoma City.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 69 11p.

DESCRIPTORS - *STATE PROGRAMS; *VOCATIONAL EDUCATION; TECHNICAL EDUCATION; COUNSELING SERVICES; *PROGRAM EVALUATION; ADVISORY COMMITTEES; ANNUAL REPORTS
IDENTIFIERS - OKLAHOMA; VOCATIONAL EDUCATION AMENDMENTS OF 1968

ABSTRACT - This first annual report by the 21-member Advisory Council is the result of an evaluation of vocational-technical education in Oklahoma as required by law. The report discusses one particular aspect of the State's vocational program, counseling and guidance, which was found to be a major problem area. Other priority areas will be analyzed in future studies. (BH)

VT 012 393

ED0 57254

FIRST REPORT

Advisory Council to the Oklahoma State Board of Vocational and Technical Education

VOCATIONAL EDUCATION AMENDMENTS OF 1968

PUBLIC LAW 90-576

1969

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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VT012393

FIRST REPORT
Advisory Council to the Oklahoma
State Board of Vocational and
Technical Education

VOCATIONAL EDUCATION
AMENDMENTS OF 1968

PUBLIC LAW 90-576

1969

4076

The Advisory Council to the Oklahoma State Board of Vocational and Technical Education was created by the U. S. Congress through the Vocational Education Amendments of 1968. It is composed of 21 persons, appointed by the Governor of Oklahoma, from diverse backgrounds in labor, management and education. It is charged by law to advise the State Board of Vocational and Technical Education concerning the operation of vocational and technical education programs in Oklahoma, to evaluate programs of vocational and technical education, and to make reports to the State Board of Vocational and Technical Education for transmittal to the U. S. Commissioner of Education and the National Advisory Council.

INTRODUCTION

One of the prime responsibilities of the State Advisory Council for Vocational and Technical Education is to conduct an evaluation of the program of vocational and technical education as it exists now in Oklahoma.

In conducting this evaluation, the Advisory Council became aware of a number of problem areas in Oklahoma vocational and technical education, including but not limited to these categories: financing, curriculum development and modernization, and program coordination.

A major problem area of Oklahoma vocational and technical education which became obvious almost immediately to the Advisory Council and which the Council has singled out for examination in its first report is guidance and counseling services.

The Council fully realizes the importance of the other problem areas--and subsequent studies will deal with these crucial aspects of Oklahoma vocational and technical education.

During its current study, the Council came to one inescapable, overriding conclusion. That conclusion was that even if Oklahoma had all the money in the world to run its program, was blessed with all the imaginative and far-reaching vocational and technical curriculum innovation and set the pattern for America in program coordination, ITS PROGRAM AS PRESENTLY CONCEIVED AND OPERATED WOULD NOT DO THE BEST JOB POSSIBLE.

Why? Because Oklahomans do not know about the program, are unaware of the intellectual and financial fulfillment of vocational and technical careers, and are engaging in ever increasing numbers in a tragic cycle of sending their youngsters to college to fail or drop out.

Shortly after its organization the Council undertook an informal study of guidance and counseling services as related to vocational and technical education. This first annual report with its accompanying recommendations is a result of this initial study.

OUR CONCERNS

The Council believes that many of the problems that plague vocational and technical education programs in Oklahoma stem from the inadequacy of guidance and counseling services.

At the present time, Oklahoma has 39 state-approved full-time guidance counselors at the elementary level and 410 state-approved full-time counselors at the secondary level. This provides for a ratio of 1 counselor for each 8,777 elementary students and 1 counselor for each 695 secondary students.

Many Oklahoma elementary schools have no counseling services, and 50 per cent of Oklahoma's high schools are without state-approved guidance and counseling programs.

Of the counselors in Oklahoma schools, the Council wonders how many devote a major portion of their time to disciplinary problems and little or no time to career or vocational counseling.

The failure to provide adequate guidance and counseling services has been, in a major sense, responsible for the 67 per cent of Oklahoma's high school graduates pursuing college courses preparing for jobs when only 8 per cent of the current jobs nationally require the baccalaureate degree or higher.

Only about 40 per cent of those Oklahomans starting college finish within five years. The fact that only about 20 per cent of the total school age population continues to the baccalaureate degree level is broadly overlooked.

Dr. Paul Braden of Oklahoma State University and Dr. Maurice Roney, formerly of O. S. U. and now Executive Vice President of the multi-campus Texas State Technical Institute, have calculated that every year in Oklahoma there are 10,000 youngsters with average or better ability who are not served at any level of the State's educational system.

These youngsters in many cases are those who have failed or dropped out of college or high school.

These are the young people who account for the high youth unemployment rate as they face the future without a skill; without a satisfying job; and, hence, with little hope.

Educators and parents in Oklahoma in the past have been too little concerned with the damaging psychological effects on State youngsters who become victims of intellectual snobbery and drop out or are pushed out of educational situations in which they are expected to succeed but which are too raggedly tailored for their individual needs, desires, or abilities.

These are the young people who, if they are lucky, become participants in our massive Federal and State programs of remedial occupational skill training. These programs teach skills which could and should have been acquired during their pursuit of either high school or post high school education.

Guidance and counseling services have been made available on too limited a basis. More information on the world of work must be attractively and convincingly packaged and conveyed to both young people and adults. The almost magic attraction of yesterday's little boys to the jobs of locomotive engineer or fireman might be studied from a psychological standpoint for applications to the kind of problem of which we speak.

The seeming academic addiction of Oklahoma youngsters and their parents must be cured. They, and the general public, must be informed about the dignity, the challenge, and the financial and intellectual rewards available to the person with well-developed vocational and technical skills.

Through guidance and counseling we must present adequate information upon which students can make the wisest decision about what occupational education courses they will pursue.

Guidance counselors, it seems to the Council, must be better prepared for their positions and freed from the peripheral duties which detract from their effectiveness in career counseling roles. They must be given greater exposure to occupational information and information on Oklahoma vocational and technical education programs.

It is of major concern to note that many university and college counselor training programs require only one course in the field of occupational information and vocational education.

Mr. Arnold R. Weber, Assistant Secretary of Labor for Manpower, recently told a U. S. House Education Subcommittee that colleges and universities "must train counselors who can provide realistic job and educational counseling to all students."

He said too few counselors are "aware of the vocational guidance needed by the millions of youngsters who do not go on to college."

Too few counselors and guidance personnel in public education are knowledgeable of career opportunities outside the traditional liberal arts and professional arenas. Too many are oriented in academic futures which reflect their own personal academic backgrounds.

Of additional concern to the Council is the lack of required work experience in business and industry set as a prerequisite to counselor certification.

Finally, we are concerned that every Oklahoma youngster does not have the opportunity to be educated to his highest potential where the potential is not measured by the color of the collar.

RECOMMENDATIONS

We recommend:

1. That immediate steps be taken to insure that professional preparation programs for guidance counselors are modified to include more training and information regarding vocational and technical education programs and occupations.

   The study revealed that only one course in occupational information is required of counselor trainees and that little or no information is provided them about vocational and technical training programs at the high school and post high school levels.

   The State Board of Vocational and Technical Education should strongly recommend to the Oklahoma State Regents for Higher Education that these modifications be made in counselor training programs.

2. That intensive, well-planned in-service programs be devised and required periodically of all counselors to instill in the counselors greater awareness of vocational and technical education programs and careers.

3. That in-service vocational guidance and counseling training for teachers be begun in elementary schools where regular guidance and counseling services are not available.

   A greater emphasis must be placed on guidance services at the elementary school level. An earlier start must be made on developing within our youth a greater awareness of the world of work and the great diversity of occupational opportunity that will be available to them.

4. An opportunity be provided for all junior high school age youths to engage in career exploration and to be tested for work aptitude for careers below the so-called professional level.

   Junior high industrial arts, home economics, civics courses, etc., might be re-oriented to accomplish this objective.

5. That more state funds be provided specifically to decrease the counselor-student ratio from the present 1 per 8,777 at the elementary level and 1 per 695 at the secondary level.

6. That adult counseling services be provided through the area vocational-technical schools and through the larger metropolitan school systems.

   This is a service which presently is virtually non-existent and which must be increased sharply if adult training needs and industrial skill vacancies are to be met effectively.

7. That immediate steps be taken to initiate programs to give practicing counselors at the high school and post high school levels up-to-date business and industrial experience.

   Sometimes in the ivy-covered classrooms the counselors get so far removed from the world of work that they need to be reminded what it is like. Other counselors are direct products of the educational system and have never known what it is like to work in other than an educational institution environment.

8. That the state leadership of guidance and counseling professional organizations place more emphasis on vocational counseling and group-type counseling activities rather than on the clinical approach utilized so frequently in the past.

9. That greater emphasis be placed on public information activities designed to increase the awareness of students, their parents and other adults in the wide variety of challenging and rewarding occupational opportunities that exist in the world of work and the availability of training programs designed to prepare persons to enter these fields.

10. That the State Legislature study the extent and disposition of state funds for post secondary programs, with particular reference to 80% of the school age population who do not continue to the baccalaureate level.

COMMENDATIONS

We commend:

1. Governor Bartlett for his successful efforts to raise the per capita income of the State by bringing his personal leadership to bear on the industrial development of Oklahoma. Improved guidance and counseling services must be utilized to serve the new and expanding industries with more and better prepared skilled workers.

2. The Division of Guidance and Counseling of the State Department of Education for the effective leadership it has been providing guidance and counseling activities in the State in spite of a very small staff and no State appropriations for such activities.

3. The State Department of Education and the State Department of Vocational and Technical Education for establishing only one Division of Guidance and Counseling. Guidance services to include occupational information should be made available to all. The separation of vocational guidance from other guidance services tends to widen the unnecessary gap that exists between vocational education and academic education.

4. The Division of Guidance and Counseling of the State Department of Education on their two excellent publications designed to help other school personnel train guidance counselors and vocational teachers to assist with vocational guidance services and orientation of students to the world of work. These two publications are Developmental Guidance K-12, 1967, and Career Exploration, 1969.

The Council believes thorough vocational guidance and counseling in Oklahoma schools, started vigorously in the elementary grades and continued through high school, can install many more state youngsters as happy and contributing adult members of a dynamic Sooner society.

The 1968 Amendments to the Vocational Education Act have created the framework by which vocational and technical education can make a real impact on Oklahoma's economic future. These programs can have the desired effect if they reach the people which they are designed to serve. Vocational and technical education must serve people of all ages, and improved guidance and counseling service is a key vehicle in achieving this objective.

Respectfully submitted,

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VT 012 396
Financing Occupational Education in New York State. A Statement of Position.

New York State Advisory Council on Vocational Education, Albany.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 5p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *EDUCATIONAL FINANCE; *FINANCIAL NEEDS; FINANCIAL PROBLEMS; *STATE AID; *STATE LEGISLATION; COMMUNITY COLLEGES; ADULT EDUCATION; PRIVATE SCHOOLS
IDENTIFIERS - NEW YORK

ABSTRACT - This position statement of the New York State Advisory Council on Vocational Education concerns the financing of occupational education in the State. The 10 areas addressed include (1) vocational education funding change needed, (2) legislative changes for support of 2-year colleges, and (3) adult occupational education support. (JS)

VT 012 396

ED0 57254

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FINANCING OCCUPATIONAL EDUCATION IN NEW YORK STATE

A STATEMENT OF POSITION OF THE

NEW YORK STATE ADVISORY COUNCIL ON VOCATIONAL EDUCATION

I. STATE SUPPORT FOR VOCATIONAL EDUCATION NEEDED

The New York State Advisory Council on Vocational Education believes that vocational-occupational education must be planned and developed as an integral part of the common core of all education at all levels from primary grades through higher education. Particularly urgent is the need to provide all students educational services that will open new routes to career preparation.

The Advisory Council applauds the State Education Department for its program to redesign educational curriculum and urges the Board of Regents to recommend to the Legislature of the State of New York a plan for increased support of occupational education.

II. VOCATIONAL EDUCATION GROWTH RETARDED BY LEGISLATION

The impact of the enactment of Chapter 183 of the Education Laws of 1969 has had a profound effect on all education in the State and has dealt an especially severe blow to vocational education.

Specific parts of the Legislation in Chapter 183 of the Laws of 1969 that work against vocational education are:

1. Limiting BOCES aid to local districts to a 10% increase over the previous year.

   This limitation is unrealistic since the growth in occupational education enrollments has been an increase of 68% between 1966-67 and 1967-68, and 37% between 1967-68 and 1968-69, and 25% between 1968-69 and 1969-70.

2. The limitation of state aid through BOCES imposed by the elimination of the 5 mil formula.

3. The 1968 decrease in aid to school districts has the direct effect of withdrawing support to vocational education. Districts tend to use State funds to support mandated programs. Under the cutback, districts participating in BOCES will have to withdraw from participation thus reducing the vocational education enrollments. There will be a similar effect on the vocational programs in the urban centers.

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III. VOCATIONAL EDUCATION FUNDING CHANGE NEEDED

The Advisory Council believes that provision should be made in the State Aid Formula for Public Schools for the funding of occupational education as a special program requiring additional aid above the General Aid Formula.

The fact must be clearly understood that vocational and occupational preparation requires special equipment, facilities, and materials and the cost of instruction cannot be equated with the traditional academic program costs.

New York State has made major expenditures for federal, state and local funds to construct 30 area occupational skill centers throughout the State. These skill centers provide facilities, equipment and instruction to districts which alone could not afford them. Unless the Legislature takes action to provide continuing operational support at an appropriate level for these centers, they cannot be utilized as planned or according to need.

IV. TRANSPORTATION

The Advisory Council believes the New York State School Transportation Law should be amended to provide for student transportation aid between the home schools and the area skill centers at the same percentage as local district transportation aid.

Students must be transported from their home schools to occupational centers each day. Under the current transportation law there is no provision for aid to the participating districts for the transportation of students to and from the occupational centers.

V. FINANCING REMEDIAL WHILE CUTTING BACK PREVENTATIVE PROGRAMS

In addition to appropriations by the Legislature for support of remedial programs in occupational education, such as the State Manpower Training Program, the Regents are urged to seek Legislation that will provide greatly increased support for occupational education programs, which are preventative in nature.

A nationwide study, reported in the National Advisory Council Newsletter of December 1969 shows that every $6.00 of support allocated for "remedial type" manpower programs, only $1.00 is allocated for preventative vocational education. The Smith-Hughes Act, various New Deal actions, the National Defense Education Act, the Vocational Education Act of 1963, and the anti-poverty Legislation of the last three years have increased annual Federal appropriations to approximately two-thirds of a billion dollars. Traditionally,

these monies have been earmarked for the support of training programs having only short-term goals. No provisions were made for the continuing support of vocational-occupational education programs under these acts, nor has the State Legislature provided continuing support.

The Legislature's Education Fiscal Policy in New York State seems to follow the national pattern. The Council is aware that the Regents 1970 Legislative Proposal for an expenditure of $3 million to support continuing adult vocational education has been removed from the Governor's Budget while monies for a remedial "State Manpower Training Program," administered by the Department of Labor, were increased to $15 million in 1969, and the Governor has requested $25 million for fiscal year 1970. In the words of the National Advisory Council for Vocational Education, "This concentration of money and effort on the problems of those already unemployable, without at least as much money and effort expended to prevent people from experiencing the psychological and economic hardships of reaching that point is wasteful and inefficient."

VI. SPECIAL FORMULA FOR CONSTRUCTION

The Advisory Council believes that the Regents should urge the Legislature to adopt a special formula for the construction of vocational-occupational education facilities recognizing the optimum 20 pupils per class and the additional space needs inherent in occupational education programs.

The current building program formula makes no distinction between academic and vocational education as it applies to allowances for building aid. The current melding of the vocational education building allowances with the allowance for academic type facilities imposes restrictions upon districts that wish to construct vocational facilities. For example, a 20 student classroom limit has been set as optimum for vocational-occupational instruction. Yet the building formula allowing only 20 students per classroom, is applied to a formula designed to generate aid based on 27 pupils per classroom for a 770 sq. ft. classroom space. No provision is made for extra space needs dictated according to the needs of occupational programs.

VII. LEGISLATIVE CHANGES FOR SUPPORT OF TWO YEAR COLLEGES

The Advisory Council recommends that the Board of Regents support major Legislative changes in the present community, agricultural technical college law including the financial support formula.

Without major changes in the present law including increased State financial support for these institutions, the vocational-technical education programs in comprehensive community colleges could cease to exist or will be curtailed to such a degree that the effectiveness of these programs will be seriously jeopordized.

The Advisory Council supports the Governor in his budget proposal for 40% State support in the community college budgets. The Council believes this is a beginning constructive step in remedying the immediate problem, however, this should be recognized only as a first step and does not negate the need for meaningful and new legislation revising the present community college law.

VIII. ADULT OCCUPATIONAL EDUCATION SUPPORT

The Advisory Council believes that the State should increase substantially its support for occupational education for out-of-school youth and adults.

The Council supports the request of the Regents for inclusion in the 1970 budget of $3,000,000 for support of continuing occupational education. Occupational education at this level is not now supported by State funds.

The Council further agrees with the Regents position paper "Continuing Education" which recommends that the present capacity for occupational education of enemployed and underemployed adults be doubled in the next decade.

The Council believes that all existing capacity in the public high schools and two-year colleges and in the private and proprietary occupational schools should be utilized to the fullest extent.

Restoration of the modest request for $3,000,000 for 1970 for programs aimed at this population will provide a beginning in this task. The Council believes that a continuing study is needed of the requirements for occupational education for the adult population and of the means for providing it.

IX. PROVISIONS FOR FUNDING PRIVATE VOCATIONAL EDUCATION

The Advisory Council on Vocational Education recommends that the Regents urge passage of a Legislative proposal that would permit the State Education Department to authorize the expenditure of vocational education funds to finance programs in private and proprietary trade schools and technical colleges for the purpose of supplementing and extending occupational education programs at the local level.

There is a growing concern in New York State that private education is a vital part of the State's total educational program and consequently must be supported by State funds. The Vocational Education Amendments of 1968, Part B, Section 122, allow the use of Federal funds to provide vocational training through arrangements with private vocational training institutions where such private institutions can make a significant contribution to

attaining the objectives of the State Plan, and can provide substantially equivalent training at a lesser cost, or can provide equipment or services not available in public institutions.

X. ATTITUDE AND IMAGE

The National Advisory Council on Vocational Education pointed out in its second annual Report (November 15, 1969) that "Government at all levels, school administrators, teachers, parents and students,--all are currently of the attitude that vocational education is designed for somebody else's children." The New York State Advisory Council believes this is a snobbery New York State cannot afford and calls upon the Regents to initiate a state-wide effort to cast a new image of vocational-occupational education as an integral part of the education of all youth.

VT 012 397
Report of the New York State Advisory Council on Vocational Education Teacher Certification Study Committee.

New York State Advisory Council on Vocational Education, Albany, Teacher Certification Study Committee.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Aug70 3p.

DESCRIPTORS - *TEACHER CERTIFICATION; *STATE PROGRAMS; *TEACHER EDUCATION CURRICULUM; *PROGRAM EVALUATION; TEACHER QUALIFICATIONS; PERFORMANCE TESTS; PERFORMANCE FACTORS
IDENTIFIERS - NEW YORK

ABSTRACT - Teacher certification in New York does not always provide the best teachers. This committee report makes recommendations to improve teacher training and evaluation. (BH)

VT 012 397

ED0 57254

REPORT OF THE NEW YORK STATE ADVISORY COUNCIL ON
VOCATIONAL EDUCATION
TEACHER CERTIFICATION STUDY COMMITTEE

August 1970

As part of its total effort to study the practices, trends, and issues of occupational teacher certification in New York State, the New York State Advisory Council on Vocational Education established the Certification Study Committee on November 21, 1969. The report of the Study Committee was presented to the Council on January 28, 1970. The Advisory Council herewith reports to the Board of Regents on the results of the Study Committee's investigation.

ORGANIZATIONS WITH WHICH THE STUDY COMMITTEE COMMUNICATED

1. New York State Associations of Vocational, Industrial Education Organizations
2. Long Island Association of Vocational Education Administrators
3. The Vocational Industrial Coordinators Association of New York State
4. The New York State Home Economics Teachers

ISSUES AND CONCERNS DISCUSSED BY THESE ORGANIZATIONS

1. Amount and nature of occupational experience required for teacher certification.
2. Length of college level teacher training required for certification.
3. Demonstration of occupational proficiency and nature of proficiency examinations required for teacher certification.
4. Teacher training institutions--their course content and relevance for occupational teacher certification.

VT012397

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CONCLUSIONS DRAWN BY THE COUNCIL COMMITTEE

After studying communications, current and pending regulations, and hearing from key resource persons concerned about occupational teacher certification in New York State, the Certification Study Committee concluded:

1. Certification regulations and teacher training practices are not universally acceptable to all organizations and individuals. Organizations especially, tend to view certification requirements from their own experience and vested interest.

2. That degrees or occupational experience do not in themselves insure that the possessor will be an effective teacher. However, occupational education teachers must be equipped with a blend of knowledge and skills and perform well and effectively in classrooms and laboratories. In addition, other characteristics are required that help them relate well to students. The performance of the teacher in the classroom determines the success or failure of the educational program. Many persons knowledgeable in occupational teaching rate performance in the classroom higher as a criterion for certification than earned degrees, journeyman experience, or subject matter knowledge.

3. That in many instances capable people who have reached a high level of competence within a trade area have been excluded from teaching because of rigid state regulations, their overly strict interpretation ~~of instructions~~ by employing institutions and stiff academic requirements for admission to teacher training institutions.

RECOMMENDATIONS

1. That the Regents Certification Regulations be redrafted. Certification regulations must be made flexible enabling persons administering occupational programs in the field to obtain the types of teachers they deem necessary to insure the success of their programs.

2. That admissions criteria at occupational teacher training institutions be restudied and revised allowing as many paths as possible for persons to prepare for, enter and advance in the occupational teaching profession.

3. That efforts be continued and expanded to improve techniques for the evaluation of all teachers, particularly during the period of probationary service. We urge continued efforts to improve performance evaluation following tenure.

VT 012 398
Evaluation Report of Vocational-Technical Education in Maryland..

Maryland State Advisory Council on Vocational and Technical Education, Baltimore.

MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Sep70 14p.

DESCRIPTORS - *STATE PROGRAMS; *VOCATIONAL EDUCATION; TECHNICAL EDUCATION; *PROGRAM EVALUATION; ADVISORY COMMITTEES; ANNUAL REPORTS
IDENTIFIERS - MARYLAND

ABSTRACT - This report is an evaluation of vocational-technical education in Maryland. Specific areas for evaluation include: (1) State goals, (2) manpower development programs, (3) effects of the 1968 Vocational Education Act amendments, (4) effectiveness in serving the people and their needs, and (5) employment opportunities and related training. The report recommends the use of educator workshops, longitudinal followup studies, and local advisory councils. (BH)

VT 012 398

ED0 57254

Evaluation Report

OF VOCATIONAL-TECHNICAL EDUCATION IN MARYLAND

by

Maryland Advisory Council

on

Vocational-Technical Education

September 1970

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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MARYLAND STATE ADVISORY COUNCIL
ON VOCATIONAL AND TECHNICAL EDUCATION

600 WYNDHURST AVENUE, BALTIMORE 21210

September 4, 1970

Honorable Terrel H. Bell
Acting Commissioner of Education
U.S. Department of Health,
Education, and Welfare
Washington, D.C. 20202

Mr. Hugh Calkins, Chairman
National Advisory Council on
Vocational Education
7th and "D" Street
Washington, D.C. 20202

Gentlemen:

In accordance with PL 90-576, we submit an evaluation of Vocational-Technical Education in Maryland.

The evaluation of Vocational-Technical Education in Maryland will be a continuing function of this Council with its recommendations to the State Board for Vocational Education and other agencies.

We sincerely hope these recommendations will be of value in making quality Vocational Education available to all citizens of the State of Maryland.

Sincerely,

Henry B. Kimmey
Chairman

HBK:sdb

The Maryland Advisory Council is required, by law, to submit annual evaluation reports to the Commissioner of Education and the National Advisory Council. The Council is made up of twenty-two (22) persons representing different segments and interests of the State's population. The interests and concerns of this type of representation are reflected in this report.

This report is primarily subjective in nature and is intended to be so. The Advisory Council is not a research organization. Therefore, it will rely primarily upon research done by others and will philosophize in its reports and recommendations. The Council has relied heavily upon the expertise and opinions of its members in formulating the report.

The Council recognizes its role as strictly advisory. Therefore, any action, as a result of these recommendations, lies within the responsibility of other agencies. However, the Advisory Council remains available as an advisory group in the planning and implementation of these recommendations.

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SUMMARY STATEMENT

Vocational Education in Maryland is rapidly becoming recognized as a vital part of the Educational Program. With the 1963 Vocational Education Act and the 1968 amendments to the act providing the thrust, Vocational Education has experienced tremendous growth throughout most of Maryland. The State Department has provided leadership, through a capable and dedicated staff, to the local systems in developing vocational programs.

The State Plan outlines a comprehensive and ambitious program of Vocational Education for the people of Maryland. The implementation of the plan is a tremendous challenge to the State and local systems and all parties concerned. One of the primary responsibilities facing the State and local systems, and the Advisory Council, is determining the effectiveness of the programs. This can best be done by finding out what happens to students who have participated in the program. Effective education requires involvement of the people in the community in the planning and evaluating of educational programs.

RECOMMENDATIONS

The Maryland Advisory Council on Vocational and Technical Education makes the following recommendations to the State Board of Education:

1. In Maryland, as in the entire United States, many relegate Vocational Education to an inferior role. Vocational Education is looked upon by many as a program for the low achiever, the lesser advantaged educationally, economically, and socially. This image exists in the minds of many educators, students, and the general public. The Advisory Council believes the problem begins with the educators and further believes the solution to the problem should begin with this group.

   The Council suggests that a program be designed to correct this image by providing workshops for school administrators, counselors, and teachers. These workshops should include sessions on employment opportunities, educational requirements, pay, and other economic benefits of the various vocations other than the so-called professions. Emphasis should be placed upon the tie-in of Vocational Education and the student's total educational goals. These programs should be structured to promote a change of attitude toward Vocational Education. They should involve dialogue between educators and representatives of business, industry, labor, government, and other lay groups.

2. The Advisory Council recommends that longitudinal studies be implemented with students from the school systems. These studies should involve a random sample of all students including those who left the public school system prior to completing high school. Such studies should begin in

RECOMMENDATIONS

middle school, or early high school and follow the students for a number of years into adult life. The study should concentrate on how the person is performing on the job and the effects his education had on his job performance.

3. The Advisory Council recommends that local Advisory Councils be used in developing local plans and in evaluating local programs. The State should provide guidelines as to make-up and use of local Vocational Advisory Councils, and should insure that funds are provided for local council activities.

EVALUATION AREAS

I. State goals and priorities:

On the State level many activities were started and some accomplished, which should eventually lead to the accomplishment of some of the State's goals and priorities. Some examples are:

A. An expanded state staff to work in the areas of handicapped and disadvantaged, post-secondary, consumer education, vocational guidance, and program administration.

B. Workshops for local teachers and administrators conducted by the State Department in the areas of priority.

However, an objective evaluation of the state goals and priorities is severely hindered by the lack of valid data, and the late and inadequate funding by Congress. Although the State Plan outlined the responsibility for the evaluation of Vocational Education in Maryland and designated the Research Coordinating Unit as the primary coordinating agency, it has not provided this evaluation or data which can be used in making such an evaluation. As evidenced by the 1971 State Plan, the goals, as outlined in the 1970 State Plan, were unrealistic because of invalid data. The Council feels the lack of evaluative data is perhaps the most critical problem facing Vocational-Technical Education in Maryland.

Recommendations:

1. All agencies should impress upon Congress the necessity for early funding of Vocational Programs to allow adequate time for pre-planning.

EVALUATION AREAS

2. A system of collecting data should be implemented with the Research Coordinating Unit coordinating the efforts of the State Department of Education, the State Advisory Council, and the State Steering Committee on Evaluation of Vocational Education.

3. The Research Coordinating Unit should be expanded and restructured to make it more responsive to the needs of Vocational Education at the secondary, post-secondary, and adult level.

4. It is recommended that the Department of Education prepare a semi-annual report relative to the achievement of its stated goals and objectives.

5. The goals established in the State Plan should be more specific and direct to the needs of the people. For example, the plan should recognize the high dropout rate in Baltimore City and develop goals to help alleviate this problem. The Eastern Shore has several counties in which the people have no opportunity for post-secondary education. Goals should be developed which will confront this problem.

6. The development of the State Plan should be a joint effort with the State Advisory Council and the Advisory Council and State Department of Education should initiate planning which will assure this joint effort.

II. Human Resources Development Program of the State:

The State of Maryland, as most other states, has a magnitude of Vocational-Technical Education, Manpower, and Job Training programs conducted by numberous agencies. One of the few examples of cooperation

EVALUATION AREAS

is in the institutional phase of the Manpower Development Training Act. In this program, Congress spelled out the cooperative arrangement between the State Departments of Education and the Employment Security Commissions. The Cooperative Area Manpower Planning System has been of minimum effect because of an unwillingness on the part of agencies to enter into a cooperative venture.

Recommendations:

1. The State Advisory Council recommends one agency be responsible for all Manpower and Educational Programs. This agency should be of cabinet level and have the authority to respond to the needs of the people and not to the preservation of institutions.

III. Effects of 1968 Amendments to the 1963 Vocational Education Act:

The visible effects the 1968 amendments had upon Vocational Education in Maryland during the fiscal year of 1970 are limited. It would be unfair to expect dramatic changes to be made under the 1968 legislation since Congress is still funding the legislation in an amount less than that authorized in the 1968 amendments and the annual appropriations were not determined by Congress for fiscal year 1970 until March 1970.

The State has staffed the Division of Vocational Education to coincide with the emphasis given to special areas in the 1968 amendments. There are now specialists in the areas of disadvantaged, handicapped, post-secondary, evaluation, state plan administration, vocational guidance, program analysis, consumer education, and industrial training, in addition to the customary service areas.

EVALUATION AREAS

The State Department has conducted workshops for teachers, counselors, and administrators in the areas of disadvantaged and handicapped, vocational guidance, part-time cooperative training, as well as the regular service areas.

The results of these efforts on the part of the State Department will not be in evidence on the local level until the 1970-71 school year. The ability to get local systems to move into new areas of concern is difficult and sometimes frustrating, and the State Department is essentially in an advisory position.

IV. Effectiveness with which the people and their needs are being served:

With few exceptions, each school district in the State has at least one Vocational-Technical Center, either as a separate facility or as a part of a local high school. The post-secondary needs of the State are attempting to be met through the community colleges. However, some sections of the State, and particularly the Eastern Shore, do not have readily accessible community colleges. This, coupled with an out of county tuition fee, makes it doubtful if the post-secondary need is being met in all sections of the State. The programs offered by the community colleges usually require high school graduation for admission and are of a technical nature. Although there are many programs designed for adults and administered by a multitude of uncoordinated agencies, they are usually limited to the disadvantaged and unemployed. There is little opportunity for the adult to attend a state school in preparation for employment below college level.

EVALUATION AREAS

There are limited data available to determine why some vocational programs are popular with students and others are not. In some schools the vocational programs attracted more students than they could accomodate. In other schools there was not enough student demand to fill vocational classes.

Recommendations:

1. The local educational programs should be designed to meet the needs of the students whom they serve. Systems that do not have comprehensive programs should be encouraged to develop such.
2. Where post-secondary Vocational and Technical Educational opportunities are not now available, community colleges and other educational institutions should be encouraged.
3. An extensive evaluation of vocational programs should be undertaken to determine why some programs are popular with students and others are not.

V. Employment opportunities within the State and training provided to meet these opportunities:

Figures released by the Maryland Employment Security Commission suggests that more than 60% of employment in the years to come will be in the service areas. An examination of the vocational offerings of the public schools and community colleges does not indicate curricula designed to follow this trend. Most vocational offerings follow the traditional programs offered throughout the country and indications are that not enough effort is being made to key the curricula to local and state needs.

EVALUATION AREAS

The Advisory Council feels the job cluster concept of Vocational Education has merit, particularly on the secondary level. This concept, coupled with cooperative work experience, could become a workable combination and one answer to the problems of high cost of equipping vocational laboratories and preparing students for obsolescence.

Recommendations:

1. A continuous study should be made to determine what type of jobs will be available in the local and surrounding communities that are potential employment areas for graduates of vocational programs. Surveys of this type should be the basis for developing vocational programs.
2. A continual effort should be directed to developing the job cluster concept on the secondary level. Care should be taken to assure that quality is built into the program and that occupational areas within the cluster are clearly defined. Jobs should be clustered only to the extent that they are related and have a carry over of theory from one job to the other.
3. Local systems should be encouraged to develop cooperative work experience programs. Care should be taken to build meaningful work experiences with adequate coordination by the school system. A distinction should be made between the cooperative work experience program, which has job training as its basis, from the work-study program, which has financial need as its primary purpose.

VT 012 415
Brower, Edward B.
A Study of the Office Employment Expectations of White and Nonwhite Business Education Students..Occupational Research Development Monograph No. 6.

New Jersey State Dept. of Education, Trenton. Occupational Research and Development Branch.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 21p.

DESCRIPTORS - *BUSINESS EDUCATION; *HIGH SCHOOL STUDENTS; OFFICE OCCUPATIONS; *OCCUPATIONAL ASPIRATION; *RACIAL FACTORS; *SOCIOECONOMIC INFLUENCES; STUDENT ATTITUDES; MOTIVATION

ABSTRACT - This study analyzed the effects of race, achievement, business education, course concentration, and socioeconomic status on the office employment expectations of business education students. Questionnaires were used to obtain data from 1,074 business education students and 215 office supervisory personnel in central New Jersey. Analysis of the data showed that all the variables have significant effects on expectations. Socioeconomic status, however, is significant only in its effects on expectations related to securing employment and promotions and expectations related to personal traits; in terms of factual office employment information the effect of socioeconomic status is insignificant. Although none of the student subgroups had expectations approaching the responses of the office personnel, the white, high achieving, and secretarial students came closest. These results demonstrate the need for better information in various business courses to improve the accuracy of student expectations. (BH)

VT 012 415

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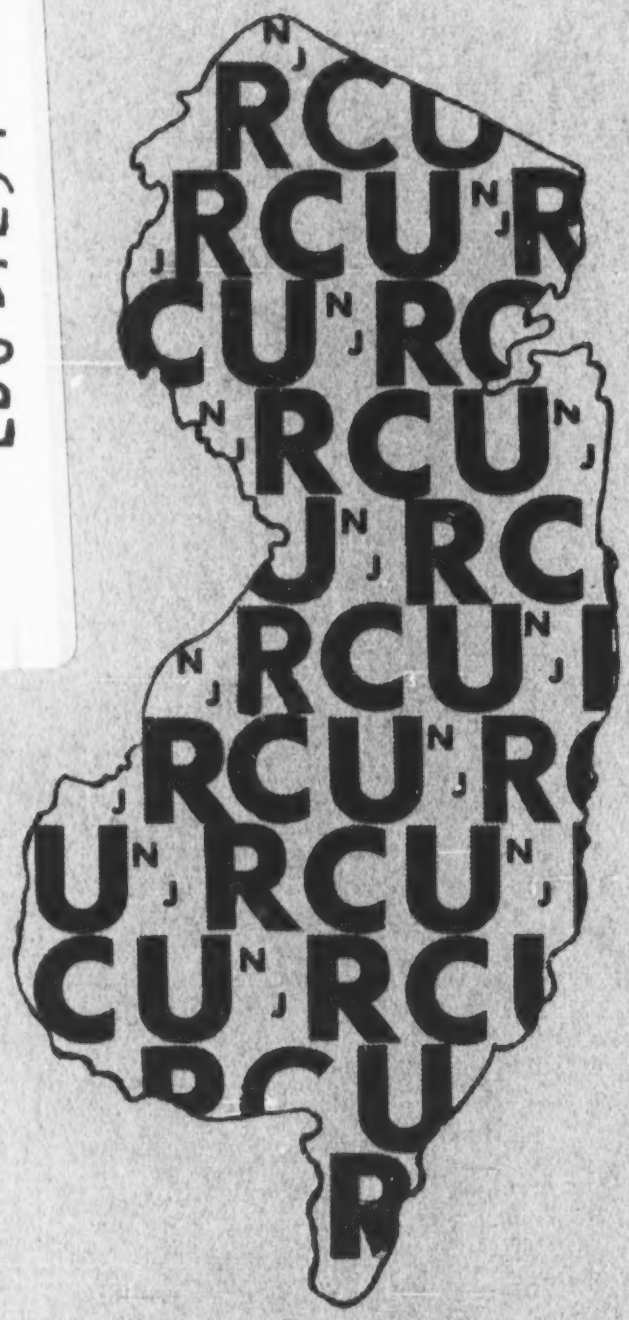

A STUDY OF THE OFFICE EMPLOYMENT EXPECTATIONS OF WHITE AND NONWHITE BUSINESS EDUCATION STUDENTS

by

Edward B. Brower

OCCUPATIONAL RESEARCH DEVELOPMENT MONOGRAPH NO. 6

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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A STUDY OF THE OFFICE EMPLOYMENT EXPECTATIONS OF WHITE AND NONWHITE BUSINESS EDUCATION STUDENTS

by

Edward B. Brower

1970

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PREFACE

This study examines the office employment expectations of 1,074 business education students to see if there were significant differences due to race, achievement, course concentration, or economic status.

The findings, conclusions, and recommendations of this report constitute an important contribution to the development of better standards for programs in business education.

Modification of existing programs may very well result from the specific insights developed. Administrators, teachers, teacher educators, and guidance personnel should carefully examine the "Recommendations" section for detailed suggestions for program development and implementation.

This study was undertaken with the aid of a grant from the Bureau of Occupational Research Development, Division of Vocational-Technical Education, New Jersey State Department of Education, Trenton, New Jersey.

Morton Margules, Ph. D.
Associate State Director of
Vocational-Technical Education

A STUDY OF THE OFFICE EMPLOYMENT EXPECTATIONS OF WHITE AND NONWHITE BUSINESS EDUCATION STUDENTS

Edward Bernard Brower Dissertation (Ed.D.)

Temple University, 1970

INTRODUCTION

Secondary school business education programs must be responsive to the needs of both office employers and business education students. Office employers seek office employees who possess various skills, office employment information, and various personal traits. Correspondingly, business education students desire those abilities sought by office employers.

Research has been completed relative to the specific office skills desired by office employers and much has been written concerning the office employment information and personal trait deficiencies of office employees. However, little formal research has been designed to determine (1) the office employment information possessed by business education students, and (2) if students feel as strongly as do businessmen concerning the vocational importance of various personal traits. Moreover, many studies completed to date, using business education students as sources of data, treat these students as a homogeneous population, without determining if students of different races, socio-economic strata, business education concentrations, or achievement levels view their futures in office employment differently.

STATEMENT OF THE PROBLEM

The Problem. The present study was designed to determine (1) the office employment expectations of white and nonwhite business education students and (2) the effect of various factors on office employment expectations.

Hypothesis. The present study was designed to test the following hypothesis:

There is no significant difference in the office employment expectations of business education students when compared on the basis of race, achievement, business education concentration, and socio-economic status.

Definitions. (1) Office employment expectations refers to the viewpoints of business education students concerning their futures in office employment. (2) Office employment information refers to statements of fact and opinion collected from office supervisory personnel.

Delimitations. (1) There was no attempt made to assess the quantity or quality of office employment information that had been provided students participating in the present study. (2) The student population consisted of senior, female, business education students. (3) The student population was equated on the basis of sex, grade level, achievement, race, socio-economic status, and business education concentration. (4) Only business firms employing or appearing to employ 15 or more office employees were included as possible sources of data.

Purposes. (1) To determine the accuracy of criticisms presently directed at business education students, relative to office employment information and personal traits. (2) To provide both guidance personnel and business educators with bases for modifying or changing existing educational programs. (3) To determine the office employment expectations of business education students and those factors that have a significant effect on these expectations.

RELATED RESEARCH

Research was reviewed that related both proximately and directly to the present study. The purpose of reviewing studies that have a proximate relationship rests in the conviction that office employment expectations do not arise in a vacuum but are perhaps conceptually tied to the more basic concepts of vocational preference and level of aspiration. However, it should be understood that level of aspiration did not constitute the subject matter of the present study.

Within the above context, the following summary of related research is presented: (1) Level of aspiration is related to social class, but not to race.[1] (2) Vocational preference level is related to parent occupation, intelligence, achievement, and self-concept.[2] (3) Lower socio-economic status Negro high school students perceived themselves as possessing little knowledge about their vocational choices.[3] (4) The office work perceptions of urban students can be ascertained by the administration of a perception scale.[4] (5) The office work perceptions of advantaged and disadvantaged rural high school girls were substantially different from a panel of judges.[5] (6) Few significant differences in office work perceptions were detected between advantaged and disadvantaged students.[6] (7) Beginning office employees appeared to lack information concerning job advancement.[7] (8) Beginning office employees were able to identify various personal traits as being necessary for office employment success.[8] (9) High achievers judged future academic performance more accurately than did low achievers.[9] (10) High socio-economic status students were generally more inaccurate in setting future academic performance goals than were low socio-economic status student.[10] Low socio-economic status acts as a depressant on achievement.[11]

METHODS OF PROCEDURE

The present study involved comparisons of the office employment expectations of white and nonwhite business education students with office employment information collected from office supervisory personnel.

For investigation purposes, two primary sources of data were used: (1) 1,074 business education students attending public secondary schools in central New Jersey, and (2) 215 office supervisory personnel employed by business firms in central New Jersey. The student population was selected to be representative of the study area. The office supervisory personnel were selected on the size of the office staff. Only business firms employing or appearing to employ 15 or more office employees were included as possible sources of data.

Two specially designed questionnaires were administered. The first was administered to business education students to determine their office employment expectations. The second was administered to office supervisory personnel to determine office employment information and to serve as a standard against which the students' responses were evaluated.

In addition to the office employment expectations, certain background data were collected for each student, namely: grade level, sex, race, socio-economic status, achievement, and business education concentration. Background data were also collected for the office supervisory personnel. These data were used to determine the office experience of these people and, thus, the validity of their responses.

After collecting data, a series of statistical analyses were completed to test the soundness of the stated hypothesis. Use was made of chi square to determine the independence of variables and analysis of variance to determine the existence of significant differences among the student sub-groups. Finally,

range tests were used, when necessary, to determine the significance of identified differences when making student sub-group comparisons.

Development of data collection instruments. The first procedural step to develop the questionnaires administered to the business education students and the office supervisory personnel was the compilation of a preliminary listing of office employment information and personal traits considered by office personnel and business educators to be desirable for office employment success. The listing was then used to draft a trial form of two parallel questionnaires.

The second procedural step included a series of trial administrations of the preliminary questionnaires to business education students and office supervisory personnel.

The reliability and validity of both questionnaires was then determined. Reliability was determined by use of the test-retest technique; validity was determined by use of the content validity technique. In final form, each questionnaire contained three sections related to factual office employment information; securing office employment and advancing on the job; and personal traits.

Administration of the data collection instruments. The student questionnaires were personally administered to 1,074 business education students by either the researcher or his wife.

The questionnaires completed by office supervisory personnel were administered via three separate mailings. Two hundred fifteen (56 percent) of 384 supervisory personnel returned questionnaires.

Processing data. The processing of data was completed in two steps: (1) The data collected from the office supervisory personnel were tabulated and converted into percentage responses. (2) the students' questionnaires were scored, using the responses of the office supervisory personnel as a

standard of correctness. In essence, the responses of the office supervisory personnel became a vocational standard.

Mechanically, the processing of student data involved hand scoring each questionnaire, transferring each student's responses to "mark sense" forms, and converting the "mark sense" forms into punched cards.

Statistical analysis of data. To the data collected from business education students, the following statistical procedures were applied: (1) chi square was used to determine the independence of variables, and (2) analysis of variance was used to determine the effect of race, achievement, socio-economic status, and business education concentration on the office employment expectations of business education students.

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

I. Findings

(1) The main effect of race, business education concentration, and achievement is significant beyond the .01 level of confidence on the office employment expectations of business education students.

(2) The main effect of socio-economic status is significant beyond the .05 level of confidence on expectations related to securing office employment and advancing on the job and expectations related to personal traits. On expectations related to factual office employment information, the main effect of socio-economic status is insignificant.

(3) The interaction between race and achievement is significant at the .05 level of confidence on expectations related to securing office employment and advancing on the job. The interaction between race and achievement is insignificant on expectations related to factual office employment information and personal traits.

(4) The interaction between business education concentration and socio-economic status is insignificant for all expectations.

(5) The interaction between socio-economic status and achievement is significant beyond the .05 level of confidance on expectations related to personal traits. The interaction between socio-economic status and achievement is insignificant on expectations related to factual office employment information and securing office employment and advancing on the job. (See Table I, page 12 for a summary of Items 1-5.)

(6) The expectations of all white students are closer to the responses of office supervisory personnel than are the expectations of all nonwhite students.

(7) The expectations of all high achieving students are closer to the responses of office supervisory personnel than are the expectations of all low achieving students.

(8) The expectations of all secretarial students are closer to the responses of office supervisory personnel than are the expectations of either the bookkeeping or clerical students. The expectations of all bookkeeping students are closer to the responses of office supervisory personnel than are the expectations of all clerical students.

(9) The expectations of all high socio-economic status students are closer to the expectations of office supervisory personnel than are the expectations of all low socio-economic status students. (See Tables II, III, and IV, pages 13, 14, and 15 for a summary of Items 6-9.)

II. Conclusions

(1) Generally, the hypothesis advanced in the present study is rejected. There are numerous significant differences between the office employment expectations of business education students when compared on the basis of race, achievement, business education concentration, and socio-economic status.

(2) None of the student sub-groups (white or nonwhite; bookkeeping, clerical, or secretarial; high or low achievers; or high or low socio-economic status) appears to have office employment expectations that approach the responses collected from the office supervisory personnel. Mean scores obtained by analyzing the students' responses were consistently under or near fifty percent of the obtainable scores.

(3) For each of the analyses, the absolute differences between the student sub-groups are relatively small.

(4) There was little consensus among the office supervisory personnel on many of the questions posed to them. Many of the criticisms presently directed at beginning office employees may be accurate in the individual case, but should not be generalized to represent the criticisms of all office employers.

(5) The office employment expectations of business education students can be determined. When analyzed systematically, it appears that these expectations can be the basis for changing existing business education programs.

III. Recommendations

Vocational competence for the office employee includes not only the development of specialized skills but also the development of accurate expectations concerning office work. To the degree that the expectations of students do not agree with information collected from office supervisory personnel, it can be said that the students' expectations are inaccurate. Correspondingly, students with inaccurate expectations are not vocationally competent. The responsibility for providing prospective office employees with these skills and expectations rests with various change agents, i.e., classroom teachers, teacher preparation programs, and guidance personnel.

Classroom teachers. Classroom teachers have the opportunity to work closely with business education students and, consequently, are in an ideal position to improve office employment expectations. Specifically, classroom teachers should consider the following recommendations:

(1) Accurate office employment information should be included as the subject matter of various business courses, e.g., office practice. Many of the inaccurate expectations of business students are undoubtedly attributable to ignorance or misinformation. If the findings of the present study cannot be used as standards of accurate expectations in particular situations, then classroom teachers should consider action research efforts designed to determine local office employment practices.

(2) Classroom instruction must take into account the factors that have a significant effect on office employment expectations. Students of different races, achievement levels, business education concentrations, and socio-economic status levels have different expectations. Consequently, the depth to which a teacher probes when teaching, the illustrations used, the assignments made, and general attitude must be dictated by the students being served.

(3) Greater use should be made of office supervisory personnel as resource people. Perhaps the comments of employers or employment supervisors are more meaningful or more authoritative than similar comments by classroom teachers.

(4) Former students, presently employed in office work or involved in cooperative office work experience programs, should be used as resource people. The peer group influence might serve to bridge a possible credibility gap existing between students and teachers.

(5) Classroom teachers should consider engaging in various activities designed to acquaint them with current office practices. These activities might include office visitations or part-time office work experience.

(6) Many of the expectations of business students appear to be related to basic attitudes. Consequently, lessons should be planned that are designed to shape various viewpoints that may represent deterrents to office employment success. Expectations that relate to personal traits could be the subject matter of specially designed shaping lessons. For instance, these lessons could use role playing as a means of eliciting peer group influences or employ authority figures, such as office personnel, as a means of impressing students with the necessity of changing various viewpoints.

(7) The recommendations stated above represent suggestions to improve expectations. However, it may be that the expectations of nonwhite students are realistic mirrors of the office work experiences of nonwhite people. Consequently, it may be that any change in the office employment expectations of nonwhite students must be preceded by changes in office employment practices. For example, it is difficult to see how nonwhite students can generate accurate salary expectations for secretarial positions when nonwhite students are more frequently completing clerical concentrations than are white students. Furthermore, if the expectations of nonwhite students are simply representations of the office work experiences of nonwhite people, then classroom teachers should consider teaching nonwhite students how to cope with the existing employment situation.

Teacher preparation programs. Teacher preparation programs are in the position whereby they may complement the efforts of classroom teachers.

(1) Teacher education programs should include learning experiences designed to acquaint prospective business teachers with the peculiar problems of students who find it most difficult to develop accurate office employment expectations. Specifically, these learning experiences should include an in-depth exposure to teaching in schools that have large concentrations of nonwhite students.

These experiences should also provide in-depth exposure to the educational needs and problems of low achieving students. Perhaps by reaching prospective business teachers, the need to develop accurate office employment expectations will become firmly established and an integral part of various business education courses.

(2) In addition to having an impact on prospective business teachers, teacher preparation programs can also provide in-service teachers with exposure to the learning problems outlined in (1) by conducting specially designed workshops and institutes.

Guidance personnel. The present study should provide guidance personnel with bases for differentiated guidance activities. Knowledge of the office employment expectations of business students and the factors that affect the development of expectations should encourage guidance personnel to begin exploration of the world of work before a student commences a business program. The purpose of this exploration is two-fold: First, it could preclude the early formation of inaccurate expectations; second, it would provide the student with an experiential base on which to select a business education concentration.

Included in the experiences planned by guidance personnel should be an in-depth exploration of the qualifications necessary to succeed in office employment, the opportunities available to people who have obtained vocational competencies; liberal use of employment supervisors as resource people; and structured visitiations to community offices (as opposed to walk-through visitations). In schools that have large percentages of nonwhite students, special efforts must be made to use nonwhite employment supervisors or office employees as resource people; hopefully, this will provide the nonwhite student with relevant models. Most important, each of the activities planned by guidance personnel should constitute parts of a continuing program of experiences, as opposed to isolated activities, and should be dictated by the kind of student being counseled.

TABLE I

SUMMARY OF ANALYSIS OF VARIANCE
STATISTICAL APPLICATIONS

Independent Variables	Expectations Related To: Factual Office Employment Information	Securing Office Employment and Advancing on the Job	Personal Traits
Race and Achievement			
Race	**	**	**
Achievement	**	**	**
Race x Achievement (interaction)		*	
Business Education Concentration and Socio-Economic Status			
Business Education Concentration	**	**	**
Socio-Economic Status		**	*
Business Education Concentration x Socio-Economic Status (interaction)			
Socio-Economic Status and Achievement			
Socio-Economic Status		**	**
Achievement	**	**	**
Socio-Economic Status x Achievement (interaction)			**

**Significant at the .01 level of confidence.

*Significant at the .05 level of confidence.

TABLE II

TABLE OF MEAN SCORES FOR CLASS A DATA,
BY RACE AND ACHIEVEMENT

Section 1 scores (Factual Office Employment Information)

Achievement	Race: Nonwhite	Race: White	All Achievement
Low	20.5	22.0	21.6
High	21.4	22.8	22.5
All Race	20.9	22.4	(possible score=41)

Section 2 scores (Securing Office Employment and Advancing on the Job)

Achievement	Race: Nonwhite	Race: White	All Achievement
Low	17.5	21.3	20.3
High	19.6	21.7	21.3
All Race	18.4	21.5	(possible score=45)

Section 3 scores (Personal Traits)

Achievement	Race: Nonwhite	Race: White	All Achievement
Low	27.0	24.6	25.2
High	25.2	23.3	23.7
All Race	26.2	23.9	(maximum deviation=50)

TABLE III

TABLE OF MEAN SCORES FOR CLASS A DATA, BY BUSINESS EDUCATION CONCENTRATION AND SOCIO-ECONOMIC STATUS

Section 1 scores (Factual Office Employment Information)

Socio-Economic Status	Business Concentrations: Book-keeping	Clerical	Secre-tarial	All Socio-Economic Status
Low	21.9	20.7	23.0	21.8
High	21.8	21.3	23.6	22.3
All Business Concentrations	21.8	21.0	23.3	(possible score=41)

Section 2 scores (Securing Office Employment and Advancing on the Job)

Socio-Economic Status	Business Concentrations: Book-keeping	Clerical	Secre-tarial	All Socio-Economic Status
Low	19.6	19.5	21.0	20.1
High	22.4	20.7	21.7	21.4
All Business Concentrations	21.0	20.1	21.4	(possible score=45)

Section 3 scores (Personal Traits)

Socio-Economic Status	Business Concentrations: Book-keeping	Clerical	Secre-tarial	All Socio-Economic Status
Low	24.6	25.9	23.8	24.9
High	24.4	24.5	23.4	24.0
All Business Concentrations	24.5	25.3	23.6	(maximum deviation=50)

TABLE IV

TABLE OF MEAN SCORES FOR CLASS A DATA, BY SOCIO-ECONOMIC STATUS AND ACHIEVEMENT

Section 1 scores (Factual Office Employment Information)

Achievement	Socio-Economic Status Low	Socio-Economic Status High	All Achievement
Low	21.3	21.9	21.6
High	22.3	22.8	22.5
All Socio-Economic Status	21.8	22.3	(possible score=41)

Section 2 scores (Securing Office Employment and Advancing on the Job)

Achievement	Socio-Economic Status Low	Socio-Economic Status High	All Achievement
Low	19.3	21.1	20.3
High	20.8	21.8	21.3
All Socio-Economic Status	20.1	21.4	(possible score=45)

Section 3 scores (Personal Traits)

Achievement	Socio-Economic Status Low	Socio-Economic Status High	All Achievement
Low	26.3	24.3	25.2
High	23.6	23.8	23.7
All Socio-Economic Status	24.9	24.0	(maximum deviation=50)

FOOTNOTES

[1]Donald Eugene Meeks, "Race, Social Class and Level of Aspiration: The Effects of Race and Social Class on the Goal-Striving Behavior of White and Negro Boys" (Doctoral Dissertation, Smith College, School of Social Work, 1965).

[2]Jesse T. Byler, "The Relative Influence of Selected Variables in Determining Level of Vocational Preference" (Doctoral Dissertation, University of Virginia, 1967).

[3]Leonard Franklin Sain, "Occupational Preferences and Expectations of Negro Students Attending a High School in a Lower Socio-Economic Area" (Doctoral Dissertation, Wayne State University, 1965).

[4]Franklin H. Dye, "Office Work Perceptions Held by Tenth Grade Female Students Enrolled in Urban High Schools Serving Disadvantaged Youth" (Doctoral Dissertation, Ohio State University, 1968).

[5]Albert C. Masterson, "Advantaged and Disadvantaged High School Girls' Perceptions of Office Work" (Doctoral Dissertation, Ohio State University, June, 1968).

[6]Ibid.

[7]Dean R. Malsbary, "A Study of the Opportunities for, Requirements of, and Knowledges, Abilities, and Related Characteristics Needed by Beginning Office Workers in the State of Connecticut, with Implications for Business and Office Education" (In cooperation with and funded by Division of Vocational Education, State Department of Education, Hartford, Connecticut, 1967).

[8]Ibid.

[9]Rubelia J. Bailey, "The Relationship of Educational Background, Socio-Economic Status, Level of Aspiration, and Intelligence to Success in Business Education" (Doctoral Dissertation, Temple University, 1965).

[10]Ibid.

[11]Ibid.

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VT 012 416
Gurst, Lawrence E.
The Role of the Counselor in Vocational Education. Final Report.

Glassboro State Coll., N.Y. Dept. of Education.
New Jersey State Dept. of Education, Trenton.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 69 53p.

DESCRIPTORS - *COUNSELOR TRAINING; *VOCATIONAL EDUCATION; COUNSELOR ROLE; *COUNSELOR PERFORMANCE; INSERVICE PROGRAMS; TEACHING MODELS; *COUNSELORS; EVALUATION TECHNIQUES

ABSTRACT - This program provided training for vocational counselors and created a model for other counselor education programs and local inservice training projects. Vocational education specialists discussed with the participants their roles in vocational education. Each participant was required to identify a specific need within his own school system and develop a positive action approach to cure it. Monthly followup seminars served as a continuing evaluation of the program for 3 months after the summer institute. (BH)

VT 012 416

ED0 57254

GLASSBORO STATE COLLEGE
DEPARTMENT OF EDUCATION
GLASSBORO, NEW JERSEY

FINAL REPORT

Submitted to the New Jersey Department of Education
Division of Vocational Education
Under the Provisions of Section 4 (c)
of the Vocational Education Act of 1963.

Project Title: A Training Program to Increase Effectiveness of the Role of the Guidance Counselor in Dealing with Vocational Education Program — The Role of the Counselor in Vocational Education.

Applicant: Glassboro State College
Department of Education
Glassboro, New Jersey

Initiated: Edward G. Haledman, Ed.D.
Professor of Education
Department of Education
Glassboro State College
Glassboro, New Jersey

Principal Investigator: Lawrence E. Gurst, MEd.
Assistant Professor of Education
Glassboro State College
Glassboro, New Jersey

Submitted By: Edward G. Haldeman
Edward G. Haldeman, Ed.D.

Federal Funds Requested: $3,398.82

Duration: June 26, 1968 - December 31, 1968

Date Transmitted: January 15, 1969

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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Approved: R E Bjork
Richard E. Bjork
Acting President
Glassboro State College
Glassboro, New Jersey

Date: 2-10-69

VT012416

TRAINING PROPOSAL

Abstract

Submitted by: Glassboro State College

Principal Investigator: Lawrence E. Gurst, Ed.M.
Assistant Professor of Education
Glassboro State College
Glassboro, New Jersey

Title: A Training Program to Increase Effectiveness of the Role of the Guidance Counselor in Dealing with Vocational Education Program -- The Role of the Counselor in Vocational Education.

Objectives: The purpose of this training is three-fold:

1. To create a model for the training of counselors in vocational education which will be made available to other counselor education institutions. Local districts may also use the model as part of their in-service training of counselors.

2. To provide training for counselors employed in school districts engaged in vocational programs. This training is aimed at the improvement of counseling services to employment-bound youth and to the development of a greater degree of communication between counselors and vocational program personnel.

3. This will be a continuation of the Institute held at Seton Hall in the Summer of 1967 for counselors and Vocational Education Instructors -- in the Southern part of New Jersey. Dr. Donald Merachnik, principal investigator of last summer's program will be consulted to coordinate this continuing program.

Procedures: Consultants and specialists in the field of vocational education (students included) provided background information to counselor participants regarding their role in Vocational Education. Major areas included: Responsibilities of Individual Counselors to their role as a helping person, Comprehensive Vocational Education Kindergarten through High School, Importance of such concepts of "Developing Self-Image" to Vocational Education, Problems of "Ghetto" and Socio-Economic conditions on Vocational Planning, Cooperation between Vocational and Academic-orientated curriculum, Resources currently available, etc.

Procedures: (Cont'd)

As part of this program each participant was to identify a specific need within his own school system in which there was an immediate concern appropriate to Vocational Education and develop some type of positive approach in action form.

Follow-up seminars will be held monthly during October, November, and December to see what kind of implementation was made and to serve as a continuing evaluation.

Time:

Summer and Winter Sessions
June 26, 1968 - December 31, 1968

Budget:

Total funds requested - $3,398,82

PROPOSED BUDGET

Vocational Guidance Training Institute
Administrator: Edward G. Haldeman, Ed.D.
Institution: Glassboro State College
Beginning Date: June 1968 Ending Date: August 1968

Item		Grant Funds	State in Kind
DIRECT COST			
Personnel:			
Investigator - Instructor 6 weeks @ $162.50/week	$975.00		
Investigator - Instructor 3 Seminars (Follow-up & Evaluation) 9 Hrs @ $25.00/hr.)	$225.00		
Administrator (6 weeks @ $75.00 per week	$450.00		
Total Salaries	$1650.00		
$960.00 of salary paid by Tuition:		$960.00	
Salary Grant:		$690.00	
Consultants: 9 hrs @ $40.00/hr.		$360.00	
Consultants: Division of Vocational Education 15 Hours @ $40.00/hr.			$600.00
Secretary: 6 weeks @ $60.00/week		$360.00	
Registration fees to the college		30.00	
Personnel Total		$2400.00	
Supplies and Materials:			
Advertising Brochure		$65.00	
Mimeo Bond 10,000 @ $3.50/1000		$35.00	
Letter Heads 1,000 @ $18.00/1000		$18.00	
Envelopes #10, 1,000 @ $12.50/1,000		$12.50	
Stencil Masters 200 @ $0.20 per		$40.00	
Stamps 1,000 @ $0.06		$60.00	
Telephone: for 2 professional people and Secretary		$75.00	
Supplies and Materials Total		$295.50	
Program Resources Materials			
Reference Texts: 20 @ $8.00/per		$160.00	
Testing Materials: for 30 participants		$100.00	
Total Materials		$260.00	
Totals		$2,955.50	
Administrative Cost to College @ 15%		$ 443.32	
GRAND TOTAL		$3,398.82	$600.00

ACKNOWLEDGEMENTS:

To begin to enumerate the multitude of persons who involved themselves would be gigantic task in itself. We found so many persons personally committed to wanting to improve conditions that it became vital learning experience for all of us here at Glassboro. However, we got underway namely due to the fact that certain persons, particularly in the Vocational Education Division of the New Jersey State Department of Education, are very much concerned with doing something to improve the lot of our young persons, especially in the area of Vocational Education. Through the efforts of:

Dr. Bernard Kaplan Associate Director and Mr. Thomas Gambino Supervisor of Vocational Guidance	Vocational Education Division, New Jersey State Department of Education Trenton, New Jersey

Dr. Edward Haldeman of our faculty here at Glassboro was able to bring, what we consider to be, a valuable service to the Southern New Jersey Community. And, as noted by our predecessors of last summer, a special debt is owed to Mr. Thomas Gambino for his devotion to the program, as evidenced by the enormous amount of time he contributed to the development of this Institute.

In addition we are indebted to the College for making many of its resources available to us; to the many high school principals and superintendents who sent us their fine recommendations and allowed for these folks to "experiment" with their systems; and last but not least, to the participants who really made the program.

SECTION II

I. PURPOSE

The purpose of this training program is to develop an awareness of the role expectation and to increase effectiveness for counseling on the part of the guidance counselor working in schools with vocational education programs.

The expanding role of the guidance counselor, especially in comprehensive secondary schools, dictates a greater knowledge of the field of vocational education and its relationship to the guidance of individual students. Unfortunately, counselor education programs omit many of the vocational areas of concentration which effective counselors must know. Cooperative work experience programs, in particular, are essential for students whose interests, abilities, and motivation demand realistic work training while in school.

Objectives:

A. To develop counselor awareness of the wide range opportunities for student participation within the field of vocational education.

B. To develop counselor competencies in the techniques of student selection, counseling and evaluation - for placement and training - while engaged in work experience programs in the high school.

C. To establish procedures for placement and follow-up of students seeking entry jobs in the labor market after high school graduation.

D. To effect a greater degree of interdependency, communication and professional relationship between secondary school guidance counselors and vocational education teachers.

E. To permit secondary school guidance counselors to return to their local school districts with renewed commitment to a new model of increased relationship and communication between vocational education teachers and guidance counselors.

F. To provide counselors with background needed to contribute and to promote (in cooperation with administrators and vocational education personnel) the development of vocational education programs based upon sound guidance objectives; e.g., the objective of providing programs in accordance with the needs of all students.

G. To provide counselors the opportunity to participate in a program of placement and follow-up in the community.

H. To encourage a stronger liaison between guidance people and industry.

This program is vital to the continued growth of vocational education within the comprehensive high school. Without proper guidance of students in the direction of appropriate vocational education programs, the basic goals of vocational education cannot be accomplished. Inadequate selection and advisement of students desiring vocational direction will result in students with inferior vocational skills. Cooperative work experience programs, for example, should enroll only those students who can profit from the particular type of experiencesoffered. The future of quality vocational education may well depend upon increased understanding of vocational education on the part of the guidance counselor.

II. CONTENT

Phase I. The History and Development of Vocational Education

What is vocational education? What were the historical, cultural and economic factors which led to its growth? What are the opportunities for vocational training? How does vocational education relate to the total curriculum of the secondary school? What is the nature and scope of vocational education in the post-high school setting? Have the objectives of vocational education changed over the years? Objectives of vocational education in 1967. Projected objectives of vocational education in the Year 2000.

Phase 2. The History of Vocational Guidance and Its Relationship to Vocational Education

How and why did vocational guidance develop? Historical significance of vocational guidance and the growth of vocational education. Traditional roles of the counselor in vocational guidance in the comprehensive school. The impact of new technology upon vocational guidance and vocational education. Relationships between vocational guidance and vocational education in 1967.

Phase 3. The Roles of Vocational Guidance and Vocational Education, Within the Modern Secondary School

The modern high school must coordinate student guidance with vocational programs within the total school. A merging of the two disciplines into a student need - curricular satisfaction model. A unitary process emerges within the modern high school.

Phase 4. Individual Development of the Student in the Secondary School

What are the needs of the adolescent? Physical, social, intellectual, moral, academic, vocational needs of the developing organism. The process of vocational development. Stages of vocational development leading to aptitudes and skills. The adolescent in a changing society - 1967. The need for flexibility and maturity in vocational growth. How do vocational education programs meet the special needs of students? - - The unskilled, the semi-skilled, the skilled, the technically competent, the professionally educated, etc.?

Phase 5. The Development of Vocational Education Programs in the Comprehensive Secondary School

The need for vocational education programs. Psychology and sociology of work. Comprehensiveness and flexibility of work experience programs. How do cooperative work experience and other vocational programs enrich curricular offerings and benefit all areas of the school. Influence of projected economic trends and economic growth upon cooperative work experience programs in the secondary school.

Phase 6. The Role of the Guidance Counselor in Cooperative Work Experience and Other Vocational Programs

Techniques of orientation and selection of students for work experience programs. Counseling of students engaged in work experience programs. Evaluation of student needs and satisfaction within work experience programs. How much parent involvement when student is in work experience? Relationship between guidance counselor and the other teachers of the student. What is the best relationship between the work experience students' counselor and work coordinator? The counselor and the students' entry job into the labor market.

Phase 7. The Role of the Work Experience Coordinator

What is the role of the coordinator? What are his goals and objectives for the student? What experiences might he try to provide? What is his relation to the employer, to the advisory council, to the business community-at-large? What is the coordinator's relationship to the other teachers and administrators?

Phase 8. The Function of the Team in Vocational Education

The counselor, vocational teacher, and other vocational personnel work together for the best vocational adaptation of the student. Utilization of other specialists who may contribute to a greater understanding of a particular student and his vocational needs. The parent as a team member; the employer as a team member.

Phase 9. Surveying, Placement and Vocational Counseling

How to survey a school for a greater understanding of the vocational education needs of the student body. Placement and Vocational counseling will also be developed.

This program gave two (2) graduate credits to its participants.

Qualifications for Acceptance:

1. Certified secondary or elementary school guidance counselors and directors employed in New Jersey.

2. Employed in schools engaged in vocational education programs or school contemplating the adoption of vocational education programs.

3. Recommendation by the school principal or district superintendent.

SECTION III

PROCEDURES:

The main purpose of the Evening Summer Institute was to provide opportunities for development of guidance personnel -- in regards to the world of vocational education - - through a combination of planned course type activities and planned guided group interaction, library research, readings and personal involvement with needs of their individual school districts. In addition, as happened the previous summer, many of the real-life problems were encountered in the seminary activities with those actively connected in providing programs for vocational education. (As an example - one evening we had a Social Worker in who was quite negative about the current functioning of school persons providing for an estimated 85,000 school drop-outs. It turned out to be a rather vital learning experience for the participants).

We met three evenings per week from 6:30 PM to 9:30 PM (sometimes over) for a period of six (6) weeks. Our evenings were a combination of discussions, consultant presentations, small group interaction, and individual study and presentation of ideas of problems that the participants considered of value.

A general schedule of the meetings and consultants is as follows:

June 24th	Introduction. Presentation of Participants. Overview of Institute.
June 25th	Overview of Vocational Education and General Historical Development. "Where we stand at present."
June 26th	Consultant: Mr. Thomas Gambino, Supervisor of Vocational Guidance Division of Vocational Education "Master Plan for Vocational Education in New Jersey through 1968-1980".
July 1st	Consultant: Miss Sandra Guildar, Consultant Department of Curriculum and Instruction. "Value and Importance of Developing Initial Experience and Direction at Elementary School Level." Development of Self-Image.

July 2nd	Consultant: Mr. Allen Platt, Director of Vocational Guidance, Philadelphia Public Schools. "Room to Grow" program - the efforts of the Philadelphia schools to support what Miss Guildar had noted the previous night. This was a current action program.
July 3rd	Viewing of a film "Did you hear what I Said?" with discussion and summation of week.
July 8th	Discussion main group and small groups. Identification of Current Problems and How the Individual Counselor can become involved in doing something about it.
July 9th	Consultant: Dr. Anthony D'Annunzio, Director of Special Learnings Program, Clinical Psychologist and Director of Reading Clinic. "Testing and Identifying" problems pertinent to Vocational Counseling."
July 10th	Discussion with several outside participants. Dr. Joseph Balk "Needs of Medical and Dental Peoples with non-college bound youth". Mr. Earl Hinton "Value of Head Start, Get-Set, etc. programs."
July 15th	Consultant: Mr. Frederick Miller Executive Director, Philadelphia Office Opportunities Industrialization Center. "What Black Community is doing for itself ... and how the counselor might make himself concerned with the difficulties of the Black student."
July 16th	Discussion with group - small group interaction. Evaluation of program up to current moment. How they can get involved with own school program.
July 17th	Representatives from a Variety of Management Persons in Transportation Industry to discuss their needs and how they might help the schools and how the school might help them.

July 22nd	Discussion - development of Vocational Education Program in the Comprehensive Secondary Schools.
July 23rd	Consultant: Mr. William Wenzel, Coordinator Occupational Education "How State can help participants in developing their own programs - the role of the work experience counselor-coordinator - and team involvement in Vocational Education"
July 24th	Visit by Rev. Canon Donald Griessman Episcopal Minister, Community Housing Coordinator, a person very much involved in Urban affairs - Discussion of the problems of Urban Living and their apparent effect on youth - and what the school are or are not doing, etc.
July 29th	Group discussion - discussion of problems encountered in placement activities, etc.
July 30th	A number of young persons participated in a round table discussion alongside counselors - problems pertinent to these young people and how they see their counselors.
July 31st	Last summer meeting. General Evaluation and establishment of format for fall meetings.

As noted above - each meeting was focused upon an area we considered essential to planning for vocational education today. We attempted to raise many questions, without necessarily answering them all. Our guests were invited with the idea of provoking thought, and perhaps action, from our participants. In all we believe it was the type of program designed to bring about behaviors that may be favorable to the development of positive programs in our schools, especially in "humanizing" vocational education.

EVALUATION

Evaluation of this kind of training program must be based upon subjective data furnished by the participants themselves for the most part. Since each participant enters the program with different levels of training, unique experiences, and varied school contacts (all of which we capitalized on in our summer program), the growth (or lack of it), as noted by Dr. Merachnik last summer, must rest with the individual participants themselves.

Attempts at objective and subjective testing were made within the short period of six (6) weeks. We were able to continue over the fall through the further interest and involvement of our participants, both with us at the college and in their own schools. We sent out both check lists and a comment sheet in narrative form. Each were submitted without names.

CHECKLIST

Evaluation Tallies

(N = 30)

	No.	%
1. This Institute program was:		
Excellent	14	47
Good	14	47
Fair	2	6
Poor	0	
2. For my development, it was:		
Very valuable	15	50
Valuable	13	43
Valuable at Times	2	7
A Waste of Time	0	
3. If I were a school administrator, and one of my staff asked to participate in this kind of Institute, I would:		
Encourage him	30	100
Discourage him	0	0

4. Comments:

Most were favorable. The major complaints seemed to be that we were too effective and not as much cognitive in our instructional aspects of the program. (Note: This is a hazard of this type of presentation especially with the type of conditioning the majority of our counselors have experienced. We realize that perhaps we should be a bit more moderate in the beginning - yet our objective was to deal with "role" in an effort to "present the humanizing aspects of vocational education.

NARRATIVE EVALUATION

The narrative evaluation offered many diverse comments about the program and were encouraging for the most part. As last year, we are noting some representative comments rather than reproduce the reports in total.

1. "More structure to group sessions -- but total program rather thought provoking"

2. "Excellent - thoroughly appreciated chance to become involved with these people."

3. "Appreciated air conditioned meeting rooms during this hot summer. It helped stimulate my thinking and I realized how so needed is a good vocational education program in our system."

4. "I enjoyed the sessions. Didn't miss any. Most speakers were excellent. Program was beneficial to me."

5. "A good place to exchange ideas."

6. "Hope we can have a follow-up institute. I enjoyed all speakers although I couldn't agree with them all."

7. "Felt there were too many negative criticisms at times -- believe you can assomplish similar with positive thinking."

8. "I feel we should have discussed some of those worthwhile books on our reading list."

9. "Really feel I have gained insight into our own problems as a result of being involved here."

10. "Felt there was much valuable information available."

11. "Drop the film 'Did you hear what I Say' it really wasn't applicable to our group."

12. "I think it should be a must for all counselors."

13. "Your selected speakers helped open my eyes to many practices in our school I hope to change."

14. "I never minded that 50-mile drive -- looking forward to our winter meetings."

15. "A rather worthwhile experience."

16. "I would appreciate several field trips."

17. "I feel every professional person -- especially a guidance counselor -- has an obligation to periodically take advanced courses to avoid stagnation and to provide for professional growth."

18. "We really appreciated a chance to discuss our problems with people who can do something about it -- like Mr. Wenzel for example."

19. "In the beginning I really felt quite disappointed - particularly with being accused of being inadequate - it opened my eyes to myself - thanks to you and those consultants you brought in."

20. "It has given me a chance to get something going in my district that was really needed."

21. "Felt those kids we had were really antagonistic toward us -- especially the ones who were involved with the Camden rebellion."

22. "It made me realize how important it is to sit down and talk with kids rather than tell them things. Perhaps we would all do better if we could discuss matters at a parallel level."

23. "Thanks for the visit to the Manpower Development Training Center -- I'll be able to make a good deal of use of this facility."

24. "You really should have provided more factual materials especially in career guidance and job placement -- too much time was spent with "Social and psychological" aspects which is alright for college campuses but difficult when you are a counselor on the line, to produce.

25. "This was a most valuable personal experience for me."

26. "I think we should all continuously become involved with these programs. Working in our now private worlds offers little chance to discuss matters with people who understand and care."

27. "Thank Mr. Gambino and the State Department for me - I hope to have this program underway in our school system next year."

28. "I never realized that the Negroes were doing so much for themselves as Mr. Miller pointed out with the OIC program."

29. "Room to grow has a great deal of merit. Even though I work at the high school level I can now see how important the elementary program is - probably moreso than ours."

30. "I really appreciated the chance to meet and discuss my feelings and experiences with so many different people."

As noted, we planned to continue this with several meetings in the fall. It will offer a chance for some time to elapse and additional reflection on what transpired this summer.

In addition to our regular sessions each participant was to become involved with some special program, as they viewed it within their own school *, either throughout the total school system or with one (1) individual. They were to identify a need in the area of vocational education that was being neglected and then try to do something about it. Frankly, we were quite pleased with the manner this project was received. A number of the participants noted they felt it turned out to be one of the most worthwhile aspects of the institute for them.

* Projects follow - See Page 23

The winter sessions consisted of three (3) meetings. One in October was held to discuss problems encountered in attempting to get projects underway and comparison of what we are doing - sharing of ideas.

The second meeting was held in November at the Manpower Development Training Center in Camden. We had an opportunity to see and discuss with the people in charge of the program problems pertinent to this vocational programing particularly for persons of the adult level.

The third session was held in December at Glassboro with the purpose of examining and sharing ideas pertaining to the projects being conducted by the various participants.

Implications Derived from the Institute Experience

Writing in a Look Magazine article a few years back, George B. Leonard noted:

> "The most explosive subject in this country is no longer religion or politics. It is schools .... In all the talk about school, vocational education until now has rarely been mentioned .....[1]

Since the Vocational Education Act of 1963 there appears to be a redirection of interest, especially through the efforts of the Government's financial backing. For one thing, it is difficult to justify the existence of 100,000 unemployed youth between the ages of 16 and 21 as noted by Seymour Wolfbein and others.

[1] Leonard, G.B. "The Real Crisis in Education", Look , June 4, 1963

The responsibility for redirecting and improving conditions lie greatly in our own hands. The Institute enabled a group of us to re-examine our roles and responsibilities as Vocational Guidance Persons. We discovered that education appears almost in a "paleolithic" state considering the availability of informations about how children learn. While in reality we discovered we have shown little implementation as yet in our daily programs.

As discovered by the first summer institute, the participants came because they were interested in doing something to improve their own backgrounds. Many agreed at least verbally, that counselors should be out 'in the front lines of civilization." Through an effort to discover their own needs and the schools and develop some approach to do something, we believe we offered a two-pronged program ... consideration and action - through self appraisal and planning actually their own school project.

Insofar as the training of counselors -- the "sensitization" process has become a valuable learning experience. Schools and Counselor Training Institutions should realize that our people will go out and function in a manner much the same way they have been "functioned" upon. What we see at present leaves much to be desired. It therefore leads us to believe that we should be making every effort to constantly develop means of "self-appraisal". Schools and Colleges must serve one another in this endeavor. Such programs as this Institute and In-Service Training can be a vital link in the development of worthwhile vocational education. We can agree with Dr. Merachnik's notation - that the preparation of Guidance Counselors should be restudied by us and our students constantly, in order to present a more valid direction to Vocational Education and the vocational needs of students.

QUALIFICATIONS OF PERSONNEL:

1. Administrator

Edward G. Haldeman, Ed. D., Professor of Education and Director of Student Personnel Services Program, Glassboro State College.

Born - Philadelphia, Pennsylvania - January 30, 1925

Married - Three children

Education

a. Northeast High School, Phila., Pennsylvania
Gr. 1942 Academic Diploma

b. Pennsylvania Institute of Criminology (Evenings)
Drafted into Military Service

c. Colorado State College of Education, Greeley, Colorado,
U.S. Army Air Force Operations and Engineering School, 3 Months

d. Temple University, Philadelphia, Pennsylvania,
B.S. in Ed. 1949, Major in Social Studies and minor in Biology

e. University of Delaware, Newark, Delaware,
Ed. M. 1954 Major in Guidance and Counseling.

f. Temple University, Philadelphia, Pennsylvania,
Ed. D., 1964 Major in Vocational Guidance and Counseling
Psychology, minor in Psychology

Positions

a. 1949 - Teacher of Science and Geography
Salem Junior High School, Salem, New Jersey

b. 1952 - Teacher-Counselor, Oak Grove Junior High School
Elsmere, Delaware

c. 1954 - Counselor, Richardson Park Junior High School
Richardson Park, Delaware

d. 1959 - Counselor, De La Warr Senior High School
New Castle, Delaware

e. Seven summers of Personnel Work
H.J. Heinz Company, Salem, New Jersey

f. Visiting Associate Prof. College of William & Mary,
Williamsburg, Virginia
Courses in Counseling and Foundations of Guidance - Summer 1964.

Positions (Cont'd)

g. Instructor, extension, University of Delaware
Tools & Techniques of Counseling - February 1965.

h. Instructor, University of Vermont (Summer School) 1965
Seminar in Educational Psychology and Counseling.

i. Consultant, Man Power Development Training Program -
Laboratory helpers 1964-1965, Wilmington High School

j. Professor of Education, Glassboro State College

Publications

a. The Science Teacher, March 1952, "Learning the Constellations with Tinker Toys"

b. California Parent-Teacher, March 1955, "Is Your Attitude Showing?"

c. Mobile Living, Feb., 1957, "The Mobile Child"

d. Vocational Guidance Quarterly, Autumn, 1957
"Developing Meaningful Meanings."

e. "Finding Your Orbit", Activity Booklet, 1963, Chronicle Guidance Publications. (Cited in Bull. of the Nat. Assoc. of Sec-School Principals, September 1964, Article by Robert Hoppock, Best Books of 1963 on Vocational Guidance)

f. Associate Editor, Occupational Research Service, 1963,
Palmer Associates, Inc. (Wrote over 100 Occupational Research Service Monographs)

g. Delaware School Journal, January, 1965, FTA: A STEPPING STONE TO PROFESSIONALISM

h. Delaware School Journal, March, 1965, BECAUSE THEY WANT TO WRITE.

i. The Low Profile Syndrome, Curriculum Development Council Bulletin,
Glassboro State College

Professional Societies

a. American Personnel and Guidance Association

b. National Vocational Guidance Association
Professional Member and State Membership - Chairman

c. American School Counselor Association

d. Charter Member, Delaware Association of Certified School Counselors

e. National Education Association

f. New Jersey State Educational Association

g. Gloucester County Educational Association

h. Glassboro State College Faculty Association

i. Phi Delta Kappa

j. American Psychological Association

Other Activities

a. Host and Moderator, Channel 12 TV -
High Time Program (approximately 3 months) - Teenage Panel

b. Chairman, Committee concerning the workshop for teachers of emotionally disturbed children.

2. Principal Investigator

Lawrence E. Gurst, Assistant Professor of Education, Glassboro State College. Currently working with student teachers and professional semester in Practicum part-time teaching in Guidance and Counseling. Received AB and MEd from Temple University and is currently working to complete doctoral studies at the University of Pennsylvania in Teacher Education and Counseling.

Teaching experience includes elementary, secondary and college levels both in the United States and abroad.

Recipient of a Ford Foundation grant for graduate study and a Vocational Rehabilitation Act grant for a seminar in Vocational planning for emotionally and socially maladjusted at the Devereau Foundation Schools in Devon, Pennsylvania.

2. Principal Investigator (Cont'd)

He has been a counselor in the secondary schools and was part of a special program to provide services for socially and emotionally maladjusted youngsters in the normal high school environment. He has been a research consultant for the Penn State University's Institute for Research in Human Behavior in a joint study with Rutgers in an investigation of attitudes and values of students graduating from vocational schools, employers, government officials, union leaders, etc., in regard to the type of education received and its relative value in preparing today's youth for employment. He is currently serving as a consultant for a special program sponsored by the New Jersey State Department of Vocational Guidance to bring about programs in the public schools that will in some way bring greater help for our young people in planning for their futures, particularly in the areas where the socialization process appears debilitating. He is greatly interested in aiding young people to survive in a much too alien world.

APPENDIX

I. STUDY PROJECTS BY PARTICIPANTS

Mrs. Evelyn Baldwin Mr. Lewis Maul	Mainland Regional	Study with several faculty members to develop greater concern with enhancement of student "self-image".
Mr. Martin Noonan	Woodstown	Develop "Job Placement" Program in their school by working with developing local industry.
Miss Jane Weilenback	Pennsauken	Develop work experience program for Office Education where none existed.
Mrs. Walerie Kagan	Eastern Regional	Institute information program to bring to girls ideas of variety of chances available as remales are being less segregated occupationally.
Mr. LeRoy Garrison	Bridgeton	Organize the seven part-time employment agencies in town into one unit working in conjunction with public schools.
Mr. Holton Hackett	Camden	Program involving students in curriculum development
Mr. Richard Creamer Mr. John Enzman	Clayton	Form teacher committee grades k-6 to develop vocational information program for elementary schools in Clayton
Mr. John Dalesandero	Vineland	Establish home study program for drop-outs for credit toward diploma and GED.
Mr. Matthew Cacio	Vineland	Develop ninth grade exploratory program for girls and boys in industrial-vocational program

Mrs. Joyce Burns	Lenape Regional	Arrange for students to study at local Electronics School for H.S. credit during regular school day.
Mrs. Eleanor Tischler	Edgewood Regional	Planning and Development of Child Day Care Center. (Currently proceeding with support of State Dept.) This will be part of H.S. curriculum.
Miss SuAnn Pontius	Cinnaminson	Give specific attention and support to low interest and low achieving freshman with supportive changes as need be in curriculum.
Mr. Nicholas Kuchova	Ventnor-Margate	Establish Mini-classes for interest exploratory at Junior High School level.
Mrs. May Mooney	Cherry Hill	Arrange for study with local computer school for interested students - receive credit toward graduation.
Mr. Ed Weinhofer Mr. Anthony Sankus	Gateway Regional	Establish Vocational exploratory program for youngsters not currently interested in college.
Mr. William (Robert) Faulhaber	Sterling Regional	Improve Self-image of Industrial Arts Students.
Mr. Daniel Williams	Blackwood Regional	Revision of 9 Tract curriculum to a more flexible and meaningful program for all students.

Mrs. Anne Troth	Camden Schools	Program to make new teachers aware of what the vocational counselor can offer as supportive to their program or vice-versa.
Mr. Thomas Yager Mr. Anthony Alfano Mrs. Jessie Miller Miss Marie Romeo	Camden Schools	Planning for development of Vocational school complex. Opening guidance office in evenings to make info available for community needs.
Mr. Tyrone Gilliams	Camden Schools	Set up program which provides help of any and all kinds to some 15,000 children in Camden without direction or purpose. Enlist community support - develop identity with other black persons - goal orientation.

II. CONSULTANTS

1968 Summer Institute

Rev'd Donald A. Griesmann
Camden Episcopal Community Center
538 Broadway
Camden, New Jersey 08103
VISTA, Public Housing, Youth Problems in Urban Areas

Miss Sandra Gildar
Consultant in Guidance and Testing
Division of Curriculum and Instruction
State of New Jersey, Department of Education
225 W. State Street
Trenton, New Jersey 08625

Mr. Thomas Gambino
Supervisor of Vocational Guidance
Diwision of Vocational Education
State of New Jersey, Department of Education
225 W. State Street
Trenton, New Jersey 08625

Mr. Jerome Cohen, etal
75 Knollwood Drive
Cherry Hill, New Jersey
Representatives of Traffic Industries in South Jersey
(Delaware Valley)
Discussions of Needs and Available Training in their
relative fields

Dr. Anthony J. D'Annunzio, Professor, Glassboro State College
and Director, Learning Disabilities Program, Drexil Inst. Tech.
Clinical Psychologist
Problems in Evaluation Measurement throughout
Careers of Student

Mr. Frederick E. Miller, Deputy Executive Director
Opportunities Industrialization Center
1225 N. Broad St.
Philadelphia, Pennsylvania 19140
(Developments with minority groups in large urban areas -
cooperative efforts of self and business community)

Mr. Allen Platt, Director, Vocational Guidance
Division of Pupil Personnel and Counseling
Philadelphia Public Schools
21st and Parkway St.
Philadelphia, Pennsylvania
(Room to Grow Program)
Vocational
Awareness
Elementary Schools

Mr. William Wenzel
Occupational Education Coordinator
Camden County Public Schools
Department of Vocational Education
State of New Jersey
(What's available in current programs.
Responsibility of State and Local Schools).

Mr. Earl Hinton, Assistant Professor,
Glassboro State College
Director, Head Start Program at College Level
Glassboro State College, Glassboro, New Jersey
(Special program for deprived young persons during
summer in preparation for entering college in fall).

Mr. Lawrence E. Gurst, Assistant Professor
Glassboro State College, Glassboro, New Jersey
Instruction, Guidance and Counselling,
Counselor Vocational Education
Coordinator, Summer Institute 1968

Dr. Edward Haldeman, Professor
Glassboro State College, Glassboro, New Jersey
Counselor Vocational Education
Graduate Committee Chairman, Pupil Personnel Services
Administrator - Vocational Guidance Institute

III. CONTRIBUTING AGENCIES

1. State Department of Vocational Guidance
   Division of Curriculum and Instruction

2. Glassboro State College

3. Camden City Schools

4. Philadelphia Public Schools

5. Institute for Research on Human Resources
   Pennsylvania State University - Dr. Morgan Lewis

6. Rev'd. Dr. Leon Sullivan
   Pastor - Zion Baptist Church
   Founder OIC
   1225 N. Broad Street
   Philadelphia, Pa.

7. Associated Films Inc.
   600 Madison Avenue
   New York, New York

8. New Jersey Traffic Managers Association

9. Episcopal Archdiocese of Camden

10. State Department of Employment

11. Educational Testing Service

12. The Psychologic Corporation

13. Fund for Advancement of Education
    477 Madison Avenue
    New York, New York

IV. PARTICIPANTS

Mr. Anthony Alfano - Havertown, Pa.
A teacher/Counselor/Coach
Camden High School
Youth Opportunity Program

Mrs. Evelyn Baldwin, M.A.,Columbia
Linwood, N.J.
Counselor,Mainland Regional High School

Mrs. Joyce Burns
Pennsauken, N.J.
Counselor, Lenape Regional High School

Dr. Rebecca B. Butler - EdD, Temple University
Cherry Hill, N.J.
Supervisor, Pupil Personnel Services - Camden Schools

Mr. Matthew J. Cascio
Vineland, N.J.
Teacher Introduction to Vocations
Summer Program with Migrant Labor Children

Mr. Richard Creamer
Clayton, N.J.
Director - Guidance, Clayton Public School

Mr. John Dalesandro, MeD, Temple University
Vineland, N.J.
Counselor, Vineland Senior High School

Mr. Joseph Dzurenda, MS, Temple University
Oaklyn, N.J.
Counselor, Oaklyn Junior High School
Direct Summer Program w/combined Parochial and Public
Schools - Occup. Exploratory Program

Mr. John A. Enzman
Mullica Hill, N. J.
Counselor, Clayton High School

Mr. Robert C. Faulhaber
Stratford, N.J.
Instructor Industrial Arts
Eastern Regional High School
Counselor - Summer Program Cooperative Industrial Experience Program
Member - Board of Education

Mr. Leroy Garrison, MA, Temple University
Bridgeton, N.J.
Vocational Guidance & Job Placement - Bridgeton High School

Mr. Tyrone Gilliams
Camden, N.J.
Teacher - Special Education - Camden
Summer Program "Upgrade"

Mr. Holton E. Hackett, MeD, Rutgers
Camden, N.J.
Counselor - Woodrow Wilson High School

Mrs. Valerie A. Kagan
Haddon Township, N.J.
Counselor - Eastern Regional High School

Mr. Nicholas Kuchova, MA, Rutgers
Northfield, N.J.
Counselor - Chelsea Junior High School
Councilman - Local Government

Mrs. Jessie M. Miller
Westmont, N.J.
Counselor - Camden High School

Mrs. May H. Mooney
Philadelphia, Pennsylvania
Counselor - Cherry Hill West High School

Mr. Lewis B. Maul, MeD, Harvard
Margate City, N.J.
Counselor Mainland Regional High School

Mr. Martin Noonan, MeD, Temple University
Salem, New Jersey
Guidance Director - Woodstown High School

Mr. William Peacock
Williamstown, N.J.
Counselor Pyne Pt. Camden
Special Education Program

Miss Svann Pontius, MeD, Temple University
Maple Shade, N.J.
Counselor - Cherry Hill West

Mrs. Viola Preston
Camden, New Jersey
Teacher/Counselor Elementary Schools
Project Upgrade - Summer

Miss Marie Romeo, MeD, Rutgers
Pennsauken, N.J.
Counselor - Camden High School

Mrs. Eleanor Tischler, MeD, Temple University
Haddon Heights, N.J.
Counselor - Edgewood Regional

Mr. Anthony Sankus
Woodbury, N.J.
Counselor - Gateway Regional High School

Mrs. Anne Troth
Westmont, N.J.
Counselor - Pyne Pt., N.J.

Miss Jane Weilenbeck
Pennsauken, N.J.
Business Education
Counselor - Cinnaminson Jr/Sr High School

Mr. Edward J. Weinhofer
Woodbury, N.J.
Guidance Counselor - Gateway Regional High School

Mr. Daniel Williams, BS/MS, Bucknell
Camden, N.J.
Guidance Director - Highland Regional High School

Mr. Thomas Yager, AB, MeD, MS, UT, University of Pittsburgh
Moorestown, N.J.
Chairman - Guidance Program - Camden High School
Summer - Director - National Youth Corps. Program

V. EVALUATIVE CRITERIA

(1)

EVALUATION OF SUMMER EVENING INSTITUTE ON: "THE ROLE OF THE COUNSELOR IN VOCATIONAL EDUCATION"

I believe the following rating is accurate:
(In rating, BE HONEST; Don't try to be kind!)

1. This Institute program was:

Poor Excellent Fair Good

(Circle only one)

2. For my development it was:

Valuable Very Valuable A Waste of Time Valuable at Times

(Circle only one)

3. If I were a school administrator and one of my staff asked to participate in this kind of Institute, I would:

Discourage him Encourage him

(Circle only one)

4. COMMENTS: (If you care to make any)

Don't sign your name. Please record the following:

My position is _____

I have had _____ years' experience as a Counselor.

A

EVALUATIVE CRITERIA

(2)

My HONEST evaluation of this Summer Evening Institute on "The role of the Counselor in Vocational Education" is:

EVALUATIVE CRITERIA

(3)

Feelings and Suggestions concerning Speakers, Guests, etc.

Rev'd Donald A. Griesmann, Camden Episcopal Community Center

Miss Sandra Gildar, Consultant in Guidance and Testing State Department Office of Curriculum

Mr. Thomas Gambino, Supervisor Vocational Guidance, State Department

Mr. Jerry Cohen ETAL - Traffic Group Session

Students from a number of schools

Dr. Anthony J. D'Annunzio, Clinical Psychologist, etc.

Mr. Allen Platt, Director Vocational Guidance, City of Philadelphia

Mr. Frederick Miller, Executive Director Opportunities Industrialization Center

Mr. William Wenzel, Occupational Education Coordinator, Camden County

Any Additions, etc.

EVALUATIVE CRITERIA

(4)

PLEASE COMPLETE this statement as best you can:

As a Guidance Counselor, I would recommend a student for Vocational Education programs when

Evaluation

What are you seeking? Can you determine how well you are moving towards your goal? Can you make a BEFORE and AFTER estimate?

TOPICS RELEVANT TO COUNSELOR-SCHOOL FUNCTIONINGS

EVALUATION AREAS

1. Percent of pupils enrolled in post-high school education
2. Ability of students to make own school and career plans
3. Number of schedule changes
4. Drop-out rate
5. Ability of staff to identify abilities of students applicable to various programs
6. Academic performance
7. School-community relations
8. Understanding of student's abilities by the school staff
9. Number of students who received scholarships
10. Use of vocational guidance materials
11. Revisions in the school curriculum
12. Student awareness of guidance services
13. Self-referrals by pupils
14. Requests for assistance of counselors by parents
15. Requests for assistance of counselors by teachers
16. In-service programs for counselors/teachers
17. Teacher contact with guidance counselors
18. Employer communication with school
19. School communication with employers
20. Counselor knowledge of range of employment opportunities

21. Student attitude toward school

22. Attendance records of students

23. Counselor knowledge of occupational opportunities relevant to subject areas

24. Number of students who were employed after graduation (Type of employment)

25. Number of students who got part-time jobs while still in school

26. Contact with community and government agencies

27. Changes in counselors' functions

28. Student approval of guidance service

29. Administrative approval of guidance service

30. Student awareness of post-high school vocational training and education

31. Counselor awareness of post-high school vocational training and education

32. Types and/or presentation of vocational information

33. Cooperation and coordination of teachers and counselors relevant to vocational information

VI. TO BE DONE BY PARTICIPANT IN RE - SCHOOLS

EVALUATION OF VOCATIONAL GUIDANCE AND
COUNSELING SERVICES

Suggested instrument for clarifying and identifying counseling and guidance services as a result of the Special Vocational Guidance Projects. Other areas that might be pertinent to your special project might be included - refer to the material on "Evaluation Areas".

In the following items please mark:

R	I	E	
X			If the service is a regular and planned function of the guidance program;
	X		If the service is incidental and an occasional function of the guidance program;
		X	If the specific service has expanded or improved as a result of the Special Vocational Guidance Project.

1. Individual counseling activities:

R	I	E	
			Orientation
			Course selection
			Education beyond high school
			Career plans
			School achievement
			Test interpretation
			Personal-social adjustments
			Job placement
			Parent conferences
			Scholarships
			Dropouts
			Referrals by staff
			Self referrals
			Behavior cases
			Vocational program
			Selection

2. Group guidance activities:

R	I	E	
___	___	___	Scheduled class
___	___	___	Orientation to School
___	___	___	Orientation to Testing
___	___	___	Orientation to College
___	___	___	Orientation to Military
___	___	___	Orientation to Employment
___	___	___	Test Interpretation
___	___	___	Vocational consultants
___	___	___	College day or night
___	___	___	Career day or night
___	___	___	Career planning
___	___	___	Education planning
___	___	___	Assembly programs
___	___	___	Course selection
___	___	___	Audio-visual aids
___	___	___	How to study skills
___	___	___	Personal social adjustment
___	___	___	Homeroom guidance
___	___	___	Seminar groups
___	___	___	Socio-dramas
___	___	___	Scholarships

Other or explanation:

3. Teachers and other staff members participate in guidance:
(activities may possibly occur in subjects listed in parenthesis)

R	I	E	
___	___	___	Voc. implications of subject
___	___	___	Voc. speakers in class
___	___	___	Refer students to counselor
___	___	___	Adv. Education possibilities in subject
___	___	___	Contribute to cumulative record
___	___	___	How-to-study skills
___	___	___	Guidance committee
___	___	___	Identify talents
___	___	___	Job descriptions
___	___	___	Autobiographies (English)
___	___	___	Job application letters (English)
___	___	___	Career Oriented Field Trips
___	___	___	Identify class characteristics
___	___	___	Social problems (Social Studies)
___	___	___	Family relations (Home Ed.)
___	___	___	Job Placement (Vocational Education)
___	___	___	Guidance materials (Library)
___	___	___	Follow-up study (Commercial)
___	___	___	Mental Health (Health)
___	___	___	Lesiure time (Physical Ed.)
___	___	___	Test terminology (Math)
___	___	___	Guidance Topics (Speech)
___	___	___	Socio-dramas (Dramatics)
___	___	___	Display (Art)
___	___	___	Newsletter (Journal or Typing)
___	___	___	College information source

Other or explanation:

4. Consultation given to school staff members:

R	I	E	
___	___	___	School achievement
___	___	___	Test interpretation
___	___	___	Parent-teacher conferences
___	___	___	Resource materials
___	___	___	Case conferences
___	___	___	Behavior cases
___	___	___	Curriculum study
___	___	___	Ability grouping
___	___	___	Regarding areas in item #4 above

Other or explanation:

5. Utilization of community resources:

___	___	___	College resources
___	___	___	State Employment Bureau
___	___	___	Vocational Consultants
___	___	___	PTA or PTO
___	___	___	Rehabilitation services
___	___	___	Service clubs
___	___	___	Industry and business
___	___	___	Social agencies
___	___	___	Professional societies
___	___	___	Welfare services
___	___	___	Labor organizations
___	___	___	Religious organizations
___	___	___	Family physician
___	___	___	Newspaper
___	___	___	Military Services
___	___	___	Child Guidance Clinic
___	___	___	State Dept. of Education
___	___	___	Community Affairs Groups (Urban League, NYC, etc.)

Other or explanation:

6. Utilization of standardized test and other special appraisal instruments for identification of students:

R	I	E	
___	___	___	Individual interpretation
___	___	___	Group interpretation
___	___	___	Identify ability ability groups
___	___	___	Course selection
___	___	___	Teacher interpretation
___	___	___	Curriculum study
___	___	___	Adv. Education Counseling
___	___	___	Vocational Counseling
___	___	___	Parent conference
___	___	___	Prediction charts
___	___	___	Identify low achievers
___	___	___	Identify talents
___	___	___	Utilization by teachers
___	___	___	Scattergrams
___	___	___	Local norms

Other or explanation:

7. Local in-service education of teachers and other staff members relative to vocational development and vocational education.

R	I	E	
___	___	___	Teacher orientation
___	___	___	Case conferences
___	___	___	Test interpretation
___	___	___	Materials for teachers
___	___	___	Teacher workshop
___	___	___	Guidance committee
___	___	___	Individual contacts
___	___	___	Staff meetings

Other or explanation:

8. In-service education of counselors:

R	I	E	
___	___	___	Counselor staff meetings
___	___	___	Buzz sessions
___	___	___	Case conferences
___	___	___	Tape recorded interviews
___	___	___	Role playing
___	___	___	APGA convention
___	___	___	Graduate course work
___	___	___	Area guid. association
___	___	___	Job placement and Follow-up
___	___	___	Community Resources Survey
___	___	___	Visitation to colleges
___	___	___	Visitation to local industry, agencies, etc.

Other or explanation:

In the following items please mark:

A	I	E	
X			If the quantity and quality is adequate;
	X		If it exists but is inadequate;
		X	If there is expansion or improvement of area.

9. Informational materials:

A	I	E	
			College bulletins
			Scholarships and aids
			High School program of studies
			High School handbook
			How to study
			N.J. Employment Info. Series
			Occupational Outlook Handbook
			Vocational School Guide
			College guide
			Jr. college guide
			Military Services
			Vocational
			Personal-social
			Subscription services
			Apprenticeships
			Calendar of testing dates
			Locally developed Occupational Information

Other or explanation:

10. Public information:

A	I	E	
___	___	___	Newspapers
___	___	___	Bulletins to business and industries
___	___	___	Meetings with special parent groups
___	___	___	Parent orientation bulletins

Other or explanation:

11. Pupil records:

A	I	E	
___	___	___	School marks
___	___	___	Test results
___	___	___	School activities
___	___	___	Work experience
___	___	___	Health
___	___	___	Interview reports
___	___	___	Attendance
___	___	___	Anecdotal reports
___	___	___	Self ratings
___	___	___	Achievements and honors
___	___	___	Autobiography
___	___	___	Family information
___	___	___	Interest inventories
___	___	___	Expressed interests
___	___	___	Vocational plans
___	___	___	Educational plans
___	___	___	Personal information
___	___	___	Entrance and withdrawal
___	___	___	Student profiles

Other or explanation:

12. Facilities for guidance:

A	I	E	
___	___	___	Private counseling quarters
___	___	___	Guidance records file
___	___	___	Space for informational materials
___	___	___	Telephone
___	___	___	Tape recorder
___	___	___	Space for group career conferences
___	___	___	Audio-video facilities for vocational information

Other or explanation

13. Secretarial and clerical assistance:

A	I	E	
___	___	___	Employed secretary
___	___	___	Student secretary
___	___	___	Counselor Aide

Other or explanation:

14. Standardized testing program:

A	I	E	
___	___	___	Ability
___	___	___	Achievement
___	___	___	Interest
___	___	___	Personality
___	___	___	Aptitude
___	___	___	Diagnostic

Other or explanation:

15. Other suggested areas for rating scale:

    a. Identify and assist exceptional child
    b. Articulation between sending schools and the high school (both pre-high school and post-high school)
    c. Relationship between student potential and achievement

16. What do you see as the more significant aspects of the project that would represent definite possibilities as additions and/or changes relative to your present guidance program? (You may simply wish to list certain items included in this evaluation form or others.)

VII. PUPILS

STUDENT SURVEY

1. Does your school help you to consider information about yourself as it relates to your future educational and vocational plans? _____

2. Have you been encouraged to investigate the personal and educational requirements for occupations you have considered? _____

3. Have you had conferences with someone on your school staff concerning your educational and vocational plans? _____

4. Does the school inform your parents of your standardized test results? _____

5. If you had a personal problem, would you feel free to discuss it with someone on your school staff? _____

6. Does your school help you to understand the meaning of your standardized test scores? (Examples: school ability, achievement, and aptitude). _____

7. Do you have access to the information you want and need to know about the various occupations you have considered? _____

8. Do you know which member of your school staff is your school counselor? _____

9. Is opportunity provided in your school for groups of students to discuss and understand their attitudes? _____

10. Has your school counselor talked with you about your future educational and vocational plans? _____

11. Has your school provided your parents an opportunity to discuss your educational plans? _____

12. Do you have access to the information you want and need about colleges and other schools which offer post-high school education? _____

13. When you entered high school, were you helped to learn about your new school and how to get along in it? _____

14. Have you had an opportunity to discuss with your school counselor various approaches to solving problems with which you have been faced? _____

15. Are you thinking about or planning what you are going to do when you finish high school? _____

16. Has your school provided the opportunity for you to learn it to present information about your abilities, training, characteristics, and experiences to employers in a convincing manner? _____

17. Have your parents ever talked with your school counselor? _____

18. Have you been helped to plan the subjects and activities you need and want to take while you are in high school? _____

19. Were you helped to become familiar with the employment possibilities in your community and the surrounding areas? _____

20. Can you talk about your real feelings about things with your school counselor? _____

21. Do your teachers discuss the various occupations which are related to the subjects taught by them? _____

22. Do you know where your school counselor's office is located? _____

23. Have you been helped to decide if you have the ability to succeed in college? _____

24. Does your school use film-strips, films, pamphlets, books, etc. to help you understand problems of personal and social development? _____

25. Have your ability and achievement test results been helpful to you in your educational and vocational planning? _____

26. Have you received any help from your school in the improvement of your study skills and habits? _____

27. Have you had an opportunity to participate in group discussions about the concerns of high school students? _____

28. Has your school counselor discussed your ability and achievement test results with you individually? _____

29. Were you helped before the ninth grade to plan your high school program of courses? _____

30. Has your school provided opportunities for you to grow in your ability to make realistic plans for yourself? _____

31. Has a counselor or a teacher helped you to examine your abilities, personality traits and interest as they may pertain to your future plans? _____

32. Have you been satisfied with the course selections which you have made? _____

33. Do you feel that your school experiences have provided you with opportunities to develop self-reliance? _____

BIBLIOGRAPHY

Text (Suggested):

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Barry, Ruth and Wolf, Beverly, Epitaph for Vocational Guidance, Teachers College, Columbia Univ. 1962.

Partial List of Supplementary Reading Materials:

Diggory, James, Self-Evaluation, Prentice-Hall, Englewood Cliffs, N.J., 1968

Benjamin, Harold, Cultivation Of Indiosyncracies, The Inglis Lecture, Cambridge, Mass., Harvard Univ. Press, 1949

U.S. Dept. of Health, Ed. and Welfare, The School Environment and Its Influence on Educational Programs for High School Dropouts, Institute for Research in Human Behavior, Penn State Univ., 1968 January.

J.J. Kaufman, Etal, The Role of the Secondary Schools in the Preparation of Youth for Employment, Institute for Research in Human Behavior, Penn State Univ., Feb. 1967

Friedenberg, Edgar, The Vanishing Adolescent

Kozol, Johnathan, Death at an Early Age

Holt, John, How Children Fail

Rodgers, Carl, "Significant Learnings" Ratheon Press, Calif. 1968

(Available upon request - Total Bibliography of Materials on file in our Library.)

JOURNALS

1. American Personnel and Guidance Journal
2. American Vocational Journal
3. National Vocational Guidance Quarterly
4. Journal of Counseling Psychology

(Please route through
Guidance Office)

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VT 012 442
Foremen in Indiana Industries; Their Characteristics, Job Functions, and Educational Requirements. Manpower Report 70-2.

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PUB DATE - 10Nov70 89p.

DESCRIPTORS - *SUPERVISORS; *INDUSTRIAL PERSONNEL; *EDUCATIONAL NEEDS; *INDIVIDUAL CHARACTERISTICS; OCCUPATIONAL INFORMATION; *STATE SURVEYS; INPLANT PROGRAMS; JOB SKILLS

ABSTRACT - To analyze the problem of inadequate preparation of new foremen, this study identifies characteristics of foremen, existing training programs, and new programs which are needed. Response from over half of 563 firms and 6,807 foremen contacted in a state-wide survey yielded data strongly supporting the establishment of an associate degree program. Firms and foremen alike stress the need and desire for an educational program, and both are willing to pay part of the costs. (Not recommended for hard copy reproduction due to marginal legibility of original document.) (BH)

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FOREMEN in INDIANA INDUSTRIES

Their Characteristics, Job Functions, and Educational Requirements

School of Technology

MANPOWER REPORT 70-2

10 NOVEMBER 1970

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FOREMEN IN INDIANA INDUSTRIES;
THEIR CHARACTERISTICS, FUNCTIONS AND EDUCATIONAL REQUIREMENTS

Foremen are faced with mounting problems in assuring that products are turned out or services are rendered which meet cost, quality and quantity standards. Most have come up through the ranks in industry and need additional training; new foremen must be adequately prepared. What are the facts? What should be done? The purposes of this study are to acquire the necessary data so the problem can be better understood and appropriate actions recommended.

This study identifies some key characteristics of foremen which include:

Their years of experience as foremen, their age, and educational level;
Their current areas of work and the most important functions of their job;
The subject areas where they need additional knowledge (training);
The subject areas they believe are essential in the training of new foremen;
What kinds of courses they would participate in, how much time they would be willing to spend, and what portion of costs they would be willing to pay.

The study also verifies ratio of workers to foremen, as well as the types of foremen training programs now being used - and new programs needed - as reported by Indiana firms. The willingness of firms to participate in planning and sharing costs for specific types of foremen training programs are presented.

Data (acquired thru an extensive State-wide survey) are shown for the State and the six University Administration Regions. Comments of questionnaire respondents, highlights of other studies and other related materials are included. Conclusions and recommendations are presented at the end of this report.

***

This manpower report was prepared with the help of the Indiana Manufacturers Association. The study was conducted with the following advisory committee members whose assistance is gratefully acknowledged:

Stephen Baker, Production Foreman, Transmissions, Allison Division, GMC, Indianapolis Plant;
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Note: Copies of this report and those listed on pages 77, 78, 79 and 80 that are dated in 1970, are available for $1.75; those dated in 1969 or earlier, are $1.50 per copy. (Indiana Government and educational offices exempted.) Please send order and check made payable to Purdue University to Prof. J. P. Lisack, Director, Office of Manpower Studies, SCC-A, Lafayette, Indiana 47907.

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CHAPTER ONE

PURPOSES AND DESCRIPTION OF THE REPORT

1. THE PROBLEM

When a man or woman first becomes a first-line supervisor,* his previous job training is rarely adequate to assure his success. Small wonder, more often than not, his training was not designed for supervisors. As a subordinate, he was prepared for his specific job and was responsible for his own work but little else besides. Suddenly he becomes a supervisor and the whole complexion of his job changes. Suddenly he is expected to function effectively in many key areas - areas in which he has had little training and virtually no experience at all.1/ He simultaneously must assure that production or service continues - while he is learning all the supervision ropes under ever-changing conditions. And so, he is faced with seemingly never-ending problems.

Excerpts from some recent articles further illustrate the problem:

> "His collar is neither blue nor white, his job neither working-class nor blessed with executive status.... He is known as a slave-driver by some, and yet to others he may appear bullheaded in the defense of his men.
>
> "In the Army, he would be the 'First Sergeant'. In industry he is known simply as 'the foreman'.... At the moment however, he is probably much too busy to think about all that.... The challenge of a foreman's job in many cases has changed radically in the last decade."

Mr. John H. Lyst, newspaper reporter for the Indianapolis STAR wrote the above in January, 1970 and went on to point up that foremen had their difficulties in dealing with (especially younger) workers, and in keeping up with technical advances in equipment and production techniques -- which make their positions continually more complicated.2/

Another article appearing under the Indiana Labor column of The Journal and Courier Lafayette, Indiana newspaper in May of 1970 said, "He's had limited training or education beyond high school, he was made foreman because he showed extreme ability on the job and earned the respect of his fellow workers and bosses. When he became a foreman, he found himself with new and often complex duties, some of which he was not prepared for. The confidence, security, and prestige he had enjoyed as a competent, skilled worker have become difficult to maintain. He may even feel some inadequacies since he became a foreman."3/

---

*For definition of "Who is a supervisor," see Note at end of this chapter.

1/ Refers to reference number in Appendix 1, Selected Bibliography, on page 40.

And -- finally, a number of quotes taken from a recent article by Norman Coakley of the U.S. Department of Labor entitled "Foreman, Man in the Middle," in the Occupational Outlook Quarterly.4/

> "Today, most blue-collar workers see their foreman as 'boss'; he is often envied and respected, because he has shown he has what it takes to be promoted to one of the few remaining management positions open to a blue-collar worker. As 'first-line supervisor,' the foreman's responsibilities... are to turn out a product or render a service that meets cost, quality and quantity standards.... Because of the importance of job knowledge, most foremen have come up through the ranks - that is, they were promoted from the machine or work bench. Many have acquired technical skills through apprenticeship, or through formal training courses offered in the Armed Forces.... Very often foremen are former union members who have served as elected representatives. Such positions provide opportunities for the worker to demonstrate both his knowledge of grievance procedures and his capacity for holding his own in the give-and-take of labor management differences - important skills for foremen.
>
> "Employment of foremen is expected to increase through the 1970's. Manufacturing firms will continue to employ the largest number of foremen. However, almost half of the expected increase in foremen will be due to the rapid expansion of non-manufacturing firms -- in construction, trade, service, and public utility firms. The continuing trend toward larger businesses, with their complement of blue-collar workers, is an important factor underlying the expected growth in requirements for foremen. Another factor is the growing reliance upon supervision, as industrial processes become more mechanized and technical. For example, more foremen will be required for scheduling and inspection operations.
>
> "Although fewer than 1 foreman in 10 is presently a college graduate, employers are looking increasingly for better educated supervisors. College trained foremen are being employed most often in industries which have highly technological production processes, such as in the chemical, oil and electronics industries. Employers generally look for college graduates who have backgrounds in business administration, industrial relations, mathematics, engineering, or science. New workers are hired as foremen helpers and undergo on-the-job training until capable of handling a foreman's job. A majority of today's college trained foremen do not view their job as a career. Most see themselves as trainees for positions in higher management; top management tends to hold the same view.
>
> "In the decade ahead, however, the vast majority of workers moving up to foremen jobs will, in all likelihood, continue to be blue-collar workers up from the ranks."4/

Why, despite the problems foremen have, do men accept this position? Some ideas may be gleaned from a study of nearly 175 foremen in iron and steel firms who gave their reasons for accepting a supervisory post.5/ Although the reasons were varied,

most could be classified under the five following headings... (numbers of foremen choosing each reason are indicated parenthetically):

Ambition	73 Foremen	More Interesting Work	18 Foremen
Greater Security	34 Foremen	Better Working Conditions	13 Foremen
More Money	25 Foremen	Other Reasons	10 Foremen

What is the magnitude of the problem? There are about 1,444,000 foremen in the U.S. and there are more than 69,000 openings each year. About ten per cent of these are women (foreladies - if you will).6/ (Also see Appendix II.) Inasmuch as Indiana has 2.5 per cent of the nation's population and is an industrial state, based on these National figures it would appear that there would be between 36 and 40 thousand foremen in Indiana industries with between 1,800 and 2,000 openings occuring annually. (These derived State figures are largely confirmed by this detailed manpower study.)

Is the problem a serious one? The very large majority of the foremen in Indiana who participated in this study were in agreement that they need additional knowledge and training as professional foremen, and that new foremen should be better prepared.

2. PURPOSE OF THIS REPORT: RATIONALE AND METHODOLOGY APPLIED

This study was designed to obtain the facts and data necessary to better define and plan actions for solving the problems concerning the continuing development and education of practicing foremen - and the preparation of new ones. It was conducted with the advice and assistance of an advisory committee made up of representative foremen and selected managers in industry, and educators. The Indiana Manufacturers Association and the American Society of Foremen also provided committee members and assistance.

It was decided first to capitalize on data already available in the literature and through personal contacts. After these materials were examined -- it became apparent that sufficient detailed information needed was not available, so it was agreed a comprehensive survey should be made of Indiana firms and foremen. Extensive State-wide publicity preceded the survey. Letters and questionnaires were designed and tested, then mailed throughout the state in order to assure adequate representation by type of industry, size of firm and geographically. Two basic questionnaires were utilized, one for the firm, the other for individual foremen. The responses establish an excellent statistically sound base for this study -- the data illustrate the urgency and magnitude of the need to provide a variety of professional foremen training programs, courses and related activities. Data are presented for the State as a whole and for each of six geographical regions (See figure 1 on page 5.)

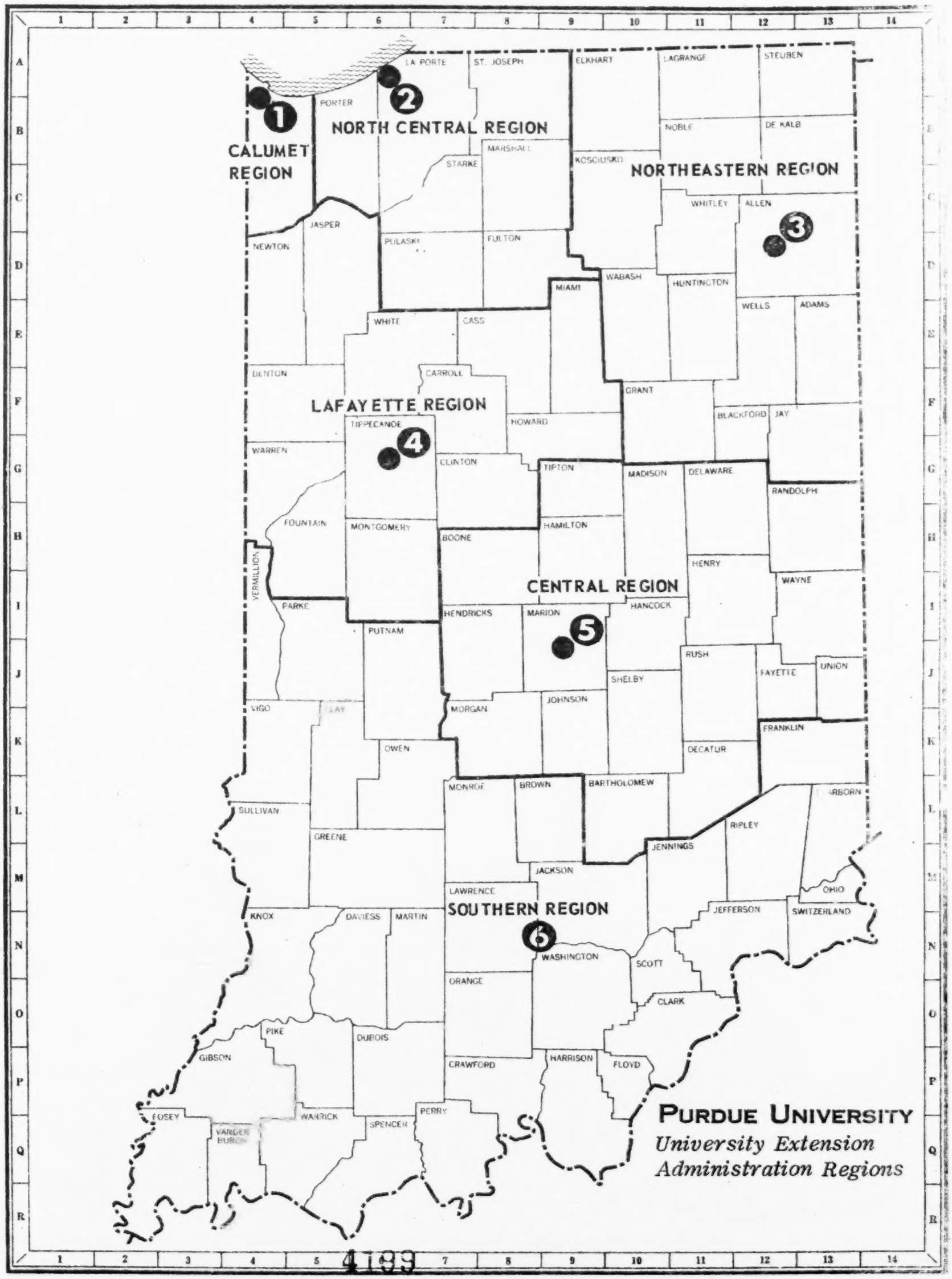
3. CONTENTS AND FORMAT OF REPORT

This first chapter presented a discussion of the problem, purpose of the report and the methodology used to acquire data. Chapter Two describes the mail-out, responses, follow-up, and the questionnaires used (two forms). The third chapter contains the detailed survey analyses, and the comments and suggestions of foremen and representatives from Indiana firms. Also in Chapter Three are highlights from other recent studies about foremen, their jobs, problems and training. Chapter Four contains the final discussion, conclusions and recommendations. A selected bibliography, sample copies of the questionnaires used, tables of statistical summaries and other materials are included in a number of appendices to this report.

Note: Definition of "Who Is A Supervisor?" The National Labor-Management Relations Act (Wagner Act of 1935) in substance defines a supervisor as an individual having authority, in the interest of the employer, to hire, transfer, suspend, lay-off, recall, promote, discharge, assign, reward, or discipline other employees, or having responsibility to direct them, or to adjust their grievances, or effectively to recommend such action, if in connection with the foregoing the exercise of such authority is not of a merely routine or clerical nature but requires the use of independent judgement. [Section 101, Sub-section 2: (11)].

The Fair Labor Standards Act (Taft-Hartley Act of 1947) incorporates essentially the same definition. Viz. the supervisor directs the work of others and at least has the authority to recommend hiring and to discharge or lay-off, and he must exercise discretionary power. [Section 13 (a) (1)]

FIGURE 1


CALUMET REGION
NORTH CENTRAL REGION
NORTHEASTERN REGION
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CENTRAL REGION
SOUTHERN REGION
LA PORTE
ST. JOSEPH
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WELLS
ADAMS
WHITE
CASS
BENTON
CARROLL
GRANT
BLACKFORD
JAY
TIPPECANOE
HOWARD
WARREN
CLINTON
TIPTON
MADISON
DELAWARE
RANDOLPH
FOUNTAIN
MONTGOMERY
BOONE
HAMILTON
HENRY
WAYNE
VERMILLION
PARKE
HENDRICKS
MARION
HANCOCK
PUTNAM
RUSH
FAYETTE
UNION
SHELBY
VIGO
CLAY
MORGAN
JOHNSON
FRANKLIN
OWEN
DECATUR
MONROE
BROWN
BARTHOLOMEW
DEARBORN
SULLIVAN
GREENE
RIPLEY
JENNINGS
JACKSON
LAWRENCE
OHIO
KNOX
DAVIESS
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JEFFERSON
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Administration Regions

CHAPTER TWO

SURVEY: DISTRIBUTION AND RESPONSE

4. PUBLICITY AND MAIL-OUT

In recognition of the need for wide participation in this study, a number of newspaper articles and radio announcements were made concerning foremen, their work, problems, and training --- and expressing the need for data to facilitate planning. This action resulted in some letters and telephone calls with offers to help, as well as some ideas and suggestions.

Indiana Manufacturers Association (IMA) Industrial Relations Letter[7] and Interest Card. --- The IMA described the Purdue study of foremen in the INDUSTRIAL RELATIONS LETTER of January 12, 1970 and urged the cooperation of all employers. A self-addressed card was included with their LETTER on which firms could indicate their willingness to participate in the study and name the person to receive the questionnaires. (See Appendix III for sample of the IMA Letter.) The response to this IMA effort was excellent and the returns were checked by type and size of industry and for geographic coverage.

Follow-up. -- A follow-up was then made of selected non-respondents and some additional returns were received. When these data were analyzed, it was deemed necessary to make a second follow-up to specific additional firms due to variances found in ratios of workers to foremen in certain instances, and to assure adequate representation from each type (classification) of industry and from all sizes of firms. As described later, a sound statistical base was acquired for analysis.

5. DESCRIPTION OF SURVEY PACKAGE

Each survey package was made up of a letter of transmittal, one questionnaire (yellow form) to be filled out for the firm as a whole (usually by the personnel or training director or equivalent representative), a number of questionnaires (green form) to be filled out by individual foremen, and a return envelope. (See Appendix IV for sample copies.) The number of foremen questionnaires mailed to each firm was based in large part on the results of the ratio of workmen to foremen study as reported in Manpower Report 67-7, "Requirements for Personnel Staff Members and Supervisors."[8] The packages were mailed to the individuals identified through the IMA-Interest Card process (as explained earlier) and to additional firms as identified through the follow-up processes. The Indiana Industrial Directory[9] was used to obtain the necessary information about these additional firms; i.e. type of industry, number of employees, person to contact and address.

Every form was numbered and keyed in a control system in order to tabulate returns within appropriate groups --- by type of industry,* size of firm and geographic region. The names of individual firms were not identified on the returns - and are not revealed in this report.

---

*Standard Industrial Classification Manual used for titles, descriptions and codes of industries.[10]

6. QUESTIONNAIRES DISTRIBUTION AND RESPONSE

Mail-out and Returns. -- In the initial mail-out to firms indicating a desire to cooperate, a personnel/training director type questionnaire was sent to the designated person; a total of 563 firms were contacted. Each firm also received a number of foreman type questionnaires, the number proportional to the total number of employees in that firm: a total of 6,807 foreman forms were mailed out. The excellent responses are shown in Table 1 below:

TABLE 1

SURVEYS MAILED AND RESPONSES

		Returns	Percent of Return
Firms Contacted	563	306	54.4%
Foremen	6,807	3,806	55.9%

When these returns were analyzed, it was determined necessary to make follow-up mailings to selected firms. This action resulted in responses from 37 more firms and 446 additional foremen - which then provided adequate representation in every category. The complete survey thusly is made up of responses from 343 firms and 4,252 foremen.

The total number of employees represented by the firms cooperating was 266,000 people (about one-third of the State's employment in manufacturing industries were included, plus representation from some selected non-manufacturing and service industries).

Note: The names and addresses of firms expressing a desire to cooperate further and reporting foreman training needs are available in the Director of Manpower Study's Office. Consideration should be given to sending them appropriate announcements or other materials to facilitate implementation of related actions.

Analysis of Response to Questions. -- An analysis of the overall questionnaire per cent response to all questions (less comments), using a weighted average response as the measure, indicates that collectively the 4,252 foremen responded to 96.4% of the survey's total questions. Subtracting out a 1.6% error response - representing uninterpretable or impossible answers - results in an overall average accurate response of 94.8% to the foremen questionnaire. Regionally, there were no important differences from this average response figure. Further, in looking at returns from different industrial classifications, again there were no important differences from this average.

CHAPTER THREE

SURVEY ANALYSIS

PART I FOREMEN'S RESPONSES

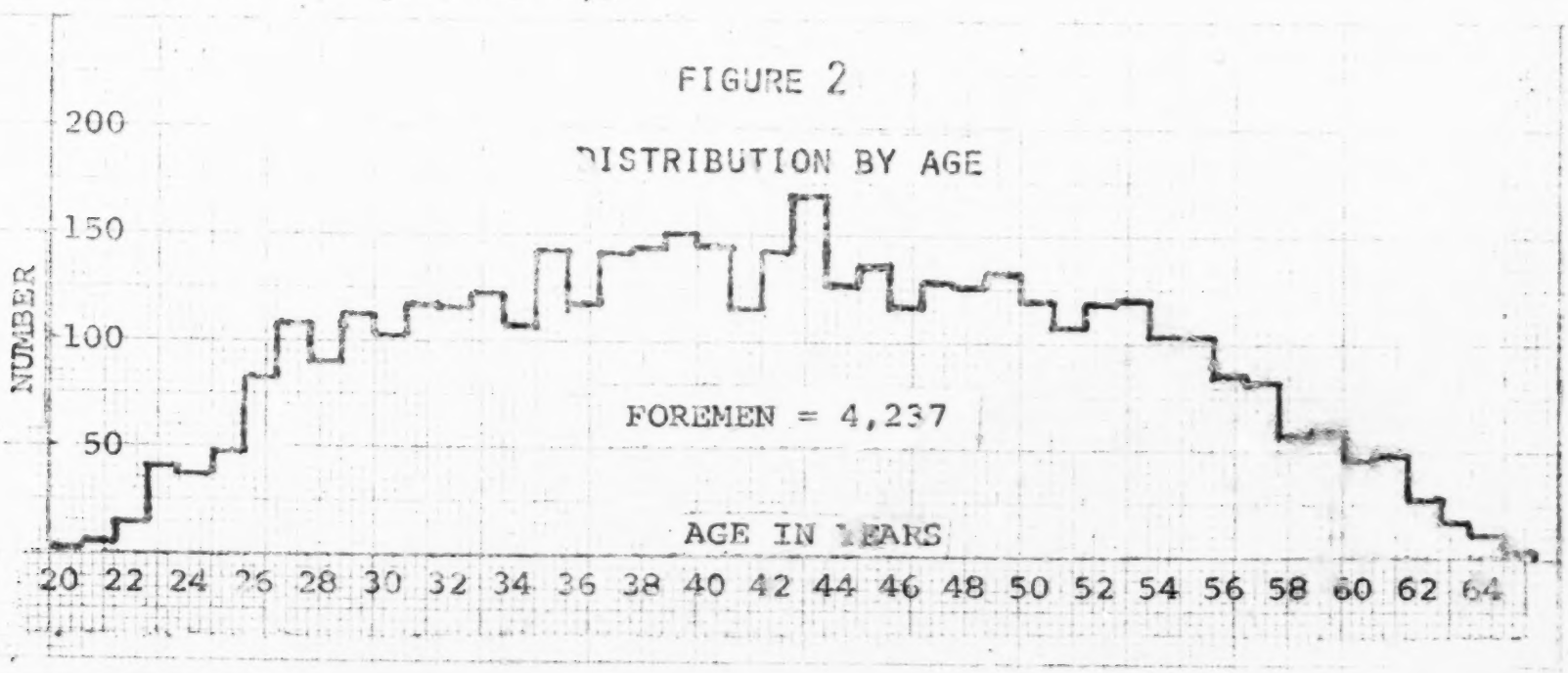
7. DESCRIPTION OF THE FOREMAN'S QUESTIONNAIRE

This form* had a series of questions related to seven general categories: (1) Characteristics information including age, experience, educational level and training; (2) Major areas of work and job functions; (3) Knowledge needed -- by practicing and (4) by new (beginning) foremen; (5) Willingness to participate in - and the kinds of educational or training programs desired; (6) A proposed associate degree for professional foremen; and (7) Any comments or suggestions. Results in each category are presented below for the State as a whole. (See Appendix V for the statistical summaries and comparisons for each of the six geographic regions.)

8. CHARACTERISTICS OF FOREMEN

Age and Experience. -- The average age of the more than 4,250 foremen in Indiana industries responding to the questionnaire was 42.02 years; the median was 42 years. See Figure 2 for distribution. (Standard deviation was 7.84 with a skewness of 1.08) The average years of experience was 9.02 years; the median was 6 years. Nearly half (46.3%) of all respondents reported they had five or fewer years of experience as foremen. (Standard deviation was 10.02 with a skewness of .06)** The approximate age therefore at which he became a foreman was ~ 33 years old (current age less experience as foreman).

An examination of the statistical summaries of the six regions reveals that foremen having the most experience (more than 10 years on the average) were in Regions 1 and 2 - the Northwest and North Central Areas of the State. All other regions showed the average experience to be between 8 and 9 years. As would then be expected, the oldest foremen were in Regions 1 and 2, where the averages were about 2 years higher than for the State (44 yrs. vs. 42).



*See Appendix IV for sample copy of questionnaire (printed on green paper).

**Distribution was found not to be normal: See Appendix V for statistical analysis.

Educational Level. -- The average years of education completed by foremen was 12.26 years; the median was 12 years (e.g. high school graduate). (Standard deviation 1.76 and skewness .41)* Fewer than 4% reported their highest educational attainment was 8th grade or less; the large majority - nearly 59% - reported completing the 12th grade as their highest level; nearly 8% reported having 4 or more years of college. The distribution of responses by highest grade level attained is shown in Table 2 and in Figure 3.

FIGURE 3

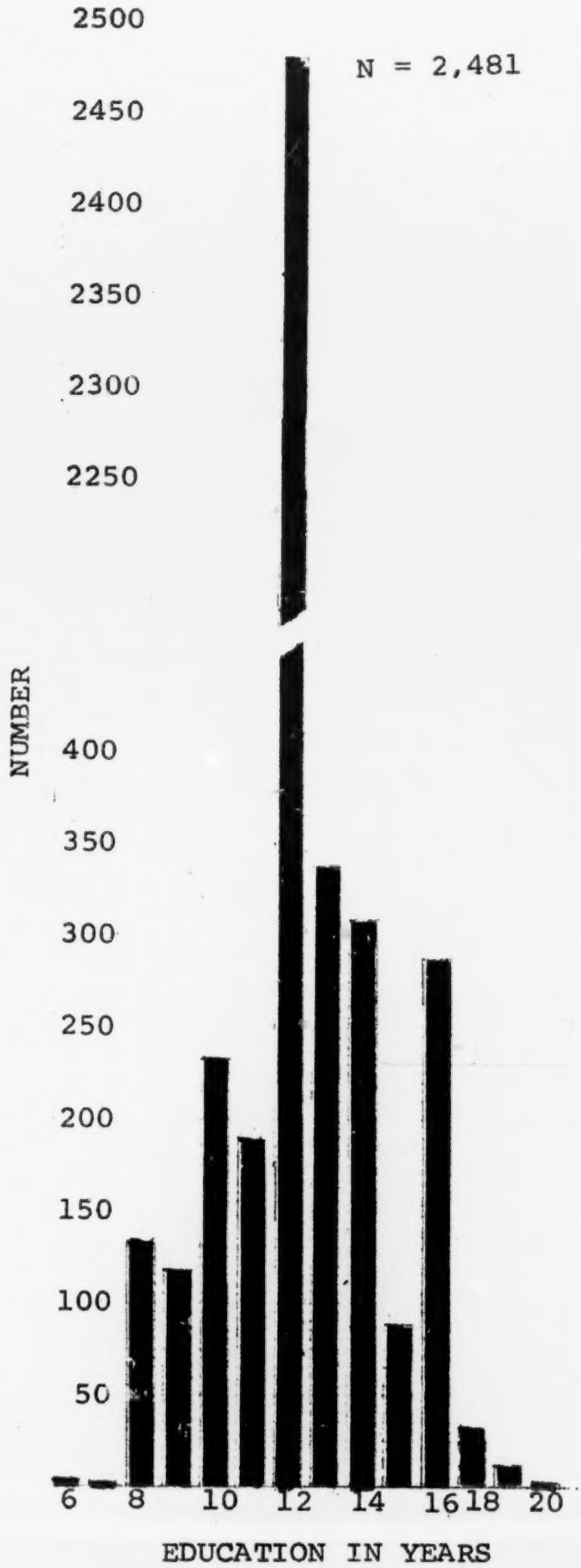


TABLE 2

DISTRIBUTION BY EDUCATIONAL LEVEL

	8th Grade or Less	Some High School Less than 4 yrs.	4 yrs. H.S. (Grad.)	Some College Less than 4 yrs.	College, 4 yrs. or more
% Distribution	3.24%	12.79%	58.67%	17.38%	7.92%
Number	137	541	2,481	735	335

An examination of the statistical summaries of the six regions reveals that slightly higher averages of educational attainment were reported by foremen in Regions 1 - Lake County; 3 - the Fort Wayne Area; and 5 - the Indianapolis Area. (See Part 1 of Appendix V for further details.)

The large majority of foremen who completed 11 or more years of school indicated an interest in continuing their education. Those having 10 or fewer years were less likely to do so.

Preparatory Foremanship Training. -- Foremen were asked if they previously had attended a program designed to train new foremen. The majority (53.5%) reported they had not. The only region where more foremen reported having had such preparatory training was Region 5 - Indianapolis where nearly 52% said they had. Regions 1, 3 and 4 were nearly at the 50% mark. Region 6 (Southern) was the lowest - below 39%.

*Distribution shown in Figure 3.

9. MAJOR AREAS OF WORK AND JOB FUNCTIONS

Areas of Work. -- Foremen were then asked "My current work is in the area of: (check (✓) one)." The largest single group (47.9%) checked Actual Production work. All foremen choices are rank-ordered below:

TABLE 3

CURRENT AREA OF WORK (n = 4,241)

Ques. My current work is in the area of:

Ans. Area	Number	%	Area	Number	%
Production (Actual)	2,029	47.9	Skilled Trade	213	5.0
Combination of Areas	507	12.0	Shipping & Rec.	199	4.7
Prod. Planning & Control	366	8.7	Other (Identify)*	187	4.4
Qual. Control & Inspec.	352	8.3	Material Handling	92	2.2
Maintenance	264	6.2	Service (yard, etc.)	29	.7

It would appear from the above that although more foremen are engaged in Actual Production than any other one area, the fact must be recognized that there are a variety of other work areas in which significant numbers of foremen are engaged. Further, an examination of inter-regional comparisons shows that although more foremen were in Actual Production than any other one work area in every region, there were significant differences between regions in the other work areas. These differences again point up the need for local planning and a flexible program. See Part 2 of Appendix V for detailed comparison of major areas of work by region.

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*Most of the 187 foremen who checked "Other" used this means to refine or clarify their work area although most were listed as broad areas on the questionnaire. The primary breakdowns in such cases included: (Numbers of such comments are shown parenthetically.)

Production; assembly, processing, and finishing (32)
Services; housekeeping, repair, and customer services (28)
Skilled trade; heat treat, tooling, welding, electrician, and millwright (18).

A few new categories were also written in. These included:

Scheduling (30), Administrative Functions (21), Inventory Control (19), Engineering Functions (13), Tooling (13), and Supporting Research and Development (8).

Most Important Job Functions. -- The next question was designed to ascertain the most important job functions, so each foreman was asked to identify the three most important to him. As might be expected, a nearly unanimous first choice was Employee Direction and Supervision (90.8%), followed by Safety and Training. All choices are shown in the next table.

TABLE 4

MOST IMPORTANT JOB FUNCTIONS (n = 4,245)

Ques. The three most important functions of my job are:

Ans. Function	Number	%
Employee Direction and Supervision	3,852	90.8%
Safety	2,240	52.8
Training	1,779	41.9
Production Machinery (control, adj., set-up)	1,257	29.6
Quality Control and Inspection	1,010	23.8
Labor Relations	885	20.9
Costs and Financial Control	654	15.4
Other (Please Identify)*	324	7.6

In the table above, there is a prime choice (Employee Direction and Supervision) followed by two somewhat related job functions. But again (as reported in Areas of Work), the data indicate large numbers of foremen who report differences in the relative degrees of importance of job functions. An examination of inter-regional comparisons shows there are some variations in the importance and the rank order of a few of these job functions (see Part 3 of Appendix V). These differences should be accommodated in planning local educational or training programs for foremen.

10. ADDITIONAL KNOWLEDGE (BY SUBJECT AREA) NEEDED BY FOREMEN

It was considered advisable to obtain both a frequency count as well as to establish the relative importance of these subjects reported as needed. Also, an effort was made to distinguish what differences, if any, existed between the additional knowledge foremen believed they needed, and the knowledge they believed was essential for beginning foremen: results are presented in this section (10) for practicing foremen and in the next section for new foremen. The prime problem areas and reported needs for training found throughout the literature on first-line supervisors is quite similar to the findings in this study: namely, they relate to Human Relations, Communications and Production.[11/12/13/]

*Footnote on Table 3 applicable.

TABLE 5

KNOWLEDGE NEEDED BY PRACTICING FOREMEN (n = 4,136)

Ques. Ans. I need additional knowledge in: Subject Area	Number	%	Ques. My one most important need: Number	%
Human Relations	2,999	72.5%	1,652	45.4%
Communications	2,362	57.1	644	17.7
Methods Improvement	2,127	51.4	383	10.5
Personnel Functions	1,855	44.9	191	5.3
Production Planning	1,780	43.1	379	10.4
Quality Control & Inspection	1,038	25.1	155	4.3
Material Handling	931	22.5	107	3.0
Other (Please Identify)*	129	3.1	39	1.0
Combination of Areas			86	2.4
				100.0%
(More than one area could be checked)			(Only one checked)	

Note: If one considers the rank order of the frequency responses to the subject areas and their reported relative importance, by employing Spearman's rank correlation coefficient,14/ the correlation is $r_s = .976$ (which is significant at below the $\alpha = .01$ level). An unquestionably high order of agreement exists among the more than 4,000 foremen on this point.

An inter-regional comparison reveals a high degree of agreement as to the additional knowledge desired by practicing foremen (see Part 4 of Appendix V).

*Most of these 129 foremen checked "Other" to describe their needs more specifically although most were listed on the questionnaire as broad subject areas. A breakdown of these cases is shown below: (The number of comments in each case is shown parenthetically.)

Planning and Production Control; scheduling, methods improvement, planning, production control, and time study. (46)
Production; assembly, actual production, and finishing. (37)
Maintenance; machine repair, equipment repair, fixture repair, and building maintenance. (36)
Material Handling; scrap control, expediting, material control, and material flow. (30).

In addition, 38 foremen expressed needs for courses related to costs (cost control - 14, accounting - 10, budgets - 10, and finance - 10). Fundamental engineering concepts were listed by 26 (mechanical - 12, general - 10, and electrical - 6). Automation and computerization were listed by 20 (Numerical Control Systems - 8, E.D.P. Systems - 8, and Programming - 4). A variety of other course requirements were listed including mathematics, English, and science.

11. AREAS OF KNOWLEDGE ESSENTIAL FOR BEGINNING FOREMEN

The assurance of effective foremanship necessarily includes the preparation of new foremen as well as the continuing education of practicing ones. In order to learn what training or education experienced foremen believed was appropriate for beginning foremen, they were asked first to identify the subjects that were needed and then to indicate which were the most important ones. There was perfect agreement in rank orders of both frequency and importance (r_s = 1.000)! Results are shown in Table 6 below:

TABLE 6

KNOWLEDGE ESSENTIAL FOR BEGINNING FOREMEN (n = 4,221)

Ques. Ans.	Beginning foremen need knowledge in: Subject Area	Number	%	Ques.	The three most important are: Number	%
	Human Relations	4,104	97.2%		3,341	88.7%
	Communications	3,413	80.9		2,201	58.5
	Personnel Functions	3,113	73.8		1,516	40.3
	Production Planning	2,899	68.7		1,461	38.8
	Methods Improvement	2,882	68.3		1,001	26.6
	Quality Control & Inspection	1,937	45.9		544	14.5
	Material Handling	1,530	36.3		239	6.4
	Other (Miscel.)	124	2.3		48	1.3

Note: The rank order of the subject area needs for practicing foremen are the same as for new foremen with one exception: practicing foremen rank Methods Improvement as more important for themselves than for beginning foremen. (See preceding table.) r_s = .929 which again is significant at below the α = .01 level.

An examination of inter-regional comparisons again reveals there is an exceptionally high degree of agreement between regions as to what knowledge is essential for beginning foremen (see Part 5 of Appendix V).

Foremen also wrote in some additional specific course titles they believed were appropriate to the training of beginning foremen. These included 24 references to labor and industrial relations, 20 to costs (control, accounting, budgets & finance), 10 to "company policies and procedures," and 5 were related to numerical control systems and computer applications in industry.

Special Note Regarding Coefficients of Concordance, Inter-regionally: There is an extremely high order of agreement between regions on needed subject area item-ranking comparisons. The coefficient of concordance statistical method[14] was used for this analysis. (This measure "W" ranges between 0 and 1; the nearer to 1 the better the agreement of items across rankings.) The coefficients of concordance for the inter-regional rankings of the areas of knowledge are:

a) Additional knowledge needed by practicing foremen	W = .976
a_1) Most important subject areas	W = .965
b) Knowledge essential for beginning foremen	W = .978
b_1) Most important subject areas	W = .988

Each of these coefficients is found significant at below the .0005 level. Thus, one would not expect to find this high an order of agreement by chance across regions, in less than 5 in 10,000 such matrix rankings.

Special Note on Employment of "Minority" Youth. -- (Extract from paper presented at American Society for Engineering Conference - June 1970.)[16]

> "What is the attitude, for example, of the first-line supervisor? This person IS management, as far as many of his people are concerned. To them, whatever he says and however he reacts is what the whole organization says and how the whole organization reacts. Thus, his attitudes and actions are critical, as we consider the proper utilization of the skills of minority group people.
>
> "The supervisor's attitude becomes a model for his whole department or operation. If he is open minded, all of those under his supervision will have, in effect the freedom and encouragement to be open minded. If he is not, those who observe him and depend upon his approval for their jobs, will be fearful of showing any tolerance they might feel. The first-line supervisor is a pivot point of attitude. His attitude spreads both ways -- to his workers, and to the next higher management level, as he interprets the performance and stability of those whose work he observes."

Special Note on Civil Rights: The following extract is made from a letter received from the State of Indiana Civil Rights Commission:[15]

> "We work with charges of discrimination and find that a large number of these arise because of poorly trained foremen and supervisors. We have recommended that companies involved in such charges, institute more effective human relations components in the supervisory training they undertake...
>
> "It is not only the general techniques of human relations in management, but the specific problem of the treatment of minorities, through some understanding of their feelings and needs, that should be an adequate part of training programs for practicing foremen and qualified foreman aspirants. We are glad to see such a development by Purdue."

Special Note on Drugs and Alcohol: The abuse of drugs is becoming so common that it now joins alcohol as a major management problem; together they cost business an estimated $8 billion annually in absenteeism, sick leave, accidents and wasted time and materials.17/ Although some companies have already set up in-company programs, it is suggested by the author that study of these matters be included in foremen educational programs. Help and advice may be obtained from the Division on Alcoholism, Indiana Department of Public Health, 3000 W. Washington Street in Indianapolis.

12. WILLINGNESS OF FOREMEN TO PARTICIPATE IN TRAINING PROGRAMS

Programs and Courses Desired. -- The large majority of foremen responding to the questionnaire expressed a desire to continue their training or education. There were 4,188 foremen (of the total 4,252 foremen) who answered the question "If practical educational courses were developed to meet your continuing education needs as a foreman, would you participate?" - About 61% (2,559) answered YES; 31% (1,309) said DEPENDS, and fewer than 8% (320) said NO.* Of those saying DEPENDS - most explained that their participation was dependent upon the firm sharing expenses and the next most frequent reason given was that it depended on whether or not their shift or changing work schedule would allow it. An inter-regional comparison shows the majority of foremen in all regions answered YES (they desired to continue their education), with the highest percentages in regions 2 and 5. (See Part 6 of Appendix V.)

*These 4,188 returns were determined by statistical techniques relevant to sample size determination, to be well over the minimum number required for a limit of error of ± 2% for any binomial categorization of the possible responses (YES or DEPENDS, or NO), with a sample probability error of 1%. (Also see Appendix VI.) With the assumption that there are a maximum of 50,000 foremen in Indiana, and applying the assumption that the non-respondent sub-population consists of foremen who would have responded NO to the question of desiring to participate in any training, the probability is 95% that the expansion to the universe of all foremen in Indiana who may say YES or DEPENDS to the question is somewhere between 32,200 and 47,700.

If the foreman answered YES or DEPENDS to the above question (viz. he desired to continue his education), he was asked to indicate the kind of training he wanted and some related items. Results are shown in Table 7.

TABLE 7

TYPES OF DESIRED PROGRAMS AND CONDITIONS (n = 3,868)

Desired Foremen Training. Check all items that apply		Company Training Programs	College Credit Courses	Non-Credit Courses	Workshops or Seminars	Correspondence Courses	Other
Kind of program(s) I would attend	#	3,117	2,800	1,033	2,080	752	17
	%	80.58%	72.39%	26.71%	53.77%	19.44%	.44%
Desired location of program							
In-plant		53.54%	5.97%	6.26%	19.21%		.03%
Local (In town)		30.04%	31.5%	17.53%	29.37%		.26%
Tuition and cost of books							
Should be paid by foreman		3.13%	3.96%	2.82%	2.17%	2.12%	.03%
Should be shared (by firm)		62.95%	54.71%	18.07%	37.18%	10.88%	.21%
Program desired during							
Day		45.29%	13.34%	7.86%	24.95%		.10%
Night		31.44%	27.64%	15.31%	21.69%		.18%

Note: (a) The strong expression for training to be recognized by the Company.
(b) The preference of taking college-credit courses, as well as workshops and seminars: non-credit and correspondence courses are also needed.
(c) Desire that costs be shared by firms.
(d) Need for night and day training offerings.

Results of Chi-Square Contingency Analyses. --- Chi-square contingency analyses were used to study the relationships which might exist between those responding YES or DEPENDS to the question, "If practical educational courses were developed to meet your continuing educational needs as a foreman, would you participate?" and those responding NO. Other variables considered versus this question were: the foremen's Age in years, Educational Levels, years of Experience as Foremen, whether or not they had attended Programs designed to train new foremen, and their respective Area of Work. After statistical treatments of the data,* the following results were derived for the state:

Age was found significant at the $\alpha = .01$ level.
Younger foremen ($\bar{X}$** = 41.2 years) were more likely to say YES or DEPENDS, whereas older foremen ($\bar{X}$ = 51.2 years) were more likely to say NO. Nevertheless, majorities of foremen at every age answered YES.

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*Linear dimension variables of classifications (viz. Age in years, Educational Level in years and Experience in years) were collapsed into more inclusive intervals to yield expected cell frequencies of at least five, and the non-linear dimension variable of the classification Area of Work, was recategorized for the same purpose.
**$\bar{X}$ used as symbol for "Average."

Education was found significant at the $\alpha = .01$ level.
Foremen with higher educational levels ($\bar{X} = 12.3$) were more likely to say YES or DEPENDS, whereas foremen with somewhat lower educational levels ($\bar{X} = 11.6$) were more likely to say NO. Nevertheless, majorities of foremen at every educational level responded YES or DEPENDS, viz. 80% of the foremen who were less than high school graduates, 9[illegible] who were high school graduates, 94% who had some college, and 96% of the college graduates.

Experience as foremen was found significant at the $\alpha = .01$ level.
Foremen having fewer years of experience ($\bar{X} = 8.4$) were more likely to say YES or DEPENDS, whereas foremen having more years of experience ($\bar{X} = 15.5$) were more likely to say NO. Nevertheless, majorities of foremen at every year of experience answered YES.

Programs was found insignificant at the $\alpha = \sim .85$ level.
Foremen who earlier had attended programs designed to train new foremen were just as likely to answer YES or DEPENDS (or NO for that matter) as were those who had not attended such programs.

Area of Work was found insignificant at the $\alpha = \sim .80$ level.
Foremen who were in one work area were just as likely to answer YES or DEPENDS (or NO for that matter) as were those who were in other work areas.

Identical contingency analyses were used to study any regional variations that might have existed from the state picture. Every region in the state was found to reflect the same significant (insignificant) findings without exception (at the same levels of significance).

Note: An explanation of the details concerning the determination of the (statistical) adequacy of sample size for the questions ascertaining (1) the willingness of foremen to participate in continuing education or training programs, and (2) their desire to enroll in the proposed Associate Degree for Professional Foremen, as well as the determination of supporting (statistical) confidence limits and expansion to the State universe are presented in Appendix VI.

Requirements by Region. -- Interest in participating in desired continuing education programs and courses was reported in exactly the same rank order in each of the six regions (coefficient of concordance is W = 1.000)! The numbers and percentage distributions of foremen choices for each region are shown in Table 8.

TABLE 8

KINDS OF PROGRAMS FOREMEN DESIRE

(By Region)

		Region						STATE TOTALS
		1	2	3	4	5	6	
COMPANY TRAINING PROGRAMS	#	391	409	597	303	1097	320	3117
	%	73.6	82.6	79.8	80.6	83.1	80.4	80.6
COLLEGE CREDIT COURSES	#	377	371	527	268	981	276	2800
	%	71.0	75.0	70.5	71.3	74.3	69.4	72.4
NON-CREDIT COURSES	#	133	131	222	85	358	104	1033
	%	25.1	26.5	29.7	22.6	27.1	26.1	26.7
WORKSHOPS OR SEMINARS	#	224	297	406	149	776	228	2080
	%	42.2	60.0	54.3	39.6	58.8	57.3	53.8
CORRESPONDENCE COURSES	#	86	105	120	75	286	80	752
	%	16.2	21.2	16.0	20.0	21.7	20.1	19.5
OTHER	#	4	1	7	2	1	2	17
	%	.8	.2	.9	.5	.1	.5	.4
n =		531	495	748	376	1320	398	3868

13. INTEREST IN A PROPOSED PROFESSIONAL FOREMAN ASSOCIATE DEGREE PROGRAM

Participation and Resources. -- A series of questions was asked concerning interest in participating in a two year, college level program designed for professional foremen. Nearly 68% (2,592) of those answering this part of the questionnaire said YES they would enroll. (This response comprised a very large part of high school graduates plus those having less than four years of college.) An inter-regional comparison shows that interest in enrolling in an associate degree program was high in all regions. (See Part 7 of Appendix V for numbers and percentage distribution for each region.) Specific questions and answers concerning this proposed Associate Degree Program for Foremen for all respondents are shown on the next page.

TABLE 9

THE PROPOSED ASSOCIATE DEGREE PROFESSIONAL FOREMAN PROGRAM

Ques. If a college-level (two year associate degree) program - designed specifically for professional foremen - were offered locally (limited college credit may be given for your experience, skills and knowledge):

Would you enroll? n = 3,827

Ans. Yes 67.7% (n = 2,592); No 32.3% (n = 1,235)

Ques. If yes, would you be willing to do this on your own time? n = 2,510

Ans. Yes 93.1% (n = 2,336); No 6.9% (n = 174)

Ques. How many hours per week would you be willing to spend on class attendance and study? _____ hours per week. n = 2,414

Ans. Average 8.03 hours; Median 8 hours

Ques. What portion of the program cost (tuition, books, etc.) would you be willing to pay?* n = 2,494

Ans.

Full	3/4	1/2	1/4	None
7.9% (197)	1% (25)	46.6% (1,161)	21.5% (536)	23% (575)

Note: Well over half would pay 1/2 or more of costs.
Nearly all firms are willing to pay all tuition costs (see section 19).

As can be seen above, more than 90% of those saying they would enroll in an Associate Degree Program designed for foremen would be willing to do so on their own time; they are willing to spend more than 8 hours per week on the average - and are willing to share costs.

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*Inter-regional comparisons of willingness to pay costs. Analysis of the question which asks the foreman who is interested in working toward an associate degree in professional foremanship, what portion of the program cost he would be willing to pay, results in significant agreement between the ranks of inter-regional rankings of the combined frequency counts.

The coefficient of concordance is W = .950, which is significant at the .0005 level. Thus, one would not expect this degree of agreement between rankings by chance in much less than 5 in 10,000 of such matrix rankings.

Note re Assistance to Veterans: Veterans who have been honorably discharged from the Armed Forces since January 31, 1955, may be eligible for educational assistance. County Veterans Service Offices throughout Indiana can provide related information. Financial assistance may be available for veterans to complete high school as well as for reimbursement of costs for advanced courses.

Results of Chi-Square Contingency Analyses. -- Chi-square contingency analyses were used to study the relationships which might exist between those responding YES to the question, "If a college-level (two year associate degree) program - designed specifically for professional foremen in your situation - were offered locally (limited college credit may be given for your experience, skills and knowledge) -- Would you enroll?" and those responding NO. Other variables considered for classification versus this question were: the foremen's Ages in years, Educational Levels, their years of Experience as Foremen, whether or not they had attended Programs designed to train new foremen, and their respective Areas of Work. After statistical treatments of the data,* the following results were derived for the state:

Age was found significant at the $\alpha = .01$ level.
Younger foremen ($\bar{X} = 39.5$) were more likely to say YES, whereas older foremen ($\bar{X} = 46.2$) were more likely to say NO. The majority of foremen for every age less than or equal to 52 years answered YES; whereas, the majority of foremen 53 years or older, for every age,* answered NO.

Educational Level was found significant at the $\alpha = .01$ level.
The average educational level of those answering YES versus those answering NO was nearly equivalent (12.4 vs. 12.3 years). Further analysis into the more discrete distribution of educational level disclosed that majorities of foremen having from the sixth thru tenth year of education were more likely to respond NO, and majorities of foremen from and including the eleventh year thru the third year of college (fifteenth year) were more likely to respond YES. The majority of foremen having a college degree (sixteenth year) or better were more likely to respond NO. The most negative response (54% NO) occurred from foremen with a sixth thru eighth grade education. The most positive response (85% YES) occurred from foremen with one year of college (thirteenth year).

Experience as Foremen was found significant at the $\alpha = .01$ level.
Foremen having fewer years of experience ($\bar{X} = 7.4$) were more likely to say YES; whereas, foremen having more years of experience ($\bar{X} = 11.6$) were more likely to say NO. The majority of foremen having experience less than or equal to 18 years answered YES; whereas, the majority of foremen having 19 years or more experience answered NO."

Programs was found insignificant at the $\alpha = \sim .95$ level.
Foremen who earlier had attended programs were just as likely to answer YES (or NO for that matter) as were those who had not attended such programs.

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*Linear dimension variables of classifications (viz. Age in years, Educational Level in years and Experience in years) were collapsed into more inclusive intervals to yield expected cell frequencies of at least five, and the non-linear dimension variable of classification Area of Work, was recategorized for the same purpose.

Area of Work was found significant at the $\alpha = .01$ level.

Shipping and receiving foremen and foremen working in several areas (Combinations) were more likely to answer YES a higher percentage of the time (72% versus 28% NO) as were skilled trades foremen (59% YES versus 41% NO) and maintenance foremen (63% YES versus 27% NO). Foremen in other work areas were more likely to answer YES but at somewhat lower percentages.

Identical contingency analyses were used to study any regional variations that might have existed from the state picture. Except for the classification of Area of Work, every region in the state was found to reflect the same significant (or insignificant) findings as was found for the state.

For the classification of Area of Work, all regions except region five were found insignificant at the $\alpha = \sim .25$ level. Thus, for these regions, foremen who functioned in one work area were just as likely to answer YES (or NO for that matter) as were those who functioned in other work areas. (In region five, the state pattern is reflected again, but with a slightly higher degree of variation.)

14. COMMENTS AND SUGGESTIONS OF FOREMEN

The comments and suggestions made by participating foremen provided information on their work environment, types of programs they prefer, courses they desire and their formal educational ambitions.

The greatest number of added written comments (116) reflected strong support in developing and in enrolling in the proposed associate degree program for professional foremen. Among the pertinent comments on what should be included and/or developed in this program, foremen suggested that courses be practical, down-to-earth, and that the program should provide "options" to allow foremen the opportunity to gain more knowledge in their special areas of work or interests. A number mentioned the need for instructors to have actual industrial experiences as well as academic preparation. Some identified the need for specific courses such as: Human relations, 21; Communication skill, 11; Personnel and/or Administrative skills, 9; Labor relations, 6; and Contract Interpretation, 6.

Seventy-three foremen indicated a desire to be trained by means other than college level programs. These desires may be categorized as follows. Company training programs, 29; Seminars or Workshops, 21; On-job-training, 18; and Correspondence courses, 5. Out of these 73 responses most had lower than average educational levels, and forty-five per cent were from foremen who indicated no interest in an associate degree program; they apparently were looking to other training processes to meet their needs.

Several foremen wrote about their concern in meeting costs of a college degree program. While most foremen were willing to pay part of the cost, the general attitude was, - 'If a course was job related and/or the company stood to benefit from the foreman's training, then the company should be willing to share or pay the cost of such training. Further, if the foreman is willing to donate his time, the firm should pay the course costs.'

Note: Section 19 reporting the responses from firms shows that more than 90 per cent are willing to pay all or most of the costs of tuition and books.

The problem of work schedules interfering with course work was mentioned a number of times. It is apparent that one must consider swing shift and night work in structuring foremen training programs.

The main reasons given by foremen who did not desire further training were that they were too old (99) - and/or were already making their retirement plans (88), and 44 others wrote that time constraints prevented participation.

More detailed comments may be of interest and value to the reader, therefore they are included in Appendix VII under the following titles:(1) Summary of foremen's comments concerning continuing education, (2) Comments of foremen not desiring to continue their education, (3) Suggestions on Associate Degree Program content, (4) Burden of program costs, and (5) General foremen commentaries. Comments and suggestions made by firm representatives are presented in Appendix VIII.

15. SPECIAL NOTE RE OTHER RECENT STUDIES

First-Line Supervisors (Foremen) Educational Needs in Pennsylvania. -- A study, somewhat comparable to this one, was conducted in 1967 by three faculty members of The Pennsylvania State University.13/ Some 1,713 first-line supervisors completed the questionnaire representing a total of 220 companies. The findings of that study were similar to this one.

Some of the highlights of the Pennsylvania study are as follows:

Age Distribution by Cohort Groups: Largest (20%) 41-45 years old
2nd (18%) 46-50 years old
3rd (16%) 36-40 years old.

Education: Seventy-nine per cent were high school graduates (including nearly 20% who had the bachelor's or higher degree).

The majority of supervisors expressed a willingness to enroll in credit and non-credit courses.

Supervisors felt that the company's attitude toward continuing education and professional activities was one of general encouragement.

Sixty-one per cent reported that their company had an educational assistance plan: 60% said such financial aid had motivated them to some extent to participate in further education.

Courses Needed: The courses which 50% or more of the 1,713 first-line supervisors said they need ("Should have") were:

	Per cent
Fundamentals of the Supervisor's Job	64%
Leadership	57
Tools and Techniques of Effective Supervision	55
Decision Making	54
Human Aspects of Management	53
Communications	51

Comparison of Educational Needs: The Pennsylvania Study revealed there were differences in the reported course requirements between foremen in various industrial categories as well as by size of company. (This finding is also similar to data presented for Indiana foremen.)

What Supervisors Think About Problems Ahead.[18] A nationwide poll* was conducted to get reactions from supervisors on this subject. One hundred fifty companies, diversified as to industry, size and geographic location were asked to distribute questionnaires to ten of their supervisors whom they considered to be a cross-section of their organizations (64% of these supervisors responded). The views of an additional group of "top executives" supplemented the supervisor's survey.

The four basic findings of this poll were:

(1) Nine out of ten supervisors say their most challenging problem is human relations.

(2) The Foreman's Responsibility for cost control, quality, maintenance and customer service will continue to be important, but more than ever, he must depend on getting results through people.

(3) Stepped Up Mechanization will increase - not decrease - the importance of the human element.

(4) The High Correlation between the survey responses by supervisors and by cooperating executives, indicates that supervisors are thinking like top management. They have a mature attitude toward their problems, and would like to participate more effectively as members of management.

Also, Six Areas of supervisory problems on the human side emerged. They were:

(1) Motivation
(2) Technological Change
(3) Teamwork
(4) Communication
(5) Performance and
(6) Management Participation.

Foremanship Foundation Study "Foreman Thinking - 1970." -- A recent survey conducted for the Foremanship Foundation in Dayton, Ohio by the Opinion Research Corporation of Princeton, New Jersey,[19] was designed to take a definitive look at foremanship and the place of the foreman in manufacturing and utilities industries across the country through his own eyes. Results of this survey are based on 539 interviews in 115 companies. First level supervisors (over rank-and-file employees) comprised 48% of the sample, second level supervisors (have first level supervisors reporting to them) were 37% of the sample and the remaining 15% were third level supervisors. There were 141 interviews of foremen in 30 utilities, 184 interviews in 40 large manufacturers firms (from Fortune 500), and 214 interviews in 45 smaller manufacturers firms (from Dun and Bradstreet's Million Dollar Directory.)

This survey reported that there has been a drop in foremen's ratings of their relations with management. In 1952, 67% of manufacturing foremen rated these relations "very good" -- today only 49% say "very good"; however, even today only a few rate relations "poor." Some 74% of the 539 foremen interviewed think they ought to stay out of unions as they regard themselves as members of management.

The survey report points out that foremen agree that their jobs have increased in scope and are more complex; they have more duties and responsibilities than ever before, and are confronted with technological change. Foremen desired more training to cope with these technological advances and are gratified for opportunities to increase their supervisory skills. Foremen across the board report they spend most of their time getting out the work and communicating on work-related matters. Also, many foremen felt inadequate to meet the varying demands of their work.

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*As reported by Glenn Gardner, Editor of Management Information.

Most foremen indicated that although communication channels between higher management and themselves are not closed, they were not completely satisfied that they were being informed fully of company policies and goals.

About two-thirds of the foremen said their pay is fair compared with workers' pay. Although most foremen said they wanted more pay, they acknowledged that the gap between what they and their men make has not changed much since 1952.

This survey also included opinions on hiring and training the disadvantaged. Foremen whose companys are active in hiring the hard-core unemployed are split in their assessment of the effect of this on their jobs. Some say it has worked out well, others say it has had little or no effect on their work. The biggest problem cited with hard-core employees is that of training them.

In commenting on the survey, Harry Jeffrey, secretary of the Foremanship Foundation said "Inflation and rising labor costs are major factors with which industry has to deal today, and the foreman plays a key role in maintaining productivity. Keeping his people basically happy while getting better performance per man hour is the daily challenge the foreman faces."

PART II PERSONNEL OR TRAINING DIRECTORS' RESPONSES

16. DESCRIPTION OF THE QUESTIONNAIRE

The Personnel or Training Director questionnaire* was a single page form (one sent to each firm) with four parts: I The number of blue collar workers and number of foremen supervising them; II The kinds of educational programs for foremen now being used and new programs needed; III The degree of which new programs would be supported, and IV Comments. Results for each part are presented below:

17. RATIO OF WORKERS TO FOREMEN

A recent study of supervisors reported that there is a trend towards proportionately more first-line supervisors in the work force - or stated another way, there is a trend towards fewer persons under each supervisor.8/ The study established that there was:

1 supervisor to 29 employees in 1952,
1 supervisor to 20 employees in early '60's,
1 supervisor to 18 employees in 1967, and there will be
1 supervisor to 15 employees by 1972.

The study also determined there was an attrition (retirements, health and death) from first-line supervisors' ranks of 4.2% per year.8/

The questionnaire used in this foreman study asked for the number of blue collar workers and the number of supervisors in each firm with the finding that on the average, although there were considerable variations between manufacturing type of firms, there were approximately 15 rank-and-file workers under the direction of each first-line foreman. The lowest ratios (fewer employees under each supervisor) were found in Utilities, Communications, and Primary Metal Manufacturing Industry firms. The highest ratios were found in the following manufacturing industry groups: Apparel; Electrical Machinery, Equipment & Supplies; Printing and Paper; Fabricated Metal Products; and Machinery.

*See Appendix IV for sample copy.

18. FOREMAN TRAINING PROGRAMS NOW BEING USED AND NEW PROGRAMS NEEDED

Of the 343 firms responding to the survey, 264 indicated that some types of company recognized training programs were being used; however, more than 300 of these firms reported new types of programs were needed. The total returns are shown below:

TABLE 10

CURRENT TRAINING PROGRAMS NOW BEING USED, AND NEW PROGRAMS NEEDED

Training Programs for Foremen Check (√) *all* items that apply	Company Training Programs	College Credit Courses	Non-Credit Courses	Workshops or Seminars	Correspondence Courses	Other (Identify)
n = 343		PROGRAMS BEING USED NOW		non-response = 79		
Purpose of training						
Prepare new foremen	135	31	50	68	19	10
Continuing training*	167	51	76	128	43	21
Location of program In-plant	163	2	11	47	6	11
Local	46	50	78	84	9	6
Length of program (in weeks)	$\bar{x}$ 13	$\bar{x}$ 24	$\bar{x}$ 13	$\bar{x}$ 3	$\bar{x}$ 56	$\bar{x}$ 8
Number of participants in program	$\bar{x}$ 28 Σ 4,301	$\bar{x}$ 14 Σ 546	$\bar{x}$ 9 Σ 572	$\bar{x}$ 41 Σ 2,871	$\bar{x}$ 15 Σ 357	$\bar{x}$ 12 Σ 242
Program conducted during: Day	161	16	22	96	9	14
Night	60	49	78	50	14	13

n = 343		NEW PROGRAMS NEEDED		non-response = 40		
Purpose of desired training						
Prepare new foremen	135	48	67	100	25	1
Continuing training*	138	76	91	131	40	4
Location of desired program In-plant	139	6	11	52	4	2
Local	71	79	97	123	25	2
Desired length of program (in weeks)	$\bar{x}$ 10	$\bar{x}$ 27	$\bar{x}$ 11	$\bar{x}$ 4	$\bar{x}$ 12	$\bar{x}$ 10
Estimated number of participants	$\bar{x}$ 22 Σ 3,358	$\bar{x}$ 15 Σ 757	$\bar{x}$ 9 Σ 772	$\bar{x}$ 15 Σ 1,938	$\bar{x}$ 6.1 Σ 178	$\bar{x}$ 13 Σ 67
Program desired during Day	103	12	23	89	7	3
Night	95	68	90	84	24	4

It is noteworthy that 79 of the 343 firms (nearly 25%) participating in the survey did not complete the portion of the questionnaire asking to identify foremen training "programs being used now," while only 40 did not complete the portion dealing with "new programs needed." Further, the numbers of needed new programs with college credit courses, non-credit courses, workshops or seminars and correspondence exceed the numbers now being used. These are clear indicators that firms are also aware of the requirement to do more in the areas of preparing new foremen and continuing training for practicing foremen.

The data in Table 10 indicate that most firms want foreman training to be identified as "company training"; this is the same view expressed by most foremen in their returns. In an earlier study, skilled craftsmen desired that their continuing training also be recognized by their firms.[20] This reinforces the statement made earlier that planning and implementing related training must involve the firm, the foreman and the educator.

The high value placed by firms on workshops & seminars and non-credit courses is evident. These types of programs have reportedly been used by thousands of foremen. The use of and need for additional correspondence courses should also be noted.

Eighty-two firms reported that 546 foremen now are using college credit courses and 124 firms reported that new college credit courses are needed for 757 more foremen; thus a total of more than 1,300 foremen could be involved. Although this number is below the number of foremen from these firms that expressed a desire to enroll in college courses, as pointed up earlier, nearly 25% of the firms did not complete all of the questionnaire.

A comparison of the opinions represented in the returns from firms and from individual foremen reveals that foremen are more likely than are firms to prefer college credit courses to other types of courses or programs. Undoubtedly, the opportunity to earn a bona-fide college degree is a highly motivating force to the individual foreman (this was expressed frequently in their written comments). Foremen and firms alike are agreed that the workshops or seminars are desirable.

19. WILLINGNESS OF FIRMS TO HELP PAY FOR PROGRAM COSTS

Each company was asked, "If programs were developed to meet your firm's needs for the education and training of foremen, would your firm help pay the costs of such programs (tuition, books, etc.) for participants? YES or NO (Circle one)"

322 firms replied YES; 6 said NO; 15 did not answer.

The related question followed - "If YES, firm would cover costs -

Fully 232, 3/4's 24, 1/2 42, 1/4 1." (23 did not answer)

As can be seen above, most companies were willing to pay costs fully, with only a few unwilling or abstaining.

20. COMMENTS AND SUGGESTIONS OF REPRESENTATIVES FROM INDIANA FIRMS

There were nearly 50 separate letters and notes written, as well as many 'phone calls made to the author by representatives from Indiana firms. These communications expressed interest in the study, desires to cooperate, and requests for implementing actions to be expedited. A few pages of selected typical comments are presented as Part 1 of Appendix VIII... essentially all of these communications were favorable.

In addition, comments and suggestions were written by 63 personnel or training directors or others representing their firms on the questionnaire forms. Most of these statements reported that foreman training was a very important consideration, but that although some related training opportunities were available and being used, much more still had to be done. Nineteen of these firms also wrote that their policy was to pay all of the costs of tuition and books, 11 pointed up the need for programs or courses to be job-related, 7 said they needed these programs locally, 5 said they preferred seminars and workshops, and 4 wrote they preferred to train foremen on-the-job.

In commenting on the associate degree program for foremen, 9 firms recommended specific courses in communications, production planning & control, budgets & cost control, and labor relations. A few stated that courses should be practical and down-to-earth, and instructors should have industrial experience.

More details and typical comments that were written on the Personnel and Training Director's Questionnaire form are presented in Part 2 of Appendix VIII.

CHAPTER FOUR

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

21. **DISCUSSION**

Foremen, also known as first-line supervisors and including women, are key people in assuring that products are turned out or services are rendered which meet cost, quality and quantity standards. They are needed in growing numbers in manufacturing firms and in construction, trade, services and utilities as well. Most foremen have come up through the ranks in industry - due in large part to the importance of job knowledge and to their proven capabilities on machines, bench work or the line. They have mastered their technical skills and demonstrated their reliability. Because of their ambitions, desire to earn more money, and do more interesting work -- they accepted the offer to become foremen... and promptly found they were in need of more knowledge related to people, production and to many new and varied job functions. Most had not been given supervisory type training before becoming foremen.

Foremen and management representatives of the firms they work in, recognize the problems of preparing new foremen and of the continuing education of practicing foremen. (This is similar to the attitude of journeymen in skilled trades who are also desirous of keeping up with changes and in advancing their knowledge and competence.)[20/]

This study was conducted under the guidance of an advisory committee made up of foremen, industry managers and educators. The report presents many facts concerning foremen, their work, needs for training, and data and opinions on related matters. Data are based on questionnaires returned by representatives from 343 firms representing all important Indiana industries, and by 4,252 returns of individual foremen. An analysis of these returns indicates a sound statistical base is provided for this study. Additional materials are reported from recent literature, research reports and other sources. Findings, Conclusions and Recommendations, based on these data and materials, are presented in the next two sections.

22. FINDINGS AND CONCLUSIONS

Scope of the Problem. -- There are probably between 30,000 and 50,000 foremen and foreladies in Indiana. It is estimated that there are between 1,800 and 2,000 job openings occurring annually, based on computations made from U.S. Department of Labor figures.[6] These figures are verified in this study where the annual attrition needs alone are computed to be 1,680 (4.2% of 40,000 foremen).[8]

The large majority of the foremen and firms' representatives that participated in this study were in agreement that a variety of training programs, courses and related activities were needed for practicing foremen - as well as to better prepare new foremen. Foremen were surveyed from firms in all major industries; many were employed in a number of different and distinct areas of work and were engaged in a variety of job functions. Training desires and needs were reported by foremen from all geographic regions of the State employed in small, medium and large size firms in all industry classifications. New programs needed were also reported by most firms responding to the questionnaire. One must conclude that foremen training is a very large and widespread problem in Indiana.

Characteristics of Foremen. -- Foremen that responded to the questionnaires were most likely to be in their late 30's or early 40's.

The highest level of education attained as reported by most foremen (59%) was 12 years (i.e. high school graduates), the next largest group (17%) had some college but less than 4 years, thirteen per cent had completed some high school but less than 4 years, nearly 8 per cent had 4 or more years of college and 3 per cent had completed only 8 years or less. Seventy-six per cent (3,216) of the foremen responding to the questionnaire, had 12 or more years of education but less than 4 years of college.

The average length of experience as a foreman was found to be about nine years - with a wide range reported from one month to 45 years. Nearly half of all respondents reported they had five or fewer years experience as foremen. Most had become foremen in their 30's - but had not received training prior to becoming foremen.

Areas of Work. -- Nearly 48% of all foremen responding to the questionnaire reported that their primary work was in Actual Production. In addition, twelve per cent reported they worked in a Combination of Areas (many of these were in the smaller plants), 9% were in Production Planning and Control, 8% in Quality Control and Inspection, 6% in Maintenance, and 5% each in Skilled Trade and Shipping and Receiving, with the remainder in others. If training programs are to be based at least in part on the primary work area of the foreman, there must be some accommodation to these differences.

Most Important Job Functions. -- There was a high order of agreement among foremen (90.8%) that their most important job function was Employee Direction and Supervision. The majority of foremen also agreed that Safety was one of their most important functions. The remaining functions arranged in rank order were Training, Production Machinery, Quality Control and Inspection, Labor Relations, and Cost & Financial Control. If a program is designed to meet the most important job functions for foremen, it must include subject matter in the field of Employee Direction and Supervision for all foremen, yet it must be flexible enough to allow for the variations that exist between foremen in other functional areas.

Additional Knowledge Needed by Practicing Foremen. -- Human Relations was the subject area reported as needed most often (72.5%) followed by Communications (57.1%) and Methods Improvement (51.4%). These three subjects were also reported as the most important needs in the same rank order. The rank order of other popular subject areas needed were Personnel Functions, Production Planning, Quality Control & Inspection, and Material Handling. The commonality of the first three subject areas in particular would indicate their relevance to the majority of foremen, with differences noted in the relative importance to different foremen of a variety of other subjects.

Knowledge Essential for Beginning Foremen. -- Human Relations (97.2%), Communications (80.9%), and Personnel Functions (73.8%) were cited most often and were identified as being the most important subject areas for beginning foremen. The other more common subjects arranged to rank order, were Production Planning, Methods Improvement, Quality Control & Inspection, Material Handling and Other. This is the same rank order as the reported needs for practicing foremen - except for Methods Improvement which was third for practicing foremen and seventh for beginners. (Perhaps experienced foremen felt there was a need for beginning foremen to understand the fundamentals of their job and gain some experience before being ready to do much about improving current methods.) There were a variety of other courses recommended less frequently for beginning foremen. Essentially however, this agreement between practicing and beginning foremen needs indicate the same subject areas are largely applicable to both groups. Also, there is a high order of agreement as to these needs between all six geographic regions.

Desire to Participate in Continuing Education or Training. -- An overwhelming desire to continue foreman education or training to meet identified needs was expressed in returns from every geographic region (n = 4,188). Fewer than eight per cent said they were not interested... almost all of these were older men and those with ten or

fewer years of formal education. Sixty-one per cent said they wanted to participate in continuing education or training and the remaining 31% said "depends."* The primary reasons given in explaining their choice of "depends" were concerned with night work and shift problems and the requisite of "sharing costs" with the firm. Both of these items must be planned for in course offerings. Also, an opportunity to complete high school should be provided to those foremen having some high school but who have not graduated (particularly younger foremen).

More than 80% of the foremen said they wanted the training program to be identified with their company: the need for joint planning was reinforced in numerous ways (between the firm, the foreman, and the educator/counselor). This finding is quite similar to one where journeymen in skilled trades also wanted their company to be involved in their continuing educational efforts.[20/]

The largest group, more than 72% of 3,868 foremen who said "YES" or "DEPENDS" to the question of whether they desired to continue their education, said they wanted "college credit courses." Nearly 54% said they wanted "workshops and seminars," 26.1% said "non-credit courses" and nearly 20% wanted "correspondence courses." Foremen were quite consistent in reporting their desires for costs (tuition and books) to be shared by the firm. (Financial assistance for educational purposes may be available to some eligible foremen who are veterans.) Both day and night courses were wanted.

Other recent studies of foremen in Pennsylvania;[13/] and of foremen and supervisors in a national sampling of utilities and small and large manufacturing firms[18/] confirm and/or reinforce to a high degree the findings of this study of foremen in Indiana industries.

Proposed Associate Degree for Professional Foremen. -- Probably one of the most significant findings in this study is the fact that a large proportion of foremen said they would enroll "If a college-level (two year associate degree) program - designed specifically for professional foremen were offered locally (limited college credit may be given for experience, skills and knowledge); Would you enroll?" Out of the 4,252 foremen responding to the questionnaire, 3,827 answered this particular question: of those answering, 67.2% (2,592)** said YES, and 32.3% (1,235) said NO. In other words,

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*Upon expanding the responses of this questionnaire to the universe of all foremen in Indiana (maximum of 50,000), it is computed that between 32,000 and 42,000 foremen may be interested in participating in some form of training, education, workshop and/or seminar activities.

**Nearly every one of these had completed 12 to 15 years of formal school (3,216 foremen - which comprised 76% of all respondents - fell into this group).

about 60% of all foremen respondents said they would enroll in the associate degree program if offered! This group was essentially comprised of foremen who were high school graduates plus those having some college but no degree.

The data concerning major areas of work of foremen, their most important job functions, reported educational needs, comments of foremen and firms' representatives and other variables, makes very clear that no one given program or curriculum could satisfy all the needs or accommodate the many differences. The necessity for joint participation and a flexible and adaptable type planning base is clearly established. However, there is consensus that certain identifiable needs for knowledge (i.e. courses) are common to most foremen, while other needs are common to a number of specific, homogeneous groups. Still other needs in smaller numbers are quite unique and/or specialized. This suggests that a feasible approach might be for the professional foreman training program to include in its objectives, (1) the meeting of common requirements (the curriculum core) by all foremen, (2) plus those clusters of courses (modules) pertinent to the specific group (or groups) interests, and (3) augmented by elective or selective courses to accommodate individual variations.

The data show that the "core" should reflect the most important job functions of the majority of foremen; these are Employee Direction & Supervision and Safety. (This is reinforced in the recent Foremanship Foundation Survey,[19] which found that the two activities reported by the majority of foremen as most difficult and requiring "an above average amount of time and attention," were Efficient Use of Manpower and Meeting Production Schedules.) Specific related core courses emphasized in the survey were Human Relations, Communications, Safety, Supervision and Industrial Organization. The key "modules" identified were Methods Improvement,* Personnel Functions and Labor Relations, Production Planning and Control,* Quality Control and Inspection, Material Handling,* and Costs & Financial Control. These modules should be augmented or modified as experience, need and evaluation dictate.

There is also evidence that indicates foremen should be knowledgeable in the area of civil rights, the problems of training and handling "minority group" members, and of drug and alcohol abuse.[15][16][17]

Note: The author is convinced upon completing this study, that offering the proposed Associate Degree Program will help to crystallize the formal educational goals of thousands of foremen in this State. It will provide them an opportunity to do something about a long felt deficiency in life: one they were acutely aware of but had nearly given up hope of overcoming. In a very real sense, this program provides an authentic educational credential.

*Including monitoring and controlling industrial processes and operations through computer system applications.[23]

Of the more than 2,500 foremen who said they would enroll in an associate degree program designed for foremen - 93% of them said they would be willing to do so on their own time - and would spend on the average more than eight hours per week in class attendance and study. Nearly 56% of these foremen reported they would be willing to pay half or more of the cost of tuition and books, nearly 22% said they would pay one quarter; fewer than 25% said they were unwilling to pay any part of costs.

Foremen wrote letters or comments emphasizing that an Associate Degree in Professional Foremanship would help them earn the respect of the men they lead and of managers over them; it would add prestige to the job of first-line supervision; it would help them to do their job better and provide a base to continue their education and perhaps advance even higher.

Regional Summary of Foremen's Desires for Continuing Education or Training. -- As stated earlier, more than 90% of the 4,252 foremen said YES or DEPENDS to the question "Would you participate if practical courses were developed to meet your needs?" (60% YES; 31% DEPENDS) Main reasons given for "DEPENDS" included swing or night shift, or sharing of expenses - both of which can be planned for.

Interest in desired programs and courses was reported in exactly the same rank order in each region as follows: 1) All programs should be identified as company training programs, 2) college credit courses, 3) workshops or seminars, 4) non-credit courses, 5) correspondence courses and 6) others.

As stated earlier, about 60% of the foremen answered YES to the question "Would you enroll if an Associate Degree for Professional Foremen were offered?" There was a high degree of consistency in these percentages between regions. (See Parts 6 and 7 of Appendix V.) Table 11 presents a summary by Region of the numbers of foremen who answered each of these questions.

TABLE 11

NUMBERS* OF FOREMEN WHO DESIRE CONTINUING EDUCATION

Region	Desire Some Form of Continuing Education		Would Enroll in Assoc. Degree Program
	YES	DEPENDS	
1 - Calumet (Lake County)	339	192	341
2 - North Central	357	138	353
3 - Northeastern	477	271	482
4 - Lafayette	239	137	247
5 - Central (Indpls. Area)	893	427	913
6 - Southern	254	144	256
STATE	2,559	1,309	2,592

*The above numbers reflect only those responding to the questionnaire.

Reactions of the Firms. -- The fact that about 55% of the firms contacted responded favorably to the questionnaire (many wrote separate letters or made telephone calls expressing their desire to cooperate) illustrates a high degree of interest. Data from firms is presented below under the headings of: A. Ratios of Workers to Foremen, B. Kinds of Educational Programs Being Used and New Ones Needed, C. Financial Support, and D. Comments.

A. Ratio of Workers to Foremen. A previous study indicated there has been a long trend towards proportionately more first-line supervisors in the work force (e.g. fewer persons under each supervisor).[8] Results in this study verify the current ratios as were projected in that earlier study: presently, there are on the average about 15 rank-and-file employees under each foreman. (There are variations by type of industry and size of firm.) In effect, as the trend continues there will be a growing number of new jobs for beginning foremen - as well as for needed replacements.

B. Programs Being Used and New Ones Needed. Of the 343 firms responding to the survey, 264 indicated some forms of company recognized training programs were being used; however, more than 300 reported that some new types of programs were needed. A slight majority (55%) of reported needs were for the continuing education of practicing foremen, the remaining 45% were for beginning foremen. The need for these programs to be "Company" recognized was near-unanimous. One must conclude this reinforces the necessity for these programs to be planned and implemented with complete coordination between the firm, the foreman and the educator. All identified major types of programs were being used and more new ones were needed. Table 12 below presents a summary of the numbers of firms now using programs and those needing new ones.

TABLE 12

NUMBERS OF FIRMS NOW USING PROGRAMS AND FIRMS NEEDING NEW PROGRAMS

Purpose of Program	College-Credit Courses	Non-Credit Courses	Workshops & Seminars	Correspondence Courses
Programs Being Used Now			n = 264	
Prepare New Foremen	31	50	68	19
Continuing Education	35	76	128	43
New Programs Needed			n = 300	
Prepare New Foremen	48	67	100	25
Continuing Education	76	91	131	40

The substantial numbers of firms now using foremen training programs and those desiring new ones indicate a recognition of the need to prepare new foremen and to increase the effectiveness of practicing foremen. (The reader is reminded that these data are from the survey respondents who represent about one-third of the employees in Indiana's manufacturing and a few selected representative non-manufacturing and service industries; no attempt has been made to inflate to the employment universe of the State. Therefore, only the lower parameter of needs is reflected.)

C. Financial Support. The financing of training programs appears to be very feasible as a general rule, inasmuch as more than 90 per cent of the firms responding are willing to pay all - or most - of the costs (i.e. tuition and books), while more than half of the foremen indicated their willingness to share costs.

D. Comments. Practically every comment received (written on the questionnaires or in separate letters or 'phoned in) was favorable. The great needs for training new and as well as practicing foremen, the desire to cooperate in planning and implementing related courses and programs, hopes for starting them up locally, and offers to help were repeated over and over. Some pertinent comments are included in Appendix VII and VIII.

23.

RECOMMENDATIONS

Problem Recognition. -- The need for providing adequate training and educational opportunities for continuing education desired by about 32,000 practicing foremen and for the preparation of about 1,800 new foremen in Indiana industries each year should be recognized as a critical problem. Every major metropolitan area of the State is affected.

Planning and Implementing Programs, Courses and Related Activities. -- Due to the variations in major areas of work; the different reported knowledge requirements and their orders of relative importance; individual differences and goals; and the different types, levels, and conditions of training desired, it is recommended that planning in each case include the firm, the foreman, and the educator. It is recommended that the details presented in this report concerning work areas, job functions, knowledge needed by foremen, suggested courses, and the opinions and suggestions of foremen and representatives from participating firms, as well as results of other studies reviewed, be used as guides by faculty members in formulating viable program and course objectives and in curricula design. The need for joint planning, flexibility and consideration of tailor-making foreman training activities to fit individual situations is documented throughout this study.

ψ It is further recommended that Industry-Education Advisory Committees be used for over-all program planning and related operational activities.[21]

ψ This study confirms the needs for recognized company training programs, college credit courses, non-credit courses, workshops or seminars and correspondence courses for foremen in all six regions of the State.* The desire of foremen to continue their education, and the willingness of firms to cooperate in the establishment and support of these programs should be capitalized on. (For example, 2,800 foremen reported they desired college credit courses, nearly 2,100 wanted workshops or seminars, 1,000 wanted non-credit courses and 750 wanted correspondence courses: these questionnaire returns represented only about a third of the total State employment in manufacturing firms and even less of the total employment in service industries.) Further, more than 300 of the 343 firms responding to this survey reported some new types of foremen training programs or courses were needed.

ψ Due to the widespread, diverse, critical and continuing nature of providing foremen with training and education programs, courses, workshops & seminars and related services, it is strongly recommended that a development and implementing service mechanism (viz. an organizational unit) be created. This unit would be responsible for developing, planning and coordinating activities to provide for first-line supervisors and foremen training and education needs, as well as for counseling, research, and related services. Active liaison should be maintained with appropriate Indiana business, industry and government representatives as well as with professional groups such as The National Management Association, and American Management Association, the National Foremen's Institute, the Foremanship Foundation, the American Foremen's Association and others.

ψ It is also recommended that related program planning be coordinated with representatives from the School of Industrial Management; further, that existing programs and courses in Manufacturing Technology and other Departments, and in Industrial Management and in other Schools, be utilized wherever they are applicable.

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*Special planning and implementing actions will be needed particularly in Region 6, the Southern Region, due to the large geographical area involved, the scatter of firms' locations and their relatively smaller size.

ψ Foremen With Less Than High School Graduation Education Level. -- Nearly 13% (541) of the foremen responding to the survey reported they had some high school, but less than 4 years. There were 180 of these men who were 42 years of age or younger. It is therefore recommended that foremen (in the younger category in particular) be counseled and provided the opportunity to complete their high school work - and then be encouraged to proceed with earning the associate degree. It is also recommended that non-credit courses and workshops be provided for those not completing high school or others who are not desirous of enrolling in college credit type courses.

ψ Correspondence Courses. -- The development and offering of appropriate correspondence courses is highly recommended. This can be done under the implementing unit suggested earlier. (Twenty per cent of all foremen and nearly 15 per cent of all firms responding to the questionnaire cited that new foremanship-related correspondence courses were needed.)

ψ Proposed Associate Degree in Professional Foremanship. -- Probably the most important single recommendation of this study is to plan the objectives and curriculum for this two-year college degree -- and offer its courses State-wide as soon as practicable. The need is great, the interest and support of foremen and their firms are high, the opportunity and responsibility to serve are clear. Pertinent to this primary recommendation are the following supporting ones:

1) Program, courses and related services should be designed and activities managed by the implementing unit created for these purposes.

2) Curriculum should be flexible and jointly planned in each foreman's case. This is necessary due to the different major areas of work and job functions of foremen; the variety of knowledge requirements and their relative importance; different backgrounds, responsibilities, problems, and needs of individual foremen; variations of their firms procedures, processes, materials and services, as well as other reasons. It is therefore suggested that the curriculum contain a core (made up of courses common to needs of all foremen) plus selected modules (such as Methods Improvement, Production Planning & Control, Quality Control, etc.) containing related requisite courses appropriate to each foreman, and that the core and modules be augmented by relevant elective courses.

3) Upon satisfactory completion of each module (i.e. Quality Control, Methods Improvement, Material Planning, etc.), an appropriate certificate should be awarded to the foreman. These intermittent milestones will attest to the achievement, measure and record progress, and provide incentives and motivation.

4) Program details should be jointly planned by each foreman, a representative from his firm, and the educator/counselor wherever possible.

5) It is important to reach, plan, and work with and through the firms' representatives. However, the data indicate it is also very important to reach, plan, and work with foremen independently in many cases.

6) The "case study" technique should be utilized wherever feasible, bringing actual situations and problems of the firms and foremen into the classroom. The related discussion and reporting should capitalize on the experience and knowledge of the foremen, representatives from the firms and the educators. Instructors should have industrial experience.

7) The greatest degree of accommodation feasible for foremen to participate in continuing education should be provided. For example, arrangements should be made for the enrollment of foremen who may not be admissable as regular students at the time, into classes the instructor believes they may benefit from (e.g. as temporary students, apply work toward certificate(s), be used as transfer credit when the foreman does become a "regular student," etc.).

8) Consider giving college credit (applicable toward the degree) for previously attained skills, experience and knowledge, or for courses completed elsewhere, after examination and/or careful evaluation on an individual case basis.

9) Necessary courses in the humanities and other areas should be available for curriculum balance and individual desires.

10) Counseling and appropriate courses and programs should be provided so qualified graduates of the associate degree program may continue their formal education to the baccalaureate and higher levels.

ψ <u>Swing-shift, Night-work and Locale Considerations</u>. -- It is recommended that course offerings accommodate work-time and location problems. Wherever enrollments permit, a course may be presented in two or more sections at the same pace but at different times (e.g. one during the day and one at night), as well as on different days of the week (including Saturdays). Courses should be offered at wherever places are best to promote effectiveness of learning and for the convenience of participants. Rooms and facilities in-plant, on-campus, in high schools, and/or any other locales best suited and available should be utilized. A check of the foremen applicants' and the firms' desires may often be necessary to plan optimum schedules and locations.

ψ Costs. -- It is recommended that wherever possible, full advantage be taken of the offer of firms to pay costs of tuition, books and/or provide supportive assistance. The willingness of foremen to share costs and for eligible veterans to receive educational financial assistance should also be capitalized upon. The income from courses, workshops or seminars, and other services provided should be used by the recommended implementing organizational unit to cover costs of development and operation.

Note: Foremen should be advised that inasmuch as the recommended continuing education is designed to maintain and improve their skills in their job as foremen (e.g. not specifically designed to qualify for a promotion or a new occupation), the expenses of education may be tax deductible.[22/]

ψ Veterans. -- It is recommended that advantage be taken of the educational financial assistance available to eligible foremen. Veterans who have been honorably discharged from the Armed Forces since 31 January 1955 may be eligible. Such assistance may be available to complete high school as well as for reimbursement of costs for advanced courses.

Purdue University should apply to the Indiana State Approval Agency of the Department of Veterans Affairs (Room 707 of the State Office Building, Indianapolis) for the approval of foreman training type non-credit courses, workshops and seminars. (This is necessary in order for qualified veterans to receive related benefits.)

After approvals have been obtained, appropriate statements should be made on every flyer, brochure or announcement. For example:

> INDIANA VETERANS
>
> This program has been approved by the Indiana State Approval Agency of the Department of Veterans Affairs; you may be eligible for educational financial assistance. Check with your County Veterans Service Office

ψ Evaluation. -- As a final recommendation, it is suggested that a formal system of evaluation be instituted to measure the effectiveness of foremen training and related activities. Follow-up of participants to determine their successes, problems and suggestions; the views and recommendations of their immediate supervisors and other representatives of their firms; and a continuous review of other programs or research efforts should be included. The objective must be to serve these foremen and their firms in an ever-improving manner.

APPENDIX I

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APPENDIX II*

FOREMEN: EXCERPTS FROM THE OCCUPATIONAL OUTLOOK HANDBOOK

Nature of the Work

Foremen play a strategic role in our Nation's economy. They supervise and coordinate the activities of highly skilled, semiskilled, and unskilled blue-collar workers, and are often responsible for millions of dollars worth of equipment and material. They may oversee workers engaged in assembling television sets, servicing automobiles, laying bricks, unloading ships, or any thousands of other activities. Foremen often are referred to by different titles. For example, in the textile industry they are referred to as second hands; on board ship they are called boatswains; and in construction they are known by titles such as overseer, strawboss, gang leader, or pusher.

Supervising workers is the most important part of the foremen's job. Many blue-collar workers never work under supervisors above the rank of foreman, and it is through their foremen that they get their work orders, their discipline, and their recognition. Foremen interpret and communicate company policy to the workers. They are responsible for the guidance and instruction necessary to assure that workers are qualified to handle their assignments and see that new employees are properly trained for their jobs.

In some enterprises, foremen, in addition to their supervisory responsibilities, work at specific crafts. "Working foremen" are common in construction, where, for example, bricklayer foremen supervise the work of journeymen bricklayers and helpers and also lay brick. Working foremen in some cases belong to the same labor union as the workers they supervise. Foremen must plan and schedule the work of their subordinates and maintain production and employee records. They spend part of their time participating in meetings and preparing reports on production, cost, personnel, and safety. Foremen must exercise considerable judgment in their planning and allow for unforeseen contingencies such as absenteeism and machinery breakdown.

Foremen see that safety rules and regulations are observed and instruct employees in safety practices. In unionized plants, foremen may meet with union representatives to discuss work problems and grievances. They must know the provisions of labor-management agreements and run their operation according to the agreements.

Places of Employment

Foremen are employed in almost every business enterprise and government agency that employs blue-collar workers. More than 1.4 million persons were employed as foremen in 1968, about 90 percent of whom were men. In addition, many workers employed in occupations such as carpenter and machinist also have foreman responsibilities.

Employment of foremen is centered in the highly industrialized sections of the Nation. About three-fifths of the foremen are employed in manufacturing industries such as those making machinery, metals, transportation equipment, food, chemicals, and paper products. Large numbers of foremen also are found in construction, trade, and service industries. Female foremen, or foreladies, are primarily employed in the apparel, electrical machinery, leather products, and laundry and drycleaning industries.

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*Occupational Outlook Handbook 1970-71 Edition, Bulletin No. 1650, U.S. Department of Labor, Bureau of Labor Statistics, pp. 353-355.

Training, Other Qualifications, and Advancement

Unlike entry requirements for most supervisory positions, employers generally look for experience and skill rather than specific educational background when choosing foremen. Most foremen rise through the ranks -- that is, they are promoted from the machine or work bench or construction craft. By performing different jobs over a period of time, they develop their skills and acquire a thorough knowledge of the processes involved in the work they supervise. During this time, they also learn much about their fellow worker, individually and collectively, and about management policies and employe attitudes toward these policies. Very often, foremen are former union members who have served as elected representatives and learned about grievance procedures, collective bargaining, and the provisions of the labor management contracts.

The experience gained by foremen rising through the ranks gives them the advantage of knowing how a job should be done, possible problems involved, and helps them know what to expect from the workers they supervise. Because of the time it takes to acquire the necessary experience and skills, the average foreman is about 45 years of age, about 5 years older than the average worker.

Most workers who are promoted to foremen jobs are high school graduates who have learned their skills on-the-job. Many have acquired technical skills through apprenticeship or other formal training programs, and some have benefited from courses offered through Armed Forces training schools. Although fewer than one-tenth of all foremen are college graduates, a growing number of employers are hiring foremen trainees with college backgrounds. This practice is most prevalent in industries that have highly technological production processes such as the chemical, oil and electronics industries. Employers generally look for college graduates with backgrounds in business administration, industrail relations, mathematics, engineering, or science. The new workers are hired as foremen helpers and undergo on-the-job training until they are capable of accepting the supervisory responsibilities of foremen. After attaining this experience, foremen having college training often are promoted to higher management levels.

Employers look for leadership qualities when considering persons for foremen positions. Especially helpful is the ability to motivate employees, command respect, and get along with people.

Foremen with outstanding ability, particularly those with post-high school education, may move up to higher management positions. In manufacturing, for example, foremen may advance to jobs such as department head, general foremen, and plant manager. In the construction industry, some foremen use the experience and skills they acquire to go into business for themselves.

Employment Outlook

Employment of foremen is expected to increase moderately through the 1970's. In addition to the substantial number of job opportunities expected to occur as a result of employment growth, an even greater number of job openings will occur each year as experienced foremen are promoted, transfer to other occupations, retire, or die. Retirement and deaths alone are expected to result in more than 30,000 openings annually.

Most foremen will continue to be males employed in manufacturing industries. However, almost half of the increase in the number of foremen during the 1970's will be due to the rapid expansion of nonmanufacturing industries -- construction, trade, service, and public utilities. The number of foremen in construction is expected to grow very rapidly.

Factors underlying the expected growth of foremen are the increase in the size of business operations and government services requiring blue-collar workers, and the growing trend towards increased supervision as industrial production processes become more technical. More foremen, for example, will be required for functions such as inspection and production scheduling.

Earnings and Working Conditions

Salary levels of foremen generally are keyed to the earnings of the highest paid workers they supervise. Some companies have a formal policy to maintain specific wage differentials between foremen and the workers they supervise that range from about 10 percent to 40 percent. However, these differentials do not take into account overtime payments to hourly workers. Foremen are usually salaried and not paid for overtime. If they are paid for overtime, they normally do not get the premium rate that workers under their supervision receive. In 1967, the median earnings of foremen who worked full time during the year were $8,721.

Working conditions of foremen vary widely from industry to industry. As the lowest level supervisory group, foremen spend much of their time with the workers on the plant floor or at the construction site. Plant foremen are apt to get dirty around machinery and materials and may be subjected to noisy manufacturing operations. Construction foremen often are subject to unpleasant weather conditions. Foremen generally work more than 40 hours a week and often are expected to be at work before their subordinates arrives, and to remain there after they leave.

Some foremen who have limited authority may feel isolated, neither a member of the workforce nor a significant part of management. On the other hand, the foreman position hold more prestige than that of blue-collar workers and the work is often more challenging and rewarding.

APPENDIX III

IMA

INDUSTRIAL RELATIONS

INDIANA MANUFACTURERS ASSOCIATION, INC., 120 E. MARKET ST., RM. 832
INDIANAPOLIS, INDIANA 46204 • PHONE: 632-2474 • AREA CODE: 317

No. 318 January 12, 1970

PURDUE TO MAKE FOREMAN SURVEY

There is a growing problem in more and more of Indiana's manufacturing firms in having well-trained foremen. The fact has been established that a greater proportion of foremen are needed as the years go by (or saying it another way--there are fewer employees under each foreman). Also, the responsibilities and qualifications of foremen are increasing. A recent Purdue manpower study says this is so because of their changing job duties: Foremen have more responsibilities and authority in the functional areas of production, personnel, safety, labor relations, financial control and provision of accurate data. Another fact is, most of Indiana's foremen are high school graduates who are mature family men--not about to enroll in a college or university four-year program. They are critically needed on the job and cannot spare the time to earn a conventional bachelor's degree. However, they (and their employers) recognize the need for continuing education in appropriate subjects. What these subjects are, what kinds of programs are needed, and how best to do what needs to be done--is the subject of a vital new manpower study just started at Purdue.

For some time industrial foremen have been referred to as the "forgotten men of management." Emphasis has been placed upon technological development, and first-line supervisory development has often been subordinated. Recent advances in management tools and techniques,--and in the behavioral sciences, communications, quantitative methods, and other developments make it possible for foremen to be better qualified to do their jobs. However, for the most part, practical educational programs--designed on valid bases--have not been available locally.

The Office of Manpower Studies, Purdue University, in cooperation with the Indiana Manufacturers Association and representatives from several major industries, is initiating a cooperative survey to determine the current and long-range foreman education and training needed. The results of this project will lead to the recommendation, development and implementation of new methods for providing continuing professional education.

The Indiana Manufacturers Association believes that such efforts on the part of our state-supported educational institutions, planned and carried out with the cooperation of Indiana Industries, will provide the needed results. For this reason, all employers are urged to cooperate with Purdue to the fullest extent possible.

A letter and card are included within this issue of the Industrial Relations Letter; we hope you will participate in this survey. If added information is needed, please contact Professor J. P. Lisack of the Office of Manpower Studies, Purdue University, SCC-A, Lafayette, Indiana 47907, or call him at Area Code 317 - 749-3579.

PURDUE UNIVERSITY
SCHOOL OF TECHNOLOGY
LAFAYETTE, INDIANA 47907

OFFICE OF MANPOWER STUDIES

Dear Sir:

You have been designated to help us in completing a Foreman Education and Training Needs Manpower questionnaire for your firm. Your participation in this statewide survey is welcome.

We know there are many problems in preparing qualified foremen in industrial firms such as yours - and in providing them with appropriate educational experiences to improve their effectiveness. We also recognize the responsibilities of State-supported educational institutions to provide the needed programs as resources may permit. Accordingly, this foreman educational and training needs study is being conducted. If a requirement is substantiated, we may be able to design a training program for professional foremen which is adaptable to the needs of individuals as well as firms.

This study is being made with the help of an advisory committee made up of various industry and academic representatives; in addition, membership includes The Indiana Manufacturers Association and the American Foreman's Association. Your opinions and questionnaire return are important.

Enclosed with this letter are the following; a Personnel or Training Director Questionnaire (gold), a number of Foreman Questionnaires (green), and an addressed return envelope. Please complete - or have completed - the Personnel or Training Director Questionnaire. Also, distribute the Foreman Questionnaires to all foremen if feasible. If this is not possible please have a typical foreman or a representative or cross-section group of foremen fill them out. (If you need more of these, please either request additional copies or duplicate the number you need.) We would appreciate if all completed questionnaires are returned before March 1, 1970. Your reply will be strictly confidential and treated in such a manner that data cannot be identified with any person or firm.

Your firm's willingness to cooperate and your individual efforts are significant parts of this study. Hopefully, working together, we can design and present the practical foremen education programs that are needed.

Sincerely yours,

J. P. Lisack, Director
and Associate Professor

Enclosures

JPL:dti

FOREMAN EDUCATION AND TRAINING NEEDS MANPOWER STUDY

PERSONNEL OR TRAINING DIRECTOR QUESTIONNAIRE

Please return by 1 March, 1970 to:
Professor J. P. Lisack, Director
Office of Manpower Studies, SCC–A
Purdue University
W. Lafayette, Indiana 47907

I. In my firm there are _____ (number) blue collar workers supervised by _____ (number) foremen.

II. Complete the following table as it may apply to *Programs Being Used Now*, and/or *New Programs Needed* for foreman education and training in your firm.

Training Programs for Foremen Check (√) *all* items that apply	Company Training Programs	College Credit Courses	Non-Credit Courses	Workshops or Seminars	Correspondence Courses	Other _____ (Identify)
		PROGRAMS BEING USED NOW				
Purpose of training Prepare new foremen						
Continuing training*						
Location of program In-plant						
Local						
Length of program (in weeks)						
Number of participants in program						
Program conducted during: Day						
Night						

		NEW PROGRAMS NEEDED				
Purpose of desired training Prepare new foremen						
Continuing training*						
Location of desired program In-plant						
Local						
Desired length of program (in weeks)						
Estimated number of participants						
Program desired during Day						
Night						

*Continuing training for foremen.

III. If programs were developed to meet your firm's needs for the education and training of foremen, would your firm help pay the cost of such programs (tuition, books, etc.) for participants? YES or NO (Circle one).

If YES, firm would cover costs – Fully _____, 3/4 _____, 1/2 _____, 1/4 _____. (Check one)

IV. Comments: (use reverse side if needed)

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Purdue University

FOREMAN EDUCATION AND TRAINING NEEDS MANPOWER SURVEY

FOREMAN QUESTIONNAIRE

We are trying to determine what kinds of training courses – designed for foremen – are desired. Please fill out and return this form, your advice as an active foreman is needed.

I. I have had _____ years experience as a foreman. I am _____ years old.
(number) (number)

II. I have completed the following education: (Circle year last completed)

Elementary School	High School				College				Grad Work	
1-8	9	10	11	12	13	14	15	16	18	19

III. Did you attend a program designed to train new foremen? YES or NO (Circle one)

IV. Major Areas of Work, Functions and Areas of Knowledge:

1. My current work is in the area of: (Check (√) one)

Quality control & inspection	_____	Purchasing	_____
Shipping & receiving	_____	Materials handling	_____
Production, planning & control	_____	Service (yard, etc.)	_____
Production (Actual)	_____	Maintenance	_____
Skilled trade	_____	Other (Please identify)	_____

2. The *three* most important functions of my job are: (Circle three letters)

a. Employee direction and supervision
b. Safety
c. Training
d. Labor relations
e. Production machinery: control, adjustment, set-up, etc.
f. Quality control and inspection
g. Costs and financial control
h. Other (Please identify) _____

3. I believe that I need additional knowledge in the following subject areas:
(Circle all letters that apply)

a. Communications (English composition, speech, report writing, technical drawing)
b. Human Relations (motivation, incentives, pride, teamwork, psychology, personnel problems)
c. Personnel functions (evaluation, labor relations, pay, promotion, safety)
d. Production Planning (planning, production and fabrication techniques, expediting)
e. Material Handling (plant layout, handling materials, planning, computer use)
f. Methods Improvement (organization, procedures, motion study, work methods and measurement)
g. Quality Control (Q. C. systems, sampling, cost analysis, statistics)
h. Other (Please identify) _____

Now please go back and put a line under *the one most important letter.*

4. I believe that the following subject areas of knowledge are *essential for beginning foremen.* (Circle all that apply

a. Communications (English composition, speech, report writing, technical drawing)
b. Human Relations (motivation, incentives, pride, teamwork, psychology, problems)
c. Personnel functions (evaluation, labor relations, pay, promotion, safety)
d. Production Planning (planning, production and fabrication techniques, expediting)
e. Material Handling (plant layout, handling materials, planning, computer use)
f. Methods Improvement (organization, procedures, motion study, work methods and measurement)
g. Quality Control (Q. C. systems, sampling, cost analysis, statistics)
h. Other (Please identify) _____

Now please go back and *underline* the *three most important letters.*

(over) 4242

V. If practical educational courses were developed to meet your continuing educational needs as a foreman, would you participate?

YES DEPENDS NO (Circle one)

1. If you answered YES or DEPENDS, please complete the following table as to the programs you would prefer:

Desired Foremen Training Check (√) *all* items that apply	Company Training Programs	College Credit, Courses	Non-Credit Courses	Workshops or Seminars	Correspondence Courses	Other _____ (Identify)
Kind of program(s) I would attend						
Desired location of program In-plant						
Local (In town)						
Tuition and cost of books Should be paid by foreman						
Should be shared (by firm)						
Program desired during Day						
Night						

2. If you answered NO, please explain: _____

_____.

VI. If a college-level (two year associate degree) program – designed specifically for professional foremen in your situation – were offered locally (limited college credit may be given for your experience, skills and knowledge):

Would you enroll? YES or NO (Circle one).

Would you be willing to do this on your own time? YES or NO (Circle one).

How many hours per week would you be willing to spend on class attendance and study? _____hours per week.

What portion of the program cost (tuition, books, etc.) would you be willing to pay?
Full _____, 3/4 _____, 1/2_____, 1/4 _____, None _____ (Check (√) one).

.. Do you have any comments or suggestions?

Please Return to:
Professor J. P. Lisack, Director
Office of Manpower Studies, SCC-A
Purdue University
W. Lafayette, Indiana 47907

4243

February 1970

APPENDIX V (IN EIGHT PARTS)

FOREMAN BACKGROUND, EDUCATION AND TRAINING NEEDS

(Regional Comparisons)

PART 1. AGE, EXPERIENCE AND EDUCATION

(Statistical Analysis)

AGE

I am _____ years old.
(number)

REGION	YEARS AVERAGE	YEARS MEDIAN	YEARS RANGE MAX.	YEARS RANGE MIN.	STANDARD DEVIATION	SKEWNESS	NUMBER FOREMEN
1	43.92	44	64	21	9.90	-.16	590
2	44.70	45	64	21	9.86	-.12	540
3	40.81	41	67	21	9.89	.14	835
4	40.50	39	64	22	9.75	.36	417
5	41.69	41	66	17	10.07	.11	1419
6	41.00	41	63	22	9.75	.05	436
TOTAL	42.02	42	67	17	10.02	.06	4237

EXPERIENCE

I have had _____ years experience as a foreman.
(number)

REGION	YEARS AVERAGE	YEARS MEDIAN	YEARS RANGE MAX.	YEARS RANGE MIN.	STANDARD DEVIATION	SKEWNESS	NUMBER FOREMEN
1	10.09	8	41	1	7.96	.90	588
2	10.92	8/9	45	1	8.68	.76	540
3	8.36	6	45	1	7.59	1.15	829
4	8.44	6	39	1	7.57	1.30	416
5	8.48	6	36	1	7.61	1.17	1416
6	8.82	6	41	1	7.50	1.12	435
TOTAL	9.02	6	45	1	7.84	1.08	4224

EDUCATION

I have completed the following education:

REGION	YEARS AVERAGE	YEARS MEDIAN	YEARS RANGE MAX.	YEARS RANGE MIN.	STANDARD DEVIATION	SKEWNESS	NUMBER FOREMEN
1	12.45	12	20	8	2.00	.24	587
2	12.02	12	19	6	1.73	.13	537
3	12.32	12	19	8	1.64	.50	835
4	12.20	12	19	6	1.70	.48	414
5	12.32	12	19	8	1.70	.57	1421
6	12.04	12	20	8	1.89	.38	436
TOTAL	12.26	12	20	6	1.76	.41	4230

Note: See Figure 1 on page 5 for Map of Regions. Region 1 is Calumet Region (Lake County); Region 2 is North Central; 3 is Northeastern; 4 is Lafayette; 5 is Central; and 6 is Southern Region.

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APPENDIX V (CONTINUED)

PART 2. MAJOR AREAS OF WORK

(Regional Comparisons)

My current work is in the area of:

MAJOR AREAS OF WORK		REGION 1	2	3	4	5	6	STATE
PRODUCTION (ACTUAL)	#	248	265	414	225	659	218	2029
	%	41.96	48.98	49.46	54.22	46.38	50.00	47.84
COMBINATION	#	65	96	85	40	162	59	507
	%	11.00	17.74	10.16	9.64	11.40	13.53	11.95
PRODUCTION, PLANNING & CONTROL	#	30	32	86	33	148	37	366
	%	5.08	5.91	10.27	7.95	10.42	8.49	8.65
QUALITY CONTROL & INSPECTION	#	42	44	47	36	161	22	352
	%	7.11	8.13	5.62	8.67	11.33	5.05	8.30
MAINTENANCE	#	83	21	36	18	80	26	264
	%	14.04	3.88	4.30	4.34	5.63	5.96	6.22
SKILLED TRADE	#	18	25	44	31	76	19	213
	%	3.05	4.62	5.26	7.47	5.35	4.36	5.02
SHIPPING & RECEIVING	#	43	21	55	15	50	15	199
	%	7.28	3.88	6.57	3.61	3.52	3.44	4.69
OTHER (PLEASE IDENTIFY)	#	39	24	28	11	62	23	187
	%	6.06	4.44	3.35	2.65	4.36	5.28	4.41
MATERIAL HANDLING	#	15	11	35	4	13	14	92
	%	2.54	2.03	4.18	.96	.91	3.21	2.17
SERVICE (YARD, ETC.)	#	8	1	6	2	10	2	29
	%	1.35	.18	.72	.48	.70	.46	.68
PURCHASING	#	-	1	1	-	-	1	3
	%	-	.18	.12	-	-	.23	.07
TOTAL NUMBER OF RESPONDENTS		591	542	837	419	1426	437	4252
NUMBER RESPONDING		591	541	837	415	1421	436	4241
PERCENT RESPONDING	%	100.0	99.80	100.0	99.00	99.60	99.80	99.70

APPENDIX V (CONTINUED)

PART 3. MOST IMPORTANT JOB FUNCTIONS

(Regional Comparisons)

The three most important functions of my job are:

MOST IMPORTANT FUNCTIONS		REGION 1	2	3	4	5	6	STATE
EMPLOYEE DIRECTION AND SUPERVISION	#	538	493	764	370	1300	387	3852
	%	91.03	90.96	91.61	88.31	91.29	88.97	90.74
SAFETY	#	422	233	417	191	745	232	2240
	%	71.40	42.99	50.00	45.58	52.32	53.33	52.77
TRAINING	#	202	246	335	201	574	221	1779
	%	34.18	45.39	40.17	47.97	40.31	50.80	41.91
PROD. MACH.: CONTROL, ETC.	#	182	205	264	128	366	112	1257
	%	30.80	37.82	31.65	30.55	25.70	25.75	29.61
QUALITY CONTROL AND INSPECTION	#	122	129	190	104	358	107	1010
	%	20.64	23.80	22.78	24.82	25.14	24.60	23.79
LABOR RELATIONS	#	89	99	192	85	344	76	885
	%	15.06	18.27	23.02	20.29	24.16	17.47	20.85
COSTS AND FINANCIAL CONTROL	#	71	87	127	61	259	49	654
	%	12.01	16.05	15.23	14.56	18.19	11.26	15.41
OTHER (PLEASE IDENTIFY)	#	48	50	69	26	104	27	324
	%	8.12	9.23	8.27	6.21	7.30	6.21	7.63
TOTAL NUMBER OF RESPONDENTS		591	542	837	419	1426	437	4252
NUMBER RESPONDING		591	542	834	419	1424	435	4245
PERCENT RESPONDING	%	100.0	100.0	99.60	100.0	99.90	99.50	99.80

APPENDIX V (CONTINUED)

PART 4. ADDITIONAL KNOWLEDGE NEEDED BY PRACTICING FOREMEN
(Regional Comparisons)

I believe that I need additional knowledge in the following subject areas:

ADDITIONAL KNOWLEDGE		REGION 1	2	3	4	5	6	STATE
HUMAN RELATIONS	#	384	351	613	301	1038	312	2999
	%	67.61	66.23	75.40	73.59	74.57	73.58	72.51
COMMUNICATIONS	#	318	308	448	216	827	245	2362
	%	55.99	58.11	55.10	52.81	59.41	57.78	57.11
METHODS IMPROVEMENT	#	276	258	430	204	762	197	2127
	%	48.59	48.68	52.89	49.88	54.74	46.46	51.43
PERSONNEL FUNCTIONS	#	258	223	369	171	646	188	1855
	%	45.42	42.08	45.39	41 81	46.41	44.34	44.85
PRODUCTION PLANNING	#	208	209	387	194	588	194	1780
	%	36.62	39.43	47.60	47.43	42.24	45.75	43.04
QUALITY CONTROL	#	139	140	191	99	373	96	1038
	%	24.47	26.42	23.49	24.21	26.80	22.64	25.10
MATERIAL HANDLING	#	145	118	218	87	261	102	931
	%	25.53	22.26	26.81	21.27	18.75	24.06	22.51
OTHER (PLEASE IDENTIFY)	#	25	15	22	11	41	15	129
	%	4.40	2.83	2.71	2.69	2.95	3.54	3.12
TOTAL NUMBER OF RESPONDENTS		591	542	837	419	1426	437	4252
NUMBER RESPONDING		568	530	813	409	1392	424	4136
PERCENT RESPONDING	%	96.10	97.80	97.10	97.60	97.60	97.00	97.30

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APPENDIX V (CONTINUED)

PART 5. ADDITIONAL KNOWLEDGE NEEDED BY BEGINNING FOREMEN
(Regional Comparisons)

I believe that the following subject areas of knowledge are essential for beginning foremen

ESSENTIAL KNOWLEDGE		REGION 1	2	3	4	5	6	STATE
HUMAN RELATIONS	#	565	520	814	405	1377	423	4104
	%	95.93	96.65	98.19	97.12	97.25	97.92	97.23
COMMUNICATIONS	#	485	451	663	321	1145	348	3413
	%	82.34	83.83	79.98	76.98	80.86	80.56	80.86
PERSONNEL FUNCTIONS	#	446	376	604	292	1059	336	3113
	%	75.72	69.89	72.86	70.02	74.79	77.78	73.75
PRODUCTION PLANNING	#	341	369	598	301	982	308	2899
	%	57.89	68.59	72.14	72.18	69.35	71.30	68.68
METHODS IMPROVEMENT	#	359	349	599	290	1005	280	2882
	%	60.95	64.87	72.26	69.54	70.97	64.81	68.28
QUALITY CONTROL	#	232	241	381	199	684	200	1937
	%	39.39	44.80	45.96	47.72	48.31	46.30	45.89
MATERIAL HANDLING	#	218	190	332	165	451	174	1530
	%	37.01	35.32	40.05	39.57	31.85	40.28	36.25
OTHER (PLEASE IDENTIFY)	#	16	12	35	12	37	12	124
	%	2.72	2.23	4.22	2.88	2.61	2.78	2.94
TOTAL NUMBER OF RESPONDENTS		591	542	837	419	1426	437	4252
NUMBER RESPONDING		589	538	829	417	1416	432	4221
PERCENT RESPONDING	%	99.70	99.30	99.00	99.50	99.30	98.90	99.30

APPENDIX V (CONTINUED)

PART 6. DESIRE TO PARTICIPATE IN CONTINUING EDUCATION

If practical educational courses were developed to meet your continuing educational needs as a foreman, would you participate?

EDUCATIONAL PROGRAMS		REGION 1	2	3	4	5	6	STATE
YES	#	339	357	477	239	893	254	2559
	%	57.40	65.90	57.00	57.00	62.60	58.10	61.10
DEPENDS	#	192	138	271	137	427	144	1309
	%	32.50	25.50	32.40	32.70	29.90	33.30	31.30
NO	#	52	38	76	26	90	38	320
	%	8.80	7.00	9.10	6.20	6.30	8.70	7.60
TOTAL NUMBER OF RESPONDENTS		591	542	837	419	1426	437	4252
NUMBER RESPONDING		583	533	824	402	1410	436	4188
PERCENT RESPONDING	%	98.60	98.30	98.40	95.90	98.90	99.80	98.50

PART 7. ASSOCIATE DEGREE FOR PROFESSIONAL FOREMEN (PROPOSED)

(Regional Comparisons)

If a college-level (two-year) program - designed specifically for professional foremen in your situation - were offered locally... would you enroll? n = 3,827

		REGION 1	2	3	4	5	6	STATE
YES	#	341	353	482	247	913	256	2592
	%	63.40	72.30	64.50	65.20	71.10	65.60	67.70
NO	#	197	135	265	132	372	134	1235
	%	36.60	27.70	35.50	34.80	28.90	34.40	32.30
NUMBER RESPONDING		538	488	747	379	1285	390	3827

Would you be willing to do this on your own time? n = 2,510

YES	#	296	322	439	219	835	225	2336
	%	89.20	94.20	93.00	94.40	94.00	92.20	93.10
NO	#	36	20	33	13	53	19	174
	%	10.80	5.80	7.00	5.60	6.00	7.80	6.90
NUMBER RESPONDING		332	342	472	232	888	244	2510

What portion of the program cost (tuition, books, etc.) would you be willing to pay?

FULL	#	25	26	41	16	80	9	197
	%	7.55	7.58	8.84	6.87	9.12	3.66	7.90
3/4	#	1	3	4	4	8	5	25
	%	.30	.87	.86	1.72	.91	2.03	1.00
1/2	#	128	175	218	112	418	110	1161
	%	38.67	51.02	46.98	48.06	47.66	44.71	46.55
1/4	#	66	71	93	49	189	68	536
	%	19.94	20.70	20.04	21.03	21.55	27.64	21.49
NONE	#	111	68	108	52	182	54	575
	%	33.53	19.83	23.27	22.32	20.75	21.95	23.06
NUMBER RESPONDING		331	343	464	233	877	246	2494

APPENDIX V (CONTINUED)

PART 8. RESULTS OF CHI-SQUARE CONTINGENCY ANALYSES

EXPERIENCE

A chi-square contingency analysis was used to study the Regional relationships (differences) which might exist between the number of years of experience of foremen in the six regions.

Regional relationship was found significant at the $\alpha = .01$ level.

Region 1 - is characterized by having the lowest percent of its foremen in the state with five or less years of experience (39%), and the second highest percent of its foremen with eleven or more years of experience (39%). The intermediate range is near the state average. The most significant contributor to chi-square occurs for the first year foremen; this region has the second lowest percent of its foremen (11%) in the state having only one year experience.

Region 2 - is characterized by having the second lowest percent of foremen in the state with five or less years of experience (40%), the lowest percent of foremen with more than five but less than or equal to ten years of experience (18%), and the highest percent of foremen with eleven or more years of experience (42%). In addition, this region has the highest percent of foremen with more than twenty years of experience (15%). The most significant contributor to chi-square are as follows: First, for over twenty-five years of experience, this region has considerably more than the state average; and Second, for the first year foremen, this region has the lowest percent of its foremen (10%) as first year men in the state.

Region 3 - is typical of the overall state picture. One half of all foremen in this region have five or less years of experience. The most significant contributor to chi-square occurs for the first year foremen. This region has the highest percent in the state of its foremen (20%) as first year men.

Region 4 - is typical of the overall state picture. Nearly half of all foremen in this region have five or less years of experience. This region has the highest percent of its foremen (24%) with more than five but less than or equal to ten years of experience. The most significant contributor to chi-square occurs for the sixth year foremen; this region has the highest percent in the state of its foremen (8%) as six year men.

Region 5 - is typical of the overall state picture. One half of all foremen in this region have five or less years of experience. The most significant contributor to chi-square occurs for the second year foremen; this region has the highest percent in the state of its foremen (10%) as second year men.

Region 6 - is typical of the overall state picture. Nearly half of all foremen in this region have five or less years of experience. This region has the lowest per cent in the state of its foremen (8%) with more than twenty years of experience. The most significant contributor to chi-square occurs for the over twenty-five years of experience foremen; this region has the lowest per cent (2.5%) in the state of its foremen in this category.

EDUCATICNAL LEVEL

A chi-square contingency analysis was used to study the relationships (differences) which might exist between the education levels of foremen in the six regions.

Regional relationship was found significant at the $\alpha = .01$ level.

Region 1 - is characterized by fewer foremen having attained the 11th and 12th grade educational level, and more foremen having completed the second year of college than the state average. The most significant contributor to chi-square occurs for the educational level of college graduate or better (this region has the highest percentage in the state (11%) of its foremen at this level).

Region 2 - is characterized by having more foremen with 10th, 11th, and the second year of college levels than the state average. The most significant contributors to chi-square occur for the following educational levels: First, for the 6th thru 8th grade level, for which this region has considerably more than the state average. The most significant contributor to chi-square occurs for the educational level of 6th thru 8th grade for which this region has considerably more than the state average. Second, for the college graduate level, for which this region has fewer than the state average.

Region 3 - is typical of the overall state picture. The most significant contributor to chi-square occurs for the educational level of 6th thru 8th grades for which this region has the lowest percentage in the state (2.2%).

Region 4 - is typical of the overall state picture. The most significant contributor to chi-square occurs for the 11th grade educational level for which this region has the highest percentage in the state (6.5%).

Region 5 - is also typical of the state picture. The most significant contributor to chi-square occurs for the 6th thru 8th grades for which this region ranks second lowest percentage-wise in the state (2.3%). This region has 8.5% of its foremen with a college degree or better, ranking second in the state in this respect.

Region 6 - is characterized by having fewer foremen with the second year of college educational level than the overall state; - it ranks lowest with 4.6%.

WILLINGNESS to PARTICIPATE in CONTINUING EDUCATION

A chi-square contingency analysis was used to study the Regional relationships (differences) which might exist between those responding YES or DEPENDS to the question, "If practical educational courses were developed to meet your continuing educational needs as a foreman, would you participate?" and those responding NO.

Regional relationship was found significant at the $\alpha = .10$ level. Foremen in region five were more likely to answer YES or DEPENDS at somewhat a higher percentage of the time (94%), whereas foremen in region three were more likely to answer YES at a slightly lower percentage (91%) - the remaining regions taking intermediate percentage positions. Nevertheless, large majorities of foremen in every region responded YES or DEPENDS. (The value of chi-square is insignificant at $\alpha = .05$ or $.01$)

TWO-YEAR ASSOCIATE DEGREE

A chi-square analysis was also used to study the Regional relationships which might exist between those responding YES to the question, "If a college-level (two year associate degree) program - designed specifically for professional foremen in your situation - were offered locally (limited college credit may be given for your experience, skills and knowledge) -- Would you enroll?" and those responding NO.

Regional relationship was found significant at the $\alpha = .01$ level. Foremen in regions two and five were more likely to answer YES a higher percentage of the time (72% and 71% respectively); whereas foremen in regions one and three were more likely to answer YES at slightly lower percentages (63% and 64% respectively) -- regions four and six taking intermediate percentage positions. Nevertheless, majorities of foremen in every region responded YES.

APPENDIX VI

DETERMINATIONS OF ADEQUACY OF SAMPLE SIZE & CONFIDENCE LIMITS, AND EXPANSION TO THE STATE UNIVERSE

(Statistical Treatments)

Part 1

Determination of Sample Size for Binomial Questions:

(1) Willingness of Foremen to Participate in Training Programs, and
(2) Desire to Participate in Associate Degree Program for Professional Foremen - Would You Enroll?

Applicable Binomial Sampling Formula*:

$$n = \frac{t^2PQ/d^2}{1 + 1/\hat{N}((t^2PQ/d^2 - 1))}$$

Identification:

n = sample size required - ?
d = margin of error chosen - $\pm$ .02
$\hat{N}$ = estimated total number of foremen in state - 50,000
t = normal deviate (K_4) for the 99% point - 2.57
P = percentage of positive response
Q = percentage of negative response

Question:	P	Q	Required Sample Size	Sample Obtained	%
Desire Continuing Education	.910**	.090	1316	4188	Adequate
Desire Associate Degree	.610**	.390	3368	3827	Adequate
Any Binomial Categorization*** (in questionnaire)	.500	.500	max 3813	n 4252	Adequate

*For those readers interested in a thorough derivation and discussion of these formulae, consult Chapter 4 and 13 of Sampling Techniques, second edition, by William G. Cochran, John Wiley & Sons, Inc., publishers, 1967.

**These percentages are conservative since all non-responses to these questions for any foremen questionnaire received was considered a NO response. Thus, for continuing education the percentage 91% is used instead of 92.4%, and for the associate degree 61% rather than 67.7%.

***The sample required for a binominal with P = Q = .50 always requires the largest sample size (given equivalent parameters in (1)), since PQ is maximum at this point.

APPENDIX VI (CONTINUED)

Part 2

Determination of Confidence Limits for Percentage Response - Non-Response and Expansions to the Universe for Binomial Questions:
(1) Willingness of Foremen to Participate in Training Programs, and
(2) Desire to Participate in Associate Degree Program for Professional Foremen - Would You Enroll?

Applicable Binomial Confidence and Expansion Formulae*:

$$\hat{P}_{u_L} \pm \left[t\sqrt{1-n/\hat{N}}\sqrt{PQ/(n-1} + 1/2n \right] \qquad (2)$$

$$\hat{P}_{uw} = W_1(P + B^*) + W_2(P_1)$$

$$\hat{P}_{Lw} = \underbrace{W_1(P - B^*)}_{\text{Response}} + \underbrace{W_2(P_2)}_{\text{Non-response}}$$

$$\hat{A}_{u_L} = \hat{P}_{u_L}\hat{N}$$

$$S(\hat{A}_{u_L}) = \sqrt{\frac{\hat{N}(\hat{N}-n)}{n-1}\hat{P}_{u_L}\hat{Q}_{u_L}}$$

Identification:

$\hat{P}_{u_L}$	=	upper and lower (resp.) percentage confidence limits	- ?
t	=	normal deviate (K_α) for the 99% point	- 2.57
n	=	sample size obtained (see Part 1 above)	
$\hat{N}$	=	estimated total number of foremen in state	- 50,000
P	=	percentage of positive response	
Q	=	percentage of negative response	
$\hat{P}_{uw}$	=	upper and lower (resp.) percentage confidence limits weighted by percentage response W1 and non-response W2 with various assumptions P1 and P2 about the non-response sub-population	- ?
B^*	=	99% confidence term as computed	
$\hat{A}_{u_L}$	=	upper and lower (resp.) confidence limits for expansion to the universe	
$S(\hat{A}_{u_L})$	=	standard deviation for upper and lower confidence limits for expansion to the universe	

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*For those readers interested in a thorough derivation and discussion of these formulae, consult Chapter 4 and 13 of Sampling Techniques, second edition, by William G. Cochran, John Wiley & Sons, Inc., publishers, 1967.

**These percentages are conservative since all non-responses to these questions for any foremen questionnaire received was considered a NO response. Thus, for continuing education the percentage 91% is used instead of 92.4%, and for the associate degree 61% rather than 67.7%.

APPENDIX VI (CONTINUED)

DISCUSSION OF WEIGHTING FACTORS W_1 & W_2

(Applies to Foremen Returns Only)

The weighting factors applicable to the response, non-response partitions of the Foremen Educational and Training Needs Manpower Questionnaire are derived based on the following: First, all firms not responding (and their respective foremen) were considered as firms employing foremen belonging to the unsurveyed population of foremen. Second, firms responding (returning managements' questionnaires) were initially mailed 4,742 foreman questionnaires. Third, firms partially responding by returning their management questionnaire, but not returning at least one foreman questionnaire, were considered as representing another piece of the unsurveyed population of foremen (170 foremen questionnaires had been sent to these firms). Fourth, firms responding and returning at least one foreman questionnaire (defined as "totally responding" firms) were considered to be firms employing the surveyed population of foremen; thus, 4,572 questionnaires had been sent to such firms - (4,742 less 170 = 4,572). Fifth, since the number of foremen questionnaires had been recorded prior to mailing, a check of those returned versus those mailed gave the actual non-response of the surveyed population of foremen from totally responding firms to be 1,238. Sixth, the number of foremen questionnaires returned from the 4,572 mailed to totally responding firms was thus 3,334 (4,572 less 1,238 = 3,334). Seventh, by tally there were 918 additional duplicated questionnaires received from the totally responding firms. Lastly, there were 4,252 foremen questionnaires returned. Therefore, the weighting factors applicable to the response, and non-response partitions are as follows:

$$\text{Response} \quad W_1 = \frac{3334}{4572}$$

$$\text{Non-Response} \quad W_2 = \frac{1238}{4572}$$

The response weight thus is the ratio of the number of foremen questionnaires returned (non-duplicated) by totally responding firms to the total number of questionnaires as mailed to these firms; whereas, the non-response weight is the ratio of the number of foremen questionnaires unreturned by totally responding firms to the total number of questionnaires mailed to these firms.

APPENDIX VI (CONTINUED)

Question: Willingness of Foremen to Participate in Training Programs (P = % YES + DEPENDS)

Confidence Level	Confidence % Term B*		Percentage P Confidence Limits: Unweighted	Assumption P_1=.25, P_2=.75	Assumption P_1=.10, P_2=.90	Assumption P_1=0.0, P_2=1.00	
.95	.0275	$\hat{P}_u$	.937	.847	.927	.954	$\hat{P}_{uw}$
		$\hat{P}_L$	.883	.711	.671	.644	$\hat{P}_{Lw}$
.99	.0361	$\hat{P}_u$	.946	.893	.934	.961	$\hat{P}_{uw}$
		$\hat{P}_L$	.874	.705	.664	.637	$\hat{P}_{Lw}$
Applicable Equation			(2)	(3)	(3)	(3)	

Confidence Level		Expansion To Universe Confidence - Limits: Simple Expansion	$S(\hat{A})$		Assumption P_1=.25, P_2=.75	$S(\hat{A})$	Assumption P_1=.10, P_2=.90	$S(\hat{A})$	Assumption P_1=0, P_2=1.0	$S(\hat{A})$
.95	$\hat{P}_u$	46,874	±167	$\hat{P}_{uw}$	42,332	±267	46,367	±192	47,721	±154
	$\hat{P}_L$	44,126	±245	$\hat{P}_{Lw}$	35,562	±335	33,531	±348	32,177	±354
.99	$\hat{P}_u$	47,304	±179	$\hat{P}_{uw}$	44,649	±229	46,680	±184	48,034	±192
	$\hat{P}_L$	43,696	±238	$\hat{P}_{Lw}$	35,249	±337	33,218	±349	31,864	±356
Applicable Equation		(4)	(5)		(4)	(5)	(4)	(5)	(4)	(5)

Question: Desire to Participate in Associate Degree Program for Professional Foremen - Would You Enroll? (P = % YES)

Confidence Level	Confidence % Term B*		Percentage P Confidence Limits: Unweighted	Assumption P_1=.25, P_2=.75	Assumption P_1=.10, P_2=.90	Assumption P_1=0.0, P_2=1.00	
.95	.0149	$\hat{P}_u$	.625	.659	.699	.726	$\hat{P}_{uw}$
		$\hat{P}_L$	.595	.502	.461	.434	$\hat{P}_{Lw}$
.99	.0195	$\hat{P}_u$	.630	.662	.703	.730	$\hat{P}_{uw}$
		$\hat{P}_L$	.590	.498	.458	.431	$\hat{P}_{Lw}$
Applicable Equation			(2)	(3)	(3)	(3)	

Confidence Level		Expansion To Universe Confidence - Limits: Simple Expansion	$S(\hat{A})$		Assumption P_1=.25, P_2=.75	$S(\hat{A})$	Assumption P_1=.10, P_2=.90	$S(\hat{A})$	Assumption P_1=0, P_2=1.0	$S(\hat{A})$
.95	$\hat{P}_u$	31,243	±376	$\hat{P}_{uw}$	32,937	±368	34,968	±356	36,322	±346
	$\hat{P}_L$	29,757	±381	$\hat{P}_{Lw}$	25,084	±388	23,053	±387	21,699	±385
.99	$\hat{P}_u$	31,476	±375	$\hat{P}_{uw}$	33,107	±367	35,138	±355	36,492	±345
	$\hat{P}_L$	29,524	±382	$\hat{P}_{Lw}$	24,914	±388	22,883	±387	21,529	±384
Applicable Equation		(4)	(5)		(4)	(5)	(4)	(5)	(4)	(5)

APPENDIX VII

SUMMARIES OF COMMENTS MADE BY FOREMEN

There were 821 comments written by foremen in letters and on the questionnaires. Five hundred thirty-one of these comments were from foremen who said Yes to the question asking if they desired to continue their education, 247 said Depends, and 43 said No. Very strong support was indicated for the associate degree with attendant suggestions on program content, instruction, and sharing costs. Problems and reasons why some foremen did not want to participate were explained.

There were also some excellent general comments made by foremen and personnel & training directors which appear to be useful in planning.

The comments received are presented in five parts as follows:

Part 1. Summary of foremen's comments concerning continuing education.

Part 2. Summary of comments of foremen NOT desiring to continue their education - classified by age, experience and educational level.

Part 3. Suggestions on Associate Degree Program content.

Part 4. Burden of program costs.

Part 5. Foremen commentaries.
(General, Program Contents and Instruction, the Associate Degree Program, and Other).

APPENDIX VII (CONTINUED)

PART 1. SUMMARIES OF FOREMEN'S COMMENTS CONCERNING CONTINUING EDUCATION

Categories of Related Comments as Pertain to:	Ques. V* Total Answered	YES Question VI-a** Yes	No	N/R	DEPENDS Question VI-a** Yes	No	N/R
Approve of associate degree program	116	89	7	2	14	4	-
Suggestions on program content - practical, relevant, qualified instructors	88	51	17	2	13	4	1
Program cost - company and/or foreman?	88	57	8	1	18	2	2
Work schedule problems - make regular participation difficult	82	39	-	1	28	8	6
Programs or courses in which participation is underway or already completed	67	22	14	7	6	15	3
General favorable philosophical commentaries	63	41	7	2	7	6	-
Suggestions on program location and/or time of meeting	36	18	4	-	13	1	-
Company training programs desired	29	11	5	1	6	5	1
Diminishing benefits from participation due to age or retirement plans	23	2	5	-	3	12	1
Seminars or workshops favored	21	10	4	1	3	2	1
On-the-job training favored	18	6	4	1	1	5	1
Limited time available	15	7	-	2	5	-	1
Suggest questionnaire changes	12	6	-	-	2	3	1
Time constraint may hinder participation	12	4	-	1	-	6	1
Master's degree programs favored	12	1	6	1	-	3	1
Recommendations on company policy	10	6	3	-	-	1	-
Consider themselves adequately qualified	9	-	4	-	1	4	-
Would participate in courses related to present work area	7	4	1	-	1	1	-
On-the-job experience key to foremanship	6	2	1	-	1	1	1
Correspondence courses favored	5	3	2	-	-	-	-
Family obligations hinder participation	4	2	-	-	1	1	-
Participation contingent upon advancement	4	4	-	-	-	-	-
Other	51	28	5	4	7	8	4
Total Comments	778	408	97	26	130	92	25

*Ques. V. If practical educational courses were developed to meet your continuing educational needs as a foreman, would you participate?

**Ques. VI-a. If a college-level (two year associate degree program) designed for professional foremen were offered locally (limited college credit may be given for your experience, skills and knowledge): Would you enroll? YES, DEPENDS, or NO

APPENDIX VII (CONTINUED)

PART 2. SUMMARY OF FOREMEN'S COMMENTS WHO DO NOT DESIRE TO CONTINUE THEIR EDUCATION

(Classified by Average Age, Experience and Educational Level in Years)

Categories of Related Comments as Pertain to:	Question V-2* Total	$\bar{x}$ Age	$\bar{x}$ Exper.	$\bar{x}$ Educ.**	Sample n
Consider themselves too old to participate in any educational programs	99	55.3	18.2	11.2	98
Retirement plans imminent	88	58.7	19.1	11.3	81
Time constraints prevent participation	44	47.3	11.8	11.1	41
Consider themselves adequately qualified	28	50.2	17.8	11.8	24
Not interested in any educational programs	18	42.3	10.0	12.6	15
Other obligations hinder participation	11	49.3	15.9	10.9	10
Would participate if younger	10	56.3	18.4	12.0	8
Health reasons	5	52.5	20.5	10.8	4
Commuting distance prevents participation	3	48.7	13.0	10.7	3
Other	30	-	-	-	-
Total responses	336				284
Weighted averages		53.7	17.0	11.3	

*Ques. V-2;"If practical educational courses were developed to meet your continuing educational needs as a foreman, would you participate? (2) If you answered NO, please explain:"

**Education in years.

APPENDIX VII (CONTINUED)

PART 3. SUGGESTIONS ON ASSOCIATE DEGREE PROGRAM CONTENT

Design Program to Include and/or Develop:	Number
Courses that are practical, down-to-earth, not theoretical	14
A technical-option; allowing individuals to select a technical area of their interest or need.	11
A staff of qualified, experienced instructors	8
Interesting class techniques; student participation, case method, role playing, etc.	6
A program providing opportunities for higher education and/or advancement	4
A committee with industrial representatives to structure the program	3
Total	46

Program Should be Structured to Contain Specific Courses in:	
Human relations	21
Communication skills	11
Personnel and/or administrative functions	9
Labor relations	6
Contract interpretation	6
Management supervision	3
Fundamental disciplines - English, Math, etc.	3
Safety - first aid	3
Production control	2
Other	16
Total	80

PART 4. BURDEN OF PROGRAM COST

	Company Should Pay Full Cost	Willing to Share Costs
If company stands to benefit	12	9
If course is completed satisfactorily	9	1
If course is job-related	3	1
Totals	24	11

Nine foremen wrote they were willing to pay all costs,
Six said they would pay for books and materials only.

PART 5. FOREMEN COMMENTARIES

Comments are arranged in five sections as follows:
I. General, II. Program Content & Instruction, III. Associate Degree Program, IV. Program Costs and V. Other.

I. General Comments

"Educational courses help keep a person's mind alert and the alertness of a foreman is very important. Also, it appears that the job of a foreman is becoming more and more each day a technical art; therefore, requiring special training. Further, I believe the person who is not willing to give a little of his own time in order to improve himself is likely not willing to help improve the company he works for. Management development courses along with experience and self determination help make a good foreman."

"Some type of program is needed for foreman training. The days of moving a man up from the ranks to a foreman's job is past. The foreman today must be a personnel man, a manager of costs, and a man capable of such things as organizing a maintenance program, and installing routine checks for his men for a preventative maintenance program."

"I have found that previous courses I have attended have been of little or no value due to the following: (1) They tried to cover too many fields or industries in one class, (2) The instructors had little or no actual experience, (3) The classes dealt mainly in theory with no practical background."

"The importance and responsibility of a foreman today is much greater than it has ever been, and will be more so in the future. He is not only dealing with people, but he has budgets, costs, method improvements, and the planning of his and his people's work to a much greater degree. I feel a good foreman is one of the unsung heros of industrial management."

"I have attended a few seminars. They were good for the larger plants with larger departments where it is practical to have various programs with enough personnel to carry them through. For a small plant (in quantity of people), where you are scratching for time and qualified personnel to keep up with production requirements, needed maintenance and improvements, I have received little help."

"Participation in educational programs depends upon how much time is available. When working a lot of overtime, or involved in other activities, educational commitments can become a burden and oftentimes little is accomplished."

"I am of the opinion that one is never too old to learn more about his job. The more education and instruction one has - the greater the opportunity to acquire a better understanding of the problems involved in your field of endeavor."

"There is a definite need for training courses that could move men into first-line supervision. There is a serious shortage of capable young men who want to become foremen. Trade schools and others must recognize that there are potential rewards for those who want to start at the bottom as leaders."

"I believe a man's ability to understand and gain the respect of all the people he comes into contact with on his job is most important. His ability to adapt to change, I feel, is the second most important. Also, one should work toward gaining knowledge of his job."

"Companies spend many thousands of dollars training new young employees. Certainly seems reasonable that older employees should participate when training is needed."

General Comments (Continued)

"Past experience indicates that in-plant courses are of very questionable value due to the ease of interuption. (sic) Short duration courses (1-2 weeks) either on campus, or at least away from the plant have proven much more valuable."

"One trait all supervisors need is self-confidence. Any program which can increase this is greatly needed."

"A better method of picking and training men for future foremen is important. 'You can't make a silk purse out of a pigs ear'."

"There is no substitute for education. With this rapidly changing world, we must keep in step with progress."

"My personal observations of other young foremen indicate that without the prerequisite of 'Personal Desire,' education and training is of little value."

"Select foremen and supervisors on ability and performance more than anything else. Training can be given as required, but ability (character, personality, etc.) cannot."

"Foremen should have more responsibility. Foremen should have more prestige."

"You never stand still. New ideas and techniques are always good. They keep a person from being routine."

"Supervisors must continue to learn new methods. In today's product departments, to stand still is to lose ground."

"Any degree of education never comes too late. As long as there is a future, there is need to learn."

"Training programs should be a permanent process; they should not start, stop, and start again."

II. Program Content and Instruction

"1. The promotion to a line foreman position should be contingent upon a minimum educational requirement of two years of Purdue University courses.
2. All maintenance foremen should know c rtain phases in expediting, namely:
   a) How to originate a purchase order, and the follow-thru involved.
   b) How to originate a shop order, and follow up.
   c) Know procedures so time and materials can be charged out properly.
3. Learn how to get a job done without having to use the superintendent's name in vain.
4. Know how to handle on-the-job grievances, especially those involving safety and health."

"A foreman's training should include 10% to 20% from technical areas and the remaining time should be directed toward human understanding. We should investigate the effects of positive and negative attitudes, and how attitude may be influenced. Foremen should understand the importance of adding value to people. I would even recommend that we investigate the possibility of practical application, such a philosophy as Emerson's essay on the "Law of Compensation," moreover, that we offer college courses on success motivation, and how to deal successfully with people."

"I think it would be hard to develop a single training program that would help all foremen - because each has different needs."

Program Content and Instruction (Continued)

"I feel the type of training should follow the industrial engineering angle (time study, cost build-up, etc.), and human and employee relations. Technical skills will have to be acquired from practical experience, as most foremen jobs are quite diversified as to production procedures, equipment, and responsibilities. A course such as this should be offered to persons already selected as potential foremen, and not offered as a regular college course. The people who deserve consideration are already working for the company; otherwise, would remove the possibility for promotion within the company."

"A college program should train a person to be practical, logical, capable of selecting the best solution from several alternatives, and proficient in establishing work priorities for himself and subordinates. I feel the academic environment is too idealistic in some aspects and oftentimes produces an individual either unable or unwilling to accept the practical, sink or swim industrial world."

"The most important element of supervision is a foreman's relationship to his men from a human relations standpoint; that is, his ability to deal with the everyday problems that arise. His knowledge of the technical side of his job should be assimilated thru the years."

"In my years of service since the age of 13, I have worked in several diverse fields, and the most glaring deficiency which I have encountered is a general inability of people to accurately express their true desires or intentions. Industry as a whole would benefit from a program that would teach people to express their wants and needs in an explicit and precise manner to the extent that one could be certain what, when, and in what order, things were expected to be started and finished."

"The item most lacking for foremen at the present time is education geared for on-the-job benefit. The two areas most lacking in the present average foreman's education are human relations and labor relations."

"Design some type of course utilizing actual case studies as they pertain to foremen. Let foremen have discussions and share ideas as well as experiences."

"The management courses I have attended in past spent too much time on definitions and 'eye wash.' Most of the practical information came from fellow students. Management is not, in my opinion, an exact science, so a certain set of facts do not always lead to the same answer."

"I feel there should be a course in people liking. This course should be on getting along with everybody, anywhere, anyplace. Too many people are motivating people by putting fear in place of leadership. You can drive a man just so long, and then he rebels or quits."

"In the past 17 years, we have had too much repeat on some programs. Review is good, but has been dry in some cases. Actual brush-up and keeping up with the latest information can be done with a good monthly booklet covering areas such as objectives, safety check-ups, work I.Q., success tips, penny savers, etc. Let's not spin wheels."

"Our modern industrial organizations require supervisors who are trained by educational courses designed to cover the important phases of their responsibilities."

"I believe any foreman would jump at the chance to develop his mind in areas that pertain to his job, such as contract, cost, dealing with people, safety, and quality."

Program Content and Instruction (Continued)

"Any program should follow the 'K.I.S.S.' principal: 'Keep it simple, stupid.' - No offense."

III. Associate Degree Program

"I think it is essential that credit toward a degree be considered, because several courses that have been taken in the past have not helped those of us to gain credit toward gaining our degree. In today's world a degree is a must it seems, and people working full-time have very little opportunity to complete one."

"I feel that this survey hits on some very essential categories required by first line foremen. Practical studies related to (my company's) operations would be very helpful. Line production can make a man become too involved in his own particular area and problems; thus, losing sight of the overall picture. An open mind makes for better supervision. Self improvement will give the foreman pride and confidence in himself. Knowing a company is concerned with its first line foremen, and their individual problems is conducive to good relations."

"Section VI on the Associate Degree is the most important part of this questionnaire. I feel that many successful foremen have little if any college education, and that the success they have to a certain extent is due to their having been an hourly worker. This background experience added to the successful completion of the course described here could well produce a professional foreman."

"Foremen are among the poorest trained of all skilled professional groups. There must be incentives to learn, and the proper place to start is within the organization. It is the organizations responsibility to train, not the academician's."

"I believe an industry experienced instructor or experienced foreman should do the teaching - not an instructor who has spent his life teaching school. One needs an instructor who really understands the problems of a foreman."

"I believe this is a good approach. This has been a neglected field for a long time, and help is needed to give foremen a better understanding and insight into the area they are trying to operate; also, into the obligation they owe their company, themselves, and the people they direct."

"Throughout my 28 years as a supervisor I have gone thru many, many training programs both in-plant and outside. Each program has been a tremendous aid to me in working with people. Every new supervisor should be encouraged to do the same. It will make his work much easier and enjoyable."

"I feel there are many capable, qualified foremen, or potential foremen who are restricted in advancement due primarily to lack of an educational degree. A program such as indicated by this questionnaire should be beneficial to correct this condition."

"I believe a program of this nature would be of great value. So many times an employee gets promoted to supervision, and then there is no place to go. This extra training could be of value to a person."

"More programs for professional supervisors need to be made available. Too often the supervisor is left to fend for himself and learns too little, too late."

Associate Degree Program (Continued)

"I hope this is given a lot of consideration as it is a very good idea. There is too much left to find out the hard way on a foreman's job."

"I believe that a formal training program for foremen is a much needed program because of our changing and complex society and workforce."

"Definitely a good idea - badly needed!"

IV. Program Costs

"If necessary to get further education, I would pay whatever amount the company agreed on; however, with my four children in school, I'm in no position to lay out a lot of money. It takes every cent I make to support my family, and I couldn't and wouldn't let them go without. I could pay a few dollars from my paycheck weekly, over a period of time, to reimburse the cost involved to get more education. This would help me get a better job in the firm, since I have willpower, knowledge, and backbone to work hard and help myself along."

"I believe it would be to the firm's benefit if it would share, or pay for the cost involved. If the foreman paid for the program himself, he would in all probability use the added education to better himself with another organization. It is my contention that the company that shows intent promotes motivation, enhances its production, and tends to give more stability to its program."

"It is my belief any program of this type would benefit the foreman, but in large degree the company would reap the results in a more knowledgeable and effective worker. The capabilities having already been recognized, the foreman would then assume a more meaningful purpose, and the company would gain because of its investment."

"While many people would be willing to participate even with no credit, on their own time, and at their own expense; I believe a sharing of expenses with some recognition for participants would benefit the company and encourage more people."

"These programs benefit the company as well as the employee. If the company doesn't think enough of us to spend some of its time and money - why should we? We have precious little time to ourselves as it is!"

"The company should be more aware of those foremen interested in finishing their education. Helpful not only by paying all or part of the tuition, but also in scheduling, so that individuals could attend evening classes."

V. Other

"Much of a foreman's job depends on his personality, but there are many things that he must learn from training and experience. Good training would shorten the time it normally would take for an individual to attain the status of an effective foreman."

"My answers to question VI on advancing my education would only apply if I was certain that promotion would be a reasonable expectation after successful completion of the program. I am a female in an occupation normally performed by males. At the present time I have been advised, that even though I have been and am now above average in job performance, it is unreasonable for me to expect promotion above foreman classification. So, I would not invest either time or money in such a program."

APPENDIX VIII

COMMENTS AND SUGGESTIONS OF REPRESENTATIVES FROM INDIANA FIRMS

PART 1. TYPICAL COMMENTS WRITTEN IN LETTERS & NOTES

"We are very interested in your project to design a professional foreman training program for the benefit of supervisors in industrial firms such as ours. All of the foremen contacted expressed a definite desire to participate in the type of educational program outlined in your letter. We would appreciate receiving additional information concerning this project as it becomes available. In the meantime, if we can provide further information or comment, please call on us."

"Perhaps the briefest and most significant comment would be to suggest that I wish such a curriculum were available here in Lancaster. I think that you are to be commended for establishing such a unit of study and for attempting to have it meet the needs of the people that you would 'teach.' Thank you for sharing your plans with us and we hope that you will do so again once your program is complete. Thank you very kindly for your efforts in our behalf."

"Your work in this area is of interest to us. If we can be of assistance in future research, we will be happy to participate."

"Our management group is interested in your survey. We appreciate the opportunity to participate in this Foreman Education and Training Needs Manpower Study."

"If we can be of further assistance in these matters please contact us."

"Our supervisors are, for the most part, young and relatively new at supervising. The offering of any courses for furthering their education and understanding of this type work would be of great benefit to them."

"My experience goes back 20 years as a line foreman and I can agree with all four of your findings. The magic of the word 'degree' benefits all members of supervision to desire the same, yet as you point out in two, they are busy, busy men. Your plans sound excellent. Especially interesting is your plan to test previous experience and knowledge of foremen towards credit. My idea is that you have a wonderful plan -- a big need -- foremen are in dire need of status. College kids are quite frank in saying 'I want no part of the job.' Management persists in placing more and more emphasis on engineering and taking front line supervision more and more for granted. I often wonder where our top supervision of 1980 is coming from. Your program may supply the answer. I sincerely hope so!"

"We are most impressed by the potentials of the courses you're putting together for first-line supervisory personnel. Please let us know in what way we can assist in bringing this program to fruition in the Indianapolis area."

"The report only reenforces my contention that a need truly exists for additional training of first-line supervision. While Purdue University should be congratulated for having the foresight to develop the degree program in Industrial Supervision, this program does not solve the problem of upgrading current supervisors. I believe your two year associate degree program would help fulfill these training needs. We would be especially interested if the program were available on the Indianapolis Campus. We would appreciate being kept informed on your progress towards establishing the associate degree program and if we can be of any future assistance please feel free to call upon us."

"I was glad to learn of your efforts towards the establishment of a degree program for foremen in Indiana industries and assure you we will be glad to work with you and Purdue University on this development. I look at this project as a tremendous incentive to people in industrial supervision. It will create a goal heretofore practically out of reach and thus should lead to improved supervision."

"We concur with the continuing need to design and implement effective first-line supervisor educational and training programs. If there are further questions or if we may be of further assistance to you in your efforts relative to the above, please feel free to contact any of our training organization personnel."

"We stand ready to help you in any way we can and we hope we can look to you for help in the future."

"Please note all foremen place a great deal of stress for the need in training in Human Relations and Personnel functions. We would be interested in learning more about your program as it develops."

"We are quite interested in training programs for front line supervisors. Would you please advise us as to what progress has been made and when you hope to offer a course of study."

"In response to your letter dated June 5, we are enclosing the attached completed questionnaires as you requested. We would be very interested in any programs you may develop in our local area, particularly along the lines indicated on the back of the training director questionnaire. Please keep us informed of any developments."

"We have reviewed your letter outlining plans for a state-wide survey on educational needs of foremen. This appears to be a very worthwhile project in which our corporation would like to participate."

"Your comments relative to the various courses essential to formal foreman training program, coupled with the flexibility of supplemental modules, is very interesting and certainly would be an area that we would want to consider."

"We were happy to work with you and invite you to contact me, if we can be of further service."

"Your inquiry into foreman training needs is greatly appreciated. The principal latent needs of today's foreman is the ability to motivate those working for him. We can provide the training in the nonhuman business and technical aspects confronting a foreman. However, we desperately need your help in the motivation area."

"I am looking forward to reviewing any program which results from this study. If I can be of any further assistance, feel free to contact me."

"We appreciated being a part of this survey and if we can be of any further assistance, please let us know."

"If we can be of any further help to you on this, please do not hesitate to contact us."

"We hope this helps you in your state-wide survey. If we can be of further assistance, please feel free to contact us."

PART 2. COMMENTS WRITTEN ON QUESTIONNAIRE FORM RETURNS

Sixty-three firms wrote special comments on their questionnaire returns. The majority of these statements concerned the fact that foreman training was a very important consideration, and although some training opportunities were available and being used, much more needed to be done. Nineteen firms explained their educational refund policies - which paid all or most of the tuition and books costs; eleven pointed up the need for programs to be job-related to foremen work areas and responsibilities, and that the company should be part of planning program content and structure; seven indicated the need for local programs - and consideration of foremen who work on swing or nite shifts; five said they preferred seminars and workshops, and four wrote they preferred to train their foremen on-the-job. Interest was expressed in an associate degree program emphasizing courses in communications, production planning and control, budgets and cost control, labor relations; opinions were expressed that these courses should be presented in a practical, down-to-earth manner.

Typical comments which best reflect the major ideas are presented below:

"Our foremen have been encouraged to attend local universities which offer courses in job related fields. Full tuition reimbursement is a company benefit for all salaried personnel. The company training programs are conducted to keep all supervisors abreast of current industrial topics such as labor laws, safety, and recently settled arbitration cases. The purpose of these programs is to keep all supervisory personnel well informed relative to problems and patterns of today's highly complex industrial society. Any new program which may develop from this survey would, in all probability, be used by this company whenever feasible."

"Our company would pay cost fully if the cost was reasonable, and the participant satisfactorily completed the course. A pro-rata cost sharing plan would also be considered based upon grade level attained in such courses."

"Our firm would pay the entire cost/participant if the course was sponsored by Purdue. This would satisfy the requirements of our tuition-aid plan. This would hold true only if the per credit hour charge was equal to or less than the regular charge, currently $25/cr.hr. As a training director, it is my opinion that we need your help in developing programs which will up-grade our supervisors skills in communication, problem-solving, planning-organizing and the entire human relations field."

"Our type industry does not call for highly educated Foremen. However, orientation or basic coverage of important areas is very desirable."

"We are very much in favor of working with Purdue to develop an associate degree program for our supervisors."

"I would like to see an associate degree program or a series of job related training courses for foremen set up on a merry-go-round schedule after hours at the local high school, college, or Ivy Tech. I think your green question form lists good subject matter under items 3 & 4, but I would add 'budgets and cost control' as a subject area. I hope your survey proves the need for this type of training. In a small plant with

limited need for new foremen it is hard to develop and present a good training program covering the many areas of a foreman's job. I feel there is a need that can be satisfied by outside training, and I hope your survey will agree."

"The length of programs will of course vary based on subject matter, degree of difficulty and type presentation. We could, I feel, adjust to these conditions."

"Credit and non-credit courses, we would consider both - not more than two classes a week. The length of courses desirable would not exceed two months on this basis, and be at other than company time."

"Workshops requiring group involvement and interaction on company related problems would be most desirable."

"Seminars of a one day type would fit best on Saturdays during the months of November, December, January, February and March."

"I think the best program for foremen is to look at a successful one man owner of any kind of business - why does it work? First of all it's his money he's fooling around with - so if you are successful you had better do things right or your money goes down the drain. Too many foremen who have no stake other than being foremen can never have this feeling because they will work around the small problems until they are large ones - if they owned that small problem they would get it picked now. This may not be of much help, but I think it is the best road to follow if possible."

"We would be interested in various training programs; mainly local, as we can't spare the men to attend courses away from home unless they were intensified short courses lasting three days or less. Night courses would be best for local use although if the value of the course justified excusing a foreman from work, we would arrange for it. Workshops and seminars are best for us; although, it is possible our younger men would be interested in credit and correspondence courses."

"I feel that we, like many other companies, train our foremen on a hit and miss basis. There is need for a planned program that would run continually with supplemental courses to keep the foremen upgraded after completing the program. Besides supervisory training, if is difficult to find training in the technical fields. I am referring to the plastic industry. We have twenty-eight injection molding machines, and design and build our molds and special machines."

"I wish very much that a training program could be set up in our area with evening classes. We have two young fellows (and myself) who would be happy to attend. Anything usually offered is a 40 to 60 mile drive, and this is no good. This is a town of 18,000 population with an excellent college, but we never seem to develop anything along this line. Wish we could."

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School of Technology, SCC-A
Purdue University
Lafayette, Indiana 47907

Office of Manpower Studies
Director, Professor
J. P. Lisack

Manpower Report — Title

65-3 - Technician-Level Educational Planning for the Chemical Technology in Indiana, 20 Oct., 1965. Examines industries related to the Chemical technology. Presents scientists, engineers, and technicians as a percent of total employment in major industries. Explains methods of computing technician requirements by industry and locale. Includes occupational titles and sample chemical technology.

66-1 - Technician-Level Educational Planning in the Greater Lafayette, Indiana Area, Concerning the Electrical/Electronic Technology, January, 1966. Determines numbers of technicians needed annually in industries employing electrical/electronic type technicians. Examines ten year trends in local employment and projects requirements into future. Discusses occupations concerned, orientation of educational programs, curricula, and collateral items.

66-2 - Employment Trends in Five Indiana Counties, 1 Feb., 1966. Presents population and employment trend data for significant industries to facilitate technical education and facilities planning. Compares county and state data.

66-3 - Occupations, Qualifications, and Areas of Work in Architectural, Construction and Related Fields for Jobs Above the Skilled Craftsman Level, 10 March, 1966. Describes selected occupations to assist faculty concerned with determining requirements for and objectives of related educational programs. Occupational titles, definitions and qualifications are shown with required education, vocational preparation, and aptitudes.

66-4 - Foundry Technicians and the Foundry Industry in Indiana, 30 March, 1966. Examines the foundry industry, manpower requirements, and the kind of educational program needed - for foundry technicians. National manpower factors are corroborated in a survey of 125 Indiana foundries: survey respondents' opinions of educational needs (by subjects and courses) are included.

66-5 - Employment Trends and Technician Needs in Wayne County, Indiana, "The Richmond Study," 4 April, 1966. Determines kinds and numbers of technicians needed for preliminary educational program planning. Presents economic, manpower and employment trends data as well as listings by location and description of products of the more important industries. Describes methods used.

66-6 - Methods and Rationale for Determining Technician-Level Manpower Requirements by Locale - and for a Specific Industry, 20 July, 1966. A general review of sources of manpower data, ratios, factors, and methodology related to computation of estimates of technicians for industries or for a given locale.

66-7 - Selected Technical Education Needs in Howard County, Indiana, "The Kokomo Study," 1 August, 1966. Examines manpower, industry and economic factors to identify kinds and levels of post-high school technical educational programs that may be needed. Presents results of survey wherein the needs for these identified programs are verified. Describes methods and instruments used.

66-8 - Selected Manpower and Employment Data for Delaware County, Indiana and Six Contiguous Counties, 15 August, 1966. Compiled to assist in broad initial planning for establishing regional educational and training programs. State and regional population; employment, wage and industry data; and manpower factors are included.

66-9 - Region One Manpower Study. (N.W. Sector of Indiana) 18 October, 1966. This report is a projection - ten years into the future - for seven counties. It includes estimated changes in employment by industry and changes within occupational groups. Has special notes on needs for initial and continuing education, and on rising hiring standards.

66-10 - Manpower and Training Needs in Fluid Power, 30 November, 1966. Contains (1) Specific manpower requirements at five occupational levels in fluid power technology - with factors applicable to various major industry groups; (2) Types of educational courses needed; (3) The depth of understandings required at each occupational level in fluid power courses, and supporting technical and other courses; (4) Comments of representatives from Indiana industries. Includes methods and questionnaire used.

67-1 (Indianapolis); 67-3 (Calumet); and 67-4 (Fort Wayne) - Manpower Requirements for Industrial Illustrators and Draftsmen, (thru August, 1967). A series of reports for metropolitan areas indicated containing: (1) Background data re needs, employment, and salaries of technicians and draftsmen; (2) Occupational descriptions, qualifications, education and training; (3) Results of surveys to determine current and future needs and training program information; (4) Discussion of the impact of future technological changes on the drafting processes - and their effects on draftsmen qualifications. The hypothesis is made - and proven - that greater work complexity and advances in technology affecting the drafting processes, have made the utilization of Tracers less profitable; Job entry level is moving to the higher level of Detailer with better educational preparation.

67-2 (Indianapolis); 67-5 (Calumet); 67-6 (Fort Wayne); 68-1 (Kokomo) - Computer and Electronic Data Processing Manpower Requirements, (thru March, 1968). Reports results of research and surveys for metropolitan areas indicated concerning: (1) Background info re computers; (2) Job descriptions and qualifications of 23 computer and EDP occupations; (3) Numbers of people employed, current job vacancies and projected requirements; (4) types of equipments and nature of computer applied functions; (5) Training and educational programs; and (6) Ratios of computer jobs to total employment and job categories.

67-7 - Requirements for Personnel Staff Members and Supervisors, 28 December, 1967. Report contains factors - or ratios - of personnel staff members to total employees in each industry group. The past, present, and projected ratios and trends are developed for first-line supervisors (viz. foremen):

e.g. In 1952, there were 29 employees for each supervisor,
in the early 60's there were 20 employees per supervisor,
in 1967, there were 18 employees per supervisor, and
by 1972, there may be only 15 employees per supervisor.

The annual recurring losses, growth factors, and educational ramifications are described. Factors are applied to industries in the Northeast Region of Indiana.

68-2 - Indiana's Need for Assistants in Veterinary Medical Practice, 15 May, 1968. Study points out the needs for, identification of, description, education and control of auxiliaries to the professional veterinarian. Results of a survey of all practicing veterinarians in Indiana are presented. Report includes: (1) Titles, descriptions, duties and qualifications of animal technicians, small animal hospital attendants, livestock health attendants, and others; (2) The numbers of these auxilaries now employed, current job vacancies, and future requirements; (3) Salary and training matters; (4) The need for licensure or registration, and methods to be used; (5) Comments of veterinarians; and (6) Related Conclusions and Recommendations.

68-3 - Study of Computer Use in Medium-sized Manufacturing Firms, 1 August, 1968. This study examines the utilization of computers by medium-sized manufacturing concerns engaged in the fabrication of non-durable materials or light weight durable materials. Sampling techniques were used to acquire data from companies throughout the U.S. and a five-state midwest region by mail, plus a telephone interview with a special sample of midwest companies. The study includes: usage of EDP equipment, utilization by functional areas, estimated efficiency and dollar return on computer investment, manpower requirements and training and salary matters, major problem areas encountered and summaries of the survey findings. A review of pertinent literature is also reported in the study.

68-4 - A Proposed Land Surveyor Baccalaureate Program and the Need for Land Surveyors in Indiana, 15 September, 1968. The purpose of this study is to provide data and recommendations concerning land surveyors in Indiana. This report contains the types of surveying services performed, present employment, job vacancies, and the projected requirements for land surveyors. Data was acquired through questionnaires sent to all County Surveyors, the State Highway Commission and other government offices, to private practice surveying firms, and to selected firms in industry. The study establishes that substantial present and projected needs exist for land surveyors, and provides data and information useful for related curriculum development.

A proposed baccalaureate curriculum designed for professional land surveyors is included. Survey respondents indicated a favorable attitude towards the proposed program, gave some constructive suggestions, and indicated they were willing to hire graduates at reasonable salaries. The requirements for State registration of professional land surveyors are also discussed.

69-1 - Manpower Requirements for Pollution Control and Water Resources in Indiana and a Related Pollution Control Technology Curriculum, 24 Feb., 1969. Indiana is no different than most States in the need to cope with mounting problems in air and water pollution control, liquid and solid waste disposal, water resources and allied fields. At the core of many of these problems is the lack of engineers, professionals in physical and life sciences and technicians: this study identifies these occupations and presents current employment and job vacancies, and projected requirements. Manpower data is obtained through an extensive survey of manufacturing industries, water and wastewater plants, government and educational agencies. The hypothesis is made that a single curriculum of selected technical courses is common to a variety of related technician-level occupations. A proposed two-year associate degree program for pollution control technology and survey respondents' reactions to the curriculum, their willingness to hire graduates, and estimated salary information are included. Related matters of technician examination, certification or registration are discussed.

69-2 - Air Traffic Control and Flight Service Specialists in Indiana, 23 June, 1969. Describes duties and functions of these specialists, working conditions, and current and projected requirements. Discusses need for providing a sufficiently broad educational base to assure continuing job proficiency and professionalism, ability to apply latest technological developments, and to advance or move successfully into other related occupations. Provides recommendations for educational program development.

69-3 - The Case for Library Technical Assistants and Library Clerks in Indiana, 18 September, 1969. The purposes of this study were to identify the roles of these supportive personnel (as approved by the American Library Association), to determine their acceptance by practicing professional librarians, and to ascertain the present and projected needs in the school, public, college/university, and special libraries in Indiana. Study includes estimated monthly salaries, certification matters, courses needed in training programs, and related views of librarians. Data were obtained from extensive surveys: study was conducted under auspices of a professional library advisory committee.

70-1 - Indiana High School Seniors Class of 1969, Their Educational and Vocational Plans, 30 April, 1970. This study presents the results from questionnaires returned by more than 46,500 seniors' who reported their plans after graduation from high school. Included are the type of high school programs they were enrolled in and their grade average, the size of the communities they live in, the occupation and educational level of the head of household, and the vocation or profession they hope to enter. Also shown are their plans for school or employment immediately after graduation, when they made their choices and who influenced them most. Comparisons of selected variables and inter-relationships (such as grade average vs. educational or employment plans) are included.

70-2 - Foremen in Indiana Industries, Their Characteristics, Work Functions and Training Requirements, 30 October, 1970. The purposes of this study are to identify some key characteristics concerning foremen which include:

Their years of experience as foremen, their age, and educational level;
Their current areas of work and the most important functions of their job;
The subject areas where they need additional knowledge (training);
The subject areas they believe are essential in the training of new foremen;
What kinds of courses they would participate in, how much time they would be willing to spend, and what portion of costs they would be willing to pay.

The study also verifies ratio of workers to foremen, as well as the types of foremen training programs now being used - and new programs needed - as reported by Indiana firms. The willingness of firms to participate in planning and sharing costs for specific types of foremen training programs are presented. The basis for a unique, flexible two year associate degree program for professional foremen is developed in this study, which recognizes the different requirements of various firms and foremen.

Data were acquired thru an extensive State-wide survey with questionnaire answers and suggestions from more than 4,000 individual foremen and 325 firms of various sizes in all industries. This study was conducted with the assistance of the Indiana Manufacturers Association, the American Society of Foremen and members of an advisory committee made up of representative foremen and managers in industry and educators.

NOTE: Copies of these reports are available for $1.75 per copy* (Indiana Government and Educational Offices exempted). Please make check payable to Purdue University.

*Reports dated in 1969 or earlier are $1.50 per copy.

ATTACHMENT B

GENERAL BIBLIOGRAPHY OF SUPERVISOR AND MANAGEMENT REFERENCES WITH SYNOPSES

"The Industrial College Consortion" by George P. Sweeney, AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT JOURNAL, September 1968.

Discusses the need for the development of two-year industrial associate degrees. Flexible system of granting credit, examination & experience, should be developed.

"College-Level Examinations" AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT JOURNAL, June 1967.

Credit by examination concept which permits granting college credit for proficiency in subject fields. Living experience can receive formal credit without the need for formal study or attendance at classes.

"College for Adults" by J. E. Burkett, AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT JOURNAL, May 1968.

Regrets over not ever having gone to college seem to become more widespread as people grow older. Few institutions offer degree programs for the part-time student. The University of Oklahoma has developed a Bachelor of Liberal Studies Degree for part-timers. Credit given for experience. Twenty per cent of student body made up of business & industry men.

"Three R's Ain't Enough" STEEL, August 18, 1969, Vol. 165 No. 7, pp. 36-38.

Managers need more education, but it's a problem at 40. John Carroll University in Cleveland offers two-year degrees for businessmen. Use pass-fail system. Tells of need in Nation to pull up the non-college managers.

"Foremen: Get the Best, Motivate Them" by Dr. Robert N. McMurry, IRON AGE, Nov. 27, 1969.

If managers want strong foremen, they must change their ideas about the type of person the job demands. Plans must be made to enroll him in a comprehensive training program for first-level supervision. Subject matter would include (1) function of supervision (2) nature scope & authority of position (3) job organization and work flow (4) production planning (5) job costing and record keeping (6) safety (7) techniques of supervision (8) principles of leadership (9) motivation and (10) communications problems.

"White-Collar Training Takes Many Forms" AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT JOURNAL, Vol. 23 No. 4, April 1969, pp. 16-26 (A Study 1968) by Sharp & Oughton, Inc., Kenilworth, Illinois.

Findings: The principle forms of instruction in management training are case studies, lectures, and discussion groups. Most organizations stress five major areas: 90% had communications and human relations and 70% had decision making, problem making and planning. Eight hundred organizations were in the study.

"Executive Development Programs: What the Colleges Offer" Personnel Management Abstract, Vol. 14 No. 3, Spring 1968, p. 19.

This article lists and describes all in-residence executive development programs offered by the Nation's colleges and universities. They concentrate heavily on planning & profit control, decision making, communications & handling people.

"College for Adults" by J. E. Burkett, AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT JOURNAL, May 1968.

Correspondence programs are gaining wide favor in colleges and universities across the country. Many such studies are now available to non-resident adults.

"Why Management Development Programs Go Wrong" by Daniel M. Glasner, PERSONNEL JOURNAL, Vol. 47 No. 9, September 1968, pp. 655-659.

Reasons for less than adequate results: (1) unsympathetic environment (2) inadequate planning (3) poor selection (4) failure to consider individual and (5) poor techniques.

"Using Line Instructors for Organization Development" by R. Blake and J. Mouton, AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT JOURNAL, March 1966.

The question of who should be the instructors of the workers is answered in this article. Competent line managers make best instructors; comprehension is expanded; sensitivity increases.

"Higher Education for the Executive Elite: by Stanley C. Vance, CALIFORNIA MANAGEMENT REVIEW, Vol. VIII, No. 4, Summer 1966, pp. 21-30.

On the basis of a number of recent surveys, the executive higher education situation is discussed in the following areas: academic patterns, specific school ties, patterns in industry, patterns in directorate types, and graduate degree trends. Studies providing new data tend to corroborate the contention that success in business is closely correlated with education.

"Management Training Trends" ADMINISTRATIVE MANAGEMENT, Vol. XXVIII No. 2, February 1967, pp. 16-20.

Western Michigan University surveyed 75 companies:

1. 45% of companies used formal training; 33% informal.
2. On-the-job training, discussion & job rotation most popular internal techniques.
3. 89% of companies used college placement.

"Whose Responsibility Is Training?" by Don L. Kirpatrick, Ph.D., AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT JOURNAL, Vol. 21 No. 3, March 1967, pp. 22-25.

Contends: The training needs of a department should be determined by the supervisor in charge.

"The Supervisors' Role in Counseling" by M. E. Knowles, AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT JOURNAL, Vol. 21, April 1967, pp. 50-54.

A supervisor should be taught how to recognize behavior problems. Also he must be adequately training in counseling.

"Analysis of In-Company and Out of Company Educational and Training Practices for Clerical Workers of Leading Firms in the Greater Boston Area" by Eleanor H. Tedesco, DISSERTATION ABSTRACTS, Vol. 28, Sec. A., No. 7-9, p. 3388, 1968.

Some Conclusions: (1) Many companies that conduct formal training programs do not utilize research methods in planning & developing their programs and do not evaluate and follow up their efforts, (2) 47 programs studied focus upon worker's or individual company's immediate training needs rather than helping employee prepare for job advance or for meeting long range company goals.

"An Industrial Evaluation of Four Strategies of Instruction" by Paul G. Watson, AUDIO-VISUAL INSTRUCTION, Vol. 13 No. 2, 1968, pp. 156-8.

A scientific study pre-post testing, attitude questionnaire. Group discussion was very popular with the 200 supervisors surveyed.

"How Can More Unemployed Older Workers Be Trained" TECHNICAL AND VOCATIONAL EDUCATION IN CANADA, No. 10, Fall/Winter 1966-7, pp. 4-7.

Examines reasons for the disproportionally small number of men over 35 who begin new training programs. Reasons are analyzed in terms of difficulty it presents to older trainee. Points out that obstacles are much less of a barrier than popularly believed.

VT 012 455
Robertson, Von H.
Evaluation of Summer Vocational Classes for High School Students at Utah Technical College at Provo and in Alpine, Nebo, and Provo School Districts 1964-1969. Final Report.

Utah Research Coordinating Unit for Vocational and Technical Education, Salt Lake City.
Office of Education (DHEW), Washington, D.C. Bureau of Research.
MF AVAILABLE IN VT-ERIC SET.
OEG-4-7-063046-1612 08
BR-6-3046
PUB DATE - Jan70 37p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *PROGRAM EVALUATION; *OPINIONS; STUDENT OPINION; *PROGRAM EFFECTIVENESS; HIGH SCHOOL STUDENTS; *FOLLOWUP STUDIES; CAREER CHOICE; CHANGING ATTITUDES; STUDENT ATTITUDES

ABSTRACT - To evaluate the effectiveness of this technical college summer vocational program as offered for high school students, a survey was made of graduates, parents, and school administrators. Of the 991 students contacted, 393 responded to the questionnaire, and of those, 273 stated that the classes should be continued at the technical college. Also, 109 reported that the training had influenced their choice of careers. The parent survey indicates that the summer program developed more mature attitudes in the students while the administrators felt the school districts should have the prerogative of providing this instruction. Close cooperation between the technical college and district high schools in planning future summer vocational programs was recommended. (JS)

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FINAL REPORT

Project No. 603046
Grant No. OEG-4-7-063046-1612

EVALUATION OF SUMMER VOCATIONAL CLASSES FOR HIGH SCHOOL STUDENTS AT UTAH TECHNICAL COLLEGE AT PROVO AND IN ALPINE, NEBO, AND PROVO SCHOOL DISTRICTS 1964-1969.

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The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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I. INTRODUCTION

A. Statement of the Problem

With the approval of the State Board for Vocational Education and some financial assistance, the Utah Technical College at Provo offered summer vocational classes to high school students beginning in 1964, in cooperation with the school districts of Utah County and the Tintic, Juab, and Wasatch School Districts. High school students were given the opportunity to enroll in six weeks of summer vocational classes in a variety of fields. This summer offering continued through 1967 with reported enrollments averaging 273 students per year. In 1968 the school districts offered the program at their own centers. Enrollment dropped from 276 to less than 97. In 1969 the offering was transferred back to the Utah Technical College, however, enrollment did not reach 100 in the summer of 1969.

The experience of the four years of summer classes at the technical college and the marked decline in enrollment in the 1968-69 summers raised questions as to the need for, or the continued effectiveness of the summer vocational classes for high school youth. To arrive at a perspective of this experience and to determine attitudes of students and parents, and results of the summer training, is the problem of this study.

B. Purpose of the Study

It was proposed in this study to determine as nearly as possible specific reasons for students enrolling in the summer vocational classes; to follow up on those who graduated from high school and determine if the vocational classes had any impact on their choice of career, their subsequent education, or their ability to get and hold jobs; whether there was some economic value in the return on funds expended as indicated by the reactions of students and parents who had participated in the program. The final purpose was to determine if this program should be continued with State support.

II. METHOD

Three major actions were designed to take place in the evaluation:

A. By questionnaire to accumulate data on all students enrolled in the summer vocational classes at the Utah Technical College during the summers of 1964-67 and the summer of 1969 and gather similar data on all students attending summer vocational classes in the school districts of Utah County during the summer of 1968. Included, also, were students who might have enrolled from Tintic, Juab, and Wasatch Districts or elsewhere.

B. To obtain the reaction of parents of at least one-half of the students enrolled as to the effectiveness of the summer vocational

classes at either the technical college or in the high schools in assisting their youth to obtain jobs, to improve their educational situation, or to assist in choosing careers.

C. By interview and discussion with superintendents of the school districts, high school principals, local directors of vocational education and administrative personnel at the Utah Technical College, arrive at some conclusions as to the economic, social, and educational values of the summer vocational classes.

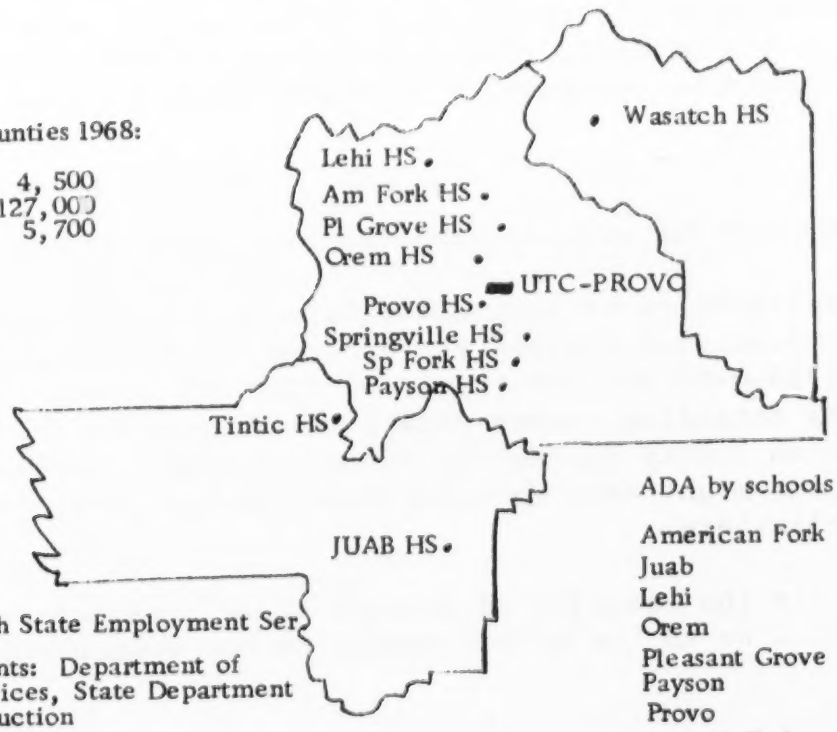
When these data were secured they were tabulated, intepreted, and recorded with recommendation to the State Board for Vocational Education as to the effectiveness of the program, its impact on students and parents in the communities concerned, and whether or not it should be continued, either at the technical college or in the high schools of Utah County.

D. Identification of the Population to be Studied

The population to be studied in the evaluation was composed of high school students who attended summer vocational classes at the Utah Technical College in 1964 through 1969, and those who attended these classes at Alpine, Nebo, and Provo district centers in 1968, together with their parents and the administrators of those school districts and the Utah Technical College at Provo. The student population surveyed in the summer vocational classes was 1,039, the parent population was 918, husband and wife counted as one. Included in each population are students and their parents who enrolled at the Utah Technical College at Provo from Juab, Tintic, and Wasatch high schools. Not more than five enrolled from other areas of the State. The map below shows the geography of this population, county population estimates, and the 1967-68 high school enrollments.

Population of counties 1968:

JUAB	4,500
UTAH	127,000
WASATCH	5,700



ADA by schools 1967-68

American Fork	612
Juab	329
Lehi	536
Orem	1,534
Pleasant Grove	765
Payson	538
Provo	1,495
Spanish Fork	701
Springville	689
Tintic	59
Wasatch	389

Population: Utah State Employment Ser

School Enrollments: Department of Auxiliary Services, State Department of Public Instruction

III. PREPARATION OF QUESTIONNAIRES AND INTERVIEW GUIDE

A. Student Questionnaires

Student questionnaires were prepared specifically inviting those surveyed to provide name, sex, high school attended, age when enrolled in the summer vocational class, year of high school graduation, continued education, employment (whether part-time or full-time), whether or not the summer vocational class influenced choice of career or occupation, or assisted in getting a job, and whether or not the summer vocational class influenced choice of career or occupation, or assisted in getting a job, and whether or not his educational program was changed as a result of attending the summer vocational class. They were asked, also, to identify as many as five reasons for attending the vocational class, and as many as five results of the class as to later education, occupation, or career choice. The questionnaire asked whether the students would prefer to attend vocational classes at the high school or at the Utah Technical College in Provo. (See Appendix I)

B. Parent Questionnaires

The parent questionnaire asked parents to state whether or not their students chose to enroll in the summer vocational class or were influenced by parents or others; whether or not they were counseled as to choice of class to take, or made their own choices; and whether or not, in the parent's opinion, the program assisted their student in selecting an occupation, selecting further education, getting a job, improving attitudes towards work, or improving study habits. Parents, also, were asked to state a preference as to the Utah Technical College at Provo or the local high school as the center for summer vocational classes. Finally, they were asked to state whether or not they would be willing to pay a fee of $15.00 to $25.00 for their students to attend the summer vocational classes. The questionnaire provided, also, for parents to comment as they chose. (See Appendix II)

C. Interview Guide

The interview guide for use with school administrators was designed to elicit somewhat different information. They were asked to state their opinions as to the purposes served by the summer vocational program in such areas as making up credit, occupying time, giving guidance experience, improving work habits, providing vocational instruction, or other reasons. They were asked, also, if these purposes could be served better at the high school or at the technical college. Inquiry was made as to problems inherent in sending students to the College, and if these or other problems were inherent conducting the same program in the high school. They were asked generally to express reactions as to the economic, social, vocational, and educational values of the summer high school programs and whether or not they should be continued either at the high school, at the technical college or both. (See Appendix III)

D. Validation of Questionnaires

The student and parent questionnaires were tried out in ten personal interviews with students and ten with parents to determine whether or not they elicited the information desired. They were then edited, reorganized and mailed to the selected list. The interview guide for school administrators was developed after interviews with principals and directors of vocational education. The principal investigator prepared the questionnaires and guide, did the personal interviewing, and prepared the final forms; he also conducted all personal and telephone interviews in the study.

E. Response to Questionnaires--Students

A first mailing of 1,039 questionnaires was sent to students:

1964	Classes -	220	1967	Classes -	220
1965	"	200	1968	"	92
1966	"	210	1969	"	97

Of these questionnaires 48 were undeliverable because of migration, death, or inadequate address; seven were returned from persons listed erroneously, leaving an actual working population of 991.

During the period scheduled for return of student questionnaires only 25 percent came in. Eighteen days from the first mailing 751 follow-up questionnaires were mailed. These brought some response, though not in numbers hoped for. Forty five days from the first mailing of student questionnaires there was a 35 percent return.

First mailing, October 18, 1969 - 1,039
Second mailing, November 12, 1969 - 751

Responses - 25 % November 16, 1969 - 245
Responses - 35.6% December 3, 1969 - 361
Responses - 39.1% December 19, 1969 - 389

Final total includes 33 persons contacted by telephone and ten interviewed in person.

F. Response to Questionnaire--Parents

Questionnaires were mailed to 461 parent homes about October 22. Selection was made by addressing questionnaires to parents of alternate students on the mailing list. On November 20, and additional 457 questionnaires were mailed to different parents. Responses show:

First mailing, October 22, 1969 - 461
Second mailing, November 20, 1969 - 457

Responses - 26.7% November 16, 1969 - 123
Responses - 29.0% December 3, 1969 - 266
Responses - 29 % December 19, 1969 - 267

Final total includes four persons contacted by telephone and ten interviewed in person.

G. Technique for Sampling Non-Responders

The chief investigator sampled non-responders by taking each twentieth name on this list and contacting the person by phone. When no contact could be made with reasonable effort, another name was drawn and the procedure continued until 23 persons had been reached.

H. Interviews with Administrators

Using the interview form as a basis the chief investigator discussed the survey and evaluation informally with:

UTC at Provo - President and summer school director.							
Alpine S.D. - Superintendent and local director of vocational ed.							
Nebo HS	"	"	"	"	"	"	"
Provo " "	"	"	"	"	"	"	"
Lehi " "	Principal	"	"	"	"	"	"
American Fork HS	"	"	"	"	"	"	"
Pleasant Grove HS	"	"	counselor				
Orem High School	"	"	"				
Provo " "	"	"	"				
Springville "	"						
Spanish Fork HS	"						
Payson HS	"						

Total interviews: 13

I. Other Sources of Data

1. Comments of parents and students was the chief "other" source of data. Most parent questionnaires and some student questionnaires returned carried opinions and comments on the summer vocational classes. The substance of these additional findings is summarized in four areas:

a. Favorable to summer classes ---------- Strongly - 75%
   Prefer Utah Technical College ---------- " - 73%
b. Favorable to summer classes ---------- Passive - 12%
c. Think programs should be kept in the high schools - Strongly - 2%
d. Think high schools and Utah Technical College
   both should offer summer vocational classes ------- Passive - 6%

(See Appendices V and VI)

2. Evaluations of counselors, teachers, and administrators of the Charlotte/Mecklenburg Public School System, Charlotte, North Carolina, are a source of information on a similar program conducted in 1968. In a "Description of a Vocational Education Summer School Program in the Charlotte/Mecklenburg Public Schools-1968" educational personnel working in two district vocational centers reported their reactions to

summer vocational classes for high school students. Excerpts from this report are given in Appendix VII. Conclusions of this study are:

a. Students will participate during the summer months in well planned vocational programs.

b. Summer vocational education programs are an effective use of students' and teachers' time, school facilities, and equipment.

c. Students who might not enroll in a vocational program during the regular school year will enroll for such training during the summer months.

d. Students in summer vocational courses can be expected to have a high attendance record.

e. All summer school vocational education program enrollees can be expected to profit from exploratory experiences provided by the training. Some also gain at least minimum entry level skills in some areas. Those with previous vocational training can be expected to increase their competencies.[1]

IV. SURVEY FINDINGS

The findings of the questionnaire survey of students and parents, and the interviews, personal and telephone, with students, parents, and school administrators follow in tables one through eight.

Table 1 - Enrollment of High School Students in Summer Vocational Classes, 1964-69. This table shows the number in each class for each year as reported on student questionnaires, compared with the numbers enrolled as shown on registration cards at the technical college and the high schools. The average percentage of returns on the questionnaires is approximately 40 percent. From this chart it may be inferred that auto mechanics, business classes, and electronics are most in demand as summer high school classes. These are followed by health occupations courses (pre-nursing, nurses aid, dental assistant), and commercial art. Carpentry, drafting, interior decorating, retail merchandising, and driver education were low on the preferred list of summer high school students. In several classes questionnaires were returned when no registrations were shown. These students attended other summer school classes than those listed for the high schools.

Table 2 - Number and Percent of Responses to Questionnaires to Students and Parents. Names of 1,039 registered students were secured from registration records of the Utah Technical College at Provo and

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[1]Joseph R. Clary and William J. Brown, Jr., Description of a Vocational Education Summer School Program in the Charlotte/Mecklenburg Public Schools, 1968.

Table 1

ENROLLMENTS OF HIGH SCHOOL STUDENTS IN
SUMMER VOCATIONAL CLASSES, 1964-1969 AT UTAH TECHNICAL COLLEGE AT PROVO
AND UTAH COUNTY SCHOOL DISTRICTS, INCLUDING JUAB, TINTIC, WASATCH
CLASS REGISTRATIONS AND CLASSES REPORTED ON QUESTIONNAIRES

	Utah Technical College at Provo								School Districts		UTC-PROVO	
Classes	1964		1965		1966		1967		1968		1969	
	Reg'd	Reported	Reg'd	Reported	Reg'd	Reported	Reg'd	Reported	Reg'd	Reported	Reg'd	Reported
Auto Body Repair	13	3									34	31
Auto Mechanics	33	8	53	10	55	23	30	18	20	14		1
Building Construction									9	1		
Business and Secretarial	169	54	119	38	124	60	142	49	32	20	29	29
Commerical Art	12	4	24	6	21	6	22	4	13			
Drafting and Metal Trades	14				29		14	1	18	4	10	1
Electronics	17	6	22	7		11	10	15		1		8
Health Occupations	21	6	17	4	18	9	26	14		3		2
Industrial Science	8	2										
Interior Decorating	12	1			15	9	10	6				
Retail Merchandising	14	4		1			8	5		1		

Table shows all enrollments in classes and all classes reported each year--not number of individuals enrolling and reporting classes each year.

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the twelve high schools involved in the study. These are individual persons who enrolled in summer courses. Some enrolled more than one summer so that actual enrollments totaled 1,346 registrations.

In the first mailing of questionnaires 1,039 were sent to students. Of these, 48 were returned undeliverable, leaving 965 available. In the follow up mailing an additional 751 were mailed--all repeats to addresses where no return had been received. Total student returns to the cutoff period, December 19, were 389 for 40 percent.

The first mailing of questionnaires to parents was 461. This was followed by an additional 457. These were questionnaires to additional parents; for a total of 918 questionnaires mailed to parents. Of these, to the cutoff period, 267 were returned for 29 percent. These figures include four telephone interviews, and ten personal interviews by the chief investigator.

Table 2 NUMBER AND PERCENT OF RESPONSES

	Parents	Students
Number Mailed	918	991
Number of Responses	268	393
Return Percent	29.1%	40%

Table 3 - Student Reasons for Attending Summer Vocational Classes. In preliminary discussions with President W. W. Sorenson of Utah Technical College at Provo, and with school administrators in the area, four major reasons were indicated for conducting summer vocational classes. These four reasons with a column for "other" are shown on the accompanying table. The figures on the table show the number of students reporting on each reason. The table indicates that the largest number of students reporting gave as their purpose for attending summer classes "learn a trade". The next highest number indicated their reasons under "other." In this column students gave such reasons as "to get more training in the field," "to see if I would like the field," "to increase my speed in typing," "to get additional experience in the field," and others. In a number of cases students had already chosen the occupation and attended the summer program to further their training in it. Several indicated they took a specific class with the idea of developing a hobby. Some indicated they wanted to learn more about occupations in general and some indicated they attended because of pressure from parents. Almost without exception students reported favorably on the classes they took. In a number of cases they indicated the summer vocational class had finished them off for entry employment or had provided them a skill with which they could finance themselves through additional education.

reaction and five for parent reaction. Of the students reporting the largest number said they got a job as a result of the course, or the course continued preparation for a job they were seeking. The next largest number indicated that as a result of the summer vocational program they had chosen a career or embarked upon a career either through further study in college or through technical study, or employment. About equal numbers of students stated they attended the program for assistance in selecting post high school study areas, or for other reasons which are similar to those reported under "other" in Table 3.

It was noted in checking questionnaires that of 65 students who checked "to occupy spare time" as the reason for attending the course 32 reported that they had chosen a career, selected a school program, or got a job as a result of having taken the course.

Parent reactions were considerably different in most cases than students. Parents indicated that 123 of their children had selected occupations, this compares closely with 109 students who indicated they had chosen a career. By far the largest two categories chosen by parents had to do with development of more mature attitudes towards work and with the improvement of study habits. These were followed by selecting an occupation. Getting a job was lowest on the list of parent reactions. According to parents 92 received assistance in selection of a post high school program as a result of taking the summer classes.

Table 3

REASONS FOR ATTENDING

Occupy Spare Time	87
Learn a Trade	165
Learn About the World of Work	55
Pressure From Parents	41
Other* (See Appendix)	116

Table 4

IMPACT OF SUMMER CLASSES

	Student Reaction	Parent Reaction
Choose a Career	109	
Selected Post High School Program	63	
Started a Hobby	58	
Got a Job	124	109
Other (See Appendix)	63	
Selected An Occupation		123
Selected a Post High School Program		92
Developed More Mature Attitude Toward Work		164
Improved Study Habits		143

Table 5 - Student Choice to Attend Summer Vocational Classes and Choice of Course. Table Number 5 indicates the number of students who chose to attend and who chose their courses as compared to those who were influenced to attend or who were influenced in the choice of courses. One hundred and eighty six students said they chose to attend the summer vocational class; 72 reported they were influenced by parents; seven did not react. One hundred and forty students chose their courses while 117 were counseled by parents in the selection of courses, five did not react.

This table indicates that the majority of high school students who attended summer classes chose to attend for reasons of their own. Similarly the majority chose courses themselves although a larger number counseled with parents on choice of courses, then counseled with them on decision to attend.

It is indicated that none of the students reporting on questionnaires or by personal interview or telephone interview felt that the summer program had not been worth their while.

Table 5

STUDENT CHOICE TO ATTEND SUMMER VOCATIONAL CLASSES
AND CHOICE OF COURSE

	Basis of Attendance	Selection of Course
Chose to Go	186	
Influenced	72	
Unknown	7	5
Chose Course		142
Counseled		117

Table 6 - Present Educational Status and Employment Status of Students Surveyed. Table Number 6 indicates the educational employment status of students at the time they reported in the survey. Of those who reported, less than 32 are still in high school, at least 88 are in vocational technical programs at the post high school level and 69 are enrolled in college or university courses.

In reporting their education or employment status, many indicated that the vocational class did not change their ultimate educational objective or ultimate employment objective, but in many cases the course influenced them as to the direction they took to achieve the objective they had in mind. Some transferred from a college objective to a vocational technical objective and a sizable number indicated a change in long range objective to include some post high school study either at a junior college, vocational technical center, or at a university.

The employment status shows that the largest number of those who attended summer vocational classes either went into employment at the completion of high school or continued in technical college courses and are now employed full time in the objective they sought originally. Many of the girls reported that the summer vocational class strengthened their skills in office or secretarial work and enabled them to finance themselves in post high school business or educational objectives. A sizable percentage of girls reporting in the earlier classes of the program are now married and making homes, but without exception they indicated they felt the summer class they attended made a worthwhile contribution to them in their present lives. Approximately 60 percent of those employed full-time are working in occupations for which they received instruction in the summer vocational program. Many of those still in school reported their part-time jobs were in the field in which they studied in the summer classes. It should be noted that the majority of those enrolled in the business field were girls who later found the employment to finance themselves through college or until (and after) marriage.

Table 6

PRESENT EDUCATIONAL STATUS AND EMPLOYMENT STATUS OF STUDENTS SURVEYED

	Present Education Status	Present Employment Status
Still in High School	32	
Post High School Voc-Tech	88	
College	69	
Full Time		111
Part Time		103
Same Field		110
Other		106

Table 7 - Choice of School. Both students and parents were asked to state their preference as to the location for summer vocational classes, whether it should be the technical college at Provo or at the local high school. This table shows the preferences made by those who responded to questionnaires and through telephone interviews. Seventy two percent of the students and seventy three percent of the parents named the technical college as their preference for summer classes, while fifteen percent of students and twelve percent of parents preferred the high school. Two percent of students indicated classes should be offered at both the high school and at the technical college, and nine percent of parents indicated both services should be provided.

Table 7

CHOICE OF SCHOOL

	Students	Parents
No. of Responses	393	268
UTC Preference	284	195
High School	58	31
Both	10	25
Do Not Know	46	16
Percent-UTC Preference	72%	73%
Percent High School Preference	15%	12%
Percent - Do Not Know	11%	6%
Percent - Prefer Both Places	2%	9%

Table 8 - Should Summer Vocational Classes be Continued: Are Parents Willing to Pay Tuition. This table reports the responses of parents to two questions, "Should summer vocational classes be continued?"; "Are parents willing to pay a tuition of $15.00 to $25.00?"

To the first question, only one return indicated negative to continuation of the program; 267 voted yes. This included telephone responses of personal interviews. To the second question "Are parents willing to pay tuition" 32 gave no reaction, 16 said "no", 219 reported "yes". There were a few classified as no reaction who said they would be willing to pay tuition if the right classes were provided, but did not check either blank on the form. The important point in this table appears to be the desire of parents for the program to continue, and their willingness to pay tuition if necessary for their students to have good summer vocational classes.

Table 8

SHOULD SUMMER VOCATIONAL CLASSES BE CONTINUED? - ARE PARENTS WILLING TO PAY TUITION?

	Should Classes Be Continued?	Are Parents Willing to Pay?
Responses	268	268
Yes	267	220
No	1	16
No Reaction	-	32

Table 9 - Summary of Responses of Administrators. In only three areas was there a high degree of unanimity among administrators regarding the summer vocational classes. Twelve of thirteen who commented felt that transportation to the technical college, and to a lesser degree transportation in the summer program at the high school, was the chief problem. They were largely agreed that from the standpoint of expense and effort the summer classes are justified, and the majority, counting counselor, principals, and administrators, felt that at present the purposes of the summer program were served better at the technical college. There were differences of opinion, however, as to continuing the classes at the college in preference to district centers.

The majority of administrators felt that the chief burden of summer classes should be borne by the state, although a number felt that state and federal funds together should be used. One felt that the local district had the chief responsibility for conducting summer vocational classes, but state assistance is required to do a creditable job. Two administrators felt that the responsibility was about equal among the local, state, and federal agencies. Although the great majority of parents were willing to pay tuition for summer classes, only one administrator felt that tuition should be charged for summer classes for high school students.

Table 9 does not fully reflect the feelings of school administrators in the Utah County school districts regarding summer vocational classes. Superintendent's comments were almost parallel regarding the cost of the summer vocational classes at the technical college as compared with cost in the school districts. Two stated in closely similar terms that the total educational problem with which they are faced leads them to feel that they get more mileage from their dollars if they keep them in the district. At the same time, each admits that he does not have sufficient funds to set up and operate a summer vocational program adequate to the needs of his district. Unanimously they agreed that the technical college has the room and facilities, and the personnel, to provide the type of program that will interest youth and will serve their needs, although the college has not provided a sufficient variety of classes to meet the needs of all students.

The rapidly rising cost of sending high school students to the technical college looms as the growing obstacle in the minds of district school administrators. The obstacle is twofold. (1) They cannot afford to send students to the technical college and pay the required tuition, (2) they cannot afford to equip sufficient number of their shops in a sufficient variety of occupations to serve adequately in the school districts. This problem, of course, is not limited to the summer vocational classes, but is accentuated by them.

Table 9

SUMMARY OF RESPONSES OF ADMINISTRATORS

Persons Interviewed: 13

1. What purposes are served by the Summer Vocational Classes?

a.	Make Up Credit	6
b.	Occupy Time	3
c.	Guidance Experience	5
d.	Improve Work Habits	6
e.	Occupational or Career Guidance	9
f.	Other: Pre-Job Training	1
	Enrichment	1
	Vocational Approach	1

2. Are These Purposes Better Served at UTC-Provo or in the District?

a.	Utah Technical College at Provo	8
b.	In the School District	3
c.	Both	2

3. What Problems are Inherent In Sending Students to the Technical College?

a.	Transportation	12
b.	Discipline	5
c.	Coordination	6
d.	Records Transfer	2
e.	Dropouts	1
f.	Other: Philosophy	1
	Duplication	1
	Attendance	1
	Limited Offering	1

4. Are Similar or Other Problems Inherent in Classes at the High School?

a.	Similar	5
b.	Other: Facilities	3
	Student Attitude	1

6. Should Summer Classes Be Continued?

a.	At the Technical College	8
b.	In the School District	7

5. Do Results of Classes Justify The Expense and Effort?

		Yes
a.	Economically	10
b.	Educationally	10
c.	Vocationally	9
d.	Other: Social Development	1

7. How Should Costs be Borne?

a.	Local	1
b.	State	9
c.	Federal and State	5
d.	Jointly (all three)	2
e.	Tuition	1

V. SUMMARY

Of 1,039 Utah, Wasatch, and Juab County high school students enrolled in summer vocational classes in 1964 through 1969, 991 were contacted regarding their opinions on the value of the summer classes, where they should be taught and whether they should be continued. Forty percent or 393 of those contacted responded by questionnaire, personal or telephone interview. Of the respondents 273 stated positively that the classes should be continued at the technical college, 124 said they got jobs as a result of the classes, 109 reported the classes had influenced their decisions on choice of career, 63 said the class instruction had advanced them toward employment or technical training in careers already chosen.

Of 918 parents contacted, 268 (29 percent) responded to the questionnaires or to telephone or personal interviews. A majority of 195 parents (72 percent) favored continuation of the program at the technical college in Provo. They indicated the summer vocational classes had served to develop more mature attitudes in their youth (164), to improve their study habits (143), and to direct or re-direct them in their high school or post high school studies (92). They said 123 of their youth had selected occupations and 109 had found employment following their summer vocational classes.

Parents said in substance that the equipment and instructional materials were on a more advanced level at the technical college, and teachers worked more on a vocational basis. In most cases parents said students were challenged to study and were treated more like adults. One complaint of parents was that the summer program,particularly in the business area, tended to repeat the high school instruction or tended to be repeated in the high school for students who continued in the business field. They felt closer correlation should be made between summer vocational classes and those taught in the regular school year. This occurred to some extent in the other vocational areas.

School administrators in the school districts of Utah County felt that the purposes of the summer vocational program were served better at the technical college than they could be served in the school districts at the present time, although the majority felt that the school districts should have the prerogative of providing this instruction in their own areas.

Of 33 students interviewed either in person or by telephone by the chief investigator, and 20 parents interviewed in person or by telephone, it is noted that the responses did not show a different pattern of thinking in any respect than the reports on the questionnaires. Only two students indicated a preference for the high school over the technical college, one of these was concerned with the problem of transportation, the other had taken a commercial art class with a particular teacher. When queried as to choice of school two parents

indicated they would prefer the high school if the equipment and facilities were adequate, the third indicated the high school because of transportation.

The assumption may be made that the majority of parents who did not return questionnaires were those who felt the program did not serve specific needs for their children. However, the personal contacts made did not bear out this assumption. The conclusion is that students and parents, in more than two thirds majority, favored continuation of summer high school vocational classes at the Utah Technical College. Students commented that in most class shops, tools and equipment were more plentiful than at the high school and instructors taught more on an adult basis. Most felt that the equipment and the instruction was more up to date and practical than they would receive at the high school.

From the questionnaires returned it appears that the technical college tends to be less strict in its control of students--at least the summer high school students felt this was true in their class and laboratory work. A number of parents felt that there was too much freedom and not enough disciplinary control for real success in some of the summer classes. In a few cases students made this same comment.

VI. OVERTONES ON VOCATIONAL EDUCATION

Although distinct effort was made to limit discussion and questioning to summer vocational classes for high school students, there was a definite overtone reflecting attitudes toward increased vocational instruction in the school districts and at the technical college. Parents in their comments reflected the need for more opportunities for vocational training of youth, particularly for exploration, guidance and work experience type programs, or opportunities for youth to acquaint themselves with work processes and work environment. The most common single comment among parents was that youth needs the opportunity to get vocational training and work experience when they are unable to find summer employment. Summer vocational classes should provide this experience, but increased opportunity should be provided for vocational classes at the high school level.

VII. CONCLUSIONS

By direct comment or by inference, administrators have implied three basic problems in the continuation of the summer high school vocational program. (1) Rising costs, both in the districts and at the technical college, are the chief stumbling blocks for continuation of an adequate offering of summer vocational classes. Lack of flexibility in the financing of the summer classes increases the problem of operation and a restriction on developing an adequate program. (2) The present system of pre-registration in the high schools during the early spring, before summer jobs are available, makes it difficult for the

technical college to plan a program, allocate funds, and reserve the services of instructors. Many students will not register for summer classes on the hope that they can find employment. When they do not find employment they flock to the technical school for enrollment in classes for which no provisions have been made and funds are not now available. (3) The problem of duplication of classes where the school district offers a summer vocational class parallel to that offered at the technical college. The school district has the instructor and the facilities, and can offer the class at a lower cost than tuition at the college. The technical college cannot offer the class without sufficient enrollment to justify use of the facilities and the instructor.

The problem of transportation is sometimes a knotty one and has some effect on the success of classes. School districts said transporting students to the technical college was expensive, students desire to drive their own cars and do not patronize the transportation. Often times they drive their own cars and have poor attendance at the classes as a result. This is a problem of both the district and the technical college.

Some complication develops in the matter of jurisdiction over student relationships with reference to attendance, record keeping, counseling service, and other problems. School districts provide transportation for students to the summer classes at the technical college, therefore, they are responsible for the students' welfare. While the students are on the campus at the college, they are under the jurisdiction of the teachers and are the responsibility of the technical college. Who has superior jurisdiction during the period of the summer classes? These problems, plus the total overall problem of providing the greatest service to the greatest number of youth require decisions both in the district and at the technical college wh which effect the quality and the quantity of the program that can be provided. Administrators are concerned about which is most important--an overall program serving a greater number of students in the district, with less service in the vocation areas, or a program serving fewer students and providing more vocational instruction for those who seek it at the technical college.

However, evidence from questionnaires, interviews and discussions points to the conclusion that continued and planned effort must be put into the expansion and improvement of vocational education programs for youth in the Utah County and neighboring schools--the area served by the Utah Technical College at Provo. With almost no exception, parents and youth think classes at the technical college should be continued and the offering enlarged. There was no sentiment contrary to extending vocational offerings in the high schools, but the evidence is that the technical college offers advantages of specialization and concentration, together with social interaction not available at the high schools, and puts the students in more of an objective environment for vocational study, counseling and experience.

The conclusion to be reached is that summer vocational classes should be continued at the Utah Technical College at Provo in the foreseeable future.

VIII. RECOMMENDATIONS

1. It is recommended that district school administrators in the area served by the Utah Technical College at Provo and the administration of the college plan together to finance and operate summer vocational classes for high school students, utilizing all the services and facilities of the area. That they assess together the services available and the needs to be met and move in a concerted effort to meet them.

2. It is recommended that the services of the state vocational education office be secured in determining financial resources for operation of the summer program and for setting up occupational areas to be taught. That an area wide program plan be developed using the technical college as a center, with college and district responsibilities defined as to administration, instruction, transportation, and financial support.

3. It is recommended that summer vocational classes for high school youth be incorporated into the philosophy, objectives, and operation and budgeting plans of the Utah County neighboring schools, using Utah Technical College as an area center, and developing a program which serves the needs of youth and industry for the entire economic-industrial area.

APPENDICES

APPENDIX I

Evaluation of Summer High School
Vocational Programs at Utah Technical College
At Provo and Utah County High Schools
For 1964 Through 1969

Questionnaire to Students

Dear Student:

Will you please complete the form attached and mail it back to us in the stamped, self-addressed envelope enclosed.

By doing this you will help us tell others about the values of the summer vocational classes at the Utah Technical College at Provo and at your high school.

Please give us all of the information requested that applies to your particular classes and your present employment.

Name_____ Age when enrolled_____

High School Attended_____ Sex M_____ F_____

Present Address_____

1. Summer Vocational Course or Courses in which you enrolled at Utah Technical College at Provo

Year	Course Name
a. 19___	_____
b. 19___	_____

2. Summer Vocational Courses in which you enrolled at your high school during the summer of 1968

Year	Course Name
1968	_____

3. Are you still in high school? Yes _____ No _____

4. Year graduated? 19_____

5. Did you leave high school before graduating? Yes _____ No _____

6. Are you on active duty with the military forces? Yes _____ No _____

7. Are you now enrolled in a post high school training or education program? If yes, please indicate type of course. Yes _____ No _____

   a. Vocational_____
   b. Technical_____
   c. College or general_____

8. Are you presently employed? Full time - Yes_____ No_____
Part time - Yes_____ No_____

9. If you are employed, is your work in the same field, or related to the summer vocational course you took? Yes_____ No_____

10. Did the summer vocational program spark the interest that caused you to go into the occupation you now have, or into the education or training program in which you are now enrolled. Yes_____ No_____

11. What changes, if any, have you made in your school program as a result of taking the summer course?_____

_____

_____

_____

12. Why did you take the class or classes at UTC?

a. Occupy spare time _____
b. Learn a trade _____
c. Learn about the world of work _____
d. Pressure from parents _____
e. Other (describe)_____

13. Did the course(s) assist you to

a. Choose a career _____
b. Select a school course _____
c. Start a hobby _____
d. Get a job _____
e. Other (describe)_____

14. If the choice had been yours when you took the summer course(s) would you have preferred to take it (them)

a. At your high school _____
b. At the Utah Technical College at Provo_____

15. Did you get the course(s) you wanted? Yes____ No____
If not, what course(s) did you want?

_____

_____

APPENDIX II

Evaluation of Summer High School
Vocational Programs at Utah Technical College
At Provo and Utah County High Schools
For 1964 Through 1969

Questionnaire to Parents

Dear Parents:

Will you please reply to these five questions being presented to determine the effectiveness of summer vocational programs for high school students at the Utah Technical College at Provo and/or the high schools of Utah County. The study covers the classes in which your child (children) were enrolled at Utah Technical College at Provo during the summers of 1964, 1965, 1967, and 1969 and/or the classes at the high schools in the summer of 1968.

Your judgment and assistance in answering the questions will be most helpful to the State Education Office.

1. Did your child (children) choose to enroll in the summer classes or did you influence him (them)

   Choose to enroll_____
   Influenced _____
   Unknown _____

2. Did you counsel with your child (children) in the particular vocational course(s) he (they) took or were the choices made alone.

   Counseled _____
   Own choice(s)_____
   Unknown _____

3. Attendance of the summer vocational program assisted my child in (check all applicable):

Selecting an occupation	Yes____	No____	Unknown____
Selecting a post high school program	Yes____	No____	Unknown____
Getting a job	Yes____	No____	Unknown____
Developing a more mature attitude toward work	Yes____	No____	Unknown____
Improving study and work habits	Yes____	No____	Unknown____

4. Do you feel that the summer vocational classes should be continued at (check one)

   a. Utah Technical College at Provo _____
   b. The local high school _____

5. Would you send your high school age children to a summer vocational program if they were charged a fee of $15.00 to $25.00? Yes _____ No _____

6. Please give your comments on the need and value of this program for high school students. _____

_____

_____

_____

_____

_____

APPENDIX III

EVALUATION OF SUMMER VOCATIONAL CLASSES FOR HIGH SCHOOL STUDENTS

Interview Form

1. What purposes are served in the summer vocational program for high school students?

   a. Make up credit _____
   b. Occupy time _____
   c. Guidance experience _____
   d. Improve work habits _____
   e. Occupational or career guidance _____
   f. Other (describe)_____

2. Are these purposes served better at the Utah Technical College or at the high school?_____

   Reasons:_____

   _____

   _____

   _____

3. What problems are inherent in sending students to the technical college?

   a. Transportation _____
   b. Discipline _____
   c. Coordination _____
   d. Records transfer _____
   e. Dropouts _____
   f. Others _____

4. Are similar, or other, problems inherent in classes at the high school?

   _____

   _____

   _____

5. Do results of the classes justify other expense and effort expended?

   a. Economically _____

      Reasons _____

      _____

b. Educationally _____

Reasons: _____

_____

c. Vocationally (occupation, job career) _____

Reasons: _____

_____

d. Other _____

_____

_____

6. Should the summer vocational class program be continued?

a. At the Technical College _____

Reasons: _____

_____

b. In the school district _____

Reasons: _____

_____

7. If continued, how should the costs be borne?

Explain: _____

_____

_____

APPENDIX IV - NOTES ON INTERVIEWS WITH SCHOOL ADMINISTRATORS

Preliminary Interview with President Wilson W. Sorenson, Utah Technical College at Provo.

In preparation for the study the investigator met with President Sorenson to discuss the purposes of the study and to solicit from him a statement of the purposes of the summer vocational program as he saw them when it was instituted and his evaluation of the effectiveness of the program as it had been conducted at the Technical College. President Sorenson's reactions were kept in mind in the preparation of questionnaires, both to students and parents.

Among his statements he said that by enrolling at the Technical College in summer vocational classes students would have opportunity to come into actual contact with the equipment, learning situations, and personnel involved in the training of tradesmen, technicians, and service workers. They would thereby gain insights into the adult world they would face upon graduation from high school. He said further that the cause of the number of students who do not enter college or who enter without proper guidance or vocational information, the summer classes were designed to provide specific training for employment, to help students understand the world of work, to develop more mature attitudes towards work, and to provide situations for the improvement of study habits suitable to the learning situations in college or post high school study. Classes were organized to enable students to associate with the youth of their own age from other communities, to see the variety of occupational choices that could be made, to have opportunity for counseling with industry representatives, to hear speakers from industry, and to make field trips into industrial plants with adequate preliminary instruction and information for them to observe more adequately in terms of their own aptitudes, interests, and abilities.

President Sorenson indicated that he felt the summer programs through 1964-67 had been unusually successful in providing opportunity for students to gain these experiences in a variety of fields and that many of them had made better choices of careers or had changed their occupational and educational goals as a result. He said the program was not intended to divert high school students from pre-determined goals but to give them a wider background on which to make educational and vocational decisions as they completed their high school training.

President Sorenson stated that while there had been some criticism of specific aspects of the program as conducted, the total reaction was overwhelmingly favorable both to the summer vocational classes and those students who continued to the total vocational program. He felt the largest majority of parents favored continuation of the vocational program at the Technical College.

Notes on Interviews with School Administrators: Alpine, Nebo and Provo School Districts.

One district administrator stated that his board of education and his administration always favored and supported the Utah Technical College program and had assisted in initiating the summer vocational classes. He felt the classes served a good purpose though the offering was not adequate to serve the entire area simply because the need was so much greater than the available services. He felt that if the total vocational exploratory and vocational training needs were met, the school districts must do all they can do and the Technical College must do all it can do, in the provision of a total program of vocational education. The summer vocational classes were a part of the overall program.

He indicated that increasing complexity of the services and increasing costs necessitated a careful evaluation of assets, responsibilities, facilities, and personnel to make the school dollar, both vocational and general, reach the furthest possible. He felt that the school district must use its own facilities to the fullest extent possible since the cost would be less in the district than to transport and pay tuition for students at the Technical College, but he said the district cannot supply anywhere near the need. The Technical College must be utilized and take up where the school districts leave off. The limiting factor is the funds, and the Technical College must make every effort to stretch its services. It was his feeling that his school district should work towards the insulation of a vocational center within the district to be operated by the district if it were to serve adequately the population within its boundaries. He stated that the financial responsibility for vocational classes conducted within the district rested with the district and with such help as it could secure through State services and State funds. He felt that classes provided at the Technical College should receive support from the institution and from State and federal funds available for vocational education.

Another administrator stated that in his opinion the vocational business, vocational agriculture, and similar classes which normally operate in the high school should be continued in the high school but that the Technical College should be used for those vocational and technical type classes which require large facilities, extensive equipment, and technical personnel to teach should be conducted at the technical college. Students should be transported to the institution for these programs. This, he felt, should be true not only of summer classes, but of the regular school programs offered in vocational education.

One counselor stated that the technical college had been the savior of many students in the school district who would have been dropouts had the institution not been able to offer them courses to meet their needs and interests. Summer class programs provided potential dropouts and other under-graduate high school students the opportunity to find themselves, to determine their interests, and to direct their educational and training activities more effectively than was possible without these classes.

One administrator stated that in his area the majority of students who attended summer vocational classes at the technical college went to get additional credit so that their senior year would be more free, or that they would have adequate credit for graduation when that time came.

Another administrator stated that the district in which he served had always supported the technical college. But the feeling is growing that the technical college is tending to become preemptive sofar as vocational service is concerned, and to want to dominate the vocational education picture in the area. He felt that the high schools should offer programs in vocational training without being made to feel that they were in competition with the technical college, and should not be.

Another administrator stated that there had been a time when, in his area, students wanted to go to the technical college because vocational services were not available in the high school. He felt that each year schools in his area were offering more adequate programs and there was less need for students to be transported to the technical college for vocational instruction.

Another administrator stated that he felt the distribution of vocational funds, those appropriated for high school use, was poor and perhaps partial. He felt that every district should move as rapidly as possible towards the development of a fully comprehensive high school program. He felt that the Utah Technical College at Provo should take up the vocational education program where the high schools leave off and should not attempt to move into the high school area where the high schools could carry their own responsibility.

Generally speaking, administrators felt the need for expansion of vocational education in their districts. They felt that the summer high school vocational class program was a needed and a definitely worthwhile and successful service, but that it must be planned, organized, and conducted to render a service more adequately in the future than it has in the past.

APPENDIX V - COMMENTS OF PARENTS

"It is our opinion that the summer school is one of the best programs and should be continued."

"The summer program helps students to adjust more readily to college classes."

"With the cost of college, and so forth today, I think the students need this program either to help them get a job or to help them decide on a vocational program."

"I have always felt the high school facilities should be used more than the nine months they are now opened, this should include swimming pool and athletic facilities as well as industrial education facilities."

"I think it is either the bunk or the high school teacher. Students don't drop out, they are forced out."

"The summer high school vocational program is needed to prepare students for the world of work."

"I feel this is a very worthwhile program. It benefited my daughter, both socially and educationally. She could not have had this schooling if it weren't for the summer program."

"Vocational training is needed. Don't let the programs become academic."

"I hope sincerely the program will be continued. It is a marvelous program and I cannot speak too highly of it."

"We favor high school classes at the Technical College and in the high schools without duplication. Youth need to be taught to produce, to develop work skills and habits. We need a wider choice of classes for girls. Homemaking skills should be taught. Guidance value is most important."

"I think the program is very important because it gives youth an idea of the vocation they want to go into and what it is like."

"Our interest in this program is to train a child for a job that will help him support himself while in college."

"We feel our son gained very much during the summer high school program. It not only benefited him educational wise but gave him work to do during the summer. We urge closer teacher-pupil relationship."

"It (the summer high school program) is needed to give an opportunity for good motivation in aims and work habits. I also feel the vocational training program should be emphasized more. Its image should be made more desirable for young people. Too many set their sights on a college education and fail to make it. This leads to much disappointment and waste of time and considerable funds. Also, the college dropout after two or three years of college is not qualified in any way to earn a living. The vocational trainee, on the other hand, does have a trade."

"It's a good opportunity for study on a subject for a vocation or to look into a vocation that youth might be interested in. It not only should be continued, it should be expanded."

"This program's value is immeasurable. Our boy found his vocation and improved his study habits. Our daughter found secretarial work to be her choice of vocation through the summer program. I feel this program should be made available for students through their summer vacations."

"It's a good program, but the cost to take it should be kept to the minimum. Those who cannot afford the fee should not be kept out. Money should be no object when it comes to making a person a productive member of society and not a dole or a burden to the taxpayer."

"I hope very much you will continue this program. I think it should be continued at the high school because it is needed if it is the same quality as at the Technical College."

"Not all students are qualified for four years of college. I feel the large minority of students greatly benefit from the vocational program. Our son is a barber now located in a good shop in Salt Lake City. His high school summer vocational program was diesel mechanics but he changed to barbering after his graduation from high school. He graduated from the Technical Collete in barbering. We really feel that the school helped him select his occupation and the summer vocational class experience definitely helped him to make up his mind."

"Very good program to survey vocational areas. High schools force too many academic courses. Vocational schools give more desire and practical courses."

APPENDIX VI - COMMENTS FROM STUDENTS

From a Brigham Young University student: "My part-time job in college is the same that I had when I was a senior in high school enrolled in the cooperative education program. The summer class provided me the work experience I needed and the class helped me prepare myself for the business class I enrolled in in the fall."

"My training at Utah Technical College initiated my interest in business education which later became my major in college and my vocation."

"This summer program I feel is very valuable to young people. It helped me extremely in finding a job. In fact, after attending Brigham Young University and majoring in business for a short time, I found the classes at Utah Technical College more concrete and valuable on the job. The training was much more useful."

"I'm using the skills I learned at the summer class to put myself through college."

"As a result of taking a summer course I decided definitely I don't enjoy business, so I have planned my classes in education."

"I will graduate with a bachelor degree in home economics. I consider the classes I took at the vocational school very valuable. The business training I received there helped me work my way through college."

"This program has assisted me in getting the job I now have. I am very glad I had the opportunity to take the summer course because it helped me in many ways."

"I use the secretarial work I learned as a means of working my way through college even though I am not majoring in this field."

"After taking the summer classes at the Utah Technical College, all of my classes during my senior year in high school were of the same type. Then after graduating from high school I graduated, also, from Stevens Henager College of Business with an associate degree in Commercial Science."

"I graduated from Utah Technical College in May 1966 in business. I was so thrilled with the summer course that I had taken before. It helped me become better acquainted with myself and my future, it helped me to appreciate the value of money and my parent's jobs. I applied for a scholarship at Utah Technical College and was accepted. I would recommend to any student that they take a long look into the different schools and see how much Utah Technical College has to offer them."

"It (the summer class) helped me to find the field of work I wished to go into without it costing a lot. It showed me the field I was best suited for."

"I have taken so much in the business field that I decided to graduate and not go into another field of interest. I was not planning this until I attended the summer program."

"I felt that the course I took really helped me. It was much more than I expected. I very much liked the way we were treated as students and the permission we received to participate fully in assemblies, parties, and so forth. I hope that more courses will open up for high school students in the summer."

APPENDIX VII - QUOTATIONS FROM: "DESCRIPTION OF A VOCATIONAL EDUCATION SUMMER SCHOOL PROGRAM IN THE CHARLOTTE-MECKLENBURG PUBLIC SCHOOLS - 1968"

From teachers: "Team teaching proved most successful. Many new innovations were employed in the instructional program this summer. Students expressed the fact that the program was very helpful to them. From all evidence many students were highly motivated. Vocational High School should be continued and enlarged."

"The program provided many new experiences for students. Students were highly motivated. Provided opportunities for new innovations. Provided opportunity for personal professional growth. Program should be continued in future years."

"This course was taught on more or less an exploratory basis. I think the student's immaturity played a major role. The student's interest varied quite often. The students did gain a few rather helpful medians, to mention a few that were quite noticeable. 'Self respect, self confidence through the use of creative abilities.' Supplies were adequate, due to the decrease in enrollment. These students are not able to man a craftsman's position, however, these students are able to see that learning is relevant to a job that is to be well done. I think the students were motivated and showed interest in this course. The development of manipulative skills plus dexterity was rather high."

"The summer program was a success. I feel that the following were some of the reasons: (1) a young interesting group, (2) dedicated teachers, (3) bus service, (4) free lunches, (5) good materials with which to work, (6) a very close schedule, (7) freedom to work and individual projects, (8) freedom to make individual choice of trade or course, (9) personally, I think this should be tried as long as it seems to pay off."

"The Vocational Summer School classes have revealed some things that may well be used as guides for our regular school classes:

1. Junior high level students are easier to control.
2. Individual attention produces a better working relationship between students and teachers.
3. Students who choose their particular courses are easily motivated.
4. Concentrated teaching of one subject is better than trying to teach the student four or five subjects at a time.
5. Team teaching is good when possible. The students are not one-sided in their learning -- more ideas are put into practice.
6. There is evidence that potential dropouts are not necessarily poor students, but in many cases have been bypassed for better students. Lack of individual attention seems to have been the reason for the students being behind.
7. The school served a very good purpose in that it helped teachers realize how much can be accomplished with students who have little ability to read and write.
8. Concentrated teaching may be the solution to school dropouts."

"The vocational education summer school program has been very rewarding. The students were able to acquire a few basic skills which will improve their image and personal appearance. The course provided information that also corrected many hygiene problems of the youngsters enrolled in Cosmetology."

"The summer program in auto mechanics was a great success. The students were taught skills which enabled some of them to get part-time jobs. The program has placed six students on the job and their employers are well pleased with their work. The program gave students an opportunity to excell in an area they are interested in. It has also given students from all over the county an opportunity to take vocational courses which are not offered at other schools. I definitely feel the program should be expanded and continued each year."

VT 012 466
Bender, Ralph E.
The 1969 Occupations of Recent Graduates of Vocational Agriculture in Ohio.

Ohio State Univ., Columbus. Dept. of Agricultural Education.
MF AVAILABLE IN VT-ERIC SET.
AGDEX 010/008

Department of Agricultural Education, The Ohio State University, 2120 Fyffe Road, Columbus, Ohio 43210 (no charge).
PUB DATE - Jan70 6p.

DESCRIPTORS - *GRADUATE SURVEYS; *VOCATIONAL AGRICULTURE; *EMPLOYMENT TRENDS; AGRICULTURAL OCCUPATIONS; *VOCATIONAL FOLLOWUP; *HIGH SCHOOL GRADUATES; STATE SURVEYS; OCCUPATIONAL CHOICE

ABSTRACT - This survey of 1,672 Ohio vocational agriculture graduates from the 1968 and 1964 classes revealed the employment experience of graduates 1 and 5 years after leaving school. When compared with the experience of the 1952-1964 classes after 5 years and the 1959-1968 classes after 1 year, the data show declining number of graduates entering farming, and increases in college and technical school enrollments by graduates. (GEB)

VT 012 466

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008

THE 1969 OCCUPATIONS OF RECENT GRADUATES OF VOCATIONAL AGRICULTURE IN OHIO

Ralph E. Bender
Department of Agricultural Education
The Ohio State University
January 1970

A little more than 50 per cent of the graduates of vocational agriculture in Ohio out of school one to five years were engaged in farming and farm-related occupations. Less than one per cent of the graduates were unemployed. These findings were revealed in the most recent of a series of surveys in which the occupations of graduates out of school one and five years were identified as of March 1, 1969. The survey included 1,672 students of 102 departments selected at random from the 14 supervisory districts of vocational agriculture in Ohio.

Data in Table 1 indicate that 28 per cent of the graduates out of school one year and 30 per cent of those out of school five years were in farming. Approximately 50 per cent of the farmers were farming on a full-time basis. Four of each five (84 per cent) graduates engaged in farming were doing so on the home farm.

The percentage of graduates involved in non-agricultural work the first year out of school was 30 compared to 44 per cent for those out of school five years. A large proportion of their occupations required aptitude and ability in mechanics; however, some of the common types of employment involved skills in working with people. This has been typical of the occupational opportunities for vocational agriculture graduates throughout the years.

Thirty per cent of the graduates out of school one year were in college or technical schools. Of this group, more than 50 per cent were pursuing additional study in agriculture.

An analysis of the data accumulated during the twelve-year period of the survey indicates that:

--Fewer graduates are becoming established in farming.

--Increasingly more of the graduates engaged in farming are getting started on their home farms.

--An increasing percentage of the graduates are becoming employed in off-farm agricultural and non-agricultural occupations.

--More graduates are enrolling in college and technical schools.

TABLE 1. VOCATIONS OF GRADUATES IN VOCATIONAL AGRICULTURE IN OHIO OUT OF SCHOOL ONE AND FIVE YEARS

Vocations as of March 1, 1969	Percentage of Graduates 1968 Class	1964 Class
Farming: Full Time	12	16
Part Time	16	14
Related to Farming	12	15
Attending College of Agriculture	11	6
Attending Agr. Technical School	5	--*
Total in Agriculture	56	51
Non-Agricultural Work	30	44
College--Other Than Agriculture	8	3
Attending Non-Agr. Technical School	6	2
Total in Non-Agricultural	44	49

*Only one student

Number of graduates in above analysis	732	562
Other graduates not included in analysis:		
Military Service	157	131
Occupations Unknown	22	44
Unemployed	7	1
Deceased	4	12
Total Number of Graduates	922	750

Based upon responses from 102 schools.

TABLE 2. VOCATIONS OF GRADUATES IN VOCATIONAL AGRICULTURE OUT OF SCHOOL ONE YEAR FOR SELECTED YEARS

Vocational Groups	Percentage of Graduates by Classes									
	'59	'60	'61	'62	'63	'64	'65	'66	'67	'68
Farming: Full Time	25	33	30	30	27	21	20	15	15	12
Part Time	25	23	22	19	20	15	18	18	18	16
Related To Farming	9	9	8	11	9	11	14	18	16	12
Attending College of Agriculture	8	7	12	9	9	10	12	11	12	11
Attending Agr. Technical School	--	--	--	--	--	--	--	--	--	5
Total in Agriculture	67	71	71	69	65	57	63	62	61	56
Non-Agricultural Work	25	19	21	24	25	33	23	29	26	30
College--Other Than Agriculture	9	10	8	7	10	10	13	9	13	8
Attending Non-Agr. Technical School	--	--	--	--	--	--	--	--	--	6
Total in Non-Agriculture	33	29	29	31	35	43	37	38	39	44

In addition to the above (based upon total number of graduates):

In Military Service	13	12	14	14	11	10	20	18	19	17

Above analysis based upon:

Year	Number	
	Graduates	Departments
1959	720	108
1960	709	103
1961	736	92
1962	598	84
1963	638	86
1964	659	88
1965	689	82
1966	752	82
1967	834	93
1968	922	102

TABLE 3. VOCATIONS OF GRADUATES IN VOCATIONAL AGRICULTURE OUT OF SCHOOL FIVE YEARS FOR SELECTED YEARS

Vocational Groups	Percentage of Graduates by Classes											
	'52	'53	'55	'56	'57	'58	'59	'60	'61	'62	'63	'64
Farming: Full Time	*45	*43	25	25	24	23	24	23	21	17	22	16
Part Time			19	18	16	16	15	13	17	19	18	14
Related to Farming	9	9	11	14	12	16	16	18	15	17	13	15
College of Agriculture	5	3	4	3	2	4	4	6	5	7	6	6
Agr. Technical School	--	--	--	--	--	--	--	--	--	--	--	--**
Total in Agriculture	59	55	59	60	54	59	59	60	58	60	59	51
Non-Agriculture Work	37	40	30	36	39	36	37	34	36	35	37	44
College--Other Than Agriculture	4	5	6	4	7	5	4	6	6	5	4	3
Non-Agr. Tech. School	--	--	--	--	--	--	--	--	--	--	--	2
Total in Non-Agriculture	41	45	41	40	46	41	41	40	42	40	41	49

*Includes part time also.
**Only one student.

In addition to the above (based upon total number of graduates):

In Military Service	21	17	13	10	17	16	17	13	18	19	19	17

Above analysis based upon:

Year	Number	
	Graduates	Departments
1952	574	82
1953	565	77
1955	615	108
1956	653	108
1957	568	92
1958	588	84
1959	621	86
1960	656	88
1961	615	82
1962	576	82
1963	648	93
1964	750	102

Occupations Related to Farming

Twelve to fifteen per cent of the graduates in vocational agriculture out of school one to five years were engaged in farm-related occupations. Twenty-five of the teachers from 102 departments indicated that one or more of their graduates worked in a grain elevator or feed mill. Other common types of work were that of working in machinery sales and service, building and construction, and food processing. Many other kinds of employment were listed varying from teaching vocational agriculture to arranging flowers. The complete list with the number of teachers reporting one or more graduates includes:

25 Grain elevator or feed mill	3 Research center
14 Machinery sales and service	3 Slaughter house
12 Building and construction	2 Welding
9 Food processing	2 Electrician
7 Fertilizer or lime business	2 Landscaping
6 Truck driver	2 Logging
6 Meat cutter	2 Plumbing
5 Mechanic	2 Seed processing
5 Greenhouse	1 Lumber yard
5 Dairy plant	1 Drainage and tile business
3 Salesman	1 Flower arranger
3 Voc. agr. teacher	1 Lab technician
3 Veterinary or ass't.	

Occupations in Non-Agricultural Work

Thirty to forty-four per cent of the graduates in vocational agriculture became engaged in non-agricultural occupations during the first five years out of high school. Eighty-seven of the teachers from 102 departments reported that one or more of their graduates were working in industry or in a factory. The number reporting employment in building construction, welding, service stations, and mechanics indicates the importance of the development and use of mechanical skills. Another general type of work reported was that which included abilities in working with people such as salesman, store clerk, and teaching. The complete list with the number of teachers reporting one or more graduates includes:

87 Factory or industry	2 Stone quarry
22 Building construction	2 Oil company
13 Mechanic	2 Credit agents
12 Service station	1 Lumber yard
9 Welding	1 Railroad
7 Salesman	1 Brewery
7 Truck driver	1 Junk yard operator
7 Barber	1 Taxi driver
7 Carpentry	1 Painter
6 Store clerk	1 Draftsman
6 Printing firm	1 Deputy sheriff
6 Machine shop	1 Refrigerator service
6 Telephone company	1 Meat cutter
5 Electrical	1 Plumber
5 Highway	1 Bank teller
4 Teacher	1 Well driller
3 Body shop	1 Photographer
2 Hospital attendant	1 Tree trimmer
2 Radio and TV repair	1 Accounting
2 Airlines	

VT 012 468
Stats, Jeanette
Door to Opportunity. Title V, Economic Opportunity Act. A Summary Report of the Work Experience and Training Program, 1964-1969.

Community Services Administration (DHEW),

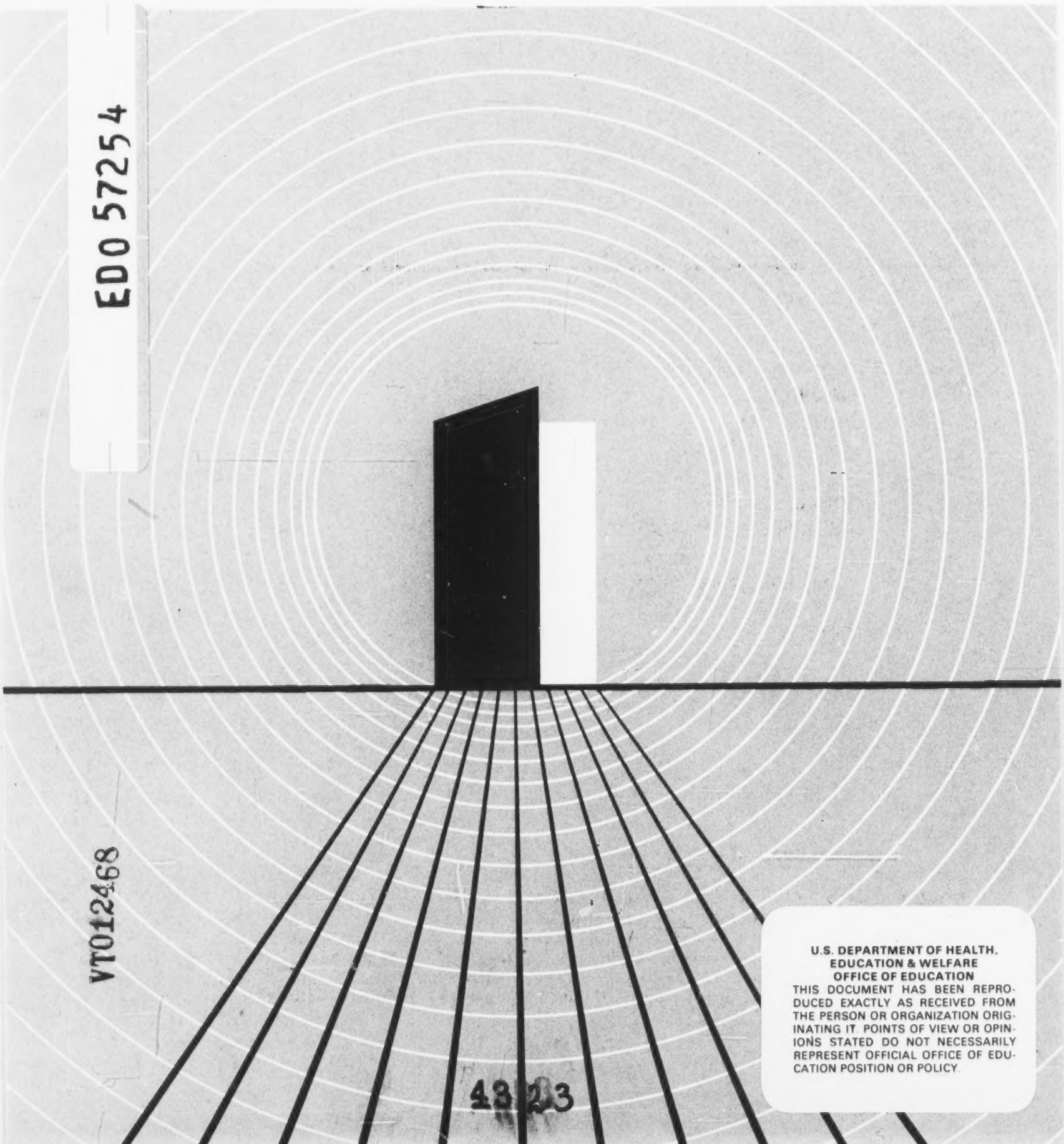
Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Feb70 67p.

DESCRIPTORS - *FEDERAL PROGRAMS; EVALUATION METHODS; *WORK EXPERIENCE PROGRAMS; *ADULT VOCATIONAL EDUCATION; *CULTURALLY DISADVANTAGED; *COST EFFECTIVENESS; PROGRAM EVALUATION; EMPLOYMENT PROGRAMS; PARTICIPANT CHARACTERISTICS; PROGRAM DESCRIPTIONS; WELFARE RECIPIENTS
IDENTIFIERS - *ECONOMIC OPPORTUNITY ACT

ABSTRACT - Title V of the Economic Opportunity Act of 1964, which was oriented toward making welfare recipients productive, created a total of 344 projects serving 228,000 persons. These projects, which were administered by state and local public welfare agencies, provided basic education, medical and social services, placement, and training oriented to local job markets. Benefit cost analysis has been unsatisfactory in evaluating the projects, because many of the benefits cannot be measured quantitatively. Intangible benefits such as pride and hope cannot be put in dollar terms. However, even when these benefits are ignored, and only costs and benefits to society are considered, the results have more than justified the investment. (BH)

VT 012 468

DOOR TO OPPORTUNITY



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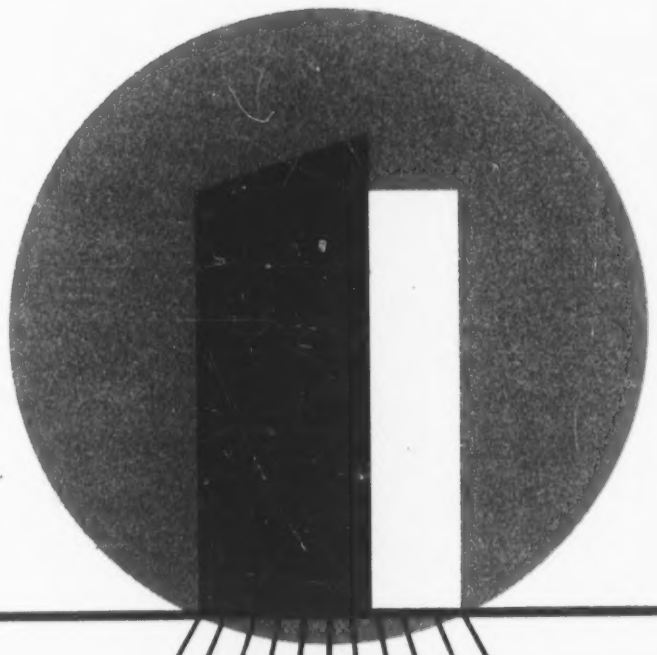
SOCIAL and
REHABILITATION SERVICE

COMMUNITY SERVICES ADMINISTRATION

1970

DISCRIMINATION PROHIBITED—Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Therefore, the programs of the Community Services Administration like every program or activity receiving financial assistance from the Department of Health, Education, and Welfare, must be operated in compliance with this law.



DOOR TO OPPORTUNITY

Title V, Economic Opportunity Act

A Summary Report of the Work Experience and Training Program, 1964–1969.

JEANETTE STATS

Consultant,
Community Services Administration

4325

foreword

THERE IS a growing consensus that the solutions to many of our social problems will be found when we achieve the fullest possible participation, by all segments of society, in the economic life of the Nation.

This is borne out by many recent Governmental actions focused on devising means by which those who are now out of the economic mainstream—the job market—can be brought in.

On August 13, 1969 President Richard M. Nixon sent a message on manpower training to the Congress of the United States. In it he said, "the Nation must have a manpower system that will enable each individual to take part in a sequence of activities—tailored to his unique needs—to prepare for and secure a good job."

In defining the goals of manpower training proposals, the President emphasized the importance of "discovering the potential in those people who are now considered unemployable, removing many of the barriers now blocking their way."

In September, 1969 a new organizational unit, the Community Services Administration, was established within the Social and Rehabilitation Service, DHEW, by transfer of staff from several units including the Division of Work and Training Programs from the Children's Bureau.

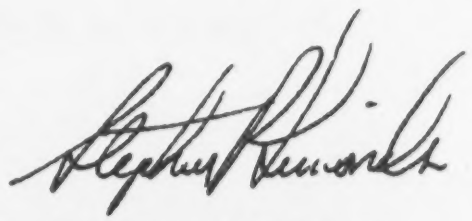
In his announcement of the organizational change, the Secretary of HEW, Robert H. Finch, "said, ... the new Community Services Administration will facilitate Federal-State-local coordination, the development of more effective ways of getting needed services to disadvantaged people, and community-wide planning and coordination of services. A major objective will be to achieve better means of evaluating the employment potential of AFDC recipients and of referring them for training and jobs."

In announcing the establishment of the new Community Services Administration we described the task before us in these words: "We must begin immediately to shift from a system which has concentrated on remedying defects and salvaging, to a system which concentrates on developing the potential of human beings, which involves full and effective participation of those who use the services in design, development and delivery, and which provides new and exciting work opportunities and careers for low income people including recipients of public assistance."

The experimental Work Experience and Training Program, operated under Title V of the Economic Opportunity Act, was a well rounded approach toward these objectives. The projects were designed according to the needs of the disadvantaged unemployed and how they could best be met through counseling and guidance, education (including basic literacy and high school equivalency), constructive work experience, vocational training, intensive casework services, job placement assistance, and related services.

It is hoped that this account of the Title V experience will be of value to those who are charged with the responsibility of carrying out the Presidential mandate.

February 1970



STEPHEN P. SIMONDS
Commissioner
Community Services Administration
SOCIAL and REHABILITATION SERVICE

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DOOR TO OPPORTUNITY

I. Background

LEGISLATIVE HISTORY

"OURS is a work-oriented society, and most Americans—including those on welfare—seek employment."[1] This statement of President Richard M. Nixon sums up the growing consensus in this Nation that the welfare recipient shares the aspirations, if not the advantages, of the more affluent society that surrounds him.

Closely linked to the realization that the poor can and will work if enabled to, is the conclusion of many social scientists that the key to solving the pervasive problems of poverty lies precisely in making it possible for the unemployed and underemployed poor to become participating members of the economy. Peter F. Drucker, an internationally known management consultant and teacher, recently said about our country,[2] "We achieved whatever success we had through making the poor productive."

These seemingly simple truisms represent the distillation of wisdom slowly and painfully gained. It found expression notably in the passage of title V of the Economic Opportunity Act of 1964. This work and training program, administered by the Department of Health, Education, and Welfare, was focused directly on "the poorest of the poor"—the recipients of public welfare, a group long felt by many people to be without the necessary motivation or capability to achieve independence.

Federal measures to deal with unemployment were begun as early as 1933. From 1933 to 1941 a variety of programs designed to provide work for the unemployed were created, such as the Work Progress (later Work Projects) Administration and Public Works Administration. The 8-year post-depression period was marked by general economic dislocation resulting in widespread unemployment which reached a peak of about 25 percent of the labor force.

The early Federal-State programs were largely concerned with putting men to work rather than giving the untrained poor the skills and motivation needed to find and keep jobs. Essential basic education, vocational training and work experience, medical and social services were not included in those programs as they are in many of the more recent federally aided efforts to improve the employability of the unemployed poor.

In 1941 the creation of a federally administered work program for the entire country was recommended by the National Resources Planning Board. Five years later, in 1946, Congress passed the Full Employment Act, which gave the Federal Government authority to guarantee full employment.

When, in 1958, the unemployment level reached 6.8 percent of the labor force (about 5 million people) Congress took further action, passing the Area Redevelopment Act in 1961. In 1962, amendments to the Social Security Act included authorization for the Community Work and Training Programs (sec. 409, title IV) and for demonstration projects in conjunction with federally assisted public assist-

[1] Radio address, Oct. 8, 1968.
[2] "A Warning to the Rich White World," *Harper's Magazine*, December 1968.

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ance programs (sec. 1115, title XI). 1962 also saw the enactment of the Accelerated Public Works Program and the Manpower Development and Training Program. The Vocational Education Act was passed in 1963. The next major legislative step was the passage of the Economic Opportunity Act of 1964, which contained authority under title V for the Work Experience and Training Program.

The Community Work and Training Program under the 1962 Public Welfare Amendments to the Social Security Act (sec. 409, title IV) and the Work Experience and Training Program under title V of the Economic Opportunity Act of 1964 made possible a significant involvement of State public welfare departments in improving the employability of the Nation's unemployed poor. Both programs were placed under public welfare administration in recognition of the fact that other vocational training and employment programs had always largely bypassed public assistance recipients because many of these people needed much more than job training and placement service to solve their employment problems.

The purpose of the Community Work and Training Program was "conservation of work skills and the development of new skills for individuals who have attained the age of 18 and are receiving aid to families with dependent children, under conditions which are designed to assure protection of the health and welfare of such individuals and the dependent children involved."

Thus section 409 represented a historic departure from the old work relief concept. The new concept—the feasibility of training, educating and providing a full range of social services for potentially employable public welfare recipients—was affirmed in this landmark legislation.

However, there was no Federal financing provision for training under section 409, nor for supervision and equipment. Seeking to remedy the omission of these essential features, President John F. Kennedy, in his civil rights message of 1963, asked that "the public welfare work and training program which the Congress added last year be amended to provide Federal financing of the supervision and equipment costs of more Federal demonstration and training projects. . . ."

Acting upon the President's recommendation, Senator Abraham Ribicoff introduced Senate bill 1803, jointly sponsored by Senators Everett Dirksen, Kenneth Keating, Russell Long, Mike Mansfield, and Thruston Morton. The bill provided for assistance to States for experimental projects of work experience and training directed to the goal of securing and holding employment. In the House of Representatives, Congressman Cecil King introduced similar legislation, H.R. 7262. The basic intent and the essential features of these two bills were included in title V of the Economic Opportunity Act, Public Law 88–452, which was adopted on August 20, 1964.

The stated objective of title V of the Economic Opportunity Act was "to expand the opportunities for constructive work experience and other needed training available to persons who are unable to support or care for themselves or their families, so as to stimulate the adoption of programs designed to help unemployed fathers and other needy persons to secure and retain employment or to attain or retain capability for self-support or personal independence. . . ."

The administration of the title V program was delegated on October 23, 1964, to the Secretary of Health, Education, and Welfare by the Director of the Office of Economic Opportunity, who was authorized "to transfer funds appropriated or allocated to carry out the purposes" of title V through "experimental, pilot, or demonstration projects. . . ." Up to 100 percent Federal financing was granted to State and local welfare departments.[3]

The Secretary of Health, Education, and Welfare placed responsibility for the new program on the Commissioner of Welfare, head of the Welfare Administration. An Office of Spe-

[3] As of July 1, 1968, a ratio of 80 percent Federal to 20 percent State funding was begun under the provisions of the 1966 Economic Opportunity Act amendments.

cial Services was established within the Bureau of Family Services of the Welfare Administration (the office is now the Division of Work and Training Programs, Children's Bureau, Social and Rehabilitation Service.) Mr. Andrew R. N. Truelson was named Bureau Assistant Director for Special Services.

In a report made on March 24, 1965,[4] Mr. Truelson said, "The language of title V clearly relates to the experimental, pilot, or demonstration projects under section 1115 of the 1962 Public Welfare Amendments to the Social Security Act. One purpose of these projects was to encourage States to develop imaginative and original methods of promoting the objectives of the public assistance programs, and to provide constructive aid to individuals and their families in their effort to become self-supporting."

He further described the basic objectives of title V in this report as being "directed toward enabling individuals to be as fully supportive as possible of their families through the development or preservation of good work habits and attitudes, the conservation of work skills already possessed by whatever means are available, and the development of new skills through the use of existing facilities. Training can profitably cover such needs as basic literacy courses . . . instruction in simple arithmetic, instruction in the need for employee cooperation on the job, and importance of good relations with the employer."

Thirteen States had set up community work and training programs under section 409 of the Social Security Act but only a few programs had done much training per se because of the lack of Federal funds for this purpose.

Through title V most of the community work and training programs were augmented with education, training, and supportive services.

In 1966, amendments to title V of the Economic Opportunity Act and the Manpower Development and Training Act directed that greater emphasis be placed on strengthening vocational training, job development and placement and work experience activities of title V projects. In early 1967, arrangements were worked out between the Department of Health, Education, and Welfare and the Department of Labor to implement these amendments.

After 2 years' experience in the administration of the title V demonstration projects, the President's budget message, submitted to Congress in January 1967, contained a reduced appropriation request for fiscal year 1968 predicated on a decision to terminate the program on June 30, 1969. Title V was to be gradually replaced by an expanded work-training program under amendments to the Social Security Act provisions for aid to families with dependent children.

In H.R. 12080, as introduced by Congressmen Wilbur Mills and John Byrnes, responsibility for establishing community work and training programs was placed in welfare agencies and it was required that programs be established in every area of a State where there were significant numbers of AFDC families. It was proposed that Federal matching funds to the extent of 75 percent (85 percent prior to July 1, 1969) be provided for training, supervision, and materials. The bill passed the House on August 17, 1967, without significant amendments. Provisions included authorization to State public welfare agencies to purchase with Federal aid testing, counseling, and other manpower services from State employment service agencies.

Following the public hearings, the Senate Finance Committee held executive sessions and filed its report on November 14, 1967. The Committee modified the public welfare provisions by proposing a comprehensive work incentive program with the manpower activities to be administered by the Department of Labor and supportive services by the Department of Health, Education, and Welfare. The assignment of work-training services in the AFDC program to the Department of Labor was proposed on the premise that all Federal manpower programs should be located in the Department of Labor in order to gain maximum utilization

[4] Delivered at New Orleans to the Southwest Regional Conference of the American Public Welfare Association.

of the testing, counseling, recruiting and other employment services of the Department.

The conferees for the Senate and House met December 4–7, 1967, and adopted the basic Senate provisions for a work incentive program. After approval of the Conference Report by the House and Senate, the President signed the Social Security Amendments of 1967, (Public Law 90–248) on January 2, 1968.

The new work incentive program was made mandatory as of July 1, 1968, except in any State prevented by State statute from complying, and mandatory in all States by July 1, 1969.

State and local public welfare agencies are responsible for providing prereferral services, the making of referrals, and the provision of essential services, including medical examinations and child care, where needed in support of the manpower activities.

The amendments directed that the Community Work and Training Program that had been established under section 409 in 13 States be discontinued on June 30, 1968.

The phasing out of the title V program was reflected in the decreased allocations of funds from $100 million in fiscal year 1967 to $45 million for fiscal year 1968 and $10 million for 1969. Many title V projects have already been phased into the new WIN program. Generally, the remaining projects are in the 16 States that have legal barriers to entering the WIN program. These title V projects have been funded through June 30, 1969.

An orderly transition between the existing title V program and the new WIN program is essential in order to provide for the absorption of title V public assistance trainees into the new program, and for maximum utilization of the experienced title V staff.

ADMINISTRATIVE POLICIES

Federal responsibility for the administration of work experience and training programs was assigned to the Welfare Administration[5] of the Department of Health, Education, and Welfare.

Several basic concepts were emphasized in administering title V. Among them:

1. The projects were to be designed to serve as demonstrations of methods to improve employability which could be incorporated into ongoing welfare programs.

2. They were to be directed primarily at underemployed and unemployable adults. State and local welfare agencies included AFDC recipients and other low-income persons in their title V projects. Participation by AFDC mothers was voluntary. In some States participation by unemployed fathers was required. Most States used title V funds to supplement the income of trainees, whatever its source (wages, assistance payments, etc.) up to the level of full budgeted need as defined by the State (see p. 19).

3. High priority was to be given to projects which were coordinated with other government and community efforts to exert a substantial impact on poverty.

4. Projects were to work toward a flexible "package" combining all the services needed to assist multiproblem families. With such a range of services available the various needs of individual trainees could be met.

The authorization of 100 percent Federal financing for approved projects during the first years of operation proved to be a powerful stimulus to States which could not afford new programs. During the final year of title V, Federal financial participation was generally limited to 80 percent. With the exception of Alabama, all States participated.

Pursuant to the 1966 amendments to title V of the Economic Opportunity Act and the Manpower Development and Training Act, from July 1, 1967, to June 30, 1969, the Department

[5] Absorbed into the Social and Rehabilitation Service, DHEW, under the 1967 reorganization.

of Labor provided training, job development, and placement services for 67 projects at a cost of about $3.6 million of title V funds. Since there were very few new projects approved after July 1, 1967, the Departments of Labor and HEW directed particular attention to improving approved projects, especially at the time they came up for renewal. The two Departments made joint evaluations with the goal of having projects that would:

1. provide the necessary social services under the direction of HEW to help meet the problems of family life and health that make it difficult to get and hold jobs; and

2. provide manpower services under the direction of the Department of Labor, including testing, counseling services, job development, referral, on- or off-the-job training, work experience, and, where necessary, relocation assistance.

The Bateman rating system (see page 13) was frequently used in bringing about decisions on what the Department of Labor input should be on projects being renewed. The decision was made at the Office of the Secretary level of the two Departments that where projects up for renewal were being restructured pursuant to the 1966 amendments, the Work Experience and Training specialist positions and other manpower classifications, whether filled or not, would be transferred to the Department of Labor jurisdiction.

Other agreements reached were the following: The employment counselor, in consultation with the social worker, and under the supervision of the project director, would have the primary responsibility for managing the employability plan, for moving the trainee through various resources, and for developing necessary resources to carry out the plan. Special problems of absenteeism, lack of motivation, etc., would be the responsibility of the social worker utilizing group services, casework, counseling, family budgeting, housekeeping and similar services to back up the trainee in his rehabilitation progress.

THE PROJECTS

A total of 344 projects were established under title V (see appendix for location and amounts of grants). About 228,000 persons were enrolled for an average period of 7 months. The Federal grants for the projects totaled approximately $370 million.

The program accepted unemployed parents and other needy persons without regard to educational attainment or work history and provided the services they needed to prepare them for the labor force. A highly individualized and flexible program of integrated vocational instruction, training, and social services was the goal.

The projects were administered by State and local public welfare agencies with the cooperation of the Department of Labor and with the maximum possible use of community resources. Projects provided basic education for functional illiterates; high school equivalency; work experience (for good work habits); vocational instruction (for new skills); motivational counseling; income maintenance (based on family size); remedial medical services; supportive social services (child care, personal and family counseling, etc.); job orientation and job placement. Training was keyed to the local labor market. Occupations and skill levels for which training was given were limited only by the needs and resources of the community and the abilities of project trainees.

When a trainee was accepted for assignment, an employability plan was developed for him. The plan included an estimate of what services he needed to become fully employed. An essential part of the plan was an analysis of his family situation to identify problems which might adversely affect his participation in a title V assignment. In some instances, a homemaker was assigned to teach better housekeeping, child-rearing, or money-management. Where needed, day care for children and remedial medical care were provided. Counseling was given for marital, parent-child, or other behavioral or personal problems.

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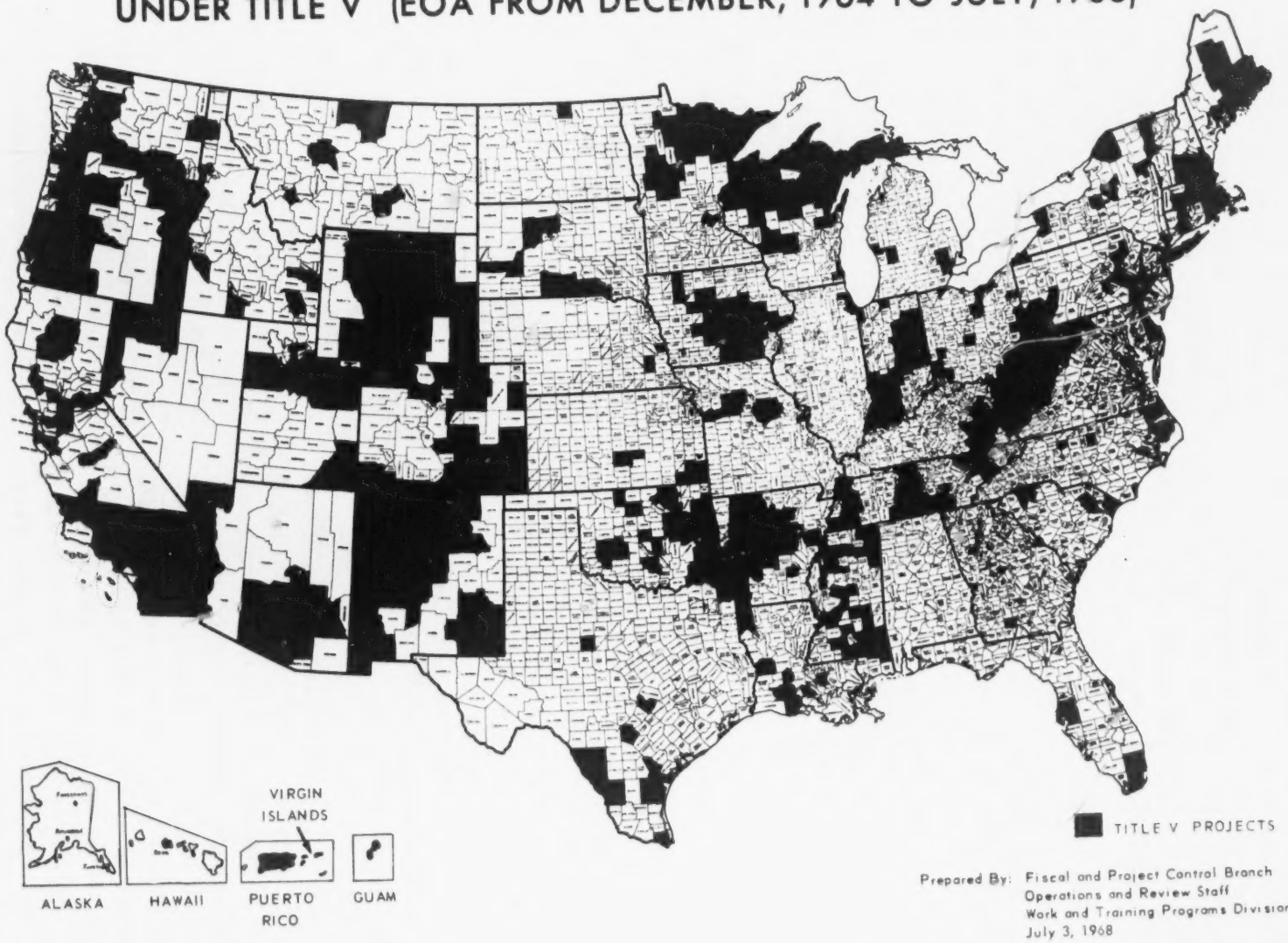
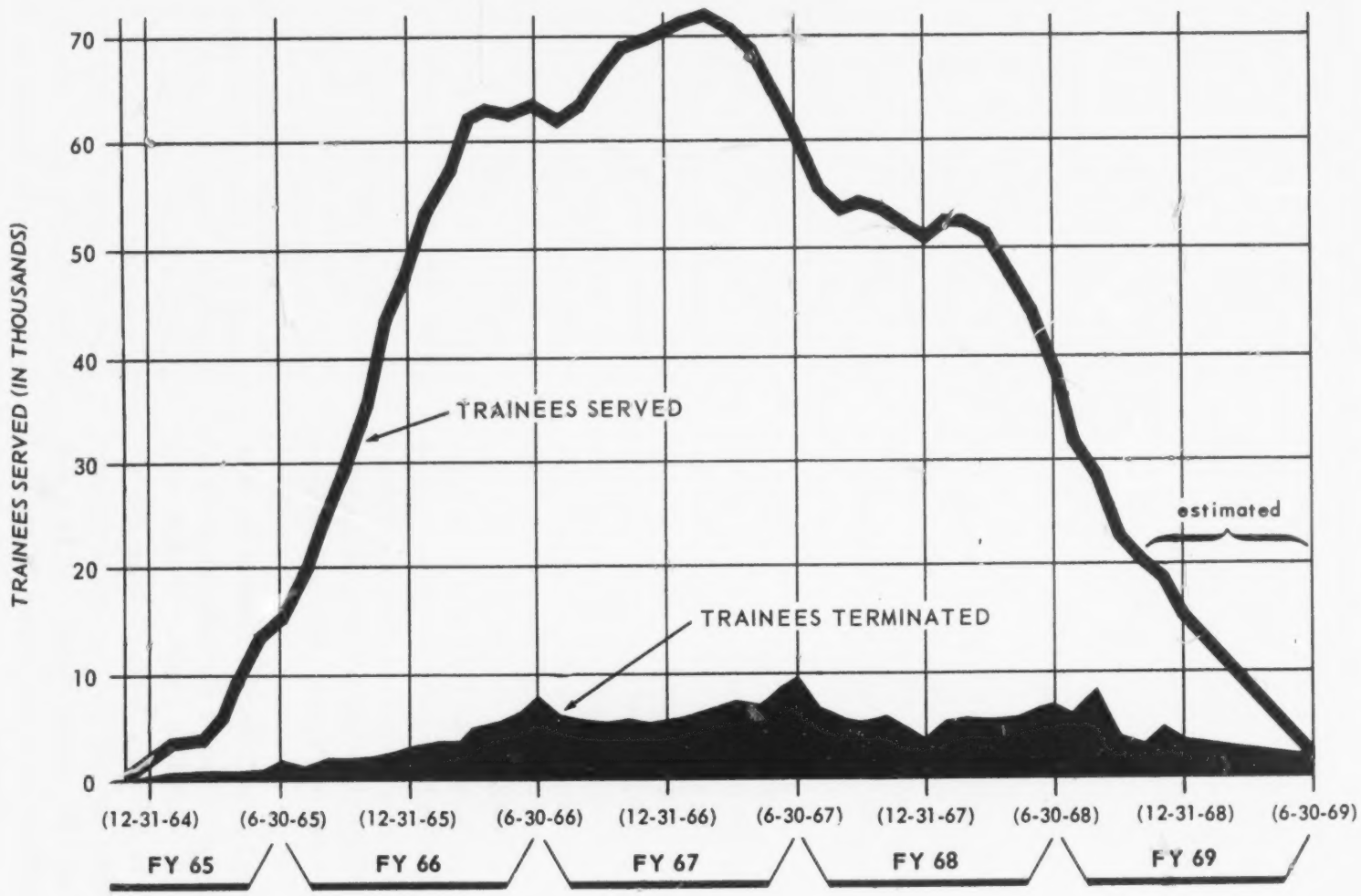
LOCATION OF WORK EXPERIENCE AND TRAINING PROJECTS UNDER TITLE V (EOA FROM DECEMBER, 1964 TO JULY, 1968)



Prepared By: Fiscal and Project Control Branch
Operations and Review Staff
Work and Training Programs Division
July 3, 1968

PROFILE OF MONTHLY OPERATIONAL LEVEL OF TITLE V WORK EXPERIENCE AND TRAINING PROGRAM, DECEMBER 1964 - JUNE 1969



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Trainees were provided any combination of services deemed essential by caseworkers and employment counselors to improving employability. Upon completion of his assignment, the trainee should have had sufficient education, work-experience and training in a specific occupation and have had personal, financial, legal, and family problems ameliorated to the extent that he would be able to find and keep employment to maintain his family in dignity.

THE PROBLEMS

In several functions of administration, the title V program encountered severe problems which hindered total accomplishment of the program's mission. Some of these problems are discussed below:

Assignment of trainees. In the early period of the title V program, there was considerable lag in bringing projects up to full capacity. For example, during the first part of fiscal year 1965, many projects were operating about 30 percent below their expected minimum capacity. Some of the delay occurred because time was needed by the welfare agencies for planning of projects in order to coordinate work experience, adult basic education, and vocational instruction. It should be pointed out that, unlike some other Federal programs, this one did not provide for planning grants. The agencies were expected to move right into the operation of projects.

In mid fiscal year 1965, the Federal Government placed into effect a formula whereby 20 percent of the estimated number of slots were expected to be filled by 30 days from the approved starting date of the project, 50 percent by 60 days, and 90 percent by 90 days. In a few instances, extensions were granted in view of extenuating circumstances. Although some State and local welfare officials were critical of the Federal formula to accelerate the assignment of trainees, the application of the formula and provision of special technical assistance to projects having difficulty in filling slots resulted in progressive improvement in assignment of trainees.

By April 1967, 90 percent of the total estimated slots for all title V projects were filled. A 90-percent level was thought to be about the optimum. It was not expected that a project would have all slots filled at all times, since there would be constant turnover and seasonal fluctuations.

Absenteeism. In many of the projects there was a high degree of absenteeism among the participants. Although in some projects absenteeism was very well controlled, in others it averaged for about one-third of the participants 30 percent or more of their scheduled work-training time. In some areas of the country an absenteeism habit had developed among many welfare recipients from their experience on work relief projects. In some work relief projects that involved the working out of the assistance payment, it was common practice to permit absenteeism with the understanding that a person would have to make up the lost time at a later date. Often there was no followup to require persons to make up lost time.

Absenteeism from title V projects, except for a good cause such as verified illness or family problems requiring the trainee's presence at home, was not condoned by title V personnel. In some of the projects demonstrations were carried out dealing with problems of absenteeism. The District of Columbia project dealt with absenteeism first by a plan calling for withholding the assistance check of a trainee absent 3 days out of 10 except for good cause. Eventually, there was withholding for 1 day's absence without good cause in 10 days. Through this approach absenteeism was reduced from about 20 percent to approximately 5 percent. In the Contra Costa County, Calif., project, personnel made immediate followup visits to the homes of title V absentees to find out why they were absent, and to assist in getting the person back on the project as quickly as possible. These visits were made within 24 hours

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from the time the person failed to show up, and this was found to be a very effective way of holding absenteeism down. A study of the Cuyahoga (County (Ohio) Welfare Department, however, concluded that "a particular pat procedure for dealing with situations of absenteeism on the title V work experience program was not possible due to the individuality and complexity of each situation."

Reviews and evaluations. Prior to July 1, 1967, when the Department of Labor became involved in the title V program under the 1966 Economic Opportunity Act Amendments, HEW vested primary responsibility for title V reviews and evaluations in its regional staffs. Shortages in regional staffing resulted in inadequate evaluating and monitoring by HEW. For example, in one HEW region covering five States, there were never more than one or two title V representatives to review and evaluate some 25 projects. Furthermore, the demands for technical assistance from the regional representatives were such that they could give only part of their time to evaluation and monitoring. Similarly, pressures of other duties prevented adequate program evaluation by title V personnel in some States. While Federal and State title V officials were keenly aware of shortages of staff for adequate evaluation and monitoring, both considered it not proper to recruit additional staff for a program which was coming to an end on June 30, 1969.

Project information. Federal guidelines provided that State and local project officials would accumulate information on new and terminated trainees and prepare statistical and financial reports related to individual projects. Most of the data was sent in the form of punchcards to the Office of Economic Opportunity Data Support Branch to enable analyses through the use of computers, and the resulting printouts were forwarded to the HEW title V program staff. Many problems were encountered in establishing a computerized system. Special attention was directed to identifying the reasons for inadequate reporting by the projects and to taking corrective action. The data processing operations were reprogramed and arrangements made for more timely submission of data by State officials. After these measures were taken, it was possible to share information relatively quickly with State and local project officials, to point out problem areas warranting further study or immediate action. The Federal guidelines for the WIN program provide for the sharing of computerized data with State agencies and for a feedback of material to officials at all program levels.

Cooperative relationships and communication. Dr. Sar A. Levitan of George Washington University, reporting to the House Committee on Education and Labor on July 12, 1967, concerning an evaluation of title V, said:

> **State and local welfare agencies . . . were ill prepared . . . had little or no experience with training or placement and awareness of labor market operations . . . (and welfare officials) seemed to take the position that their activities constituted a separate universe from other manpower and antipoverty programs and that they had little to learn from other agencies.**[6]

In the course of developing the title V program, some public welfare officials agreed with Dr. Levitan's observation. By themselves, public welfare agencies are ill-equipped to train and place public assistance clients. The title V program, therefore, strove for maximum utilization of existing community resources; this was one of the program requirements. The projects were to involve, either as sponsors or to provide services, the employment service, health agencies, private social agencies, Community Action agencies, civic groups, schools, etc. Involvement in the title V program of other agencies and organizations is reflected by the non-Federal contributions of approximately $50 million (other than public welfare funds) in the operations of the projects.

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[6] Economic Opportunity Act Amendments of 1967: Hearings . . . Part 3, p. 1670 ff. Washington: U.S. Government Printing Office, 1967.

Thus, while many problems were encountered in bringing together so many different agencies and individuals to serve title V trainees, many projects succeeded to a notable degree in this effort (see pages 16 to 20).

CHARACTERISTICS OF THE TRAINEES

Perhaps no other factor influenced the nature of the title V programs more than the people it served. It was designed for actual and potential public welfare recipients.

The obstacles to improved capability for employment are, for most public welfare recipients, formidable. In his report of June 6, 1967, to the Senate Subcommittee on Employment, Manpower, and Poverty, former Assistant Secretary William Gorham of DHEW summarized them as:

- The maldistribution of workers in relation to jobs
- Lack of occupational skills and job experience
- Lack of basic education requirements for jobs
- Poor attitudes toward self and work
- Health and medical problems
- Lack of child care services
- Police and bad debt records
- Lack of income.

The following data describe some of the external and measurable characteristics of the title V constituency.[7]

Age Distribution	percent
20 and under	4.0
21 to 39	65.9
40 to 49	20.9
50 to 64	9.1
65 and over	.1

Sex Distribution	
Male	45
Female	55

	percent
Head of Household	91.8

Marital Status	
Single (never married)	15.7
Married (including stable, nonlegal union)	38.9
Other (separated, deserted, widowed)	45.4

Race or Ethnic Group	
White (other than Mexican American)	44.0
Negro	43.4
Mexican American	6.2
Island Puerto Rican or Virgin Islander	3.2
American Indian	3.1
Oriental	.1

Employment History

Was the trainee ever continuously employed for 6 months or more?

No—32.8 percent; Yes—67.2 percent.

Employment Status Immediately Prior to Title V Assignment

	percent
Total unemployed	95.1
Never worked	14.6
Unemployed 1 year or more	34.9
over 36 months	20.4
19 to 36 months	8.0
1 year through 18 months	6.5
Unemployed less than 1 year	45.6
27 up to 52 weeks	11.9
15 to 26 weeks	10.5
5 to 14 weeks	12.9
5 weeks or less	10.3
Employed (underemployed): at time of assignment	4.9

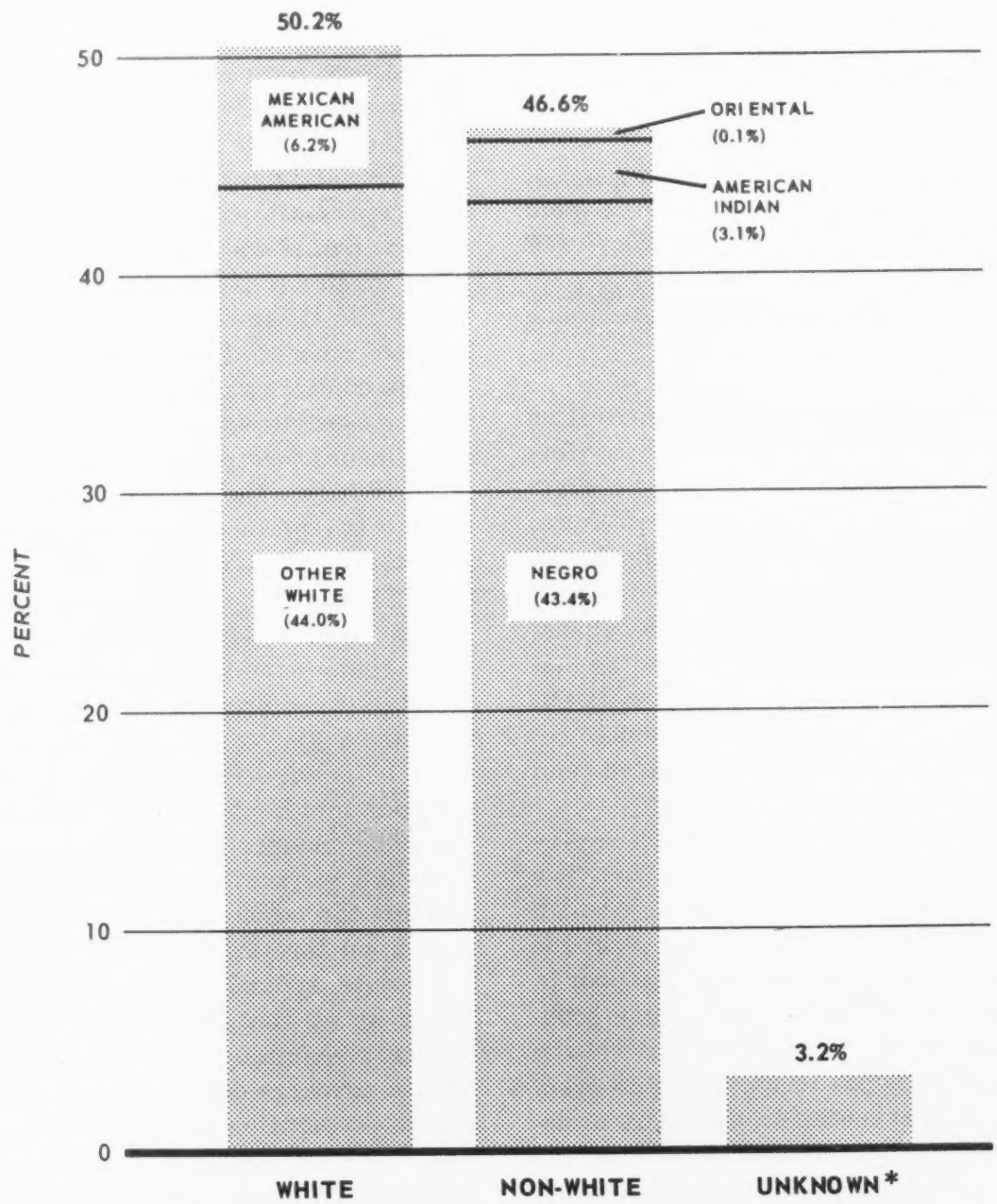
Education

Trainees assigned during the period February 1, 1968, through October 31, 1968:

	percent
No education	2.0
1st–4th grades	9.9
5th grade	4.0
6th–7th grades	11.9
8th grade	13.6
Below high school level	41.4
9th–11th grades	34.8
12th grade	21.6
1st–3d year college	2.1
4th year college	.1
Postgraduate	0
9th grade and above	58.6

[7] Data for fiscal 1967, the peak year of title V.

RACE/ETHNIC COMPOSITION OF TITLE V TRAINEES



*Island Puerto Rican and Virgin Islanders - race unknown

II. The Social and Economic Effects

MEASURING EFFECTIVENESS

"THE trouble is that the unmeasured, or unmeasurable, aspects of a problem may be vastly more important than those which have been, or can be, measured . . ."

ARTHUR M. ROSS,
Former Commissioner of Labor Statistics

An inherent problem in evaluating innovative social programs was described by William Gorham, former Assistant Secretary for Program Planning and Evaluation, DHEW, as follows:

"The conventional wisdom regarding the solution to poverty among the adult nonaged groups in the population is a variation of what Secretary Gardner has termed the vending machine concept of social change. You simply put a nickel in the training machine and out comes the production worker, neatly cleaned and pressed and self-supporting.

"Economists and other practical men are the most notoriously strong adherents of this view . . . there is a certain tidiness in the logic which observes that skilled workers are not poor, the poor are not skilled; ergo, enrolling the poor in MDTA programs will solve the poverty problem. One must hasten to add that this view is not entirely attributable to the training program syndrome; it is also related to the desire to declare an enterprise a success or failure on the basis of the number of nickels returned for each nickel deposited in the machine."

This all too familiar view has been an important handicap in evaluating accurately the successes or failures of social programs. Because of it we tend to discount the view of the "reasonable man," a central figure in our common law, and favor that of the "practical man" with his relentlessly hard-headed approach. The compulsion to quantify that which is unquantifiable (in the present state of the art of social prophecy and measurement of social cause-and-effect relationships) often leads us to more inaccuracy than if we were sufficiently confident to place greater reliance upon the evidence of our senses. For the present, therefore, while waiting for better means of measurement, it would seem wise to combine analysis of available hard data with reasonable assessments of reliable observations in order to gauge program effectiveness.

To illustrate the problem of evaluation: We hesitate to report as fact that a prescribed course of action is succeeding in instilling pride in a title V trainee who has apparently never before felt pride in himself although we can see dramatic changes in him that unmistakably express pride. For the first time in our observation his demeanor, his habits, and his dress improve after he is admitted to an on-the-job training program that holds promise of employment and economic independence for his family. If he does find work after an interval, how do we measure the positive impact of his first experience upon the ultimately successful outcome?

Another typical problem in measurement: When we see that children of a title V trainee suddenly beginning to attend school regularly after a parent is enrolled in adult basic education in preparation for job training, how do we report or measure this "ripple-effect" with hard data? If we insist upon confining ourselves to counting only steady employment of the parent as provable success, do we not seriously distort our findings?

The difficulties in evaluating social program effectiveness imposed by the "vending machine concept" are compounded by the innovative characteristics of the title V programs. Among

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them: Title V was the first major Federal work-training program for the heads of current or potential public assistance households; it was the first work training program that endeavored to treat, insofar as was practicable, all of the trainee's social, medical, educational, and vocational handicaps, as well as his family situation where it contributed to his lack of employment; and finally, the program had several objectives—such as improving the capability for employment and the strengthening of family life—and not solely the relatively easily measurable objective of employment.

Given these facts of innovation plus multiple objectives, establishing baseline data against which precise measurements of effectiveness can be made is a task of enormous complexity. Put more simply: What does one measure against if the program being measured has not been attempted before? Or, how much weight can accurately be assigned to the side benefits for the family when economic independence becomes an achievable goal for the first time?

Julius Horwitz quotes a Negro man he met in a New York welfare office[8] as to the effect of parents' employment on the family: ". . . With parents that work, the kids are different, they look different, they think different, they see things ahead of them, they're moving toward something real in this world."

We have, as yet, no means to measure this effect.

Still another factor makes hard and fast judgments of these programs suspect: the almost infinite range of geographic, economic, and attitudinal variations to be found among the 344 projects operated under title V. For example, an employment rate that might be deemed successful for a program operating in the Mississippi Delta would be regarded as a failure in a low unemployment, highly industrialized New England area.

According to Dr. C. Worth Bateman, former DHEW Deputy Assistant Secretary for Planning and Evaluation,[9] "Factors contributing to differences in the relative effectiveness of individual projects are: (1) The location of the project; (2) the characteristics of the trainees served; (3) the availability of services in relation to requirements; and (4) the skill with which these services are organized to accomplish the mission."

To illustrate some of the variable factors, Dr. Bateman compared a large rural project operating in an economically depressed 19-county area in eastern Kentucky with two projects operating in the urban settings of Cleveland, Ohio, and St. Paul, Minn. (see table).

Dr. Bateman has developed a rating system for identifying the relative success of selected title V projects. He has described its development thus: "Having identified projects operating under similar economic conditions and serving trainees with similar characteristics, a set of effectiveness measures was needed in order to rate the success of projects in achieving certain program objectives. Four such measures were selected: the employment rate of trainees, the occupational distribution of employed trainees, the average wage of employed trainees, and the proportion of trainees who went on to other training programs."

This must be considered one of the best rating systems available, yet it must still confine itself to projects which have sufficiently similar characteristics to make them comparable, and must further be limited to assessing only those of the program's objectives that yield to quantifying. (The system is being further developed in the new WIN program.)

The value of such measurements as an aid to administrators and legislators who must make decisions is not questioned, but sole reliance on such data is. Accordingly, this report will include data available on measurable aspects of the title V programs along with examples and case histories to describe title V's more subtle and pervasive effects: those that may defy measurement but are nonetheless essential to an accurate evaluation.

[8] "A Portrait of New York's Welfare Population," *New York Times Magazine*, Jan. 26, 1969.

[9] "Assessing Program Effectiveness," *Welfare in Review*, January–February 1968.

SELECTED DATA ON TITLE V TERMINEES IN CLEVELAND, EASTERN KENTUCKY, AND ST. PAUL PROJECTS

	Cleveland	Eastern Kentucky	St. Paul
Total terminations to Sept. 1966	1,613	1,936	[1] 471
Employment			
Total terminees employed	734	640	330
Percent employed	45. 5	33. 1	70. 1
Local labor market conditions			
Unemployment rate (percent)	[2] 2. 8–3. 5	[3] 7. 2–31. 4	2. 0
Participant characteristics [4]			
Percent male	71. 6	100. 0	100. 0
Percent white	20. 0	99. 5	87. 9
Average age	36 (male) 31 (female)	39	35
Services			
Percent in adult basic education	22. 5	86. 0	13. 5
Percent in high school equivalency	12. 5	8. 0	33. 0
Percent in vocational instruction	25. 5	2. 5	63. 5
Average health expenditures per case month	$10. 46	$7. 17	$6. 18
Total day care expenditures	$70,537	0	0

[1] For period Oct. 1, 1965, to Oct. 31, 1966. Includes only unemployed male heads of families not receiving AFDC.

[2] Range from low of 2.8 percent unemployment rate in April 1965 to high of 3.5 percent in July 1966.

[3] 1966 annual average unemployment rates for 19 eastern Kentucky counties:

Bell	15.5	Letcher	11.4	Morgan	8.0
Breathitt	31.3	Knott	18.3	Owsley	31.4
Clay	15.6	Harlan	12.6	Perry	18.3
Floyd	14.2	Knox	20.7	Pike	14.5
Elliott	n.a.	Magoffin	23.9	Wolfe	18.3
Jackson	7.2	Manifee	7.5		
Leslie	29.4	Martin	20.4		

[4] Data on participant characteristics and services derived on basis of average number enrolled: (1) in Cleveland project, from Mar. 1, 1965, to Aug. 31, 1966; (2) in eastern Kentucky project, from July 1, 1966, to Dec. 31, 1966; (3) in St. Paul project, from Oct. 1, 1965, to Oct. 31, 1966.

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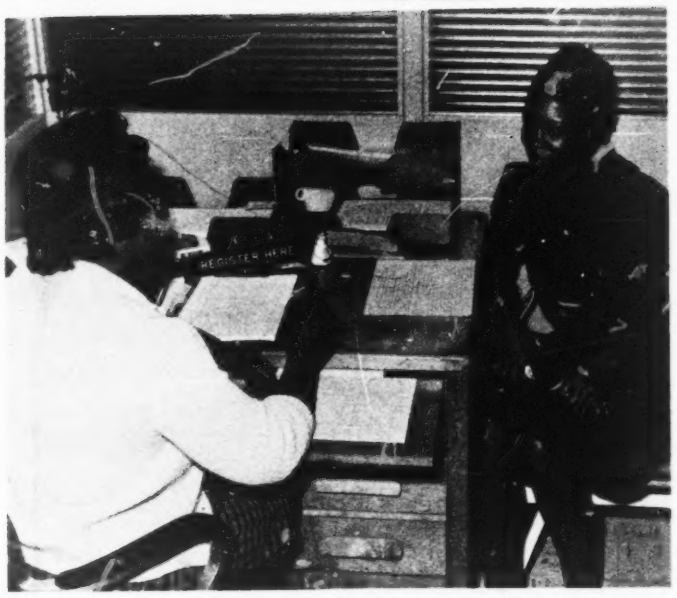

THE EFFECTS

"I'D like to see the welfare center a place of hope, where people get excited about the changes that are going to take place in their lives and not sit the way I see them do, like they've been dead for 10 years. Welfare should be the starting place for people, not the end." [10]

MRS. TONICE WESTON
Welfare recipient, widowed and expectant mother

Introduction

The title V programs gave public welfare agencies a greatly enlarged capability for applied research. The flexibility afforded by the Federal funding of up to 100 percent of costs plus the encouragement of innovation, experimentation, and demonstration, stimulated public welfare personnel to put forward imaginative efforts to achieve the programs' major objectives—improved capability for employment and independence.

As the caseworker began to consider his clients in terms of their possible potential for employability and greater independence, knowing that he had the means to deal with many of the problems presented, he could begin to see possibilities he had hardly been aware of formerly. The recipient's response, in many instances, was also altered by this new appreciation of himself as capable of learning, of earning and of joining the mainstream of society.

The title V programs produced abundant evidence that to consign welfare recipients generally to lifelong dependency is mistaken and unnecessary. Only for those recipients too young, too old, or too ill to work is employment an unrealistic objective.

The influence of the programs was not limited to public welfare agencies and recipients. Its galvanizing effects reached into the wider community. As the economic benefits resulting from the transformation of "tax-users into taxpayers" began to be noticed, public interest quickened. Favorable reaction (a rarity for public welfare efforts) followed the publication of stories of recipients who were able to get and keep responsible jobs after training and counseling.

The General Accounting Office, after studying 10 title V projects, summarized their findings,[11] in part, as follows:

1. In summary, since the program provided work experience and training to many needy persons and helped them obtain employment and assume more economically gainful roles in society, the extent to which the program was achieving its objectives is, on balance, considered reasonable.

2. In terms of tangible results, there is room for mixed views of the work experience and training program. The percentage of participants who obtained employment upon completion or termination of their training, while not overly large, is not discouraging considering the educational, employment, and social handicaps of the participants. We found, however, that some of the participants left the program shortly after commencement of training to accept employment obtained through their own efforts. Although the program claims credit for such employment, its role was generally of a limited nature.

3. From a more positive viewpoint, the number of participants who were able to detach themselves from the welfare rolls or to have

[10] Quoted by Julius Horwitz, "A Portrait of New York's Welfare Population," *New York Times Magazine*, Jan. 26, 1969.

[11] Report to the Congress (B–130515), Review of Economic Opportunity Programs, Mar. 18, 1969.

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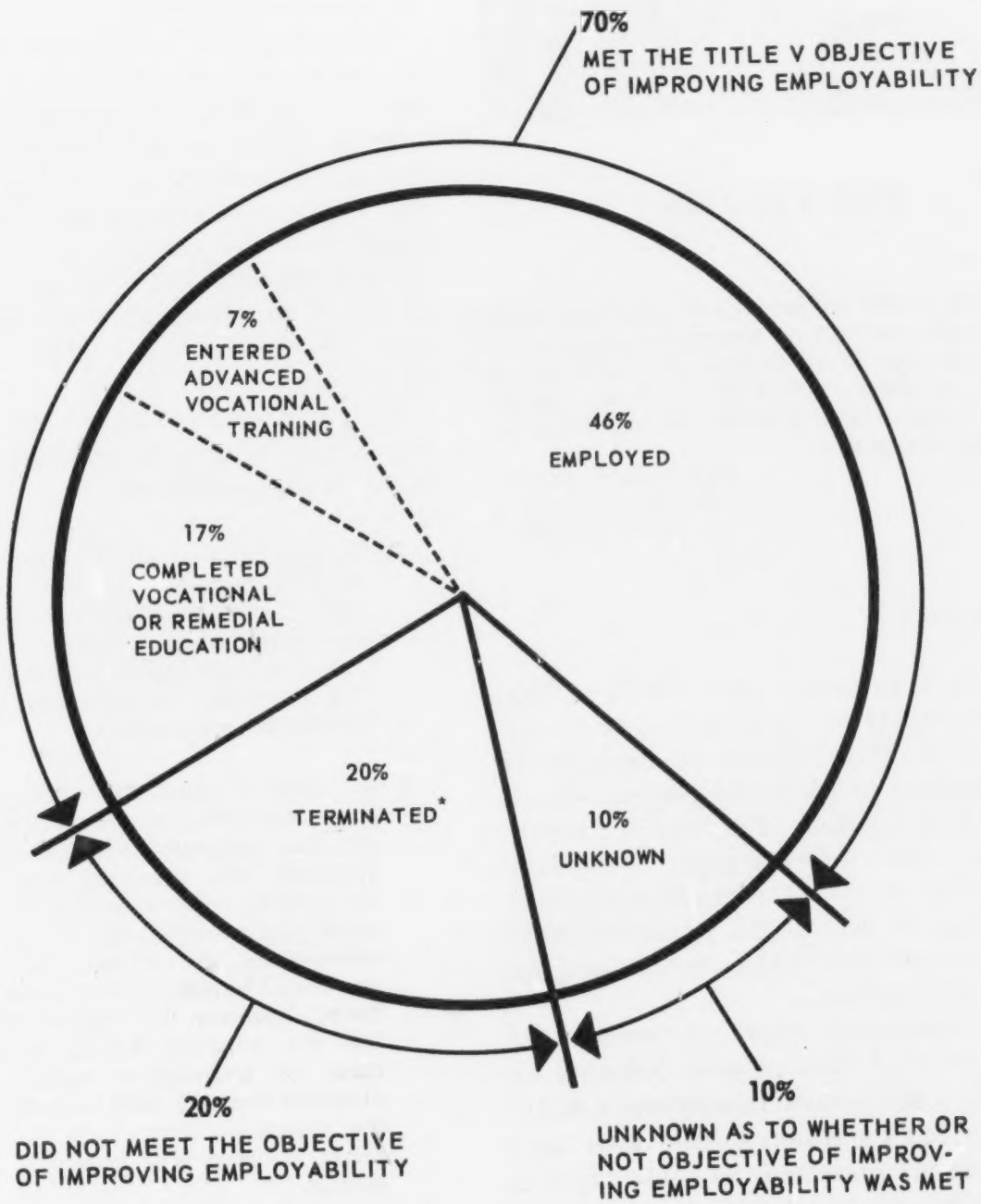
STATUS OF 185,000 TITLE V TRAINEES TERMINATED BY JUNE 30, 1968



*Terminated because of refused assignment, poor attendance, inability to adjust, etc.

their assistance payments reduced, to the extent not attributable to external factors such as changing local economic conditions, seems to speak creditably for the program's capability to help many of its participants toward becoming economically self-sufficient, at least in the short run. In some locations the wage levels for certain low-skill jobs were such that employed participants found it necessary to continue to receive their regular assistance payments. With regard to the employed participants who continue to receive some measure of public assistance, the possibility exists that having progressed to employment they may be motivated to acquire the additional skills that would qualify them for more remunerative employment.

In its Report on the Economic Opportunity Amendments of 1967, the Senate Committee on Labor and Public Welfare [12] reported:

The committee has found that the work experience and training program is reaching the hard-core unemployed for whom it was intended. Some of the work performed is a notable public contribution. In the best operations, significant proportions of the participants raise their employability, obtain jobs, and get off welfare. In many places it has helped to strengthen and broaden the work of public welfare agencies.

Employment, employability, and economic effects

"For a total cost of $191,051 in title V funds, the gain to the community was not only the $408,360 per year reduction in grants but an increase of $699,192 in taxable income and the incalculable benefit in psychological gains to the trainees and their families."

from a report on the Riverside, Calif., title V project

On June 30, 1969, the date title V is scheduled to terminate, it will have been in operation almost 5 years. A total of $369–370 million of Federal antipoverty funds will have been invested in this program.

[12] S. Rept. No. 563, Sept. 12, 1967.

Although many of the social benefits of this program are not measurable in monetary terms, two effects are: (1) Reductions in assistance payments due to title V trainees' employment and (2) earnings of trainees after leaving the program.

Approximately 228,000 trainees will have participated in the title V program when it is terminated on June 30, 1969. Of these about 90,000 or 39 percent [13] will have gone into steady full-time or part-time employment. In addition to this 39 percent, approximately 48,000 or 21 percent [14] will be in employment on a sporadic basis. The economic effects are measured only for the trainees going immediately into steady employment.

Based on complete figures as of June 30, 1968, of the 185,500 trainees who had terminated from title V projects, approximately 147,100 had either completed their training assignment or were in the projects long enough for title V to have some influence on the trainee. Of these 147,100 trainees, 102,500 or 70 percent had met the title V objective of improving employability. Immediately upon termination, 67,400 of these 102,500 trainees went into employment, 9,700 enrolled in advanced vocational instruction under other programs, and the remaining 25,400 were unemployed but had completed vocational or remedial education under title V and their chances for employment had been greatly enhanced (see chart).

Annual gross earnings before entering title V is defined as gross pay for employment during the 12 months preceding assignment to title V. Over 49 percent of the trainees had no employment during this period. An additional 16 percent made less than $1,600 in earnings. A few title V trainees may have been employed

[13] This figure is based on interviews with trainees 3 months after termination from the program. Approximately 46 percent were employed at time of interview; 84 percent of this number said they expected to be in the same job 3 months later.

[14] At some time during the 3 months following termination from the title V project, 61 percent of the trainees interviewed had held employment. Thus, if 39 percent expected to be in steady employment, it is assumed the remaining 22 percent would be employed on a sporadic basis.

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part-time or underemployed at the time of assignment.

ESTIMATED ECONOMIC BENEFITS DERIVED FROM AVERAGE EMPLOYED TITLE V GRADUATE

Annual public assistance cost	
1964 (prior to title V)	$1,371
1969 (asistance to low-earning and partially employed trainee)	−66
Reduction	$1,305
Contribution to the economy resulting from employment	
1969 earnings	[1] $3,151
1964 earnings	[2] −1,169
Net gain	$1,982
Total dollar contribution to the economy	$3,287

[1] Based on a sample of 12,100 trainees assigned between Feb. 1, and Oct. 31, 1968.

[2] Based on random sample of approximately 20 percent of trainees terminating between Nov. 30, 1967, and July 30, 1968.

Applied to the 90,000 trainees who will have gone into steady employment by June 1969 the total annual dollar contribution to the economy (combining reductions in assistance and gains in earnings) is $296 million, a substantial return on the total investment in title V of $369–$370 million.

The following assumptions have been made in deriving these estimates:

1. The assistance payments prior to title V assignments, reductions in assistance payments following title V assignment and income prior to and following title V assignment would average that reported for trainees included in the samples.

2. Trainees would have remained on assistance an average of 8 months (same duration as during 12-month period prior to title V assignment) if they had not been enrolled in title V.

3. Approximately 39 percent (90,000) of the 228,000 trainees served by title V will remain in steady, full-time employment.

On the basis of these projections title V would repay the total cost of the program in about 15 months. This estimate does not include the monetary benefits from trainees going into sporadic employment.

Reports of economic benefits accruing from the rehabilitation and employment of title V trainees began reaching Federal officials from the time the first groups of trainees became employed and no longer needed full financial assistance. A few are cited:

DETROIT (WAYNE COUNTY), MICH.

(Reporting on the second year of its title V program)

The yearly earnings of 750 of its trainees who have secured employment will total $3,070,246 and exceeds the total grant to the title V project for its second year by $157,902.

Their earnings exceed their total AFDC grants for a year by $1,857,178. Not only do each of these 750 families have an average of $2,500 more per year to live on than they had when receiving public assistance but the total of 2,604 children included in these families are no longer stigmatized as "welfare children."

Approximately 2,100 persons are in training. Each month from 150–170 are terminated from the project and are replaced by new trainees.

Of those who completed their training assignments 94.9 percent secured employment. Another 9.2 percent of the total number closed secured employment before fully completing the training assignment. The average monthly earnings of those who did not complete training were $50.00 less than those who did.

UTICA (ONEIDA COUNTY), N.Y.

(From the *Congressional Record* of November 13, 1967. Statement by Congressman Alexander Pirnie, 32nd District, New York)

For 2½ years the Oneida County, N.Y., Department of Social Services, under Commissioner Michael J. McGuirl, has operated a work-experience program. Three Federal grants, totaling $818,214, have been awarded to help finance this facet of our local war against poverty . . .

To date 379 individuals have "graduated" from the work experience program and are now on the job . . .

These 379 individuals have 1,825 dependents, including themselves. Prior to participating in the work experience program they were receiving $90,202 per month, or $1,082,424 per year, in welfare payments. They were being supported by the taxpayers.

Now, these same 379 individuals are working. They are earning $112,942 per month, or $1,355,304 per year. They are taxpayers. They have found new meaning in life, new direction. They have dignity and pride and we are proud of them.

There are presently 240 enrollees in the program and they are headed down the same path. Soon, they will be earning their way.

All this was made possible by anti-poverty grants, by a program that places its greatest emphasis on "opportunity." We are receiving and will continue to receive very sizable dividends from what, by comparison, must be termed a modest investment . . .

This is not an isolated success story, but one that has been duplicated in other areas of the Nation . . .

ST. PAUL (RAMSEY COUNTY), MINN.

The following was reported by Sam S. Grais, Chairman, Ramsey County Welfare Board, in March 1969, on the basis of a survey of 2 years of operation, 1965 and 1966. Title V funds for those 2 years amounted to $4,712,987.

The expenditure of 4.7 million dollars in title V funds resulted in assistance savings that almost equalled the cost. ($2,129,292 per year for 2 years or $4,258,584.)

Financial assistance

In many States public assistance payments cover only a portion of the recipients' total financial need as determined by the State's standard budgets. In the title V program Federal funds were made available to enable States to meet the full budgeted need of the trainees and their families.

Andrew R. N. Truelson, Federal director of the program, summed up the reasoning behind fully meeting financial needs of title V trainees in a report on March 24, 1965:

> We public welfare workers know that hopelessness in needy persons—of feeling that there is no way out, nothing better to look forward to—tends to drain away all incentive. It is our charge to safeguard their will to struggle for, and their wish to attain, a better life . . .
>
> If a program of assistance is only a subsistence program the individual will just subsist . . . His energies will allow him to survive, but he will have little surplus. Initiative, "self-go," drive, all require some surplus physical energy . . .[15]

[15] "The Economic Opportunity Act and Public Welfare—A Report on Work Experience and Training Projects," paper delivered at the American Public Welfare Association Regional Conference, New Orleans, Mar. 24, 1965.

ST. PAUL (RAMSEY COUNTY), MINN.

WAGES OF PARTICIPANTS GAINING EMPLOYMENT

	Group I AFDC	Group II General Assistance	Total
Average monthly wage per trainee	$298	$397	
Total monthly wage	74, 500	247, 331	$321, 831
Yearly wages	894, 000	2, 967, 972	3, 861, 972

ASSISTANCE SAVINGS FROM PARTICIPANTS GAINING EMPLOYMENT

Average monthly savings per trainee	$169	$217	
Total monthly savings	42, 250	135, 191	$177, 441
Total yearly savings	507, 000	1, 622, 292	2, 129, 292

This philosophy was also expressed in the official guidelines governing the administration of the program: [16]

> Assistance payments must be in the amount essential to provide the basic necessities in life. Therefore, the full amount of assistance required under the State's standard for the applicable category must be paid to participants in title V projects. Provision must be made for additional costs reasonably attributable to participation in title V project. Legal or administrative maximums or percentage reductions which a State may have must be disregarded for title V participants . . .
>
> Participants must have funds to secure sufficient food, clothing, shelter and other living necessities in order to participate effectively and to derive maximum benefit from the program as quickly as possible. Assistance payments to meet full need under the State's standard are essential to provide a substantial motivation for participants to enter a work and training project . . .
>
> It is essential that persons receiving assistance under the project meet the test of economic need during their participation. That test must recognize the costs reasonably attributable to project participation—such as the cost of transportation, lunches, work clothes, educational supplies, etc. . . .

The title V experience supported the idea that adequate assistance payments are an essential element in sustaining incentives. The State of Michigan has since adopted the standard of meeting full need for all welfare recipients as a permanent part of its public welfare program. The movement toward adopting the full need standard in some other States has also undoubtedly been stimulated by the title V experience.

Child care

The inability of heads of households to arrange care for their children while working or receiving training proved to be a major barrier to economic independence. In the title V program an estimated 5 to 10 percent of the female

trainees could not finish their assignments because of the lack of adequate child care facilities.

In the April 1967 Manpower Report of the President, it was reported that "almost one out of every five of the slum residents who were not in the labor force but wanted a regular job gave inability to arrange for child care as the principal reason for not looking for work."

According to a national survey sponsored jointly by the Children's Bureau of the Department of Health, Education, and Welfare and the Department of Labor, 20 percent of working mothers from families with incomes of less than $3,000 were looking after their children while working. The great scarcity of day care centers is also revealed by this survey. It was shown that only 3 percent of the working mothers were using group care arrangements for their children.

Various localities sought solutions to the child care problems in their own ways.

CLEVELAND (CUYAHOGA COUNTY), OHIO

Eugene F. Burns, first Director of Cleveland's title V program, describes how day care services

[16] Handbook of Public Assistance Administration, Supplement B, Work Experience Program, Nov. 29, 1965.

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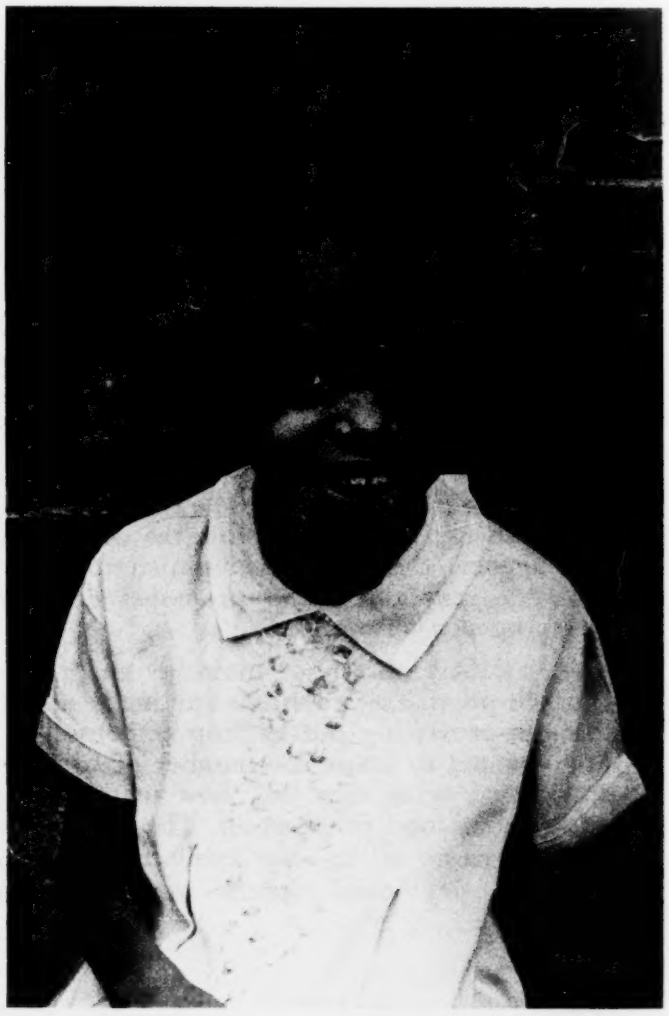
were provided for that program and touches on the effects on the children and their families:

> We found out that the few existing private day care centers in the community, which were excellent in staff and program, were already filled and had long waiting lists. Available to us was a total of 47 places in these private day nurseries, obviously not enough.
>
> Let me remind you that prior to title V, the only local governmental role taken in day care was limited to licensing and the State of Ohio had been unable to legally establish its right to establish standards for commercial nurseries.
>
> We could not legally purchase the services of profit making commercial nurseries which operate outside the law in Ohio as far as enforcement of standards is concerned. We sought for alternates and again we were able to establish new resources . . . Our major problem was care for the school children between the ages of 5 and 13 years.
>
> Their mothers had to leave for work before the school opened in the morning. The children were expected to go home for lunch when no one was there to prepare the meal. And then there was that unsupervised period between 3:30 and the time when the mother returned from work. No social agency had ever tackled this problem before and the result was that many children were completely on their own at too early an age—eating sandwiches off a kitchen table in an empty apartment or being given responsibility for the care of younger brothers and sisters at too early an age, or establishing delinquent behavior patterns.
>
> Our solution was to set up special school child day care centers where mothers could bring children as early as 7:30 a.m., where a hot lunch was served at noon, and where after-school recreation and supervision was given until the mother could call for the child.
>
> We had just become aware of the depth of the problem when I was called upon to explain the title V program to a meeting one night at Fidelity Baptist Church in the Hough Area. While there I inspected the premises whose good repair was in stark contrast to the urban ruins surrounding it in the neighborhood.
>
> In a town like Cleveland, there were few buildings that could meet the fire laws for day care centers. The sole institutions that had suitable buildings were the inner-city churches. Many had kitchens, meeting rooms and recreation areas that were used only on Sundays. In the fall of 1966, we rented space from seven inner-city churches which were located near schools and put our innovative day care plan into action.
>
> The impact of these centers is clearly seen as the children show a significant improvement in academic performance, health and social behavior. It's not just day care we are giving them but different and higher standards of living. For many of the children, the centers are the first quiet place they have ever had to complete homework assignments. They learn table manners along with good nutrition. Our day care coordinator will not accept anyone as a teacher who does not speak good English.

Because day care has proven its value, the County Welfare Department has expanded this service from the title V program, where it was restricted to trainees, and now offers day care as a resources to all welfare clients.



PHILADELPHIA (PHILADELPHIA COUNTY), PA.

An illuminating example of a flexible rather than dogmatic approach to the problems of child care of public welfare recipients can be found in the experience of the Philadelphia title V project. Resolution of the problem posed by lack of day care facilities was begun in a manner similar to that of Cleveland—surveying the city to see what was available. It was found that few of the existing day care centers were located where title V participants were and that there were no vacancies in any case.

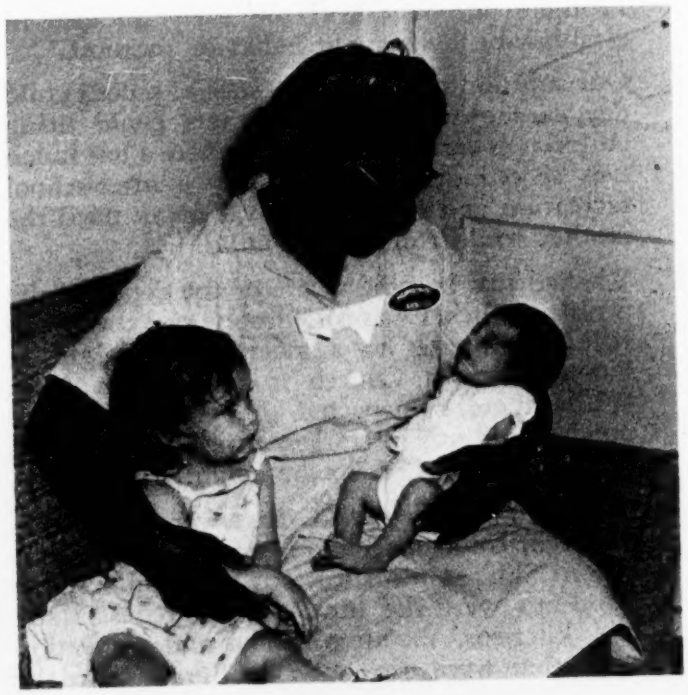
After examining other possibilities, the practicality of family day care homes for the children of trainees seemed to be clearly established. The Office of Family Services, together with the County Board of Assistance, cooperated closely with the Family Day Care Agency, a voluntary body, to reach out to these families, who had not used day care services before, and to provide services in homes.

The staffs of the three agencies carefully prepared for meetings with the mothers—each staff becoming familiar with the others' resources and working out how each would fit into providing family day care services. The results of these meetings surprised even the most seasoned of the specialists.

Miss Audrey Pittman, Assistant Regional Supervisor, Office of Family Services—Child Welfare, recently described the course of events: [17]

> Meetings were conducted in the classroom with the mothers . . . A representative of the day care agency, the assistant administrator and I described, explained, and promoted day care under agency auspices . . .
>
> The mothers listened intently and asked thought-provoking questions and made equally thought-provoking but baffling responses . . . they wanted to know the number of adults in attendance, what they did, how many toilets, what about food preparation. These responses were startling to us—we knew that current users of day care centers were not that selective . . .
>
> In relation to family day care homes, the response of these mothers was loud and clear. Whoever heard of turning your child over to a stranger? You might arrange with a neighbor or a friend . . . but not a stranger selected by a stranger. In the long run, it was this characteristic in the life style of these mothers that defeated our glowing plans to greatly expand the services of the Family Day Care Agency . . .
>
> After a number of sessions it became obvious that the mothers were using the information we brought to them, but not in the way we intended . . . They were listening for ways to evaluate the caretaker they had chosen; some changed caretakers as a result of what they heard.
>
> Our dilemma now was to find a way, not of *furnishing,* but of *assuring* good child care for the children of these participating families. New machinery to deliver care, protection, and service to these children needed to be devised. The creativity was not in exploring further the offering of traditional day care services but in beginning with the existing child care arrangements of the mothers. You can see that our agencies learned a great deal in the group meetings with the mothers.

Most of the mothers had found care for their children with neighbors and friends. They had



[17] *Public Welfare,* January 1969.

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no objections to the proposal that the agencies inspect and evaluate their existing arrangements.

The title V project was prepared to pay for child care while the mother was enrolled in the program. The mother was to make her own financial arrangements with the caretaker, agree upon a fee, and the assistance grant was increased accordingly. Miss Pittman reported, "We later felt this policy was a sound and ego-building one for families: to select their own child care and to assume some financial responsibility for it added a new dimension. The more homes we assessed, the more pleased we became—of the 155 visited only four were found unacceptable. In fact, most of them were more than adequate."

VENTURA and OXNARD (VENTURA COUNTY), CALIF.

An excellent example of meeting the widespread need for child care for title V trainees and, at the same time, providing training can be found in the Ventura County project.

This project, serving the entire county, operated two child care centers in the cities of Ventura and Oxnard. It was designed to serve a dual function: to provide adequate child care at low cost and to train recipients in a number of marketable skills.

Both centers offered training in child care, food service, clerical skills, housekeeping and maintenance. Child care trainees also worked toward their high school equivalency certificates, preparing for the General Education Development (GED) examination. Twenty trainees could be accommodated in each of the two centers.

In both cities, the city council supported the project enthusiastically. In Oxnard, for example, the Housing Authority donated a building to the project which was renovated and moved at the city's expense. It was then leased to the County Welfare Department for use as a training center. The city of Ventura purchased two residence buildings, also renovated and moved them, then leased them to the Welfare Department.

The California State Department of Employment and the local school districts also cooperated in the program. The Department of Employment administered tests to determine interests and capabilities of the trainees, provided counseling, and assisted in job placement at the conclusion of training. The local Junior College School District administered the GED examinations.

Community service organizations participated in this title V project by providing field trips for the children and trainees, special holiday activities such as Thanksgiving dinners, Easter egg hunts, and Christmas parties.

During the first 2 years of operation, a total of 235 trainees were enrolled. Of these, 54 took the high school equivalency test—27 passed. While only approximately one fourth of trainees entered advanced training or employment, virtually all trainees plus their 382 children were substantially benefited.

One reported case history illustrates the effect of this project on a trainee and his family. Mr. P. was a 27-year-old divorced man who had custody of three small children. He was a veteran and had passed the GED test but was unable to obtain employment because of child care problems. He lacked qualifying skills for the local labor market but did not have the resources to seek employment elsewhere. He was enrolled as a trainee in the Ventura center. After 4 months of training in good work habits and new job skills, he was hired, over many other applicants, at a salary of about $410 per month. His welfare grant had been $210. His marked gain in confidence and poise while in training was reinforced by the care and emotional support his children received at a time when they desperately needed help.

According to Mr. John C. Montgomery, Director of the California State Department of Social Services, the project was so well received by officials of the County Welfare Department and by the community that it was absorbed as a permanent part of the Ventura County welfare system where it continues to operate.

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Remedial medical care

The health problems frequently found among low-income families proved to be a factor of major importance in title V projects in all sectors of the country, barring many apparently healthy recipients from seeking or keeping jobs.

In Cleveland (Cuyahoga County), Ohio, for example, where only those applicants who appeared to be able-bodied were referred to the work experience and training program, it was found upon medical examination that more than 40 percent were medically unfit to hold a job and that more than 50 percent needed remedial medical attention.

An analysis of a group of 900 trainees as of December 1967 showed—

76 had above-average blood pressure;
54 had foot problems;
43 suffered from obesity;
39 needed glasses;
34 had serious dental problems;
21 had infections of the urinary system.

Of the more than 4,000 people who had been participants in Cuyahoga County's title V project between January 1965 and December 1967, 75 percent of the more than 1,000 failures in title V training were unsuccessful because of recurring physical and mental illness.

Medical examinations, remedial medical services, and such devices as eyeglasses, dentures, and hearing aids were furnished trainees in many projects. Group and individual treatment for obesity, frequently found among those whose diet consists largely of low-cost, high carbohydrate foods, was given many trainees. The identification and treatment of medical problems was found to be among the essential first steps in making it possible for recipients to participate in training programs. In the new work incentive program all prospective trainees will be given a pre-referral medical examination.

Vocational rehabilitation

All across the Nation vocational rehabilitation agencies frequently played key roles in providing remedial services.

The following excerpt from the report of the Hillsdel (Tallahatchie County) title V project in Mississippi describes a typical arrangement:

> Many services were made available to the trainees of Hillsdel by the Vocational Rehabilitation Agency. Referrals were made for specialized training in the Sheltered Workshops, known as Allied Enterprise of which there were two in the five county area. Trainees were also evaluated as to their potential for employment. The four referred to the Sheltered Workshop received the type of training which they could do and secured employment.
>
> For instance, an arrested tubercular patient received training in refinishing antique furniture; two diabetics received training in jig making; and another received training in clipping threads on garments for the garment factory. All referred received employment.
>
> Many medical remedial services were given to our trainees such as surgery for hernias. Two trainees received prosthetic limbs—one an artificial arm and another a leg. The Vocational Rehabilitation Agency provided excellent training in the care and use of the limbs. Both men, in addition to receiving personal satisfaction and hope, were able to obtain gainful employment in spite of their handicap. All referrals made by Hillsdel Staff to the Department of Vocational Rehabilitation received the service which was requested almost immediately.

The individual employability plan

A family-centered approach to the employment problems of the family head evolved from the need to deal with the multiplicity of personal problems that many welfare recipients present. Child care, medical services, homemaker services, case and group social services were among the services offered, along with needed educational and vocational training, to help clients conquer the social handicaps that hinder employment.

The vehicle utilized in the title V program to coordinate the various services was the individual employability plan. (This concept originated in the Community Work and Training Program set up under the 1962 Social Security amendments). The individual employability

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plan began with an assessment of the individual trainee's characteristics and family circumstances; then, with the trainee's participation plans were made for pretraining preparation if needed; suitable education and/or training; and the supportive, medical, and counseling services and his family needed to function better in a work-oriented society. The plan specified the type of pretraining and training, the sequence of assignments, and the time to be spent in each activity.

As the director of a title V project in St. Paul (Ramsey County), Minn. stated, "The title V invention can be illustrated in the Ramsey County version as follows: Family casework is provided for family units, while the family head receives employment counseling . . . The really unique feature is that this is a total approach . . . which functions as an administrative unit within the agency with the most experience with public assistance recipients and the greatest vested interest in their employment—the Welfare Department." [18]

The caseworker, the central figure in the team effort of the individual employability plan, examined with the trainee the reasons for his inability to find or keep a job. This interest in the trainee and his family continued during his training and even after he was employed. A family accustomed to long-term dependency

[18] *Two Years of Work and Training in Title V*, Don Henry, Project Director, Ramsey County Welfare Department, St. Paul, Minnesota, August 1967.

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requires sustained help from a worker who understands the stresses in that particular family. The social worker's understanding of the possible effects of these stresses on the trainee's attempt to get and keep a job is, of course, vital for successful planning.

Both the trainee's own view of his potential and aspirations and the staff assessment of his capacity and motivation were utilized to develop an employability plan. The participation of the trainee in the planning was essential to a successful outcome. The plan was used as a guide not only for the agency but for the trainee as well, so that both parties knew what would be expected of the trainee, the reasons for his particular training assignments, and how he was to begin on the road to economic self-sufficiency.

The plans reflected the differences among trainees with respect to their previous work history, literacy level, and personal characteristics. Most trainees, it was found, needed supportive services both during and following training to develop and maintain self-confidence. Plans were not static and could be altered to meet changing needs and circumstances.

The individual employability plan responded to the fact, sometimes overlooked, that the same wide variations of personal traits and problems obtain in a group of welfare recipients as in any group of persons of whatever economic or social status. Employment or learning programs, to be fruitful, must be adaptable to individual needs and capabilities.

The Congress recognized the value of this feature of the title V experience and incorporated it in the 1967 amendments to the Social Security Act which created the work incentive program:

> **The Secretary shall develop an employability plan for each suitable person referred to him under section 402 which shall describe the education, training, work experience, and orientation which it is determined that each such person needs to complete in order to enable him to become self-supporting. (Sec. 433b)**

Counterparts of evaluation and planning for the particular needs of a given person can be found in the techniques long used in vocational and medical rehabilitation. As a means to be utilized in the social rehabilitation of welfare clients, the individual employability plan has proved to be a major contribution to title V.

Group services

Group counseling and group services designed for title V participants gave added momentum to the increasing use of this effective technique in public welfare agencies. While the traditional one-to-one relationship of caseworker to client continues to play an essential role in social rehabilitation, group work services can provide an additional resource of enormous value in helping the trainee define and attain his desired goals through group dynamics.

One of the first title V projects to incorporate group services was located in Oakland County, Mich. There, the title V group counseling was a continuation and enlargement of group services that had been part of the Oakland County program for 3 years preceding title V.

Group services in this project were provided by group social workers already on the staff and fell into two general categories; (1) instructional, i.e., preparation for job hunting and interviews, grooming, deportment, etc.; and (2) therapeutic, e.g., for participants who were not motivated toward attaining self-support, who had insufficient self-confidence, etc.

Group services were found to be of particular value in vocational training. Typically, the severely disadvantaged person often leads a life of relative social isolation. Few are members of clubs or other organized groups. Entering into preparation for employment, to say nothing of employment, means ending that isolation—the trainee must learn how to deal and work with other people.

A report of a Michigan title V project operated in Detroit (Wayne County) contains the following statement:

> **Early counseling experiences revealed that many clients had set high or unrealistic goals for**

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themselves. In an effort to encourage participants to make more realistic appraisals of their abilities, group counseling was introduced in conjunction with the regular team efforts. In a relatively short time positive results were obtained and many participants have successfully completed their training assignments and have subsequently found meaningful employment.

[Group] counseling sessions are monitored by two counselors who encourage the participants to share constructively their experiences in an effort to develop group strength, and to use that strength to build personal self-confidence, thus enabling them to make a more realistic appraisal of themselves. Through the technique of problem sharing many clients have discovered that their problems are not unique and in most cases this discovery was the basis for the development of individual ego strength. Recently this technique has been applied with overweight participants to encourage weight reduction and adherence to diets with positive results.

Increasingly public assistance agencies are recognizing that they have been overlooking a possible resource in group work service that has proven itself in other settings . . . Michigan has had little experience with the group method and believes that the project . . . makes an ideal setting for experimentation and demonstration. This experience may lead to wider utilization of the group work method in the ongoing public assistance program.

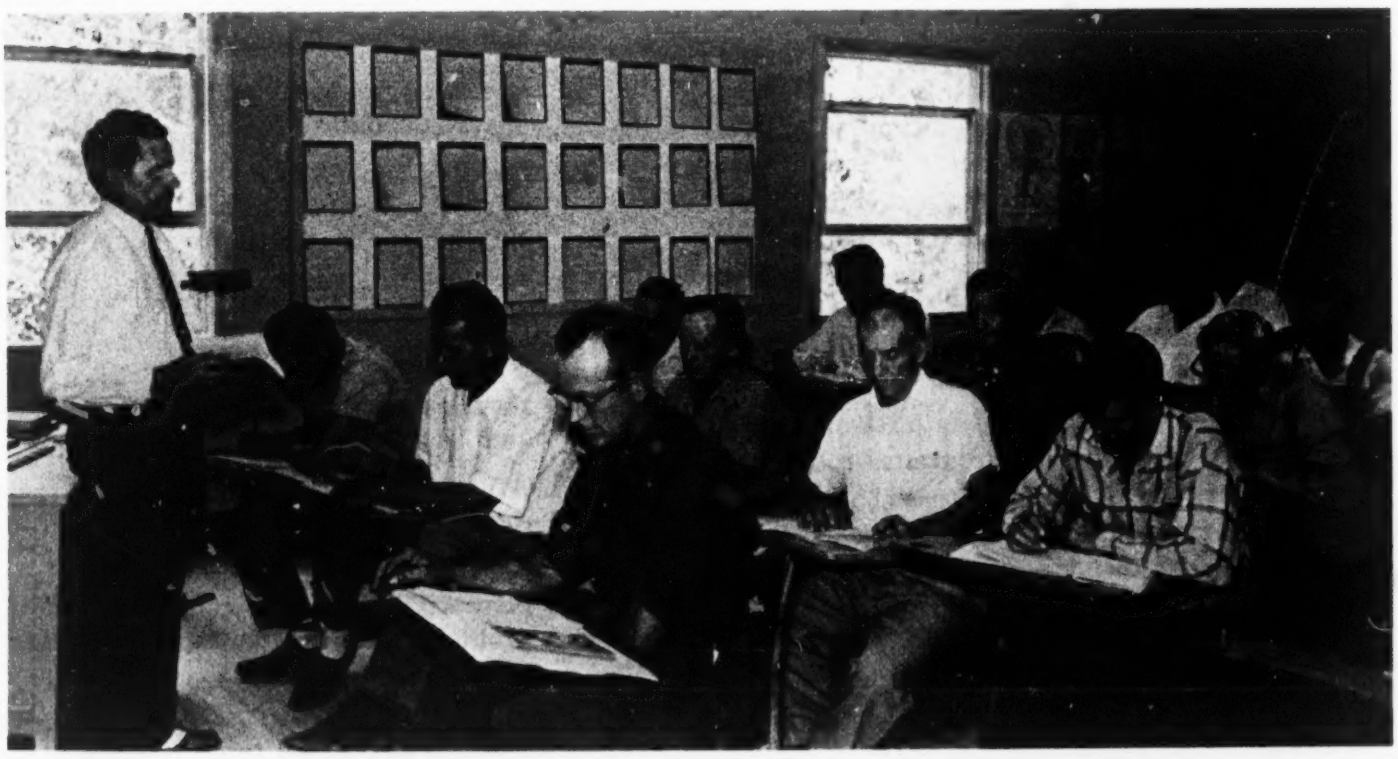
Philosophically, the Michigan Employment Security Commission believes the counseling function described above is essential and is one which it hopes to provide as a part of its ongoing program ultimately. . . .

Similar reports have been received from many title V programs across the country.

Adult basic education

Title V was the first Federal work training program to require the provision of adult basic education for functionally illiterate participants, as well as the first to concentrate on enabling literate participants who had not finished school to obtain a high school equivalency certificate, known as the GED (General Education Development).

Approximately 42 percent of the trainees terminating between February and October 1962 were enrolled in adult basic education (ABE). Another 11 percent were enrolled in high school



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training without enrolling in ABE. Thus a total of nearly 53 percent of these trainees were enrolled in either ABE or high school or both. This compares favorably to the educational need reported for trainees assigned to title V during this same period; over 41 percent had 8 or less years of education.

The average educational gain, that is, how far they advanced in terms of equivalent years of regular schooling, was 1.5 years—a substantial gain considering the average length of stay was 7 months on a title V project. Approximately 33 percent of the persons enrolled in ABE gained less than 1 year, while the remaining averaged 2.2 years.

In his June 1967 report to the Senate Subcommittee on Employment, Manpower, and Poverty,[19] William Gorham placed the need for basic education or literacy training second only to income support in his listing of needed services for title V trainees.

He reported, "Since its (Title V) inception, 60,700, or 39 percent of all participants have been enrolled in adult basic education (January 1965 to June 1967). In some areas, eastern Kentucky, for example, the percentage of trainees enrolled in adult basic education exceeds 85 percent. In fiscal year 1968, nearly 5 percent of title V funds, exclusive of cash payments and agency administration, are programed for adult basic education. . . . But this understates the total effort being made to overcome the educational deficiency of title V participants. It is estimated that in 1966, funds made available under title II B [20] (of the Economic Opportunity Act) on the initiative of title V directors . . . added $2.7 million of additional resources for basic educational instruction."

The rapid and widespread implementation of adult basic educational programs in title V projects was due, in great part, to the excellent cooperation of education agencies at all levels. As noted, substantial contributions of Federal education funds were allocated to this segment of the title V program, and in some areas, such as Kentucky and West Virginia, title V ABE classes were supported by the State and local education agencies. Throughout the country education officials were responsive to the needs of local title V project participants by providing classes, and, in some cases, devising innovative classes.

In addition to the specific relationship of education to employability there is a consensus among experts in the field of social welfare that the less readily measurable effects of education for the adult members of families in poverty may be crucially important.

These more subtle effects have been noted in several studies. The September 1966 report of a study by Greenleigh Associates [21] of selected adult basic education systems in which title V trainees were enrolled contains the following passage:

> The development of the students in the field test is represented in only a limited way by the change in achievement scores . . .
>
> Included in this total learning process were the following areas in which development was seen by teachers and observers, and expressed by students:
>
> 1. Self-esteem and self-confidence
> 2. Eagerness to learn and a new attitude toward schooling
> 3. Reading, including the new-found ability to read bus signs, newspapers, letters and children's homework
> 4. Improved family relationships, particularly with children and their problems in schooling
> 5. Increased confidence and ability to speak and to express ideas in a group
> 6. A new awareness of what it could mean to have a sense of belonging—in a group and in our society
> 7. New knowledge and concern about the problems of our communities, our whole

[19] Op. cit.

[20] Adult Basic Education Program administered by the Office of Education.

[21] Field Test and Evaluation of Selected Adult Basic Education Systems, sponsored by the Office of Economic Opportunity.

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society, and the world at large

8. Increased ability to write, and to use writing for business and civic purposes
9. Increased understanding of the mathematics of everyday life, especially in the handling of money and for simple household mechanics
10. Acceptance and friendship with others different in color, background and language
11. New levels of aspiration, for jobs and for a better life for themselves and their families
12. A new sense of power to take initiative, take responsibility as citizens, and find ways to improve their position

It would not be true, of course, to say that all students made equal gains in all of these directions. Some made little or none. But statements from supervisory teacher reports, and student interviews . . . substantiate the areas of student growth outlined above.

Although impossible to quantify these findings because of their qualitative nature, there is enough consistency in reports from all sources . . . to make it possible to state categorically that these types of learnings were typical rather than atypical.

This finding is corroborated by Dr. Abraham S. Levine, HEW social scientist, who says, ". . . there is some evidence, that as the fathers went to school, the school attendance of their children improved. Although adults at a low level of literacy can be raised to an acceptable level slowly and perhaps too uneconomically from the point of view of employment oriented cost-benefits tradeoffs, the dividends for the next generation may be great enough to warrant such a government investment . . ." [22]

The validity of Dr. Levine's observation is further attested to in many of the reports of local title V program administrators and Federal field representatives.

A report of the program in Martinez, Calif. (Contra Costa County), includes the following passage: "There are people like Margaret who could not write her name 6 months ago and now can read the newspapers, help her children with their homework while doing her own, and whose son was a school dropout at 14 and is now in high school classes every day."

Like most other parts of the title V programs, adult basic education of trainees was undertaken in a variety of ways, influenced largely by the characteristics of the trainees in a given project. As pointed out earlier, a comparison of the enrollment figures in adult basic education in title V programs in fiscal year 1967 graphically reflect the variations from region to region: Eastern Kentucky, 86 percent; Cleveland, Ohio, 23 percent; and St. Paul, Minn., 17 percent.

Many welfare agencies found a severe shortage of educational facilities and personnel equipped to deal with their particular clientele. In cooperation with local, county, and State education departments and universities, new facilities and new methods were stimulated.

In Cleveland, for example, the board of education established, with Federal funds and in cooperation with the title V program, a long-needed day end evening adult education center where basic literacy up to high school equivalency was taught. Half of the full-time students in this school were title V trainees.

In Detroit, an adult basic education demonstration program was established with title V funds. This program was designed to achieve two ends. In addition to serving the immediate purpose of helping participants gain or improve their basic reading, writing, and arithmetical skills, it provided an opportunity to explore the efficacy of various methods, materials, and types of teachers in teaching functionally illiterate adults. According to a report of this program,[23] "although the participants were the hard-core unemployed and limited by sociocultural depri-

[22] *Work Experience and Training in Appalachia.* Research Working Paper No. 9. Office of Research, Demonstration, and Training, Social and Rehabilitation Service, U.S. Dept. of Health, Education, and Welfare, 1968.

[23] *Literacy Training and Job Placement of Hard-Core Unemployed Negroes in Detroit,* Thomas H. Patten, Jr., and Gerald E. Clark, Jr. Program sponsored by the Wayne County, Michigan, Bureau of Social Aid and the University of Detroit.

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vation, they indicated to us both in their behavior and attitudes that they were desirous and capable of improving themselves academically."

The report further states, "It is possible that the program provided the participants with a feeling of being of interest as human beings to people of professional status . . . in a society which had socially and economically rejected them. One program participant who lived in unspeakable filth in probably the most rundown slum we visited had his University of Detroit Literacy Program certificate hanging on his living room wall, a proud symbol of recognition in his eyes."

In Philadelphia, the educational components of the title V program were developed jointly by the County Board of Public Assistance and the Board of Education. Working together to develop an educational program suited to the needs of title V participants became a learning experience for those who created it.

According to Mr. Howard D. Arnold, director of the Philadelphia title V program, the public welfare representatives felt it vitally important that the trainees should not be asked to return to traditional school facilities in which many had met with failure and frustration earlier in their lives. They recommended that class sites be established in settlement houses, recreation centers, churches, and such other places easily accessible to the trainees.

Mr. Arnold reports: "The Board of Education did not immediately agree . . . we decided to experiment and open classes at a local school. Within two months the school facility had to be closed at a time when other centers were thriving. What happened? 1. Participants' attendance fell off. 2. They said they were embarrassed to come to a place where their small children were being educated to learn many of the same things. 3. They had feelings about the noise, the use of toilet facilities, etc.

"After this experience, in-service training sessions were conducted with teachers and administrative staff at the Board of Education to acquaint them with the people they would be teaching, their problems, and their aspirations as seen through our experience with them . . ."

There is no question but that the basic education programs for title V had almost as profound an effect on the educators as on their students.

Representative Carl D. Perkins of Kentucky inserted in the Congressional Record of January 24, 1967, a letter from a teacher in Menifee County in his State, which read, in part: "In October of 1965 my superintendent called and asked if I could teach Level 1 in our basic adult education course here at Menifee County High School. As you know, Level 1 is the first three grades. I said I would and then almost panicked. What could I teach these men ranging from 19 years of age to 57. When I saw them I wondered even more, for they were dirty, unshaved and I feared of very low morals.

"But you know, Mr. Perkins, I could never have been more wrong. I have been in the teaching profession 21 years and I've never been shown more respect than these boys show. They feel their inability to read and write so acutely . . ."

One participant in a title V basic education program at Northern Michigan University summed up the feelings of many when he wrote: ". . . Now for this program. I feel it is the backbone of all the programs because if a person doesn't know how to read or add, all the training in the world is not going to do him any good. I feel it will take a lot more work on my part to reach my goal, but I have a very good start. To be able to write every word in this is a miracle to me."

Work skills training

Vocational training was provided in public schools, community colleges, and State universities, as well as in privately operated trade schools. Trainees obtained work experience through assignments in private industry and business, and in local, county, State, and federally operated programs and institutions. Title V on-the-job training programs differed from others in that the length of assignment was based on the person's need as defined in his

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individual employability plan.

Training in job skills was often given concurrently with remedial adult basic education for those who were not illiterate but needed to upgrade their skills in reading, writing, and mathematics. These trainees would, typically, spend part of their day in work experience and part in academic training.

Where training programs were directed toward meeting labor shortages in the community, the results, in terms of employment of trainees, were excellent. For example, in Cleveland, title V work and training specialists studied the labor market to determine where there were shortages of semiskilled and skilled labor. Vocational training courses offered by private commercial schools and the public school system were also reviewed.

It was found that good training was available through commercial schools in such fields as electricity, refrigeration, boiler operation, art, stenography, cosmetology, and barbering. However, in some areas of critical personnel needs no training opportunities could be found.

There was a chronic shortage of dental laboratory technicians, for example. A high school diploma was not a requirement in this field where space and form perception, motor coordination, and manual dexterity were more important.

Accordingly, a contract was made with a leading privately operated dental laboratory to accept an initial group of 12 selected AFDC mothers for a 50-week training period, beginning with a 3-month probationary period for further evaluation. A total of 25 women completed the 2,000 hour training program.

In their final report on the title V program, the Cuyahoga County Welfare Department states, "The success of the program [dental technician training] is attested to by the fact that 23 of the graduates are employed at salaries ranging from $64 to $100 per week. The 24th trainee is an expectant mother but will be employable after delivery. It was necessary for the 25th graduate to have surgery on her feet and she has just recently been medically released as ready for employment."

This experience illustrates (1) the value of linking training to labor market needs and (2) that the flexibility afforded public welfare agencies under title V could produce some remarkable results.

Another creative application of the vocational

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training resource can be found in the "client self-help" projects that several title V programs adopted. These combined at least two benefits—training and direct service. In Riverside County, Calif., a self-help project was developed to train recipients in auto repairing by using recipients' automobiles to work on, thereby improving their transportation (a major problem in many title V areas) so they could more readily take further training or employment.

Similarly, in Lake County, Calif., a title V project trained Indian welfare recipients in various home repair skills. Much-needed repairs and improvements were done on the homes of welfare recipients.

An example of a successful training project in a Federal facility was the one instituted at the Naval Air Station, Chase Field, Beeville, Tex., in September 1967. Mr. Clyde L. Wheeler,[24] in a communication to the Office of Economic Opportunity of February 10, 1969, reported on that program as follows:

> **Prior to bringing the [Title V] trainees aboard the station the Personnel Officer, Employee Development Officer, department heads and senior civilian supervisors met and conducted a survey of the jobs which would most benefit the activity, the local community and the trainees. Conferences were held with first line supervisors and department heads explaining the program thoroughly and advising the supervisors what to expect from the trainees who, in most cases, had very limited formal education.**
>
> **As the trainees were selected and assigned they received individual orientation in all phases of the work, operation of the department, mission of the activity, as well as basic rules and regulations of Civil Service and Navy Department. . . .**
>
> **Progress reports were received from the supervisors on a monthly basis, and it is interesting to note that 90 percent of the supervisors involved in the training program requested additional trainees. Chase Field hosted 45 trainees under the title V work experience program. Of this number 40 are presently employed, 19 of this number in the field in which they were trained. Eight of the 19 are employed at Chase Field. Of this eight two are handicapped. A total of 27 of the 45 completed the assigned training period.**

The vocational training of title V participants often involved the cooperation of various governmental programs. One very good example can be found in the final summary report of the program in Wayne County, Mich.:

> **The hospital services multi-occupational program was the first successful program of this nature in the Nation. It was the first to utilize joint funding to establish a mutual interest training program. The program provided occupational training in such areas as hospital housekeeping, surgical technician, ward clerk and food services. Each course was preceded by refresher adult education and followed by on-the-job training. Title III–C [25] funds were used for adult education courses, title V provided funds for occupational training and BAT [26] funds were used to compensate on-the-job training sites for instruction and use of their facilities. The program was approved by representatives from the Greater Detroit Hospital**

[24] President, South Texas Federal Executive Association.

[25] Of the E.O.A. Appropriations for Special Programs to Combat Poverty in Rural Areas.

[26] Bureau of Apprentice Training, Department of Labor.

Council, Detroit's Community Action Program, Henry Ford Hospital and the Detroit Board of Education. The initial intake was limited to 300 persons and more than 90 percent of the participants who completed the program were employed in skill related areas.

In many rural areas, the title V program focused on providing participants with on-the-job assignments with private industry. Accounts of other skills training projects in various settings are discussed elsewhere in this report, principally in the section, Title V and the Community page 42.

Training and placement of paraprofessionals

There has been, in the past several years, increasing use of the paraprofessional or aide as part of the effort to alleviate manpower shortages in such fields as medical care, education, child care, and welfare. The Social Security Act requires, as of July 1969, that States train and use subprofessional staff in the federally assisted welfare and maternal and child health programs, with particular emphasis on employment of low-income persons.

Various title V projects were extremely successful in training and placing such personnel. In most, classroom training was combined with on-the-job training.

In California an agreement was worked out between the State Department of Social Welfare and the Department of Education to train welfare recipients in title V programs as teacher's aides to work in preschool compensatory education programs and in child care centers. Title V projects throughout California operated courses to train nurse's aides, attendants, case aides, and home health aides to serve aged and disabled recipients and to provide day care services for AFDC mothers with children, so that the mothers could themselves be trained. In Contra Costa County community aides, social casework aides, and sanitation aides were trained and employed by agencies such as the county welfare and health departments. In June 1967, San Mateo County graduated their 100th AFDC mother from the title V nurse's aide training program. One hundred percent of these graduates have been employed.

In a title V project operated in Cincinnati (Hamilton County), Ohio, a 100 percent employment record was achieved for graduates of training as inhalation therapy aides at the Cincinnati General Hospital. In July 1967 the title V staff and the inhalation therapy staff of the

hospital began screening AFDC women who had high school education for participation in the program. The course began a few months later with 12 trainees. The final report of the title V program in Hamilton County contains the following description of the class experience:

> Classes included instruction in the medical sciences and experience in helping restore normal breathing processes, in using special medical gases and artificial respiration equipment, and in emergency resuscitation procedures. The instructors soon found that they had to review basic academics because of differing cultural and educational backgrounds and the length of time away from school. The professional material was difficult, and coupled with family and personal problems, caused the class to suffer much anxiety, frustration and depression. With extreme patience and guidance upon the part of the instructors and the title V staff, the class did progress from the theoretical to the practical study of inhalation therapy. The class worked on wards at Cincinnati General Hospital and came face to face with life and death. Once more the students wavered and attempted to resist accepting the responsibility of a professional person. But, again the instructors and the title V staff, through group and individual intensive contact, offered the guidance needed.

Out of 12 students, two failed to meet graduation requirements on their final examinations. The 10 who graduated began employment at the hospital at annual salaries of $4,600. The two nongraduates were also hired by the hospital at slightly lower salaries. The graduates are serving a 1-year internship and will then become eligible to take qualifying examinations for State certification. If they are successful they will be promoted with substantial salary increases to registered inhalation therapists.

In the health and paramedical field cooperation was enlisted from many sources, including two Federal agencies: The Division of Hospitals and the Division of Indian Health in the Public Health Service, and the Veterans' Administration. The U.S. Public Health Service hospital in New Orleans, in cooperation with the title V program, is training and employing medical aides with great success.

Many welfare departments are now engaged in similar programs, originally developed in title V projects, which simultaneously help to fill staff shortages and rehabilitate recipients. For example, Maricopa County, ~~Calif.~~ Arizona, trains and employs AFDC mothers for their Home Management program, begun under title V, as a service to mothers who are about to enter work experience and training under the new work incentive program. Upon completion of their training, the women are given staff positions as home management advisers.

Training of personnel in the following subprofessional aide and technician fields were included in the following number of projects in 1967:

Occupation	Number of projects with training component
Health	
Dental aides/technicians	13
Home health aides	10
Licensed practical nurse	64
Nurse's aides and orderlies	149
Medical-hospital aides/lab technicians	46
Other	
Police/law enforcement aides/technicians	13
Recreational aides	15
School and teacher aides	36
Child/day care/nursery school aides	27
Social work aides	13
Homemaker aides	21
Home aide specialists	6
Library aides	26
Community and neighborhood aides	2

Other effects on policies and methods

The incorporation of title V projects into public welfare agencies exerted a deep and, in many instances, lasting effect on the provision and delivery of traditional social services. The quality, the quantity, and kinds of services provided were affected by title V with its emphasis on innovation and demonstration. Many States and counties report that title V substantially changed the basic attitudes of their public wel-

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fare agency staffs. As one public welfare director put it, "Title V, in the short period of time it has been in existence, has transformed the County welfare department into an action agency . . .

"For the first time social workers were assigned reasonable caseloads . . . For the first time social workers were able to utilize the skills of other professionals—work and training specialists, doctors, program developers, lawyers. Social workers began to be aware that all problems of the poor could not be solved by casework methods alone."

Uninterrupted services. An example of improving social services under title V can be found in Santa Clara County, Calif., where a project component explored the feasibility of providing "uninterrupted services" to trainees. This component was directed particularly to multiproblem, hard-core families who had received public assistance 5 or more years, and had three or more children. It was developed as a means whereby heads of families need not be excluded from the work experience and training program and its supporting services when they accepted employment that was only temporary.

In the words of the Santa Clara County Department of Social Services, "The 'Uninterrupted Services' concept is intended to be short-term and job-goal oriented. It is an attempt to encourage sustained training effort within the capacity of the participant to achieve full self-support for the dependent family. Counseling and work experience and training-connected expenses are offered until this goal is reached and stability achieved."

The uninterrupted services idea proved to be of great value in such widely separated geographic areas as California, with its large numbers of seasonally employed agricultural workers, and Baltimore, with its large numbers of sporadically employed longshoremen.

Purchase of services. Before the title V programs, most agencies did not have the resources to meet all the needs of recipients if they were to be trained for employment. Under title V provisions, agencies were able to purchase basic education and vocational training, prosthetic devices such as dentures, eyeglasses, and hearing aids; to defray the costs of child care; to furnish equipment such as mechanic's tools, and drafting supplies, and even to meet the frequently encountered need for suitable clothing or uniforms.

Simplification of procedures. Simplification of the often cumbersome procedures for verification of eligibility for public assistance has been recommended frequently by study groups and experts. Under title V public welfare agencies in various parts of the country experimented with simplified methods. Some reported excellent results.

In Jackson County, Mo., eligibility of non-AFDC applicants for the title V training project was established on the basis of information furnished by the applicant, supplemented by a personal interview. In order to verify the effectiveness of this simplified eligibility procedure, the title V project staff also employed more traditional investigative techniques, such as home calls to verify family composition, which are generally required to establish eligibility in other public assistance programs in the County.

The results of the Jackson County experiment, as reported: "We examined the case files of 103 randomly selected trainees of whom 60 had terminated from the project and 43 were still participating in the project on January 31, 1968. Our review of these records showed that the persons selected met the eligibility requirements established for the project."

Another example of an experiment in simplifying eligibility procedures was the project in the Watts area of Los Angeles where welfare officials found virtually no ineligible persons.

A Los Angeles County and California State Department of Social Services report described the project methods as follows:

> **An important feature of the project proposal was the noninvestigation and nonverification of applicants' statements concerning eligibility. Related to this, a random sample of cases ending**

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in digit number 9 was undertaken as a means of verifying the validity of such an approach. This random sample [10 percent] was investigated as follows:

1. All declarations made on the application were subject to verification, wherever possible.

2. Any case which seemed to raise basic suspicions as to eligibility was subject to special investigation. For instance, the individual who seemed to have an unaccountably high standard of living coupled with poor attendance at trade school was investigated.

3. Home calls were made to determine whether family composition conformed to that previously reported. This had implications as to whether the individual was truly an unattached adult as well as to potential income from undeclared spouse or children. Benefits such as veteran pensions were confirmed with agencies administering such programs.

Organization of services. Many counties, particularly in rural areas, combined together to operate projects. By pooling their resources and facilities they were able to utilize the new capabilities made possible by title V and offer services that would be impractical or impossible otherwise. As many as 48 counties were covered by individual projects.

To make services accessible to trainees living in remote areas, residential facilities were set up in some projects so that the trainees could live on the site where they received their basic education and vocational training.

The rural poor and the Indian population

One of the objectives of title V was to find ways to combat the poverty in rural areas. Almost one-third of all title V funds, about $111 million, was expended in rural areas; $102 million went to the poverty categories shown in the table. The remaining $9 million went into various other rural areas of the nation.

An analysis made by the Office of Economic Opportunity credits title V with putting more funds, as of June 1967, into the 182 poorest counties in the United States than any other antipoverty program, despite the fact that its appropriation was lower than many of the others.

The title V projects in depressed rural areas worked with another program supported by EOA funds—the rural loan program of the Farmers Home Administration, U.S. Department of Agriculture—and with the U.S. Office of Education, in developing adult basic education programs.

Elsewhere in this report examples of title V project services in rural areas and their effects have been described—adult basic education, vocational training, uninterrupted services, and the pooling of facilities and resources by several counties.

One title V project that was particularly relevant to the problems of the rural poor was the Labor Mobility Demonstration project operated in eastern Kentucky in a 19-county area. The mobility project was focused on relocating families to demand labor markets such as Lexington, Louisville, and northern Kentucky.

This project was jointly administered by the Department of Health, Education, and Welfare and the Department of Labor on the Federal level and jointly operated on the State level by two divisions of the Kentucky Department of Economic Security—Public Assistance and Employment Service.

The project population was drawn from all 19 counties. As all potential participants in the mobility projects were already in the work experience and training program, they were in training and receiving maintenance grants enabling them to support their families while the Employment Service Division staff developed jobs and arranged placements.

The Division of Public Assistance was responsible for familiarizing title V trainees with the mobility program and for referral of qualified, interested trainees to the Employment Service. Public Assistance also provided the

necessary supportive social services. The Employment Service Division provided, in addition to job development, moving and transportation expenses, and additional relocation allowances.

The State mobility project coordinator was responsible for obtaining from out-of-State welfare agencies needed supportive social services for all persons relocated outside the State.

A June 1968 report by the director of this project describes the high degree of inter- as well as intra-State cooperation achieved:

Services seemed to be of excellent quality both in State and out-of-State. All agencies contacted expressed a genuine interest in the welfare of the relocatees and utilized all available services to the maximum extent. None of the out-of-State agencies . . . required financial reimbursement for providing the services. This factor alone is indicative of the positive attitude taken toward the mobility participants by the out-of-State agencies.

Accompanying the supportive services, financial assistance was available in addition to the work experience and training maintenance grant. Examples of these financial services were pur-

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DISTRIBUTION OF TITLE V FUNDS IN SELECTED ECONOMIC DEPRESSED AREAS

December 1, 1964—June 30, 1969

Area	Counties	Title V funds
Appalachia		**$80,171,993**
Kentucky	Bell, Breathitt, Floyd, Harlan, Knott, Leslie, Letcher, Perry, Pike, Clay, Elliot, Jackson, Knox, Magoffin, Martin, Menifee, Morgan, Owsley, Wolfe.	47, 213, 726
Maryland	Allegany and Garrett	218, 196
Ohio	Belmont, Clermont, and Lawrence	1, 122, 123
Pennsylvania	Allegheny, Erie, Fayette, Indiana, Lackawanna, Luzerne, Washington, Westmoreland.	2, 038, 644
West Virginia	Statewide	23, 748, 400
South Carolina	Spartanburg	416, 581
Tennessee	Bledsoe, Cocke, Fayette, Grainger, Hamilton, Haywood, Jefferson, Knox, Marion, Sequatchie, Sevier, Shelly.	2, 702, 671
North Carolina	Craven	854, 288
Virginia	Tazewell and Lee	1, 857, 364
Upper Peninsula		**2,186,852**
Michigan	Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon, Schoolcraft.	2, 186, 852
Mississippi Delta		**5,479,603**
Mississippi	Grenada, Hinds, Holmes, Sunflower, Coahoma	5, 479, 603
Ozark Plateau		**7,225,175**
Arkansas	Hempstead, Yell, Lafayette, Little River, Miller, Perry, Garland, Saline, Clark, Hot Springs, Howard, Pike, Sevier, Montgomery, Polk.	5, 762, 722
Oklahoma	Le Flore, Haskell, Latimer, McCurtain, Choctaw, Pushmataha	1, 462, 453
Indian Reservations		**6,786,322**
Total		**$101,849,945**

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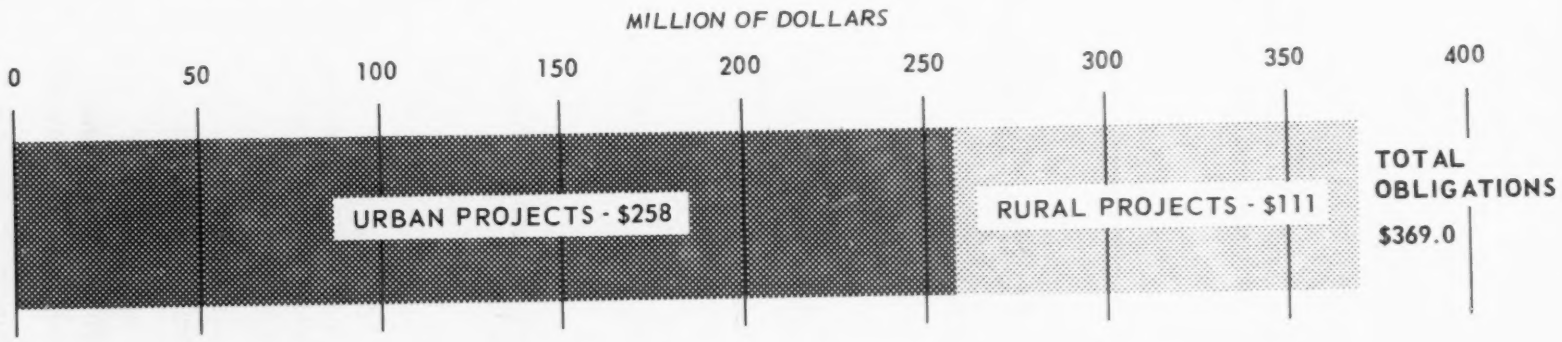
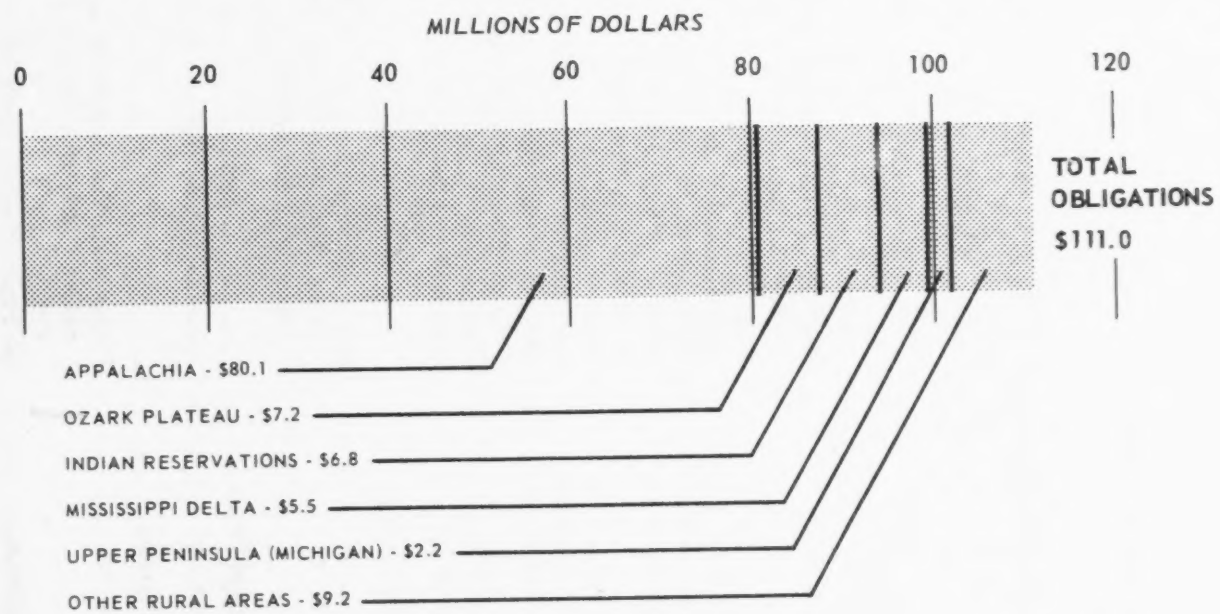
URBAN-RURAL DISTRIBUTION OF TITLE V FUNDS (Jan. 1, 1964 - Jan. 31, 1968)



RURAL DISTRIBUTION OF TITLE V FUNDS (Jan. 1, 1964 - Jan. 31, 1968)



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chasing of essential household equipment, payment of regular recurring medical expenses, major medical expense and basic maintenance needs after relocation in the event of temporary unemployment due to no fault of the relocatee.

The Kentucky joint mobility project experience was used by the Departments of Labor and Health, Education, and Welfare in preparing the guidelines for the administration of the relocation program for AFDC trainees and families under the new work incentive program.

The following case history is fairly typical of those reported by the program's directors.

Before he was enrolled in the title V program, Mr. A., aged 40, had been unable to adequately support his wife and six children ranging in age from 2 to 14 years. His work consisted largely of seasonal farm labor paying from $4 to $6 per day and infrequent employment in the log woods at the same pay. To supplement this income, he traded old automobiles, guns and coon dogs.

Having completed adult basic education, he was enrolled in the title V program and assigned to the Kentucky State Highway Department for work experience and a high school equivalency class. By the time the labor mobility demonstration project was begun, Mr. A. had received his high school equivalency certificate and had acquired sufficient work experience and self-confidence to meet the expectations of any prospective employer.

Knowing that there were openings for the position of correction officer at both of the Kentucky State Correction Institutions, the title V staff suggested that Mr. A. apply. He passed the required merit examination for one of the positions and was hired. He and his family were relocated under the provisions of the Mobility Project from Owsley County in eastern Kentucky to Oldham County in western Kentucky.

Although his starting salary was only $308 per month, it has been increased regularly and substantially. He has bought a country store which his wife is operating successfully, thereby improving the family's financial position.

The children have adjusted quite well in their new school and the family has been well accepted by their new community. All members of the family show awareness of their great stride forward socially and economically. They are managing their resources with an eye to the future.

The findings of a 1967 study [27] of the impact of the title V program in Appalachia suggest that a government works program, though it might provide only a type of outdoor sheltered workshop, makes good sense in depressed rural areas. This is particularly applicable to the poorly educated older men for whom relocation is not a practicable goal.

As the title V program in eastern Kentucky began phasing out, a project directed toward the housing and employment training needs of the elderly poor in rural areas was developed. Under this program older men are learning new skills and at the same time restoring the shockingly dilapidated homes of the aged, blind, disabled and other poor persons in the area. Known as the Older Persons Home Repair, it is a joint undertaking of State, Federal and local agencies—the Federal Departments of Labor and Health, Education, and Welfare, the Office of Economic Opportunity, the Kentucky State Department of Economic Security, the LKLP (Letcher, Knott, Leslie, and Perry Counties) Community Action Council, and its delegate agency, the Eastern Kentucky Housing Development Cooperation.

The Indian population. Perhaps no segment of the rural poor suffers a greater burden of multiple socioeconomic handicaps than the Indian population. It is estimated that there are in this country approximately 600,000 Indians, Eskimos, and Aleuts. About 200,000 reside in cities, while most of the remaining 400,000 live in reservations and other types of Indian communities. It is estimated that there are about 250 Indian settlements of various types.

Since the inception of title V in December

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[27] *The Work Experience and Training Program in Eastern Kentucky, Its Potential and Limitations,* unpublished doctoral dissertation, by M. Ali Akbar, sponsored by the Intramural Research Division, Office of Research, Demonstrations, and Training, Social and Rehabilitation Service, DHEW.

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1964 through June 1969, a total of about $8 million was obligated to operate seven projects primarily for Indians living on reservations. There was a total of 23 title V projects in areas where there were Indian reservations. An estimated 7,000 Indians have participated in title V training. While most were in the seven projects listed in the table, there were Indian trainees also in 53 other title V projects in 22 States.

TITLE V PROJECTS PREDOMINANTLY SERVING RESERVATION INDIANS

States, counties, and reservations	Title V funds (12/64–6/69)
Arizona	
Gila and Graham Counties:	
San Carlos Indian Reservation	$512, 514
Maricopa, Pima, and Pinal Counties:	
Gila River Indian Reservation	1, 700, 422
Oklahoma	
Adair, Delaware, Cherokee, and Sequoia Counties:	
Cherokee Indian Tribe	1, 271, 837
Nevada	
Humboldt County:	
Fort McDermitt Indian Reservation	771, 246
North Dakota	
Rolette County:	
Turtle Mountain Indian Reservation	2, 192, 406
South Dakota	
Dewey and Ziebeck Counties:	
Cheyenne River Indian Reservation	590, 448
Todd County:	
Rosebud Indian Reservation (also Gregory, Melette, and Trip Counties)	967, 690
Total	$8, 006, 563

Complete figures are not available on the employment status of Indians at the time of their termination from the program, but of those Indian trainees for whom this information is available approximately 34 percent obtained employment immediately following completion of training. This is only slightly less than 5 percent below the average for all title V trainees.

In many of the projects primarily for Indians training was focused on the improvement of housing, sanitation, and community facilities on the reservation as well as improvement of adjacent recreational areas.

For example, on the Fort McDermitt Reservation in Nevada, trainees built a tribal building for recreational, social, and civic functions; a well and water storage tank to alleviate a shortage of drinking water; and an earth-filled dam for irrigation purposes.

On the Turtle Mountain Reservation in North Dakota almost 100 substandard dwellings of trainees were renovated into livable homes. The reservation's badly run-down jail was renovated. Several recreational facilities were constructed.

Participants in these projects were given training in construction skills such as carpentry, roofing, plumbing, and masonry. Other training programs included welding, operation of heavy equipment, fish and game management, and truck driving for the men, while the women were given training as clerical paramedical aides, child care teacher aides, foodhandlers, and in other service occupations. Handicrafts training was given in some areas where no jobs were available and relocation to urban centers was not feasible.

The title V program played a major role in the economic development of at least one reservation—the Rosebud Reservation in South Dakota. This project conducted an experiment in cooperation with a private computer manufacturer to see how well Indians were suited to the job functions in this type of industry.

Compared to the 30-minute attention span of the average trainee in building core memory stacks, that of the average Rosebud trainee was found to be 2 hours. It was also found that the quality of the work produced by the Indian trainees was equal or superior to that of other trainees, due probably to the high degree of manual dexterity in the group.

As a result of this experiment, the company is now preparing to build a plant on the reservation.

A segment of the title V program in the Fort McDermitt Reservation was directed toward motivating, training, and placing Indian men

in two cinnabar mines operating nearby. The ore was processed into mercury at the mines. Mr. George E. Miller, State welfare administrator for Nevada, has described this project in some detail. His account of the preparatory steps is of particular interest in that it highlights the importance of continuing and intensive staff services to trainees. In the course of several visits to the mines the staff learned of the reluctance of the management to hire reservation Indians because when they had been employed in the past they tended to have unsatisfactory work habits, negative attitudes, and poor attendance records.

> They did agree to accept applications for an apprenticeship program of 1 to 3 months before making jobs permanent.
>
> Title V staff talked to the prospective trainees at the reservation, asking why they had not applied for work at the mines. The staff discovered that the Indians were afraid of making out the application forms and other papers, that they feared rebuffs and prejudice, and in some cases feared working below ground in the mines. During several sessions it was decided that these problems could be worked out. The trainees were told that they could have jobs at the mine but that the mines had to be assured of a stable work force.
>
> Title V staff members took all the trainees on a visit to the mines, showing them exactly what the mining process consisted of, both below and above ground. The trainees were shown the types of work which they would be doing, and were told that anyone who feared working underground would be placed in the mill operation on the surface.
>
> On the day selected for making job applications, title V staff members accompanied the trainees to the mines and helped them to fill out the application forms and introduced them to the supervisors and other mine personnel. On the following day, the first day of work, title V staff members again accompanied the trainees to the mines.
>
> Since then, title V has met several times a week with the mine management, discussing any problems or dissatisfactions they might have with the trainees. Title V staff has also endeavored to meet several times a week with the trainees to check progress and uncover any actual or potential problems.
>
> A total of seven title V trainees have been placed in the mines. Although the managements were informed that the apprenticeship period could last up to three months while the trainees remained on the title V rolls, the mines hired several of the trainees before the apprenticeship period was over.
>
> The title V staff has also been successful in helping to place a total of five non-title V Indians who were out of work at the mine. The staff talked with the mine management, informing them of other people at the reservation who would like work. They also talked to the people themselves and tried to encourage them to apply for jobs. The title V staff has not restricted itself to providing services only to title V recipients but, as often as possible, has attempted a community approach to community problems.

The Fort McDermitt report also states that the title V project staff "has accumulated a great deal of experience around the specific problem of unemployment among the Indians on the reservation and has developed techniques and methods of dealing with the problem." Nevada welfare officials plan to continue a program of services on selected Indian reservations in Nevada based on the pattern developed in the title V projects. In describing the new program they say: "The experiences of the title V program on the Fort McDermitt Indian Reservation have pointed out the need for this program to continue in the development of human potential as well as the great opportunity for success through such a program."

The Nevada experience of title V's contributions to solving some of the complex problems of the Indian population is not atypical. The Bureau of Indian Affairs, Department of the Interior, reports that tribal chiefs and other Indian leaders on several reservations have expressed their determination to continue work experience and training programs based on the methods demonstrated in title V.

The Bureau itself was aided in its efforts to improve its social services. Using the title V pattern of the average payment of $30 per month to trainees for expenses attributable to work, negotiations have been carried on with several tribes with the result that approximately 12

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tribes which have general assistance programs are now operating work experience projects.

Title V and the community

Some of the projects generated a high degree of community awareness, involvement, and cooperation. Long used to general antipathy—where apathy did not prevail—public welfare officials were often gratified to find a continually growing and interested public response to this program.

In a good many areas of the country, virtually all segments of the community cooperated: churches, civic organizations, business and industry, and educational and medical institutions. Throughout this report examples of community involvement have been cited, such as the significant contribution by the churches to child care in the Cleveland project.

BALTIMORE, MD.

The Baltimore project illustrates particularly well how work experience and on-the-job training programs can be natural vehicles for wide community participation.

The use of private and public employers as sponsors for work-training programs is described in a report evaluating the first 20 months of title V in Baltimore.

> Currently, there are 20 sponsors providing work experience in a variety of skills.
>
> The first large-scale sponsorship of a work experience and training component was arranged with Baltimore City hospitals in the area of nurses' aide, housekeeping, and food service operations. This has been maintained as an ongoing program and has provided job training and jobs for a significant number of trainees. So far, 172 clients have completed training at Baltimore City hospitals, of whom 108 have been hired (55 were hired by the sponsor).
>
> A large proportion of female clients have from the beginning expressed an interest in training for clerical jobs. Since the demand for clerical workers continues to be great, vocational courses in this field were established through a purchase-of-service arrangement with the *Department of Education.* The number of sponsors of clerical work experience has grown from an initial assignment in the WEP office to 16 separate sponsors providing work experience for anywhere from one to 15 trainees at one time. Sponsors include Federal and city agencies such as *Social Security, Army Publications Center, Internal Revenue Service, Mayor's Office, Department of Finance, Fire Department Headquarters, and Department of Education as well as nonprofit organizations such as the Maryland Council of Churches and Big Brothers.* The opportunities for increasing the number of sponsors in this field seem limitless and as we improve our procedures for selecting those who have clerical aptitudes, we will be able to train an increasing number of clerical workers through vocational training and work experience assignments.
>
> *Baltimore Urban Renewal and Housing* has been the primary sponsor for work experience and training in maintenance work. This program was initiated in February, 1966. A limited number of trainees have been hired in the housing projects; others have been hired for related jobs in hospitals, apartment houses and churches. Similar training has been arranged recently with the *Community Action Agency.* Work experience is provided in connection with the maintenance of neighborhood centers.
>
> *Baltimore Urban Housing Renewal Authority* has also acted as a sponsor of training for companion aides. This program was originally designed to train women to provide a specialized service to the elderly living in the housing projects. The aides, through work experience, have provided an important and needed service . . .
>
> *Baltimore Junior College* has developed a well structured 3-month training and work experience program for custodial and food service workers, and more recently for stationary engineers. This has been a successful program in terms of job placements following completion of training and with the continued demand of these skills, we hope to train many more with the cooperation of this sponsor.
>
> Clients have been trained as Homemakers through arrangements with the Department of Public Welfare who also hire those who successfully complete training. DPW also sponsors work experience for custodial workers and key punch operators.
>
> *The Baltimore City Department of Recreation*

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and Parks provides work experience for groundskeepers. Although the specific training leads to jobs that are primarily unskilled, this work experience is also used as a starting point to develop good work habits and from which trainees are selected for more advanced training.

A special cooperation arrangement has been made with the telephone company which involves group orientation of selected WEP trainees for approximately ten days prior to referral to the company for job interviews. Discussion centers around the job duties, employer expectation with respect to attitudes, grooming and work habits, the nature of the interview and practice on sample tests. Since this program was initiated, 11 hires have resulted from 36 referrals. The telephone company has also made available to WEP certain training equipment, including a switchboard, teletype machine and a self-teaching unit for typing and key punch.

The most recent sponsor added to our program is *Fort Holabird.* To date, work experience and training is being provided for warehousemen, stock clerks, meat cutters and clerical workers. Plans are now being made to expand work experience into the area of mess hall workers and groundskeeping. Although the latter do not lead to skilled jobs, they can lead to permanent employment at decent wages for those clients who are not able to absorb more advanced training.

CHARLESTON (TALLAHATCHIE COUNTY), MISS.

The final report of the Hillsdel title V project, contains the following account:

A local nonprofit organization hired a retired civil engineer to supervise the trainees in the use of the heavy equipment, which involved planning and construction of a given area. The supervisor, who was accustomed to teaching and training unskilled workers, was most helpful in selecting and advising the staff as to the potential of trainees in advanced training.

For example, one trainee while on this particular training site, showed interest in repairing the machinery. The supervisor recommended that the trainee be placed where he could pursue this interest. He was upgraded to a body shop repairman in a private business, where he was able to train under excellent supervision.

His interest and enthusiasm became such that he did not miss a day nor was he late. On afternoons after the basic education class was over, he would go by the training site to see what had been done in his absence. Still lacking in formal education, he was able to grasp enough to do his work well and was employed by the owner of the private business where he trained.

PUEBLO (PUEBLO COUNTY), COLO.

The director of this project asked the local chamber of commerce if the Pueblo Jaycees would sponsor a seminar for men trainees. The final report of the project describes the response:

The Pueblo Jaycees responded rapidly to the invitation of sponsoring this workshop, and telephone conversation began immediately . . . One luncheon meeting was held about 2 weeks prior to the workshop and was attended by five Jaycee members . . . The Pueblo Jaycees never lacked enthusiasm from the first contact, and they secured all speakers, as well as entertainment during the luncheon, notebooks, pencils, and matches that were given to each trainee when they attended.

One of the highlights of the program was a skit "Applying For That Job" by two Jaycee members. Mr. Martin took the part of an applicant desiring the "boss' job" . . . Mr. Hobbs was the interviewer of the firm and his comments before, during, and after the skit were of value to all trainees present.

Many Jaycees were present, wearing their boleros and displaying a cordial welcome to the title V trainees. No special seating arrangement during the luncheon was planned in an effort to have Jaycees, guests and trainees "feel at ease" and know the true fellowship presented by the sponsors.

Bill Johnson, State Jaycee president, spoke to the group and extended an invitation to trainees to join a Jaycee chapter and partake of community action and development. The Pueblo Welfare Department was represented by our new welfare director, James Walch and two of the county commissioners, John Giguere and John Hill. The State Welfare Department was represented by Mary Ann Ivy. The State EOA–V office was represented by Bob Henson, EOA–V State Field Supervisor. Twelve guests were present in addition to sixty trainees. (All trainees attended with the exception of one.)

The Press. Few programs administered by public welfare have captured the favorable interest of the local press to the extent that title V did. The press, a reflector as well as a shaper of public opinion, found many of the human interest stories coming out of title V newsworthy. Some papers carried series explaining title V in considerable detail. Editorial comment indicated general approval of the program's goals.

The Hartford Times, of Hartford, Conn., on June 15, 1966, addressed itself to the economic benefits of title V. It is quoted here in part:

> . . . the State Welfare Department's work-training program is showing some gratifying results in the form of monetary savings.
>
> This is the program designed to ease the public financial load by putting all employable parents to work who are receiving funds under the Aid to Dependent Children.
>
> Five years ago there were between 1,800 and 2,400 jobless parents in the State receiving aid in this category.
>
> Today this total has been whittled down to 427 unemployed fathers. That is, some 2,000 families have been eliminated from the relief load at a $2 million annual saving, according to a spokesman for the State Welfare Department. . . .
>
> It has been demonstrated that savings can be made. That is important in itself but it is even more important that the program helps people to help themselves. . . .

The Plain Dealer in Cleveland, Ohio, published the following editorial, headed "Welfare Myth," on December 9, 1967:

> The harshest charge made against the welfare client is that he would rather be on a dole than be gainfully employed.
>
> Eugene F. Burns, county welfare director, dented this concept yesterday when he reported to a welfare conference in Washington results of medical examinations given "able-bodied" trainees under title V of the Economic Opportunity Act.
>
> More than 40 percent of the welfare clients referred to the program were found by doctors to be unable to hold a job. More than 50 percent of the trainees accepted were found to be in need of medical attention. Of the more than 1,000 failures in title V training, 75 percent were unsuccessful because of recurring illnesses.
>
> The extravagance of neglect of the indigent is accented by the knowledge that so many persons now on welfare could have made it on their own had concern been available in time.

A study of the project in Kent County, Mich., was the subject of several stories. Under the heading, "U.S. Auditors Praise OEO Program," the St. Paul Pioneer Press, St. Paul, Minn., carried the following story on April 9, 1969.

> Government auditors, in the first report on a congressionally ordered investigation of the war on poverty, said Tuesday that a $432,000 work training program in Michigan more than paid for itself through lower welfare costs.
>
> The General Accounting Office, which is frequently critical of the way the Office of Economic Opportunity is run, said the money for the Kent County, Mich., program was well spent and resulted in annual savings to the government of $480,000.
>
> Welfare rolls were reduced after 209 of the 464 trainees who got jobs, many of them welfare mothers with children, were able to leave the Aid to Families with Dependent Children program, the GAO said.
>
> The report was the first of a special series in a $1.1 million investigation of OEO, the federal antipoverty agency, which Congress ordered 2 years ago.

Many newspapers carried individual stories of trainees. The Salt Lake Tribune, Salt Lake City, Utah, on December 17, 1967, carried a two-column picture of Mrs. Shirley Woodward, an employed title V graduate. Under the headline "Mother of 5 Struggles to Success," the story (here excerpted) follows:

> From a poverty-stricken home with five hungry children to a full-time job at Hill Air Force Base 14 years later, Mrs. Shirley Woodward, 35, has her own success story to tell.
>
> After 14 years on the public welfare rolls in Utah, Mrs. Woodward has managed to climb above the cold bare rooms of an old house, and the sight of five youngsters ashamed to go to school because they were "being welfarized."

She's now a well-paid experienced clerk-typist and has proud, achieving children.

Her success story, while not as much publicized as the struggle of giant industry magnates, may be just as important, to her and to the thousands still on welfare rolls.

Mrs. Woodward, a Negro, said, "Even before the welfare programs began, I wanted to go to school. But, my case worker told me she believed that a woman with five young children should stay in the home."

"I decided to go anyway, even though it was extremely hard to go to school on welfare checks I received," she explained.

She attended Trade Technical School in Salt Lake for nine months, then hearing of better opportunity in Weber County—she moved there with her five children. The welfare worker assigned to her in Weber County explained the county could pay her tuition to Weber State College and take care of food, clothing and cleaning for her children. . . .

She said she was "never happy on welfare nor is anyone else." Seeing her children—Conrad, now 16; Ronald, 13; Joseph, 12; James, 10, and little Nicholas, 8—unhappy and believing that "welfare goes from one generation to another," she set her sights on having a good working experience in a job.

Determined to become self-supporting, she applied for a Work Experience and Training Program at Hill AFB, under Title V of the Economic Opportunity Act.

She was assigned to the supply branch of the base hospital for on-the-job training which counted toward Civil Service time. Following her training and passing a Civil Service exam she was placed as a clerk-typist in the appointment and separation unit of the Civilian Personnel Division under supervisor Mrs. Millie Courtney, Bountiful, in April.

At that time she became self-supporting and no longer "had as many numbers as a convict." Her goal became a reality.

She said the program at Hill AFB "enabled me to support myself and my children, to be removed from public welfare and even to pay taxes." . . .

The community interest and cooperation in title V that developed in many communities was a significant stimulus to the national determination to find better answers to the problems of poverty and unemployment. The concept of social rehabilitation was shown to have validity and a significant number of communities responded affirmatively.

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III. The Implications of Title V

THE title V experience demonstrated again and again that the restoration of hope and self-confidence is the essential first step in social and economic rehabilitation. It is a complex task and cannot be achieved by procedures too rigid to permit an individual course of action stemming from the particular needs and capabilities of the individual.

To succeed, those who would undertake programs of rehabilitation for the poor must believe that there is a potential for independence among this group. Except for those too old, too young, or too physically or emotionally disabled, many, with sufficient help, can be brought to independence. For some it will be a long, tortuous process, for others the motivation lies just under the surface, waiting only for someone to believe and to show the way, and of course, for a few, no program can produce the answers.

It was learned, not surprisingly, that the interest and concern of those working directly with the trainee are the keys to success.

The evidence was overwhelming that personal and family problems and medical needs must be met before the participant can profit from training.

Title V also taught that literacy training alone pays tremendous dividends, not only for the trainee, but for his family as well.

A State letter dated May 16, 1967, sent from the Department of Health, Education, and Welfare to State welfare agencies contained the following passage about the title V program:

> . . . Parents, who because of their family circumstances could not finish their training, have nevertheless benefited from the program in terms of better family life and a renewed sense of personal worth, which they pass on to their children.

On the matter of economic cost, funds invested in making the unemployed and underemployed poor economically self-sufficient result in returns of such magnitude that the word "cost" becomes inappropriate.

The needs of people like those who participated in title V exist without appropriate or convenient relevance to the structure of public agencies, or, for that matter, private service organizations. This is why there is a need to accelerate the trend toward interagency cooperation at all levels. At the national level this means such efforts as Model Cities; the Concentrated Employment Program (Labor Department, OEO, HEW, and others); coordination of child care programs through the multiagency Federal Panel on Early Childhood, and the five-department Cooperative Area Manpower Planning System to coordinate job and skill-training programs.

The final report on the title V program in the State of Ohio included a comment as germane to this report as it was to theirs:

> It always can be, and usually is, claimed that the same program would have done far better if it were given more time and money. Any evaluation of that claim is beyond the scope of this report. As an employability program, title V was a limited, but real success. Its true value will be in the use made of title V's lessons in planning for the future.

In the varied and often revelatory experience of title V the directions and the outlines of more effective programs and institutions can be perceived. The true value of the experience can only be realized if we put it to use in attacking the debilitating social disease of poverty and its dangerous side effect—alienation.

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appendices

Occupations participants were trained for

Federal funds approved for Title V projects

Title V research studies

Principal Federal officials for title V, 1964–1969

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Occupations participants were trained for

Clerical and sales

- auto parts salesman
- bookkeeper
- business machine operator
- cashier/teller
- file clerk
- key-punch operator
- library assistant
- messenger/office boy
- PBX operator
- receptionist
- salesman/driver
- secretary
- stenographer
- store clerk
- used car salesman

Paramedical

- autopsy aide
- dental assistant
- dental receptionist
- dental technician
- dietary clerk
- dietician
- family food specialist
- home health aide
- hospital aide
- hospital orderly
- licensed registered nurse
- medical assistant
- medical laboratory
- medical technician
- nurse's aide
- nursing home assistant
- pharmacy aide
- radiology technician
- surgical technician
- X-ray technician

Social service

- casework aide
- child day care and nursery aide
- community and neighborhood aide
- family day care aide
- homemaker service aide
- recreation aide
- rehabilitation aide

Education

- administrative school aide
- instructor
- library aide — bookbinder aide
- nursery school aide
- police cadet trainee
- teacher aide

Law enforcement

- crosswalk guard
- deputy sheriff
- Indian reservation police aide
- parking meter wards
- police aide
- police chief aide
- police dispatcher
- policeman
- sheriff aide

Other paraprofessional and technical

- architectural assistant
- artist, photographer
- computer programmer
- draftsman, mechanical drawing
- engineer aide
- forestry technician
- industrial technician
- pesticide technician
- sewage disposal technician
- surveyor
- veterinarian assistant

Agriculture

- cattleman
- dairyman
- farm equipment operator
- farm hand
- forestry worker
- gardener
- hatchery worker
- kennelman
- landscaper
- nurseryman
- poultryman

Skilled trades

- airconditioning and refrigeration worker
- appliance repairman
- auto bodyman
- auto mechanic
- baker
- bricklayer's helper
- cabinetmaker
- carpenter's helper
- cement finisher
- construction worker
- data processor
- diesel mechanic
- electrician's helper
- electronics assembler
- foundry worker
- glazer
- machinist
- masonry man
- miner
- painter
- pipe fitter
- plasterer
- plumber's helper
- print press operator
- sheetmetal worker
- TV-radio repairman
- upholsterer
- welder

Semiskilled trades

- bus driver
- equipment oiler
- fire fighter
- highway maintenance
- production line worker
- roadside beautification worker
- sewage disposal plant worker
- slaughterhouse worker
- taxicab driver
- truck driver

Services

- barber
- beautician
- building engineer
- building maintenance worker
- butcher
- cook
- cook's helper
- cosmetologist
- counterman
- dry cleaning worker
- general maintenance
- guard-watchman
- hotel/motel maid
- janitor/porter
- laundry worker
- manicurist
- meter reader
- packager
- service station attendant
- seamstress (alterations)
- shoe repairman
- switchboard operator
- usher
- waiter

Federal Funds Approved For Title V Projects, December 1964 Through June 30, 1969, By State

location	project number	federal funds
TOTAL (FOR 344 PROJECTS)		$369,826,087 [1]
ALABAMA ($3,075) [2]		
ALASKA ($1,080,887)		
State staff	V-22	83, 151
Anchorage and villages	V-331	426, 658
Fairbanks	V-300	203, 862
Greater Juneau Borough	V-158	367, 216
ARIZONA ($2,345,266) [3]		
State staff	V-56	111, 282
Gila and Graham Counties (San Carlos Indian Reservation).	V-353	512, 514
Maricopa, Pima, and Pinal Counties (Gila River Indian Reservation).	V-133 and V-354	1, 700, 422
ARKANSAS ($14,062,950) [3]		
State staff	V-29	99, 565
Boone, Carroll, Madison, Marion, Newton, and Searcy Counties.	V-255	1, 143, 867
Clark, Garland, Hot Spring, Perry, and Saline Counties.	V-85	854, 950
Cleburne, Faulkner, White, and Woodruff Counties.	V-134	564, 486
Conway County	V-95	1, 177, 094
Franklin, Johnson, Logan, Pope, and Scott Counties.	V-123	881, 186
Independence County	V-122	541, 481
Lafayette, Hempstead Little River, and Miller Counties	V-136	2, 302, 500
Howard, Montgomery, Pike, Polk, and Sevier Counties.	V-151	2, 245, 157
Lee County	V-166	607, 762
Lincoln County	V-149	606, 080
Pulaski County, Prairie and Lonoke Counties	V-121 and V-150	1, 457, 034
St. Francis County	V-269	244, 283
Stone County	V-94	612, 351
Van Buren County	V-102	354, 812
Yell County	V-2	360, 115
CALIFORNIA ($18,947,790) [3]		
State staff	V-13	363, 732
Contra Costa County	V-14	1, 794, 949

Footnotes at end of table.

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location	project number	federal funds
CALIFORNIA—Continued		
El Dorado County	V-140	$33, 578
Imperial County	V-298	34, 605
Kern County	V-144	378, 386
Kings County	V-69	174, 838
Lake County	V-138	160, 700
Los Angeles County (regular project)	V-15 and V-388	4, 892, 576
Los Angeles County (day care centers' training).	V-126	1, 298, 934
Los Angeles County (special project for adult training).	V-277	3, 091, 842
Madera County	V-20	189, 082
Marin County	V-143	43, 995
Riverside County	V-117	520, 202
Sacramento County	V-141	621, 216
San Bernardino County	V-146	695, 771
San Diego County	V-124	527, 059
San Francisco County No. 1 (Women)	V-18	578, 780
San Francisco County No. 2 (Men)	V-381	522, 430
San Joaquin County	V-148	305, 097
San Luis Obispo County	V-78	428, 621
San Mateo County	V-145	68, 804
Santa Clara County	V-19	1, 747, 370
Shasta County	V-17	238, 035
Tehama County	V-125	41, 567
Ventura County	V-16	159, 345
Yolo County	V-380	28, 168
COLORADO ($9,474,619)[3]		
State staff	V-65	157, 838
Adams County	V-226	418, 719
Arapahoe County	V-256	509, 226
Baca, Cheyenne, Kiowa, and Prowers Counties	V-103	248, 425
Bent and Crowley Counties	V-110	249, 977
Conejos and Costilla Counties	V-251	389, 058
Denver County	V-156	1, 735, 073
Dolores and Montezuma Counties	V-262	98, 321
El Paso and Teller Counties	V-261	723, 960
Fremont County	V-154	372, 244
Huerfano County	V-155	408, 617
Jefferson County	V-257	413, 863
Grand, Moffat, and Routt Counties	V-260	91, 534
Larimer County	V-245	410, 547
Las Animas County	V-66	852, 632
Morgan County	V-220	337, 527
Otero County	V-111	541, 787
Pueblo County	V-157	759, 550

location	project number	federal funds
COLORADO—Continued		
Weld County	V-240	$547,974
Yuma County	V-239	207,747
CONNECTICUT ($5,070,009)[3]		
8 Districts: Bridgeport, Hartford, Middletown, New Haven, Norwich, Stamford, Torrington and Waterbury.	V-42	5,065,037
DELAWARE ($500,572)[3]		
State staff	V-54	48,215
Kent, New Castle, and Sussex Counties	V-241	452,357
DISTRICT OF COLUMBIA ($10,832,922)	V-43	10,832,922
FLORIDA ($8,307,133)[3]		
State staff	V-71	109,907
Broward, Dade, and Pinellas Counties (administrative project).	V-135	23,600
Broward County	V-343	1,745,189
Dade County	V-253	2,190,832
Hillsborough County	V-190	2,361,715
Pinellas County	V-285	1,865,750
GEORGIA ($4,157,329)[3]		
State staff	V-59	105,467
Ben Hill County	V-345	75,071
Bibb County	V-179	8,100
Chatham County	V-180 and V-291	416,633
Colquitt County	V-178 and V-267	325,424
Fulton County	V-1	1,933,991
Muscogee County	V-182 and V-287	618,867
Richmond County	V-177 and V-258	647,146
GUAM ($113,811)		
State staff	V-366	5,297
Territorywide	V-378	108,514
HAWAII ($271,869)[3]		
State staff	V-61	61,231
City of Honolulu	V-153	147,748
Kauai, Maui, and Hawaii Counties	V-338	60,519
IDAHO ($2,711,363)[3]		
State staff	V-77	83,122
Ada and Canyon Counties	V-224	916,439
Bannock and Kootenai Counties	V-234	677,200
Bonneville and Twin Falls Counties	V-235	655,779
Nez Perce County	V-355	368,823

location	project number	federal funds
ILLINOIS ($2,934,207)[3]		
Cook County No. 1 (regular project)	V-76	$2, 468, 998
Cook County No. 2 (Deserted Fathers)	V-213	461, 900
INDIANA ($3,247,188)		
State staff	V-58	28, 900
3 Districts [4]	V-67	1, 172, 766
Lake County	V-68	2, 045, 522
IOWA ($5,290,620)[3]		
State staff	V-36	107, 435
Appanoose, Lucas, Mahaska, Marion Monroe, Warren, and Wayne Counties.	V-336	177, 447
Black Hawk County	V-242	528, 837
Boone, Dallas, and Madison Counties	V-283	337, 630
Buena Vista, Clay, and Dickinson Counties	V-289	138, 377
Calhoun, Hamilton, Humboldt, Webster, and Wright Counties.	V-231	491, 203
Cedar, Johnson, and Muscatine Counties	V-334	285, 468
Davis, Keokuk, Jefferson, Van Buren, and Wapello Counties.	V-333	299, 685
Grundy, Hardin, Jasper, and Marshall Counties	V-313	117, 061
Jasper and Polk Counties	V-152	1, 349, 897
Linn County	V-293	323, 020
Marshall, Poweshiek, and Tama Counties	V-335	127, 280
Pottawattamie County	V-273	311, 551
Scott County	V-187	693, 641
KANSAS ($622,375)[3]		
State staff	V-299	22, 885
Atchison and Leavenworth Counties	V-384	222, 313
Cherokee, Crawford, Labette, Montgomery, and Neosho Counties.	V-383	218, 295
Harvey and Reno Counties	V-361	157, 382
KENTUCKY ($47,213,726)[5]		
Bell, Breathitt, Floyd, Harlan, Knott, Leslie, Letcher, Perry, Pike, Clay, Elliott, Jackson, Knox, Magoffin, Martin, Menifee, Morgan, Owsley, and Wolfe Counties.	V-6 and V-88	47, 040, 950
Labor Mobility Project for above counties	V-356	115, 545
LOUISIANA ($6,573,617)[3]		
State staff	V-7	110, 715
Acadia, Jefferson, Davis, and Vermillion Parishes.	V-9	1, 112, 014
Caddo and Bossier Parishes	V-10	1, 047, 136
Eden Park and East Baton Rouge Parish	V-49	668, 461

location	project number	federal funds
LOUISIANA—Continued		
Evangeline Parish	V-130	$1, 334, 146
Orleans Parish	V-159	1, 440, 893
St. Martin Parish	V-294	358, 918
Vernon Parish	V-302	470, 758
MAINE ($3,065,389)[3]		
Hancock, Kennebec, Knox, Penobscot, Piscataquis, Waldo, and Washington Counties.	V-31	3, 059, 985
MARYLAND ($2,882,749)		
State staff	V-45	54, 065
Allegany County	V-170	176, 192
City of Baltimore	V-171	2, 610, 488
Garrett County	V-48	42, 004
MASSACHUSETTS ($14,985,415)[3]		
State administrative staff	V-25	198, 493
City of Boston	V-132	3, 783, 652
City of Brockton	V-162	1, 064, 058
City of Cambridge	V-128	977, 015
City of Fall River	V-222	329, 507
City of Gloucester	V-214	210, 444
City of Haverhill	V-192	536, 241
City of Holyoke	V-217	477, 247
City of Lawrence	V-271	218, 400
City of Lowell	V-223	309, 864
City of Lynn	V-116	1, 254, 582
City of Malden	V-198	489, 934
City of New Bedford	V-91	680, 623
City of Northampton	V-191	247, 156
City of Quincy	V-129	896, 380
City of Revere	V-90	912, 900
City of Springfield	V-112	895, 328
City of Taunton	V-212	228, 426
City of Worcester	V-203	1, 243, 165
MICHIGAN ($11,175,361)		
State administrative staff	V-52	126, 018
Kent County	V-173	600, 562
Muskegon County	V-97	848, 545
Oakland County	V-92	450, 394
Upper Peninsula: Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon, and Schoolcraft Counties.	V-250	2, 186, 852
Wayne County	V-5	6, 962, 990

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location	project number	federal funds
MINNESOTA ($14,990,407)[3]		
State administrative staff	V-33	$64, 208
Becker and Mahnomen Counties	V-292	895, 616
Beltrami and Cass Counties	V-280	1, 020, 276
Hennepin County	V-215 and V-281	2, 203, 978
Itasca and Koochiching Counties	V-337	445, 632
Lake and Cook Counties	V-305	218, 728
Otter Tail and Wadena Counties	V-352	451, 602
Ramsey County	V-30	7, 678, 927
St. Louis County	V-184	1, 703, 891
Todd County	V-284	297, 949
MISSISSIPPI ($14,894,133)[3]		
State administrative staff	V-172	249, 745
Alcorn, Prentiss, Tippah, and Tishomingo Counties.	V-286	2, 018, 538
Attala and Madison Counties	V-389	156, 948
Coahoma County	V-326	525, 685
Covington County	V-322	541, 512
Forrest and Jones Counties	V-304	817, 885
George, Greene, Perry, and Wayne Counties	V-314	961, 588
Grenada, Panola, Quitman, Tallahatchie, and Tunica Counties.	V-290	2, 020, 901
Hinds County	V-295	1, 238, 552
Holmes County	V-297	783, 809
Lafayette County	V-323	550, 628
Lamar and Marion Counties	V-341	802, 944
Lawrence, Walthall, and Warren Counties	V-327	458, 712
Lee, Monroe, and Pontotoc Counties	V-199	1, 771, 663
Lincoln County	V-324	564, 659
Newton County	V-325	493, 407
Sunflower County	V-296	910, 656
MISSOURI ($9,194,742)[3]		
State administrative staff	V-106	76, 963
Audrain, Callaway, Boone, and Montgomery Counties.	V-362	233, 323
Carroll, LaFayette, Saline, and Chariton Counties.	V-365	172, 834
Jackson County	V-176	3, 522, 928
St. Louis County	V-96	5, 186, 942
MONTANA ($1,102,211)[3]		
State administrative staff	V-246	55, 495
Blaine and Hill Counties	V-332	296, 648
Cascade County	V-340	297, 052
Silver Bow County	V-360	187, 794
Yellowstone County	V-275	262, 522

location	project number	federal funds
NEBRASKA ($3,227,647)[3]		
Douglas County	V-243	$2, 668, 873
Lancaster County	V-368	547, 887
NEVADA ($5,544,417)[3]		
State administrative staff	V- 87	127, 987
Clark County	V-196	3, 185, 236
Humboldt County (Fort McDermitt Indian Reservation).	V-47	717, 246
Washoe County	V-118	1, 482, 514
NEW HAMPSHIRE ($680,635)[3]		
State administrative staff	V-183	20, 200
Rockingham and Strafford Counties	V-315	655, 995
NEW JERSEY ($11,027,576)[3]		
State administrative staff	V-46	130, 892
Bergen County	V-309	302, 395
Camden and Passaic Counties (special adult basic education project).	V-195	1, 464, 898
City of Newark	V-98	6, 015, 977
City of Trenton	V-62	1, 191, 891
Mercer County	V-390	258, 897
Monmouth County	V-194 and V-282	705, 692
Passaic County	V-363	622, 031
Union County	V-225 and V-357	326, 543
NEW MEXICO ($6,155,475)[3]		
State administrative staff	V-11	95, 747
Bernalillo County	V-160	2, 617, 766
Catron, Grant, Hidalgo, and Luna Counties	V-161	168, 929
Chaves, Eddy, and Lea Counties	V-167	473, 096
Rio Arriba, San Miguel, Santa Fe, and Taos Counties.	V-64	1, 488, 855
Sandoval County	V-377.A	580, 505
San Juan and McKinley Counties	V-216	225, 700
Socorro, Torrance and Valencia Counties	V-207	486, 714
NEW YORK ($12,158,608)[3]		
State administrative staff	V-79	130, 671
Erie County	V-208	902, 001
Nassau County	V-188	383, 840
Nassau, Oneida, and Onondaga Counties (special adult basic education project).	V-229	393, 800
New York City (Men)	V-81	6, 725, 478
New York City (Women)	V-80	551, 817
Niagara County	V-23	643, 420
Oneida County	V-99	681, 324
Onondaga County	V-109	598, 291

location	project number	federal funds
NEW YORK—Continued		
St. Lawrence County	V-105	$356, 900
Suffolk County	V-189 and V-266	394, 034
Warren County	V-120	5, 800
Westchester County	V-82	317, 432
Westchester County (County Home)	V-83	52, 800
NORTH CAROLINA ($2,256,121)[3]		
State administrative staff	V-165	48, 274
Camden, Chowan, Corrituck, Dare, Gates, Hyde, Pasquotank, Persquimans, Tyrrell, and Washington Counties	V-193	11, 300
Craven County	V-3	854, 288
Orange County	V-310	309, 112
Forsyth County	V-317	1, 024, 501
NORTH DAKOTA ($2,236,161)[3]		
State administrative staff	V-73	33, 683
Rolette County (Turtle Mountain Indian Reservation).	V-84	2, 192, 406
OHIO ($14,810,806)		
State administrative staff	V-32	176, 438
Ashland and Richland Counties	V-202	455, 294
Belmont County	V-232	405, 717
Butler County	V-26	599, 506
Clermont County	V-174	280, 135
Cuyahoga County	V-28	8, 116, 372
Franklin County	V-236	854, 280
Hamilton County	V-303	574, 407
Jefferson County	V-369	225, 268
Lawrence County	V-55	436, 271
Lorain County	V-27	380, 593
Lucas County	V-211 and V-272	926, 957
Mahoning County	V-278	581, 583
Montgomery County	V-348	797, 985
OKLAHOMA ($5,545,306)[3]		
State administrative staff	V-50	137, 743
Adair, Cherokee, Delaware, and Sequoyah Counties (Cherokee Indian Tribe).	V-185	1, 271, 837
Alfalfa, Creek, Garfield, Garvin, Mayes, Murray, Muskogee, Ofkuskee, Osage, Pottawatamie, and Tulsa Counties.	V-107	1, 171, 043
Caddo, Kiowa, and Washita Counties	V-312	253, 784
Choctaw, McCurtain, and Pushmataha Counties.	V-244	787, 962
Latimer, Le Flore, and Haskell Counties	V-228	674, 491

location	project number	federal funds
OKLAHOMA—Continued		
McIntosh, Muscogee, Okmulgee, and Wagoner Counties.	V–370	$285, 300
Oklahoma County	V–93	566, 346
Tulsa County	V–274	360, 263
OREGON ($4,310,396)[3]		
State administrative staff	V- 89	115, 766
Baker, Clackamas, Clatsop, Columbia, Coos, Deschutes, Douglas, Hood River, Jackson, Josephine, Klamath, Lane, Linn, Malhuer, Marion, Polk, Umatilla, Union, Wasco, Wallowa, Washington, and Yamhill Counties.	V–238	2, 936, 059
Multnomah County	V–24	1, 155, 716
PENNSYLVANIA ($7,390,656)		
State administrative staff	V–37	96, 697
Allegheny County	V–4	739, 435
Berks County	V–169	91, 700
Bucks County	V–204	45, 100
Chester County	V–209	37, 800
Dauphin County	V–119	157, 500
Delaware County	V–74	556, 153
Erie County	V–206	185, 405
Fayette County	V–168	396, 587
Greene and Washington Counties	V–210	396, 359
Indiana County	V–197	222, 351
Lackawanna County	V–101	239, 761
Luzerne County	V–115	271, 173
Montgomery County	V–205	201, 000
Philadelphia County	V–70	3, 359, 236
Schuylkill County	V–201	142, 799
Westmoreland County	V–137	251, 600
PUERTO RICO ($22,357,565)[3]		
Commonwealthwide	V–21	22, 352, 971
RHODE ISLAND ($2,373,448)[3]		
Statewide	V–8	2, 370, 448
SOUTH CAROLINA ($1,374,194)[3]		
State administrative staff	V–279	41, 902
Darlington and Florence Counties	V–307	511, 787
Horry County	V–308	398, 564
Spartanburg and Greenville Counties	V–306	416, 581
SOUTH DAKOTA ($2,330,750)[3]		
State administrative staff	V–276	52, 643
Charles Mix County	V–329	105, 074

location	project number	federal funds
SOUTH DAKOTA—Continued		
Dewey and Ziebach Counties (Cheyenne River Indian Reservation).	V-318	$590,448
Gregory, Mellette, Todd, and Tripp Counties (Rosebud Indian Reservation).	V-311	967,690
Pennington County	V-316	606,680
TENNESSEE ($4,770,133)		
State administrative staff	V-75	91,427
Bedford, Coffee, Franklin, Giles, Grundy, Lawrence, Lincoln, Marshall, and Moore Counties.	V-301	369,616
Bledsoe, Cocke, Fayette, Grainger, Hamilton, Haywood, Jefferson, Knox, Marion, Sevier, Shelby, and Sequatchie Counties.	V-60	2,038,644
Campbell, Claiborne, Hancock, Scott, and Union Counties.	V-227	901,705
Crockett, Dyer, Gibson, Hardemon, Madison, and Obion Counties.	V-186	847,672
Davidson, Robertson, Rutherford, Sumner, and Wilson Counties.	V-247	521,069
TEXAS ($4,157,953)[3]		
State administrative staff	V-72	99,726
Bee, Jim Wells, and San Patricio Counties	V-371	404,900
Cameron County	V-339	459,912
Kleberg and Nueces Counties	V-164 and V-288	781,228
Taylor County	V-358	382,367
Travis County	V-163	761,324
Webb County	V-330	1,244,512
UTAH ($1,740,346)[3]		
State administrative staff	V-44	90,718
Carbon, Duchesne, Wasatch, San Juan, Summit, Tooele, and Uintah Counties.	V-268	593,934
Davis, Salt Lake, Utah, and Weber Counties	V-100	1,054,501
VERMONT ($965,226)[3]		
State administrative staff	V-127	48,548
Burlington District	V-254	915,488
VIRGINIA ($2,446,285)[3]		
State administrative staff	V-319	25,638
Buchanan and Tazewell Counties	V-321	900,707
Dickenson County	V-364	228,598
Lee County	V-320	956,657
Russell County	V-359	332,091
VIRGIN ISLANDS ($241,142)		
Territorialwide	V-12	241,142

location	project number	federal funds
WASHINGTON ($2,331,645)		
State administrative staff	V-38	$30, 500
Benton, Clark, Columbia, Franklin, Grant, Grays, Harbor, King, Pierce, San Juan, Snohomish, Spokane, Thurston, Walla Walla, Whatcom, and Yakima Counties.	V-57	2, 301, 145
WEST VIRGINIA ($23,751,200)[3]		
Statewide	V-35	23, 748, 400
WISCONSIN ($5,576,283)		
State administrative staff	V-39.A-B	124, 056
Adams, Ashland, Barron, Bayfield, Brown, Burnett, Chippewa, Douglas, Eau Claire, Florence, Forest, Iron, Jackson, Juneau, Lacrosse, Langlade, Lincoln, Marinette, Menominee, Marathon, Oconto, Oneida, Outagamie, Polk, Price, Rusk, and Taylor Counties.	V-230	1, 862, 181
Milwaukee County	V-41	2, 963, 546
Racine County	V-221	626, 500
WYOMING ($4,310,795)[3]		
State administrative staff	V-53	57, 113
Big Horn, Campbell, Carbon, Converse, Fremont, Goshen, Hot Springs, Johnson, Laramie, Natrona, Niobrara, Park, Platte, Sheridan, Sweetwater, and Washakie Counties.	V-104	4, 250, 218

[1] Total Federal funds is $296,057 less than the $370,122, 144 total of the State amounts in the first column. The $296,057 were funds returned to the Department of Health, Education, and Welfare by the Department of Labor and these funds are not identified by individual projects.

[2] Granted for planning purposes.

[3] Includes some State employment service input for employment counseling and other manpower services financed by title V under 1966 Economic Opportunity Amendments.

[4] Counties: Adams, Allen, Blackford, Crown, Clay, Crawford, Daviess, Delaware, Dubois, Fayette, Gibson, Grant, Greene, Hamilton, Hancock, Henry, Howard, Huntington, Jay, Johnson, Knox, Lawrence, Madison, Marion, Martin, Miami, Monroe, Morgan, Orange, Owen, Perry, Pike, Posey, Randolph, Rush, Saint Joseph, Shelby, Spencer, Sullivan, Tipton, Union, Vanderburg, Vigo, Wabash, Warrick, Wayne, Wells, Whitely.

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Title V research studies

A number of research studies to evaluate the effectiveness of various title V projects and to analyze cost-benefit ratios have been made.

Among those completed are:

1. *Cost-benefit evaluation of the Bernalillo County (Albuquerque), N. Mex., work experience project.*[1]

This study had two principal objectives: (1) to conduct a comprehensive cost-benefit analysis of a local title V project; and (2) to use this experience to develop a model for estimating nationwide ratios and a methodology for such analysis of the spectrum of programs for disadvantaged populations.

The major findings were (1) that the title V program as it operated in Albuquerque would pay for itself in less than 5 years in a slack labor market area and even sooner in a tight labor market area; (2) participation in title V resulted in measured improvement in the trainee's self-esteem, family functioning, and motivation or readiness for employment; and (3) training directed toward specific manpower shortages in the locale resulted in the greatest economic benefits.

2. *Report on a national AFDC study.*[2]

This was a report on a study made in eight different locations throughout the country, comparing groups of AFDC mothers who were not in a title V program with those who were.

It was found that title V trainees had higher average monthly incomes than the comparison group—$14 higher. Persons who benefitted most from the training in terms of employment, as might be expected, tended to be those who were better able to discharge their family responsibilities, had good health, had some work experience prior to their entry into the training program, completed the title V assignment, had more education, and whose prior employment had been at higher level jobs.

In addition, the study found that title V trainees themselves perceived more improvement in their family situation than did the comparison group. They attributed this largely to their improved employment status. The training also resulted in noticeably improved self-esteem and to a lessening of the sense of alienation in trainees whether or not the training resulted in changes in their work or welfare history.

3. *The work experience and training program in eastern Kentucky: Its potentials and limitations.*[3]

This study was undertaken to ascertain the impact of a work experience and training program in Appalachia and the kinds of programs that are appropriate in this economically depressed area.

It was found that during a period of 32 months, about 65 percent of the participants who were in projects at the beginning of the period left the projects. Of these, about 45 percent left to take jobs or to go into advanced vocational training in other programs. There appeared to be little relationship between length of time in the program and subsequent employment. Most of the 11 percent of those who went on to other vocational programs tended to be better educated and were capable of participation in high school equivalency training.

For those who eventually found jobs, the program served as an extended unemployment benefit program in the interim. It served also as a preparatory and referral mechanism for those who entered more advanced training.

For the others, it provided a source of necessary income to their families without maintaining the heads of households in forced idleness. The work these men did was not competitive with industry nor did it displace members of the labor force. The region was made more habitable by their labor—roads were repaired, small

[1] Paul T. Therkildsen and staff. Department of Economics, University of New Mexico, Albuquerque, 1969. Unpublished.

[2] Leonard Goodman and staff. Bureau of Social Science Research, Washington, D.C., 1969. Unpublished.

[3] Mohammed Ali Akbar Ph. D. thesis, Brandeis University, Waltham, Mass., 1968. Unpublished.

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bridges were built, and many schools and dilapidated homes of needy persons were restored.

The findings of this study suggest that a government works program, even if it provides only a sort of sheltered outdoor workshop, makes good sense in rural areas with depressed labor markets, particularly for poorly educated, older men who are not good candidates for relocation.

4. *Review of training program in day care centers.*[4]

Among studies not yet completed is a review of the effectiveness of a title V program training AFDC mothers as teacher's aides in child day care centers in Los Angeles. It is designed to determine the relationship of the training program to gaining employment in the child care field and to improved individual and family functioning. It seeks also to determine whether the program substantially assists trainees in gaining their stated goals and to analyze the cost-benefit ratio of the program.

A preliminary report [5] of this study indicates that even in a good labor market area with a carefully selected group of AFDC mothers there can be impediments to employment. Although the mothers who completed training were considered qualified by any practical standards, most could not obtain jobs as teacher's aides in child care centers largely because of State licensing requirements. As a result, the majority of mothers who completed title V training enrolled in further education to qualify as certified nursery school teachers.

5. *Evaluation of adult basic education systems.*

An evaluation of selected basic education systems based upon the experience of 1,600 functionally illiterate title V trainees was completed in the summer of 1966. Conducted in two phases, the first was an evaluation of four different reading systems and three types of teachers of varied experience.[6] The second,[7] begun 6 months after the termination of classes for the subject group, was made to determine the degree of retention of basic education skills.

Among the report's findings: (1) None of the testing devices used were appropriate for adults. (2) None of the learning systems were adequate and there were few appropriate reading materials. (3) Public welfare agencies must find ways to protect the small investment made in adult basic education classes by continued followup procedures, making sure that students in such classes do not "get lost" and are helped to continue at least to the high school equivalency level. (4) There is a need for public welfare's collaboration in education programs for recipients.

The findings of this study stimulated at least one major publishing company to improve their adult basic education textbooks and other adult materials.

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[4] Dorothy D. Corey Research Agency, Los Angeles, Calif. Completed September 1969.

[5] Catherine S. Chilman, Office of Research, Demonstration and Training, Social and Rehabilitation Service, DHEW. Unpublished.

[6] Field Test and Evaluation of Selected Adult Basic Education Systems. Greenleigh Associates, New York City, September 1966.

[7] Participants in the Field Test of Four Adult Basic Education Systems: A Follow-up Study. Greenleigh Associates, New York City, January 1968.

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Principal Federal officials for Title V, 1964–69

	tenure of office	
	from	to
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE:		
Secretary:		
Robert H. Finch	January 1969	Present.
Wilbur J. Cohen	March 1968	January 1969.
John W. Gardner	August 1965	March 1968.
Anthony J. Celebrezze	July 1962	August 1965.
Social and Rehabilitation Service: [1]		
Administrator:		
Mary E. Switzer	August 1967	February 1970
Title V Director:		
Andrew R. N. Truelson [2]	August 1967	Present.
Welfare Administration:		
Commissioner:		
Joseph H. Meyers (Acting)	March 1967	August 1967.
Dr. Ellen Winston	February 1963	March 1967.
Title V Director:		
Andrew R. N. Truelson	October 1964	August 1967.
OFFICE OF ECONOMIC OPPORTUNITY		
Director:		
Donald Rumsfeld	May 1969	Present.
Bertrand M. Harding (Acting)	March 1968	May 1969.
R. Sargent Shriver	October 1964	March 1968.

[1] Effective Aug. 15, 1967, the newly established Social and Rehabilitation Service assumed the functions of the Welfare Administration which previously had responsibility for the title V program.

[2] Appointed Acting Associate Commissioner of the Community Services Administration established September 1969 within the Social and Rehabilitation Service, DHEW.

4388

U.S. GOVERNMENT PRINTING OFFICE: 1970 O—356-451

VT 012 471
Picou, J. Steven; Azuma, Henry T.
Occupational and Educational Projections of Deep-South Delinquent and Non-Delinquent Black Males.

Louisiana State Univ., Baton Rouge.
Department of Agriculture, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 29p. Presented at the Annual Meeting of the Southern Sociological Society (33rd, Atlanta, Ga., Apr 9-11, 1970).

DESCRIPTORS - *ECONOMICALLY DISADVANTAGED; *ACADEMIC ASPIRATION; *OCCUPATIONAL ASPIRATION; GRADE 9; *NEGRO STUDENTS; MALES; DELINQUENTS; LOWER CLASS STUDENTS; TABLES (DATA)
IDENTIFIERS - LOUISIANA

ABSTRACT - To provide information on the occupational and educational projections of lower-class delinquent and non-delinquent black youth residing in a selected area of Louisiana, data were obtained from group-administered questionnaires presented to 73 institutionalized and 68 non-institutionalized black ninth-grade boys. Two open-ended questions were utilized to obtain the occupational aspirations and expectations of the respondents. The study revealed that the boys were oriented toward upward social mobility, and their goals and plans definitely exceeded the existing social positions of their parents. The occupational aspirations of both delinquent and non-delinquent boys fell primarily in professional, glamour, and skilled occupations. Large proportions of both groups indicated that they desired some form of college-level training. Several data tables are included. (SB)

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OCCUPATIONAL AND EDUCATIONAL PROJECTIONS OF DEEP-SOUTH DELINQUENT AND NON-DELINQUENT BLACK MALES*

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*Financial assistance for this study was provided by the United States Department of Agriculture, Project S-61, and the Louisiana State University Agricultural Experiment Station. The authors acknowledge the suggestions of George S. Tracy, Department of Sociology, L.S.U., Vera Andreasen, Department of Sociology, L.S.U., Alvin L. Bertrand, Department of Sociology and Rural Sociology, L.S.U., Prentiss E. Schilling, Department of Experimental Statistics, L.S.U. and Thomas M. Carter, Department of Sociology, University of Wisconsin. Appreciation is expressed to the Department of Institutions of the State of Louisiana for the opportunity to conduct this investigation.

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Paper read at the Thirty-third annual meeting of the Southern Sociological Society held in Atlanta, Georgia, April 9-11, 1970.

VT012471

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Occupational and Educational Projections of Deep-South Delinquent and Non-Delinquent Black Males

Introduction

During the last twenty-five years an extensive amount of empirical research has accumulated on the occupational and educational projections of youth.[1] The focal point of the vast majority of these studies has been the delineation of relevant variables which relate to observed variations in the occupational and educational aspirations and expectations of adolescents. Briefly, the findings of this research indicate that rural youth have lower occupational and educational projections than do urban youth[2], that socioeconomic status is positively related to levels of occupational and educational projections[3], that intelligence is positively related to levels of occupational and educational projections[4], and that no definite relationship is discernable between race and occupational and educational projections.[5]

Despite the large body of literature on occupational and educational projections, relatively little research has been conducted on the status projections of delinquent youth.[6] This fact appears paradoxical because a large segment of the studies in this area have concentrated on discerning the occupational and educational intentions of "disadvantaged youth", that is, American youth who do not fully enjoy all the benefits of the

"American way of life." It is apparent that successful occupational attainment is a serious problem for delinquents. Delinquent youth are handicapped by the stigma of a "criminal record" and often, after incarceration for prolonged periods of time, acquire delinquent attitudes and behavior patterns. Thus, successful occupational placement not only presents problems for delinquent youth, but can also be viewed as a critical factor in determining whether or not adolescents will continue criminal careers.

Furthermore, in our society, education exists as an important intervening factor between the individual and employment. For one to enter "middle-class" occupations, a Bachelor's degree or some special vocational training is almost mandatory.[7]

The primary objective of the study reported in this paper was a comparative analysis of the occupational and educational projections of lower-class delinquent[8] and non-delinquent black youth residing in a selected area of Louisiana. Because this study is essentially exploratory in nature and a dearth of research exists on status projections of delinquents, no formal hypotheses are presented.

Theoretical Orientation

Robert Merton has suggested that certain social and cultural objectives are ubiquitous to all strata of American society.[9] These general "goals, purposes, and interests" provide "legitimate objectives for all or for diversely located

members of the society."[10] Thought of as "things worth striving for", these goals are ordered in a hierarchy of value and "comprise a frame of aspirational reference."[11]

Furthermore, Merton asserts that American society is unique in that it is "a society which places a high premium on economic affluence and social ascent for all its members.[12] This premium on success goals is found throughout America and is reflected in the "press, in fiction and in motion pictures, in the course of formal education and informal socialization in the various public and private communications which come to the attention of Americans."[13]

Merton has also noted, in his theory of anomie, that deviancy can be viewed as a response to the unavailability of socially-sanctioned avenues to success.[14] In light of these considerations it can be contended that both delinquent and non-delinquent youth will have relatively high-status occupational and educational aspirations (goals).

Conceptual Framework

Occupational and educational decisions made by youth are often viewed in terms of a "developmental framework." That is, occupational and educational decisions are thought to crystalize through time.[15] With maturation the goals and plans of adolescents tend to become increasingly realistic and specific.

During the development of the "choice process" at least two dimensions of occupational and educational orientations

are distinguishable. The analytical distinction between the aspiration and expectation dimensions has been employed in the past by Blau, et al.,[16] Stephenson,[17] and Glick.[18] Most recently, however, Kuvlesky and Bealer have clarified some of the conceptual ambiguities in the area of occupational choice by refining and specifying the conceptual differences between aspirations and expectations.[19]

Kuvlesky and Bealer have delineated aspirations into three identifiable components: (1) a selector or chooser element; (2) a desiring element; and (3) a goal element.[20] Thus the individual student maintains an occupational aspiration which reflects the specific occupational goal he desires to have in the future and an educational aspiration, which reflects the specific educational level he desires to achieve in the future.

In a similar manner, Kuvlesky and Bealer have delineated three components of expectations: (1) a selector or chooser element; (2) an expectation or anticipation element; and (3) a role element.[21] The distinguishing characteristic between the two concepts resides in the nature of the individual's orientation. An occupational or educational aspiration is desired by the individual and can be operationalized as a goal. On the other hand, an occupational or educational expectation may or may not be desired by the individual and is thought to reflect future occupational and educational achievement in light of more realistic alternatives available to the individual.

In terms of the above discussion, occupational and educational aspirations and expectations (projections) have been operationalized as follows:

(1) Occupational Aspiration--the specific job in the occupational structure that an individual desires if he were completely free to choose his future occupation.

(2) Educational Aspiration--the level of educational achievement that an individual desires to attain if he were completely free to pursue his academic interests.

(3) Occupational Expectation--the specific job in the occupational structure that an individual really expects future employment in.

(4) Educational Expectation--the level of educational achievement that an individual really expects to attain in light of his own capabilities and resources.

Methodological Procedures

The data were obtained from group administered questionnaires presented to 141 black ninth-grade males. The institutionalized sub-sample consisted of 73 students incarcerated in an all-black juvenile institution in the immediate Baton Rouge area. A non-institutionalized sample of 68 students was procured from a random sample of junior-high schools within the city of Baton Rouge. From these schools a 10 per cent random sample of homerooms was selected for the administration of questionnaires. All of the data were collected in April, 1969.[22]

Indicators and Measurements

Two open-ended questions were utilized to obtain the occupational aspirations and expectations of the respondents. Occupational aspirations were determined by responses to the following question:

> If you were completely free to choose any job, what would you most desire as a lifetime kind of work?

Occupational expectations were obtained from a different question on the same questionnaire which read as follows:

> Sometimes we are not always able to do what we want most. What kind of job do you really expect to have most of your life?

Responses to both of the above questions were coded according to a modified version of the census scheme.[23] The occupational categories employed in the analysis of the data were ranked in the following manner:

1) Professionals
2) Glamour (singer, model, professional athlete, etc.)
3) Managers, owners, officials
4) Clerical and sales
5) Skilled workers
6) Operatives
7) Unskilled workers and laborers

The educational aspirations of the respondents were obtained from the following fixed-choice question:

> If you could have as much schooling as you desired which of the following would you do? (circle one number):
>
> 1. Quit school right now.
> 2. Complete high school.
> 3. Complete a business, commercial, electronics or some other technical program after finishing high school.
> 4. Graduate from a Junior College (2 years).
> 5. Graduate from a college or university.
> 6. Complete additional studies after graduation from a college or university.

Educational expectations were obtained from the following fixed-choice question which immediately followed the educational aspiration indicator:

> What do you <u>really</u> <u>expect</u> to do about your education? (circle one):
>
> 1. Quit school right now.
> 2. Complete high school.
> 3. Complete a business, commercial, electronics or some other technical program after finishing high school.
> 4. Graduate from a junior college (2 years).
> 5. Graduate from a college or university.
> 6. Complete additional studies after graduation from a college or university.

For both occupational and educational expectations respondents were asked to indicate "how certain" they were of their projected plans. Possible response alternatives included the following items: (1) "very certain"; (2) "certain"; (3) "not very certain"; (4) "uncertain"; and (5) "very uncertain". These responses were dichotomized into "certain" and "uncertain". This item was utilized as a rough index of the individual's commitment to his occupational and educational plans.

Findings

Background Characteristics of the Respondents

The majority of the respondents involved in this study came from families of rather low socio-economic status. Table 1 reveals that 66 per cent of the major wage earners in the delinquent respondents' families and 60 per cent of the major-wage earners in the non-delinquent respondents' families were

either unemployed or held low-status occupations.[24] It is interesting to note that overall approximately three out of ten of the major-wage earners in the respondents' families were classified in the "upper" occupational level category. Though not discernable in Table 1, the occupations of vast majority of these wage-earners were elementary or secondary school-teachers. No significant difference was observed between the delinquent and non-delinquent subsamples in regard to the occupational levels of the major-wage earners in the respondents' families.

Large proportions of both subsamples were found to come from incomplete family systems. See Table 2. Some 57 per cent of the respondents in the delinquent subsample and 42 per cent of the respondents in the non-delinquent subsample indicated that either one or both of their natural parents were missing from their original family.

Further analysis of the social backgrounds of the respondents revealed that within both the delinquent and non-delinquent subsamples there were high rates of working mothers. Table 3 shows that, for delinquents, 71 per cent of the respondents' mothers were employed on either a full or part-time basis. By comparison, 68 per cent of the mothers of the respondents in the non-delinquent subsamples were employed full or part-time.

In summary, from the occupational distribution of the major-wage earners in the respondents' families and the types of jobs held by the major wage earners, it is obvious that the

vast majority of the respondents in this study come from relatively underprivileged families. Moreover, the high incidence of incomplete family systems and working mothers points to the possible existence of unstable family backgrounds. From these findings, it can be concluded that both the delinquent and non-delinquent respondents had similar disadvantaged social backgrounds.

Occupational Projections

The occupational aspirations of both the delinquent and non-delinquent respondents were found to fall primarily in three categories--"professional", "glamour" and "skilled" occupations (Table 4). The distributions of aspirations in both subsamples were similar. It is interesting to note that fairly large proportions of both delinquent and non-delinquent respondents desired future jobs in glamour occupations. In addition, slightly more non-delinquent youth than delinquent youth desired future employment in skilled occupations. Statistical analysis of these data indicate that no significant difference was observed between the occupational goals of delinquent and non-delinquent respondents.

The occupational expectations of the respondents followed a pattern similar to occupational aspirations. Table 5 indicates that large proportions of respondents from both subsamples planned to enter jobs primarily in the "professional", "glamour" and "skilled" occupational categories. The delinquent and non-

delinquent black students involved in this study had similar occupational plans for the future.

In Table 6, the occupational projections of the respondents are collapsed into "white-collar" and "blue-collar" categories.[25] The overall similarity of aspirations and expectations for both subsamples is clearly revealed by this maneuver. A majority of the respondents desired and anticipated entry into white-collar occupations. Thus, both delinquent and non-delinquent black males had similar "high-status" occupational aspirations and expectations.

It was found that those respondents who had "high-prestige" occupational plans tended to be more "certain" of future attainment than respondents who had plans for entering relatively "low-status" occupations, (Table 7). This trend was noted for both delinquent and non-delinquent respondents.

Educational Projections

The educational goals of respondents in both subsamples were relatively similar (See Table 8). Large proportions of both delinquent and non-delinquent respondents indicated that they desired some form of college-level training. Slightly more delinquent youth (4 per cent) aspired to have graduate-level training, while almost twice as many non-delinquent youth had the Bachelor's degree as their educational goal. Similar percentages of respondents in both subsamples were found to desire vocational training or a high school diploma. None

of the non-delinquent youth wanted to quit high school in the near future, while three delinquent youths responded that this was their educational goal.

There was a tendency for non-delinquent youth to have "higher" educational plans than their delinquent counterparts (Table 9). Despite the fact that slightly more delinquent youth anticipated graduate-level training, almost three times as many non-delinquent respondents planned on receiving a college education. About two-fifths (39 per cent) of the delinquent respondents, as compared to just over one-fourth (28 per cent) of the non-delinquents, expected their educational training would terminate with high school graduation.

In Table 10 the educational projections of the respondents were collapsed into "high" and "low" categories in order that the differences between the subsamples could be more readily observed.[26] Table 10 reveals that a slightly greater proportion of the non-delinquent respondents (58 per cent) than delinquent respondents (49 per cent) had "high" educational goals. The disparity was found to increase for educational plans. It was also found that 56 per cent of the non-delinquent respondents, as opposed to only 41 per cent of the delinquent respondents, planned to receive some college-level educational training (high). Thus, for both educational aspirations and expectations, non-delinquent youth tended to have higher educational orientations than their delinquent counterparts.

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The majority of the respondents in both subsamples were found to be confident of attaining their educational plans (Table 11). Unlike the finding for "certainty of occupational plans", respondents who had low-level educational plans were rather certain they would achieve this educational level in the future.

Status Projection Congruency

The findings of this study have indicated that large percentages of all respondents had rather high-level educational and occupational desires and plans. In an attempt to discern the relationships of the educational and occupational projections of the respondent, a Spearmen's rank-order correlation for group data was applied.[27] Significant correlations were observed between the educational and occupational aspirations of both delinquent and non-delinquent respondents (Tables 12 and 13). Coefficients obtained were .23 for delinquents and .56 for non-delinquents. When tested by Student's t, both correlations were found to be significant at the .05 and .01 levels respectively. These findings indicate that respondents in both subsamples had relatively consistent educational and occupational aspiration levels.

The relationship between the educational and occupational expectations of respondents in both subsamples were also found to be significant, Tables 14 and 15. A coefficient of .42 was found for delinquents, and a coefficient of .33 was observed

for non-delinquents, suggesting that, by levels, the educational and occupational plans of the respondents were fairly consistent.

Discussion

In this study, an attempt has been made to provide information on the status-projections of lower-class black delinquent and non-delinquent males. The findings indicate that both the delinquent and non-delinquent respondents involved generally held rather high-prestige occupational goals and plans. For example, approximately six out of ten of the non-delinquent respondents and seven out of ten of the delinquent respondents had "white-collar" occupational goals. For occupational plans, 57 per cent of the delinquent males and 56 per cent of the non-delinquent males anticipated entering "white-collar" jobs in the future. Surprisingly, most of the youth indicated a high degree of certainty for the realization of their vocational plans.

For educational projections, our data indicate that relatively large percentages of both subsamples were found to have high-level educational goals and plans. However, there was a tendency for larger proportions of non-delinquents to have "high-level" educational projections. The majority of all the respondents were certain that they would attain the educational levels they anticipated in the future.

The correlation coefficients obtained between levels of educational and occupational projections indicate that both delinquents and non-delinquents were rather consistent, along

a broad prestige level, in their educational and occupational goals. Furthermore, the relationship between levels of educational and occupational expectations were also found to be fairly consistent.

These findings have implications in a number of areas. First, the general high-prestige occupational and educational goals of the respondents tend to validate Merton's contention that "high-level" success-goals pervade all levels of American society. Previous research in this area reveals that the majority of youth--rural, small-town, urban, white, non-white, male and female--have high-level occupational and educational desires.[28] Our findings indicate that the occupational and educational goals of incarcerated black males are very similar to their non-delinquent counterparts. Thus, large proportions of youth who are, in all probability, the most disadvantaged youngsters in our society (i.e., delinquent black youth) apparently have high-level goals for their occupational and educational future.

An interesting question which arises at this point concerns the means available to youth for attaining high-level goals and subsequent reactions to non-attainment. In view of the fact that both the delinquent and non-delinquent respondents included in this study face what may be termed "structural blockages to attainment" (i.e., lower-class status, race and deep-south residence, delinquency, etc.), it becomes apparent that many of these high-level goals will not be realized. Failure to

attain one's goals may result in the lowering of aspirations or quite possibly engender feelings of frustration, resentment and alienation. Indeed, resort to illegitimate means for achievement can be seen as a possible alternative for youth handicapped by "structural blocks".

As was noted above, similarly large proportions of the delinquent and non-delinquent respondents actually planned on entering white-collar jobs in the future. However, it was also found that larger numbers of the non-delinquent respondents planned on high educational achievement (college-training). Because prestigious occupational attainment is inextricably related to educational achievement, it appears that the non-delinquent respondents involved in this study were more cognizant of the most important legitimate means to success for lower-class individuals--the American educational system. This finding suggests that although delinquents maintained relatively high-prestige occupational plans, their eventual achievement appears somewhat questionable due to an inadequate concern with educational avenues for mobility.[29]

Furthermore, our findings have implications for the crystalization of occupational projections in terms of the "developmental model" proposed by early theorists in the area of occupational choice.[30] Our findings indicate that just under 30 per cent of all the ninth grade respondents involved in this study had occupational desires and plans that fell into the "glamour" category. Other studies in this area which have analyzed the

occupational projections of older black youth have had different findings. For example, Kuvlesky and Ohlendorf found that approximately 13 per cent of the tenth grade black youth involved in their study had occupational desires and plans that fell in the glamour category.[31] In addition, Picou, Tracy and Hernandez observed that still smaller proportions (approximately 8 per cent) of the black high-school seniors involved in their study had "glamour" projections.[32] From these studies it appears probable that although black youth maintain high-prestige occupational projections throughout their adolescent years, qualitative changes take place in the nature of their occupational goals and plans. The younger (junior-high) black youth is seemingly more oriented towards glamour occupations than is the graduating senior. Interpreted in this manner, their findings lend some support to Ginzberg's contention that occupational choices involve movement from "tentative" choices to more "realistic" ones concommitantly with the maturation of the individual.

In conclusion, this study has revealed that lower-class black youth are oriented toward upward social mobility. The goals and plans of the respondents definitely exceed the existing social positions of their parents. When viewed in terms of recent advances made by blacks in the area of civil rights, this finding is not at all surprising. Taking the average age of the respondents as being approximately fifteen, most of these youths were born at the time of the 1954 Supreme Court decision. Ostensibly, they have been reared during a time when their race

has made tremendous gains in the area of civil rights. In a sense, they are the children of the protest decade. When one takes into consideration that these youth have high occupational goals and that blacks are still under represented in high prestige occupations,[33] the question arises concerning the nature of the reaction that may take place if the vast majority of these youth fail to attain their goals and expectations.

Table 1. Occupational Levels of Major-Wage Earners in Respondents' Families

Occupational Level	Delinquent (N=75) %	Non-Delinquent (N=69) %	Total (N=144) %
Upper	31	26	28
Middle	3	14	8
Lower	66	60	64
TOTAL	100	100	100

P ($Z \geq .58$) $\cong$ .28; Mann-Whitney U Test

Table 2. Organization of Respondent's Families

	Delinquent (N=75) %	Non-Delinquent (N=67) %	Total (N=142) %
Both Parents in Home	43	58	50
Either one or Both Parents Absent	57	42	50
TOTAL	100	100	100

$.10 > P$ ($x^2 = 3.419$) $> .05$ c̄ 1 d. f.

Table 3. Employment Status of Respondent's Mothers

	Delinquent (N=68) %	Non-Delinquent (N=62) %	Total (N=130) %
Employed Full-Time	46	45	45
Employed Part-Time	25	23	24
Not Employed	29	32	31
TOTAL	100	100	100

$.98 > P\ (x^2 \geq .164) > .95$ c̄ 2 d. f.

Table 4. Occupational Aspirations of Delinquent and Non-Delinquent Black Males

Occupational Aspiration	Delinquent (N=73) %	Non-Delinquent (N=68) %
1. Professionals	27	29
2. Glamour	27	24
3. Managers, Owners, Officials	6	3
4. Clerical and Sales	6	3
5. Skilled Workers	23	35
6. Operatives	7	2
7. Unskilled Workers and Laborers	4	4
TOTAL	100	100

$P(D \geq .0693) > .05$; Kolmogorov-Smirnov Two Sample Test.*

* See: Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences (New York: McGraw-Hill Book Company, Inc., 1956).

Table 5. Occupational Expectations of Delinquent and Non-Delinquent Black Males

Occupational Expectation	Delinquent (N=68) %	Non-Delinquent (N=67) %
1. Professionals	25	24
2. Glamour	25	20
3. Managers, Owners, Officials	3	2
4. Clerical and Sales	4	10
5. Skilled Workers	24	33
6. Operatives	9	7
7. Unskilled Workers and Laborers	10	4
TOTAL	100	100

$P(D \geq .0817) > .05$; Kolmogorov -Smirnov Two Sample Test.

Table 6. Occupational Projections of Respondents Collapsed into White-Collar, Blue-Collar Categories.

	Occupational Aspirations		Occupational Expectations	
	Delinquent (N=73) %	Non-Delinquent (N=68) %	Delinquent (N=68) %	Non-Delinquent (N=67) %
White Collar	66	59	57	56
Blue Collar	34	41	43	44
TOTAL	100	100	100	100

Table 7. Certainty of Attaining Occupational Plans

	Delinquents Occupational Expectation Level			Non-Delinquents Occupational Expectation Level		
	High (N=35) %	Medium (N=20) %	Low (N=13) %	High (N=30) %	Medium (N=29) %	Low (N=8) %
Certain	60	65	38.5	80	41.4	37.5
Uncertain	40	35	61.5	20	58.6	62.5
TOTAL	100	100	100	100	100	100

Table 8. Educational Aspirations of Delinquent and Non-Delinquent Black Males

Educational Aspirations	Delinquent (N=75) %	Non-Delinquent (N=69) %
1. Graduate Studies (M.A. or Ph.D.)	29	25
2. Graduate from a College or University (B.A. or B.S.)	15	29
3. Graduate from a Junior College (2 yrs)	5	4
4. Complete High School and Receive Vocational Training	19	15
5. Complete High School Only	28	27
6. Quit School in the Near Future	4	0
TOTAL	100	100

$P(D \geq .096) > .05$; Kolmogorov-Smirnov Two Sample Test.

Table 9. Educational Expectations of Delinquent and Non-Delinquent Black Males

Educational Expectation	Delinquent (N=75) %	Non-Delinquent (N=69) %
1. Graduate Studies (M.A. or Ph.D.)	25	19
2. Graduate from a College or University (B.A. or B.S.)	12	33
3. Graduate from a Junior College (2 yrs)	4	4
4. Complete High School and Receive Vocational Training	13	15
5. Complete High School Only	39	28
6. Quit School in the Near Future	7	1
TOTAL	100	100

$P(D \geq .164) > .05$; Kolmogorov-Smirnov Two Sample Test.

Table 10. Collapsed Educational Projections of Respondents

Educational Projection	Aspirations		Expectations	
	Delinquents (N=75) %	Non-Delinquents (N=69) %	Delinquents (N=75) %	Non-Delinquents (N=69) %
High (includes some college training)	49	58	41	56
Low (only vocational & high school training)	51	42	59	44
TOTAL	100	100	100	100

Table 11. Certainty of Attaining Educational Plans

	Delinquents Educational Expectation Level			Non-Delinquents Educational Expectation Level		
	High (N=28) %	Medium (N=13) %	Low (N=35) %	High (N=36) %	Medium (N=13) %	Low (N=20) %
Certain	78.6	61.5	62.9	83.3	46.1	90
Uncertain	21.4	38.5	37.1	16.7	53.9	10
TOTAL	100	100	100	100	100	100

Table 12. Relationship Between Educational and Occupational Aspirations of Delinquent Youth

Educational Aspiration Level	Occupational Aspiration Level High (N=44) %	Medium (N=22) %	Low (N=8) %	Total (N=74) %
High	54.5	27.3	25.0	43.2
Medium	18.2	31.8	37.5	24.3
Low	27.3	40.9	37.5	32.5
TOTAL	100	100	100	100

r_s = .23; t= 2.22 c̄ 72 d.f.*

Table 13. Relationship Between Educational and Occupational Aspirations of Non-Delinquent Youth

Educational Aspiration Level	Occupational Aspiration Level High (N=38) %	Medium (N=26) %	Low (N=4) %	Total (N=68) %
High	76.3	26.9	25.0	54.4
Medium	18.4	19.2	0.0	17.6
Low	5.3	53.9	75.0	28.0
TOTAL	100	100	100	100

r_s .56; t= 6.92 c 66 d.f.**

Table 14. Relationship Between Educational and Occupational Expectations of Delinquent Youth

Educational Expectation Level	Occupational Expectation Level High (N=36) %	Medium (N=22) %	Low (N=15) %	Total (N=73) %
High	55.6	22.7	13.3	37.0
Medium	16.7	13.6	13.3	15.1
Low	27.7	63.7	73.4	47.9
TOTAL	100	100	100	100

r_s = .44; t= 4.89 c 72 d.f.**

Table 15. Relationship Between Educational and Occupational Expectations of Non-Delinquent Youth

Educational Expectation Level	Occupational Expectation Level			
	High (N=31) %	Medium (N=29) %	Low (N=8) %	Total (N=68) %
High	71.0	34.5	37.5	51.5
Medium	16.1	17.2	37.5	19.1
Low	12.9	48.3	25.0	29.4
TOTAL	100	100	100	100

r_s = .33; t= 3.32 č 66 d.f.**

FOOTNOTES

[1]For a comprehensive listing of studies related to the occupational and educational projections of youth, see: William P. Kuvlesky and George W. Ohlendorf, Occupational Aspirations and Expectations: A Bibliography of Research Literature (Texas Agricultural Experiment Station Departmental Report No. 67-10, Department of Agricultural Economics and Sociology, Texas A&M University, College Station, 1967): and George W. Ohlendorf, Sherry Wages and William P. Kuvlesky, A Bibliography of Literature on Status Projections of Youth: II. Educational Aspirations and Expectations (Texas Agricultural Experiment Station Departmental Report No. 67-11, Department of Agricultural Economics and Sociology, Texas A&M University, College Station, 1967).

[2]Russell Middleton and Charles M. Grigg, "Rural-Urban Differences in Aspirations," Rural Sociology, 24 (Dec., 1959), pp. 347-361; and William P. Kuvlesky and George W. Ohlendorf, "A Rural-Urban Comparison of the Occupational Status Orientations of Negro Boys," Rural Sociology, 33 (June, 1968), pp. 141-152.

[3]William H. Sewell, Archie O. Haller and Murray A. Strauss, "Social Status and Educational and Occupational Aspiration," American Sociological Review, 22 (February, 1957), pp. 67-73; and Forest Harrison "Aspirations as Related to School Performance and Socio-Economic Status," Sociometry, 32 (March, 1969), pp. 70-79.

[4]William H. Sewell and Alan M. Orienstein, "Community of Residence and Occupational Choice," American Journal of Sociology, 70 (March, 1965), pp. 551-563; and O. P. Forcese and L. B. Siemens, School-Related Factors and the Aspiration Levels of Manitoba Senior High School Students (Winnipeg, Canada: University of Manitoba, Faculty of Agriculture and Home Economics, No. 3, September, 1965).

[5]Arthur G. Cosby and J. Steven Picou, "Race, Residence, Class and the Vocational Expectations of Adolescents in Four Deep-South States," Vocational Guidance Quarterly (Forthcoming, March or June, 1971); and Arthur G. Cosby, "Black-White Differences in Occupational Aspirations Among Deep-South High School Students," Journal of Negro Education, (Forthcoming, 1970-71 period).

[6]One notable exception is a study by Gerald D. Pine. Pine found that adolescents who did not plan to attend college were more involved in delinquency offences than youth who had definite college plans. See: Gerald D. Pine, "Occupational and Educational Aspirations and Delinquent Behavior," Vocational Guidance Quarterly, (Winter, 1964-65), p. 111.

[7]Joseph A. Kahl, The American Class Structure (New York: Holt, Rinehart and Company, Inc., 1957), pp. 276-278.

[8]A delinquent is operationalized in this paper as one who is incarcerated in a juvenile institution.

[9]Robert K. Merton, Social Theory and Social Structure, rev. and enl. ed. (New York: The Free Press of Glencoe, 1957), p. 167.

[10]Ibid., p. 132.

[11]Ibid., pp. 132-133.

[12]Ibid., p. 167.

[13]Ibid., p. 168.

[14]Ibid., pp. 132-149.

[15]Eli Ginzberg, et al,, Occupational Choice: An Approach to a General Theory (New York: Columbia University Press, 1951).

[16]Peter Blau, et al., "Occupational Choice: A Conceptual Framework," Industrial and Labor Relations Review, 9 (July, 1956), pp. 532-543.

[17]Richard M. Stephenson, "Mobility Orientations and Stratification of 1,000 Ninth Graders," American Sociological Review, 22 (April, 1957), pp. 204-212.

[18]Peter M. Glick, "Anticipated Occupational Frustration," Vocational Guidance Quarterly (1963), pp. 90-93.

[19]William P. Kuvlesky and Robert C. Bealer,"A Clarification of the Concept 'Occupational Choice'," Rural Sociology, 31 (September, 1966), pp. 265-276.

[20]Ibid., p. 270.

[21]Ibid., pp. 273-276.

[22]The limited nature of this sample restricts our findings to youth involved in this study.

[23]These modifications were made in an attempt to provide more differentiation on the basis of prestige. For example, the "glamour" occupations were separated from "professional" occupations, because career, education, and prestige contingencies differ from other occupational categories.

[24]For the occupational levels of major-wage earners, the original seven-level occupational scheme was collapsed as follows: Professional and glamour occupations were classified as high-level; middle-level occupations included owners, managers and officials, clerical and sales jobs and skilled workers: lower-level occupations consisted of operatives, laborers, unskilled workers and those major wage earners unemployed at the time of the study.

[25]"White-collar" occupations consisted of the first four categories in the original seven-level classification scheme. The "Blue-collar" category was made up of the last three occupational categories.

[26]"High" educational projections included those individuals who desired or planned on a Junior-college, B.A., M.A., or Doctorate Degree. All others were classified as "low".

[27]Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences (New York: McGraw-Hill Book Company, Inc., 1956), pp. 202-213.

[28]These findings are true for both black and Mexican American youth. See: William P. Kuvlesky, David E. Wright and Rumaldo Z. Iuarez, "Status Projections and Ethnicity: A Comparison of Mexican American, Negro, and Anglo Youth," Paper read at the annual meetings of the Southwestern Sociological Association, New Orleans, April, 1969.

[29]This finding, which is similar to those of Pine, in 1964, suggests that delinquent youth lack either the knowledge or concern for educational avenues of social mobility. In terms of rehabilitation programs, these findings suggest that increased emphasis should be placed on academic training in the correctional institution, thereby increasing the chances for the occupational success of delinquents through legitimate avenues of social mobility. See: Pine, op. cit.

[30]See Ginzberg, op. cit.

[31]Kuvlesky and Ohlendorf, (1968), op. cit.

[32]J. Steven Picou, George S. Tracy and Pedro F. Hernandez, "Occupational Projections of Louisiana Black High School Seniors," (Paper submitted for publication).

[33]While blacks have made progress during the past decade, it has been documented that they still are underrepresented in prestige occupations. See: The Social and Economic Status of Negroes in the United States, 1969. (Washington, D. C.: U. S. Government Printing Office, Bureau of Labor Statistics Report No. 375), pp. 40-42.

VT 012 476
Transitional Manpower Programs. A Status Report.

Department of Defense, Washington, D.C.
Assistant Secretary of Defense (Manpower and Reserve Affairs).
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Oct70 67p.

DESCRIPTORS - *MILITARY PERSONNEL; INTERAGENCY COORDINATION; *ADULT VOCATIONAL EDUCATION; VOCATIONAL COUNSELING; *TRANSFER OF TRAINING; VOCATIONAL RETRAINING; MILITARY TRAINING; *VOCATIONAL ADJUSTMENT; *JOB PLACEMENT; PROGRAM DESCRIPTIONS
IDENTIFIERS - TRANSITION PROGRAM; REFERRAL PROGRAM; GENERAL SEPARATIONS

ABSTRACT - Transitional manpower programs, including TRANSITION, REFERRAL, and General Separations, provide the adjustment mechanism necessary for transition from military to civilian occupations. TRANSITION provides guidance, training, and placement information to servicemen during the last 6 months of duty, whereas REFERRAL acts as a computerized man-job matching system for retiring servicemen. All administrative activities required for separation are handled under General Separations. Intergovernmental cooperation in these programs is substantial; care is taken not to duplicate services offered by other agencies. Federal manpower programs, state employment services, and other labor department and state agencies are utilized whenever possible. (BH)

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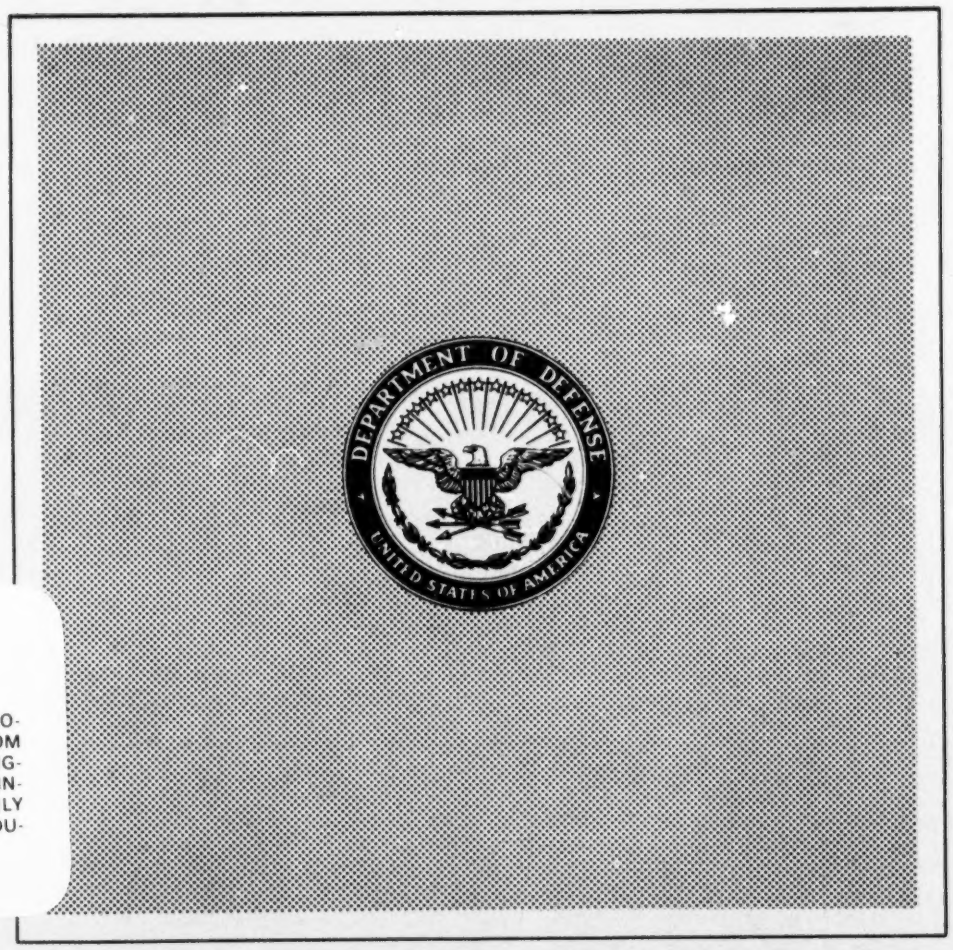
TRANSITIONAL MANPOWER PROGRAMS



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A STATUS REPORT

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE (M&RA)

OCTOBER 1970

4420

VT012476

A STATUS REPORT

ON

TRANSITIONAL MANPOWER PROGRAMS

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PREFACE

This booklet is intended to outline very briefly the "happenings" in the three programs - TRANSITION, REFERRAL, General Separations - which are termed Transitional Manpower Programs. An attempt has been made to state briefly and candidly the current status of each of these efforts together with indications for the future. It is firmly believed that each of them looms increasingly important for we are now entering the concentrated periods of separation where it was expected, in initial planning, their impact would be the heaviest.

There has always been connected with both the TRANSITION and REFERRAL Programs some concern for their need within the military mission. It has largely been felt that the enlisted men and the officers who have responded to the offerings have given adequate expression to a positive requirement. It also has been felt that the more these programs become an integral part in the military personnel management systems of the several military services the greater can be their contributions toward procurement, retention, and morale within the officer and enlisted corps.

The following pages outline the scope of these programs. They also contain summaries, based upon actual field observations, of how the programs can be improved and what the problems and positive prospects are on the horizon.

CHAPTER 1

Retrospect & Prospects

With the troop concentrations overseas subject to modification and change, with contemplated budget reductions and their effect upon overall troop strength -- all these actions inevitably mean more servicemen will be eventually returning to civilian life.

The impact on the various transitional manpower programs will be noticeable. The peak loads for which programs were intended to be geared, may be soon at hand. Whether it concerns general separation procedures, the young men completing service and eligible for TRANSITION services, or the career personnel entering upon retirement, there is a need for sharpened vigilance wherever these programs make contact with military personnel.

The Vietnam war has had no terminal point such as World War II or Korea. Instead,individuals have flowed in and out of service at the conclusion of their draft obligation or first enlistment. Except through additional volunteering, there was no obligation for staying "for the duration". As a consequence,the TRANSITION Program has been steadily able to provide some services to a significant number of men under the current system of discharge. As the size of the on-board military forces shrinks more perceptibility and more individuals leave service. there may be some new initiatives needed. This chapter is intended to describe where the TRANSITION and REFERRAL Programs stand at the present time and what appears to be the prospects for the future.

If we look at the present and the immediate past, we can take an immediate measure of some broad accomplishments as well as some persistent shortcomings.

Of those service personnel whom we have contacted since the beginning of the TRANSITION Program, we have either provided some separation information, group or individual guidance or counseling to approximately 720,000 (Figure 1). This has been through the TRANSITION system exclusively. Of this group we provided training for 119,000 (Figure 2). We must remember that all individuals contacted did not need training or did not wish to participate. In many cases we were not able to meet individual training requests for lack of specific training resources. Often the remoteness of an installation prevented the inauguration of either industry or MDTA training. Admittedly,

in some cases the movement to establish courses where resources were available was not as enthusiastic as it might have been. Frequently command interest lagged or the urgent requirements for full participation of personnel in their regularly assigned military duties precluded the establishment of the needed TRANSITION training. The availability of counselors to contact and arrange training frequently was at a low point leading to an inability to sustain a vigorous progress.

If we measure quantitatively our progress, however, in various areas we find, for example, that where we began very modestly with only 1900 in training under MDTA (Manpower Development and Training Act Funds administered by the Department of Labor), we increased that training to over 12,000 during the past fiscal year (1970) and should reach 17,000 in FY 71.

The contributions by American industry have grown equally with the developing demand. Today we have approximately 50 large industries providing training at their expense to returning servicemen. What has been most significant has been the growth to more than 2000 other smaller business establishments who have made their resources available near many military installations for the small group or individual on-the-job training. Their willingness to participate has enabled many TRANSITION Program managers to tailor programs to an individual's desire. This arrangement performs three functions - it allows the serviceman to explore the occupation before positive commitment (in some cases it leads to reenlistment after the option has been tried); it provides for individualized training in a practical situation; and it enables the serviceman to accept an immediate job offer upon completion of the program if he desires to remain in the area.

All of the major industries programs have built in placement opportunities since the industry is naturally anxious to employ the individual upon whom it has expended the resources to train. One of the most important counseling messages which can be imparted concerning industry training is in fact the knowledge of how valuable the training happens to be and the necessity for taking advantage of the placement offerings after training has been successfully completed. Indeed the continuance of industry training offerings, valuable as they are, will frequently depend upon the percentage of trained men who actually come with the company upon discharge. What we have frequently found to be the case is the alternate choice of spending 90 days after separation casting about only to find that it would have been far better to take the solid job offer after training.

We have emphasized during the past year an increasing number of special programs because of the concern or interest of organizations desiring to participate in the program. A notable example is the Union effort. Courses now underway in the construction field are especially noted for the high quality of the instruction, the close attention to the development of a very practical curriculum and the built-in follow-up to this pre-apprentice training by entrance into apprentice training programs.

Another example of the new specialized approach has been the attempt to be responsive to the President's concern about the quality of the environment. The Water Pollution Control Technician's course is a modest beginning in this direction.

We have not only endeavored to reach a broader range of enlisted personnel who have little or no truly convertible skills, but we also have moved toward maximizing the utilization of skills in civilian life which were developed as the result of military training. The Armed Forces spend almost $3.5 billion in training each year, much of this is for technical training. The Armed Forces can make an increasing contribution toward a trained civilian occupation work force if these skills are properly channeled. This condition not only applies to the young men who have elected to leave military service but to those completing a full service career who are now covered by our REFERRAL Program. Studies in the past have shown that personnel do not use their military-acquired skills to the degree which might be expected. We believe part of this shortcoming is caused by the lack of proper channels of contact and the failure to let many employers know about the real content of military training and experience.

A distinct example is the MEDIHC Program (Military Experience Directed Into Health Careers) in which the 30,000 who have military service each year following training and experience gained while in the military may be linked with civilian job and additional training opportunities.

If we look further into our training efforts, we find the very distinct contributions which have been made by the Postal Service as an example of Federal government participation. More than 6000 service personnel provided TRANSITION training in the postal skills have entered government service.

The education programs in contrast to the vocational training offered under TRANSITION are concerned principally with bringing more personnel up to the high school level through the existing GED Program.

We are faced with the inescapable fact that almost 20% of enlisted personnel still leave military service with less than a high school education. The in-service programs to reduce this number are persistent, but many men during their tour of service cannot take advantage of the programs, principally those whose time had to be spent in preparation for duty in Vietnam as well as the actual full time pursuit of that duty in-country. Thus, whenever possible, the TRANSITION Program has endeavored to steer these men into GED programs during their last few months of service. When this cannot be done, attempts are made to apprise individuals of the remedial education programs offered by the VA subsequent to discharge.

One of the most exciting programs in the educational field is the effort by the City University of New York and Staten Island Junior College at Fort Dix, New Jersey. The goal has been to provide college level remedial courses to individuals who never thought about going to college. By the use of innovative methods, counseling, and enlightened instruction, they are motivated to enter regular academic work upon discharge. A period of experimentation and trial is offered with no adverse effect if the effort does not appear fruitful. The success of the program to date leads to the hope that similar programs, using the Fort Dix pattern, will be commenced at other installations. The recently enacted PREP provisions of the revised GI Legislation permit the financing of such programs for colleges and universities through VA means.

A word about counseling. All program managers readily admit that the counseling effort is the foundation of their endeavors. Questionnaires need to be examined, individuals need to be contacted, information imparted, options discussed, training arranged, and follow-ups pursued. These actions take time and personnel. The majority of the TRANSITION budget is spent on counselors. The ingenuity and effort they put forth is most always reflected in the extent of the success of the program. For many individuals in the target population an aggressive outreach program is essential to get them into discussion and training and to take advantage of direct job offers after training has been completed. The role of the counselor is crucial in this cycle. To date the spaces and money for counselors has suffered the greatest variation of any other element in the program. Starts and stops have created peaks and valleys in the overall effort. Uncertain tenure has caused the loss of many of the more qualified. Depleted space allocations have placed additional burdens on those who wish to do thorough jobs. The situation in this area ranges from good to desperate. It is hoped that a judicious allocation of resources to a looming critical area can be made, and where permanent resources continue to be meager, the use of volunteers frequently found among very

qualified junior military personnel will be followed. In addition, just as some program managers have found training resources in the communities about them, counseling resources may also be at hand if sought out. Finally PREP has built into it counseling resources for the educational efforts and such resources should be rigorously pursued with the VA.

What is the challenge for the immediate future? Figure 5 sets forth a few challenging statistics. 65% of returning servicemen are age 22 or below; this is a very young group whose employment experience has been minimal. Almost 20% still do not have a high school education. Approximately 30% are married with 9% with more than one dependent. 48% have seen duty in Vietnam. 22% carry infantry training only, and another 13% are in other skill areas where civilian conversion is minimal. Another 19% are in clerical skills normally filled by women in civilian life. Thus about 54% may be in some occupational area of uncertainty.

These factors indicate, in combination, the need for counseling, training, and education. Married men and those with little or no convertible skills and those with low educational achievement, singly or in combination of all three, may require a job first before they can take advantage of GI training. Help before separation may make a vital difference. In addition, while the employment picture beyond the date of this publication (October 1970) is hoped to improve materially, there has been an approximate 20% increase over the FY 69 of veterans seeking job help through the local state employment security offices. During the most recent month, available figures show that over 60% more veterans filed for unemployment compensation over the same month last calendar year. Within the 20-24 year age group (the predominate range for the returning serviceman) unemployment has risen over 4% over the previous year. Significant underemployment also exists among veterans who may have jobs but who seek more meaningful employment. The challenge is real for the transitional manpower programs at a critical time when troop discharges are likely to accelerate. It is, of course, understood that the whole burden of the effort was never intended to be borne by these programs.

The Veterans Administration activities coupled with the programs of the United States Training and Employment Service of the Department of Labor furnish the prime effort. However, before individuals leave service, the help received through the efforts of the Armed Forces does, as TRANSITION has shown, definitely affect the morale of the men about to leave. Just as those wounded remember the health and medical care received prior to discharge, so individuals have become to appreciate the vocational and educational assistance. Both efforts

equally express the concern of the Armed Forces for the welfare of the people who have served. Corrected health deficiencies and corrected vocational and educational deficiencies for others may weigh as of equal importance in the lives of those whose particular deficiencies were recognized and alleviated. Such heightened morale which results has a powerful affect upon the way many men will tend to look back on their service career and the effect this may have upon how they encourage other younger men and women to volunteer their services in the future.

Mention was made in the Preface concerning including both the TRANSITION and REFERRAL Programs into the regular personnel management systems of the military services. The basic reason for the move would be to help in the procurement and retention of more volunteers by offering continuous security while in military service and a realistic approach to continued security whenever an individual choses to leave after his period of obligated service. Recruiting personnel can add a formidable option to their discussions. Military service means building solid experience and when such experience, particularly in the combat arms, may be less than in others for conversion to civilian use, there will be opportunities to fill in the gap. In addition there will be positive programs for providing more concrete job referral opportunities for those possessing clearly convertible skills. It must be remembered that enlisted personnel enter and leave service at earlier ages, even as early as 39 at retirement, so that they are interested in their future security beyond their enlistment contracts. They would like to be shown that their period of enlistment kept pace all the way with the training and experience which they may have gained in civilian life. Adequate in-service programs such as TRANSITION and REFERRAL can provide an increase of assurance that this pace has been maintained. Thus, there are two challenges, the immediate for those who will be leaving in the next 24 months and those who will be volunteering for the future in the Armed Forces. The TRANSITION Program has proven that it has enough flexibility in purpose and approach to accommodate both efforts as described above. In both cases the cause rests on a greater universability of command interest and support, coupled with a prudent allocation of resources and good local management, which, when combined with the help of private industry, state and local, and the resources of VA, Labor and other Federal agencies can make for a continuously vital program.

The chapters which follow briefly describe the TRANSITION, REFERRAL, and General Separations Programs and contain specific information about some of our problem areas. Chapter 3 describes the administration of the program at the local level. It is a good beginning point for

general evaluation. Chapter 2 contains at the conclusion some directions which might be considered for the future.

All programs, according to all evidence to date require sustained interest and concern since they are not within the normal routine of every day mission. But they do impact materially on the young and career personnel because they are individualized toward the serviceman himself.

The next 24 months will be critical. The impact on the service personnel of these programs must be sustained if the outflow is heightened, If the current system cannot make some impact, then other innovations must be tried. Some of the possibilities are interspersed among the chapters which follow. Others should emerge from the commanders and program managers who have been building experience in these areas over a goodly number of months.

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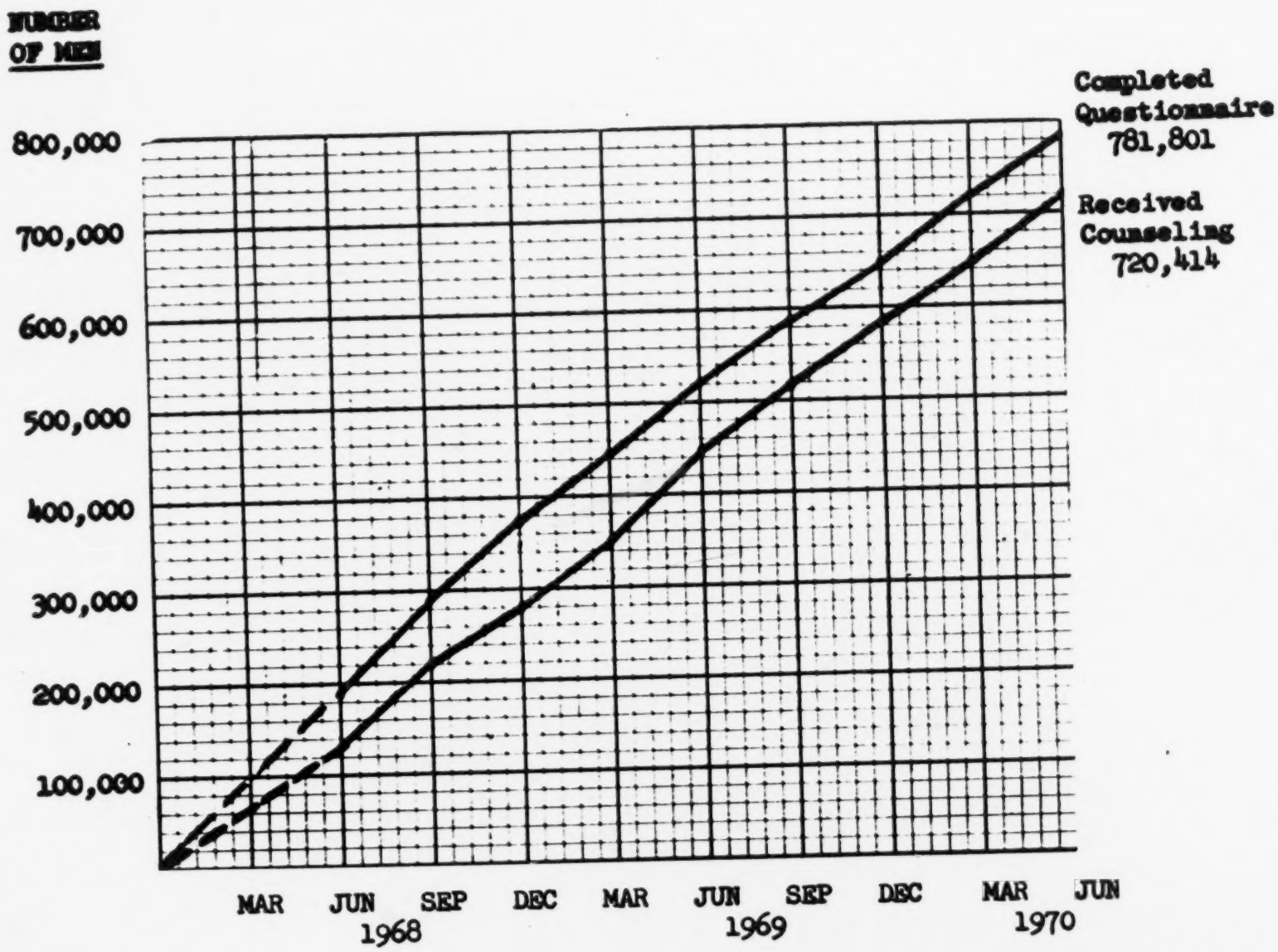
TABLE 1

COUNSELING

STATISTICS SUMMARY OF TRANSITION PROGRESS



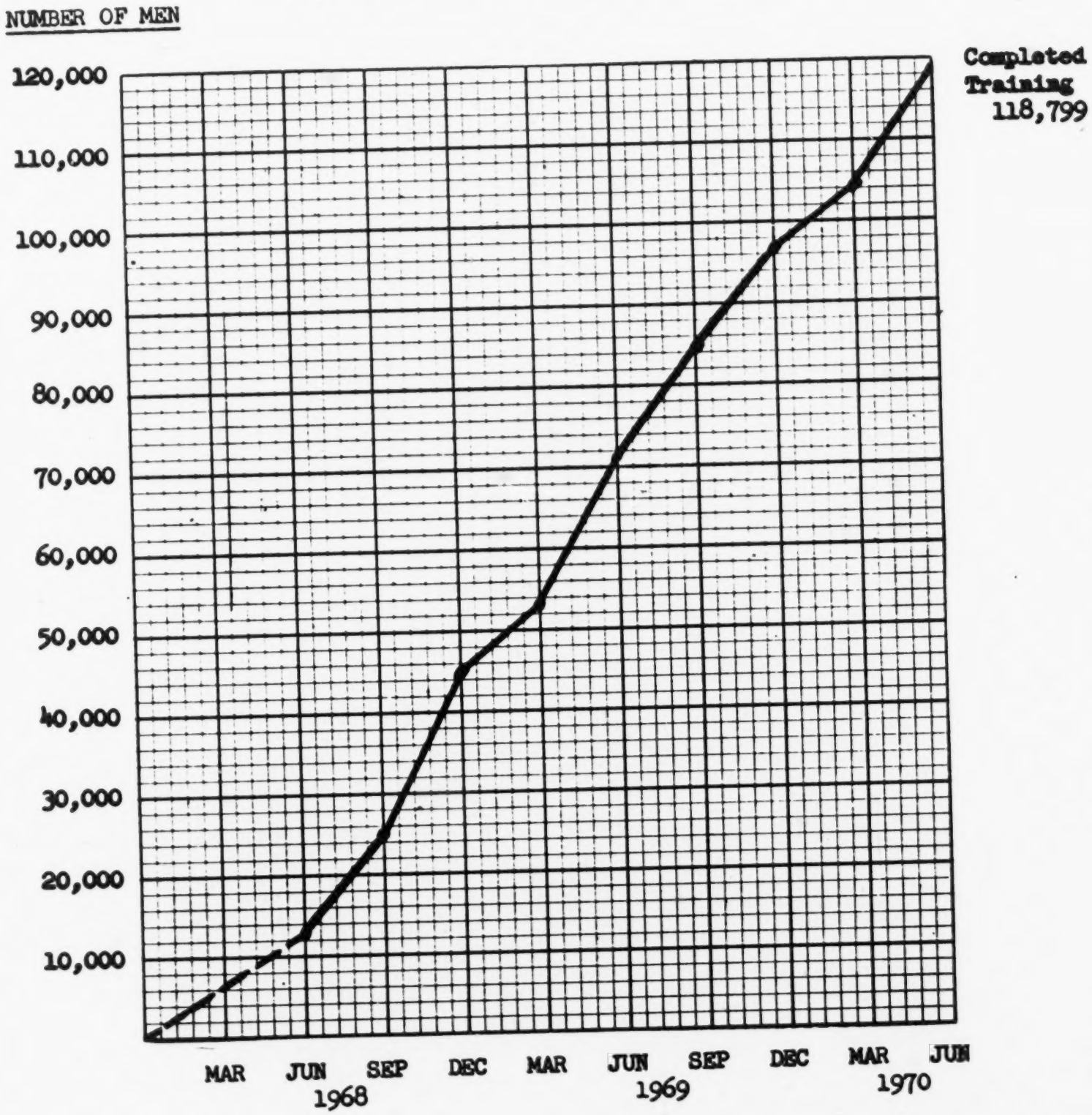
Cumulative Total for Quarter

4430

TABLE 2

TRAINING

STATISTICAL SUMMARY OF TRANSITION PROGRESS



Cumulative Total for Quarter

TABLE 3

Summary of Types of Training Courses Offer

The following lists show the range of training courses offered by MDTA, by industry through regular classroom-hands on courses and by industry throu on-the-job training.

The latter category provides opportunity for installations to provide training for servicemen on an individual basis, thus broadening the scope of offerings.

4432

MDTA Training

Accountant, Junior
Aircraft Mechanic
Air Conditioning Repair
Appliance Repair
Auto Body Repair
Automatic Data Processing
Auto Service Mechanic

Barber
Bricklaying

Camera Repair
Carpentry
Cement Masonry
Clerical Occupations
Coin Machine Repair
Computer Operator
Computer Programmer
Cosmetologist

Drafting

Electronics Training
Experimental Mechanic

Food Preparation & Service

Health Occupations
Heavy Equipment Operator
Hotel/Motel Management

Law Enforcement

Machine Setup Operator
Meatcutting
Metal Working Occupations
Motor Repairman

Offset Pressman

Plastering
Plumbing
Production Machine Operator

Tabulation Machine Operator
TV Service and Repair
Typewriter Service Repair

Water Pollution Control
Welding

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Formal Industry Training

Accounting
Air Conditioning
Appliance Repair
Auto Body Repair
Auto Mechanics
Auto Parts Sales

Brake & Front End Man

Chef
Claims Adjustment
Computer Operator
Computer Programmer
Computer Servicing
Computer Software
Credit Management

Diesel Mechanic
Drafting

Electrician
Electronics

Finance, Consumer

Hotel/Motel Management

Machinists

Office Machine Repair
Office Management

Pipefitter

Radio/TV Repair
Restaurant Management

Sales, Life Insurance
Sales, Manufacturing
Sales, Retail
Service Station Attendant
Service Station Management
Sheet Metal Work
Shoe Repair

Telephone Installer
Telephone Lineman
Textile Manufacturing
Transmission Specialist

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TRANSITION Program

(Examples of types of training offered by industry sponsored OJT)

Accountant
Advertiser
Aircraft Assembler
Aircraft Mechanic
Airline Ticket Agent
Airport Management
Air Conditioning
Appliance Repair
Auto Body Repair
Auto Mechanics
Auto Upholstering

Baker
Bank Teller
Barber
Boat Repair
Building Maintenance

Carpet Installation
Carpentry
Clerical Skills
Combustion Engineer
Computer Programmer
Commercial Art
Cook
Cosmotologist

Dairying
Data Processing
Diesel Mechanic
Dispatcher
Drafting
Dry Cleaning

Electrician
Electronics Technician
Exterminating

Farm Equipment Repair
Fiberglass Work
Film Editing
Finance
Fireman
Foreman
Front End Alignment
Furniture Repair

Gunsmith

Heavy Equipment Operator
Horseshoeing
Hospital Administration
Hospital Attendant

Income Tax Work
Insurance Adjustment
Insurance Investigation
Insurance Sales
Interior Design
Investment Trainee

Lather
Laboratory Technician
Law Enforcement
Lineman

Machinist
Management Trainee
Meatcutting
Mortician
Motel Management
Motorcycle Repair

Office Machines Repair
Office Management

Painter
Photography
Physical Therapy
Plumber
Pipefitter
Printer
Public Relations

Radio Announcer
Real Estate Sales
Recreational Aide
Refrigeration
Retail Management
Retail Sales
Roofer

Sales
Security Guard
Service Station Management
Sheetmetal
Stock Clerk

Technical Writer
Telephone Repair
Transmission Repair
Truck Driver
TV Repair

Vending Machine Inspector
Veterinary Work

Warehouseman
Welding

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TABLE 4

NUMBER OF INSTALLATIONS PARTICIPATING

SERVICE	REFERRAL Registration Points	TRANSITION Sites
U.S. Army	97	60
U.S. Air Force	122	116
U.S. Navy	15	20
U.S. Marines	119	22
TOTAL	353	218

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TABLE 5
NON-CAREER ENLISTED PERSONNEL SEPARATING FROM SERVICES BY SELECTED CHARACTERISTICS

Population: First-term enlisted personnel completing active service between 1 July 1968 and 31 December 1969 (N=980,995)

SERVICE

Army	59.3
Marines	8.4
Air Force	12.3
Navy	20.0

ENLISTED/INDUCTED

Enlisted	61.0
Inducted	39.0

YEARS OF EDUCATION

1 - 11	18.8
12	63.8
13 - 15	14.3
16 - 18	3.1

RACE

Negro	9.9
All Others	90.1

MONTHS OF SERVICE

24 or Less	46.5
25 - 36	24.3
37 - 48	27.0
49 - 72	2.2

AGE AT SEPARATION

20 or Younger	8.6
21	29.1
22	27.2
23	15.0
24	9.3
25	5.4
26 or Older	5.4

PAY GRADE

E1 or E2	2.4
E3	11.5
E4	48.3
E5	35.9
E6 or Above	1.9

MARITAL STATUS

Married	29.4
Single	70.6

NUMBER OF DEPENDENTS

0	69.6
1	21.4
2	7.3
3 or More	1.7

DUTY IN VIETNAM

Yes - 47.3; No - 52.7

PRIMARY OCCUPATION (DoD STANDARD CODE)

0 - Infantry, Gun Crews, and Seamanship	21.1
1 - Electronic Equipment Repairman	7.2
2 - Communications & Intelligence Specialist	8.8
3 - Medical & Dental Specialist	3.7
4 - Other Technical & Allied Specialist	2.1
5 - Admin. Specialist & Clerks	18.7
6 - Electrical/Mechanical Equipment Repairman	19.9
7 - Craftsmen	5.6
8 - Service & Supply Handlers	12.9

TABLE 6

STATES & CITIES TO WHICH SERVICEMEN ARE RETURNING

STATE

Alabama	13,600	Montana	3,800
Alaska	1,200	Nebraska	5,300
Arizona	9,000	Nevada	2,600
Arkansas	8,900	New Hampshire	3,600
California	113,900	New Jersey	29,500
Colorado	11,400	New Mexico	5,700
Connecticut	13,700	New York	78,700
Delaware	1,000	North Carolina	24,800
D.C.	3,900	North Dakota	3,300
Florida	28,500	Ohio	56,000
Georgia	22,400	Oklahoma	14,400
Hawaii	1,000	Oregon	13,000
Idaho	3,100	Pennsylvania	59,500
Illinois	55,700	Puerto Rico	3,900
Indiana	27,500	Rhode Island	4,600
Iowa	14,900	South Carolina	11,900
Kansas	10,400	South Dakota	2,900
Kentucky	14,500	Tennessee	18,600
Louisiana	14,600	Texas	53,900
Maine	5,500	Utah	5,100
Maryland	18,000	Vermont	1,900
Massachusetts	25,300	Virginia	21,500
Michigan	50,500	Virgin Islands	100
Minnesota	20,600	Washington	21,300
Mississippi	6,700	West Virginia	9,500
Missouri	25,400	Wisconsin	21,600
		Wyoming	1,800

CITY

Atlanta	3,700	Knoxville	1,100
Baltimore	7,200	Little Rock	800
Birmingham	1,800	Los Angeles*	8,000
Chicago*	16,500	Louisville	2,900
Cincinnati	3,900	Memphis	3,000
Cleveland	7,700	Milwaukee	4,500
Columbus	3,600	Minneapolis-St. Paul	7,900
Dallas	4,100	Mobile	1,100
Dayton	2,600	Nashville	1,600
Denver	3,600	Newark	2,100
Detroit	9,600	New Orleans	2,600
D.C.	5,000	New York	30,500
Gary	1,300	Philadelphia	9,200
Houston	6,600	Pittsburgh	4,500
Indianapolis	4,000	San Antonio	4,100
Jackson	600	San Francisco	3,100
Jacksonville	2,600	Springfield (Ohio)	700
Kansas City (Mo.)	3,100	St. Louis	6,900

*Inner-city only.

CHAPTER 2

Purposes & Aims of the TRANSITION Program

Background

Over a million service personnel will return to civilian life this year. These men all come under the purview of one of the Department of Defense's Human Goals -- to help each serviceman at the end of his service in his adjustment to civilian life.

While many of these individuals have already decided upon a course of action for their immediate future (or think they have) such as returning to a former job; attending school under the GI Bill; stepping into a new job which has been arranged for them; or reenlisting. The future for the great mass, however, is not so clear. These are the low educational achievers, those who have no skill, the disabled, those who need guidance to provide direction to unrealistic goals, and a host of others.

Purpose

To provide maximum guidance and training and/or educational opportunities along with placement information to servicemen during their last six months of duty in order to prepare them for a productive reentry into the civilian community.

Aims

To provide counseling service to the largest number of men possible.

To bring the low educational achievers up to the high school GED level.

To provide the best bank of job opportunities possible by aggressively seeking out information in both the public and private sectors.

To provide a well balanced schedule of training opportunities which are directly related to job demands.

To ensure the commanders at all levels and senior non-commissioned officers have a good working knowledge of the program.

To improve upon the current system for obtaining feedback information from participants.

To ensure that each training opportunity is productive in terms of what the trainee is putting in as well as what the trainer is putting out.

To establish a more viable form of outreach efforts so that a maximum of the high priority category will be reached.

To accomplish the counseling session as early in the last six months as is feasible so that the serviceman is afforded the opportunity to think through carefully the options open to him.

To carefully screen all training candidates to insure /to the best possible degree/ that they are really interested in pursuing a specific training opportunity as a possible choice for their life's work and not as a hobby, for example.

To ensure that the reenlistment option is carefully outlined in those cases where it is a logical course to follow as this may be the final opportunity for objective consideration of continuing a career in the Armed Forces.

To reduce to the lowest possible level the possibility of men entering the category of the disadvantaged because they don't have an opportunity to become immediately self-sufficient.

To relate men to areas of public interest and concern through training and job placement opportunities in areas of public service such as law enforcement, pollution control, and health and medical fields.

To assist colleges and universities to provide innovative programs to servicemen who may never have sought such training.

To contribute to the national objective of a zero draft through the provision of meaningful career pathways upon termination of military service.

To strengthen the linkage of the Armed Forces as a positive participant in social and domestic improvement.

To provide an opportunity for movement away from the less desirable environments, urban and rural, to locations where newly acquired skills are in demand and where the future prospects for gainful employment and opportunity for advancement are enhanced.

CHAPTER 3

Observations on the Current Administration of the Program

We have tried to visit TRANSITION sites as regularly as possible. As a consequence of this visit schedule, we have determined that the administrative effort varies from outstanding to poor. Some administrators quite surprisingly have found their sites were not functioning in as an efficient manner as they thought them to be. The more effective managers review their operations periodically to ensure that they are viable, innovative, and continue to respond to the needs of the men they support.

With continuing manpower cuts in the offing, it is necessary that sites employing civil service personnel make long range plans for coping with this problem. One answer is to round out the staff with other types of hiring where such personnel do not count against the personnel ceiling established by the service. Efforts can be made to have budgeted TRANSITION money better earmarked to the base/post level to ensure adequate funds for a productive program.

High priority categories are still not being reached in the numbers which they should. Success in this area is dependent upon some type of outreach effort. It is often easier to respond to the aggressive young men who come forward voluntarily and seek the training at the expense of the individuals who need it most who must be more aggressively sought out and helped by counselors.

The Bulletin and Program Letters should be reviewed periodically to ensure that appropriate action is being taken. It is not enough to provide initial publicity and then assume that everybody has the word. The Program Letter requirements should be embedded in daily operations and subject to vigorous periodic checks. This is particularly true of the MEDIHC Program where top military hospital officials in some cases had not heard of the program and no special effort was being expended to ensure that medical personnel being released had a reasonable understanding of the program.

Some bases/posts are using funds other than MDTA to pay for training. If this source begins to dry up, consideration should be given to MDTA funds and/or industry-sponsored training. Planning in this direction should occur before a crisis develops and valuable training opportunities are lost to some scheduled for discharge.

There is a need to increase the amount of feedback. There is no simple solution to solving this problem. A low rate of return on questionnaires distributed to check employment should create a desire to experiment with other methods. The Department of Labor is becoming increasingly interested in statistics relative to trainees employed in the area for which MDTA funds were expended for training. It requires considerable effort to establish a highly effective placement activity but the rewards are worth the effort.

More immediate planning is needed to counter conditions in which it is increasingly more difficult at some bases to get trainees released during normal working hours. A partial solution to this problem is to begin planning now for training programs which are scheduled for evening hours. There are several examples of some very successful training that is accomplished following the normal work day. Also, it is often possible to get the individual involved who really needs training but is excluded because of the exigencies of the military mission. There may be a need to consider individual referral using MDTA funds at smaller installations which will no longer be able to support full classes. This is a method of maintaining a balanced training effort in a personnel pinch. It is, of course, recognized that it becomes increasingly difficult to interest men in off-duty courses, but motivation, counseling and dynamic, relevant instruction are the keys. The job potential should be, and can be made as powerful a goal as the degree potential in the current college level programs available at numerous bases.

The process for obtaining MDTA funds, while somewhat lengthy in some states, is nevertheless an excellent method of securing training funds. Sites that encounter difficulty in getting proposals through the system should outline their problems and move them to Washington for prompt resolution. It is believed that some sites which have not taken advantage of the MDTA program because of early difficulties now should find the process greatly improved.

The following accomplishments at various posts and bases have had a positive effect on the program:

- The administration of all men participating in TRANSITION training through a separate and distinct holding arrangement. This has many obvious advantages and can be tried at more bases where it can be accommodated. It permits more control and a greater overall training effort.

- Weekly staff conferences which include a prominent speaker on a once-a-month basis to discuss topics relevant to current efforts. In lieu of a speaker a counselor is assigned a research project to report on which is germane to the program. The topics can be those reflecting greatest group concern in administering the program.

- The TRANSITION Program manager schedules talks with ship captains, company commanders, and other commanders to explain the program, to dispel misconceptions, and to explain the goals sought.

- The assignment of counselors to large size units, such as brigades, resulted in a close working arrangement with the command and a better understanding of the program by more people who can influence action.

- The establishment of a large bulletin board with job opportunities grouped for easy reference in an area that is easily accessible to troop traffic.

- Feedback questionnaires that are short and concise are mailed to the trainee 90 days following separation. The trainee is informed that the information is essential to ensure that those who follow him will be able to take advantage of similar training opportunities to those afforded him.

- OJT sites are required to submit a training schedule prior to being assigned a trainee. This ensures that some serious thought has been given to training prior to the arrival of the serviceman so that it contributes positively to his acquisition of the skills which he seeks.

- Each serviceman is required to fill out his basic questionnaire at the site at which time he receives counseling. This ensures that those in greatest need are spotted and more effort is expended to get them involved in those portions of the TRANSITION Program which will be most beneficial to them.

- Visits to training sites by staff personnel is vital to maintaining high standards of training and also to ensuring that trainees are fully involved.

- Job Fairs are successful adjuncts to the placement effort in several areas. They vary in size from a few firms to those that reach as many as thirty. These materially help the already trained man to put his military skills on the line for post-discharge employment.

- To add interest and practical experience one training program combines the talents of the draftsmen, carpenters, bricklayers and plumbers to build a house. The house is auctioned and new materials are purchased

- Some sites are working with various instructors to increase feedback. Frequently trainees correspond with their instructors to provide information about their readjustment.

- In some areas where personnel shortages have been a significant problem, a temporary solution was found in obtaining young officers or enlisted personnel on a full time or in some cases a part-time basis to help out. This latent talent ought to be sought out rigorously in the months ahead.

- Where command support is very high, it has been often common practice to have some system for keeping the commanding general informed of what the program is accomplishing, as well as getting him involved in some aspect of the program from time to time such as graduation exercises.

- One post gets a lot of mileage from distributing handbills containing information of training opportunities down to company level on a sustained effort. This overcomes the tendency to treat the program too casually so that the communication link between the man and the program is lost.

- Many effective programs have a counselor on duty during the noon hour with his availability continuously publicized. Some provide counseling service after normal working hours.

- Where personal contact with various level commanders is not possible, one way of countering this void is to distribute short but provocative fact sheets containing information that will provide a good overview of the program. These could be addressed down the chain of command to include top rated NCO's.

The following practices are distinct shortcomings.

- Post directives outdated and ineffective. Some directives date back to the inception of the program. The program is not kept in front of those troops scheduled for discharge or those commanders who have such men.

- Questionnaires being filled out following a reenlistment pitch in the career counselor's office. Those interested carry their questionnaires to the TRANSITION office; the questionnaires of those indicating no interest are mailed to Washington where they become a statistic. This results in a casual-like process wherein the thrust of the program is lost.

- Some trainees may have no intention of working in the area for which they are being trained. This has been gradually reduced by close checking by counselors and can be further avoided by the selectivity in filling quotas.

- Personal contacts with servicemen, especially those whose questionnaires reveal a definite requirement for help, are avoided. Bulletin board announcements or hoped-for walk-ins are considered sufficient means to provide communication.

- It has been found consistently that the best TRANSITION Programs are conducted on those bases where the effort is not considered routine and ancillary but where counseling, education, vocational training, and job referral are made an orderly, consistent, structured part of the total base effort.

CHAPTER 4

Counseling

During the period in which TRANSITION counseling has provided assistance to servicemen in planning post-military careers and employment, a body of knowledge and practical experience has been built up. As we move into the future in both the TRANSITION and REFERRAL Programs, upgrading the quality of counseling, and finding ways to do so with greater efficiency and economy, will be of major interest.

Better quality counseling will flow both from improvements in the counselor work-force and also from more and better technical resources. With respect to the counselor personnel, we will have to know more about the kinds of background experience needed to function in the military setting, with its requirements for providing swift, insightful help to a moving stream of counselees, both the young and the career personnel.

In addition to finding the appropriate basis for selecting counselors, we will need training such as may be provided by universities, service school courses set up specifically for the purpose, and programs of on-the-job training. In Washington, D.C. the George Washington University has already adapted its course in Counseling Adults to provide for the military serviceman. The Air Force is developing a service school course. The AMIDS (Area Manpower Institute for Development of Staff) program funded by the U.S. Office of Education is providing counselor training at TRANSITION sites.

Normal turnover may be regarded as an opportunity to orient well-selected new counselors to the knowledge accumulated during successive years of experience with TRANSITION counseling. This means that each TRANSITION site will want its own experience-file available to teach new counselors the specifics of counseling at that installation and will want to supplement this with close-in assistance in the ways and means of making counseling effective in a military setting.

In addition to the general comments made in Chapter I, there is one word more necessary concerning the counselors who have been bearing the burden of the programs to date. It is essential to note in the midst of new or modified approaches suggested herein for counselor preparation that the dedication to the job by this group has been

outstanding. It has meant the consistent helping of men over the rough spots as well as the program itself. The constant change of space allocations has not always had the proper effect on morale. However, the program has had an eveloping effect upon the counselor who in turn has had an equally forceful effect upon the program in turn.

Improvement in technical resources must go beyond this normal expansion of occupational information files and maintenance of current data about industrial trends. It will involve generating such devices as the new serviceman's Handbook, "Crossroads;" films which teach roles and behaviors, such as the skills needed in the negotiations between serviceman and employer; and courses in the World of Work, to give the serviceman a framework for making decisions of basic career importance. Such technical resources will be effective to the extent that they deal with problems of wide applicability and facilitate the movement of the servicemen toward realistic decisions.

Since there is no fixed limit to the need for counseling, the search for more economical methods is of unending significance. The one-to-one interview cannot be the sole model even though it is an essential element. Group methods will need to be used in increasing measure, both as an economy in providing information on a large scale, wherever appropriate, and also as a means of exploiting the resources of insight, information and influence which normally are found within groups. This means that counselors must acquire (1) respect for the power that resides in groups and (2) skill in using group methods.

If we are to make our resources stretch as far as they will go, we must soon add group skills to the familiar and individual-interview-test-advise pattern. Training in group methods will be the leap forward of the future.

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CHAPTER 5

Training

Training under the TRANSITION Program utilizes the resources, provided without charge, of private industry, the MDTA Program of the Department of Labor, and HEW, the facilities of Federal Government Agencies, and the military base resources.

Training is conducted either in formal classroom situations augmented by considerable hands-on experience, or through on-the-job programs.

The sections described on the following pages describe some of these programs in detail.

Sections F and G cover two programs which do not involve training, but the placement of personnel already trained or desirous of training in a civilian situation.

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SECTION A

Industry Training

I. Background. One of the most dynamic aspects of the TRANSITION Program and a key to its success has been the cooperation of American business and industry in providing training and job placement assistance.

II. Purpose of Program. To obtain direct industry support for in-service training of military personnel in those skills for which there are specific job requirements. Thus training courses can be tailored to make maximum use of available time and better prepare separating servicemen for immediate employment.

III. Organization and Administration of Program. Since the TRANSITION Program is decentralized in operation, arrangements for industry-sponsored training courses are best made directly with the project officer at the desired installation. The Department of Defense assists in making contacts with larger companies and directing them to suitable installations. The majority of industry training, however, is developed with local organizations near military installations who either supply classroom or for the most part, OJT type opportunities to develop individual skills.

IV. Training Provided. Industry has provided opportunities for formal training and on-the-job training in a wide variety of civilian skills ranging from computer programming to welding. The majority of the formal training has been in job entry level skills in such fields as automotive mechanics, machine trades, electrical/electronics repair, and sales and services.

V. Nature of Participation. A participating company develops its own curriculum, provides the instructor and necessary training materials and supervises the training which normally does not exceed a total of 240 hours. Training may consist of formal instruction on base, use of company training centers near military bases, or on-the-job training at the company place of business if within easy commuting distance. Training is offered on a voluntary basis to enlisted personnel with six months or less remaining active duty. TRANSITION

counselors select men for a particular course based upon their aptitudes and desires as well as any company criteria. First priority is given to personnel who have not had an opportunity to acquire a civilian-related skill.

VI. Summary of Accomplishments. Some 50 major companies and nearly 2000 smaller businesses have provided TRANSITION training. American industry has given over 25,000 separating servicemen the opportunity for in-service skill training with subsequent offers of jobs. Even though there is no employment obligation on the part of either the sponsoring company or the trainee, surveys by participating companies have shown that more than 50% or more of the men make immediate use of this training to find meaningful employment. Industry reports indicate that the TRANSITION trainee makes an above average employee with commendable retention rates.

VII. Action for the Future

- Seek additional industry-sponsored training in order to increase the variety of skill offerings and to provide additional training opportunities at those installations that are more remote from industrial areas.

- Continue improvement of counseling and selection procedures for placing men in appropriate training courses.

- Improve job referral and follow-up procedures for trainees.

SECTION B

Manpower Development & Training Act (MDTA) Training

Background. The Manpower Development and Training Act (MDTA) of 1962, as amended, provides for manpower training of the under-educated, the unemployed, and the underemployed, to meet the manpower requirements of the nation.

The Secretaries of the Department of Labor and the Department of Health, Education, and Welfare have concurrent authority in the administration of the Act. Essentially, the Secretary of Labor has the responsibility for determining the nation's manpower requirements, while the Secretary of Health, Education, and Welfare is responsible for providing the training to satisfy the manpower requirements. On the local level the MDTA program is administered by the State Employment Security and Vocational Education agencies.

Rationale for TRANSITION MDTA Training. During the early phases of the TRANSITION Program it was determined that the use of MDTA funds to provide occupational training for TRANSITION trainees was a prudent investment of the MDTA dollar. It was found that the MDTA program could provide highly intensified training courses for returning servicemen at an extremely low cost. Such an investment could preclude the requirement for training the same individuals in a post-service program at a much higher cost, since in the post-service training an individual received unemployment allowances while attending an MDTA course. For example, the training of a TRANSITION trainee in a six week TRANSITION MDTA course at a per trainee cost of $300-400, might preclude the necessity of training the same individual in a post-service program of perhaps six months or longer at five to six times the cost.

FY-68 - FY-70 TRANSITION MDTA Training. MDTA trained figures for the fiscal years 1968-70 have been approximately:

FY - 68	1,900
FY - 69	2,700
FY - 70	12,000

During FY-71 it is estimated that training will be provided for some 17,000 returning servicemen in TRANSITION MDTA programs.

During fiscal 1968-70 the majority of the TRANSITION MDTA courses were programs structured locally to meet the training requirements of the local military installations. Under such an arrangement the TRANSITION project

officer works closely with State Employment Security and Vocational Education officials in the development of the local training program. Training for such programs has been provided by public trade or vocational schools, junior colleges, or private trade or technical schools.

Job Placement Assistance. Job placement assistance for TRANSITION MDTA trainees has been a combined effort of the TRANSITION staff, the U.S. Training and Employment Service, and the trainer.

In an effort to bolster the job placement capability of the TRANSITION MDTA program, use of national MDTA programs was initiated on a modest basis in fiscal 1969. The first national contract was with the International Association of Chiefs of Police (IACP) to provide law enforcement training. Included in this program was a placement program by the contractor.

During fiscal 1970 a national contract with the National Association of Home Builders and Bricklayers' Union was initiated. Job placement assistance is provided by the Association and the Union under the provisions of this contract.

During fiscal 1971, national contractors are planned with the aforementioned trainers. New national contractors will include the Federal Water Quality Administration, Department of Interior, to train Water Pollution Control Technicians; the United Brotherhood of Carpenters and Joiners; and the Portland Cement Association for training cement masons and plasterers. Each of the contracts will provide nationwide job placement assistance.

Summary. MDTA training has been found to be one of the most valuable training resources available to the TRANSITION Program. Under the MDTA program, training has been provided for remote, or small installations where it was not possible to establish industry sponsored programs. At large installations where industry sponsored training was not sufficient to meet training needs, MDTA has filled the void. Through the local training institutions and through the national contractors, quality training has been provided. The end product has been a well trained individual, trained at a minimum cost, ready to enter the civilian work force.

SECTION C

TRANSITION Law Enforcement Training

Background. The Department of Defense began pilot efforts in law enforcement training early in 1968 to assist in the preparation and motivation of qualified young men leaving the service for future careers in law enforcement. The success of these initial efforts has led to expansion of the effort to many installations throughout the United States and the active involvement and support of numerous public and private agencies concerned with police professionalism. To date, more than 2800 departing service personnel have received pre-release training in this critical area of public service.

Purpose of the Program. The challenge and necessity of preserving law and order is recognized by all thinking Americans who are concerned with the protection of personal and property rights. The Department of Defense through the TRANSITION Operation Police Manpower effort has accepted this challenge and made significant contributions to this basic responsibility of an organized society. The program is designed to assist state and local police agencies overcome critical personnel shortages through the acceptance of qualified young servicemen and women who aspire to a career in the law enforcement field. Program impact is centered on assisting medium or small departments with limited funding and training resources to obtain well qualified and motivated personnel seeking a career of service with law enforcement agencies.

Organization and Administration of the Program. Program management and professional guidance is provided by the International Association of Chiefs of Police (IACP) under a national Manpower Development and Training Act (MDTA) contract funded by the Departments of Labor and Health, Education, and Welfare. The IACP fulfills this role in close cooperation with the Department of Defense. The IACP is a non-profit organization serving the needs of its membership, professional police administrators, throughout the world. In this role the organization is involved in the establishment of goals and the development of methods of improving police professionalism.

TRANSITION personnel at the local bases interview and screen prospective applicants in accordance with guidelines established and approve their enrollment in the course. The IACP is responsible for negotiating with state and local law enforcement authorities and a qualified training institution to provide the approved course of study. Close cooperation is maintained between all organizations involved in the placement phase of this program.

Training Provided. The program consists of 240 hours of police training which currently meets the highest mandatory state standards required in the United States. Outstanding assistance in the development of a sound core curriculum and the identification and procurement of qualified instructional personnel has been received from state and local authorities. Where possible, the program is conducted by a local college in close proximity to the base. This results in the participant not only being exposed to skills of police work but the theoretical requirements of police professionalism.

Nature of Participation. Participation throughout the development of this program has been outstanding. The active involvement of local police administrators, police training and civil service commissions at the state level, and the outstanding interagency cooperation received nationally makes the program an outstanding example of effective agency interface. This interface has not only served to further the acceptability of the TRANSITION graduate but has fostered improved cooperation and understanding of those concerned with law enforcement recruitment and training throughout the profession.

Summary of Accomplishments. Installations involved in this training can take considerable pride in their efforts to date. Approximately 2800 men have received preparatory training for law enforcement careers as a result of their efforts. This represents a tentative saving to the gaining police organizations throughout the Unites States of approximately $5,600,000 in salaries and training costs. Many outmoded procedures such as residency requirements, etc. which have hindered effective police recruitment are being waived to take advantage of well qualified course graduates and the effort has served as a catalyst for improving reciprocity among the States' Training and Standards Commissions.

To insure quality and maximum acceptability of TRANSITION law enforcement graduates, the IACP has developed a comprehensive student reference and instructors guide which follows the standard core curriculum recommended by the State Training Commissions. In addition, during the past year they have prepared and distributed to all TRANSITION sites, a Counselor's Manual to assist in counseling departing service personnel of the relative merits of a law enforcement career.

Actions for the Future. During the coming year we anticipate expansion and maximum standardization of the law enforcement program. This action is currently underway with several installations in various stages of negotiation.

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Realizing that there are many well qualified and interested servicemen who because of assignment are denied the opportunity to participate in this pre-release training, we are exploring in depth a post-service option which would provide the veteran a fully subsidized associate degree in Police Science in approximately 60 weeks. If arrangements prove feasible, we will be relying heavily on TRANSITION staffs to inform and assist in the selection of prospective candidates.

SECTION D

Water Pollution Control Training

Background. The Federal Water Quality Administration (FWQA), Department of Interior, has for the past few years conducted a manpower training program to improve the training of personnel employed in local waste treatment facilities. To date, the majority of the training effort has been directed towards upgrading the skills of employees already on the job. For many of these employees this has been their only formal training in the field of waste water technology.

Along with the major emphasis of the President's desire to improve the environment, FWQA is expanding their training efforts to include the training of new employees. Huge expenditures of Federal, State, and local funds are involved in the construction of new and improved waste treatment facilities. New, properly trained employees are required for the new and expanded plants.

Pilot TRANSITION Training Program. The FWQA has recently completed a pilot TRANSITION training program for Water Pollution Control Technicians.

The pilot effort was conducted at Fort Belvoir, Virginia, and included service personnel from Washington D.C. area military installations.

Two classes were trained in the pilot program with instruction provided by the Wastewater Technology Department, Charles County Community College of La Plata, Maryland. The course was 240 hours in length and consisted of approximately 2/3rds classroom instruction and 1/3rd on-the-job training in a waste treatment plant.

Graduates of the pilot program were placed in jobs in local waste treatment plants, through a placement assistance program established by FWQA. Working through their regional offices, FWQA identified jobs; this information was then provided the TRANSITION trainee who had requested employment information for a particular geographical area.

An FWQA spokesman reports a 110% placement record for graduates of the pilot program. (One person was placed who didn't attend the course but became interested in the field as a result of an article in the Fort Belvoir post newspaper.)

Implementation of a TRANSITION Program. Based on the results of the successful pilot program, FWQA is in the process of establishing

TRANSITION training programs at five major military installations. These programs are truly an example of Federal, State, and local agency cooperation in an effort to solve one of the nation's most pressing environmental problems.

The project will be funded under a national MDTA contract. Training will be provided by local educational institutions who serve as subcontractors with the FWQA. Local governments are cooperating in the program by providing an opportunity for OJT training in local waste treatment plants.

Programs will be established at Fort Belvoir, Va., Fort Bragg, N.C.; Fort Bliss, Texas; Fort Hood, Texas; and MCAS, El Toro, California. Training at Fort Bragg will be provided by Fayetteville Technical Institute; at Fort Bliss by the El Paso Independent School District; at Fort Hood, Central Texas College will be the trainer; and at El Toro, Orange Coast Junior College. Charles County Community College will continue as the trainer at Fort Belvoir.

Plans call for training a total of 310 trainees at the five installations in a year's program. Training should be underway at all five installations during October-November 1970.

A job development coordinator will be working full time at the FWQA national office providing job placement assistance for TRANSITION trainees.

Future Plans. The program will be closely monitored at the five installations with a view towards future expansion. FWQA is desirous of establishing a TRANSITION Program in each of its regional areas.

SECTION E

Construction Training

Background. President Nixon in March of 1970 directed the Secretaries of Defense, Health, Education, and Welfare, and Labor "to develop training programs in the construction crafts to be provided servicemen during the final months of their enlistment."

Further, the President stated, "I anticipate that the program will enroll over 50,000 trainees during the next two years. Extensive job placement efforts will be required to provide maximum employment opportunities for the program's graduates upon completion of training. Unions and employers should participate as fully as possible in the planning and implementation of the program to insure that these veterans will be accepted for available employment at a level commensurate with the skills attained."

Development of Training Programs. In the furtherance of the President's program, the Department of Defense, Labor and Health, Education and Welfare are cooperating with several trade associations and labor unions in the establishment of TRANSITION construction occupation training programs.

Carpentry Training. The United Brotherhood of Carpenters and Joiners commenced a TRANSITION pre-apprentice carpentry training program in March of 1970 at Camp Pendleton, California, and Fort Lewis, Washington. Plans call for training a total of approximately 500 separating servicemen at the two installations. The program is funded under a national MDTA contract. Included in the program is job placement assistance by the Union. The serviceman completes a request for job placement assistance during the early stage of the training program. The request is then forwarded to the Union Headquarters in Washington, D.C. where the Union, working with their locals, develops job contacts for the serviceman in that area where he will locate upon leaving the military service.

Based on the encouraging results of their first two training programs, the Carpenters Union has developed a program that will expand their training effort to an additional 8-10 installations during the early fall of 1970. The expanded program, which will be funded under a national MDTA contract, has a trained objective of 1400 returning servicemen. Included in the expanded program will be two full-time job development coordinators, who will work with local unions in placing the separating servicemen.

Bricklaying Training. In a program closely patterned after the Carpenters Union model, the National Association of Home Builders and the Bricklayers, Masons, and Plasterers International Union are cooperating in providing pre-apprentice bricklaying training for the TRANSITION Program.

This project commenced in July and August of 1970 at Camp Pendleton, California; Camp Lejeune, North Carolina; Fort Bragg, North Carolina; Fort Riley, Kansas; and Fort Carson, Colorado. Funding is provided under an MDTA national contract. Instruction is provided by Union certified instructors with job placement assistance a combined effort of the Association and the Union.

Plans call for training 1000 returning servicemen in an 18-month time frame.

Cement Masonry and Plasterers Training. In another cooperative effort the Portland Cement Association and the Operative Plasterers' and Cement Masons' International Association have embarked on a program to train 1200 separating servicemen in the cement masonry and plastering trades.

This program is presently in the implementation phase with training planned to be underway early in the last quarter of calendar 1970.

This project is also funded under an MDTA national contract and features job placement assistance by the trainer.

Additional Construction Training Programs. It was early recognized that the President's call for 25,000 trained men for two years would also entail the identification of men already trained for construction skills through military resources during their period of service. Thus part, if not a major portion, of the effort for the future will be to identify those men possessing these military skills who have definitely decided to separate and to provide them with employment channels into the civilian construction trades through Department of Labor, Union, and Construction Association channels. Meanwhile efforts will be made to provide actual training through the resources mentioned above to target groups in the TRANSITION Program.

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SECTION F

MEDIHC

Background. MEDIHC (Military Experience Directed Into Health Careers) is a special TRANSITION effort initiated at the request of Secretary of Defense Laird early in 1970. Recognizing that the demands for quality health care were rapidly outstriping available resources, Secretary Laird directed that every possible effort be made to develop a system for greater utilization of the "relatively untapped resource of medically trained military servicemen and women" in civilian health upon their departure from the service.

Purpose of the Program. The MEDIHC Program was developed in response to this priority task. Its purpose is to provide a specailized system of identifying, counseling, and assisting the 30 to 35,000 medical trained personnel and others who leave the service each year to investigate educational and/or employment options in the civilian health field. Optimally, each individual leaving the service who has interest in a civilian health career will be apprised of the opportunity to participate a minimum of 90 days prior to his release.

Organization and Administration of Program. The program is administered nationally as a cooperative undertaking of the Departments of Defense and Health, Education, and Welfare. Within the Defense structure Transitional staffs and additional contacts overseas for the three Services have been tasked with the responsibility of identification, outreach and counseling prospective applicants for the program. If interested, the potential applicant is assisted in completing a Qualification/Referral card which outlines his experience and interest. The Department of Health, Education, and Welfare has developed a network of regional and state MEDIHC agencies to react to applications received by providing specific employment or training/employment contacts.

Training Provided. Training during the TRANSITION phase is not a major thrust of the MEDIHC Program. The program attempts to improve recognition of the military training and experience the individual has received as a result of his military service and through the tailored assistance of the State MEDIHC agency to direct him to after service options which can best meet his career objectives.

Nature of Participation. While the Department of Defense and Health, Education, and Welfare have primary responsibility for administration of the program, numerous other agencies are involved. The Veterans Administration and the Department of Labor have lent considerable support to the program and numerous professional and private health agencies and educational institutions are involved in various support roles.

Summary of Accomplishments. Target objectives to date have been attained. From a beginning during the latter part of January with only the State of Texas involved, state participation has expanded rapidly. Projected estimates that 12 states would be operational by July 1970 have been greatly exceeded and a total of 45 states have now developed an operational capability. Applicant interest which was somewhat slow initially has increased as a greater number of states have become involved. To date more than 1500 cards have been submitted. Because of lead times involved in the development of a viable follow-up system and the varying periods of time between application and actual discharge, meaningful placement statistics are not yet available. However, those few states which entered the program early are showing significant improvements in this area.

The need for greater initiatives to ease accreditation and licensing barriers and to develop specialized programs and procedures which can maximize the individuals potential are being addressed and several efforts are currently underway to ease these problems. Examples of these are: the development of equivalency and proficiency examinations for clinical laboratory and dental personnel which will allow advanced educational and job placement; the involvement of numerous colleges in the development of specialized programs which will recognize and build on previous knowledge and skills and allow completion of academic requirements in a minimal amount of time; and a concerted effort being made to revamp job structures and professional fields to maximize the use of this valuable resource.

Action for the Future. Results of the program to date clearly demonstrate that the concept is workable and has the potential of achieving significant impact if aggressive initiatives are developed and sustained. To optimize program momentum it is essential that participation reach a level of approximately 1000 applications a month. This will ensure that current interest and involvement within the civilian sector is sustained and that the additional resources needed to truly revolutionize the use of such personnel can justifiably be applied on an expanding basis.

It is recognized that there are voids, primarily informational, which must be filled and we intend to devote maximum efforts in the coming months to bridging these gaps. To do this will require close cooperation, exchanges of information on the shortcomings and a genuine and sincere effort to do the utmost possible in fulfilling respective agency responsibilities. This means that up-to-date rosters should be maintained on all individuals possessing medical or health specialities and that each individual is contacted and the advantage of the program explained. The effort must be sustained, not considered a one-time effort. Where TRANSITION personnel have contacted medical staffs and explained the program, it has additionally enhanced the communication link with the man who has definitely decided to leave the service.

4462

SECTION G

Civilian Police Recruiting Program

Background. The purpose of the Civilian Police Recruiting Program is to assist major metropolitan police agencies to overcome critical personnel shortages. Executive authority for administration of this program throughout the Armed Services has been delegated by the Department of Defense to the Department of the Army. While this effort is not a direct responsibility of the TRANSITION staff at many installations, considerable support in publicizing the assisting in the implementation of program objectives has been provided by TRANSITION resources. Most of the major military installations in the United States have provided active assistance to this effort.

Nature of Participation. More than thirty of our largest metropolitan cities have participated in the on-base recruitment campaigns. Each has been assigned one or more specific installations to conduct such recruitment and several have developed traveling recruitment teams to visit numerous installations throughout the United States. More than 170 installations have given active support to this effort. Wherever possible the teams are provided billeting, briefing and interview facilities and assisted in the administration of physical and written examinations. Individuals accepted for employment are allowed up to 90 days early release from their normal tour of service and expeditiously processed for separation.

In January 1970 the President directed the Department of Defense to provide all possible assistance to the District of Columbia Metropolitan Police Department to reach a greatly expanded personnel ceiling. This request resulted in the initiation of additional extraordinary procedures by the Department of Defense. The recruiting base was expanded worldwide to include Vietnam and the early release option was raised to five months for this specific department. In addition, the Armed Services have assisted in the administration of physical examinations to interested civilian applicants throughout the nation at the nearest military post and provided personnel to assist the department in restructuring the force to provide more uniformed personnel for street duty. This extraordinary effort terminated 31 August 1970.

Summary of Accomplishments. The Civilian Police Recruiting Program through 30 June 1970 has resulted in 2529 personnel being recruited for future law enforcement careers. In addition, the extraordinary effort in support of the D.C. Police Department has resulted in the application of approximately 600 military personnel and the administration of 886 physical examinations to civilian applicants.

Action for the Future. It is not anticipated that an additional extension of the special efforts for the D.C. Police Department will be requested. However, it is expected that the normal 90-day release procedures will continue during the coming year.

CHAPTER 6

Education

The education programs, as distinct from the vocational training efforts, are conducted either through the educational resources of the Military Services or by junior colleges, colleges, or universities. It may be noted in the latter categories that many junior colleges, trade, and technical schools provide the resources, under MDTA, for vocational training. What is intended under the educational programs, however, are individual remedial courses in math, etc. which might be useful as prerequisites for later vocational training, or for preparation for the GED high school equivalency tests. Some pre-college level regular courses are also provided, particularly in the Air Force. The major thrust of the education program, however, is to obtain a high school equivalency certificate through the GED Program for as many non-high school graduates prior to their leaving the service. As indicated in Table 5, with almost 20% of the personnel leaving the military service without a high school education, the effort is to try to provide the GED test to as many as possible prior to discharge. About 15% of the personnel participating in the TRANSITION Program now undertake educational courses outlined above.

The new programs under the TRANSITION Program are primarily in the future. Up to the present time colleges and universities have not been able to engage in activities such as the "College Discovery" Program at Fort Dix described below because of the lack of funding. The recent amendment to the GI Legislation now provides for PREP which under VA administration will afford educational personnel at military bases, working with TRANSITION personnel to mount new educational programs similar to the "College Discovery" effort by City University of New York - Staten Island Junior College at Fort Dix, New Jersey. The primary goal will be to provide, under PREP, a whole series of innovative and provocative programs following the Staten Island Junior College pattern. This action will provide a new dimension to the educational effort.

College Discovery Program

This is an experimental college preparatory program designed to make a college education a viable alternative for enlisted men whose previous academic preparation and social orientation precluded their considering further education. It was implemented at Fort Dix, New Jersey, in the spring of 1969. Developed by City University as a part of its College

Discovery Program, successful completion guarantees New York City veterans admission into one of the University's community colleges. Once admitted to a two-year community college, the student will have the option of selecting "career curricula" (Associate in Applied Science Degree) which would lead to immediate employment, or a "transfer" curriculum (Associate in Arts Science Degree) which would provide a guaranteed transfer into a senior college.

The program, actually administered by Staten Island Community College, one of CUNY Community Colleges, has as its objective: "To seek out enlisted men of the Armed Forces stationed at Fort Dix and McGuire AFB, while still on active duty, who had poor academic backgrounds and social orientations, who would not otherwise have considered college as a viable alternative and organize a range of activities which would be designed to stimulate interest in academic advancement, eliminate much of the educational disabilities and motivate these men to actively seek and gain admission to the City University of New York and various other colleges and universities in other states."

In keeping with the stated objectives, student recruitment efforts by the TRANSITION and college staffs, focused on identifying and encouraging men who, without the program, appeared to have little chance of going to college. The only academic requirement was a high school diploma or GED equivalency. Twenty-two students were enrolled in the pilot course.

Classroom work at Fort Dix commenced on March 10, 1969, on a half day basis with a faculty of three. The curriculum consisted of two comprehensive survey courses in Communications (English) and Mathematics, conducted three days a week for one hour and a half each. Also, on these same days, group counseling sessions were conducted where members of the group cooperatively attempted to work and deal with some of their problems. On Tuesday and Thursday the class met for a 2-hour programmed reading instruction period utilizing individualized programs of instruction and various reading instruments. In addition to the basic subjects weekly seminars were held on current social issues and field excursions were taken to the United Nations, psycho dramas, and a play. During the second seven weeks of the course, classes were conducted on the Staten Island campus on Fridays and Saturdays to give the students a feel for the atmosphere of a community college.

Evaluation of the first course led to organization and instructional changes in the development of the second and third courses. Expanding the school day from 1 p.m. through 9 p.m. guaranteed evening study time and allowed devoting afternoons for classroom experience and evenings for tutoring, independent study, college placement, and counseling. Campus classes were eliminated to save travel time and replaced by an orientation visit. Curriculum changes were designed to increase student thinking, questioning, and perception and to increase individual assistance.

Exerpts from a Summary of Operations to Date

"College Discovery as an identity experience - has enabled confused, anxiety-ridden servicemen to broaden their perceptual worlds by examining their value orientations, their attitudes of themselves and their environments. Through exposure to a non-traditional learning experience these men have been motivated to involve themselves in a sometimes exhausting search for the meaning of themselves and the institutions within which they continually interact. They have encountered a learning experience that has emphasized their personal involvement in defining the meaning and purpose of the learning process.

"Meaningful vocational decisions are most assuredly dependent upon the individual's level of self-understanding and self-acceptance. Discovery has provided our servicemen a framework within which self-examination is a natural process. Painful as it has been in some cases, personal growth and development have been the most visible outcomes - regardless of their choice to enter college or private industry."

COMMUNITY AND JUNIOR COLLEGE PROGRAMS

The Community and Junior Colleges are playing a substantial role in the TRANSITION Program. These institutions offer unique opportunities and considerable options for the returning servicemen. Many colleges give special consideration to their individual needs, recognizing the special problems in readjusting to civilian life and in making determinations about the educational and vocational plans for the serviceman. These colleges are uniquely suited for training men in technical pursuits which are an alternative option between skill training for a vocational type job and the pursuit of a four-year college academic program. Many individuals who are the primary targets for the TRANSITION Program find the Community and Junior College offerings most challenging. The strong counseling services, the flexible admission policies, the wide choice of programs of study, the relatively low costs which can frequently be met by the GI benefits, and the professional instruction--all are incentives for participation.

Currently the TRANSITION Program utilizes the Community and Junior College system in a number of ways:

1. A guide to all such colleges "America's Community/Junior Colleges: A Guide for Persons Separating from Military Service," prepared for the Department of Defense by the American Association of Junior Colleges, has been distributed to all TRANSITION counselors.

2. Community and Junior Colleges (and Technical Schools) supply training to servicemen through courses financed by MDTA through cooperation with the Department of Labor and HEW. Some of these courses are developed specifically for the TRANSITION Program. Examples are: Bookkeeping, Drafting, Welding, Aircraft Engine Mechanics, Automotive Mechanics, Air Conditioning and Refrigeration, Computer Operations and Programming.

3. Special mention is made of the police training programs which have been developed to assist in meeting the nation's shortages in the field of law enforcement.

4. In keeping with the desire of the TRANSITION Program to be responsive to national and community needs, servicemen are to be trained by Junior and Community Colleges and Technical Schools as Water Pollution Technicians under funding arrangements with the Department of the Interior.

5. For the future the American Association of Junior Colleges will be assisting the TRANSITION Program in gaining the assistance of junior colleges, under PREP, to institute, with education and TRANSITION personnel, programs such as "College Discovery" at other military installations.

4469

CHAPTER 7

Hospital Programs

Background. TRANSITION Program policy gives highest priority to providing assistance to the disabled, particularly those with skill or educational deficiencies. Military Services share this responsibility with the Veterans Administration whose military hospital contact program provides for the earliest possible identification and assistance to disabled servicemen eligible for VA sponsored vocational rehabilitation. (Authorized while patients are still in service but in practice usually starts after separation).

Purpose of Program. To provide those military hospital patients who will be separated with some educational and vocational training assistance. The program is not designed to be a substitute for the VA programs at military hospitals. Rather it endeavors to complement these efforts by providing more short term efforts which present educational or training opportunities while men are still in a convalescent period. These efforts would include completion of high school GED equivalency, vocational skill courses, such as small appliance repair, computer programming. Their aim would be two-fold: to provide active purposive participation and gainful use of time available and to impart actual skills which would be the basis for a job upon discharge or for continuance of greater training under rights and benefits available through the Veterans Administration.

Organization and Administration of Program. Military hospitals TRANSITION Programs are administered on a decentralized basis. Certain Army General Hospitals are designated as TRANSITION sites, but most military hospitals have only minimal TRANSITION staffs and must depend upon the support of nearby TRANSITION sites. This often creates an administrative problem for those hospitals that are not in the TRANSITION Program chain of command.

Training and Assistance Provided. The amount and type of assistance provided varies widely among military hospitals. In most cases vocational training offerings are rather limited and major emphasis is placed upon counseling and educational programs.

Nature of Participation. The primary thrust is directed towards helping the disabled but other patients and the hospital staff participate as practicable in the same or other regularly scheduled TRANSITION Programs.

Summary of Accomplishments. Military hospital programs have shown steady improvement. Some installations, such as Fitzsimons General Hospital, have led the way in developing timely, effective programs, including such innovative programs as special instruction for the blind and handwriting classes for patients who have lost the use of an arm. An increasing number of hospitals are using MDTA funds as a source of training or employing the offerings of private organizations for the disabled.

CHAPTER 8

Placement

An aggressive placement effort is vital to the success of the TRANSITION Program.

Many sites that rightfully claim an alert and dynamic counseling staff and a well balanced training program have done little with placement. While counseling and training are essential, the payoff in the final analysis is what has been done to get the serviceman a job. This is more important now than ever before because of the soft labor market.

Several training programs have built in placement features. Examples of these are training accomplished under contracts with the International Association of Chiefs of Police in law enforcement; National Home Builders in bricklaying; Federal Water Quality Administration for water pollution control technicians; Brotherhood of Carpenters and Joiners for carpenters; Portland Cement Association for cement masons and bricklayers; General Motors for mechanics and Ford Motor Company for mechanics, to name some. In the future it is hoped that all MDTA sponsored, as well as others, will have a built in placement feature.

While the listing above sounds formidable and does cover a sizeable number of trainees, it is recognized that it represents only a small portion of those needing assistance.

Some Sources of Placement Assistance

The Job Fair has been a very helpful method of placing servicemen. These vary in size from few firms to those which cover a large spectrum of industry, institutions and businesses. Some sites only permit one firm at a time. Success with this approach is attested to by the fact that Pratt & Whitney recently hired 22 men at one post.

Department of Labor publications Area Trends and Jobs at Employment Services will assist counselors in informing clients where the better opportunities are for employment. Men should be encouraged to go where they have the best chance of obtaining employment - be mobile.

It is easy to secure job application blanks from numerous firms. These can be filled out prior to date of separation.

The Human Resources Development Institute, a non-profit affiliate of the CIA/AFofL, is a good source for job information. The Institute maintains offices in numerous major cities. (See enclosure 7 of January/February Bulletins for the precise locations.)

Information relative to Operation HIRE has been distributed to all sites. This is another option for those seeking employment in the New York metropolitan area.

The Intergovernment Job Information Center, Denver, Colo., is a fine source for job opportunities for Federal, State, and municipal jobs in the Denver area.

Large cities such as Chicago have a job coordinator who can find a job for any veteran settling in that area.

Sites located in the vicinity of metropolitan areas have an excellent opportunity to build a bank of job information of the area. A few sites have accomplished this and as a result a number of men have been employed.

The U.S. Employment Service in many areas are now developing job banks to increase job opportunities. Information about these Job Banks is located on page 4 of TRANSITION Bulletin No. 15. Men intending to reside in these areas should be encouraged to check this source. These banks are now in over 40 major metropolitan areas which are identified elsewhere in this booklet.

Information relative to jobs in the public sector is readily obtainable from many major cities and states.

"Best Bets" for Jobs with the Federal Government is a good source book available at sites. Even though there have been significant cuts in some areas for civilian personnel working for the Federal government -- this avenue for employment should not be overlooked Retirements and turnover open up many opportunities each year.

A review of Program Letter #3 -- Placement Procedures -- would be useful as a refresher to the method of using Employment Security Form ES564, a nationally recognized form used by all ES offices.

A close working relationship with a military school that provides instruction which is related to civilian jobs can be lucrative. Many times these schools will receive a considerable number of job opportunities. An example of this type is the Military Police School at Fort Gordon.

Future Developments

A pilot model will soon be underway at one military installation which will permit the site to interrogate by telephonic means various Department of Labor Job Banks for up-to-the moment information on the job market. This should be of great help in advising young men on job opportunities. If this proves successful, it is planned to establish the system at other installations.

As outlined above, it is planned to tie more training to specific job opportunities. Tnis could result in some 20,000 trainees under MDTA-sponsored training getting positive job information upon completion of training.

Information about jobs in the construction trades may soon be accomplished in a manner similar to the method employed in MEDIHC. The Department of Labor will be setting up offices in each state which will be the contact for individuals seeking employment in some area of the state in some phase of construction.

CHAPTER 9

REFERRAL Program

I. BACKGROUND

The REFERRAL Program was developed to provide for the counseling and voluntary registration of retiring military personnel into a computerized man-job matching system, into which employers from both the public and private sectors may submit job requirements. REFERRAL is designed to enhance the employment opportunities of the 65 - 70,000 servicemen and women who leave the Armed Forces annually after serving a career of 20 to 30 years in uniform.

The Program was developed after careful consideration of the existing research on separated military retired personnel which consistently showed the need for pre-retirement counseling and employment assistance. With the majority of military retirements in the 39 - 50 age range, the need and desire for continuous employment is evident.

The Program is built upon the premise that a full military career accrues with it assistance toward a second career in which the talent, education, training, and experience developed during the primary career can be utilized during a second civilian career. Such assistance in seeking this second career can have a positive effect upon morale and can be utilized as a legitimate tool for initial procurement into the Armed Forces. A system which provides for continuous primary career security and a definite lead to a continued security in civilian life can have a powerful appeal to young individuals who are initially considering the Armed Forces as such a primary career.

Program development began in March 1969. Extensive research and studies were made of existing and planned public and private computerized placement systems, of the characteristics and needs of servicemen making second career decisions; of the civilian employment market; and of other factors affecting the proposed system. It was determined that a completely new system, developed entirely in-house, was required to meet the unique needs of retiring servicemen. With participation by the Military Departments, the Department of Labor, Veterans Administration, and others, the Office of Transitional Manpower Programs, Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs, developed models and concepts which

were provided to employers and others for analysis and comments. After this extensive research, a Systems Description was developed and published in October 1969 to serve as a model for systems analysis, design and programming, and these latter actions were begun in earnest to meet a target date of June 1970 for system implementation.

In December 1969 the basic Department of Defense Directive (1332.25) implementing REFERRAL was published. Basically, this directive assigned policy and support responsibilities to the Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs; computer systems responsibilities to the Centralized Referral Activity at Dayton, Ohio (an activity administered by the Defense Supply Agency); and counseling and registration responsibilities to each of the Military Services. A network of over 350 REFERRAL Registration Sites was established by the Military Services, mainly as adjuncts to existing pre-separation or pre-retirement counseling programs. OASD(M&RA) and CRA developed, published, and distributed instructional and promotional materials and all employer and retiree forms necessary to support the program. REFERRAL Counselor Training Courses were held at various locations across the nation in April-May 1970 to prepare local site REFERRAL officials for their roles in counseling and registering participating servicemen.

Of significance is the support rendered by other Federal agencies in the REFERRAL Program development and implementation. Of particular note is the role played by the Department of Labor, whose more than 2000 local offices of the State Employment Service act as sources of forms and assistance for employers across the country. In like manner, the Department of Commerce assisted greatly by endorsing REFERRAL through a publicity mailer aimed at over 2100 business and trade associations.

On 1 June 1970, the REFERRAL Program officially began. On that date, registrations were accepted from retiring servicemen and women by the REFERRAL computer facility. On 1 August 1970, REFERRAL became fully operational when the first employer "Job Orders" were accepted by the computer facility, and the actual man-job matching commenced.

II. CURRENT STATUS

REFERRAL is rapidly building up both its retiree file and the number of man-job matches based on the increasing input of employer job orders.

The number of retiree registrants is increasing at the rate of about 500 per week, and the number of Job Orders received is increasing at a slightly smaller rate weekly.

It is too early for placement data, in that employers have up to 45 days in which to report their actions on each resume received.

The following are solid accomplishments to date which can be improved upon in the months ahead:

- An increased emphasis has been placed on the need for a career serviceman or woman to make better preparations for return to civilian life.

- Materials have been made available, and more are being prepared, to assist service members in making preparations for post-service adjustments.

- A network of REFERRAL counseling activities has been established, and counselor training courses are being conducted to upgrade the counseling programs. In addition, materials have been provided counselors to assist them in upgrading themselves.

- A positive publicity program to employers is underway to highlight the characteristics of the career serviceman as a potentially valuable employee with considerable skill and experience, and one who can provide the employer a dedicated worker.

- Finally, a computer-assisted method has been provided, through the REFERRAL system, for employers to identify and communicate with career personnel seeking a second, civilian career.

III. ORGANIZATION AND ADMINISTRATION

There are three broad levels of organization and administration involved in the REFERRAL Program. These levels, and the responsibilities and functions at each level, are summarized below:

A. Department of Defense Level. At DoD level, the REFERRAL Program is administered by the Office of Transitional Manpower Programs, Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs. The REFERRAL Program Coordinator and Assistant Coordinator serve in the day-to-day roles of program direction and coordination. This office provides policy direction for REFERRAL,

coordinates with other Federal Agencies and the Military Departments, acts as a point of contact and coordinator with public and private employers, and is responsible for recommending future plans for REFERRAL.

B. Military Department Level. Each Military Department has the responsibility for establishing REFERRAL counseling and registration sites throughout the Department's organization. For the most part, this has been accomplished by building on existing pre-separation and pre-retirement counseling activities. The Navy, Marine Corps, and Air Force are utilizing existing TRANSITION Program offices for the REFERRAL Program, while the Army is utilizing its Retirement Services Program. Local bases often consolidate their various separation programs to include REFERRAL, at a single activity or location.

C. Computer Systems Support. Computer systems support, as well as certain personnel management functions, are provided by the Centralized Referral Activity (CRA) at Dayton, Ohio, a subordinate activity of the Defense Electronics Supply Center (DESC), which in turn is a subordinate activity of the Defense Supply Agency (DSA). The Centralized Referral Activity possesses over four year experience in computerized employment assistance programs for Civil Service personnel of the Department of Defense, although REFERRAL is the first attempt at actual man-job matching by computer. While administered by DSA, policy direction for the REFERRAL Program is provided to CRA by OASD(M&RA).

IV. FUTURE ACTIONS AND PLANS

To provide for an ever-improving, dynamic REFERRAL Program, several actions are planned for the future. Included among these are:

A. Possible Extension of REFERRAL Services to all Separatees. After about 12-18 months' operational experience with the current retiree program, consideration will be given to extending REFERRAL man-job matching services to all separating military personnel.

B. Continuing Series of Counselor Training Programs. Since counseling is an essential element of the REFERRAL Program, a series of Counselor Training Courses and Seminars are planned to upgrade REFERRAL Counselors in their roles. Improved vocational counseling materials will also be provided Counselors.

C. Second Generation Improvements. Based on operational experience, needed improvements will be made in all aspects of the REFERRAL Program, to include possible changes in man-job matching factors, forms re-design, additions and deletions to the DoD Job Title Thesaurus, and other elements as required.

D. Visit Assistance Program. It is planned that OASD and possibly Military Department representatives commence a schedule of visits to REFERRAL sites around the nation to assist local personnel in improving their REFERRAL Programs. During these visits coordination will also be accomplished with local offices of the State Employment Service, Chambers of Commerce, and local employers.

E. Coordination with Department of Labor Automated Systems. Continuing coordination will be made with officials of the U.S. Department of Labor in an attempt to coordinate the REFERRAL Program with the automated employment system now being developed by the Department of Labor. This includes the Metropolitan Job Bank System now in being, as well as the experimental state-wide systems such as those in California, Utah, Florida, and elsewhere. It is quite possible that Department of Labor may one day assume operation of the REFERRAL computer system as part of the planned nationwide system now under development.

F. Continuing Publicity Program. Continuing efforts will be made to publicize REFERRAL to employers in all areas of business, industry, government, and public service occupations.

CHAPTER 10

General Separation Activities

The general separation activities cover all the administrative processes and procedures required by the parent military service and by other Federal government agencies for release of individuals from active duty and return to civilian life, including, for some, entry into the Reserve Forces.

Unlike World War II and Korea, individuals may be separated at any military installation designated by the particular service, normally where personnel and medical facilities are available. There are, of course, major centers of all Services handling personnel returning from overseas. All processing normally at these installations is expedited in order to discharge men rapidly.

The time available for orientation concerning readjustment to civilian life is usually very limited. At major points there is help from the VA on the dissemination of information concerning VA benefits and some assistance from state employment security personnel on job information.

One of the major problems has been the early release personnel. These individuals are discharged immediately upon arrival at West Coast separation activities. Since the processing is swift, there is only a minimum of readjustment information provided. There are three actions which have, or will be taken, all overseas, to help alleviate this condition. First, there have been nine VA representatives in Vietnam who provide individual and group guidance and information to personnel prior to their departure. Second, the TRANSITION Program developed a pamphlet termed "Crossroads" which contains a message from President Nixon and suggested routes which a serviceman may take which may lead to better readjustment. Third, now in the development stage, is a program to have three-man teams (VA, Labor, Office of Education) located at strategic places overseas - Far East and Europe - to provide information and guidance to individual service personnel and to groups on benefits, jobs, and educational possibilities. The teams would reach men sufficiently in advance of scheduled discharge to allow them to make certain decisions, such as applications for VA training or employment.

Within the general separations process there are two forms now prepared which are absolutely essential to the readjustment of all returning servicemen: the DD-214 (Armed Forces of the U.S. - Transfer or Discharge) and Department of Labor Form OVRR-2 (Reemployment Rights and Employment Data).

The DD-214 contains information on the training and experience which the serviceman has received. It is utilized by the individual in preparing for job seeking and by the employer in the job interview. Employers have indicated, however, that the training and experience information contained on this record is frequently too fragmentary for an adequate judgment, based on an official document, concerning perhaps the level of pay, certification or level of entry for additional training. As a result, the Department of Defense now has underway a study to indicate the amount, kinds, and quality of information desired by outside employers. The goal is to maximize military training and experience in order to widen job opportunities. Thus, the better the array of job-related data, the more likely that employers will find military experience more cogent to their needs. In addition, it provides a means for service personnel to receive more credit for licensing and certification in many skill areas where adequate documentation of experience is required.

The OVRR-2 is used by the Department of Labor for two purposes: to administer its alert system regarding the reemployment rights of returning servicemen and to contact servicemen concerning their employment needs. Within the past year servicemen have almost tripled their complaints to the Labor Department concerning employers' refusal to restore jobs held prior to entering military service.

The accuracy with which these forms are prepared and dispatched has a direct bearing on the rapidity with which employment of the serviceman can be achieved.

One final note on separation processing. This event is the final point of contact with the Military Services, except for those who may have Reserve obligations. With respect to those parts of the processing which relate to readjustment help, the objective is to refine these so that the most cogent information is innovatively imparted within the time constraints of each discharge point. With the possibility in an increase in discharge rates, the goal will be to maintain the quality of the readjustment information now imparted or to improve through new techniques.

CHAPTER 11

Inter-Governmental Cooperation in the TRANSITION and REFERRAL Programs

Introduction. The cooperation of the various Federal and state agencies in regard to the TRANSITION and REFERRAL Programs is perhaps unmatched by any other major Federal program.

The TRANSITION and REFERRAL Programs have been structured to complement and not to duplicate other Federal programs.

Department of Labor Assistance. The Department of Labor through its national offices and on the state level through the local Employment Security offices provides invaluable assistance to both the TRANSITION and REFERRAL Programs.

Occupational information of various types is provided by the Department of Labor direct to TRANSITION and REFERRAL counselors at the local military installation.

Training under the Manpower Development and Training Act (MDTA) is provided by the Departments of Labor and Health, Education, and Welfare. In fiscal 1970 MDTA training was provided nearly 12,000 returning servicemen in TRANSITION MDTA training programs. In FY-71 it is estimated that 17,000 servicemen will be trained in such programs.

Job placement assistance for TRANSITION trainees is provided by the local Employment Security office through procedures developed by the Departments of Defense and Labor. A serviceman desiring a job in his home area can start his job searching through the Employment Security office near his present duty station. When he arrives home, hopefully, job contacts will have been established.

The local Employment Security office assists the REFERRAL Program by providing assistance to small employers who desire to submit job requirements into the REFERRAL system.

Department of Health, Education, and Welfare Assistance. HEW provides guidance in the development of MDTA courses. In addition to this assistance in regard to MDTA training, HEW also provides information for the TRANSITION counselor concerning the various forms of Federal financial aid for college students.

Through their regional offices HEW is assisting in the MEDIHC Program in finding employment and training employment opportunities for servicemen trained in medical skills to careers in health and allied health occupations.

Veterans Administration Assistance. Veterans Administration representatives are providing briefings and individual counseling concerning VA benefits to servicemen departing Vietnam and Thailand. These are servicemen that will be separating immediately upon returning to the United States and thus unable to participate in the TRANSITION Program. VA representatives provide similar services at major Continental United States separation activities.

Veterans' one-stop assistance centers have been established in some 70 major cities to provide one-stop assistance for the veteran concerning employment, housing, medical, education, etc.

Post Office Department Assistance. The Post Office is the largest TRANSITION trainer. Six thousand trainees have been placed in Post Office positions as of 1 August 1970. The post Office is presently providing training at some 70-80 military installations.

Commerce Department Assistance. The Commerce Department has served as a valuable link with the business community for the TRANSITION and REFERRAL Programs. They have recently assisted in explaining the REFERRAL Program to thousands of trade associations and individual employers who are potential users of the REFERRAL Program.

Civil Service Commission Assistance. The Civil Service Commission provides information on opportunities for employment with the Federal government. Through their Inter-Agency Examining Boards, Federal jobs are identified in their regional areas and promulgated in a quarterly publication entitled, "Best Bets for Jobs with the Federal Government."

Department of Interior Assistance. The Department of Interior, through their Federal Water Quality Administration, has recently initiated a TRANSITION training program designed to train servicemen for jobs in the emerging field of waste water technology.

Department of Justice Assistance. Through their Law Enforcement Assistance Administration (LEAA), the Department of Justice is providing assistance in the establishment of TRANSITION law enforcement training programs. LEAA has played a leading role in an effort to provide reciprocity among state law enforcement agencies for TRANSITION law enforcement training. The objective is that a serviceman completing a standard TRANSITION law enforcement course would meet the minimum police training standards of any state.

CHAPTER 12

The Future

In this brief chapter no attempt will be made to repeat all of the information contained in the previous chapters concerning plans or challenges for the future. There are, however, some points which require emphasis.

We, of course, must consider the very practical and urgent demands of reduced budgets and reduced manpower, unfortunately coupled by a rising discharge rate. It is hoped that in the allocation of resources to the local transitional manpower effort that consideration is given to the burden of discharge which now looms up in a similar vein as the burden of procurement and reception processing during the Vietnam buildup.

Second, the programs can have a positive effect upon enlistment and retention if they become regular components of the personnel management system. They have built in motivation for they help to enhance the prospects of continued security job-wise after completion of military service. This will become more readily apparent as the effort is made to increase the number of volunteers for the military service.

Third, where resources are tight, our avenues of assistance from VA, Labor, and private business remain open. MDTA training courses are available, VA benefit orientations are at hand and industry, except for some geographical areas where certain types of manufacturing are in a tighter situation, still has open offerings for training. Especially important are the resources of the smaller companies and organizations who may offer individual on-the-job training near a military base.

Fourth, in the very critical area of counseling, the possibility of arranging the utilization of VA resources under PREP, the Labor assistance through USTES and the positive use of community resources from local schools, colleges and organizations - all might be explored more deeply. Admittedly the orchestration of these resources may be more difficult to accomplish on a military base. However, the use of what is available can provide some assistance, in the absence of which a program may be seriously affected.

Fifth, there remains the method of contacting individuals being separated immediately upon return from overseas. Chapter 10 discussed various ways now being planned to reach these individuals.

In addition to those mentioned, the Air Force system at Travis AFB, California, and McGuire AFB in New Jersey bears consideration. At each of these installations there is in effect an overseas desk which through individual correspondence with individuals overseas attempts to answer questions and provide leads toward readjustment. The service is publicized in overseas commands and airmen there initiate the correspondence to these bases. The important item in any of these programs is to contact servicemen 60-90 days before scheduled dates of departure in order to give them time to think through all options -- the service as a career and the outside opportunities. As it is well known, once the individual gets into the discharge path, he is so intent on maintaining the straight line that he is not too receptive to the last minute visual or oral presentations afforded him just prior to embarkation or upon discharge.

Sixth, the quality of administration of the programs at the local bases often spells the difference between success and a moderate or meager followthrough. Even where resources are less than desired, the methods used for determining eligibles and concentrating on those who need counseling, vocational training or education the most can make a vast difference in program impact.

Finally, there is the overriding matter of command interest and support. The story, the effort, the program and above all the intent and the impact on the individual soldier, sailor, airman and Marine continuously need to be emphasized as part of the military mission.

APPENDIX

Summary of Program Letters

No. 1. Contains general guidance for the development of training courses under MDTA.

No. 2. Provides information about the Vocational Education Act Amendment of 1968 for TRANSITION use.

No. 3. Suggests methods for job referral of TRANSITION personnel.

No. 4. Explains the opportunities available for apprenticeship training.

No. 5. Explains and provides procedures for the MEDIHC Program (Military Experience Directed into Health Careers)

No. 6. Suggests ways to insure that Project 100,000 personnel (New Standards Program) are covered in the TRANSITION Program.

No. 7. Provides information about the Career Opportunities Program administered by the Office of Education.

No. 8. Suggest ways to insure that combat-type personnel are aided through the TRANSITION Program.

No. 9 Explains the counselor training available to TRANSITION sites by State Employment Security Agencies.

No. 10. Emphasizes the relationship of the TRANSITION Program to the retention efforts of the Military Services.

VT 012 481
Arizona Basic Economic and Manpower Data.

Arizona State Employment Security Commission, Phoenix.
MF AVAILABLE IN VT-ERIC SET.
Res Info Ser ECO-2-70
PUB DATE - Sep70 61p.

DESCRIPTORS - *LABOR FORCE; *MANPOWER NEEDS; *DEMOGRAPHY; *EMPLOYMENT STATISTICS; *ECONOMIC CLIMATE; EDUCATIONAL OPPORTUNITIES; MANPOWER DEVELOPMENT; FEDERAL PROGRAMS

ABSTRACT - This report describes Arizona's economic climate and manpower problems and the educational programs which have resulted to meet the needs. Manpower needs and programs are provided by county, and employment statistics by county for 1968 and 1969 are appended. This report is a revision of VT 009 762 (ARM Fall 1970). (BH)

VT 012 481

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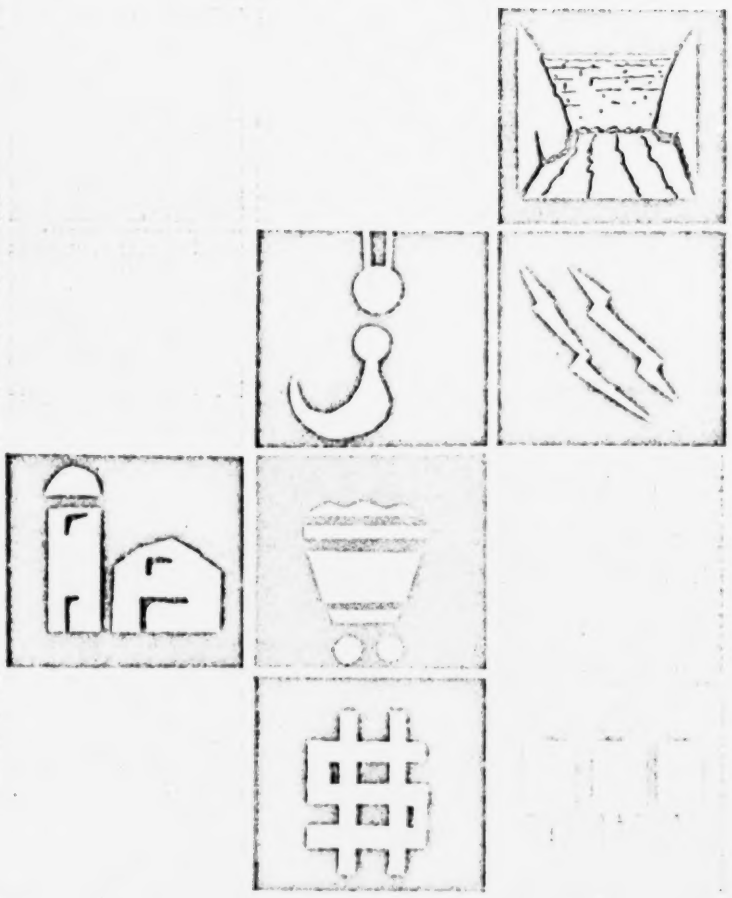

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ARIZONA BASIC ECONOMIC AND MANPOWER DATA

VT012481

4488

EMPLOYMENT SECURITY COMMISSION OF ARIZONA

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ARIZONA STATE EMPLOYMENT SERVICE

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ARIZONA BASIC ECONOMIC AND MANPOWER DATA

September 1970

ARIZONA
STATE
ECONOMIC
AND
MANPOWER
DATA

Research and Information Series No. ECO-2-70

4489

PREFACE

The 1970 Edition of ARIZONA BASIC ECONOMIC AND MANPOWER DATA is the continuation of the ARIZONA BASIC ECONOMIC DATA series published since 1949. In this edition, the series continues to undergo a transition from a purely descriptive narration of county economic trends into a document providing basic information for economic and human resource planning and development in each of Arizona's fourteen counties.

This publication is a tool for prospective employers, jobseekers, and groups providing manpower services for assessing the comparative advantages of Arizona and its counties. Of special interest to prospective employers are the sections on Economic Outlook, Manpower Setting and Manpower Requirements.

Labor force data and population estimates by ethnic group were prepared by the Unemployment Compensation Division of the Employment Security Commission of Arizona. The vocational education tables were provided by the Division of Vocational Education, State Department of Public Instruction.

The data was gathered by the staff of the Manpower Research and Analysis Section of the Arizona State Employment Service, under the direction of Bernd Schwarz, Acting Chief of the Section. This publication was coordinated and edited by Margie I. Hackett, Manpower Analyst.

Charles A. Boyle, Administrator

Charles A. Boyle

Arizona State Employment Service

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ARIZONA

GEOGRAPHIC DESCRIPTION

Arizona is the nation's sixth largest state, bounded on the east by New Mexico, on the north by Utah, on the west by California and Nevada, and on the south by Mexico. At its widest points, it stretches 335 miles east-west and 400 miles north-south.

Diverse is the key word to describe Arizona both economically and geographically. Arizona's 113,909 square miles contain three distinct topographic areas. The high plateau area lies in the northeast corner of the state. A mountainous region runs diagonally through the midsection of the state to the northwestern tip bordering on Nevada and Utah. The southwestern area is divided between desert valleys and low mountain ranges. Following are some geographic comparisons among the three areas:

TOPOGRAPHY AND CLIMATE OF ARIZONA

	Northeast Plateau	Central Mountains	Southwest Desert
Elevation	5,000-7,000 ft.	To 12,675 ft.	100-6,000 ft.
Annual Rainfall	8-12 inches	20-30 in.	3-8 in.
Temperatures:			
January Min.	18°	18°	34- 42°
January Max.	46°	44°	60- 70°
July Min.	62°	35°	72- 80°
July Max.	93°	80°	102-108°

Arizona's ideal climate attracts an increasing number of tourists each year. The desert areas in the southern half of the state attract visitors from colder areas of the nation during the winter months. The pines and lakes in the northern part of the state attract many summer tourists.

ECONOMIC BACKGROUND

On February 14, 1912, Arizona was formally proclaimed the 48th state of the Union. Statehood did much to attract new pioneers and to develop all facets of the former territory.

The completion of Theodore Roosevelt Dam northeast of Phoenix in 1911 and the subsequent availability of irrigation water greatly expanded agricultural development. The First World War caused the prices of beef, copper and cotton to soar, and all these industries grew to satisfy national needs. As transportation improved in the state and in the nation, Arizona began to develop as a center of tourism. During World War II, many major U.S. employers established operations in Arizona. The period of the greatest industrial expansion since statehood was achieved in the 1950's.

Arizona's present economy depends primarily on manufacturing, agriculture, mining, trade, and tourism.

EMPLOYMENT BY INDUSTRY

Annual Average

INDUSTRY	1968	1969
Employment Total	579,000	621,900
Total Nonagricultural		
Wage and Salary	473,400	513,500
Manufacturing	84,900	93,200
Mining & Quarrying	15,000	18,300
Contract Construction	26,800	32,200
Transportation, Communication & Public Utilities	27,000	28,300
Wholesale & Retail Trade	106,900	116,500
Finance, Insurance & Real Estate	24,500	26,800
Services	78,300	84,800
Government	110,000	113,400
All Other Nonagricultural (Proprietors, Unpaid Family Workers, & Domestics)	67,800	71,200
Agricultural	37,800	37,200

ECONOMIC OUTLOOK

Total employment in Arizona increased by 6.2% in 1969, but is expected to gain only about half that much in 1970. The economic slowdown that the nation has been experiencing for some time was delayed in its effect on Arizona. However, by June of 1970, the unemployment rate jumped to around 5%, and the seasonally adjusted rate reached 5.3% in September. In addition to sizable layoffs in electrical machinery manufacturing during the year, there were many people affected by labor-management disputes in the construction trades during the summer months.

Manufacturing employment showed a 9.8% increase in 1969; however, it is expected to show little over-the-year increase in 1970 as a result of cutbacks in defense contracts and the aerospace industry. Employment in manufacturing dropped steadily in 1970 from 96,500 in January to 89,600 in September.

Mining employment continued its steady climb, increasing 22% in 1969, and reaching over 20,000 by mid-1970. Copper mining accounts for over 90% of all mining employment in the state. Ranked second in major sources of income for Arizona in 1969, mining output totaled $859,475,000.

Value of construction contracts reached new highs in 1969, and employment in contract construction increased 20.1% during that year. Although there were some labor-management disputes in 1970, by September, employment had risen to 34,700.

Employment in transportation, communication, and public utilities continued its trend of gradual increase, reaching over 30,000 by the middle of 1970. Most of the recent increase has been in communication and public utilities employment.

The wholesale and retail trade industry is the largest employer in Arizona. Trade employment increased by 9.0% in 1969, and continued to rise in 1970, reaching a new high of 128,400 in September.

Finance, insurance, and real estate employment gained 9.4% in 1969. Continuing its gradual rise, it climbed to 30,300 in the third quarter of 1970.

Employment in the services industry also continued to rise, gaining 8.3% in 1969. This trend should go on, with the increase in medical and health services, and the services provided to more tourists and winter visitors.

Government employment rose only 3.1% in 1969, and showed about the same rate of gain in the first nine months of 1970. These increases were less than had been anticipated.

Agricultural employment persisted in its slow declining trend, dropping 1.6% in 1969, and continuing to decline slowly in 1970. Although agricultural employment has been decreasing, agriculture is still a major source of income in the state. It contributed over $600 million to the economy in 1969, with livestock production now contributing somewhat more than crops.

MANPOWER SETTING

According to 1970 Preliminary Census Data, Arizona experienced a 34.6% population growth since the 1960 Census, growing from 1,302,161 to 1,752,122. The metropolitan areas achieved an overall population increase of 40.8%, while the nonmetropolitan portions gained 19.1%.

Of the 14 counties in the state, all showed population gains from 1960 to 1970 with the exception of Greenlee County:

ARIZONA POPULATION STATISTICS

	1940	1950	1960	1970*	% Change 1960/70
STATE TOTAL	499,261	749,587	1,302,161	1,752,122	34.6
The Counties					
Apache	24,095	27,767	30,438	32,237	5.9
Cochise	34,627	31,488	55,039	61,047	10.9
Coconino	18,770	23,910	41,857	47,355	13.1
Gila	23,867	24,158	25,745	28,412	10.4
Graham	12,113	12,985	14,045	16,327	16.2
Greenlee	8,698	12,805	11,509	10,108	−12.2
Maricopa	186,193	331,770	663,510	963,132	45.2
Mohave	8,591	8,510	7,736	25,110	224.6
Navajo	25,309	29,446	37,994	45,941	20.9
Pima	72,838	141,216	265,660	344,904	29.8
Pinal	28,841	43,191	62,673	67,876	8.3
Santa Cruz	9,482	9,344	10,808	13,656	26.4
Yavapai	26,511	24,991	28,912	35,869	24.1
Yuma	19,326	28,006	46,235	60,148	30.1
Leading Cities					
Phoenix	64,414	106,818	439,170	580,275	32.1
Tucson	35,752	45,454	212,892	258,303	21.3

* Preliminary data.

For current population statistics on other communities, see the Manpower Setting section under each individual county.

Population by ethnic group is shown in the following table, including a comparison of figures for metropolitan and nonmetropolitan areas.

ARIZONA POPULATION BY COLOR AND ETHNIC GROUP

July, 1968

Color and Ethnic Group	State Number	State Pct.	Metropolitan* Number	Metropolitan* Pct.	Nonmetropolitan Number	Nonmetropolitan Pct.
Total Population	1,692,000	100.0	1,232,000	100.0	460,000	100.0
Nonwhite	179,000	10.6	70,200	5.7	108,800	23.7
Negro	58,700	3.5	45,100	3.7	13,600	3.0
Indian	112,500	6.6	20,175	1.6	92,325	20.1
Other	7,800	0.5	4,925	0.4	2,875	0.6
White	1,513,000	89.4	1,161,800	94.3	351,200	76.3
White with Spanish Surname	253,800	15.0	166,800	13.5	87,000	18.9
Other	1,259,200	74.4	995,000	80.8	264,200	57.4

* Represents total of Pima and Maricopa counties.

ANNUAL AVERAGE
ARIZONA LABOR FORCE

Year	Total	Metropolitan* Number	Metropolitan* Pct.	Nonmetropolitan Number	Nonmetropolitan Pct.
1960	456,300	333,300	73.0	123,000	27.0
1965	529,900	397,900	75.1	132,000	24.9
1966	557,600	419,300	75.2	138,300	24.8
1967	576,300	434,000	75.3	142,300	24.7
1968	603,000	456,200	75.7	146,800	24.3
1969	640,600	490,800	76.6	149,800	23.4

* Represents total of Pima and Maricopa counties.

The total civilian labor force expanded to a 1969 annual average of 640,600 — an increase of 37,600 over the 1968 average.

MANPOWER REQUIREMENTS

Arizona has an excellent supply of qualified workers which exceeds the demand in many occupations. This condition is due to the high rate of population growth that Arizona has experienced and that will continue into the future.

Arizona has a relatively higher proportion of persons in the "white collar" occupations than the nation, and employment in this group is growing rapidly. The greatest growth is being experienced in the professional, technical and managerial occupational group. In the metropolitan areas, employment in the clerical occupations and service occupations is also expanding very rapidly. Increased demand for people in these occupations will continue to exist throughout the state.

MANPOWER PROBLEMS

Approximately 175,700 persons are expected to require employment-related assistance during Fiscal Year 1971. This represents the sum of:

1. All unemployed persons.
2. Persons working less than 35 hours per week for economic reasons.
3. Persons working full time, but with earnings which do not raise the family income above the near-poverty level.
4. Persons who are not in the labor force but who should be, assuming the removal of barriers to employment.

Over 93,000 persons needing employment-related assistance will be members of poor families. Of these, 77,400 may be further defined as disadvantaged. An additional 40,800 persons are from families within the near-poor income criteria.

The remaining 41,500 persons in need of manpower services include 14,100 who are underutilized (either employed part-time for economic reasons or not in the labor force because of employment barriers) and 27,400 who will experience some period of unemployment during the fiscal year.

Approximately 57% of all persons requiring manpower services reside in the metropolitan areas of Phoenix or Tucson. The remaining 43% — 75,000 persons — are residents of the Indian reservations and rural communities — particularly those agriculturally oriented — scattered throughout the state.

Among those persons requiring manpower services, the following have been identified for special emphasis:

5,000 veterans discharged from the armed forces during the fiscal year, who, upon locating in Arizona, will require manpower services to become competitively employable.

7,500 youth who will leave school during the fiscal year before graduation from high school.

1,350 persons of labor force age in families receiving cash welfare payments.

Whereas the ethnic composition of the metropolitan disadvantaged population is relatively diverse, including all major ethnic groups in large proportions, the ethnic composition among the rural

area disadvantaged is predominately Indian. The Indian constitutes the largest minority group in Arizona's nonmetropolitan counties and, as a whole, is by far the most disadvantaged in terms of income, education and unemployment or underemployment.

In the metropolitan areas, a major problem of the disadvantaged is the lack of adequate skills and education required to avail themselves of current employment opportunities. In the nonmetropolitan areas, the problem is compounded by a lack of sufficient job opportunities to employ the total potential labor force.

MANPOWER PROGRAMS IN OPERATION

There are a number of manpower programs which are being operated in the state aimed at providing training, job development, and other manpower services for those people in need of employment-related assistance. The following is a partial list of the major programs currently in operation:

CEP — CONCENTRATED EMPLOYMENT PROGRAM

Every area program has four principal features: (1) enlisting the active support and cooperation of business and labor organizations in local committees; (2) providing a wide range of counseling, health, education, and training services on an individual basis; (3) developing employment opportunities suited to each individual in the program; and (4) providing the follow-up assistance necessary to assure that a job, once obtained, will not be quickly lost.

JOB CORPS

Job Corps is a program of basic education, skill training, and useful work experience for disadvantaged young men and women. It is aimed at those who need a change of enviroment and individual help to develop talents, self-confidence, and motivation to improve themselves. Enrollees reside at four types of Job Corps centers: (1) conservation centers for men located in national parks and forests and usually operated by the Interior and Agriculture Departments, (2) urban training centers for men, located on unused federal military installations in or near urban areas and operated under contract by private and public agencies, (3) urban training centers for women located on leased facilities and operated under contract by private and public agencies, and (4) newly established residential manpower centers.

JOBS — JOB OPPORTUNITIES IN THE BUSINESS SECTOR

This program is a joint effort of government and the National Alliance of Businessmen whereby on-the-job training is given by employers to the hard core disadvantaged. There are three different approaches to this training program: (1) basic contract, in which an employer enters into a contract with the federal government to provide training and other services for which he will be reimbursed over a nine-month period for extraordinary expenses; (2) basic noncontract, in which an employer certifies enrollees as eligible and receives no reimbursement for training or other services provided; (3) Jobs for Youth, a summer noncontract program, in which funds for training are not provided.

MDT — MANPOWER DEVELOPMENT AND TRAINING

Training is provided to persons 16 years of age or older who are unemployed or underemployed and who cannot reasonably expect to get full-time employment without such training. The training is for occupations in which there is a reasonable expectation of employment.

MOP — MIGRANT OPPORTUNITIES PROGRAM

This program is sponsored by the agency of the same name. Through this program the agency provides basic education and prevocational training classes for seasonal farm workers and child care services for their children.

NYC — NEIGHBORHOOD YOUTH CORPS

The Neighborhood Youth Corps has three major programs: an in-school program, an out-of-school program, and a summer program. This in-school program provides part-time work and on-the-job training for students of high school age from disadvantaged families. The summer program provides those students with job opportunities during the summer months. The out-of-school program provides economically deprived school dropouts with practical work experience and on-the-job

training to encourage them to return to school and resume their education, or if this is not feasible, to help them acquire work habits and attitudes that will improve their employability.

OPERATION MAINSTREAM

Through work training and employment projects, augmented by necessary supportive services, this program is designed to provide permanent jobs, at decent wages, for adults (priority is given to the enrollment of older people) with a history of chronic unemployment.

STOP — SKILL TRAINING OPPORTUNITY PROJECT

Implemented by the Arizona Council of Churches, this program has the goal of developing skills and job training opportunities for the disadvantaged migrant field workers, and providing counseling and other services including follow-up.

WIN — WORK INCENTIVE PROGRAM

This program offers basic education, job placement, skill training, work experience, or special work project opportunities to persons receiving Aid to Dependent Children.

EDUCATION AND TRAINING OPPORTUNITIES

The three state universities are noted for their academic excellence; they are: Arizona State University in Tempe, University of Arizona in Tucson, Northern Arizona University in Flagstaff. Arizona's junior college system is growing and expanding. There are many other institutions of higher learning located throughout the state.

High schools and junior colleges throughout the state provide vocational training to prepare students for entry into the labor force. The following table shows the types of programs and the number of students enrolled:

VOCATIONAL EDUCATION
1969-1970 Enrollment Totals

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	2,455	145	2,600	257	19	276	192	15	207	250	38	288	3,154	217	3,371
Distributive Education	1,045	1,566	2,611	387	85	472	5,699	1,812	7,511	79	243	322	7,210	3,706	10,916
Health	7	112	119	125	812	937	61	918	979	5	182	187	198	2,024	2,222
Home Econ. Gainful	54	184	238	13	133	146	35	321	356	34	374	408	136	1,012	1,148
Useful	2,507	22,657	25,164	....	21	21	103	1,385	1,488	20	276	296	2,630	24,339	26,969
Office Education	521	5,434	5,955	227	1,100	1,327	976	3,356	4,332	90	854	944	1,814	10,744	12,558
Technical Education	39	2	41	2,003	199	2,202	4,740	648	5,388	57	....	57	6,839	849	7,688
Trades and Industry	2,478	415	2,893	687	39	726	6,711	1,661	8,372	629	605	1,234	10,505	2,720	13,225
TOTAL	9,106	30,515	39,621	3,699	2,408	6,107	18,517	10,116	28,633	1,164	2,572	3,736	32,486	45,611	78,097

APACHE COUNTY

GEOGRAPHIC DESCRIPTION

Apache County lies on a high plateau in the northeast corner of Arizona and covers an area of 11,180 square miles. The county, third largest in the state, shares a common boundary with both Utah and New Mexico. Apache County extends about 250 miles from north to south and is from 40 to 50 miles wide. The Navajo Reservation lies in the northern portion of the county and occupies over half of the county's area. The Fort Apache Indian Reservation occupies the southwestern corner of the county, and the southeastern corner is covered by the Apache National Forest. Together the Navajo and Apache reservations occupy 62.5% of the county's land area; 9.0% of the area is federally owned, 9.7% is state owned, and the remaining 18.8% is privately owned.

The northern portion of the county is part of a vast, high desert plain broken by normally dry gulches and the remains of eroded and precipitous mountains, while the southern region is covered by dense forests and green pastures. Elevations in the northern part range from 5,500 to 6,800 feet. The difference in average temperatures depends on altitude, and the range is between 11° and 51° in winter, and between 40° and 89° in summer.

The Apache County population is widely scattered with the largest portion being located on the Navajo Reservation. (See section on Manpower Setting for population figures.) Roughly, one-third of the county's population resides in or near small towns; the remaining two-thirds are rural. Window Rock, the capital of the Navajo Nation, and Fort Defiance both are located in the east central part of the county. Other major population centers on the Navajo Reservation include Ganado, Chinle, and Many Farms.

Off-reservation, the largest population centers include St. Johns, the county seat and a trade and farming community; Springerville, a trade and tourist center; Eagar, a sawmill town two miles from Springerville; McNary, a lumbering and manufacturing center. All of these towns lie in the southern part of Apache County.

ECONOMIC BACKGROUND

Cattle raising and farming were the main sources of livelihood for the earliest settlers in Apache County. In the early 1900's, lumbering operations began in the White Mountains. Today, this is the county's most important industry, comprising about one-third of total timbering in Arizona. Though many family farms are still operating in Apache County, most of the economic activity in the county (excluding reservation land) is based on tourism, livestock, and forest products. Contracting, retail trade, and railroads are the other main sectors of the economy in the county.

Employment in Apache County varies widely during the year because of seasonal factors and labor market conditions peculiar to this area. Severe winter weather conditions, common to a high plateau ranging from 5,000 to over 8,000 feet in elevation, result in a substantial curtailment in logging and contract construction activity during the winter months.

The most pronounced variations are a result of sharp fluctuations in the employment of the Navajo Tribe. Apache County employment of Navajos ordinarily varies from a low of 400-500 in the winter months to a midsummer high of 1,000 or more. Summer increases in tribal employment result from the establishment of work projects to provide employment opportunities for the Navajo youth. Employment in the services sector is also influenced by the changes in enrollment in Neighborhood Youth Corps projects. Declining tourist activity in winter has a depressing affect on trade and services. Mining employment showed a decline over the past year because of the reduction in oil and gas exploration activity in the northern part of the county. Overall economic activity has remained at about the same level with only moderate expansion during the last ten years.

ECONOMIC OUTLOOK

The outlook for the coming year indicates that employment will increase moderately. Expansion of the General Dynamics electronics assembly plant in Fort Defiance has increased manufacturing employment. The Southwest Forest Industries proposed construction of a plywood manufacturing plant in Eagar will have a favorable effect in Apache County. There is potential for greater development. Vast deposits of coal and uranium, as well as strong indications of oil and gas, were found in the Chinle trading area. Exploitation of recently detected helium promises to have a somewhat favorable economic effect on the overall state of the economy. With a surplus labor market, ample water supply, and an ever-increasing number of recreationists and tourists, this area offers considerable business and service development opportunities.

McNary is estimated to have about 1,600 residents. Population centers on the Navajo Reservation include the following: Window Rock and Fort Defiance, 3,450; Chinle, 3,370; Many Farms, 1,230; and Ganado, 1,050.[1]

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
APACHE COUNTY	30,438	32,237	5.9
Eagar	873	1,263	44.7
St. Johns	1,310	1,315	0.4
Springerville	719	1,041	44.8

In 1968 the percentage distribution of Apache County population by ethnic group was: 76.4% Indian (mostly Navajo); 19.2% white, including 3.6% with Spanish surnames; 2.7% Negro; 1.1% Oriental; and all other less than 1.0%.

The Apache County annual average civilian labor force for 1969 was 9,300. The unemployment rate for the county was 6.2% during this same period. This does not include the substantial number of persons on the Navajo Reservation who want jobs but have not been actively seeking work because they feel work is not available. If this group of persons were also counted as unemployed, the rate for the county would, in all likelihood, approach three and a half to four times the official unemployment rate (based on findings of the 1967 Navajo Manpower Resource Study).

MANPOWER REQUIREMENTS

Manpower requirements (measured in terms of job orders received in Chinle, Ganado, and Window Rock offices of the Arizona State Employment Service) show wide seasonal variations, especially within the tourist and lumber sectors. Of the job placements made, the greatest number were in the farming, fishing, and forestry area because of the fire fighters hired in the summer months.

The sparsely settled areas and the large reservation areas of the county have a considerable surplus of unskilled and semiskilled labor. All job openings were filled in less than a month. Job opportunities are scarce in these areas.

[1] Estimates from Bureau of Indian Affairs, January 1970.

MANPOWER PROBLEMS

Apache County, with its two Indian reservations, has a large supply of potential workers which has not been incorporated into the present job economy. The reasons for this are many. The lack of education and English language skills are two large deterrents. Another great problem is the virtual isolation of reservation Indians, compounded by poor roads, poor communications, and lack of transportation. Severe weather conditions during the winter months make many reservation roads impassable.

MANPOWER PROGRAMS IN OPERATION

Programs in operation in the county include: MDTA, Operation Mainstream, Navajo CEP, Neighborhood Youth Corps, and Job Corps.

EDUCATION AND TRAINING OPPORTUNITIES

Apache County has 22 elementary and 4 high schools with enrollments of 6,799 and 2,364 respectively in the 1969-70 school year.

Vocational courses are offered in many of these schools. The following table shows the types of programs and the number of students enrolled.

Navajo Community College—the first college in America established and controlled by an Indian tribe—opened in January of 1969.

APACHE COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	....	....	....	....	....	....	....	....	....	63	....	63	63	....	63
Distributive Education	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Health	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Home Econ. Gainful	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Useful	39	412	451	....	....	....	....	....	....	....	....	....	39	412	451
Office Education	22	62	84	....	....	....	....	....	....	12	68	80	34	130	164
Technical Education	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Trades and Industry	15	5	20	....	....	....	1	....	1	176	1	177	192	6	198
TOTAL	76	479	555	....	....	....	1	....	1	251	69	320	328	548	876

COCHISE COUNTY

GEOGRAPHIC DESCRIPTION

Cochise County lies in the southeastern corner of Arizona, adjacent to New Mexico and the Mexican border, and encompasses 6,256 square miles. The terrain is characterized by three valleys which cut through the county south to north and are separated by Fort Huachuca, the Dragoon and Chiricahua mountain ranges. The majority of land lies between 3,000-6,000 feet and receives 12-18 inches of rain a year. Humidity is low, the sun shines an average 314 days per year, and temperatures in summer and winter are mild. The mountain areas above 6,000 feet receive several feet of snowfall each winter, providing runoff and ground water storage for the lower valley regions.

Douglas is the largest city, located on the Mexican border directly opposite Agua Prieta, Sonora, and is the main distribution center for rich Sulphur Springs Valley ranching and farming area. Approximately 8,800 people per day cross the border at Douglas. Bisbee, the county seat, is located in the Mule Mountains and is the site of the famous Phelps Dodge Lavender Pit Copper Mine. Sierra Vista came into being some ten years ago to provide residence for the civil service working force at Fort Huachuca. Fort Huachuca is headquarters of the Strategic Communication Command (STRATCOM) which is the nerve center for army communications all over the world. Tombstone is primarily a tourist center providing memories and remnants of the "Old West." Willcox is the foremost inland cattle shipping point in the U.S. with over 50,000 head shipped per year. Benson, lying along Interstate 80, provides highway services and is the site of a major chemical explosive factory.

Cochise County is served by a main east-west thoroughfare, Interstate 80, which enables travelers from Phoenix to reach the county within three hours and those from Tucson in one hour. The main line of the Southern Pacific Railroad parallels Interstate 80 and links California with Texas and other commerce centers of the South. The Southern Pacific provides branch service to Fort Huachuca and Douglas. The Douglas-Bisbee international airport has regularly scheduled flights to Tucson and Phoenix.

ECONOMIC BACKGROUND

Traditionally, Cochise County has maintained an economy based upon agriculture and mining. Little growth was experienced in Cochise County until 1950. Between 1950 and 1960 the population increased 75% following the pattern of overall state development.

Mining development was the principal motivation for the growth of Cochise County. Military activity at Fort Huachuca and the continued growth of cattle ranching were important, but secondary, factors. New mining technologies provided a dramatic resurgence in the economy of Cochise County after increased processing costs had closed many mines during the '30's. The opening of the Lavender Pit Mine in Bisbee began a new era in mining for the county and created new employment opportunities. Population growth in the '60's has resulted from natural increase, continued mining activity, tourism and retiree migration. Mining remains the prime economic factor in Cochise County. The county accounts for 11% of the state's total mineral production. Eleven percent of the labor force in the county was employed in the mining industry.

Seventy percent of Cochise County's total area is used for agriculture. The majority of this acreage is used for cattle ranching with most activity located in the Sulphur Springs Valley. Livestock accounts for 37% of the county's agricultural production. Seventy-eight percent of the crop acreage is in grain. Approximately 10% of the labor force in the county is involved in agriculturally related occupations.

Government expenditures play an important role in the economy of Cochise County. Fort Huachuca provided a $71 million addition to the overall economy of the county. The current base population at Fort Huachuca is 18,000 with a $40 million payroll. Civilian employees at the base number 3,640. The addition of the Strategic Communications Command to the Fort Huachuca complex in 1967 brought an additional 900 civilian employees.

Tourism is now an important feature of the economy. Places of interest include the Lavender Pit open-pit mine, Old Fort Bowie, Tombstone and the Chiricahua National Monument. In 1967, 98,600 persons visited national monuments in Cochise County. There are also 1,000,000 acres of Coronado National Forest in Cochise County that provide outdoor recreation. An indicator of tourist activity is the net taxable income reported by restaurants and bars in the county. This income showed an 8% rise in 1968 over 1967 and was the only economic area showing an increase in 1968 where other areas showed the decline attributed to the crippling labor strike.

Manufacturing in Cochise County, until recent years, has been limited to seasonal processing of vegetables. Now there are several concerns in operation employing large numbers of workers. In Benson, there is a chemical and explosive manufacturing plant; Douglas has a large garment manufacturing concern and a plant for processing dried vegetables.

ECONOMIC OUTLOOK

The outlook for Cochise County is one of cautious optimism. Mining will continue to employ significant numbers of people in the immediate future. However, Phelps Dodge has announced that their operations in Bisbee will be closed down by the end of 1972, resulting in a considerable rise in unemployment in that area. The consistent efforts of an aroused citizenry and assistance from state agencies, in all likelihood, will qualify Bisbee as a Redevelopment Area. To insure a stable long-term economy in Cochise County, diversification of the economy must develop to halt the exodus of many residents. In the Willcox area considerable efforts have been directed toward attracting new manufacturing concerns. Government will continue to be a major employer. Fort Huachuca is the only electronic proving ground in existence and the only geographic location that has a complete lack of electromagnetic interference.

The agricultural forecast for the next five years is good. It is undergoing diversification and thus seasonal employment is stabilizing. Sugar beets and green chili peppers are harvested in late October and red chilis in November. Cotton production has been relatively important in the past but is declining. Cochise County is a marginal cotton growing area with a shorter growing period. Lower water costs in the county have tended to keep cotton production in the county and have contributed to the large acreage of lower value field crops such as sorghum, alfalfa and small grains. Vegetable growing should increase and diversify especially with the creation of processing plants in Douglas. Spring lettuce acreage increased in 1969, but the returns were poor, largely because of a very low market price.

Manufacturing could develop as a significant factor in the economy. Several companies have considered building in the Sierra Vista and Willcox areas.

More and more travelers, retirees, and vacationers are discovering Cochise County. The mild climate, numerous historical and geographic monuments, proximity to Mexico, varied terrain and vegetation should all attract a growing number of tourists.

The long-term forecast for the economy of Cochise County appears to be positive; however, this depends largely upon the initiative of economic planners to diversify the economy of the Bisbee-Douglas area in order to offset the decline of the mines, the continued expansion of the Fort Huachuca-Sierra Vista area and the continued influx of retirees and tourists to the entire area.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
COCHISE COUNTY	55,039	61,047	10.9
Benson	2,494	2,819	13.0
Bisbee	9,914	8,260	—16.7
Douglas	11,925	12,300	3.1
Huachuca City	1,330	1,237	—7.0
Sierra Vista	3,121	6,611	111.8
Tombstone	1,283	1,233	—3.9
Willcox	2,441	2,538	4.0

The population is mostly white, 96.4% (including 26.2% Spanish surnamed), with 2.6% Negro and 0.2% Indian. There are no Indian reservations within the county.

The annual average civilian labor force was 20,725 during 1969, with an unemployment rate of 3.1%. The limited growth of the labor force is typical of rural southern counties whose economy is based on mining and/or agriculture. It is a reflection of the loss of out-of-school entrants into the labor force to other areas. Many of the labor force are Mexican "green card" holders who commute to work across the border daily.

MANPOWER REQUIREMENTS

Skilled and semiskilled agricultural occupations will continue to provide job opportunities in northern and northeastern portions of the county. Lower skilled chili preharvest and harvest occupations will predominate the agricultural job opportunities in the southern Sulpher Springs Valley. Clerical positions will provide important job potential throughout the county. Medical personnel, waitresses, cooks and domestic workers will also be generally needed. If the industrial growth begins in the Willcox area, an increase in structural and processing occupations will occur in the early '70's. Mechanics and related occupations will provide opportunity for qualified workers.

MANPOWER PROBLEMS

Unemployment does not appear to be a significant problem in Cochise County, although it varies according to seasonal activity. Underemployment is a more prominent problem. The underemployed are not concentrated in any one area but are scattered throughout the rural areas of the county. A large portion of this group is of Mexican origin with larger than average families and generally lower skill levels. The custom of Mexican Americans helping each other within the total family (children helping parents by leaving school to work) tends to offset the immediate effect of large families and low wages on the standard of living. However, it causes a continuation of unemployment and underemployment as young people become older, take on family responsibilities and are unable to obtain or hold a job with an adequate salary due to lack of education and skills. A problem also exists among many of the Mexicans, both migrants and U.S. native born, who cannot fluently communicate in English and thus are hampered in their quest for employment opportunity.

MANPOWER PROGRAMS IN OPERATION

Cochise County has a number of manpower programs in operation including: MDTA, Job Corps, Neighborhood Youth Corps, and Operation Mainstream.

EDUCATION AND TRAINING OPPORTUNITIES

During the 1969-70 school year, Cochise County had 44 elementary schools with an enrollment of 13,883 pupils, and 10 high schools with 5,129 students enrolled.

Cochise College, part of the Junior College network, has been in operation for five years and serves approximately 1,600 students. It offers both college transfer and occupational education curricula.

Another form of training is offered by the army at Fort Huachuca for servicemen who are scheduled for discharge. This program could be of assistance to the southwestern portion of the county, providing that these persons remain in the area for full-time civilian employment.

Vocational courses are offered through the schools, and the following table shows the types of programs and the number enrolled:

COCHISE COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	328	9	337	....	....	....	33	....	33	2	....	2	363	9	372
Distributive Education	78	70	148	55	17	72	2	....	2	2	5	7	137	92	229
Health	....	....	....	....	....	....	2	57	59	....	11	11	2	68	70
Home Econ.															
Gainful	30	19	49	....	....	....	....	....	....	8	8	16	38	27	65
Useful	69	915	984	....	....	....	....	8	8	....	1	1	69	924	993
Office Education	26	273	299	36	187	223	5	41	46	....	10	10	67	511	578
Technical Education	14	....	14	149	1	150	60	....	60	....	....	....	223	1	224
Trades and Industry	207	25	232	58	11	69	64	9	73	19	75	94	348	120	468
TOTAL	752	1,311	2,063	298	216	514	166	115	281	31	110	141	1,247	1,752	2,999

COCONINO COUNTY

GEOGRAPHIC DESCRIPTION

Named for its early inhabitants, the Coconino Indians, Coconino County covers an area of 18,599 square miles and lies in the center of northern Arizona. It is the state's largest county, claiming over 16% of the state's total area. It is also one of the most sparsely populated of Arizona's counties with a population density of about three persons per square mile.

An abundance of rugged land, thickly forested with pine, piñon, aspen, oak, juniper, spruce, and fir, as well as such distinguishing features as the Grand Canyon, Glen Canyon Dam, and the San Francisco Mountains, including Humphrey's Peak, make the county one of the main attractions for visitors to the state. Elevations range from about 2,400 feet at the floor of the Grand Canyon to 12,670 feet at Humphrey's Peak. Flagstaff is 6,900 feet, Page 4,270 feet, and Williams 6,760 feet above sea level. High mountains and rugged canyons cut through the county. The high forested areas receive over 20 inches of precipitation annually, including about six feet of snow. The northeastern portion of the county is desert badlands, getting only six inches of rain annually. At Flagstaff and through the forest belt, winter temperatures average from a minimum of 18° to a maximum of 44°, while summer temperatures in the same area range from 50° to 82°. Summer temperatures in the desert area range from 65° to 100° and winter temperatures from 25° to 50°.

Flagstaff, the county seat and principal city, is located in the central part of the county. This community is the home of five major observatories (including Lowell Observatory), Northern Arizona University, and the Northern Arizona Society of Science and Arts, making it a center for scientific and educational activity.

The Sedona area, situated 27 miles south of Flagstaff in Oak Creek Canyon, has the second largest concentration of population in the county. This unincorporated town is one of the most colorful spots in the West and already is a retirement center, a summer home retreat, and headquarters for artists and writers.

Page, near the northern border in the Glen Canyon Dam-Lake Powell area, was originally built as a construction site, but with the completion of Glen Canyon Dam, it has become a residential and recreational center.

Williams is 32 miles west of Flagstaff and located in the Kaibab National Forest.

Coconino County also includes all or part of the Navajo, Hopi, Hualapai, Havasupai, and Kaibab Indian reservations. The reservations occupy slightly over a third (37.2%) of the entire county.

Another 40% of the county is taken up by the Kaibab and Coconino National Forests, national parks and monuments, and other federally owned land. Eight and eight-tenths percent of the county is state-owned land and 13.9% is privately owned land.

ECONOMIC BACKGROUND

The earliest settlements in Coconino County were devoted to cattle ranching, and today, cattle ranching and sheep raising continue to be an important factor in the economy. Flagstaff began as a work camp for construction crews working on the railroad and was also a popular camping spot for wagon trains enroute to California. Since the first sawmill was established to furnish ties for the railroad, lumbering has played an important part in the economy of Flagstaff and Williams. Both cities are located in the nation's largest continuous ponderosa pine forest. In 1908 the first U.S. Forest Service experiment station, headquartered in Flagstaff, was established in the newly created Coconino National Forest.

Astronomy, astrophysics and astrogeology have become particularly important in Flagstaff within the last ten years due to the U.S. space program. The U.S. Geological Survey's Branch of Astrogeology is located in Flagstaff.

Tourism has been important in Coconino County since its early days, and has remained a major economic factor. The Snow Bowl (skiing facility on Humphrey's Peak), Indian ruins, the Ponderosa forests, Meteor Crater, Navajo trading posts, Oak Creek Canyon, Glen Canyon Dam, Lake Powell, the Grand Canyon, and the Annual Indian Pow Wow in July attract thousands yearly.

The construction of the Navajo Army Depot in the early 1940's, 12 miles west of Flagstaff, was a significant development, for it presently is one of the county's largest employers. In addition to its primary function of ammunition storage, the depot furnishes logistic support to weather and scientific research groups and also tests motor vehicles in high mountain areas.

The current economy of Coconino County is based primarily on the following major industries: government; retail trade and services, which depend heavily on the tourist activity and travel along the highways; manufacturing and contract construction. The fact that a large part of the economy relies on tourism (estimated $20 million a year business) leads to a high seasonal income and employment pattern. Because of the severe winters, the lumbering and construction industries are also seasonal in nature.

ECONOMIC OUTLOOK

Employment in manufacturing increased moderately over the 1960-1969 period. It will increase by at least an additional 26 persons during 1970 with the opening of Southwest Forest Industries' $6 million particle board plant.

Manufacturing's portion of the total number of persons employed in the county has decreased slightly. Although wood and wood products manufacturing account for most of the employment in this industry, it is becoming more diversified with the addition of new companies, such as W. L. Gore, wire and cable manufacturers, to the Flagstaff area. Two new firms located in Williams which may add considerably to manufacturing employment in the future are Palomen Inc., builders of amateur telescopes, and International Scientific Industries, Inc., manufacturers of a wide range of radiation detection devices.

Mining and quarrying are restricted to sand and gravel, pumice, and stone. The number of persons employed in this industry has declined over the decade to only a few at present.

Employment in contract construction has changed significantly over the last nine years. In 1960, contract construction accounted for 17.3% of those employed, while in 1969 it accounted for only about 6% of total employment. The great decline is due primarily to the completion of Glen Canyon Dam and the overall decline in major highway construction. Recent construction at Northern Arizona University and on Interstate 40 has maintained the level of employment in this industry at about 1,000 persons for the last three years. A large boost is expected to be given contract construction by the construction of the steam-operated electrical generating plant to be located just southwest of Page, with construction scheduled to start in April 1970 and extending into 1975. A railroad will also be constructed from Page over to the proximity of Cow Springs for the purpose of hauling coal to the generating plant. Total estimated cost of construction is in the neighborhood of $309,000,000.

Transportation, communication, and public utilities industries have increased their overall employment by some 375 persons since 1960.

The trades industry is second only to government in the number of persons it employs. Employment in this industry increased by about 850 since April 1960. Presently, about one in five persons employed in the county is in retail or wholesale trade. This industry is markedly affected by seasonality as employment increases during the summer tourist season and declines during the winter.

Employment in finance, insurance and real estate has remained about the same over the past eight years with some increase due to the building of additional facilities in Flagstaff and Tuba City.

Employment in the services industry has not only kept pace with overall economic growth, but has well exceeded the rate of increase in total employment. In 1960, the services industry represented 9.4% of total employment in the county. In the first half of 1969, this industry accounted for 18.1% of total employment, an increase of 8.7 percentage points. Employment in this industry rose about 2,012 between 1960 and 1969, an increase of over 150%. A large part of this marked increase can be attributed to employment in the Navajo tribal enterprises and especially tribal sponsored nonprofit programs such as the activities of the Office of Navajo Economic Opportunity and Summer Neighborhood Youth Corps. Large numbers of Navajo youth are employed in these programs during the summer months.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
COCONINO COUNTY	41,857	47,355	13.1
Flagstaff	18,214	25,554	40.3
Fredonia	643	797	24.0
Williams	3,559	2,346	−34.1

Other communities and their estimated populations are: Sedona, 5,000; Page, 3,000; Tuba City, 1,800; and Grand Canyon, 1,300.

Percentage distribution of the county's population by ethnic group was estimated as follows in 1968: 63.7% White, including 10.8% with Spanish surnames; 31.1% Indian; 4.7% Negro; and less than 1% all other.

Only the 1960 Census figures are available to look at the median income, and they indicate a poverty level or below income for 65% of the nonwhite families. The widespread lack of formal education among Indians in the county also accounts for a low median educational level.

The Coconino County 1969 annual average labor force was estimated to be 20,050, with an employment total of 19,350, and an unemployment rate of 3.5%. Employment and unemployment both show clear seasonal variation due to the effect of high plateau, winter weather conditions on outdoor activities. Seasonal variations in lumbering, wood products, and construction activities contribute substantially to variations in employment. Unemployment is highest in the winter months—January, February, and March—and lowest in the late summer and fall months—August through November. The unemployment rate on the Navajo, Hopi, Kaibab, Hualapai, and Havasupai reservations, which lie wholly or partially inside the county, runs three or more times higher than the rest of the county. In 1960, for example, the nonwhite (almost all nonwhites are Indian) unemployment rate was 14%.

MANPOWER REQUIREMENTS

As previously indicated, manpower requirements (measured in terms of the number of job orders received in the Flagstaff Office of the Arizona State Employment Service, and the Tuba City branch office as well as unemployment insurance claimants) in the county show wide seasonal variations due to the effect of high plateau winter weather conditions on lumbering, wood products, manufacturing, and construction activities. Tourist activity (retail trade and services) also declines significantly during the winter months, thereby reducing the demand for workers in motels and restaurants.

Demand for workers is highest during the summer and fall months in the Flagstaff area. The Flagstaff office of the Arizona State Employment

Service received an average of 318 job openings a month throughout Fiscal Year 1969, with 263 jobseekers registered in the active files.

The sparsely settled areas of the county, especially the reservations, had a considerable surplus of low skilled labor. Almost all the job openings received by the branch offices were filled during the year; no job opening remained open for over a month. Job opportunities are clearly limited in the sparsely settled areas.

MANPOWER PROBLEMS

The Department of Welfare reports that, of the total case load in Coconino County for Fiscal Year 1969, approximately 80% were Indians living on the reservations.

According to a survey carried out by the Office of Economic Opportunity, in the early part of 1967, there were 500 families in that portion of Coconino County not within the Navajo Reservation earning below $3,000 a year.

The poverty population in Coconino County is sizeable. The great majority of those comprising this group are Indians and other minority group members living in predominantly rural areas in the county. It should be noted, however, that aggregate demand for labor falls considerably below aggregate supply in the county. While manpower training and other services may be helpful in meeting some of the existing shortages in skilled occupations, unless the rate of economic development in both urban and rural areas of the county increases, the aggregate supply of labor will continue to exceed the demand and much of the manpower resource will continue to be unused or underutilized.

MANPOWER PROGRAMS IN OPERATION

There are a number of manpower programs serving Coconino County; they include: MDTA, Operation Mainstream, Neighborhood Youth Corps, and Job Corps.

EDUCATION AND TRAINING OPPORTUNITIES

Coconino County has a total of 22 elementary schools and 6 high schools, enrolling a total of 9,059 and 3,573 students respectively in 1969-70.

Vocational courses are offered at many of the schools, and the following table shows the types of programs and the number enrolled.

Northern Arizona University, located at Flagstaff, had an enrollment of 7,747 students for the first semester of the 1969-70 school year.

COCONINO COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Distributive Education	32	36	68	....	....	....	809	170	979	2	....	2	843	206	1,049
Health	....	26	26	....	....	....	....	....	....	....	....	....	....	26	26
Home Econ.															
Gainful	....	....	....	....	....	....	....	22	22	....	....	....	....	22	22
Useful	69	312	381	....	....	....	....	29	29	....	....	....	69	341	410
Office Education	25	159	184	....	....	....	1	68	69	14	55	69	40	282	322
Technical Education	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Trades and Industry	97	3	100	....	....	....	1	....	1	8	....	8	106	3	109
TOTAL	223	536	759	....	....	....	811	289	1,100	24	55	79	1,058	880	1,938

GILA COUNTY

GEOGRAPHIC DESCRIPTION

Desert and mountainous terrain make up the 4,788 square miles of Gila County, a mining and ranching district in east-central Arizona. Elevation ranges from 2,000 feet in the southern desert to above 7,000 feet in the northern pine country. Together, Globe and Miami constitute the principal retail trade center for east-central Arizona. Mineral rich Gila County ranks as the state's fourth highest producer of copper and associated metals. Cattle ranching and tourism assist mining in creating a stable economy for the county. Within Gila County is the San Carlos Reservation and part of the Fort Apache Reservation. Reservation economy is maintained by one of the nation's largest cattle ranches and by lumbering. The Payson area is booming with "summer cottage" land sales and is developing into a prime recreation area for hunting, fishing, hiking, camping, and sightseeing. The average daily temperature ranges from 54° to 96° in the summer and from 31° to 61° in the winter.

Gila County provides a variety of tourist attractions. Professional and amateur geologists go there to study a time lapse of over 500 million years exposed in the precipitous walls of Salt River Canyon. Archaeologists investigate well-preserved prehistoric cliff dwellings of the Salado Indians at Tonto National Monument, overlooking Roosevelt Lake. The hunter tests his skill in the annual Javelina (wild pig) Derby and seeks other game native to the area—deer, bear, turkey, duck, geese and quail. Water sports fans enjoy recreational facilities around Roosevelt, Apache and San Carlos Lakes. Traveling the hairpin turns of Salt River Canyon provides an exciting and breathtaking experience for first-time visitors to the area. Other tourist attractions include the Apache Trail, Queen Creek Canyon, and the Southwestern Arboretum. Limited amounts of private land ownership (3.1%) stymie normal city growth and development.

U.S. Highways 60 and 70 are the main east-west interstate routes traversing Gila County. Paved all-weather State routes include Arizona 73, 77, 87, 88, 106, and 288. For the hearty, there are several second-class improved roads, as well as Forest Service and Indian Reservation trails. Bus lines are the main source of public transportation. Serving Gila County are Greyhound, Trailways, Pioneer, and White Mountain lines. Interstate truck line, van service, and local taxi services are available daily. The Southern Pacific Railroad is open to the southern half of the county only. The Globe-Miami Airport is equipped to handle twin-engine aircraft for unscheduled local charter flights but nothing on a regularly scheduled basis.

ECONOMIC BACKGROUND

Copper mining has been the base of the economy in Gila County since the exhaustion of the early silver mines. Mining and quarrying provided jobs for over 25% of the total labor force in Gila County during 1969. Declines or upswings in retail trade and other industry categories are dependent upon actions in the mining industry. The county is showing slow but steady growth, having fully recovered from the lengthy labor-management dispute at the mines which was settled early in 1968. Mineral production for 1968 was valued at $61,248,000. With the mines operating at near capacity, there have been some new developments this past year with others planned for the future. Although commercial building has not been significant this past year, a number of ventures are underway and plans for others have been finalized. The master plan for the large Payson North housing development is being carried out, as well as other homebuilding in that area. Construction has been approved for 37 new homes to be built in Globe where there is a housing shortage. Extensive cattle ranches are significant contributors to the Globe-Miami economy. Agricultural production in Gila County was valued at $1,502,000 during 1968.

ECONOMIC OUTLOOK

The economic outlook for Gila County is favorable for continued gradual growth. Many of the mining companies have announced expansion plans. Inspiration Consolidated Copper Co. plans a new facility as well as expansion of an existing facility. Kennecott and the American Smelting and Refining Co. have plans for expansion next year. The San Carlos Indian Reservation received federal funds for development of a recreation area for tourists on the reservation. A site is available on the reservation for an industrial park, but this is still in the planning stage. The Gila County General Hospital in Globe has planned a $3 million dollar expansion to be competed early in 1972.

Two factors that could have considerable impact in Gila County in the next few years are the Comprehensive Planning Program and a proposed mineral bank. Gila is the only county in the state to have a Comprehensive Planning Program, approved and partially funded by HUD.

The Comprehensive Plan comprises a document coordinating and summarizing plans and proposals for the county as well as the municipalities within it. It will present a broad framework within which future decisions by private interests as well as by public agencies can be made for the betterment of the entire community. A mineral bank has been proposed for Gila County in order to stockpile asbestos. At present 40 grades of the mineral are being processed by the asbestos co-op in the county. The federal government wants only top-grade asbestos and is planning for advanced filtration to combat water pollution. In order to meet governmental demands and conserve the resources of lesser grades of asbestos, the mineral bank proposal was made. Although not yet approved, this bank would make it possible for the asbestos industry in Gila County to successfully compete with Canada in top-grade production.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
GILA COUNTY	25,745	28,412	10.4
Globe	6,217	6,583	5.9
Hayden	1,760	1,276	−27.5
Miami	3,350	3,302	− 1.4
Winkelman	1,123	977	−13.0

The Payson area has an estimated population of 2,000.

The 1968 ethnic breakdown of Gila County population was 84.1% White, including 23.0% with Spanish surnames; 15.2% Indian; and 0.5% Negro.

The annual average labor force for 1969 was 9,575, with an unemployment rate of 3.4%.

MANPOWER REQUIREMENTS

Since mining is the major industry for Gila County, the labor market is usually stable. In general, labor demands are for skilled workers such as machinists and heavy duty mechanics. Skilled and professional workers are difficult to find in the local labor force. Manpower surpluses occur in the unskilled and low skilled classifications. Youth employment has become a problem of

concern for Gila County. Job availability for young people is scarce since the economy is stable and employment opportunities are not diversified. The mining industry provides employment for about one-third of the county, but their hiring requirements exclude youths under 21 years of age. Youths who secure jobs are generally restricted to part-time work and poor-paying, unskilled jobs. Consequently, there is a large out-migration of young people seeking better opportunities, and they seldom return to the county. Both youthful and aged workers contribute substantially to the underutilization and unemployment rates in Gila County.

MANPOWER PROBLEMS

Indian unemployment is the county's greatest manpower problem. Reservation isolation creates transportation difficulties to and from jobs. Lack of education and training restricts Indian workers to unskilled or lower paying semiskilled jobs. Older workers and the handicapped are extremely limited in job opportunities. Job opportunities are so limited that many young people leave the labor force to continue their education or to find work outside the county.

MANPOWER PROGRAMS IN OPERATION

The Globe-Miami area is one of five areas in the state which was selected to have a vocational skill center. One of the older high schools is being renovated for the center, and funding will be directed by the Four Corners Regional Commission. The school will concentrate its training in the area of skilled labor.

Manpower programs in Gila County include: MDTA, Operation Mainstream, Neighborhood Youth Corps, and Job Corps.

EDUCATION AND TRAINING OPPORTUNITIES

Gila County has 21 elementary schools and 4 high schools with an enrollment of 5,784 and 2,083 students respectively during 1969-70. Enrollment in vocational education courses is shown in the following table:

GILA COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Distributive Education	32	22	54	....	....	....	....	....	....	....	....	....	32	22	54
Health	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Home Econ. Gainful	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Useful	....	358	358	....	....	....	....	....	....	....	....	....	....	358	358
Office Education	6	64	70	....	....	....	....	....	....	....	....	....	6	64	70
Technical Education	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Trades and Industry	109	....	109	....	....	....	45	....	45	....	....	....	154	....	154
TOTAL	147	444	591	....	....	....	45	....	45	....	....	....	192	444	636

No junior colleges or universities are located within the county. Rose-Mar College of Beauty, located in Globe, is the only private trade school available. High school graduates wishing to continue their education usually attend Eastern Arizona College, Mesa Community College, University of Arizona, Arizona State University, or one of the numerous trade and business schools in the Phoenix or Tucson areas. Mines conduct their own apprenticeship training programs for highly skilled and professional jobs.

GRAHAM COUNTY

GEOGRAPHIC DESCRIPTION

Graham County covers an area of 4,640 square miles, located in the southeastern portion of Arizona. The majority of the irrigated farm land lies in the Gila River Valley, which traverses the county from east to west. The Graham Mountains form the southern boundary of the valley, rising to an elevation of 10,700 feet at Mount Graham. The Gila Mountains form the northern boundary of the valley. The Gila River Valley elevation (at Safford) is 2,900 feet. This elevation moderates the summer temperatures, compared to the lower elevations of central and western desert areas of Arizona.

The elevation also accounts for a slightly higher annual precipitation, which varies from 9 to 20 inches at the higher elevations. There are several communities located along the Gila River and its tributary, the San Francisco River. Safford, the county seat, is the agricultural hub of both Graham and Greenlee counties. Thatcher, located 3 miles northwest of Safford, is the site of Eastern Arizona College.

U.S. 70, a major east-west highway, connects Graham County with Metropolitan Phoenix on the west and New Mexico's southern cities on the east (to El Paso, Texas).

ECONOMIC BACKGROUND

Agriculture has been the basic economic force of Graham County since the founding of Safford in 1874. The significance of Safford as a trading center has declined some in the last 20 years because of fewer workers in agriculture, and improved transportation and roads have tended to make trading easier in larger urban areas by Graham County residents.

Crop acres in 1969 totaled over 57,000, ranking the county fifth in Arizona. The number of farmers has declined steadily for over 20 years. The total acreage farmed has varied during that period but is about 35% greater than in the early '50's. Agricultural employment declined greatly until 1960 and has stabilized since then. Farming units have increased in size, but remain the smallest in the accepted commercial farming area of Arizona.

Ranches utilize vast areas of state and federal land in addition to the cropped acreage farmed. There are less than 100 ranchers in Graham County.

Unemployment in 1969 and preceding years was sufficiently high so that the county was designated a persistently high unemployment area under the Department of Commerce, Economic Development Agency. Since designation in the fall

of 1969, the rate of unemployment has declined and the county has been removed from the eligibility list for EDA funding programs.

Although several factors have been involved in the unemployment rate reduction, the principal factor has been mining activity in exploration in Graham County, and mine production operations in Greenlee County. Other contributing factors to increased employment have been new industry, reopening the textile manufacturing plant owned by the community, and expanded slaughter operation in the packing plant. A general pickup in trade and services has supported the gains in the economy during the first half of 1970.

ECONOMIC OUTLOOK

Continued high level of mine employment is expected to maintain and increase the economic pace of the trade centers in the mining areas of Arizona. Continued efforts of community development organizations will add the benefits of a greater industrial mix to community industrial base. Some slowdown could occur in mid-1972 if contractual agreement between the mines and the labor unions is delayed by labor-management disputes over any great period of time.

Further reduction in the number of agricultural employers can be anticipated during the '70's, as well as changes in agricultural production. Increases in livestock will result in crop production changes suitable to feeding livestock in place of some of the former cotton acreage.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
GRAHAM COUNTY..	14,045	16,327	16.2
Pima	806	1,144	41.9
Safford	4,648	5,317	14.4
Thatcher	1,581	2,262	43.1

Graham County is predominantly white (87.2%), including 18.6% with Spanish surnames, and a nonwhite population of 9.6% Indian and 2.9% Negro.

The annual average labor force for 1969 was approximately 4,250 in Graham County with an average unemployment rate of 4.1%.

MANPOWER REQUIREMENTS

The supply of labor is generally quite favorable for most job openings. A continued demand for mining occupations in maintenance and operations is anticipated. Jobs in agriculture are expected to be strong for skilled, year round workers and weaker for lower skilled, seasonal workers. Service occupations in the culinary arts, the mechanical fields, and hotel and motel are expected to be in demand. Future manpower needs are contingent on economic developments. New or expanded industry operations could alter job opportunities and manpower needs drastically.

MANPOWER PROBLEMS

While there are many barriers to employment for the disadvantaged, such as lack of education, job skills, transportation, and motivation, the major obstacle in Graham County is lack of job opportunities. The greatest problem exists in the number of disadvantaged and the services required on the San Carlos Reservation. Transportation and remoteness tend to complicate the employment potential of the San Carlos Apaches. Other underemployment, as well as unemployment, is found in the Negro community. Most Negroes work only at part-time agricultural and nonagricultural jobs.

MANPOWER PROGRAMS IN OPERATION

Manpower programs operating in Graham County include: MDTA, Operation Mainstream, Job Corps, and Neighborhood Youth Corps.

EDUCATION AND TRAINING OPPORTUNITIES

Graham County has 7 elementary schools and 4 high schools, with 1969-70 enrollments of 3,232 and 1,348 students respectively.

There are also two private specialized schools in Safford teaching cosmetology. Eastern Arizona College at Thatcher, part of Arizona's Junior College System, enrolled 1,593 students the first semester of 1969-70. Also, it has extensive vocational training curricula considered of high caliber and suited to the needs of the area. Most of the stu-

dents seek employment in urban areas or continue their education after graduation.

The following table shows the types of vocational courses provided and the number enrolled:

GRAHAM COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	48	....	48	....	....	....	14	....	14	63	....	63	125	....	125
Distributive Education	39	61	100	37	13	50	1	3	4	7	9	16	84	86	170
Health	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Home Econ. Gainful	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Useful	27	299	326	....	....	....	....	....	....	....	3	3	27	302	329
Office Education	....	12	12	2	63	65	....	12	12	6	23	29	8	110	118
Technical Education	2	....	2	249	12	261	36	15	51	....	....	....	287	27	314
Trades and Industry	43	....	43	1	....	1	....	59	59	137	....	137	181	59	240
TOTAL	159	372	531	289	88	377	51	89	140	213	35	248	712	584	1,296

GREENLEE COUNTY

GEOGRAPHIC DESCRIPTION

Greenlee County, in southeastern Arizona, was formed from the eastern part of Graham County by the 25th Territorial Legislature on March 10, 1909. The newest county in the state, its 1,879 square miles consist of high mountain ranges, river valleys, and desert terrain. Over 90% of the county is federally and state owned with less than 10% of the land surface available for mining enterprises and crop production. The Gila River runs through the county east to west, providing the main source of water for the area's agricultural production. Nearly all of the surface area of Greenlee County is usable either as timberland or for farm and ranch operations. Annual average rainfall in the county ranges from 12.5 inches at Clifton to above 20 inches in the high mountain areas in the northern half of the county. Average annual maximum and minimum temperatures at Clifton are 81° and 52°, respectively. Elevations across the county range from 2,800 feet on the desert floor to over 9,000 feet above sea level along the Mogollon Rim.

Three major communities in Greenlee County are: Duncan, the agricultural center of the county; Clifton, location of the county seat; and Morenci and vicinity, site of the largest open-pit mine in the United States.

Greenlee County is serviced by the Southern Pacific Railroad and the Greyhound Bus Lines. U.S. Highway 75 crosses the county east and west, while U.S. Highway 666 and State Highway 70 run north and south through the county. The northern half of Greenlee County lies in the Apache National Forest of the White Mountains through which winds the famous Coronado Memorial Trail beginning at the base of the mines in Morenci.

ECONOMIC BACKGROUND

Copper ore was first discovered in the area by an Army scout in 1869. It was not until three years later, however, that the first copper mines were established. The prime economic base is still copper mining. The mining industry in Greenlee County suffered serious declines in the early 1950's as the rich ore was depleted. However, new techniques of mineral extraction enabled the industry to mine lower grade copper ore. Morenci is the site of one of the largest open-pit copper mnies in the United States. The mine spends $68 million annually in the county, and 90% of the business payroll comes from the mines. Greenlee County also has a limited amount of cattle ranching and crop raising.

ECONOMIC OUTLOOK

The mining industry will continue its expansion. The basis for Greenlee County's growth impetus is the Phelps Dodge Corporation mine at Morenci whose recent mine and plant expansion have added new sources of employment which will carry over into future years. Contract construction and allied services attributable to the mine expansion will add to the economy during the next four or five years. Agriculture will remain relatively stable and will be influenced by future government farm programs. Tourist traffic through Greenlee County has shown a slight reduction following completion of Interstate 10. Visitors to the Coronado National Memorial Trail declined, reflecting the diversion of traffic and the lack of promotion by cities located in northern Greenlee County. Future possibilities for Greenlee County may be in the tourist and recreational areas. Fishing and hunting are readily available in the county.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
GREENLEE COUNTY	11,509	10,108	—12.2
Clifton	4,191	4,950	18.1
Duncan	862	771	—10.6
Morenci	2,431	N.A.	....

Greenlee County is predominately white (98%), with about 50% of these people with Spanish surnames. The balance of the population is 1.5% Indian and 0.5% Negro.

Greenlee is the only county in Arizona to show a decrease in population between 1960 and 1970; however, projections to 1975 indicate the county will climb back to its 1960 population of 11,500 because of the growth in the mines. The population decline in the last decade is attributable to out-migration of out-of-school youths from the county because of the lack of job opportunities.

The annual average civilian labor force in 1969 was 4,150, with unemployment averaging 2.4%.

MANPOWER REQUIREMENTS

Opportunities for employment in Greenlee County are mostly for skilled workers such as construction workers, carpenters, electricians, plumbers, mechanics, and heavy equipment operators and engineers in the mining operations. Apprenticeship programs by Phelps Dodge Corporation at Morenci have helped maintain an available supply of skilled workers for future requirements. Workers for the services and trade industries are constantly in demand. Employment opportunities in Greenlee County for the future are contingent on the influx of new industries or the expansion of present mining operations and the possible development of more livestock feeding operations in the county.

MANPOWER PROBLEMS

Although the problem of underutilized manpower is minimal in Greenlee County, underutilization of manpower resources is more likely to be prevalent among nonwhites. The major deterrent to employment for the disadvantaged is the lack of job opportunities in their immediate area.

Lack of job opportunities also has led to out-migration of young people, which, in turn, has contributed to the population decline of the county.

MANPOWER PROGRAMS IN OPERATION

Manpower programs in operation in the county include: Neighborhood Youth Corps, Operation Mainstream, and Job Corps. Greenlee County also had two VISTA volunteers in the Clifton-Morenci area and one volunteer in the Duncan area in 1969.

EDUCATION AND TRAINING OPPORTUNITIES

During the 1969-70 school year, Greenlee County had 11 elementary schools with 2,189 students enrolled, and 3 high schools with 1,057 student enrollments. Students from these schools have access

to Eastern Arizona College located in Thatcher (Graham County).

Vocational education programs and enrollments are shown in the table below:

GREENLEE COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	86	....	86	....	....	....	....	....	....	....	....	....	86	....	86
Distributive Education	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Health	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Home Econ. Gainful	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Useful	21	122	143	....	....	....	....	....	....	....	....	....	21	122	143
Office Education	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Technical Education	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Trades and Industry	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
TOTAL	107	122	229	....	....	....	....	....	....	....	....	....	107	122	229

MARICOPA COUNTY

GEOGRAPHIC DESCRIPTION

Maricopa County, lying in the south-central part of Arizona, covers an area of 9,253 square miles of desert valley and low mountain ranges. The Tonto National Forest, with its 7,645-foot Four Peaks Mountain, the desert region in the southwest portion of the county, and the 1,300 miles of canals which criss-cross the county's central portion, all contribute to the topographical diversity characterizing the county. It encompasses three Indian reservations—Salt River, Fort McDowell, Gila Bend—and a small part of the Gila River Reservation. The average temperature range is between 75° and 104.6° in summer and between 35° and 64° in winter, with the sun shining 88% of the possible time. The average rainfall is 7.2 inches a year. Much of the county is used for agriculture, depending on a vast network of irrigation canals from the dammed Salt and Verde rivers.

The primary cities in the county are Phoenix, Scottsdale, Tempe, Mesa, Glendale, and Chandler. About 85% of the county's population and 47% of the state's population is contained within these coterminous areas. The airline service is provided by three transcontinental and six regional carriers providing both passenger and air freight service with approximately 100 scheduled arrivals and departures daily from the Phoenix area. The Santa Fe and Southern Pacific railroads offer railway connections for freight and, to a limited extent, passenger travel. The county is served by two national bus lines along transcontinental routes. There is one main bus line operating within the metropolitan area of Phoenix. The outer portion of the central urbanized section of the county is served by another bus line which offers only service between the suburbs but not within the suburbs. Because of the geographic dispersion of major industry and the wide location of workers, public transportation is inadequate. For those with their own transportation, there are over 26 miles of completed freeway within Phoenix linking the city with uninterrupted freeway travel from Flagstaff to Tucson (Interstate 10 and Interstate 17). Other major highways include Interstate 8 through Gila Bend, and U.S. highways 60, 70 and 89. The excellent highways through the county are a major factor in the county's becoming a regional warehousing and distribution center. These highways are main arteries vital to the warehousing and distribution firms. The area is serviced by ten transcontinental truck lines, four transcontinental heavy equipment haulers, and three transcontinental automobile transporters. There are thirty interstate truck lines, thirty-nine intrastate truck lines, also REA Express and United Parcel Service.

ECONOMIC BACKGROUND

More than 1,000 years prior to the coming of the white man, the ancient Hohokam Indians were diverting waters from the Salt and Gila rivers and cultivating the fertile river valleys. Settlement of what is now Phoenix began in 1865 when a hay supply point for Camp McDowell was set up about four miles from the present center of Phoenix. Prior to World War II, agriculture, tourism, government and some food and fiber processing, stimulated by the availability of irrigation water in the Salt River Valley, were the principal factors influencing growth in Maricopa County. During World War II, the U.S. Government encouraged the establishment of a number of basic industries in the Valley. After the war, the production was maintained, and in 1956 the value of industrial output for the state exceeded the value of agricultural products. Industrial development has kept pace with the vigorous population increase, with manufacturing showing the greatest increase. Today, the Phoenix metropolitan area is characterized by a diversified economy, independent of any single firm or industry. Major sources of income are manufacturing, agriculture, and tourism. Phoenix has become the fastest growing regional market in the United States with more than 2,200 manufacturers and wholesalers. It is also becoming a prime financial center for the western United States.

Agriculture has historically been a major component of the county's economic base, with the county currently encompassing 44% of the state's cultivated crop land. Maricopa County is the state's largest single county producer in all major crop categories. The chief crops are cotton, alfalfa, cereal grains, lettuce, onions, and sugar beets. The county is the third most important county in the U.S. in terms of agricultural output. At the same time, however, agricultural employment has been slowly declining since 1950 due to increased mechanization and consolidation of farms into larger, more efficient operations.

The tourist industry, which includes the services industry, is a major contributor to the county economy. Natural and man-made attractions in the area, together with the climate, have made the Valley a prime vacation spot for the state and nation.

The trade sector of the economy is the largest employer in the Valley. The improvement of interstate highway transportation through the Valley, as well as the central location of Phoenix within the 13-state and northern Mexico market, have made the county a wholesale and retail distribution center. Population growth has been the major stimulus to the growth of the government sector. Government is the third largest employer including state, local and federal employees, many of whom are involved with education.

ECONOMIC OUTLOOK

During 1969 the diversified economy of Maricopa County generated an additional 27,300 jobs. Approximately 60% of all nonagricultural jobs in the state are located in the Phoenix metropolitan area. It is predicted that 10,100 more jobs will be created by 1971.

As of July 1970, nonagricultural wage and salaried employment was 315,100 with a predicted 319,800 for the year. Wholesale and retail trade led employment with 81,300 followed by manufacturing with 69,100. Government employment was third with 55,000 workers.

Financial employment will gain the greatest employment percentage growth with manufacturing and wholesale and retail trade gaining the greatest number of workers. Agricultural employment will continue its decline due to increased technology.

Contract construction had a record-breaking year in 1969, increasing 74% in value of building permits; 1970 will continue to be a pace-setting year but will not exceed the growth of 1969. Labor disputes and recent tight money policies may restrict construction by as much as 25%.

For the first time, retail sales exceeded $2 billion for 1969, and are expected to exceed $2.3 billion in 1970. All sectors of the economy are feeling the effects of recent economic policies with a slight decline registered in the first half of 1970. Growth will continue in the Valley but at a considerably reduced rate through the second half of 1970.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
MARICOPA COUNTY	663,510	963,132	45.2
Avondale	6,151	6,313	2.6
Buckeye	2,286	2,712	18.6
Chandler	9,531	13,551	42.2
El Mirage	1,723	3,269	89.7
Gila Bend	—	1,726	—
Gilbert	1,833	1,951	6.4
Glendale	15,893	35,771	125.1
Goodyear	1,654	2,110	27.6
Mesa	33,772	62,499	85.1
Paradise Valley	—	6,584	—
Peoria	2,593	4,753	83.3
Phoenix	439,170	580,275	32.1
Scottsdale	10,026	66,852	566.8
Surprise	—	2,429	—
Tempe	24,897	63,030	153.2
Tolleson	3,886	3,825	−1.6
Wickenburg	2,445	2,640	8.0
Youngtown	—	1,871	—

The ten-year growth rate for the county, and for communities within the county, can be seen in the table above. Maricopa County now contains 55% of the state's total population.

In 1968 the percentage distribution of Maricopa County's population by ethnic group was: 94.6% White, including 12.2% with Spanish surnames; 3.8% Negro; 1.2% Indian; and less than 1.0% all other.

The annual average civilian labor force in Maricopa County for 1969 was 373,600, with an average unemployment rate of 2.6%.

MANPOWER REQUIREMENTS

Currently there is a surplus of elementary and secondary teachers, electronics engineers, and assemblers. Through June 1970 demand occupations continued to be in clerical and service occupations. There is a growing need for lodging managers, registered nurses, auto mechanics, and service station attendants.

MANPOWER PROBLEMS

Until the results of the 1970 census are released, target area population estimates will continue to be based on the 1966 Department of Labor survey. These figures indicate a geographic pooling of the unskilled, uneducated, disadvantaged, and unemployed. Unemployment in the Inner City area of Phoenix is estimated to be 13.2%. Ethnic composition of this area is 24.8% Negro, 30.1% Mexican American, and 43.2% Anglo.

The basic problems hindering residents from getting work are lack of skill and education, accompanied by a decrease in the number of unskilled job openings. Other contributing factors are lack of transportation, inadequate child care facilities, and language difficulties. Currently, the problem has been compounded by severe layoffs in many major companies and an increased number of college graduates entering the labor force. The tight job situation coupled with increased numbers of trained jobseekers diminishes the chances of target area residents finding work.

MANPOWER PROGRAMS IN OPERATION

Maricopa County is served by many manpower programs, serving thousands of people. Programs in operation include: Adult Basic Education, Apprenticeship, CEP (Phoenix Concentrated Employment Program), Job Corps, MDTA, MOP (Migrant Opportunity Program), NYC (Neighborhood Youth Corps), On-the-job training, Operation Mainstream, Project Transition, Project SER-Goodyear, WIN (Work Incentive Program).

EDUCATION AND TRAINING OPPORTUNITIES

During the 1969-70 school year, Maricopa County had 228 elementary schools with a total enrollment of 179,270 pupils. There were 33 high schools with 69,738 students. Also, there are numerous private schools in the county.

The university and junior college system is expanding to meet the increasing demand for highly skilled, highly trained workers. For the fall semester 1969-70 Arizona State University had an enrollment of 25,139 students. Another 26,056 students were enrolled in the four junior colleges. The opening of Scottsdale Community College in

the fall of 1970-71 added approximately 600 more students.

In addition to the public school system, the county has four private institutions of higher learning and approximately 25 commercial and specialized trade schools.

Vocational education programs and enrollments are listed in the table below:

MARICOPA COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	999	65	1,064	169	16	185	67	3	70	4	....	4	1,239	84	1,323
Distributive Education	471	694	1,165	200	44	244	3,366	978	4,344	22	169	191	4,059	1,885	5,944
Health	2	39	41	86	611	697	38	428	466	1	34	35	127	1,112	1,239
Home Econ. Gainful	1	60	61	8	84	92	35	274	309	1	221	222	45	639	684
Home Econ. Useful	1,951	13,658	15,609	....	....	....	99	953	1,052	20	252	272	2,070	14,863	16,933
Office Education	302	3,305	3,607	139	627	766	816	2,426	3,242	13	193	206	1,270	6,551	7,821
Technical Education	....	....	....	1,004	119	1,123	3,947	509	4,456	....	....	....	4,951	628	5,579
Trades and Industry	1,258	260	1,518	533	18	551	5,254	1,247	6,501	93	219	312	7,138	1,744	8,882
TOTAL	4,984	18,081	23,065	2,139	1,519	3,658	13,622	6,818	20,440	154	1,088	1,242	20,899	27,506	48,405

MOHAVE COUNTY

GEOGRAPHIC DESCRIPTION

Mohave County is the second largest county in Arizona. Its total area encompasses 13,403 square miles of which 176 square miles is covered by water, supplying the county with an estimated 1,000 miles of shoreline on navigable rivers and lakes. The county is bordered on the north and the west by the states of California, Nevada, and Utah; and three lakes, Havasu, Mohave, and Mead, help make up the western borders along the Colorado River. Elevation ranges from 500 to 8,000 feet, with most of the terrain classified as desert. The higher areas of the county, however, are covered by vegetation types, characterized by scrub oak and piñon pine, and ponderosa pine in the higher levels.

The climate of Mohave County is generally arid. Kingman, at an elevation of 3,345 feet, has an average maximum temperature of 76° and an annual minimum temperature of 46°. Humidity is low, and precipitation averages about 11 inches annually. The higher elevations of the county receive snow in the winter, and all of Mohave County, like most of Arizona, is subject to wide climatic extremes. In Kingman, for example, the lowest daily minimum temperature occurs in January (31°) and the highest daily average is in July (98°).

Kingman, the county seat, is the largest city in the county. Lake Havasu City and Bullhead City, the other major towns, are located on the Colorado River. Automobile is the primary means of transportation in Mohave County, for the most part. U.S. highways 66 and 93 crisscross the county. Both freight and passenger service on the Santa Fe Railroad are available at Kingman. Bus transportation is furnished by Greyhound, Continental Trailways, and the Las Vegas-Tonapah-Reno Stage. Regular airline service is maintained from Kingman and Lake Havasu City by scheduled flights to Phoenix, Las Vegas and Los Angeles. Local, intrastate and interstate trucking service is available.

ECONOMIC BACKGROUND

Historically, mining has formed the major base of Mohave County's economy. Mining towns rose virtually overnight and waned just as quickly as deposits of gold and silver were discovered and depleted. In the early 1960's, there began an interest in the copper-molybdenum deposits in the area. The Duval Corporation operates an open-pit mine at Ithaca Peak, north of Kingman. The Standard Copper Company is developing the Copper World Mine, an underground operation near Yucca, south of Kingman. The El Paso Mine has been completed and is in full operation as an

open-pit mine. Nonmetallic mining is being conducted to extract sand and gravel, stone and feldspar deposits.

The major agricultural pursuit in the county is the production of beef cattle. Sheep raising is also conducted, although on a much smaller scale. Crop production is limited, consisting primarily of feeder crops especially alfalfa.

The manufacturing industry is a relatively new influence on the county's economy. McCulloch Corporation opened the first production facility in Lake Havasu City and has announced plans to concentrate future expansion in that area. Ford Motor Company established an automotive proving ground near Yucca, Arizona, and also anticipates expansion. The Mid-West Wax Paper Company has established operations at the Kingman Airport.

In terms of employment, the largest sector in Mohave County is government, followed by trades and services, in support of a growing tourist industry.

ECONOMIC OUTLOOK

The outlook for Mohave County is generally one of continued growth with the growth at Lake Havasu City leading the way. Several new manufacturing plants are currently scheduled for Havasu City, and the services industry should continue to grow with the rapid increase in population.

The Kingman area should grow tremendously through next year due to the new Yucca, Duval, and El Paso Mines, Ford's expected expansion, General Cable, increased highway construction (an interchange system is being built on the north outskirts of town), a new 75-bed hospital, and a new dry cleaning plant. Tourism, Kingman's primary industry, could increase as the area becomes better known.

Bullhead City and its surrounding area should continue to grow. A large segment of Bullhead City's growth must be credited to part-time residents who establish houses and trailers along the Colorado River as recreational and holiday dwellings. Services is the primary industry, and this should grow as the area develops.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
MOHAVE COUNTY	7,736	25,110	224.6
Kingman	4,525	7,149	58.0

Lake Havasu City and surrounding area population is estimated at 5,290, while Mohave Valley North (including Bullhead City) has 5,181 inhabitants.[1]

The ethnic grouping of the population, taken from the July 1968 estimates, shows the following breakdown: white 90.9%, including 4.9% Spanish surname; nonwhite 9.1% including 8.2% Indian, 0.4% Negro and 0.4% Oriental.

The civilian labor force annual average for 1969 was 8,075, with a 3.4% unemployment rate.

The growth of the population and the labor force of the county is, for the most part, due to inmigration. Several factors contribute to this growth. The location of Mohave County places it within the Las Vegas and Southern California growth areas. The transcontinental transportation routes with their increasing traffic necessitate more facilities. The climate and physiographic attractions of the area are reasons for many to seek out the many possibilities in Mohave County.

MANPOWER REQUIREMENTS

The availability of trained and qualified workers in some occupational categories could be considered tight. Employers in the Southwest Mohave County area have experienced little difficulty in securing employees when job openings occur. The labor force is replenished constantly from workers who travel through on their way to California and Nevada and seek employment opportunities before traveling on. Hundreds of inquiries as to available job opportunities are received annually by the Arizona State Employment Service from people throughout the nation interested in Mohave County. The file of applicants actively seeking employment at the Kingman office of the Arizona State Employment Service averages over 200 monthly.

[1] Source: Mohave County Planning and Zoning Commission, January 1970.

MANPOWER PROBLEMS

Poverty conditions in Mohave County are probably disproportionately represented in the Indian population. Mohave County contains four Indian reservations on which approximately 800 Indians resided in 1967. Three tribes are represented, the Hualapai, Paiute, and Mohave. Employment opportunities on these reservations are extremely limited and Indian workers are forced to find employment off the reservations. Some areas of Mohave County are developing into poverty pockets. Older people have bought land and trailers to live in with limited income such as Social Security or small retirement incomes while the cost of living continues its upward climb.

MANPOWER PROGRAMS IN OPERATION

Manpower programs operating in Mohave County include: Operation Mainstream, Neighborhood Youth Corps, and Job Corps.

EDUCATION AND TRAINING OPPORTUNITIES

During the 1969-70 school year, Mohave County had 19 elementary schools with 5,076 pupils enrolled, and 3 high schools with 1,758 student enrollments.

Vocational education programs and enrollments are shown in the following table:

MOHAVE COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Distributive Education	9	12	21	....	....	....	....	....	....	....	....	....	9	12	21
Health	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Home Econ. Gainful	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Useful	6	487	493	....	....	....	....	....	....	....	....	....	6	487	493
Office Education	6	138	144	....	....	....	....	....	....	....	....	....	6	138	144
Technical Education	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Trades and Industry	30	1	31	....	....	....	1	....	1	....	....	....	31	1	32
TOTAL	51	638	689	....	....	....	1	....	1	....	....	....	52	638	690

NAVAJO COUNTY

GEOGRAPHIC DESCRIPTION

Navajo County, fifth largest county in Arizona, is located in the northeastern part of the state adjacent to the Utah state boundary. Navajo County's 9,915 square miles extend in a 50-mile wide stretch for approximately 225 miles. The Navajo, Hopi, and Apache Indian reservations constitute a large portion of the land area of the county. The Mogollon Rim divides the county into two distinct physiographic areas, the Colorado Plateau and a rugged mountainous area. The high plateau country in the northern part of Navajo County is arid and desert-like, abounding with mesas and smaller plateaus. The southern part of the county is a rugged mountainous area, heavily wooded with piñon, juniper, and ponderosa pine.

The climate of the region has extremes from limited rainfall in the northern half to heavy precipitation in the form of rain and snow in the southern mountain regions. In the northern part of the county, average annual precipitation ranges between 7 and 12 inches. During the winter months, average minimum temperatures range from 15° to 20° with maximum temperatures between 45° and 48°. Summertime average minimum temperatures range between 50° and 58° while average daily maximums reach 84° to 92°.

Approximately one third of Navajo County's population is located in a strip that is traversed by the Santa Fe Railway and U.S. Highway 66 (Interstate 40). This strip lies just below the Navajo and Hopi reservations and contains Winslow, the largest city in the county, and Holbrook, second largest city and the county seat. Other sizeable communities in Navajo County include Show Low, Snowflake, Pinetop, and Heber-Overgaard. There are also several smaller trading centers on the Indian reservations serving a rather widely dispersed Indian population.

ECONOMIC BACKGROUND

Historically, Navajo County's economy has been based on grazing, forest products, and transportation. During the past decade, however, there has been an increasing trend toward diversification of the county's economic base. The processing of forest products has expanded from primarily logging to include molding and millwork firms and a paper manufacturing plant. A garment manufacturing plant and development of tourist accommodations both on and off the Indian reservations, along with increased construction activity, have also been responsible for much of this diversification.

The current economy of Navajo County is relatively stable, with some seasonal effects due to weather. According to employment figures, the major industrial sectors of the economy are government, services, trade, manufacturing, and transportation. Three of these industries exhibit seasonality. Tourism along U.S. Highway 66 is more extensive during the summer months, and declines during the winter months, causing a subsequent decline in the services and trade industries. Manufacturing also exhibits a decline in employment during the winter months. This is because much of Navajo County's manufacturing, centered around wood products and logging activities which supply the mills with raw material, come to a halt during the winters. There is also some seasonality of employment in highway and railway maintenance, with substantial increases in the summer months.

Government employees are mostly federal, with the major agency employers being the U.S. Public Health Service, the Bureau of Indian Affairs, and the U.S. Forest Service. In 1967, 19.1% of the total personal income earnings for Navajo County was attributed to the Federal Government.

ECONOMIC OUTLOOK

Economic conditions of Navajo County can be expected to remain relatively stable for the next year. There are no major developments expected nor are there any major layoffs foreseen. There are plans by a major firm to locate an electronics assembly plant on the Hopi Indian Reservation in the near future, but this is still in the planning and negotiation stage. If and when completed, this plant will initially employ approximately 200 persons, mostly women.

Coal mining activity in the Black Mesa area south of Kayenta is expected to start in May or June 1970. The coal, strip-mined near Black Mesa, will be processed at a slurry preparation plant nearby and then pumped via the Black Mesa coal slurry pipeline across Arizona to the Mohave Power Project in Nevada. Coal production is expected to reach the equivalent of 200 carloads a day by June 1971. The strip-mining of the coal will be done with a minimum of manpower so mining employment is not expected to rise significantly.

U.S. Highway 66, which traverses Navajo County's populous strip, is in the process of being converted into Interstate 40 as part of the Federal Interstate Highway System. The majority of the highway is already converted within the county, with two important segments left to be converted —at Winslow and Holbrook. Currently, traffic is routed through these cities which results in much tourist activity. Upon completion of Interstate 40, both Winslow and Holbrook will be bypassed. There is much concern in these communities over the loss of tourist business due to the bypasses. Both communities, however, are beginning to take inventory of assets such as popular nearby tourist attractions, and are searching out other possibilities as well, with a view toward attracting motorists from the high-speed Interstate 40 into the communities.

Overall employment in Navajo County should continue its trend of slow overall growth. Manufacturing, services and trade employment should increase slightly more than other segments. Transportation employment should remain relatively stable along with finance and mining. The construction industry is dynamic, with resulting wide fluctuations in employment levels. When work begins on the Winslow and Holbrook bypasses, construction activity in the county should reach its zenith.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
NAVAJO COUNTY	37,994	45,941	20.9
Holbrook	3,438	4,715	37.1
Show Low	1,625	2,103	29.4
Snowflake	982	1,510	53.8
Winslow	8,862	7,982	—9.9
Taylor	—	888	—

According to 1968 estimates, the largest ethnic group in Navajo County is American Indian (49.3%), followed by Anglo (41.1%), Mexican American (7.1%), and Negro (1.9%).

The Navajo County labor force averaged 12,575 persons in 1969, with an average unemployment rate of 3.8%. Seasonal variations in the economic activity of Navajo County contribute substantially to variations in unemployment.

There is considerable movement by Indians to and from the reservation portions of the county. This internal migration involves Indians moving to cities such as Winslow or Holbrook for periods of time, and then returning to their traditional home, the reservation.

MANPOWER REQUIREMENTS

Demand for workers is highest during the summer and fall months in Navajo County. Most of the placements made by the Winslow office of the Arizona State Employment Service are in services, trade, and manufacturing. One half of the nonagricultural placements made by the Winslow office during Fiscal Year 1969 were for fire fighters or in private households. The sparsely settled areas of the county, especially the reservations, had a considerable surplus of low-skilled labor.

MANPOWER PROBLEMS

There is little data available concerning the number and type of disadvantaged workers in Navajo County. Much of this shortage of data is a result of varied political boundaries of the county and reservations. Lack of good roads and transportation prevents many persons on the reservations and outlying areas from seeking employment. Low educational levels or lack of English proficiency also keeps many persons from seeking employment especially on the reservation. The unemployment rate on the Navajo Reservation is very high.

MANPOWER PROGRAMS IN OPERATION

Manpower programs operating in Navajo County include: MDTA, Navajo CEP, Operation Mainstream, Neighborhood Youth Corps, and Job Corps.

EDUCATION AND TRAINING OPPORTUNITIES

Navajo County had 28 elementary schools and 6 high schools with enrollments of 8,508 and 3,196 respectively in the 1969-70 school year.

Vocational education programs and enrollments are shown in the following table:

NAVAJO COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	93	....	93	....	....	....	18	....	18	103	1	104	214	1	215
Distributive Education	67	72	139	....	....	....	....	....	....	....	....	....	67	72	139
Health	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Home Econ. Gainful	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Useful	9	664	673	....	....	....	....	....	....	....	....	....	9	664	673
Office Education	14	124	138	....	....	....	4	52	56	7	35	42	25	211	236
Technical Education	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Trades and Industry	64	....	64	....	....	....	1	....	1	....	....	....	65	....	65
TOTAL	247	860	1,107	....	....	....	23	52	75	110	36	146	380	948	1,328

PIMA COUNTY

GEOGRAPHIC DESCRIPTION

Pima County occupies 9,241 square miles of warm, sunny desert and pine-crested mountain ranges in the south-central section of Arizona. Elevation of Pima County varies from a low of 1,200 feet to the 9,185-foot peak, Mount Lemmon, in the Coronado National Forest near Tucson. Two cactus forests are within the county boundaries, the Organ Pipe Cactus National Monument and the Saguaro National Monument. Nearly all of the Papago Indian Reservation's 2.8 million acres are within the western portion of Pima County as are all of the San Xavier Reservation's 71 thousand acres, near Tucson.

Tucson, located on a mesa in the northeastern section of Pima County, is nucleus of the 400 square mile Greater Tucson Urban Area and of the Standard Metropolitan Statistical Area that includes all of Pima County. The county seat, Tucson is the home of the University of Arizona, Pima College, Davis-Monthan Air Force Base, Tucson International Airport, and the Arizona-Sonora Desert Museum. It is the center of Southern Arizona's agricultural, mining, commercial, tourism, and trade industries. Tucson's interstate transportation needs are served by highways, including Interstate Highways 10 and 19, by the Southern Pacific Transportation Company, by two interstate bus companies, by several major and feeder airlines and trucking companies, and by two pipeline companies.

A Model Cities area has been designated within the city of Tucson. The area, covering approximately five square miles, runs from Grant Road south to Silverlake Road, straddling the Santa Cruz River basin and Interstate Highway 10.

Ajo, located one hundred twenty miles to the west of Tucson, is the site of the New Cornelia Mile, a copper mining, milling and smelting operation of the Phelps Dodge Corporation.

Green Valley, twenty miles south of Tucson, is a growing retirement community.

ECONOMIC BACKGROUND

Pima County was the home of the Pima Indians, a peaceful agricultural tribe. Tucson was established as a military post, first by Mexicans and later by Americans, to house its early agricultural and trading interests and to protect citizens from raids by the Apaches. Tucson has continued as a trading center. The Southern Pacific Railroad added impetus to economic development as did Tucson's growing reputation as a health center. More recently, copper mining, defense-oriented manufacturing and increased tourism have con-

tributed to Tucson's growth. Since the founding of the University of Arizona in 1885, Tucson has become an educational and cultural center.

At the present time, government, including Davis-Monthan Air Force Base, University of Arizona, as well as federal, state and local facilities, continues to be Pima County's largest industry. Trade and services reflect Tucson's role as a trading nucleus and its growing magnetism for tourists, movie makers and students.

ECONOMIC OUTLOOK

General economic activity in Pima County has been healthy in the past year, and is expected to continue that way in the next fiscal year. Substantial progress has been made on construction projects of the Tucson Urban Renewal program in the downtown area and on a housing code enforcement project in Tucson's Menlo Park section. Final program proposals will be submitted in April with a request for Fiscal 1971 funding by the Tucson Model Cities staff. The NAB-JOBS program has begun working toward its target of placing 350 of Tucson's hard core unemployed in jobs by June of 1970. Pima College has begun extension service work in the county and will formally open its new Tucson campus in September 1970. Three Tucson hospitals plan to expand patient units, one adding a community mental health facility.

The nonagricultural sector of Pima County has shown healthy gains in several areas of employment, and has announced plans for growth. The Anaconda Company's Extractive Metallurgical Research Division will construct a pilot plant in Tucson to experiment with alternate copper smelting methods. Several outside firms will establish operations in Tucson in the coming year and will maintain assembly plants in Nogales, Sonora, under the Twin Cities concept. Planned employment increases due to mining activity and to the development of copper ores on the Papago Reservation in Pinal County, may positively affect the Pima County manpower situation in the next year.

Two private land developments, one near Ajo and one at Rio Rico in Santa Cruz County, are expected to have an effect on construction activity in the coming year, with contracts now being awarded primarily to Pima County firms. The recent sale of the Empire Ranch, on the Pima-Santa Cruz border, to land developers, will also likely bolster local construction employment in a few years. Construction activity at Pima County mine sites has decreased over the last year, but residential and commercial building continues to increase. A special development on the Papago Indian Reservation is the planned construction of 90 new homes in the next year.

Employment in retail and wholesale trade has made modest gains over the last year, with the opening of a large department store at a new site and with a lengthened work-week (Sunday openings). Continued modest growth is expected to continue in both the trade and service industries.

Government, the largest single employer in the county, has gained slowly over the last year. The Arizona Air National Guard installation at Tucson will become a permanent, full-time operation early in 1970. With the opening of Pima College and continuing expansion at the University of Arizona and of the general population, the employment of school personnel will continue to increase.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
PIMA COUNTY	265,660	344,904	29.8
South Tucson	7,004	5,350	—23.6
Tucson	212,892	258,303	21.3

In 1968 the percentage distribution of Pima County's population by ethnic group was: 93.4% white, including 17.2% with Spanish surnames; 3.3% Negro; 2.8% Indian; and less than 1.0% all other. Unlike many other major metropolitan areas throughout the nation, Tucson does not have a ring of incorporated suburban towns surrounding the central city. The county has a sparsely populated rural area with a few small villages in the outlying areas. Workers in the Tucson-Pima County labor market area are employed throughout the county and in adjacent counties, and travel to widely spread areas.

The Pima County civilian labor force rose to an average 117,200 persons in 1969, a 32.2% increase over the 1960 level, with an average unemploy-

ment rate of 3.1%. Employment growth was concentrated in the nonagricultural wage and salary sector. Agricultural employment declined from 1960 to the 1969 level of 1,800 workers.

Labor force participation rates of the Papagos were found to be dramatically lower than those of the United States, with an overall rate of participation at 30.3% of on-reservation Indians.

Similarly, data for the Model Cities area in Tucson, compiled in March of 1968, showed a labor force participation rate of 61.4%, compared to a national average for that time of 79.7%. The total civilian labor force in the Model Cities area was estimated at 3,972 at that time, with 850, or 21.4%, of the workers unemployed.

MANPOWER REQUIREMENTS

Demand of Tucson area employers for fully qualified workers in several skilled occupations has been sustained over the past year, as evidenced by job openings listed with the Arizona State Employment Service offices in Tucson. Opportunities in paramedical, clerical, mechanical maintenance and repair, sales, and food service occupations remain open as the service industries gain in importance in Tucson's economy. Expanding health services in the area will require increasing numbers of trained nurses, technicians, and semiprofessional workers. Increased emphasis on tourism in the Pima County area will sustain demand for food service and hotel workers. Sales workers will be needed in the rapidly growing trade and finance sectors, and growth in government will require clerical and teaching personnel.

Opportunities in the next year, as in the past years, will be greatest in areas involving considerable skill. The Pima County labor market is such that the supply of workers generally exceeds demand, much more so at lowest skill levels.

The Pima County unemployment level is decreasing as general labor market conditions here tighten. It is likely, that in the next year, with planned expansion of industrial and commercial activity, unemployment (as defined by traditional concepts) will continue to drop or will remain near its present low level.

Over a five-year period, growth factors in the economy indicate continuing high level employment demand. Model Cities activity over the long term should draw on the large pools of relatively unskilled, unemployed persons in that area, and perhaps on labor force dropouts and poor employed residents. One consideration that may in the long run adversely affect the Pima County labor market is the eventual withdrawal of defense contracts from Tucson area manufacturers, with decreases in Congressional defense appropriations.

MANPOWER PROBLEMS

A large proportion of Pima County employment is in the low-wage service and trade industries, in which there is a general excess supply of workers. In those areas, employment is highly sensitive to fluctuations in the overall economy and is subject to seasonality. The prevalence of part-time work in those sectors becomes problematical to the disadvantaged when that market potentially includes so many secondary wage-earners, such as the wives of university and Air Force personnel and university students. For other jobs, educational and skill requirements are more rigid, and competition with inmigrants, as well as with trained county residents is more severe. Training opportunities in the community are limited.

While the low and declining level of unemployment and other indicators point to continuing economic health for Pima County, the characteristics of two severely disadvantaged groups in the county, the Papago Indians and the Model Neighborhood residents of Tucson, define a dramatic cleft in the county's economic and social structure.

The labor force participation rates of both groups are considerably lower than national averages. Of the reasons given by those not in the labor force for not seeking employment, family responsibilities and lack of child care, and ill health or disability were given by many Papagos and Model Cities residents.

Among the employed persons in the two disadvantaged groups, their occupational experience was highly concentrated in the services industry, with large numbers of private household workers in both groups. Among the Papagos, one-third of the employed persons did agricultural work.

Data on educational attainment show that nearly three-quarters of Model Cities residents and approximately 80% of the Papagos have not completed high school. Many Model Cities residents

have indicated willingness to enroll in training programs, and a fifth of the residents outside the labor force are already undergoing some type of schooling or training. Among the Papagos, less than one-tenth of those outside the labor force are in school or training.

Many other groups of persons in Pima County, for whom only limited descriptive data are available, are among the disadvantaged. Pima County's youth population, which has grown considerably in the '60's, is subject to manpower problems because of a lack of training or marketable skills, draft eligibility, and the competition among entry-level, low-skill workers. Older residents, also representing a growing proportion of the county's population, face manpower problems comparable to those of youth: competition, unwillingness of employers to hire and train older workers, and health problems (among many older workers who have migrated to this area).

Veterans returning to Pima County face problems of matching their skills with those demanded by local employers in the selective labor market. Approximately 5,000 veteran applications are expected to be processed by Employment Service offices in Tucson in Fiscal Year 1971.

The rural population of Pima County, according to 1960 census data, had lower family and individual incomes and a nonwhite proportion double that of the entire county. Work being done now by adult education and community action programs in the county has illuminated needs in areas of basic education and training in English as a second language. The rural poor, like the Papago Indians, are geographically separated from the bulk of manpower services, and the county's public transportation system, like that of the city of Tucson, is inadequate.

MANPOWER PROGRAMS IN OPERATION

There are many manpower programs operating in Pima County, including the following: Adult Basic Education, Job Corps, MDTA, On-the-Job Training, Migrant Opportunity Program, Model Cities, Neighborhood Youth Corps, Operation Mainstream, Work Incentive Program.

EDUCATION AND TRAINING OPPORTUNITIES

Pima County had 111 elementary schools with 59,825 pupils enrolled, and 15 high schools with 25,336 student enrollments in the 1969-70 school year.

Vocational education programs and enrollments are shown in the table below.

In the 1969-70 school year the University of Arizona at Tucson had a first semester enrollment of 24,726.

Opening in the fall of 1970 is Pima College, a part of the state junior college system.

There are also a number of private schools serving the Tucson area.

PIMA COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	159	24	183	....	....	....	17	7	24	3	37	40	179	68	247
Distributive Education	179	402	581	....	....	....	1,465	650	2,115	43	55	98	1,687	1,107	2,794
Health	4	35	39	38	118	156	21	378	399	4	120	124	67	651	718
Home Econ.															
Gainful	23	105	128	....	....	....	....	2	2	25	144	169	48	251	299
Useful	143	2,724	2,867	....	....	....	4	371	375	....	....	....	147	3,095	3,242
Office Education	82	761	843	1	7	8	71	572	643	38	439	477	192	1,779	1,971
Technical Education	....	....	....	....	....	....	151	37	188	6	....	6	157	37	194
Trades and Industry	347	74	421	2	2	4	1,163	81	1,244	196	134	330	1,708	291	1,999
TOTAL	937	4,125	5,062	41	127	168	2,892	2,098	4,990	315	929	1,244	4,185	7,279	11,464

PINAL COUNTY

GEOGRAPHIC DESCRIPTION

Pinal County is located in the south-central portion of Arizona. It covers an area of 5,394 square miles, ranking tenth among Arizona's 14 counties. The county is divided into two parts by its geography and economy. The eastern region, approximately one third the area, is characterized by mountains. Its northern reaches contain the famed Superstition Mountains. The southern edge includes the northern tip of the Santa Catalina Mountains. Elevations in the region range from 2,000 feet in the valleys to peaks of more than 6,000 feet. The western region is principally low desert valleys, averaging 1,400-1,600 feet above sea level, amid low mountains.

The temperature varies from a summer range of 71° to 105° and a winter range of 35° to 68°. Average annual rainfall approximates eight to ten inches in the western region and up to 18 inches in the eastern region.

Of Arizona's 19 Indian reservations, four lie at least partially within Pinal County—the Maricopa Reservation is wholly included, most of the Gila River Reservation, part of the Papago Reservation, and only a little of the San Carlos Reservation. The county straddles the route of communication between Arizona's two major cities, Phoenix and Tucson. The two cities rank high among the nation's population growth centers. Interstate Highways 8 and 10 are planned for juncture near the county's largest city, Casa Grande. Only 26.7% of the land in Pinal County is privately owned; the rest is either federally owned (20.3%), state owned (35.6%) or Indian reservations (17.4%).

ECONOMIC BACKGROUND

Early Pinal County centered around mining and desert ranching. With the completion of Coolidge Dam and the drilling of irrigation wells, agriculture began. Because of the lowering water table, increased water costs, and low farm prices, agricultural acreage decreased in 1968. Mining during this same period shifted from underground shaft to the open pit type in the Ray-Sonora area. Recent discovery of a valuable copper deposit on Pima Indian land south of Casa Grande will maintain the level of Pinal County mineral production. Thus, mining and agriculture have been the mainstay of industrial employment in Pinal County. Trade, services and government have been contributing sectors. After an effort by civic leaders to broaden the economic base, manufacturing facilities have appeared in Coolidge, Eloy and Casa Grande.

ECONOMIC OUTLOOK

Anticipated growth over the next five years is expected to follow the pattern established since 1960 in Pinal County. This is a steady moderate growth that is expected to be led by the manufacturing sector. Community leadership efforts have provided the impetus for improved economic gains in Pinal County. Industrial parks located within the western population centers provide the base for the growth of industry. Recent decisions enabling Indian Reservation lands to be leased for up to 99 years have removed the obstacle to suburban development.

The growth trend of Phoenix and Tucson toward a megalopolis can be expected to insure further development of the Phoenix-Tucson corridor. Mining of copper and iron ore in the next five years appears to be on a strong upward trend because of recent ore deposit discoveries in southwestern Pinal County. Employment opportunities will develop with expansion of mining. Continuing scientific developments, which enable extraction of ore from materials that were once waste products, not only aid in conservation of natural resources but also assure the importance of mining as a major industry for the foreseeable future.

Agricultural employment has decreased due to increased mechanization, automation, and technology. The trend has been for fewer seasonal workers and for more skilled workers. Government employment is expected to increase only moderately. Generally the economic outlook is one of optimism.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
PINAL COUNTY	62,673	67,876	8.3
Casa Grande	8,311	10,414	25.3
Coolidge	4,990	5,196	4.1
Eloy	4,899	5,357	9.3
Florence	2,143	3,165	1.0
Kearny	902	2,613	189.6
Mammoth	1,913	1,914	0.2
San Manuel	4,524	NA	—
Superior	4,875	NA	—

In 1968 the ethnic breakdown in Pinal County was 85.1% white (including 29.2% Spanish surnamed), 8.8% Indian and 5.8% Negro. There is a much higher percentage of Mexican Americans in Pinal County than there is in the state as a whole (15% statewide), and also the percentage of Negro persons is higher (3.4% statewide). Many of these persons in minority groups are classified as disadvantaged because of low income, education and lack of skills training.

The civilian labor force in Pinal County averaged 22,300 persons during 1969, with an unemployment rate of 2.6%. The pattern of migration of out-of-school youth from rural counties has prevailed in Pinal County. The outmigration of youth should decline as new employment opportunities increase.

MANPOWER REQUIREMENTS

Some shortages of labor do exist in Pinal County, but generally these shortages are found in skill trade mechanics, bench workers, carpenters, electricians, plumbers, professional workers and higher skilled clerical workers. Industrial development and new mining expansion in western Pinal County will create more shortages of skilled workers in the future.

Of those persons seeking work, most are disadvantaged, either unskilled or low skilled. Many lack basic education in English.

MANPOWER PROBLEMS

Areas of hard core unemployment exist on the Gila River and Papago reservations because of lack of skills and cultural adaptation to the socioeconomic patterns of the white society. The problem of adaptation is greater among the Papago Indians than among the Pimas of the Gila River. The Pimas have become good farmers and operate Indian lands to a great measure under tribal administration.

The Negro minority group is another major source of disadvantaged workers. Efforts of training facilities in Pinal County are designed to help train people to meet the advances of mechanization through employment in skilled or semiskilled jobs on farms or in the mines. With 13.4% of the population dependent on surplus commodities, it is evident that unemployment and/or underemployment is a drag on economic growth.

MANPOWER PROGRAMS IN OPERATION

Manpower programs operating in Pinal County include: MDTA, WIN, Operation Mainstream, Neighborhood Youth Corps, and Job Corps.

EDUCATION AND TRAINING OPPORTUNITIES

Pinal County's 37 elementary schools enrolled 15,241 pupils, and the 9 high schools enrolled 5,162 students in the 1969-70 school year.

Established in 1968, Central Arizona College, part of Arizona's junior college system, had an enrollment of 2,070 in the fall of 1969. Along with its regular academic curriculum, it provides basic adult education, and stresses vocational education.

Vocational education programs and enrollments are shown in the table below.

Central Arizona College also operates the Community Skill Center on the Gila River Reservation which opened in 1970, primarily to train Pima Indians.

Arizona Job College, also opened in 1970, is a new concept to help disadvantaged persons by providing education to whole family units.

PINAL COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	353	9	362	24	....	24	4	1	5	1	....	1	382	10	392
Distributive Education	2	....	2	45	7	52	9	....	9	....	....	....	56	7	63
Health	....	....	....	....	12	12	....	14	14	....	....	....	....	26	26
Home Econ. Gainful	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Useful	129	1,718	1,847	....	....	....	....	10	10	....	....	....	129	1,728	1,857
Office Education	28	289	317	29	61	90	11	39	50	....	22	22	68	411	479
Technical Education	14	....	14	185	1	186	291	20	311	50	....	50	540	21	561
Trades and Industry	81	2	83	....	....	....	5	221	226	....	....	....	86	223	309
TOTAL	607	2,018	2,625	283	81	364	320	305	625	51	22	73	1,261	2,426	3,687

SANTA CRUZ COUNTY

GEOGRAPHIC DESCRIPTION

Santa Cruz County, Arizona's smallest, covers 1,246 square miles in the south-central section of the border area joining Arizona and Sonora, Mexico. Towering mountain ranges of the Coronado National Forest surround the verdant valley through which the Santa Cruz River flows from south to north. More than half of the land is federally owned, nearly 8% state owned, and less than 40% privately owned.

More than half of the area is classified as forest terrain, mostly scrub oak and mesquite, with tall pines growing at the higher elevations. Climate, as throughout Arizona, is governed more by altitude than by latitude, and is one of Santa Cruz County's prime assets. Elevations range from 3,000 feet in the valleys to Mt. Wrightson's 9,452-foot peak, the fourth highest in Arizona. Average temperature ranges from 31° to 65° in winter, and from 62° to 94° in summer. Rainfall averages about sixteen inches annually, augmented by considerable irrigation in the river valleys.

Nogales, the county seat, is the Arizona component of "Ambos (both) Nogales" separated from its twin, Nogales, Sonora, by the international boundary line between the United States and Mexico, but linked by centuries of commercial, religious, and cultural ties.

Patagonia, the only other incorporated town in Santa Cruz County, serves as a trading center for the mining and ranching back-country, and has been viewed by millions of movie and television fans as background for many major scenes taken on location in the area. Some of the finest cattle ranches in the Southwest are located in the area.

Other towns, small in size but rich in historical lore, include Tubac, Amado, Sonoita, Elgin, Canelo, Lochiel, Washington Camp, Harshaw, Parker Canyon, Pena Blanca, Ruby, and Oro Blanco. Tumacacori National Monument at Carmen, a Spanish mission founded by Father Kino, was visited by 63,000 persons in 1968.

Excellent highways and air routes make this tiny county truly a major gateway between the United States and Mexico, and the Southern Pacific Transportation Co. which terminates at Nogales connects with Ferrocarril del Pacifico to form a major rail link with Mexico.

ECONOMIC BACKGROUND

Much of Arizona's early history centers in Santa Cruz County, including the early Spanish missions, Spanish silver mines, and resting stations for California "gold rush" immigrants. Tubac was the earliest white settlement in Santa Cruz County and may have been the earliest in Arizona.

Border trade is the heart of Nogales' economy, while agriculture, mostly cattle growing, is the principal activity for the rest of the county. Nogales is the second largest Mexican-American port of entry; in 1968 more than nine million people passed through its international gateways, with over 115,000 traveling to interior Mexico. Some merchants on the American side estimate that as much as 90% of their trade is from south of the border. Nogales is the distribution point for an increasing volume of produce shipped annually from the west coast of Mexico to the United States and Canada. Recently, manufacturing plants have sprung up in Nogales, Sonora, under the "Twin City" concept. This concept permits U.S. manufacturers to ship materials to Nogales, Sonora, duty-free, to be made into parts and components which are returned to the U.S. plants for final assembly. Duty on the return shipment to the U.S. is only on the added value contributed by labor. More than 1,500 Sonorans were employed in such plants by the end of 1969. This development has had a significant impact on border trade, labor availability, and wage patterns of Ambos Nogales. Trade is the most significant factor of the economy; however, the economy is becoming more diversified.

ECONOMIC OUTLOOK

The economy of the area is dominated by wholesale and retail trade, with an estimated 80% to 90% of the total business involving international transactions with Mexico. Retail sales for 1968 totaled $33,266,000. Nogales serves as the distribution point for an increasing volume of produce grown along the fertile gulf coast of Mexico for United States and Canadian markets, and for export of manufactured goods to Mexico.

Any change in current tariff legislation charging duty only on added value of manufacturing processes would be seriously detrimental to the "Twin Cities" firms and to the prospects of encouraging new industries to establish plants on both sides of the border.

Tourism continues to be a significant sector of the economy, not only for its effect on retail trade but also for its impact on service industries, including motels and restaurants. Three new motels are in the planning stage.

Factors of current and great potential impact on the economy are steady growth of the Twin Cities Program, with manufacturing establishments located on both sides of the border; continuing development and promotion of Rio Rico, a planned residential, recreational and resort community encompassing 55,000 acres of the former Baca Float Ranch; and plans for a similar development on the former Empire Ranch near Sonoita.

Considerable construction activity is in progress or planned, but most of the larger contracts are awarded to out-of-county firms. In addition to 100 units of low-rent housing financed by the Department of Housing and Urban Development (HUD), new or planned construction includes several produce warehouses, an auto agency, an observatory, two shopping centers, a realty office, a new telephone company plant, a bank, a neighborhood facility to house community service agencies, a hotel, model homes, townhouses and sewer system at Rio Rico, and over 115 single residences, plus a 300-unit mobile home park.

Mineral production, once a leading factor in the area economy, has steadily decreased in importance, with only small quantities of sand and gravel, silver, stone, and lead being produced in 1968.

Agriculture plays a minor but important part in the economy, with 2,342 acres devoted to grains, alfalfa, cotton, pecans, and lettuce crops, and some of the finest ranches in the Southwest raising herds of specially bred cattle.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
SANTA CRUZ COUNTY	10,808	13,656	26.4
Nogales	7,286	8,949	22.8
Patagonia	540	631	16.9

The civilian labor force averaged 5,325 in 1969, with an unemployment rate of 4.7%.

Industrial composition of the labor force has changed considerably since 1960, with notable gains registered in trade, services, finance and government. Decreases have occurred in mining and in construction—this is in spite of the increased construction activity in the county, contracted primarily by out-of-area firms. Until 1969,

gains in employment had not kept pace with increases in population, resulting in a 53.8% increase in unemployment since 1960. Currently, however, this trend has reversed, due primarily to increases in trade.

U.S. Manpower Administration calculations showed a 6.6% unemployment rate for Nogales in the spring of 1969, resulting in its designation as an "area of substantial unemployment," the first time Nogales has been so classified. Contributing to the unemployment problem are an indeterminant number of resident aliens, "green card holders," who commute from their homes in Nogales, Sonora, to jobs in the U.S. but are ineligible for unemployment compensation because they reside outside the U.S. While no accurate count exists, an estimated 1,500 to 2,000 workers enter Nogales, Arizona daily. Most of them attained resident alien status prior to three years ago when a requirement was established permitting them to work in the U.S. and live in Mexico only if it can be shown that they will not deprive a U.S. resident of a job.

While this situation occurs in other border areas, Ambos Nogales are unique in that the Sonora population—and labor force—is estimated to be five times that of the Arizona city, creating an unusually competitive work force and depressing wage rates accordingly. The fact that United States dollars paid to workers living in Mexico most often return in exchange for U.S. goods and services does not greatly alleviate the effect on the U.S. resident who must compete for low-paying jobs while meeting U.S. inflated living costs.

MANPOWER REQUIREMENTS

Field interviews with local employers indicate prospects of a continuing demand for fully qualified workers, particularly in the clerical, service, and automotive occupations. Frequently mentioned were bookkeepers, bilingual stenographers, cooks, waitresses, auto mechanics, and truck drivers. Demand for these occupations should continue strong in line with current and planned expansion of trade and services industries in the area. Intensive job development may be needed to place less than fully qualified disadvantaged workers, except during the peak vegetable season when most able-bodied workers can find employment in the produce warehouses.

By far the majority of all job applicants, 91%, are Mexican-American, indicating that the need for manpower services is essentially severe among this group.

Unemployment in Santa Cruz County is highly cyclical, due to dependence on the seasonal produce industry. Compounding the problem is the fact that applicant skills do not match employer requirements—and too few opportunities exist for upgrading skills to an acceptable level.

Nogales is "caught in the middle" between higher wage rates to the north, and lower rates below the border. This serves to entice better-qualified workers to seek jobs in Tucson or Phoenix while the less-skilled are drawn across the border to fill Nogales jobs.

Those Ambos Nogales firms that require higher skills and training have been forced to recruit workers from outside the local area, indicating the need to raise the educational and skill levels of local residents if they are to take advantage of opportunities that do exist.

MANPOWER PROBLEMS

Major barriers to employment of the disadvantaged in Santa Cruz County are closely related to the unique nature of this border economy: 1) a vast labor pool, mostly unskilled, on the Mexican side; 2) resultant competition for available job openings on the Arizona side; 3) dependence on seasonal industry for the bulk of low-skilled jobs; and 4) lack of sufficient manufacturing activity to provide additional jobs.

In addition, the generally low educational and skill level, and the lack of fluency in English and/or Spanish prevent many workers from obtaining any but the lowest-paid jobs.

In July, 1969, the Santa Cruz County Economic Development Committee submitted an **Overall Economic Development Plan** (OEDP) and requested formal designation as a Redevelopment Area under the Public Works and Economic Development Act of 1965, as one of the first steps in the development and utilization of the human and economic resources of Santa Cruz County. A separate organization, Border Industrial Development Corporation, has been formed to encourage and assist manufacturing firms to locate in the area.

Ambos (both) Nogales, the twin cities on either side of the Mexico-United States border, have strong ties of culture, language, and religion—but divergent economies, laws, and levels of living, plus uniquely unbalanced ratios of populations and labor pools. Nogales, Sonora is nearly six times as large as Nogales, Arizona. Effects on area manpower problems are significant:

The two economies are highly interdependent.

Wage levels are depressed on the Arizona side by the availability and daily influx of hundreds of workers from the Mexican side.

Unemployment is severe during the summer months.

The vast available labor pool lessens the incentive to prepare Santa Cruz youth for meaningful employment, and to make adequate provision for absorbing the disadvantaged into the mainstream of the work force and to upgrade their skills to a competitive level. Subsidiary effects are the tendency of young men to leave the area for training or jobs, and of young women to marry outsiders.

Although the prospects of continuing construction activity in the area are excellent, little has been done to encourage youth to enter this highly lucrative field through apprenticeships. Recent federal regulations make it difficult for local construction firms to qualify competitively for federally aided construction projects.

MANPOWER PROGRAMS IN OPERATION

Manpower programs operating in Santa Cruz County include: MDTA, Operation Mainstream, Neighborhood Youth Corps, and Job Corps.

EDUCATION AND TRAINING OPPORTUNITIES

Santa Cruz County had 10 elementary schools, enrolling 3,301 pupils, and 3 high schools, enrolling 1,157 students, in the 1969-70 school year.

Vocational education programs and enrollments are shown in the following table:

SANTA CRUZ COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Distributive Education	19	34	53	....	....	....	....	....	....	1	5	6	20	39	59
Health	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Home Econ. Gainful	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Useful	4	19	23	....	....	....	....	....	....	....	....	....	4	19	23
Office Education	4	92	96	....	....	....	....	....	....	....	....	....	4	92	96
Technical Education	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Trades and Industry	....	....	....	....	....	....	....	....	....	....	18	18	....	18	18
TOTAL	27	145	172	....	....	....	....	....	....	1	23	24	28	168	196

YAVAPAI COUNTY

GEOGRAPHIC DESCRIPTION

Yavapai County, encompassing 8,095 square miles, lies in the center of a 100-mile strip of ponderosa pine forests which crosses Arizona from the northwest corner to the eastern border. Prescott National Forest, Coconino, and Tonto National forests encompass nearly one half of the county. The terrain in Yavapai County varies from 1,900 feet elevation to 8,000 feet. Rainfall varies from 10 to 13 inches annually in the lower areas and 12 to 19 inches in the higher elevations. Temperatures range from 65° to 95° in the summer and 22° to 53° in winter.

Eastern Yavapai County includes the Varde Valley under the Mogollon Rim, and the western edge of the county extends into the desert area of southwest Arizona. Redrock country is a part of the Verde Valley lying at the mouth of Oak Creek Canyon in northeastern Yavapai County.

Prescott, the county seat, is located in the mountain area and is the hub of the industrial area. In early years Prescott was the center of gold mining activity and one of the most productive areas of the Southwest. In the Verde Valley are the towns of Clarkdale, Cottonwood and Camp Verde.

Two other communities are Jerome and Yarnell. Jerome overlooks the Verde Valley and used to be one of the two largest cities in Arizona; however, with the closing of the Little Daisey Mine on Cleopatra Mountain, it is now a ghost town attracting more than 30,000 visitors a year. Yarnell lies in southwest Yavapai County ("where the mountains meet the desert") and has a climate famous for the relief of asthma, sinus, hay fever, and arthritis.

Transportation in Yavapai County is provided by a network of major highways, air travel and railroads. The main line of the Santa Fe Railroad runs east and west with a major line connecting Ash Fork and the Southern Pacific at Phoenix. Air West Airlines provides service to Prescott. Several small towns have landing strips for smaller craft. Daily trucking is available throughout the county, and bus transportation plays an important role for cities and communities on major highways. In Prescott, Prescott-Whipple Stage operates local bus facilities. Leading highways, Routes 69, 79, 89, 93, and 66, traverse the county.

ECONOMIC BACKGROUND

Mining, ranching and governmental activities have provided the economic base for Yavapai County ever since Fort Whipple was established to protect settlers from Indian attacks.

Copper replaced gold at the turn of the century as the chief mineral mined in the county. Millions of dollars were taken from such copper mines as United Verde, now Phelps Dodge Corporation, and Little Daisey at Jerome. Mining is still an important factor in the economy, although decreasing in recent years. Mineral production amounts to $31 million annually. The range cattle industry has had a lasting effect on the economy, providing income and livelihood for many small communities. The first cattle were brought into Yavapai County in 1864, but continued to be of poor grade until the 1930's when cowmen started breeding Herefords which led to rapid improvement. The Barzona breed was developed in Yavapai; it is essentially a beef animal able to withstand both high and low temperatures well.

ECONOMIC OUTLOOK

Ranching is an important sector of the economy, encompassing 3.5 million acres of land and averaging 7,600 acres per ranch. Field crops, alfalfa, corn, small grains, vegetables and fruits are harvested from approximately 8,250 acres. Yavapai County is known as the Horse Capital of Arizona. There are registered breeders of quarter horses, thoroughbreds, Appaloosas, Arabians, Shetlands and pintos.

Agriculture continues as the leading segment of the economy, with beef cattle production the principal source of agricultural income in the county.

Mining, originally the county's number one industry, has declined over the years, but it still provides a vital boost to the county and currently ranks as Yavapai's number two industry.

Retail trade and services are the third largest sector of Yavapai's economy. In terms of number of people employed, this sector ranks first in the county, and as the area increases in popularity for retirement and tourism, it can be expected to increase. Besides natural attractions mentioned, there are several historic Indian ruins, and fishing areas which include a dozen species of fish. There are 18 recreational sites to accommodate hunters, picnickers and campers. Thus, tourists, resort guests and summer residents account for the importance of the service industry.

There are several manufacturing facilities located in Yavapai County including Morris Maler, Airborn Navigation, Aquarium Pump, U.S. Electrical Motors, Southwest Forest Industries, Century Die, Phoenix Division of American Cement Corporation, Airlock Manufacturing Company, and Quality Plastics. Penn-Mor Manufacturing (a garment factory) opened in Cottonwood and expects to employ 200 persons in the needle trades. The manufacturing sector is now the fastest growing segment of the county's economy, having doubled since 1964.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
YAVAPAI COUNTY..	28,912	35,869	24.1
Clarkdale	1,095	824	—24.7
Cottonwood	2,120	2,628	24.0
Jerome	243	248	2.1
Prescott	12,861	12,944	0.6

Other communities and their estimated populations are: Bagdad, 1,500; Camp Verde, 1,200; and Yarnell, 900.

According to 1968 estimates, the percentage distribution of the county's population is as follows: 95.0% white, including 9.6% with Spanish surnames; 3.8% Indian; and slightly less than 1.0% Negro.

Yavapai County had an annual average civilian labor force of 9,350 in 1969, with an average unemployment rate of 4.3%. The spring and summer unemployment is lower because of employment in the trades and services industries to serve the great numbers of tourists and summer settlers.

MANPOWER REQUIREMENTS

The greatest demand in Yavapai County is for services personnel. The most anticipated job opportunities during the next year are the needle trades for the garment factory in Cottonwood; electric motor technicians and assemblers for the U.S. Electric Motors. Arizona State Employment Service reports an occupational surplus of construction workers in the Prescott-Verde area. The current unemployment situation consists of the above-mentioned pool of construction tradesmen; service type workers who are seasonally unem-

ployed; and a group of "hard-core" unemployed, the largest percentage of which are Indians in the Middle Verde Valley area. The county has a large percentage of retired people and others who are not in the labor force. Census data shows that 51% of the population 14-years and older are not in the labor force.

MANPOWER PROBLEMS

The disadvantaged in Yavapai County consists mainly of Indians, and the disadvantaged sector is very small. Most of the Indians are agriculturally employed on their own land in the Verde Valley area. Most of the Negro and Mexican-American population moved into Yavapai County with a stable background and some sort of skill. There is a small group of Mexican-Americans in the Prescott area who could be classified as disadvantaged. Their group is very small, and the most promising areas where they could be employed would be the new garment factory or in the services industry.

MANPOWER PROGRAMS IN OPERATION

Manpower programs operating in Yavapai County include: MDTA, Operation Mainstream, Neighborhood Youth Corps, and Job Corps.

EDUCATION AND TRAINING OPPORTUNITIES

Yavapai County had 32 elementary schools and 7 high schools with enrollments of 6,180 and 2,740 respectively in the 1969-70 school year.

Vocational education programs and enrollments are shown in the table below.

There are two institutions of higher learning in the county. Prescott College, a four-year private liberal arts college, has been operating since 1966, and Yavapai Junior College opened in the fall of 1969 with 801 students.

YAVAPAI COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	117	7	124	....	....	....	1	....	1	11	....	11	129	7	136
Distributive Education	28	49	77	12	....	12	31	11	42	....	....	....	71	60	131
Health	....	....	....	....	16	16	....	....	....	....	2	2	....	18	18
Home Econ. Gainful	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Useful	6	315	321	....	....	....	....	....	....	....	....	....	6	315	321
Office Education	6	99	105	18	98	116	37	90	127	....	7	7	61	294	355
Technical Education	9	1	10	148	23	171	169	32	201	....	....	....	326	56	382
Trades and Industry	42	....	42	2	....	2	3	1	4	....	64	64	47	65	112
TOTAL	208	471	679	180	137	317	241	134	375	11	73	84	640	815	1,455

YUMA COUNTY

GEOGRAPHIC DESCRIPTION

Yuma is the most western county in Arizona. It is bordered on the west by California and on the south by Mexico. Yuma County's 10,020 square miles are predominantly desert interspersed with rugged mountains. However, there is an abundance of arable land in the valley regions.

The warm, dry climate provides an extended agricultural season and year-round recreation. Temperatures range from the upper 90's to the lower 100's from May through September, and from the low 40's to the middle 80's the rest of the year. The average annual temperature is 52° in the north and 60° in the south. Annual rainfall averages 4.8 inches in Parker and 3.0 inches in Yuma.

The city of Yuma is located in the southwest corner of the county. Due to the twisting of the Colorado River and the unusual placement of the United States-Mexican border, California lies to the north of Yuma and Mexico lies to the west. Most of the city is situated atop a mesa which extends south from the Arizona-California border. The fertile valleys which surround the mesa form the nucleus of the county's agricultural land.

Parker is located on the Colorado River in the northwestern corner of the county. Surrounded by the Colorado River Indian Reservation, the largest of five that border the Colorado River, Parker exemplifies the provincial Arizona community. Rugged mountains, desert surroundings, and fertile valleys provide a geographical setting common to the desert southwest.

Transportation facilities for the county are generally considered adequate. Two major U.S. highways, one in the north and one in the south, connect the county with principal metropolitan areas east and west. These highways provide routes for the six interstate and four intrastate transit companies, and the three bus lines which serve the county. Other transportation services include four regularly scheduled flights from Yuma International Airport, as well as charter service to other areas, and daily round-trip flights from Parker to cities north and east.

ECONOMIC BACKGROUND

The earliest economic development of the area which now comprises Yuma County was based on mining and trade. Colorado River crossings near the sites of present-day Yuma city and Parker attracted travelers and miners. As the West became more populated and mining along the Colorado less productive, agriculture superceded mining as a major source of income. During World War II and after, government employment rose to prominence with the establishment of military testing and training facilities.

Today, agriculture, military installations, tourism and light manufacturing form the economic base for Yuma County. Agriculture is by far the leading sector. Alfalfa, cotton, sorghums and citrus are the most important crops. Average annual agricultural employment was 9,225 in 1969, and farm income has been in excess of $75 million for the past five years. Two military installations contribute significantly to Yuma's well-being. Yuma Proving Ground, the world's largest military installation, located 30 miles northeast of Yuma, has an annual payroll over $9 million. The Marine Corps Air Station, outside of Yuma, adds an additional $13 million annually to the economy besides providing many civilian jobs. Tourism is another major source of income in the county. Although no recent estimates of income from tourism are available, large numbers of visitors come in the fall and winter months taking advantage of the mild climate and recreation. Service industries account for nearly 10% of total employment. Manufacturing, although limited, does play an important role in the economy, producing photo equipment, textiles and paper products.

ECONOMIC OUTLOOK

Economic indicators point to as steady a rate of economic growth as Yuma has experienced since 1960. Per capita effective buying income, bank deposits, and retail sales have shown continuous growth. Most sectors of the economy anticipate a moderate growth in employment or will remain stable.

The best prospects for future economic growth in Yuma County lie in the areas of trade, services, and manufacturing. Two of the three interstate highways which enter California from Arizona pass through this county. The temperate climate of Southern Arizona and the recreation facilities available along the Colorado River are attractive to tourists, many of whom remain throughout the winter months. Yuma will obtain additional manufacturing because of the availability of low-cost land, its strategic location relative to west coast markets, the trainability of its local labor force, and its ability to attract new workers. Construction; services; and finance, insurance and real estate will show steady growth in response to increases in tourism and manufacturing. Acreage devoted to agriculture will continue to increase as farms are crowded out of the expanding metropolitan areas of Arizona.

In addition, the existence of the "free trade" area, along the Mexican border, should give additional impetus. The growth of manufacturing in the county is paramount for achieving a high rate of economic growth. In addition to increasing employment and incomes, manufacturing will add much needed stability to the county's seasonal economic base.

MANPOWER SETTING

Population	1960 Census	1970 Census (Prelim.)	% Change 1960/70
YUMA COUNTY	46,235	60,148	30.1
Parker	1,642	1,919	16.9
Somerton	1,613	2,191	35.8
Yuma	23,974	28,835	20.3

The ethnic breakdown of the population, according to 1968 estimates, is as follows: white 92.2%, including 21.2% Spanish surnamed; Indian 3.8%; and Negro 3.4%. Since 1960 slightly more than half of the county's numerical increase has occurred in and around the city of Yuma. Many small communities along Interstate 10 have also experienced population booms. Development of recreation facilities along the Colorado River, low-cost retirement opportunities, and increased employment in trade and services have induced this growth.

The annual average labor force for 1969 was 26,850, with an unemployment rate of 3.6%. However, these figures are influenced to an unknown, but probably significant degree, by the number of Mexican citizens who work in the area but reside in Mexico. These persons are counted as part of the work force and tend to make the unemployment rate less than it would be if only U.S. citizens were considered.

MANPOWER REQUIREMENTS

The manpower supply of Yuma County is generally adequate to meet the demands of employers. Employment in trade, services and manufacturing provide a majority of new job opportunities in Yuma County. Tourists and temporary residents supplement local demands for trade and

service workers. A survey of manufacturing employers' job openings during the first nine months of 1969 revealed a total of 115 job openings, 16% of which were classed as hard to fill. Skilled workers in the machine sewing trades will continue to be needed. Expected new industries will also require workers to train for new jobs. A steady supply of openings for clerical workers will result from both expansion and replacement needs.

MANPOWER PROBLEMS

Yuma County's most pressing need is for additional opportunities for the poor population to obtain literacy and skill training in order to improve their occupational potentials. The county's proximity to the Mexican border makes it accessible to large numbers of low-skilled workers. Adequate training facilities are available; however, the need is for opportunities for more of the poor to take advantage of available training.

The only area in Yuma County that is termed a "poverty area" is the Cocopah Reservation near Somerton. Poor living conditions, low family incomes, and total lack of opportunity equivalency contribute to this situation.

MANPOWER PROGRAMS IN OPERATION

Yuma County manpower programs in operation include: MDTA, Operation Mainstream, Neighborhood Youth Corps, and Job Corps.

EDUCATION AND TRAINING OPPORTUNITIES

During the 1969-70 school year, Yuma County had 29 elementary schools, with 12,496 enrollments, and 5 high schools, with 4,641.

Higher education in the county is provided at Arizona Western College, part of Arizona's junior college system. Total enrollment for the fall of 1969 was 2,337. Besides having transferable courses, it offers a number of vocational courses.

Vocational education programs and enrollments are shown in the table below.

The skill center at the college trains all sewing machine operators employed by one of the clothing manufacturers in Yuma.

Public schools have an active outreach program to provide adult basic education.

YUMA COUNTY VOCATIONAL EDUCATION
1969-1970 Enrollment

	HIGH SCHOOL			JUNIOR COLLEGE			ADULT			SPECIAL NEEDS			SERVICE TOTALS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	272	31	303	64	3	67	38	4	42	....	....	....	374	38	412
Distributive Education	89	114	203	38	4	42	16	....	16	2	....	2	145	118	263
Health	1	12	13	1	55	56	....	41	41	....	15	15	2	123	125
Home Econ. Gainful	....	....	....	5	49	54	....	23	23	....	1	1	5	73	78
Home Econ. Useful	34	654	688	....	21	21	....	14	14	....	20	20	34	709	743
Office Education	....	56	56	2	57	59	31	56	87	....	2	2	33	171	204
Technical Education	....	1	1	268	43	311	86	35	121	1	....	1	355	79	434
Trades and Industry	185	45	230	91	8	99	173	43	216	....	94	94	449	190	639
TOTAL	581	913	1,494	469	240	709	344	216	560	3	132	165	1,397	1,501	2,898

STATISTICAL APPENDIX

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ARIZONA LABOR FORCE, EMPLOYMENT, AND UNEMPLOYMENT BY COUNTY

Annual Average 1968

FACTORS	Apache	Cochise	Coconino	Gila	Graham	Greenlee	Maricopa	Mohave	Navajo	Pima	Pinal	Santa Cruz	Yavapai	Yuma
Civilian Labor Force	8,450	20,325	18,675	8,500	4,075	3,800	346,800	6,575	11,975	109,400	21,450	5,275	9,500	26,125
Unemployment	550	675	775	375	225	150	10,200	300	600	4,300	675	300	450	1,050
Percent of Labor Force Actual	6.5	3.3	4.1	4.4	5.5	3.9	2.9	4.6	5.0	3.9	3.1	5.7	4.7	4.0
Employment Total	7,900	19,250	17,900	7,700	3,850	3,325	336,600	6,275	11,375	104,900	20,100	4,975	9,050	25,075
Nonagricultural Wage & Salary	6,775	14,700	15,400	6,575	2,575	2,625	281,400	5,325	9,675	89,700	13,075	4,150	7,250	13,800
Manufacturing	750	1,225	1,250	700	150	*	67,600	550	1,150	7,800	1,400	225	825	800
Nonmanufacturing	6,025	13,475	14,150	5,875	2,425	2,400	213,800	4,775	8,525	81,900	11,675	3,925	6,425	13,000
Mining and Quarrying	50	*	*	1,950	25	*	200	*	25	4,700	3,800	*	825	*
Contract Construction	150	300	950	100	100	*	15,200	450	375	7,000	975	200	250	725
Trans., Comm. & Pub. Util.	350	825	850	200	100	75	15,500	275	1,050	5,300	450	275	575	1,050
Trade	525	2,275	3,325	1,025	675	275	67,600	1,050	1,675	19,600	1,975	1,875	1,300	3,525
Finance, Ins. & Real Estate	50	*	*	125	75	*	17,900	*	275	3,700	475	*	300	*
Services	2,125	1,325	3,350	875	450	50	45,500	825	2,350	16,700	725	525	1,025	2,175
Government	2,775	6,600	5,350	1,600	1,000	450	51,900	1,475	2,775	24,900	3,275	775	2,150	4,975
All other Nonagricultural Employment**	825	2,350	2,300	925	375	400	39,000	750	1,400	13,500	1,925	625	1,100	2,175
Agriculture	300	2,200	200	200	900	300	16,200	200	300	1,700	5,100	200	700	9,100
Persons involved in Labor Mgt. Disputes	—	400	—	425	—	325	(Less than 50)	—	—	200	675	—	—	—

* Figures not for Publication.

** Includes self-employed, unpaid family workers, and domestics.

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ARIZONA LABOR FORCE, EMPLOYMENT, AND UNEMPLOYMENT BY COUNTY

Annual Average 1969

FACTORS	Apache	Cochise	Coconino	Gila	Graham	Greenlee	Maricopa	Mohave	Navajo	Pima	Pinal	Santa Cruz	Yavapai	Yuma
Civilian Labor Force	9,300	20,725	20,050	9,575	4,250	4,150	373,600	8,075	12,575	117,200	22,300	5,325	9,350	26,850
Unemployment	575	650	700	325	175	100	9,800	275	475	3,600	575	250	400	975
Percent of Labor Force Actual	6.2	3.1	3.5	3.4	4.1	2.4	2.6	3.4	3.8	3.1	2.6	4.7	4.3	3.6
Employment Total	8,725	20,075	19,350	9,250	4,075	4,050	363,700	7,800	12,100	113,600	21,725	5,075	8,950	25,875
Nonagricultural Wage & Salary	7,425	15,450	16,775	7,925	2,775	3,275	306,700	6,650	10,350	97,600	14,575	4,275	7,200	14,550
Manufacturing	875	1,425	1,400	975	150	*	74,400	800	1,275	8,200	1,500	225	950	925
Nonmanufacturing	6,550	14,025	15,375	6,950	2,625	3,000	232,300	5,850	9,075	89,400	13,075	4,050	6,250	13,625
Mining & Quarrying	75	*	*	2,400	75	*	200	*	50	5,500	5,000	*	675	*
Contract Construction	75	250	1,125	300	75	*	18,100	975	200	9,200	575	200	325	825
Trans., Comm. & Pub. Util.	225	825	875	250	100	75	16,400	300	1,100	5,500	500	275	550	1,000
Wholesale & Retail Trade	550	2,400	3,450	1,200	700	325	74,700	1,225	1,800	21,300	2,100	2,050	1,375	3,800
Finance, Ins. & Real Estate	100	*	*	125	75	*	19,900	*	250	4,000	450	*	300	*
Services & Miscellaneous	2,200	1,300	3,700	1,075	525	50	49,600	1,050	2,625	17,900	1,075	550	900	2,375
Government	3,225	6,900	5,875	1,600	1,075	450	53,400	1,550	3,050	26,000	3,375	800	2,125	5,050
All other Nonagricultural Employment**	1,000	2,750	2,375	1,125	400	475	41,200	950	1,450	14,200	2,075	600	1,050	2,100
Agriculture	300	2,375	200	200	900	300	15,800	200	300	1,800	5,075	200	700	9,225
Persons Involved in Labor Mgt. Disputes	0	0	0	0	0	0	100	0	0	0	0	0	0	0

* Figures not for Publication.

** Includes self-employed, unpaid family workers, and domestics.

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VT 012 494
Report of an Evaluation of the Vocational-Technical Program in South Dakota.

South Dakota State Advisory Council on Vocational and Technical Education, Pierre.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Aug70 141p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *STATE PROGRAMS; *PROGRAM EVALUATION; ADVISORY COMMITTEES; ANNUAL REPORTS; MANPOWER NEEDS; DISADVANTAGED GROUPS; PROGRAM IMPROVEMENT
IDENTIFIERS - SOUTH DAKOTA

ABSTRACT - This evaluation study was made to determine how well South Dakota has met its objectives in secondary, postsecondary, and adult vocational education, in terms of responding to manpower requirements and meeting the needs of the disadvantaged. Out of 49 objectives established for the 1969-70 school year, 28 were met. Recommendations are made for improvements in developing area schools, administering programs at the state level, and meeting educational objectives. (BH)

VT 012 494

ED0 57254

REPORT

of an

EVALUATION

of the

VOCATIONAL-TECHNICAL PROGRAM

in

SOUTH DAKOTA

Initiated By The

SOUTH DAKOTA ADVISORY COUNCIL

on

VOCATIONAL and TECHNICAL EDUCATION

VT012494

August, 1970

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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PREFACE

The evaluation of the Vocational-Technical program in South Dakota is in fulfillment of the contractual arrangement between the South Dakota State Advisory Council for Vocational-Technical Education and the Vocational Consultants as noted subsequently.

The results of this evaluation are presented with pleasure to the South Dakota Advisory Council and others interested in the development of this vital phase of educational endeavor and its far reaching effect on the local, State and National social and economic well being. The evaluative report for the 1969-70 School Year is the culmination of the efforts of many individuals and groups including the South Dakota State Advisory Council for Vocational-Technical Education, the State Vocational-Technical Education Staff, the State Industrial Development Bureau, the Guidance Division of the State Department of Education, the area Vocational-Technical School Administrators and others. Special Acknowledgement is given to Mr. E. B. Oleson, State Executive Director for Vocational-Technical Education, and his professional and non-professional staff for their assistance.

Sincere appreciation is extended by the Vocational Consultants to the following personnel for their efforts as evidenced by the time and energy devoted to this evaluation. Without their dedication and devotion to duty this evaluation would not have been possible:

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Vocational-Technical Consultants for Advisory
Committee, FY 1970 Evaluation Report
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RATIONALE, SCOPE AND BACKGROUND OF THE EVALUATION

Rationale

The 1968 Amendments to Public Law 90-576, Title I, Part A, Section 104-b (1) require that "Any State which desires to receive a grant . . . . shall establish a State advisory council . . . . which shall . . . . evaluate vocational educational programs, services and activities assisted under this title and publish and distribute the results thereof and (D) prepare and submit through the State board to the Commissioner and to the National Advisory Council an annual evaluation report."

The program of Vocational-Technical Education in South Dakota established objectives and goals for the 1969-70 School Year which were subsequently approved by the U. S. Office of Education. This evaluation report endeavors to show how well South Dakota has met these objectives and goals as identified in the 1969-70 South Dakota State Plan for Vocational-Technical Education. Appropriate recommendations were also made keeping in mind that improvement is a continual process resulting in better education for South Dakota residents.

The purpose of this evaluation study was to determine how well South Dakota has met the objectives set considering the need for vocational-technical education and training for the secondary, post-secondary, and adult levels in relation to manpower requirements. The training effort was directed also to meet the needs of the disadvantaged and handicapped population of the State.

The formal organization of the State Department of Vocational Education is important in obtaining the maximum use of funds for vocational-technical education. The members of the State Board of Education also serve as the State Board of Vocational-Technical Education. The Executive Director of Vocational-Technical Education reports directly to the State Board of Vocational-Technical Education. This office is separate from the office of the Department of Public Instruction. Reporting directly to the Executive Director is an Assistant Director, and the supervisors of the several vocational areas -- Agriculture, Business and Office Occupations, Distributive Education, Health Occupations, Home Economics, Technical Education, Trade and Industrial Education, and Manpower Development and Training.

Local Boards of Education, their Superintendents and Directors of Vocational Education are in direct line relationship to the State Executive Director of Vocational-Technical Education.

Five Area Vocational-Technical Centers or Schools have been built in areas of population large enough to support a program. The sixth Area Vocational School authorized under the state system has not been constructed pending further study as to location. One of the five schools is Southern State College which functions both as a Technical Institute and an Area Vocational-Technical School. These schools are beginning to have an influence on meeting the manpower needs of the state. Since the smaller school districts do not find it feasible to offer a variety of vocational offerings, the Area Vocational Schools provide greater breadth of training and benefit more students. In 1968-69, there were 1203 individual districts in South Dakota. This number was a reduction from 3295 school districts in the 1955-56 school year. In 1970, the number of districts was further reduced to 765. This reduction coupled with the Area Vocational-Technical Schools should provide a better total educational program for the State of South Dakota. Secondary, post-secondary, and adult students will find more opportunities to profit from the Vocational-technical training and education so vitally needed.

Scope and Background

Statistics for the 1969-70 School Year indicate there are 50,720 students enrolled in the South Dakota Secondary Schools. Of this number, approximately fifty (50) per cent will enroll in colleges and universities. This leaves approximately 25,000 youth who are in need of vocational-technical training and education. Of the 50,720 secondary school students, only 12,727* or 25 per cent are presently enrolled in vocational-technical education at various levels.

Since 25,000 students will not attend college and 12,727 are receiving training in saleable skills, the remaining 12,273 students will graduate without saleable skills, or college as a goal. Based on these factors, vocational-technical education in South Dakota could well double its present program if funds and facilities were made available.

Considering the large number of high school graduates who have not developed saleable skills and also the drop-outs from the secondary schools without such skills, a real need exists for post-secondary vocational-technical programs in South Dakota.

A study by L. M. Dunn of the U. S. Office of Education** indicates that 13.5 per cent of the school children K-12 in

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*South Dakota Schools Educational Directory - 1969-70.

**U.S.O.E. Projections, reported by L. M. Dunn, Exceptional Children in the School, 1963.

South Dakota are handicapped either socially, emotionally, or physically. Assuming that this handicapped percentage is equally spread throughout all grades, then South Dakota has some 6,739 students in grades 9-12 who need some form of special education. This is based on a 50,720 school enrollment grades 9-12 as reported by the State Department of Public Instruction 1969-70.

Further, it is estimated that there is a total of 112,794 disadvantaged and handicapped persons in 1970 in South Dakota who need occupational skill training to improve their social and economic status.

Prominent among South Dakota's disadvantaged population are the Indians residing on reservations or near reservations as evidenced by the following data presented in Bulletin Number 99, Business Research Bureau, School of Business, University of South Dakota, Vermillion, 1968: As of 1968, there were 33,904 or approximately six (6) per cent of the state's population who were Indians, 78 per cent of whom are in the "dependent" category. Less than one-quarter of the Indians are in the labor force with unemployment and underemployment being widespread. Farming and government works provide the most jobs. Only 296 Indians in mid 1968 were employed in manufacturing.

Over 79 per cent of all the State's Indians had incomes below the "poverty line." Per family incomes ranged from a low of $1,731 to a high of $2,572. This was from 23-31 per cent of the average family income for the State taken as a whole.

This situation exists despite large sums of money flowing into the State for the purpose of overcoming Indian poverty problems.

Indian educational achievement was found to be well below the national average of 10.6 years of schooling (12 for the whites, 9.0 years for negroes). The South Dakota Indian had finished 8.4 years with only 20 per cent holding a high school diploma as compared with 50 per cent for the whites and 27 per cent for the negroes. The Indian dropout rate was twice the national average occurring primarily at the end of the 8th grade or during the first year of high school. Poverty in the homes, language barriers, transportation, health, housing and lack of job opportunities which dampen educational incentive all contribute to the lower educational achievement of the Indian.

The major source of income for South Dakota resides in the agricultural sector. Twenty-three and eight-tenths (23.8) per

cent* of the total civilian work force is employed in agriculture, while 13.1 per cent* is engaged in retail sales occupations. The foregoing data indicate that South Dakota's economy is comprised primarily of agricultural and small business enterprises.

The trend of industrial development in South Dakota presently taking place emphasizes the need for additional education and vocational-technical training. It is evident that industry tends to locate where taxes are moderate; where skilled and semi-skilled workers are available in quantity; where water and transportation is available to meet its needs; where power is abundant; and where sufficient space is available for expansion. South Dakota is meeting most of these conditions. When the new Area Vocational Schools reach their desired goals, there will be a better supply of skilled workers available to support business and industrial growth. Until greater expansion of industrial development takes place, many of South Dakota's youth will continue to migrate to areas with greater employment opportunities.

Manpower

Contacts with the South Dakota Employment Security Office revealed that little recent data were available relative to new or emerging occupations having a direct bearing on the State's labor requirements. However, useful recent national statistics** centering on the estimated number of workers which will be needed each year through the mid-1970's and around which Vocational-Technical Curricula and Training would be implemented based on need follow:

Estimated Average Annual Openings Through the Mid-1970's by Vocational Education Instructional Program Titles Based on DOT

Code		Average Annual Openings 1966-75
7.000 Health Occupations	1966 Employment Total - 2,020,900	203,400

*Education: South Dakota - University of Minnesota, 1969.

**Manpower Requirements in Occupations for which Vocational Education Prepares Workers, Mimeo, U. S. Department of Labor, Bureau of Statistics, July 1969.

	Average Annual Openings 1966-75
°Dental Assisting	7,700
°Dental Hygiene	2,000
°Dental Laboratory Technology	1,700
°Medical Laboratory Assisting, Hematology	8,400
Nursing (associate degree)	61,000
°Practical Nursing	39,000
Nursing Assistance (Aide) Psychiatric	77,000
Radio Logic technology (X-Ray) Radiation therapy, Nuclear Medical technology	6,300
Ophthalmic dispensing (contact-lens technician, optician dispensing, artificial-plastic-eye maker; mounter and repairer)	300
16.01 <u>Technical Occupations</u> 1966 employment total - 2,134,000	187,300
Engineering related technology (engineering and science technicians, draftsman surveyors)	72,000
Dental Hygiene	2,000
Medical laboratory assisting	8,400
Radiological technology	6,300
Nursing (associate degree)	61,000
°Computer Programmer	13,600
Commercial Pilot training	7,200
Forestry technology (forestry aides)	800
Police, law enforcement and correction science technology	16,000
4.01 <u>Distributive Occupations</u> 1966 employment total - 11,902,000	159,000
°Advertising Services, marketing research workers and Public Relations workers	11,000
°Automotive (salesmen, service advisors, parts countermen)	7,500
°Finance and credit (bank teller, securities salesmen)	25,000
°Food distribution (routemen)	10,000
°Food Service (waiter, waitress)	2,800
°General Merchandise (cashier)	3,600
°Hotel and lodging (hotel and motel manager, front office clerk, housekeeper, bellman, bell captain)	18,000
°Insurance (agents and brokers)	43,000
°Petroleum (gasoline service attendant)	9,000
°Real Estate (salesmen, brokers)	16,000

°Indicates training programs conducted in S.D. 1969-70.

	Average Annual Openings 1966-75
∘ Transportation (airline stewardesses, inter-city bus drivers, local transit bus drivers, taxi drivers)	5,000
Distributive education (purchasing agents)	8,200
14.00 Office Occupations 1966 employment total - 9,953,000	555,000
∘ Bookkeepers	80,000
∘ Machine Operators (billing machine operator, calculating machine operator, duplicating machine operator, addressing machine operator)	60,000
Tellers	17,000
∘ Business data processing (computer operator, keypunch operator)	14,000
∘ Programmers	13,600
Systems Analysts	11,800
Communications systems clerks and operators (central office operator, telephone operator)	28,000
Mail postal clerks	11,500
Receptionists and information clerks	25,000
Shipping and receiving clerks	10,500
Personnel, training, and related occupations (manager-personnel, personnel clerk, job analyst, employment interviewer, salary and wage administrator)	6,200
∘ Stenographic, secretarial and related occupations	175,000
∘ Typing and related occupations	60,000
17.00 Trade and Industrial Occupations 1966 employment total - 14,283,700	577,500
Air Conditioning, Cooling, Heating, Ventilating occupations	3,500
∘ Appliance Repair	10,000
∘ Automotive body and fender	3,700
∘ Automobile mechanics	20,000
∘ Aircraft maintenance	6,500
Aircraft operations (flight engineer)	500
Ground operations (air traffic controller)	400
∘ Business Machine Maintenance	3,700
Commercial Art occupations	3,200
Interior decorating and window display	700

	Average Annual Openings 1966-75
Product design occupations	400
Seamanship, ship and boat operation and maintenance, seamen, engineer, marine oiler	2,000
Photographic laboratory and dark room occupations	1,300
°Carpentry	32,000
°Electricity	6,400
Operation, heavy equipment	16,000
Masonry	10,600
Painting and decorating	19,000
Plastering	3,300
Plumbing and pipe fitting	16,000
Glazing	400
Roofing	2,100
Construction and maintenance trades (millwrights, structural steel worker, boilermaker, elevator constructor, cement mason, floor layer)	15,000
Custodial services	80,000
°Diesel Mechanics	4,000
°Drafting	16,000
°Electrical occupations	7,500
Linemen	1,100
°Communications (central office repairman, installer, PBX repairman)	9,000
°Graphic Arts occupations	8,000
Instruments Maintenance and repair	4,500
Watch making and repair	700
Foundry and related work (coremaker, molder)	1,400
°Machine shop	27,000
Sheet metal	2,100
°Welding and cutting	23,000
Tool and die making	6,300
Metal pattern making	400
Metal working, other, blacksmith	600
Barbering	12,000
°Cosmetology	43,000
Fire training	10,000
Stationary energy sources occupations (stationary engineer fireman)	3,000
Waiter/waitress	64,000
Pumping plants (sewage plant operator)	9,000
Shoe repair	1,500
Upholstering (automobile upholsterer, furniture upholsterer)	1,000

The foregoing represents categories in which estimated manpower requirements and demands will be evident through the mid-1970's and for which vocational-technical education educators will need to be cognizant and alert in training emphasis.

Some of these occupations are new in certain states as states move from an agricultural to more industrial character. Demand for others will become evident as populations increase and recreational occupations rise.

Some emerging occupations are found below in the numerically controlled metal-cutting machining occupations which presently do not appear in the latest 1968-69 Dictionary of Occupational Titles but are contained in a Supplemental DOT Release.* These occupations are as follows:

Boring-Mill Operator, Numerical Control
Coordinator for Numerical Control
Drill Press Operator, Tape Control
Boring Machine Operator, Tape Control
Jig Boring Machine Operator, Numerical Control
Lathe Operator, Numerical Control
Machining Center Operator, Vertical, Numerical Control
Milling Machine Operator, Numerical Control
Part Programmer, Numerical Control
Vertical Turret Lathe Operator, Numerical Control

No reliable statistics on manpower requirements in the above ten metal-cutting machining occupations appear to be available. However, it is assumed that some of the above occupations are pertinent to the South Dakota situation and consideration should be given to the manpower requirements in these areas. Development of training programs to meet the needs as established would then become feasible as a matching procedure.

Viewing the fact that the major source of income (85 per cent) for the state of South Dakota is generated by the agricultural sector and further that 23.8 per cent of the total civilian work force is thus employed, its manpower requirements must be provided for amply in both agricultural production and related off-farm occupations.

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*Supplemental DOT Information from Technical Report on Occupations in Numerically Controlled Metal-Cutting Machining, August 12, 1968.

Recent data* compiled by Gadda and Pollman of the Agriculture Education Department of South Dakota State University revealed that approximately 2485 new workers with agricultural competencies in related agricultural jobs would be needed by the 126 firms surveyed by 1972. Jobs included replacements for present workers and for newly created positions caused by growth and development. A total of 62.3 per cent of the firms indicated plans to hire from one to 15 new agricultural workers each by 1972. Another 10.6 per cent plan to hire 15 or more each.

Saleswork will require 26.3% of the new workers.
Mechanics will require 13.4% of the new workers.
Managers will require 9.1% of the new workers.
Farm equipment servicemen will require 8.6% of the new workers.
Semi-skilled and unskilled will require 7.7% of the new workers.

Partsmen and the remainder of the occupations were divided among 16 or more additional job titles.

All except 2.6 per cent of the job titles for which new related agricultural workers are needed will be above the unskilled level. This implies a challenge for Vocational-Technical training programs to supply trained manpower for the agricultural sector of the state's economy.

New job titles anticipated by the 126 firms surveyed and the proportion of new agricultural workers needed in each title during the next five years follow:

NEW JOB TITLES ANTICIPATED IN THE NEXT FIVE YEARS BY 126 FIRMS SURVEYED AND THE PROPORTION OF NEW AGRICULTURAL WORKERS NEEDED IN EACH TITLE

NEW JOB TITLE	Percent of Total New Workers Anticipated (N=232)
Sales Persons	26.3
Mechanics	13.4
Servicemen, Farm Equipment	8.6

*Gadda, H. W. and Pollman, James, South Dakota Agricultural Off-Farm Occupational Opportunities and Training Needs, Agricultural Education Department, South Dakota State University, Bulletin 553, April 1969.

(Continued)

NEW JOB TITLE	Percent of Total New Workers Anticipated (N=232)
Semi-skilled and Unskilled	7.7
Partsmen	7.3
Managers and Assistant Managers:	
Chemical and Fertilizers	2.6
Implement	2.2
Elevator	2.2
Warehouse	1.3
Nursery	.4
Feed Mill	.4
Dairy Processing Workers	3.4
Production Men (feed)	1.7
Irrigation Technical Workers	2.6
Farm Equipment Technical Workers	1.7
Foreman, Farm Building Construction	2.2
Chemical Application Workers	2.2
Carpenters	1.7
Elevator Technical Workers	1.3
Clerical, Office and Shop	1.7
Servicemen, Electric	1.3
Deliveryman	1.7
Fieldmen	1.7
Supervisory Personnel	1.7
Agronomists and Nutritionists	1.3
Swine Specialists	.9
Wool Grader and Appraiser	.5
TOTAL:	100.0

Activities and duties as well as non-farm agricultural competencies expressed by most needed job titles are also found in Tables 19 and 20 of the afore-mentioned publication by Gadda and Pollman.

Production agriculture today requires a high level of technical knowledge and skill of its work force. Prominent among training needs are managerial skills and abilities. This is an area of training largely unfilled today in South Dakota's Vocational-Technical training programs. Increased and rapid emphasis in this vital area is needed if the out-of-school youth and adult farmers are to keep pace with the rapid technological changes in Agricultural Production.

Recent manpower needs, shortages and surpluses were not available. The most recent as reported by the CAMPS outline 1970, Part A, page 13, reports on Table 4a for 1968 the following:

APPLICANT SHORTAGE	APPLICANT SURPLUS
Engineers (Electrical & Const.)	Construction Workers (a)
R.N.'s	Heavy Equipment Operators (a)
L.P.N.'s	Truck Drivers (a)
Inhalation Therapists	Laborers (Unskilled)
Managerial positions	Factory Workers (Entry Level)
Bookkeepers	Office Workers (Entry Level)
Clerk Typists	Sales Clerks
Secretaries	Warehousemen
Salesmen	
Cooks	
Printing occupations	
Auto mechanics	
Diesel Mechanics	
TV and Appliance Servicemen	
Cement Finishers	
Welders	

(a) 80 per cent of this surplus can be attributed to seasonal conditions.

Two facts are proved out in the shortages and surpluses listed above:

1. Employers are badly in need of trained employees.
2. Applicant surplus (for the most part) is saturated with untrained, unskilled, and entry level applicants.

Unemployed characteristics identified by the CAMPS report for 1970 include the following information:

		Per Cent
General		
	Females	42
	Heads of Households	50
	Handicapped	10
	HRD	17
Veteran Status		
	Veterans	25
	Selective Service Rejects	8
	Other Non-Vets	67
By Ages		
	Under 19	15
	19-21	20
	22-34	35
	35-44	16
	45 and over	14

Years Gainfully Employed		Per Cent
	Less Than 3 years	45
	3-9 years	35
	Over 10 years	20
Race		
	White	80
	Non-white	20
Educational Level		
	Less than 8 years	17
	8 years	44
	9-11 years	18
	12 years	18
	Over 12 years	3

One-half of all unemployed persons were heads of households and 42 per cent, less than half of the unemployed, were women.

Twenty-five per cent of the unemployed persons were veterans and most of the unemployed were those between ages 19 and 35.

The major portion of those unemployed had less than three years of work experience.

Plan and Procedure of the Evaluation

The 1970 evaluation of Vocational-Technical Education in South Dakota was initiated by the South Dakota Advisory Council for Vocational-Technical Education in conformity with the provisions of the 1968 amendments to Public Law 90-576, Title I, Part A, Section 104-b, as referred to later in this report. The plan was to engage the services of competent vocational education specialists who would compile the necessary data, analyze and interpret it, and make appropriate inferences and recommendations based on the findings.

School visitations as deemed necessary by the South Dakota State Staff of Vocational-Technical Education were also a part of the evaluative procedure. In this connection, five area vocational schools and some of the attached secondary vocational school programs were observed. Appropriate recommendations were made based on the consultants' observations and findings.

It was further determined that the major emphasis for the evaluation would be given by comparing the "current status" and the "1970 projected outcomes sought" with the"actual 1970 outcomes"achieved. This evaluation process is based on the vocational-technical objectives appearing in the 1969 State Plan for Vocational-Technical Education in South Dakota. The basic data bearing on the 1969-70 "actual outcomes" achieved was to be solicited from the cooperating reimbursed schools in South Dakota by the State Vocational-Technical Education Staff.

An additional facet of work to be performed by the vocational consultants was the development of "An Outline of a Self-Evaluative Criteria for Vocational-Technical Education in South Dakota." The need for such an instrument, to be fully developed later, has been recognized by the State Staff and the State Advisory Council for use in the evaluation of Vocational-Technical Education Programs in depth.

SECTION I

STATE PROGRAM OBJECTIVES: OUTCOME EVALUATION

This section of the evaluation report details in table form the statistical data which support the 1970 outcomes of the program objective as set forth in the State Plan for 1969. Narrative explanations, interpretations, observations, and evaluation of outcomes accompany each table.

All program objective outcomes for the school year 1969-70 are shown in Table 1 of this section and are evaluated through a comparison of actual achievement with the "current status" for 1969 and the outcomes sought" for 1970.

TABLE 1

A SUMMATION OF COMPARISONS BETWEEN 1970 PROJECTED OUTCOMES AND ACTUAL OUTCOMES ACHIEVED BASED ON STATE PLAN VOCATIONAL EDUCATION OBJECTIVES

ITEM	CURRENT STATUS-1969	PROJECTED OUTCOME - 1970	ACTUAL OUTCOME-1970
5.1 SECONDARY			
a. Percentage of Secondary School Students Enrolled in Vocational Education			
Urban	2.1	2.4	23
Rural	19.4	20.0	27
b. Percentage of Secondary School Students Entering Post-Secondary Vocational Programs	8.9	10.8	No Data Avail.
c. Total Number of Instructional Programs	177	186	316
d. Percentage of Students Available For Work, Placed in Jobs Following Training	96.0	96.0	96.6

TABLE 1 (continued)

ITEM	CURRENT STATUS-1969	PROJECTED OUTCOME-1970	ACTUAL OUTCOME-1970
e. Vocational Education Completion Rate (Per Cent)	91	91	99
f. Vocational Student - Guidance Counselor Ratio	1:475	1:450	1:370
5.2 POST-SECONDARY			
a. Percentage of Population Age 15-24 Enrolled in Post-Secondary Vocational Education	1.6	3.0	1.13
b. Percentage of Post-Secondary (2-Year) Students Enrolled in Vocational Education	.5	.75	.7
c. Number of Instructional Programs	50	53	53
d. Percentage of Students, Available for Work, Placed in Jobs Following Training	80	80	92
e. Number of Instructional Programs for Emerging Occupations	4	6	Not Reported
f. Vocational Student - Counselor Ratio	1:110	1:75	1:148
5.3 ADULT			
a. Percentage of Population Age 15-24 Enrolled in Adult Vocational Education	1.02	1.05	1.5
Urban	.65	.70	2.6
Rural	.37	.35	.6

TABLE 1 (continued)

ITEM	CURRENT STATUS-1969	PROJECTED OUTCOME-1970	ACTUAL OUTCOME-1970
b. Total Number of Instructional Programs	209	219	198
c. Number of New Instructional Programs	3	10	Not Reported
d. Vocational Education Completion Rate (Per Cent)	95	95	Not Reported
e. Total Number of Adult Students 15 Years and Over (All Programs)	-	-	4809
f. Percent of Total Population			.009
5.4 DISADVANTAGED			
a. Percentage of Disadvantaged Population (By Level) Enrolled in Vocational Education			
Secondary	.6	1.1	2.27
Post-Secondary	.06	.12	.72
Adult	.0	.05	.22
b. Number of Instructional Programs	4	13	29
c. Number of Students Enrolled in Cooperative Programs	80	250	306
d. Number of Students Enrolled in Work Study Programs	11	20	Not Reported

TABLE 1 (continued)

ITEM	CURRENT STATUS-1969	PROJECTED OUTCOME-1970	ACTUAL OUTCOME-1970
5.5 HANDICAPPED			
a. Percentage of Handicapped Population Enrolled in Vocational Education	.006	.02	.58
Secondary	25	45	223
Post-Secondary	14	54	142
Adult	0	20	0
b. Number of Instruction Programs	1	1	21
c. Number of Students Enrolled in Cooperative Programs	0	10	34
d. Number of Students Enrolled in Vocational Work-Study Programs	0	10	0
5.64 CONSUMER & HOMEMAKING EDUCATION			
a. Number of Programs Serving Youth in Economically Depressed Areas	9	10	10
b. Number of Programs Serving Adults in Economically Depressed Areas	2	4	0
c. Number of Programs Serving Youth -	103	104	103
Number of Such Programs Emphasizing Consumer Education	103	104	103

TABLE 1 (continued)

ITEM	CURRENT STATUS-1969	PROJECTED OUTCOME-1970	ACTUAL OUTCOME-1970
d. Number of Programs Serving Adults -	22	32	18
Number of Such Programs Emphasizing Consumer Education	22	32	18
5.65 COOPERATIVE EDUCATION			
a. Number of Programs	29	29	43
b. Number of Secondary Schools Offering Programs	25	25	42
c. Number of Post-Secondary Schools Offering Programs	0	0	1
d. Number of Employers Participating	592	700	734
e. Percentage of Secondary Vocational Students Enrolled	7	10	6.98
f. Percentage of Post-Secondary Students Enrolled	3	10	1.4

TABLE 2

(5.1-a.) NUMBER AND PER CENT OF SECONDARY SCHOOL STUDENTS ENROLLED IN VOCATIONAL EDUCATION (GRADES 9-12) SCHOOL YEAR 1969-70

	TOTAL	URBAN	RURAL
Total Number of Students Enrolled in Vocational Education	12,727	4,627	8,100
Total Number of Students Enrolled in Secondary Education	50,720*	20,981	29,739
Percentage of Secondary School Students Enrolled in Vocational Education	25	23	27

Note: "Urban" as used here is an incorporated town with 2,500 or more population.

It may be noted in Table 2 that during the 1969-70 school year there were 12,727 of the State's 50,720 secondary school students, or 25 per cent, enrolled in vocational education programs (all services). The 12,727 students enrolled were comprised of 4,627 urban and 8,100 rural students or 23 and 27 per cent respectively of the total urban and rural secondary school population of the State.

It can be seen that of the total secondary school population (50,720), 20,981 were classified as urban and 29,739 as rural. Considering that 23 and 27 per cent respectively of each group were enrolled in vocational education programs, it appears that urban and rural youth are being served near equally.

It is recognized that 50 per cent of the high school seniors will terminate their formal education upon graduation from high school. Since only 25 per cent of the total secondary students are presently being enrolled in vocational

*Education Directory of South Dakota (Enrollments in South Dakota, September 8, 1969).

education, approximately one-half of this group are not being prepared with saleable skills after leaving high school. There is the inference that the opportunity and challenge exists for greatly expanded vocational education programs at the secondary level.

Evaluation of Outcomes

From the standpoint of the state's success in achieving its vocational education objective based on projected "1970 outcomes sought" compared with "actual outcomes," (see Table 1) a commendable job was done in relation to the number of secondary students enrolled in vocational programs as evidenced by the following figures:

PER CENT OF SECONDARY STUDENTS ENROLLED IN VOCATIONAL EDUCATION

	URBAN	RURAL
1969 Current Status	2.1	19.4
1970 Outcome Achieved	23.0	26.0
1970 Outcome Sought*	2.4	20.0

*Based on 1969 State Plan Vocational Education Objectives.

Evaluation reveals that the State over-achieved on this particular objective by 20.6 per cent in serving numbers of urban secondary students in vocational education programs and by six per cent for rural students.

TABLE 3

(5.1-b) NUMBER OF SECONDARY VOCATIONAL STUDENTS ENTERING POST-SECONDARY VOCATIONAL PROGRAMS. SCHOOL YEAR 1969-70 (Reported Nov. 1969)

Number of Secondary School Vocational Education Student Graduates. (1968-69)	3,615
Number of 1st Year Students in Post-Secondary Programs	1,128
Per cent of Secondary School Vocational Graduates Entering Post-Secondary Vocational Programs	*

*Data Not Available.

As presented in Table 3, there were 3,615 secondary school vocational education students who graduated during the 1968-69 school year and as reported to the State office during November 1969.

One thousand one hundred twenty-eight (1,128) students were reported entering post-secondary vocational programs during the above reporting period. These students may or may not have been previous year graduates and they may or may not have had vocational education training in high school.

State reporting forms did not provide for the gathering of information pertaining to the per cent of secondary school vocational graduates who entered first year post-secondary vocational programs. No valid percentage comparisons were possible, therefore, in the identification of individual vocational student's progression from the secondary to the post-secondary level. Future reporting forms will provide for gathering these data.

It is inferred that an increasing number of secondary vocational student graduates will continue their occupational training at advanced trade or technical levels at the area vocational schools as these institutions become more firmly established in the public mind. No attempt was made to verify this inference.

Evaluation of Outcomes

In comparing the "1969 current status" with the actual 1970 achievement, pertaining to per cent of vocational secondary students entering post-secondary programs, no valid comparison was possible as explained previously.

TABLE 4

(5.1-c.) NUMBER OF SECONDARY VOCATIONAL EDUCATION INSTRUCTIONAL PROGRAMS BY SERVICES AND ENROLLMENTS (1969-70)

Vocational Service Area	No. of Programs	Enrollment
Agriculture	66	3086
Dist. Education	26	710
Home Economics	108	7444
Health	0	0
Bus. and Off.	39	655

TABLE 4 (continued)

Vocational Service Area	No. of Programs	Enrollment
Trade and Ind.	31	832
Technical	0	0
Spec. Educ. (Disadv.)		(1379)
Cooperative Programs	(42)	(976)
Totals	270	12727

Table 4 presents data relative to the number of instructional programs by services and their respective enrollments. It may be noted that 270 instructional programs were conducted with 12,727 students enrolled during the 1969-70 school year. Vocational Home Economics and Agriculture constituted nearly 83 per cent of the total enrollment followed by Trade and Industrial, Distributive Education, and Business and Office Education, respectively.

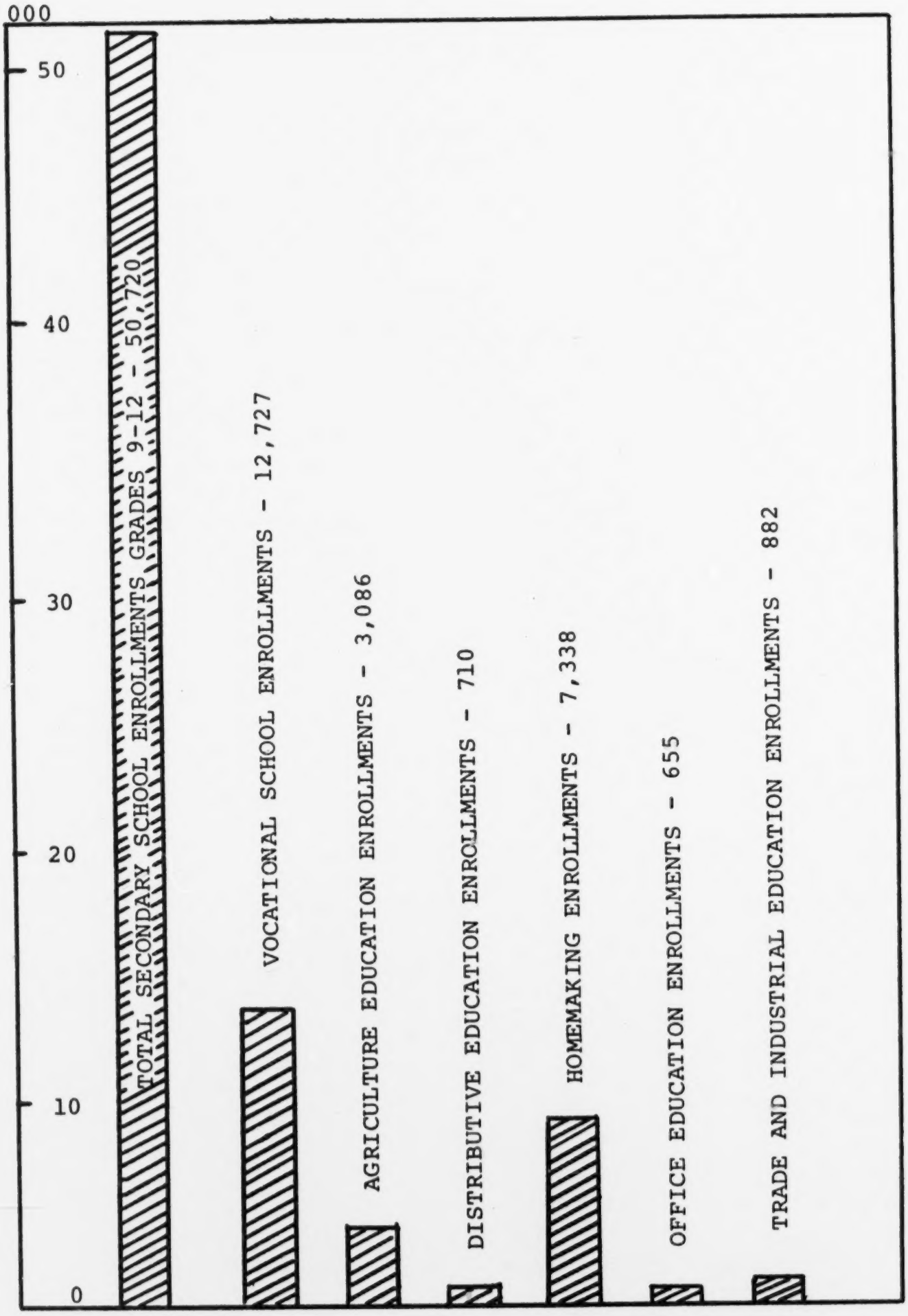
A comparison of the "1970 outcomes sought" and "outcomes achieved," relative to the total number of instructional programs, shows 186 programs sought versus 270 programs actually conducted. This indicates that actual achievement exceeded expectation by approximately 45 per cent. The marked disparity between the 186 programs sought and 270 achieved is due to the fact that the projected figure of 186 represented schools rather than instructional programs. Therefore, a valid comparison was not possible. However, this discrepancy has been corrected in the 1970 state plan objectives. There were no secondary instructional programs for Health Occupations or Technical Education during the 1969-70 school year. Table 4 does not indicate separate programs for the disadvantaged and handicapped persons although 1,379 persons in this category were enrolled in regular programs.

Included in the total enrollment of 12,727 are 976 students enrolled in cooperative education type programs.

Evaluation of Outcomes

It may be seen from Table 1 relative to the number of instructional programs that there were 270 programs in vocational-technical education completed for 1969-70 compared with the goal of 186 programs as stated for this particular objective. Since the 1969 "current status" and 1970 "outcomes sought" were both based on number of schools rather than "programs of instruction," no valid comparisons could be made.

Enrollments in Trade and Industries, Distributive Education, and Office Occupations account for less than 20 per cent of the total secondary vocational education enrollment.



1. COMPARISON OF TOTAL SECONDARY ENROLLMENTS AND VOCATIONAL EDUCATION ENROLLMENTS, 1969-70.

TABLE 5

(5.1-d, e, & f) NUMBER OF SECONDARY VOCATIONAL STUDENTS AVAILABLE FOR WORK, PLACED IN JOBS FOLLOWING TRAINING (1968-69)

I. TYPE OF PROGRAM	Vocational Training and Placement Status			
	Number of Persons Starting Training* 1968-69	Number of Persons Completing Training* 1968-69	Number Available for Placement Following Training	Number of Persons Placed In Jobs Following Training
Agriculture	609	603	213	212
Business & Office	507	507	208	185
Dist. Education	590	577	263	259
Home Economics				
(Regular)	1118	1118		
(Wage Earner)	80	80	22**	22**
Health	0	0	0	0
Trade & Indust.	579°	579	237+	231+
Technical	151	151	78	78
Spec. Ed. (Disad.)	(1051)°°	Data Not Avail.	Data Not Avail.	Data Not Avail.
Total	3642	3615	1021	987

II. Number guidance counselors in school (fulltime) 137. Total high school enrollment, grades 9-12 is 50,720. Ratio: 1:370.

* Based on senior students entering in the fall term only.
**Placement related to wage earning.
\+ Includes Special Education T & I enrollments.
° Of the 579 students who started, 495 began in September of 1968. The remaining 84 students enrolled late in the school year.
°°Eight Home Economics students who are neither secondary, post-secondary, nor adult, but enrolled in a special class.

It can be seen in Table 5 that of the 3642 persons (seniors) entering training for the 1968-69 school year, 3615 of them completed training. Of the 3615 students completing training, 1021 were available for placement following training. Nine hundred

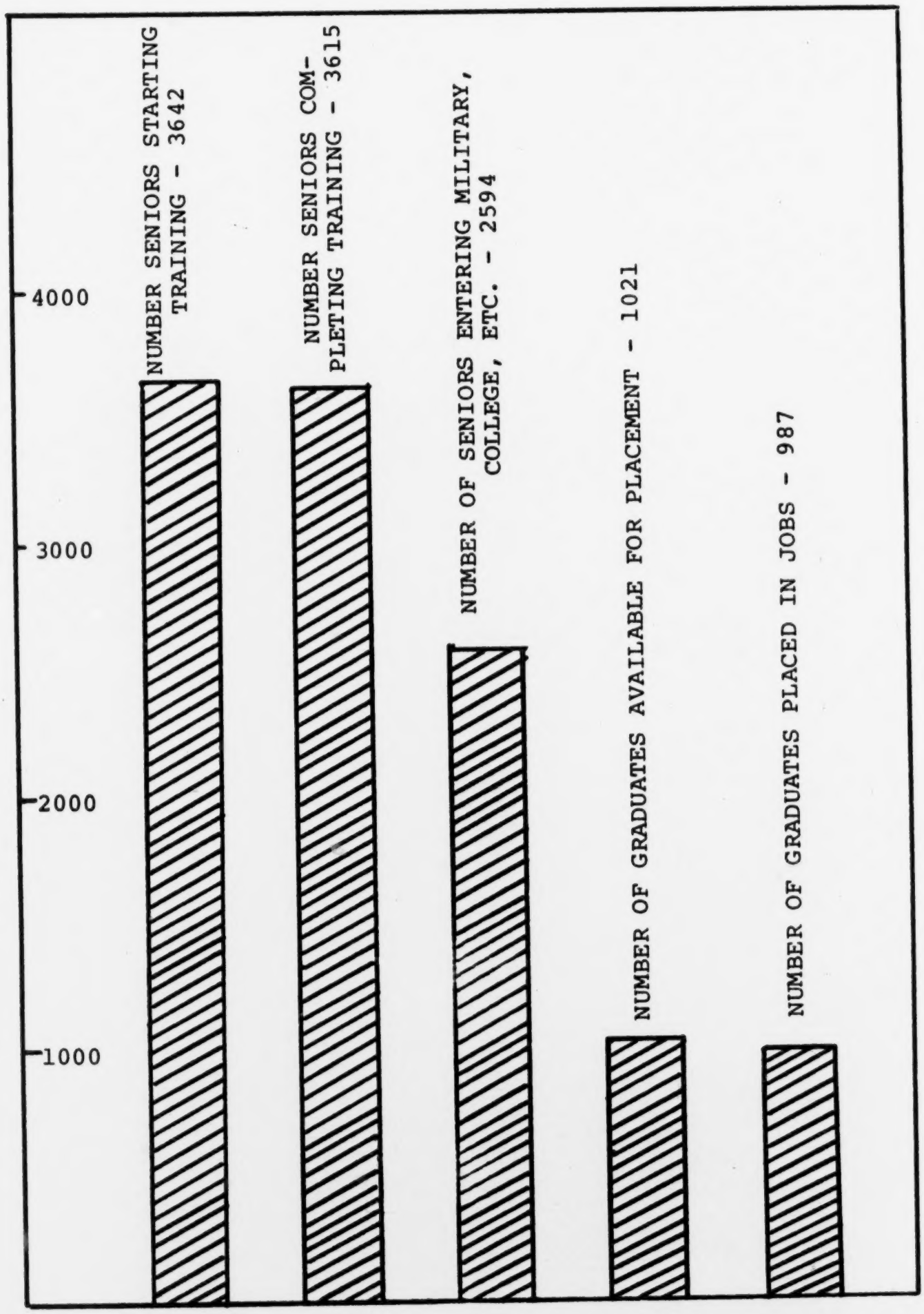
eighty-seven (987) or 25 per cent of the 3615 completing training were placed in jobs at the time of the State reporting period December 1969. It is inferred that of the 3615 who completed training, several would likely enter the armed services, self-employment, marriage, college, and become otherwise occupied, leaving only 1021 or 28 percent available for placement in jobs. Of the 1021 available for placement, a total of 987 or 96.6 per cent were placed in jobs. The placement of graduates available for jobs appears to be an above average placement record.

It may be noted further that 1059 disadvantaged individuals were given training through special education. These were among the total of 3642 starting training.

The number of full-time guidance counselors in the schools operating vocational programs was 137, resulting in a ratio of one counselor to 370 students. However, the time allotted to counseling of vocational students was not reported. It can be assumed, however, that the vocational student-guidance counselor ratio was the same as for the total student body; namely, 1:370. This is considered an unfavorable ratio.

Evaluation of Outcome

The percentage of students available for employment actually placed in jobs was 96.6 per cent for 1970 while the "1969 current status" and the "1970 outcomes sought" were nearly identical (96 per cent). Placement of trainees available for work was better than estimated.



2. NUMBER OF H. S. SENIORS ENROLLING, COMPLETING, AVAILABLE FOR PLACEMENT AND PLACED, 1969-70.

TABLE 6

(5.2-a, b, c) NUMBER OF SECONDARY STUDENTS AGE 15-24, ENROLLED IN POST-SECONDARY VOCATIONAL PROGRAMS. SCHOOL YEAR 1969-70

TYPE OF PROGRAM	No. Prog.	Number of Secondary Students Age 15-24 Enrolled	Per Cent Population Age 15-24 Enrolled in P.Sec. Programs	Number Post-Sec. (2 Year) Students Enrolled	Percent of Vocational Enrollment in Two Yr. Programs
Agriculture	2	66			
Bus. & Off.	4	158			
Dist. Ed.	0	0		Enroll-	
Home Econ.	0	0		ment	
Health	8	300			
Trade & Ind.	38			Data By	
Technical		810		Services	
Spec. Ed.-Disad.	0	-		Not Avail.	
Total	52	1334	1.13	(829)	62.0

State Population, age group 15-24 - 117,500* (Projected Estimate, 1970)
*Source: Handbook of Manpower Statistics for South Dakota, 1967, p. 4.

According to the Handbook of Manpower Statistics for South Dakota, 1967, there were estimated to be 117,500 persons in the age group 15-24. This is the age group generally considered eligible for enrollment in post-secondary vocational programs.

Table 6 indicates an enrollment of 1334 students who fall within this age group as being enrolled in post-secondary vocational programs. This approximates 1.13 per cent of the total eligible population. It must be recognized that many youth 15 years of age and over are still enrolled in high school, some of whom are pursuing vocational training. Therefore, it must not be assumed that only 1.13 per cent of the population age group 15-24 years is enrolled in any vocational programs.

It is further noted in Table 6 that of the total enrollment of 1,334 there are 829 students enrolled in a full two-year type of vocational program, indicating that 62 per cent of post-secondary vocational students are working toward higher level vocational training objectives. The means employed to collect these latter data do not indicate the specific type of programs in which the two year students are enrolled.

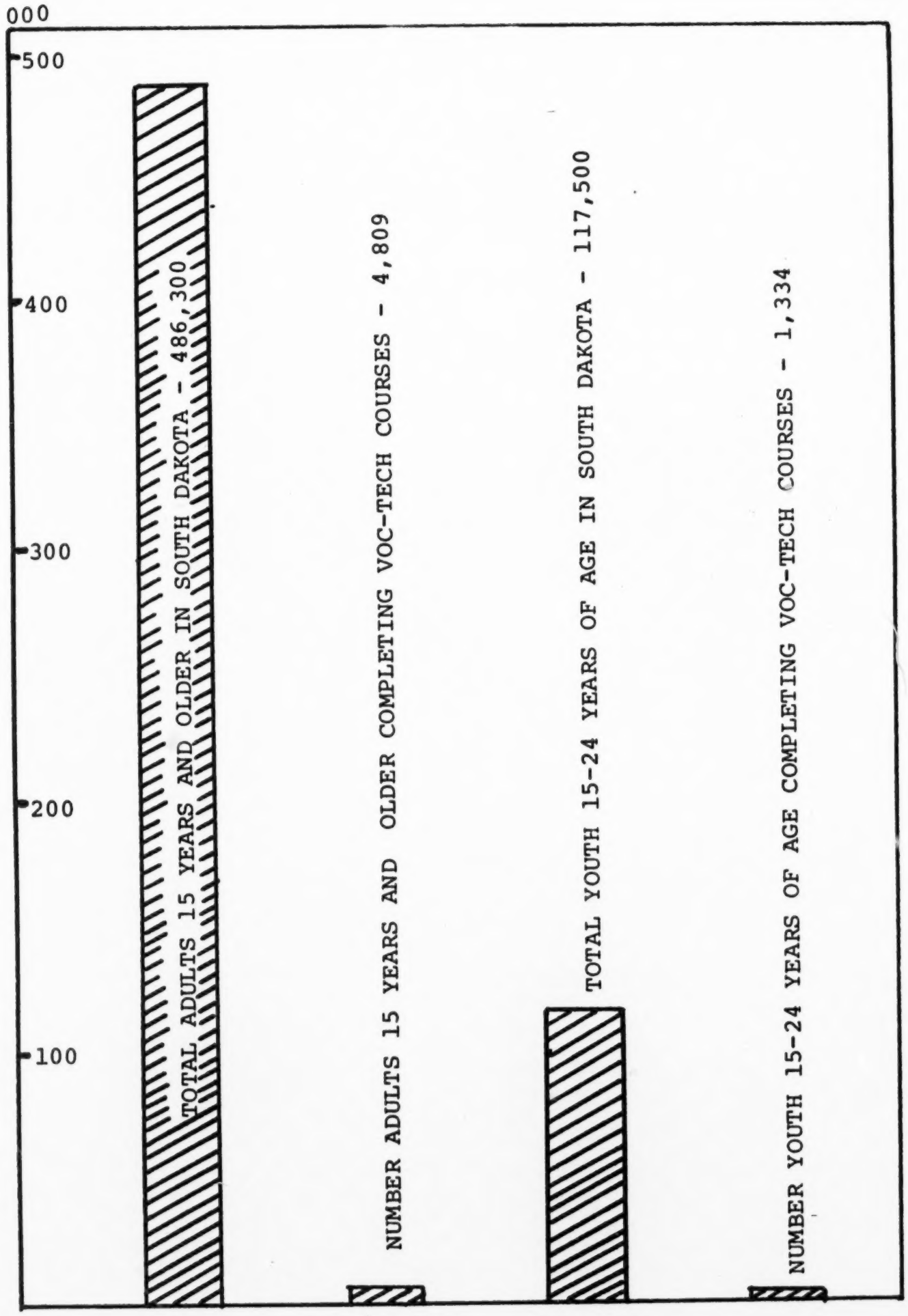
During the 1969-70 school year, enrollments were reported in the areas of Agriculture, Business and Office, Health and Trade-Technical training involving 52 different instructional programs. There were some classes for "gainful employment" of Home Economics students, but these enrollments were reported under the Trades and Industry service.

In terms of achievement during the school year 1969-70, the state fell far short of its anticipated enrollment of 3 per cent of the population age 15-24 in post-secondary vocational programs. Actual achievement was 1.13 per cent for the 1969-70 school year.

The state reporting forms for 1969-70 school year did not provide means of gathering information on the 1,334 students as to their vocational training at the secondary level. However, this aspect will be provided for in subsequent years' reporting forms.

Evaluation of Outcomes

The per cent of secondary vocational students going on to post-secondary training could not be ascertained as previously explained. Considering that there are 117,500 youth ages 15-24 (1970 estimate) in the State, the 1,334 enrolled in post-secondary programs is proportionally small. Considering the approximately 50 per cent of the high school graduates who terminate their formal education upon high school graduation, the high school dropouts and the early dropouts in college within this age bracket, a tremendous reservoir of potential post-secondary age students exists needing training in vocational-technical programs.



3. ADULTS 15 YEARS AND OVER ENROLLED, AND POST-SECONDARY YOUTH ENROLLED COMPARED TO STATE POPULATION, 1969-70.

TABLE 7

(5.2-d, f) NUMBER OF POST-SECONDARY VOCATIONAL STUDENTS STARTING AND COMPLETING TRAINING, AVAILABLE FOR WORK, PLACED IN JOBS FOLLOWING TRAINING, 1968-69

TYPE OF PROGRAM	Number of Post-Sec. Students Starting Training	Number Com-pleting Training	Number Available For Place-ment Fol-lowing Training	Number Actually Placed in Jobs Following Training	Per Cent of Students Placed On Jobs
Agriculture	0	0	0	0	
Bus. & Off.	64	41	37	35	
Dist. Ed.	0	0	0	0	
Home Econ. Wage Earner	14	13	4	4	
Health	255	255	235	230	
Trade & Ind.	377	276	181	165	
Technical	305	305	198	167	
Spec. Educ. Disadv.	(All enrollments included under secondary)				
Total	1015	890	655	601	92.0

II. Number of guidance counselors working with above students: Full-time - 4; part-time - 8 (9 [F.T.E.] or 1:148 ratio.

Table 7 gives the number of students starting training and completing training, for the 1968-69 school year as well as the number subsequently available for employment and actually employed. During this period, all vocational services enrolled 1,015 post-secondary students. Eight-hundred ninety (890) or 88 per cent of those enrolled completed training. Of the 890 graduates, 655 or 74 per cent were available for employment. Of the 655 available for employment, 601 or 92 per cent were actually placed on the job.

Table 7 also indicates no post-secondary student enrollments in Agriculture, Distributive Education, or Special Education (disadvantaged or handicapped) in the 1968-69 report. The 1970 annual report revealed 506 students in Special Education. The

final report covering 1969-70 placements will not be available until November 1970.

Eight hundred and thirty six (836) of the graduates were from the Trade, Technical and Health Occupations while Business and Office Occupations and Home Economics accounted for the remaining 54 students.

There were eight full-time and four part-time counselors or nine* full-time equivalent counselors resulting in a ratio of one counselor to every 148 post-secondary students entering training. This is considered a very favorable ratio for effective counseling.

Evaluation of Outcomes

A comparison of the 1969 "current status" and the 1970 "actual outcome" relative to the percentage of post-secondary students, available for work, placed in jobs was 80 and 92 per cent, respectively. The "1970 projected outcome" percentage was estimated as 80.

Thus, the "actual outcome" exceeded, by 12 per cent, the "1969 current status" and "1970 projected outcome" data established. This represents a highly favorable placement rate.

The number of instructional programs in emerging occupations for the "1970 actual outcome" was not reported.

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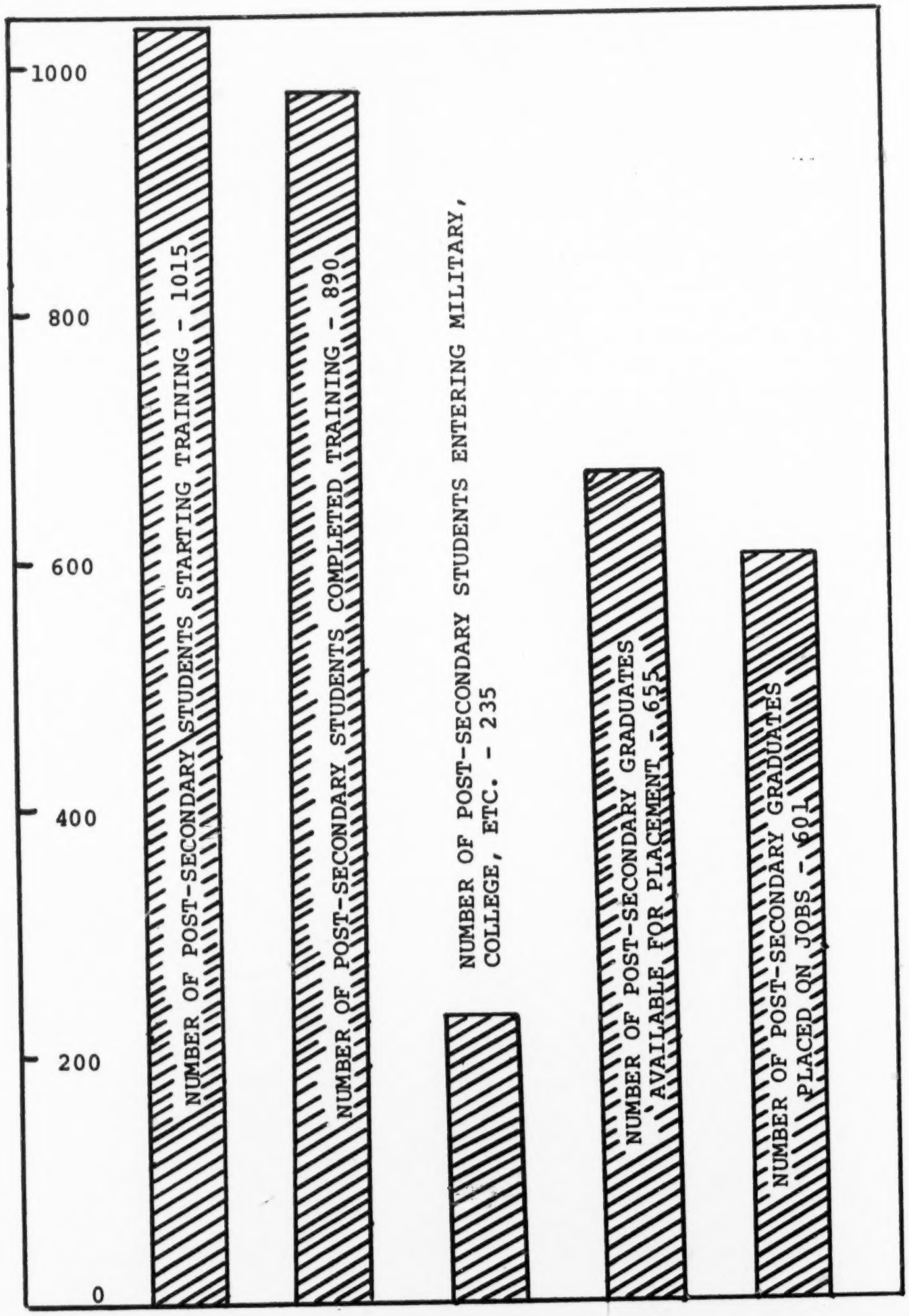
*Data furnished by Guidance and Counseling Division of South Dakota State Department of Education.



4. NUMBER OF POST-SECONDARY PERSONS ENROLLING, COMPLETING, AVAILABLE FOR PLACEMENT AND PLACED, 1969-70.

TABLE 8

A COMPARISON OF ESTIMATED AND ACTUAL NUMBER OF POST-SECONDARY VOCATIONAL STUDENTS ENROLLED BY SERVICES (ALL PROGRAMS), 1969-70

TYPE OF PROGRAM	Number of Post-Secondary Students Estimated Starting Training Reported November 1969	Actual Enrollment Reported June 1970
Agriculture	0	66
Business & Off.	41	158
Dist. Education	0	0
Home Economics Wage Earner	13	0
Health	255	300
Trade & Ind.	276	[810
Technical	305	
Coop. Educ.		(19)
Total	890	1334

Table 8 shows a comparison between the estimated number of post-secondary students starting training in the fall of 1969 and the actual enrollment of post-secondary students during the 1969-70 school year. It is noted that an enrollment of 890 was anticipated, while 1,334 were actually enrolled. This is a worthy achievement; however, based on the State's population in this age group (15-24), it appears that a far greater increase is needed.

Much expansion should take place in all services, but especially in the three services of Agriculture, Home Economics, and Distributive Education. Twenty-three and eight-tenths per cent (23.8%) of the civilian work force is in Agriculture, yet the post-secondary program has few trainees in this area.

It is obvious when considering the number of high school graduates who will not enter college, and the backlog of school dropouts that much additional training is needed at the Post-Secondary level.

Evaluation of Outcome

One and thirteen hundreths (1.13) per cent (for the "1970 actual outcome") of the population 15-24 years of age were enrolled during the 1969-70 school year in Post-Secondary Vocational programs. This percentage versus the "1970 outcome sought" of 3 per cent was a low achievement. Service to this group should increase at a more rapid rate with the development of the area vocational schools in the state.

TABLE 9

(5.3-a, b, c, d) NUMBER OF ADULT STUDENTS 15 YEARS OF AGE AND OVER ENROLLED IN ADULT VOCATIONAL EDUCATION PROGRAMS. 1969-70

Type of Program	No. of Programs		Number of Adult Vocational Students 15 Years of Age and Over Enrolled			
	New	Traditional	Number (Est.) Starting Training	Number (1970) Completing Training	Per Cent of State Population Age Group in Training	Number Completing Training
Agriculture	NOT REPORTED	37	1950	1386	NOT REPORTED	
Bus. and Off.		50	1805	1039		
Dist. Educ.		7	500	131		
Home Econ.		48	810	705		
Health		0	0	0		
Trade & Ind.		56	2000	1171		
Technical			470	377		
Total		198	7535*	4809	.98	

*Total taken from Nov. 10, 1969, O.E. 4948 Summary of Enrollments by services.

Note: State Population Age 15 or Above = 486,300 (1970 projected estimate). Handbook Manpower Statistics For South Dakota, Bul. 94, 1967.

It may be seen in Table 9 that 4,809 adult students 15 years of age and above completed training in all types of programs for all services during the 1969-70 school year reporting period. Training in Trade-Technical programs accounted for 1,548 of the enrollees completing with 121 apprentices included in this number. Agriculture accounted for 1,386, Business and Office 1,039, Home Economics 705, and Distributive Education 131 enrollees, respectively. No adult enrollments were reported in Health occupations. It is assumed that adult enrollments will emerge in the Health occupations as this program, now in its infancy, develops.

It is evident that adult education programs at the secondary, post-secondary, and adult levels have need for marked expansion if it is to serve the adult population of the state. The rapid rate of technological change in all occupations necessitates training and retraining of adults if they are to keep apace.

Evaluation of Outcomes

No evaluation of "1970 outcomes" can be made since data needed are not available. The only significant fact that is obvious in data furnished is that slightly less than one per cent of the adult population in the 15 year and over age group was credited with completing an adult vocational education program during the 1969-70 school year.

TABLE 10

NUMBER OF ADULT VOCATIONAL STUDENTS (ALL SERVICES) ENROLLED IN THE FIVE AREA VOCATIONAL-TECHNICAL SCHOOLS, 1969-70 (ADULT STUDENTS 15 YEARS OF AGE AND OVER)

LOCATION OF AREA SCHOOL	URBAN ENROLLMENT	RURAL ENROLLMENT	TOTAL ENROLLMENT
Mitchell	70	36	106
So. St. College	0	180	180
Rapid City	410	33	443
Sioux Falls	727	104	831
Watertown	124	77	201
Total	1331	430	1761

Table 10 shows the adult vocational-technical students enrolled only in the five (5) area vocational-technical schools during the 1969-70 school year. They are categorized as urban or rural students.

There were 1761 total student enrollments of which 1331 or 76 per cent were classified as urban and 430 or 24 per cent as rural. While these data do not reflect a balance of urban and rural enrollments, a possible explanation may be due to some actual rural students indicating their temporary urban address as their permanent residence while attending school.

Evaluation of Outcomes

No figures or percentages were identified in the State Plan objectives for Area Vocational Schools independent of the total enrollment. The number of adults served in vocational-technical education is small in relation to the total adult population in South Dakota. It is expected that as individuals become more aware of the training opportunities, enrollments will increase markedly.

TABLE 11

(5.4-a, b, c, d) NUMBER OF DISADVANTAGED PERSONS ENROLLED IN VOCATIONAL EDUCATION BY PROGRAMS, 1969-70

Program	Estimated 1970 Enrollment	Actual 1970 Enrollment
Secondary	1100	1156
Post-Secondary	200	364
Adult	150	112
Total	1450	1632
NUMBER OF PROGRAMS AND STUDENT PLACEMENT IN PROGRAMS FOR DISADVANTAGED		
Number of Instructional Programs	13	29
Number of Students in Coop. Programs	250	306
Number of Students in Work-Study Programs	20	0

Table 11 provides information concerning program level, enrollments, number of programs and cooperative program enrollments of disadvantaged persons as well as a comparison between the "1970 projected outcomes sought" and the actual "1970 outcomes" achieved. These statistical data were for the 1969-70 school year. The "1970 outcomes sought" enrollments, as estimated, were surpassed at the secondary level by 56 enrollees and by 164 at the post-secondary level.

An estimated 150 adult disadvantaged persons were expected to be enrolled in training in 1969-70 but only 112 actually were. Fifty-six more disadvantaged persons were enrolled at the secondary program level than estimated for 1969-70.

While there were 29 programs operated for the disadvantaged, the enrollment in these 29 programs was not limited solely to this group since they were all actually enrolled in 29 regular vocational programs. This was 16 more programs in which the disadvantaged were served in 1969-70 than the estimate of 13.

Of the 1622 disadvantaged persons actually enrolled in programs, 306 students were enrolled in cooperative type programs which was 56 more than the 250 estimated.

No work-study programs were offered since funds were not approved until the latter part of the 1969-70 school year. One program was established late in this school year but no report on enrollment was available.

The evidence is clear that the State's goals have been exceeded except in the number of disadvantaged adults to be served for the 1969-70 school year. It is evident that some of the needs of the disadvantaged persons can be met through regular vocational-technical programs. However, for others, separate, specially designed programs are necessary.

Since there was a 1970 estimated number of 50,549 disadvantaged persons (all ages) in South Dakota, the 1622 trained is a small portion of the total. It becomes evident that the large majority of the disadvantaged population cannot be adequately served by the regular vocational courses and that special classes should be organized where feasible. It is recognized that a large number of the 50,549 are being provided training through other agencies and organizations such as the Bureau of Indian Affairs, Rehabilitation Services, Gateway, etc. However, the challenge exists to more adequately serve the needs of this group through expanded vocational-technical training programs.

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*South Dakota State Plan - Vocational-Technical Education, 1969, Part II, p. 20.

Evaluation of Outcomes

The 1970 estimate shows 50,549 disadvantaged persons in South Dakota. The "1969 current status" indicated that six-tenths (.6) of one per cent of the State's disadvantaged would be served through secondary vocational-technical programs. The "1970 projected outcome" goal was set at 1.1 per cent to be served. The "1970 actual outcome" was found to be 2.27 per cent served. Relative to the post-secondary program, the "1969 current status" was established at .06 per cent of the State's disadvantaged to be served. The "1970 outcomes sought" was established at .12 per cent. The "1970 actual outcome" was .72 per cent. Therefore, the goal was exceeded by .60 of one per cent. Referring to the adult objective, "1969 current status" was established at 0 per cent, the "1970 projected outcomes sought" at .05 per cent. The "1970 actual outcome" achieved was .22 of one per cent of the State's disadvantaged served through vocational-technical education. Therefore, the actual accomplishment exceeded the outcome sought by .17 of one per cent.

The discrepancy between the percentage gain from .05 to .22 per cent and the population enrollment comparisons of 150 sought versus 112 achieved is due to the difference in the base population figure used for total disadvantaged for each of the two periods.

In reference to the number of instructional programs to be operated for the disadvantaged population, "1969 current status" was set at four programs, the "1970 outcomes sought" at 13, and the "actual 1970 outcomes" achieved was 29. Thus, there was an over-achievement of 16 programs in which the disadvantaged were served. This constitutes excellent progress in this area.

The number of disadvantaged students enrolled in cooperative programs as indicated for the "1969 current status" was 80, the "1970 outcomes sought" 250, and "1970 actual outcomes" achieved 306, respectively. The goal was exceeded by a considerable margin in serving this group.

TABLE 12

(5.5-a, b, c, d) NUMBER OF HANDICAPPED PERSONS ENROLLED IN VOCATIONAL EDUCATION BY PROGRAMS, 1969-70

Program	1969-70 Estimated Enrollment	1969-70 Actual Enrollment
Secondary	45	223
Post-Secondary	54	142
Adult	20	0
Total	119	365

NUMBER OF PROGRAMS AND STUDENT PLACEMENT IN PROGRAMS FOR HANDICAPPED

Number Instructional Programs	1	21
Number Students in Cooperative Education	0	34
Number Students in Work-Study Programs	0	0

The total 1970 estimated number of handicapped persons in South Dakota was 62,200, as reported in the 1969 South Dakota State Plan for Vocational-Technical Education.

Table 12 presents the number of handicapped persons actually enrolled (365 of 62,200 handicapped or .58 per cent) in vocational education programs for the 1969-70 school year compared with the 1970 estimated enrollment of 119 persons. It can be seen that the actual enrollment of 223 handicapped persons at the secondary level exceeded the estimated number of 45 by 178. At the post-secondary level, actual enrollment of 142 compared with an estimated number of 54 exceeded expectations by 88 enrollees. While these data indicate a significant increase, the number enrolled is small considering the 62,200 estimated handicapped persons needing assistance in South Dakota. It must be recognized that while other agencies and organizations are also serving the handicapped, a great challenge faces the State's vocational-technical personnel in the future to increase training programs to serve this group more adequately.

It may be further noted from Table 12 that there were 21 programs offering training for the handicapped during the 1969-70 school year serving the foregoing enrollments.

Thirty-four students (34) were enrolled in cooperative education programs during the same period 1969-70. No enrollments were reported in work-study programs during the same period, although one work-study program became operative late in the 1969-70 fiscal year.

There were no programs designed where the enrollments were comprised solely of handicapped persons since they were served through the regular instructional programs. It is recognized that special training programs designed specifically for certain types of handicaps is necessary among this group. Consideration should be given to the establishment of such programs.

Evaluation of Outcomes

Based on 62,200* estimated 1970 handicapped persons in the State, vocational education enrolled 365 or .58 per cent of the total. Two hundred twenty-three (223) were secondary students and 142 were post-secondary students. No adults were enrolled. The 365 enrolled in 1970 is 9 times the number enrolled in 1969. In spite of the increase the number enrolled in 1970 is small compared to the total needing training.

TABLE 13

(5.64-a, b, c, d) NUMBER OF CONSUMER AND HOMEMAKING PROGRAMS SERVING YOUTH AND ADULTS

Types of Programs	Number of Programs	Enrollment
1. Programs Serving Youth in Economically Depressed Areas.	10	616
2. Programs Serving Adults in Economically Depressed Areas	0	0
3. Programs Serving Youth Where Program Emphasis is on "Consumer Education."	103**	7338

*S. D. State Plan Vocational-Technical Educ. 1969, Part II, p. 20.

**A high school where a reimbursed homemaking program is offered, regardless of the number of classes, is considered to be one program.

TABLE 13 (continued)

Type of Programs	Number of Programs	Enrollment
4. Programs Serving Adults Where Program Emphasis is On "Consumer Education."	18	309

The Consumer and Homemaking Education program enrolls more secondary school students than any other of the vocational services. Assistance from the Home Economics Division of the State Board of Vocational-Technical Education is given to 147 public schools and 19 non-public schools involving a total of 227 teachers. This report, and accompanying Table 13, concerns itself with only reimbursed programs.

The number of reimbursed programs serving youth where the emphasis is on "consumer education" was 103 for the school year 1969-70. (For this purpose, a "program" is interpreted as a school.) To be approved, a program must offer a maximum of three years of Homemaking, at least two of which must be beyond the 8th grade level.

The enrollment in the 103 Homemaking programs totals 10,203 students, which includes 7,338 in grades 9-12 and 2,865 in grades 7 and 8. According to the Summary Report for 1969-70 prepared by the Home Economics Division of the State Board, there are 16,110 girls in grades 9-12 in high schools where approved vocational homemaking classes are conducted. Based on this figure, 45.5 per cent of the high school girls in the 103 high schools reported were enrolled in consumer homemaking education classes.

In Table 13 it is noted that 10 Consumer and Homemaking programs served youth in economically depressed areas in which a total of 616 persons were enrolled. Of this number, 589 were female and 27 were male.

There were no programs reported as serving adults in economically depressed areas. Although there were some adult programs conducted in the State, none were located in areas identified as "depressed" according to the map, 2.1, page 7, Part II, State Plan for Vocational-Technical Education, 1969. Failure to achieve a "projected 1970 outcome" of four programs for adults in economically depressed areas is attributable to the fact that areas identified as "depressed" and those in which adult homemaking programs are conducted, do not coincide.

Table 13 indicates 18 programs in 1969-70 serving adults where programs emphasized "consumer education." Twenty-two (22) such programs were conducted during the 1968-69 school year and 32 were projected for 1969-70. The actual outcome of only 18 programs with an enrollment of 309 students as explained by the Homemaking Staff of the State Division of Homemaking, is due to three factors: (1) a lack of teacher education emphasis on adult education; (2) an increasing number of Extension Service offerings in adult education for homemakers; and (3) more women working in full-time employment.

Evaluation of Outcomes

Evaluation of outcomes for consumer and homemaking education relative to the number of programs serving youth in economically depressed areas showed "current status, 1969," as nine programs, "1970 projected outcome" set as 10, and "1970 actual outcome" achieved as 10 programs operated. Thus the 1970 achievement equaled the goals set. This represents a gain of 10 per cent in number of programs operated in 1970 over the 1968-69 school year.

The number of programs serving adults in economically depressed areas for "1969 current status" was two. The "1970 outcome sought" was four. However, the "1970 actual outcome" saw no programs operated; thus, no measurement of progress was possible.

Relative to the number of programs serving youth in which the emphasis was on consumer education indicated the "1969 current status" as being 103, "1970 projected outcome sought" 104, and "actual outcomes" achieved for 1970 as being 103 programs conducted.

The number of programs serving adults in which consumer education was emphasized revealed the "1969 current status" as being 22 programs, the "1970 projected outcomes sought" as being 32, and the "1970 actual outcome" was 30 programs conducted - a substantial increase over the "1969 current status" but slightly short of the "1970 outcomes sought."

TABLE 14

5.65(a, b, c, d, e, f) EXTENT OF PARTICIPATION OF SCHOOLS AND EMPLOYERS IN COOPERATIVE EDUCATION PROGRAMS BY SERVICES, 1969-70

Kind & Number of Programs	Enrollments in all Services	No. of Secondary Schools Offering Programs	Enrollments in Secondary Schools	No. of Post-Secondary Programs	Enrollments in Post-Secondary Schools	No. of Employers
Agric. 13	102	13	102	0	0	89
Dist. Ed. 26	710	26	710	0	0	570
Office Ed. 3	59	3	59	0	0	56
Health Occu. 1	19	0	0	1	19	19
Total 43	890	42	871	1	19	734

(The per cent of vocational secondary and post-secondary students enrolled in cooperative education programs is 6.98 and 1.4, respectively.)

Table 14 represents the number of programs, enrollments, schools, and employers involved in cooperative education.

Forty-two (42) programs were conducted with a total enrollment of 890 persons. The secondary programs accounted for 42 of the 43 programs and 871 of the 890 enrollments.

All cooperative programs were offered within four of the various services; namely, Agriculture, Distributive Education, Office Education, and Health Occupations.

The cooperative student enrollment was 6.98 per cent of the total secondary vocational student enrollment and the cooperative post-secondary enrollment was 1.4 per cent of the post-secondary vocational enrollment.

A total of 734 employers were involved in the training of cooperative students, an average of approximately 1.2 students per employer.

Evaluation of Outcomes

South Dakota increased the number of persons enrolled in cooperative programs to 809 in 1970. The number of programs increased from 29 in 1969 to 43 in 1970, but percentage-wise, there was no change in the number of secondary vocational students enrolled in cooperative education programs. There was a drop in the number and per cent of post-secondary programs.

TABLE 15

NUMBER OF PROGRAMS, ENROLLMENTS, AND COMPLETIONS IN THE STATE MANPOWER DEVELOPMENT AND TRAINING PROGRAM FOR 1970

School	No. of Programs	Funded	Enrolled	Dropped	On-going	Completed
Black Hills	3	33	33	8	11	14
Lake Area	6	52	50	5	39	6
Mitchell	6	81	75	10	51	14
Sioux Falls	5	42	35	4	23	8
Pierre	2	9	9	2	7	0
Total	22	217	202	29	131	42

Relative to Manpower Development Training, South Dakota received funds for 217 trainees. Two-hundred two (202) were enrolled. Twenty-nine (29) dropped, 131 were still in classes and 42 completed training at the time of the June 1970 reporting period.

There were 22 programs in six locations. A number of individual referrals were made to on-going programs.

SECTION II

PART A

AREA VOCATIONAL-TECHNICAL SCHOOLS

INTRODUCTION

South Dakota has created a state-wide system of area vocational-technical schools. The authority for this system was State legislation enacted in 1965. To implement the legislation, the State Board of Vocational Education has defined six geographic areas, which collectively encompass all counties of the State. In each of these an area vocational-technical school has been or will be constructed. As of July 1, 1970, five of the six area schools have been constructed. The sixth area is still conducting studies to determine the most feasible location for its facility. In addition to the six areas defined and designated for area vocational-technical schools, one State college has been designated.

The purpose of the area vocational-technical schools is to provide a means through which high quality vocational education programs will be made readily available to all persons of all ages of all communities of the State, which will be realistic in light of actual or anticipated opportunities for gainful employment and which are suited to their needs, interests and abilities to benefit from such training.

As a part of the state-wide evaluation of the vocational-technical program, a critical look was taken at the area schools to determine how effectively they are fulfilling their purpose. To accomplish this aspect of the evaluation a visit by two members of the consultant staff was made to the area schools at Mitchell, Sioux Falls, Watertown, Rapid City, and to the Technical Training Division of Southern State College in Springfield. Specific aspects of each school that were examined included administration, curriculum, instruction, student factors, advisory committees and physical plant. The evaluation of the area vocational-technical schools is limited to these six factors and in terms of "findings" and "recommendations."

In fairness to the people of the State of South Dakota and to the State leadership of the vocational-technical program, a genuine tribute must be paid for the vision and commitment evidenced through the system of area schools to improve and extend vocational education opportunities over the State. Many

states with far greater resources and considerably fewer obstacles cannot equal the achievement of South Dakota in the growth of its vocational-technical education program.

This evaluation takes into consideration the many extenuating circumstances attendant to the evolvement of the system and to the matters of expediency that had to be dealt with in the early stages of its development. Any criticisms implied in the findings and recommendations are intended to be constructive and are made in the spirit that continued improvement of the program of vocational education might accrue to the people of the State through the area schools.

OBSERVATIONS AND FINDINGS

Administration

1. The secondary school district in which each of the area schools is located, except at Southern State College, has been designated by the State Board of Vocational Education as the administrative unit. The local district superintendent of schools is the chief administrative officer. This kind of designation and administration is within the definition of the term "area vocational education school" as set forth in the Vocational Education Amendments Act of 1968.

2. The Director of the area vocational-technical school, and all the staff, are employed by the local board of education and work under the jurisdiction of that board and its chief administrative officer.

3. In one of the area schools there was found to be so much administrative segmentation that a breakdown in coordination and communication among administrative personnel had occurred. Decision-making functions had deteriorated and frustrations and uncertainties were in much evidence among instructional staff. A damaging friction had developed within the administration due to the conflict of major interests among those serving the local district's secondary school needs and those with the broader concern of serving total vocational needs of an area school.

In another school the dichotomical nature of the program -- a division for the local high school and another for the area school concept -- has definitely mitigated against creative and progressive leadership on the part of the Director of the area school. He works under the Director of Curriculum of the High School to which the area school is attached.

In yet a third school, and one which appeared to have the strongest and best coordinated administration, much concern was expressed that the area school is in fact a local district school which serves as an area school for students primarily outside the district. Interest and willingness were expressed to change the school to a truly "area" one, financed on an area base and administered by a board representative of the area designated.

4. The nature of the designation and the make-up of the administration of each area vocational-technical school in reality makes it a local district school whose curricular offerings are available to any person of the State, but particularly to those in the geographic area defined by the State as being served by the particular area school.

5. Although the number of counties in each area to be served by an area school ranges from 5 to 18, yet there is no representation on the administrative board of the area school outside of the local district in which the school is located.

6. The local portion of the financial burden and responsibility for the area school is assumed by that local high school district in which the school is located.

7. The tuition rate is set by the State at $40.00 per month for full-time students who are residents of the State, except that secondary school students enrolled in vocational programs in the area schools pay no tuition. Generally, tuition charged for adult courses offered through the area schools is based on the nature and the length of the course.

8. In the brochure "Prepare For Your Future," issued by the Division of Vocational-Technical Education of the State, in which an area vocational school is defined, it states " . . . to serve high school students, high school graduates, out-of-school youth and adults in a single district or any combination of districts constituting the center's service area."

In reviewing the enrollments of the area schools in terms of the purpose set forth in the State's definition, it was found that the high school students of the local high school districts designated as area schools were being served, but high school students from outside of those districts were inadequately served. The out-of-school youth, again from within the districts were being adequately served, but potential members from beyond a reasonable commuting distance are being neglected. The adult group, to which the area schools have committed themselves, is in very little evidence and generally can be considered "an educational void."

9. The area schools of the State, other than Southern State College, provide no dormitory facilities, thus necessitating students to commute or find their own housing. In light of this fact and the great distances involved even within each of the designated areas, it would be feasible to expect that there would be satellite centers, extension centers, mobile instructional units, or other evidence that programs were being taken to the people in the distant communities of the service area. This was not the case.

10. Southern State College at Springfield is unique among the State's area vocational-technical schools. That Division of the College designated as an area vocational school is an integral part of the system of higher education of the State and is governed by the Board of Regents for Institutions of Higher Learning in South Dakota.

Enrollees in the Institute of Southern State College are required to be high school graduates or equivalent. The school operates on a semester basis and tuition is based on a "per unit" charge of $10.35 for residents and $22.50 for non-residents. (A normal full-time student load is 16 units.) Other fees, plus room, food and books, runs the approximate cost per semester (18 weeks) to $600.00 for residents and $800.00 for non-residents.

11. As a general observation, there is little evidence that local "administration" is engaged in a conscious program of public information and public relations that would generate and perpetuate genuine public understanding and support for area vocational-technical programs on an area-wide basis.

Curriculum

1. Each area school is required to conduct courses in at least five occupational areas. There is full compliance with the requirement and most of the schools exceed the minimum.

2. Since the population of the State is sparce and duplication of some of the more costly technical courses would be prohibitive, the State has encouraged each school to develop specialized courses that might not be offered in the other schools. The more common curricula are offered in each school.

3. Most curricula and course offerings are designed for the out-of-school youth preparing for entry into employment. (This is exclusive of the preponderance of high school exploratory or vocational programs conducted in most of the area vocational-technical school facilities.)

4. In general, there is a weakness in the curricular and course offerings for women, including the out-of-school girls who need training or retraining to become productively employed.

5. The general lack of concern for the older adult, either employed or temporarily unemployed, is evidenced by the lack of courses designed for and available to that group.

6. Little consideration is given to the needs of the disadvantaged and handicapped in the way of special curriculum development and special course offerings. Any such persons who might be enrolled are integrated with the regular students.

7. Most curricular offerings are for the traditional occupations and very little emphasis is given to "emerging occupations."

8. A serious effort is made to relate curricular offerings to the manpower needs of the community, State and nation, but current data and projections which are so essential have been extremely difficult to obtain.

9. There does not appear to be a definite plan or system for the periodic evaluation of curriculum and course content to assure its adequacy or currency. Although most schools recognize this need and believe that some evaluation does take place, they also admit to a rather haphazard approach and cannot define the specifics of this phase of the program.

10. In the one area school of the State where no local secondary school vocational programs are conducted in the area school facility, there was found to be broad and well planned curricular offerings, generally sufficient to meet the needs of the area served. There has been, however, a disappointing response from the local community in program enrollment.

Instruction

1. All instructors in the area schools are required to meet State Plan requirements for subject matter competency and professional preparation. In general, it was observed that the instructional staff is well selected, competent for their assignments and dedicated.

2. There was generally a lack of a systematic program of in-service teacher education and upgrading. In one area school the vocational-technical instructional staff is invited to meet with the secondary school instructional personnel whenever any in-service training programs are offered. Other schools achieve

some in-service training through staff meetings or through a limited amount of itinerant service from the State's Teacher Training Institutions.

3. Classroom (related) and laboratory instruction are well balanced in most of the area schools and generally there are well planned course outlines and lesson plans on file in the administrative office of the school. One exception was found to this latter procedure and there was attendant evidence that inadequate lesson planning was required.

4. The student-teacher ratio was found to be such that much individual instruction was possible, and a very fine rapport prevailed between staff and students.

5. There was a general absence of student progress charts and the only evidence of such progress was too often concealed in the instructor's grade or attendance book. Incentive for competitive performance among students was lacking.

6. There was considerable evidence of proper and adequate use of teaching and other audio-visual aids.

7. In view of the fact that approximately 24 per cent of the South Dakota work force is engaged in the agricultural industry, there is a most apparent lack of emphasis on courses designed to meet these needs.

Student Factors

1. Selection of students for the area vocational-technical schools, other than the local high school students who participate, is primarily a matter of "walk-in" enrollment. Recruitment, per se, is not commonly practiced by the area schools; however, the schools do participate in high school career-day programs and their representatives are available to local high schools upon request. Brochures describing the area school's programs and other facts concerning it are widely distributed.

2. Students 16 years of age and over are eligible for enrollment in area schools. Some courses require high school graduation or a GED equivalency. Testing services are available and may be administered if requested by the student or if felt necessary for the proper placement of a student in a training program.

3. Guidance and counseling services, of a sort, are available to students, but admittedly are quite incidental rather than being a planned and designed part of each student's program.

Pre-enrollment counseling is done by the high school guidance personnel who may lack qualifications as a vocational counselor. Generally, the area vocational-technical school staff does not include a trained vocational counselor.

4. Student housing is not provided by the area schools, except at Southern State College, but assistance is given students who must arrange for their own housing. Assistance is also given students who are eligible for and desire student government loans.

5. Student activities, clubs and organizations are encouraged and given sponsorship by the schools. These contribute to good student morale and frequently serve to supplement instruction.

6. Job placement upon graduation or course completion is largely a matter of personal effort by the student but is given some assistance by the school. Records of placement are available.

7. Very little follow-up of graduates is done to determine employment success, employee satisfaction, student reaction to training received or the other factors that might serve as some of the guidelines for program evaluation.

Advisory Committees

1. It is a general practice for each area vocational-technical school to have a broadly representative, over-all advisory committee. These committees tend to function as an administrative aid, concerned primarily with matters of finance, facilities, staffing, etc. In some instances, certain members of the "over-all" advisory committee are functioning in an advisory capacity as a craft representative for a particular curriculum or course.

2. The use of organized craft committees is a very "sketchy" practice. The desirability of separate craft committees is acknowledged and it is the expressed intent by the schools to organize them where they do not exist.

3. In some schools minutes of advisory committee meetings are not made available to the chief administrator of the school, if, in fact, such minutes do exist.

4. The infrequency of the advisory committee meetings is a matter of concern to the consultants. A common practice seemed to be

one meeting a year of the full committee plus some individual member contact when problems arise. (There are many inherent dangers in this practice which could ultimately destroy the fundamental concept and values of advisory committees where decision by concensus is so imperative.)

5. Some area schools purport to use advisory committees for curriculum and course content review and revision - a very commendable practice if the committees are representative of the crafts and if their recommendations are implemented.

Physical Plant

1. One of the strongest features of the State's system of area vocational-technical schools is the quality of physical facilities that have been provided. Excellent State leadership is evidenced in the compatibility of facilities with programs of instruction conducted in them.

2. Utility and flexibility are characteristic of the facilities visited at Mitchell, Sioux Falls, Watertown, and Rapid City. Vision and foresight were exercised in planning and construction which provide for simple modifications as well as for major expansion if and when necessary.

3. Some very crowded conditions were observed in one of the area schools as a result of heavy utilization of the facility by the local secondary school students during the same time the post-secondary students were scheduled in the facility. Confusion, frustration, and ineffective teaching resulted.

4. Housekeeping - general cleanliness - was observed to be very good with the exception of a few isolated instances. The storage and temporary disposal of shop and laboratory supplies and materials had not been adequately provided for in some facilities, resulting in "cluttering" and loss of valuable instructional space. (The Mitchell area school found it necessary to build special space to alleviate this condition.)

5. Safety factors have generally been given close attention, as have factors of general health, including lighting, ventilation, and sanitation.

PART B

STATE-LEVEL ADMINISTRATION AND SUPERVISION

There is a direct correlation between the quality and scope of vocational-technical education in local schools and the effectiveness of state agency leadership, service, and administration. To better understand this relationship and its implications for growth and improvement of vocational-technical education in the State of South Dakota, it is important that an assessment of the agency, the State Division of Vocational and Technical Education, be made.

The activities of the State Vocational-Technical Division depend partly upon the laws, rules, regulations, and policies which are in effect; but there are other factors which affect performance. There are many individuals and members of other agencies that interact with or are clients of the State Vocational-Technical Division. The manner in which these persons view the Division - both from the standpoint of what they expect from it and how they actually perceive it - is an important factor in the degree of effectiveness with which the Division performs. The significance of these concepts and perceptions could well justify a thorough study of administrative aspects of vocational-technical education in the State.

In dealing with the State-level administration and supervision activities, this phase of the current evaluation will consider only the dual role of leadership and regulatory functions of the Division in relationship to the program objectives. Even this cannot be considered an in-depth study since the findings are limited to an internal analysis and based on information and observations related to the projections and actual outcomes of the program objectives as outlined in the State Plan.

OBSERVATIONS AND FINDINGS

The following is pertinent to the state administrative structure and activities:

1. The State Board of Vocational Education consists of seven members appointed by the Governor and is the sole agency responsible for the administration of the State Plan for Vocational Education in the State of South Dakota.

2. The State Director is appointed by the Governor upon the recommendation of the Board, and is Executive Officer of the Board. The Executive Officer is the chief administrative officer for all vocational education activities. He is a fully

qualified vocational educator through formal educational preparation and occupational experience.

3. A State Advisory Council of 18 members, appointed by the Governor, has been established to advise the State Board, to evaluate the State's vocational education program, to prepare and submit an annual evaluation report and to disseminate information.

4. The administrative and supervisory staff of the Division consists of one part-time and seven full-time professionals plus a fiscal officer and a supporting secretarial and clerical staff.

5. The Division of Vocational-Technical Education consists of eight major vocational service areas; namely:

Agriculture (1)
Business Education (1)
Distributive Education (1)
Home Economics (1-1/2)
Health Occupations (0)
Trade and Industrial (0)
Technical Education (0)
Manpower Development and Training (MDTA) (1)

The number of professional persons assigned to each of the service areas is indicated above by the parenthetic figure following each. The Director and Assistant Director share duties and responsibilities attendant to the areas of Health Occupations, Trade and Industrial, and Technical Education in addition to over-all administrative responsibilities.

6. As a part of the evaluation process, the State supervisory and administrative staff members were asked to (1) identify areas of supervision in their particular service fields in need of strengthening, modification, and/or expansion; and (2) to identify those areas of general supervision and administration in need of strengthening, modification, and/or expansion. Further, response was sought from the staff concerning how these changes can be accomplished.

The following areas, or aspects, of supervision were identified by the staff as being in need of strengthening, modification, and/or expansion:

a. More supervisory assistance to beginning vocational teachers.

b. Increased leadership training for vocational youth groups, such as the FFA.

c. Assist teachers obtain occupational experience in those vocational areas where such experience is required. (Especially proposed for teachers in the Office Education field.)

d. Develop guidelines for procedures for state office approval of local programs.

e. Step up efforts for all vocational teacher recruitment.

f. Increase state leadership through regional conferences with administrators and teachers, to consider any and all appropriate matters.

g. Provide specialized supervisory service in the field of Health Occupations.

h. Expand supervisory services in the areas of

   (1) Curriculum development, procedures & materials
   (2) Adult education
   (3) Program evaluation
   (4) Public information

i. Strengthen occupational programs in Home Economics.

j. Give more adequate supervision to teacher education.

k. Maintain closer total State vocational staff coordination.

In order to accomplish the improvements suggested in the foregoing, the following means were proposed by the staff:

a. In general, provide additional staff and additional money.

b. Provide orientation workshops for beginning teachers.

c. Develop and adapt criteria for establishing priorities for program approvals by State staff.

d. Affiliate all State vocational youth groups with a national counterpart.

e. Employ a supervisor for Health Occupations.

f. Reinstate radio and TV programs promoting understanding and desire for vocational-technical education.

g. Each staff member develop a more thorough acquaintance with overall State administrative and supervisory problems.

The staff response to request number (2), "Identify areas of general supervision and administration in need of strengthening, modification, and/or expansion," showed the following:

a. Reimbursement policies.

b. Program approval procedures.

c. In-service teacher training.

d. Counseling services.

e. Fiscal matters.

f. State staff coordination.

g. Intra-office communications.

Suggestions by staff members for improvement in the above areas included the following:

a. Establish definite reimbursement policies, publish these policies and abide by them.

b. Establish program approval procedures that will be followed by the State staff.

c. Provide for an increased amount of in-service teacher training on a systematic basis.

d. Strengthen counseling services to give special emphasis on vocational counseling.

e. Develop advance planning in fiscal matters with the involvement of supervisory staff.

f. Conduct in-service conferences for staff members on administrative and supervisory policies, procedures, and problems.

g. Communicate all policies and procedures by written directives and memoranda.

7. It is recognized that the State Board of Vocational Education is the policy-making body for the State's programs of vocational-technical education, and that its interest in and concern for the program in general acts as a strong influence on the effectiveness of administration and supervision. In a review of the minutes of the meetings of the State Board for the three immediate past fiscal year periods, it was noted that the Board met in four regular sessions and two special sessions in fiscal year 1968; six regular sessions in fiscal year 1969; and in four regular sessions in fiscal year 1970. Approximately one-half day is devoted to each meeting; however, the minutes indicated a variation from one hour to one day.

8. Much of the implementation of overall responsibility for State level administration and supervision depends upon the financial resources available. In reviewing the State appropriations for this purpose and also for reimbursements to local districts for the past three fiscal years and for fiscal 1971, the following was noted:

	State Appropriation			
	FY 1968	FY 1969	FY 1970	FY 1971
For Administration	$ 51,365	$ 58,900	$ 63,107	$ 77,945
For Financial Assistance to Local Schools (Reimb.)	$100,000	$100,000	$200,000	$400,000

It can be seen that while funds for assistance to approved programs in local schools increased by 100 per cent from fiscal 1968 to fiscal 1970, and by 400 per cent in fiscal 1971, appropriations for state administration were increased by 20.8 per cent and 51.7 per cent for the corresponding periods.

9. The quarters for housing the State staff for vocational-technical education, space-wise, is barely adequate at the present time. Any increase in professional, sub-professional, or clerical staff would require an expansion in floor area and offices needed to house the staff adequately. The present quarters are attractive, well appointed, and comfortable.

SECTION III

SUMMARY OF PERTINENT DATA, INFERENCES AND RECOMMENDATIONS

SUMMARY OF 1970 OUTCOMES SOUGHT AND ACHIEVED

5.1 Secondary

The following is a summary of secondary vocational-technical education data having a bearing on the evaluation process. The number of secondary vocational-technical education enrollments for 1969-70 was 12,727 or 25 per cent of the 50,720 secondary students enrolled in the public secondary schools of the State.

Concerning the "1970 outcomes sought" in which the goals set were equalled or exceeded were:

(5.1-a) 1. Percentage of secondary school students enrolled in vocational education, urban and rural

(5.1-d) 2. Percentage of students available for work, placed in jobs following training

(5.1-e) 3. Vocational education completion rate (per cent)

(5.1-f) 4. Vocational student - guidance counselor ratio

Concerning "1970 projected outcomes sought" in which the goals set were not equalled or for which no data were reported were:

(5.1-b) 1. Percentage of secondary school students entering post-secondary vocational programs (data not available)

(5.1-c) 2. Total number of instructional programs (no comparable data available)

5.2 Post-Secondary

The following is a summary of the outcomes relating to post-secondary vocational-technical programs having a bearing on the evaluation process.

The estimates as projected place the number of persons age 15-24 at 117,500. Of this number, 1,334 were enrolled in 52 post-secondary programs (all services). Ninety-two (92) per cent of those available for work were placed in jobs. Only 19 of the 1,334 enrollees were in cooperative education programs.

Considering the objectives for the post-secondary section on which the "actual 1970 outcomes" achieved equalled or exceeded the "1970 outcomes sought" were:

(5.2-c) 1. Number of instructional programs

(5.2-d) 2. Percentage of students, available for work, placed in jobs following training

Objectives in which the "1970 actual outcomes" achieved failed to meet the "1970 projected outcomes sought" were:

(5.2-a) 1. Percentage of population age 15-24 enrolled in post-secondary vocational education

(5.2-b) 2. Percentage of post-secondary (2 year) students enrolled in vocational education

(5.2-e) 3. Number of instructional programs for emerging occupations (not reported)

(5.2-f) 4. Vocational student-counselor ratio

5.3 Adult

The 1970 estimated adult population, 15 years of age and above, for South Dakota was projected to be 486,300. Of this number, 4,809 adults were being trained through 219 vocational-technical programs (all services).

Relative to the one objective established in which the "1970 actual outcomes" achieved equalled or exceeded the "1970 outcomes sought" was as follows:

(5.3-a) 1. Percentage of population age 15-24 enrolled in adult vocational education (both urban and rural students)

Concerning the objectives in which "1970 actual outcomes" achieved failed to meet the "1970 outcomes sought" were:

(5.3-b) 1. Total number of instructional programs

(5.3-c) 2. Number of new instructional programs (not reported)

(5.3-d) 3. Vocational education completion rate (not reported)

5.4 Disadvantaged

It is estimated that there are a total of 50,549 disadvantaged persons in South Dakota.

Concerning "1970 projected outcomes sought" and "1970 actual outcomes" achieved in which goals set were equalled or exceeded were as follows:

(5.4-a) 1. Percentage of disadvantaged population (by level) enrolled in vocational education

(5.4-b) 2. Number of instructional programs

(5.4-c) 3. Number of students enrolled in cooperative education programs

Relative to "1970 projected outcomes sought" and "1970 actual outcomes" in which goals set were not equalled or not reported were:

(5.4-d) 1. Number of students enrolled in work-study programs (data not available)

5.5 Handicapped

Statistics for 1970 indicated that there were 62,200 handicapped persons (all ages) in South Dakota. A total of 365 handicapped persons or .58 of one per cent of the total group were served through 21 instructional programs. Thirty-four were enrolled in cooperative education.

Objectives in which the "1970 actual outcomes" achieved equalled or exceeded the "1970 outcomes sought" were:

(5.5-a) 1. Percentage of handicapped population enrolled in vocational education at the secondary and post-secondary levels

(5.5-b) 2. Number of instructional programs

(5.5-c) 3. Number of students enrolled in cooperative education programs

Concerning the objectives in which the "1970 actual outcomes" achieved failed to meet the "1970 outcomes sought" were:

(5.5-a) 1. Percentage of handicapped adult population enrolled

(5.5-d) 2. Number of students enrolled in work-study programs

5.6 Special Programs

5.61 Research - A contract has been initiated between the South Dakota Division of Vocational Education and the Business Research Bureau, School of Business, University of South Dakota, dated May 15, 1970. Said contract covers a research project bearing on "manpower needs and opportunities in South Dakota." The contract extends through June 30, 1971.

The purposes of the research project(s) are to:

1. Determine manpower most needed in South Dakota

2. Determine job opportunities in South Dakota in various vocations based on findings

3. Assist with the planning of Vocational Education in South Dakota

The objectives for special programs in research in which "1970 actual outcomes" achieved equalled or exceeded the "1970 outcomes sought" were:

(5.6-a) 1. State labor market statistics

(5.6-b) 2. Vocational program evaluation

(5.6-d) 3. Special research projects

Relative to the objectives in which the "1970 outcomes achieved" fell short of the "1970 outcomes sought" were:

(5.6-c) 1. Determination of fiscal responsibility for funding vocational education and legislation needed (not reported)

5.62 Exemplary Programs - Funds for exemplary programs became available to the State on April 17, 1970. A proposal for a single project with State-wide implications was prepared

and submitted to the USOE for approval. Suggestions were offered by the USOE for strengthening the proposal. A revised and amended proposal was submitted and approval is assured. However, there will be no implementation of the exemplary program until after July 1, 1970.

The actual outcomes for all of the objectives relating to the exemplary programs were short of goals set for the "1970 outcomes sought" and were as follows:

(5.62-a) 1. Programs geared to disadvantaged and handicapped

(5.62-b) 2. Programs geared to needs of rural population

(5.62-c) 3. Programs geared to needs of persons living on Indian reservations

5.63 State Residential Vocational Schools - No residential schools are presently operated and none are planned at present.

The objectives for residential vocational schools in which no "1970 actual outcomes" were achieved and for which there were no "1970 outcomes sought" established were:

(5.63-a) 1. Number of schools

(5.63.b) 2. Number of students to be served

5.64 Consumer and Homemaking Education - The consumer and homemaking education program represents 7,338 of the total secondary vocational-technical education enrollments of 12,727 students.

Concerning "1970 outcomes sought" and "1970 actual outcomes" in which the goals set were equalled or exceeded were:

(5.64-a) 1. Number of programs serving youth in economically depressed areas

(5.64-c) 2. Number of programs serving youth
Number of programs emphasizing consumer education

Relative to the "1970 outcomes sought" and the "1970 actual outcomes" in which the goals set were not equalled or not reported were:

(5.64-b) 1. Number of programs serving adults in economically depressed areas

(5.64-d) 2. Number of programs serving adults
Number of such programs emphasizing consumer education

5.65 Cooperative Education - Concerning the scope of cooperative education for the 1969-70 school year, 890 or 6.98 per cent of the vocational students were enrolled in 43 programs, one of which was at the post-secondary level with 19 students enrolled in a Health Occupations program.

Seven hundred thirty-four (734) employers cooperated in this training program.

Relative to the objectives identified for cooperative education in which the "actual 1970 outcomes" achieved equalled or exceeded the "1970 outcomes sought" were:

(5.65-a) 1. Number of programs

(5.65-b) 2. Number of secondary schools offering programs

(5.65-c) 3. Number of post-secondary schools offering programs

4. Number of employers participating

Concerning the objectives where the "1970 actual outcomes" achieved failed to meet the goals set for the "1970 actual outcomes sought" were:

(5.65-e) 1. Percentage of secondary vocational students enrolled

2. Percentage of post-secondary students enrolled

5.66 Work Study - Federal funds authorized for work study were not appropriated until late in the fiscal year 1970. South Dakota was notified of the availability of its work study funds on April 17, 1970. One local program was approved and became operative prior to the close of the fiscal year. Other local schools are in the process of applying for work study funds, but it will be in fiscal 1971 before additional programs are implemented.

All of the objectives established for this section relative to "1970 outcomes sought" in relation to "actual 1970 outcomes" achieved were short of the goals set or not accomplished and were as follows:

(5.66-a) 1. Number of schools offering programs

(5.66-b) 2. Number of post-secondary schools offering programs

(5.66-c) 3. Percentage of secondary vocational students enrolled

(5.66-d) 4. Percentage of post-secondary vocational students enrolled

Summation

A total of 49 vocational objectives were established for the 1969-70 school year. Achievement equalled or exceeded the "outcomes sought" for 28 of these objectives. Achievements for the remaining 21 objectives failed to meet the goals set, or were not reported.

No attempt was made to evaluate the relative importance or priority status of the total number of vocational objectives established. However, it must be noted that some objectives placed in the group failing to meet the "1970 outcomes sought" were below the goal set by a very narrow margin.

Teacher Education

The following data, not appearing previously in tabular form or otherwise, are presented relative to teacher education in vocational-technical education in South Dakota. Some of the pertinent facts and information bearing on the 1969-70 college year are:

1. The duration of the student teaching period varied from 8-9 weeks for all vocational services.

2. The total number of college students reported for 1969-70 in teacher education (all services) by college level of attainment was sophomores - 132, juniors -110, and seniors - 109. There were 94 graduate students confined solely to Office Education. Distributive Education has no teacher education program for this service in South Dakota.

Assuming that there is little or no attrition among the sophomore group (132), the number of teachers qualified in the 1972-73 college year should be the largest during the mid-1970's.

3. The number of vocational teachers (all services) prepared and qualified to teach has risen steadily during the past three year period as follows: in 1967-68, there were 79 teachers, in 1968-69, there were 92 teachers, and in 1969-70, there were 115 teachers.

4. The number of qualified vocational teachers for 1969 (all services) placed in jobs in South Dakota numbered 38. Thirty-one (31) teachers were placed out-of-state.

5. Among the 1970 graduates qualified to teach, 109 were available for placement. Home Economics Education accounted for 50 of the total, followed by Trade and Industrial with 21, Agriculture with 20 and Business Education with 18.

6. There were seven research projects carried out by the teacher education staffs (all services) during the past three-year period, 1967-70.

7. Practice teaching centers were chosen jointly by the State Vocational Staff and the college teacher education staffs for three of the teacher education programs. One teacher education staff reported the centers were chosen by the college department head only. All institutions reported that the supervising teachers of the student teaching centers must have a minimum of three to five years of successful teaching experience plus some graduate work or other specific training for this responsibility.

8. Relative to the prerequisites for students to enter college teacher education programs, considerable variations were found among the four institutions' teacher education departments. However, all indicated occupational experience and health examinations as prerequisites. Two teacher education departments gave minimum scholastic grade point averages of 2.0 or better as prerequisites to entry.

9. No evaluation of adequacy of staff in teacher education or professional qualifications was made.

RECOMMENDATIONS FOR AREA VOCATIONAL-TECHNICAL SCHOOLS

Administration

Concerning the ADMINISTRATION aspect of the State-wide system of area vocational-technical schools, IT IS RECOMMENDED THAT:

1. The State Legislature of South Dakota by statutory action divide the State into six districts, or administrative units, covering collectively the entire sixty-seven (67) counties, for area vocational-technical schools, with the boundaries of the six (6) districts delineated by the State Board of Vocational Education.

2. Statutory provision be made requiring that, in each district, an Area Vocational-Technical School Board be established with at least the following characteristics:

   (a) Each Board will consist of nine (9) members to be elected at large on a non-partisan ballot, each member to serve three (3) year terms, with three (3) members being elected every three (3) years, and eligible for re-election.

   (b) Each county shall be represented by an elected member except that in a district with more than nine (9) counties, a plan of rotation shall be worked out so that each county in turn will at a given time have an elected representative on the Board.

   (c) The boards for area vocational-technical schools shall have the same financial powers regarding taxes, bond issues, contracts, and state financial assistance as those given to local school districts.

   (d) Each area vocational-technical school board shall select annually from its membership a President, Vice-President, and Clerk-Treasurer.

3. Each area vocational-technical school board will administer a program of vocational-technical education in accordance with the direction of the State Board of Vocational Education which shall include the following minimum characteristics:

   (a) Programs designed to meet the occupational needs of in-school youth, out-of-school youth and adults

(b) Programs designed for disadvantaged and handicapped persons

(c) Programs designed especially for women which will lead to gainful employment

(d) Programs in consumer and homemaking education

(e) Programs of Cooperative Education through which a meaningful work experience is combined with formal education enabling students to acquire knowledge, skills, and appropriate attitudes.

4. Each area vocational-technical school board conduct a comprehensive program of vocational-technical education consisting of at least five (5) occupational areas in at least one center of the district in addition to such singular or combined programs in satellite communities of the district as would be feasible to meet the needs of those persons residing beyond a reasonable commuting distance from the central program.

5. The centers designated earlier as area vocational-technical schools, namely, Sioux Falls, Mitchell, Watertown, Rapid City, and Sturgis be re-designated as training centers under this new administrative plan, and that the center for the sixth district be designated on or before the effective date of the plan.

6. The cost of financing the capital improvements (site, building, equipment) be borne on a 50-50 basis -- 50 per cent by the area vocational-technical school district and 50 per cent by combined State and Federal funds; and that the operating costs be borne one-third by the area vocational-technical school district and two-thirds by State and Federal funds. An alternate plan would be that of total State-Federal financing.

7. The area vocational-technical school districts, in establishing their respective centers or in maintaining those already in existence, build new physical facilities unless adequate area school facilities can be bought or leased from local secondary school districts, other governmental units, or in the case of satellite centers, such facilities could more feasibly be acquired by rental or purchase from private sources.

8. A minimum school levy be required in each of the six area vocational-technical school districts as a source of area school financing and in order to qualify for State and/or Federal funds, and that the minimum levy be uniform among the six districts. Should total Federal-State financing become a reality, this levy would be unnecessary.

9. The area vocational-technical schools operate through the State's Division of Vocational-Technical Education -- its Executive Director and professional staff.

10. All vocational-technical schools operating as a part of the State-wide system be open to any resident of the State who can profit by the training offered.

11. There be a minimum tuition charge for residents of the State for attending the schools, and that a uniform system of student fees be established by the State Board of Vocational Education.

12. Each area vocation-technical school board select a chief executive officer (administrator) to be known as the Director who shall be a person with interest and experience in vocational-technical education, with preparation for and experience in school administration, and who shall otherwise meet the requirements of the State Plan for Vocational-Technical Education.

13. The area school Director select and recommend to the area vocational-technical board for appointment additional staff -- professional, para-professional, office, custodial, and maintenance -- as the need indicates and the budget permits.

14. The staff of the area vocational-technical schools serve as consultative personnel in assisting local high schools in the area school district with their exploratory, pre-vocational and vocational programs and with any adult vocational education programs.

15. The South Dakota Vocational-Technical Institute of Southern State College at Springfield be continued as a State supported facility under the administration of the Board of Regents, for the purpose of offering two-year vocational-technical programs leading to an Associate Degree of Applied Science, and that the Institute be considered an integral part of the State-wide system of area vocational-technical schools.

16. A thorough re-study be made of all the factors that should be considered in defining or redefining the six geographic areas designated for the purpose of service by the area vocational-technical schools. Consideration should be given to valuations as a potential tax base, population distribution, geographic barriers, distances, transportation and highway facilities and other factors that might bear on the

feasibility and effectiveness of the area school services in fulfilling the needs of a maximum number of persons in the State of South Dakota; and further, that such a study be made before any steps are taken to re-design the State-wide system of area vocational-technical schools, realign the present boundaries of the areas, or implement any of the major changes recommended in this portion of the evaluation report.

Curriculum

Concerning the CURRICULUM aspect of the State-wide system of area vocational-technical schools, IT IS RECOMMENDED THAT:

1. The state make a feasibility study to determine how persons in the outlying areas of the districts may be served by setting up mobile units, by setting up satellite programs in strategic locations and by the use of itinerant instructors.

2. More curricula for women be developed in areas such as office occupations, food service, cosmetology, health services, design, drafting, and commercial art and others which provide employment opportunities for women.

3. Greater emphasis be directed toward the recruitment of potential adult and post-secondary students who need initial training, or those who need upgrading and improvement for the job they now hold.

4. An increasing role be taken by the State Board of Vocational Education in the training of the disadvantaged and handicapped Indian. As a first step, an exploratory meeting be held to discuss ways and means by which vocational-technical education may be of greater service to this minority group. Such a meeting would be comprised of but not limited to high level representatives of the State Department of Vocational-Technical Education, the Bureau of Indian Affairs, Division of Vocational Rehabilitation and the U. S. Employment Service and other such organizations as have demonstrated an interest and ability to further the training objectives and job opportunities for this minority group.

5. Training for "emerging" occupations be provided when such occupations are identified and the need established by the U. S. Employment Service.

6. The State Vocational-Technical Advisory Council continue to take all necessary steps to see that up-to-date manpower needs information is made available to the State Vocational Staff and also that the computer service in Washington be utilized to the fullest extent.

7. Course content be kept current by the use of advisory craft committees to review course instructional materials on a regular basis. A copy of the ongoing course outline should be placed in the hands of each committee member a week or ten days prior to the meeting date at which the materials are to be reviewed.

8. All citizens of the area school district be made familiar with the educational opportunities in the area vocational school and that local high school students, guidance personnel, faculties and the general public be given a special invitation to visit the school.

Instruction

Concerning the INSTRUCTIONAL aspect of the state-wide system of the area vocational-technical schools, IT IS RECOMMENDED THAT:

1. The State of South Dakota continue to maintain the high standards now in existence for the selection of vocational-technical education professional personnel.

2. Teacher training institutions in cooperation with the State vocational staff increase the itinerant teacher training services to the local schools, and that they select qualified persons throughout the State and place them on their staff of teacher trainers to conduct local credit courses by extension.

3. The teacher training institutions in cooperation with the State vocational staff set up several one-day workshops to cover the same materials given in a regular credit course and credit be given for those completing the course.

4. Copies of all course outlines be made available to the State supervisors who are responsible for the respective programs, and that general guides for course construction be developed for state-wide use.

5. The State Vocational-Technical Staff develop a format of a Student Progress Record Chart and distribute copies to all schools in the State for their use in each vocational-technical course.

6. Since nearly 25 per cent of all the work force is engaged in agricultural occupations, that additional courses in this occupational area be developed.

Student Factors

Concerning the STUDENT FACTORS aspect of the state-wide system of area vocational-technical schools, IT IS RECOMMENDED THAT:

1. Effort be made to provide pre-enrollment counselling to each individual applicant concerning his interests and aptitudes and weigh these against those needed for the occupation for which he wishes training, and that each trainee be involved in no less than three counseling sessions with the guidance counselor or the administrator of the school.

2. Where approved student housing lists are not now available that they be made up and made available to students who need them.

3. Each area vocational-technical school cooperate with the local office of the U. S. Employment Service in placing graduates and, in addition, other appropriate placement efforts be made.

4. An annual five-year follow-up study of graduates be made to determine placement success, adequacy of training, employee progress, and satisfactions and dissatisfactions of the student and employers with the training program.

Advisory Committees

Concerning the ADVISORY COMMITTEE aspect of the state-wide system of area vocational-technical schools, IT IS RECOMMENDED THAT:

1. All area vocational-technical schools have both a general advisory committee and the necessary specific craft committees for each occupational area.

2. Advisory committees be used for curriculum revision, equipment selection, new course development, recruitment and placement of trainees, completion ceremonies, public relations and information.

3. Advisory committees be utilized frequently at regular meetings.

4. Advisory committees and their members be given appropriate recognition whenever possible at graduation ceremonies, open houses, exhibits, and through the means of brochures and news articles.

5. Accurate minutes of advisory committee meetings be kept and copies be made available to the district board and the State Supervisor who is responsible for the specific program of instruction.

6. When an advisory committee's recommendation is not to be accepted and implemented that the reasons for the rejection be made known to the advisory committee; however, if at all possible, the advisory committee's recommendations shall be implemented.

7. Recommendations concerning any aspect of the area vocational schools program be made by a concensus of the committee in regular meeting.

Physical Plant

Concerning the PHYSICAL PLANT aspect of the state-wide system of area vocational-technical schools, IT IS RECOMMENDED THAT:

1. The fine facilities now provided be further enhanced by providing additional storage facilities.

2. Safety conditions be closely observed and cluttering be prevented so hazardous conditions do not develop.

RECOMMENDATIONS ON OUTCOMES OF 1970
VOCATIONAL EDUCATION OBJECTIVES

Secondary School Programs

Concerning SECONDARY VOCATIONAL EDUCATION, IT IS RECOMMENDED THAT:

1. The Trade and Industries programs be greatly expanded to meet the emerging needs for workers as the trend for employment opportunities moves from agrarian to industrial and from rural to urban.

2. The Distributive Education program offerings and enrollments be increased to be more compatible with the proportion of workers in this field.

3. Greater use be made of the "cooperative/part-time" concept of vocational education by all vocational services at the secondary school level.

4. Guidance counselors be given training in vocational education and be provided with occupational data, materials and information in order to help students understand the opportunities available and the training needed to enter the world of work.

5. The State education officials work to achieve a vocational student-guidance counselor ratio of 200:1.

Post-Secondary

Concerning POST-SECONDARY, IT IS RECOMMENDED THAT:

1. An intensive recruitment program be implemented to encourage a larger per cent of post-secondary students to enroll in the Area Vocational Schools, and maximum use be made of all news media and public information techniques possible.

2. Emerging occupations pertinent to South Dakota be identified and training programs be instituted to help fulfill such employment needs.

Adult

Concerning recommendations for ADULT EDUCATION, IT IS RECOMMENDED THAT:

1. More comprehensive offerings in adult classes be developed in production and technical agriculture.

2. The area vocational schools expand their role in all service areas in training and retraining of adults to meet the ever-changing and advancing technologies.

3. The secondary schools throughout the State assume a greater responsibility in the training and re-training of the adults of their communities for the world of work. Further, that special study be given to the ways and means by which the State Department of Education and the Vocational-Technical Division might best promote this responsibility.

4. A special study be made to determine the need for training in those occupational areas especially suitable for women, and further, that action be taken with respect to the findings which result in program implementation.

Disadvantaged

Concerning the DISADVANTAGED population , IT IS RECOMMENDED THAT:

1. Special programs in all services and at all levels be organized where feasible to train the disadvantaged in marketable skills.

2. Priorities be set in determining how and where pilot classes for the disadvantaged might be organized and conducted most effectively in the State.

3. Special consideration and effort be given to establishing work-study programs for the disadvantaged.

Handicapped

Concerning the HANDICAPPED population of the State, IT IS RECOMMENDED THAT:

1. Teachers throughout the State (all services) be oriented to problems inherent in training the handicapped, referral procedures, training agencies, assistance programs, etc. for the handicapped.

2. Work-study programs compatible with individual handicaps be given special emphasis.

Special Programs

Among the State staff's top priorities relating to objectives set for 1969-70 school year were those related to (1) research and (2) exemplary programs. While a modest beginning has been made in these two areas, much remains to be done. Consequently, IT IS RECOMMENDED THAT:

1. Additional funds be provided for research activities. Further, that a joint committee be formed comprised of representatives of the State Advisory Council, State Board for Vocational-Technical Education staff, teacher education staff and teachers to identify problems in vocational-technical education requiring research effort as a basis for sound program planning.

2. A thorough study be made of the kinds of exemplary programs that would make the greatest educational impact on the State's disadvantaged and handicapped population and bridge the gap between school and earning a living for young people.

State Residential Vocational Schools (Not Applicable)

Consumer and Homemaking Education

Concerning CONSUMER AND HOMEMAKING EDUCATION, IT IS RECOMMENDED THAT:

1. An increased number of programs be established to serve the needs of adults in those areas of the State designated as "depressed."

2. An in-depth study be made of the wage-earning opportunities for women in a typical community of the State and that a pilot program be established in that community to demonstrate student selection, training procedures, and placement on the job.

Cooperative Education

Concerning COOPERATIVE EDUCATION, IT IS RECOMMENDED THAT:

1. Increased emphasis be given by all services to developing cooperative education programs at the post-secondary level.

Work-Study (Not Applicable for 1969-70 FY)

Teacher Education

IT IS RECOMMENDED THAT:

1. Consideration be given to the development of pre-service and in-service training for Distributive Education teachers at both the graduate and undergraduate levels.

2. Expanded itinerant-teacher training services be provided to all services that will:

   (a) Give more assistance to beginning teachers and teachers new to the State on an individual and small group basis

   (b) Offer in-service workshops through district and/or State meetings designed to up-grade teachers on the job

   (c) Teach extension courses of a graduate level within districts of the State where feasible

3. Closer coordination be effected among the staffs of the respective teacher education institutions and departments to facilitate teacher recruitment, undergraduate and graduate courses, extension classes in the field and research efforts.

4. Each of the cooperating colleges' and universities' teacher education departments add to their staff one or more qualified vocational teacher educators in order that one such person may be attached to each of the five area vocational schools. Such action would provide itinerant teacher education service on an area school district basis for the up-grading of in-service teachers.

RECOMMENDATIONS CONCERNING STATE-LEVEL ADMINISTRATION AND SUPERVISION

State-Level Administration and Supervision

Concerning STATE-LEVEL ADMINISTRATION AND SUPERVISION, IT IS RECOMMENDED THAT:

1. The present administrative pattern for vocational-technical education in the State of South Dakota be continued as the most feasible means through which the occupational needs of the people of the State might be served.

2. The Director of Vocational-Technical Education continue as the Executive Officer of the State Board for Vocational Education and that the qualifications for this position be maintained as outlined in the 1969 State Plan for Vocational-Technical Education.

3. The professional staff of the Division of Vocational-Technical Education be increased to provide a minimum of one full-time supervisor for each of the eight major occupational areas, including MDTA, which make up the Division and that the Director have a full-time assistant.

4. In addition to regular administrative duties, the Director and Assistant Director shall assume the responsibility for all special services relating to vocational-technical programs.

5. In cooperation with staff members, criteria be developed for establishing priorities for local program approvals for reimbursement purposes.

6. Each staff member develop a more thorough acquaintance with overall State administrative and supervisory problems.

7. A set of administrative and supervisory policies and procedures be developed and adopted, emphasizing delineation of responsibilities; identification of programs by service; uniformity in defining "disadvantaged," "handicapped," "depressed areas," and other commonly used and applicable terms; and such other matters as are important to effective coordination of staff effort.

8. The Board meet on a regular monthly basis, and each meeting include on its agenda a report from one or more of the vocational service areas in order that the Board may be more adequately informed about the progress and the emerging aspects of the State's program for vocational-technical education.

9. Continued efforts be made to increase State appropriations for vocational-technical education to a level of 50 per cent State aid to vocational-technical programs which meet State Plan requirements for reimbursement.

10. That State appropriations to the Division of Vocational-Technical Education for administrative purposes be increased to fund a minimum of one full-time supervisor for each of the eight major occupational areas which make up the Division. Further, that such appropriations as needed for a supporting secretarial staff be made.

11. An immediate assessment be made of space and facility needs for an expanded State administrative and supervisory staff and steps be taken to provide for these needs.

Concluding Statement

Through Public Law 90-376, October 16, 1968, the Congress of the United States enacted amendments to the Vocational Education Act of 1963, extending and improving the benefits related to Vocational Education. In this connection, it is interesting to note the degree of sensitivity exhibited by the State vocational-technical personnel in responding to the new challenges provided in the Vocational Education Amendments of the Act of 1968. Prominent among several innovative priorities set and action initiated is that of the creation of a State-wide system of area vocational-technical schools.

Five area vocational schools are in operation and a sixth is being established. Other initiatives center on modest beginnings in cooperative education, special education programs for the disadvantaged and handicapped population, work-study programs, exemplary programs geared to rural and urban disadvantaged and handicapped, and a special research project underway. It is evident that future expansion of activities in these particular phases will be realized.

Appropriation of State funds has likewise kept pace with increased Federal funds as evidenced by an increase in State funding for vocational education from $100,000 in 1968 to $400,000 in FY 1970.

GLOSSARY OF TERMS

Definitions

1. Cooperative work-study program refers to - a program of vocational education for persons, who, through a cooperative arrangement between the school and employers, receive instruction, including required academic courses and related vocational instruction by alternation of study in school with a job in any occupational field, but these two experiences must be planned and supervised by the school and employers so that each contributes to the students education and employability.

2. School facilities refer to - classrooms and related facilities (including initial equipment) and interests in lands on which such facilities are constructed. Such term shall not include any facility intended primarily for events for which admission is to be charged to the general public.

3. Secondary Vocational Education Programs (for high school studetns) refer to - such programs designed to prepare them for advanced or highly skilled post-secondary vocational-technical education.

4. Handicapped persons refer to - those persons who are mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, crippled or other health impaired persons who by reason thereof require special education and related services. Usually such persons require special education assistance or modified vocational education programs. (Categorized under Special Education.)

5. Disadvantaged persons refer to - those persons who have academic, economic or social handicaps that prevent them from succeeding in regular vocational education programs. (Categorized under Special Education.)

6. Post-secondary vocational education programs refer to - such programs designed for persons who have completed or left high school and are available for study in preparation for entering the labor market. Such persons usually fall within the 15-24 year age group.

7. Adult education programs refer to - such programs designed for persons who have already entered the labor market and who need training or retraining to achieve stability or advancement in employment. (Persons exclusive of those receiving allowances under MDTA Act of 1962, P.L. 87-415, the Area Redevelopment Act AL. 87-27, or the Trade Expansion Act of 1962, PL 87-794.) Usually taught as short intensive adult evening extension classes.

8. Exemplary programs refer to - such federally supported programs designed to bridge the gap between school and earning a living for young people, who are still in school, who have left school either by graduation or by dropping out, or who are in post-secondary programs of vocational preparation.

9. Work-Study Programs refer to - federally supported vocational education designed for youth 15-20 years of age who have dropped out of school or who are unemployed and have been accepted for enrollment as a full-time vocational student in a program meeting the standards prescribed by the State Board of Coational Education and the local educational agency for vocational education. Such person must be in need of the earnings and capable of maintaining a good standing in his vocational education program.

APPENDIX A

AN OUTLINE OF A SELF-EVALUATIVE CRITERIA FOR VOCATIONAL TECHNICAL EDUCATION IN SOUTH DAKOTA

4636

AN OUTLINE OF A SELF-EVALUATIVE CRITERIA
FOR VOCATIONAL-TECHNICAL EDUCATION IN SOUTH DAKOTA

For use in -
Local, State and Teacher Education Programs

Each educational institution has need of a carefully formulated comprehensive philosophy of vocational education. This too must be coupled with an equally well developed set of specific objectives expressing the staff's conviction of its responsibility and scope of training offered to the youth and adults of its community. The philosophy and objectives determine the nature of the teaching process, the methods of instruction, the kind of supervision and administration, types of student activities and the outcomes to be attained based on needs and interests of the community served. Evaluation then becomes a kind of ratio between goals set and outcomes realized. The question - "What have we done and how well did we do it?", can be answered in both a quantitative and qualitative sense. Thus the effectiveness of a Vocational-Technical program can be adequately measured in the light of the efforts directed toward fulfilling the purposes established.

Administrators of Vocational-Technical programs together with their staff and advisory committees must answer annually certain basic questions regarding the programs under their direction. Therefore, some of the basic concerns which are fundamental in the evaluative process are:

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1. What plans and efforts have been exerted to acquaint the general public with what vocational-technical training can do to prepare youth and adults for the world of work.

2. What modifications need to be made in existing training programs for youth and adults to meet the changing occupational scene and employment opportunities?

3. What is being done to evaluate the success of former students in securing employment and progressing in the occupation?

4. To what degree are the special needs of disadvantaged and handicapped persons being met?

5. To what extent is the training program providing for the interests and needs of former students and adults for advanced training or retraining to meet changing employment demands?

6. Are the training programs leading or lagging in training youth and adults for the present working environment and to meet new and emerging occupational requirements?

7. To what extent is research and evaluation being used to give sound direction to training programs?

8. Are youth and adults being provided adequate guidance and counseling service to assist them in discovering their interests and aptitudes for training for the world of work?

9. Is vocational-technical education enlarging the scope of training and expanding the number of persons in training annually?

10. Are advisory councils, human and community resources being used to a high degree in planning, guiding and relating training to current manpower needs?

11. Are facilities and equipment keeping pace with modern technological advancements and practices?

OPTION I

In the light of the foregoing concerns, a suggested Evaluative Criteria developed in broad outline, is presented subsequently:

CRITERION I. Philosophy and Objectives for Vocational-Technical Education

A. Philosophy and Guiding Principles

B. Objectives - Immediate and Long-Term

C. Student Population Characteristics

D. School and Community Characteristics

E. Manpower Requirements

F. Special needs group

CRITERION II. The Vocational-Technical Program

A. Vocational-Technical Training Programs

1. Basic guides
2. Curricula

(a) Secondary
(b) Post-Secondary
(c) Adults
(d) Disadvantaged and handicapped
(e) Cooperative programs
(f) Work-study programs
(g) Ancillary programs and services

3. Instruction
4. Evaluation
5. Research

CRITERION III. The Academic Function

A. Instructional Faculty

1. Qualifications, professional stature
2. Teaching load
3. Stability and tenure
4. Staff improvement provisions

CRITERION IV. The Administrative Staff & Function

A. Supervision and Leadership

B. Clerical Staff

C. Custodial Staff

D. Salaries and Salary Schedule, Tenure

E. Guidance and Counseling

F. Public Relations

G. Student Services

H. Health Services

I. Financial Services

J. Transportation Policies

K. Advisory Committees

L. Research and Evaluation

M. Records and Reports

CRITERION V. Admission and Graduation

A. Recruitment Policies

B. Guidance practices

C. Admission Policies

D. Graduation policies

E. Placement Services

F. Follow-Up Records

CRITERION VI. Vocational Teacher Education (Professional)

A. Teacher Preparation Programs

(a) Pre-service- In-Service

B. Supervisor/Administrator Preparation Programs

C. Faculty

1. Qualifications

2. Staff Improvement

D. Research and Evaluation

E. Facilities

CRITERION VII. State Vocational-Technical Education Staff

A. Personnel

1. Qualifications

2. Professional Improvement

3. Leadership role

4. Adequacy of personnel

B. Research and evaluation

C. Facilities

CRITERION VIII. Library and Instructional Materials

A. Library

B. Audio-Visual

C. Instructional Materials

D. Space

CRITERION IX. The Institutional Plant and Facilities

A. Site

B. Buildings

C. Equipment

D. Student-Space Ratios

E. Health and Sanitation

F. Safety

CRITERION X. Community Evaluation of Vocational-Technical Education

A. Students

B. Graduates

C. Parents

D. Employers

E. Citizens

F. Teachers

G. Administrators

A possible scale to evaluate the items of process, procedure, function, or facility follows: Numerical scores of 5, 4, 3, 2, and 1 are in descending order of values.

(5) Indicates the (Process, Procedure, etc.) is exemplary

(4) Indicates the (Process, Procedure, etc.) is highly adequate

(3) Indicates the (Process, Procedure, etc.) is adequate

(2) Indicates the (Process, Procedure, etc.) is not adequate

(1) Indicates the (Process, Procedure, etc.) is inappropriate or not applicable

An example of how certain individual items appearing in Criterion III, the "Academic Function" might be expanded to serve as a self evaluation device is shown below:

CRITERION III. The Academic Function

A. Instructional Faculty

	Rating 5	4	3	2	1
I. Selection of Faculty Members					
1. Teacher selection is a cooperative process involving administrators, supervisors, department head and a faculty committee					
2. Candidates occupational experience in the trade and/or profession is carefully evaluated					
3. Candidates are evaluated on the basis of the quality of their broad occupational experience outside of their specialty.					
4. College transcripts of candidates are carefully examined for appropriateness of preparation for the position to be filled					
5. Candidates are interviewed personally and their work observed					
6. Recommendations from reliable sources are carefully evaluated					
Overall Evaluation					
1. How successful has the administration been in securing a sufficient number of faculty?					
2. How well has the present administration done in selecting competent faculty members?					
3. How adequate are the methods used in faculty selection?					

Comments

4643

II. Experience and Service

Number of Years Experience	Length of Service in This System			Total Years Experience in Vocational-Technical Education		
	Number		Per Cent	Number		Per Cent
	Women	Men		Women	Men	
Less than 1						
1 - 3						
3 - 6						
6 - 9						
9 - 12						
12 - 15						
15 - 18						
18 - 21						
21 - 24						
Over 24						
Total						

Overall Evaluation

	Rating				
	5	4	3	2	1
1. How satisfactory is the total amount of faculty experience?					
2. How adequate is the length of service in this system?					

Comments

III. Teaching Load (Develop)

IV. Staff Improvement (Develop)

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OPTION II

A Suggested Outline of a Vocational-Technical Self-Evaluative Instrument for South Dakota Based on The State Plan Objectives.

5.0 Vocational Education Objectives

School year 197__ - 197__

	Urban		Rural	
	No.	%	No.	%
5.1 Secondary Level				
(a) number and percent of students enrolled in Vocational-Technical programs				
(b) number and percent of Secondary Vocational-Technical students entering post-Secondary Vocational-Technical programs . . .				
(c) Number of instructional programs designed primarily for Secondary students based on their residance				
(d) Number and percent of Vocational-Technical students who completed their training objective				
(e) Number and percent of Vocational-Technical students, available for work, placed in jobs following training				
(f) What is the ratio of Vocational-Technical students to guidance counselors in your institution? Ratio _____				

Indicators

Considering that: (1) approximately fifty (50) percent of the Secondary School graduates will begin a four year college course but only twenty (20) percent will graduate. (2) There have been _____(insert number) high school dropouts during the past five years from this institution. (3) Of the total number of Secondary School students in this institution _____ (insert number, grades 9-12), there are presently enrolled _____ (insert number, grades 9-12) students in Vocational-Technical programs, please react to the following questions and rating which follow.

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	Rating 5	4	3	2	1
1. How well is your institution doing in serving the needs of both urban rural youth?					
2. How adequate is the number of students enrolled in Vocational-Technical programs in relation to the total secondary enrollment?					
3. To what extent is placement of students in jobs taking place?.					
4. How well are students being counseled in Vocational-Technical job requirements and opportunities?					
5. How effective is the staff in encouraging Vocational-Technical students to enter post-Secondary Vocational-Technical training?					
Overall Evaluation					
1. Viewing the foregoing data and indicators, how adequately is your institution doing in preparing the secondary students for the world of work					

Comments

4646

5.4 Disadvantaged

	Number	Per Cent
(a) Number and percent of disadvantaged population of this (area) (school district) enrolled in Vocational-Technical programs of this institution:		
Secondary		
Post-Secondary. . .		
Adult		
(b) Number of Vocational-Technical programs operated for:		
Secondary		
Post-Secondary. . .		
Adult		
(c) Number of students enrolled in cooperative programs . . .		
(d) Number of students enrolled in work-study programs . . .		

Indicators

Considering there is a total of *50,549 (1970 estimate) disadvantaged persons in South Dakota and a total of _____ _____ in this area or school district, (use proportional area, county, or district disadvantaged population to above state disadvantaged population) please react to the following questions and rating appearing below:

	Rating				
	5	4	3	2	1
1. How adequate is the number of disadvantaged persons being served by your institution in relation to local and state needs?					
2. How adequate is the number of Vocational-Technical programs being offered by your institution in relation to the local and state need ?					

* Welfare receipients - 20,549
Minority groups - 30,000
Total 50,549

	Rating				
	5	4	3	2	1
3. How adequate is the number of students enrolled in cooperative programs in relation to local and state needs? . . .					
4. How adequate is the number of students enrolled in work-study programs in relation to local and state needs? . . .					
Overall Evaluation					
1. Viewing the foregoing data and indicators, how adequately is your institution serving the disadvantaged persons in relation to local and state needs?					

Comments

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A D D E N D A

TO

An Outline of a Self-Evaluative Criteria for Vocational-Technical Education.

Relative to Option I and Option II it should be noted that Option I (one) provides for a broad comprehensive outline of the controls necessary for constructiong a self-evaluative device involving both qualitative and quantitative aspects.

It is recognized that under this Option I more detail and time would be involved on the part of the institution concerned. Consideration might be given to its use on a three year interval, or longer basis, or the use of parts of the criteria where applicable.

In addition to any self-evaluation under Option I, there will be available the quantitative program evaluation required by the U.S.O.E., based on State Plan objectives.

The Option II approach is based specifically upon the stated objectives of the South Dakota State Plan. Data for this instrument would be readily available from the required State reporting forms now in use. Institutions using the form would be less involved, time wise, but would find it necessary to analyze the data of their situation and do some critical self-evaluation of their situation.

APPENDIX B

CAMPS OUTLINE '70 PART A. (THE SOUTH DAKOTA COMPREHENSIVE MANPOWER PLAN FOR FY1970)

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THE SOUTH DAKOTA COMPREHENSIVE MANPOWER PLAN

FISCAL YEAR 1970

PART A

APRIL 1, 1969

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Participating Agencies:

Alan Williamson
Employment Security Department

Ben F Hins
Division of Vocational Rehabilitation

G.W. De Bow
Adult Basic Education

Bruce E Olson
Indian Community Action Agencies

Blair B Bond
Department of Health

(Not available for signature)
Farmer's Home Administration

Economic Development Administration

(Not available for signature)
U. S. Civil Service Commission

Ellwood
Housing and Urban Development

Robert W Weiner
Chairman, State CAMPS Committee

Roy J. Zuegler
Division of Vocational Education

Peter B. Grossmann
Department of Public Welfare

John J. McMahon
AFL-CIO Union Representative

(Not available for signature)
United Sioux Tribe

Henry G Walser
Bureau of Work Training Programs

Walter O Mastel
Bureau of Apprenticeship and Training

Bruce H Ecker
Bureau of Indian Affairs

(Not available for signature)
Non-Indian Community Action Agencies

Arthur R. Jahnke
Office of Economic Opportunity

(Not available for signature)
Community Action - OEO

COOPERATING AGENCIES

The various federal, state, and local agencies cooperating in the development of this Plan are:

South Dakota

- Employment Security Department
- Department of Public Instruction
- Division of Adult Basic Education
- Division of Vocational Rehabilitation
- Division of Vocational Education
- Department of Public Welfare
- Department of Health
- State Planning Committee
- State Extension Service
- Service to the Blind and Visually Handicapped

State AFL-CIO Unions

United Sioux Tribes

U. S. Department of Labor

- Bureau of Apprenticeship & Training
- Bureau of Work Training Programs

U. S. Department of Commerce

- Economic Development Administration

U. S. Department of Interior

- Bureau of Indian Affairs

U. S. Department of Agriculture

- Farmer's Home Administration

Office of Economic Opportunity

- Community Action Agencies
- Job Corps

U. S. Civil Service Commission

DESCRIPTION OF STATE:

1. The fiscal year 1970 South Dakota Cooperative Area Manpower Plan will consist of a single statewide plan. No formal area CAMPS Committees have been recognized by the State Committee due, in part, to the following circumstances:

   - Lack of adequate program financing, mainly by the Federal Government, and to a lesser extent, the lack of State matching funds.
   - The geo-demographical make up of the State makes impractical the formation of local projects and/or area committees.
   - Occupational demands are limited and require the pooling of the various local demands to formulate a training need that can be dealt with.
   - The diversity of the State's economic structure severely limits the occupational demands.

2. Economy.

If the economic structure of the State were in the shape of a pyramid, the base would be agricultural. While it has suffered several declining years, agriculture remains the number one income producer. Adverse weather conditions, and pest infestation could affect the harvest to a noticeable degree. Most of the marginal farmers have left the farms for jobs in other areas. The only remaining marginal farmers are those with outside jobs. Farm crop prices, to a great degree, dictate the working and spending of farm families and those engaged in the agri-business industry.

The second layer in the pyramid is tourism. Should this increase in the next five years, it will be the State's leading income producer. With the continued affluence of the American peoples, tourism will grow at a steady rate. Should inflation become a rout, leading to a severe depression, the effect would be a steep decline in tourism. However, tourism is expected to continue its steady growth.

The next layer in the pyramid is retail trade. Unless the population and its income expand greatly within the next year or so, no major increase is foreseen.

Manufacturing in South Dakota is very diverse. Much of it involves farm products or products to be utilized on the farms. The largest employer in the State is in this category. Products included in this area are meat processing, metal working machines, mobile homes, electronic devices and components, rubber goods, and jewelry. As industrial development goes, we can anticipate a moderate increase for the next year.

At the apex of the pyramid would be construction. The rising interest rates will affect new building, the allocation of federal highways money will affect new roads, new defense spending all will have a bearing on the amount of construction anticipated in FY 70. Almost 2400 homes will be constructed or refurbished on the Indian Reservations within the State.

No changes in technology have occurred in FY 69 nor are any expected to occur in FY 70.

Local government is increasing its industrial development effort over previous years. Several medium sized plants are scheduled to become operational in FY 70; one in Aberdeen, one in Brookings, and one in Yankton.

Various community organizations are behind the industrial development effort. Very little else in common with the community organizations. Most organizations are either service or socially oriented. The service organizations offer limited assistance to any manpower structure. No new innovations have come from this quarter.

3. Current Population and Labor Force.

The latest estimated population is 699,000. Anticipated 1970 population is 724,700 with a civilian work force of 278,700. These estimates would provide an increase of 6.5% in the population and 5.0% in the civilian work force. over 1960.

Agriculture is constantly in need of regular hired workers to operate machinery and equipment. The South Dakota farmer is in competition with non-agricultural industry for good employees, and usually can

neither meet the wages nor working conditions of non-agricultural industry. Although the number of farms and farm workers decline, the demand for farm labor and its attendant services has not lessened.

Despite an increase in population, the prime labor group, age 22-45, is still indicating a strong out-migration. Progress in the economic industrial development of the State is the biggest determent to the problem of out-migration. This problem will never be stopped completely due to man's inherent way of "wanting to see the other side of the fence".

As the rural resident and ex-farmers move to the more urban areas, they are generally not suitable for the labor force. Many do find work with some agri-business firms requiring little in the way of skills or aptitudes. The individual from the rural areas who has not made a go of it, is also under-educated when compared to his city cousin. This is not the lack of opportunity, but rather to apathy, lack of understanding a need for the education. Many employers desire these workers for their mechanical abilities, good work habits and resourcefulness. However, some basic education and skill training are needed to make the rural migrant a competent, capable employee.

Seasonality causes many problems in the labor force. While some construction innovations have cut into the seasonality of that work, it remains a problem. With tourism ranking second as an industry, it is also a major cause in seasonality. This will only change when our tourism is on a year round basis with an extremely limited slack season. In the case of seasonality, the individual worker is out of a job part of the year. Generally, this occurs during the season the worker can least afford it, the winter months.

4. Current Employment Trends.

Table I A provides the breakdown of the labor force in terms of actual experience for the period 1965 through 1968 and assumptions for 1969 and 1970.

The total workforce increased some 4,000 persons while unemployment dropped from 3.9% (1965) to 3.0% (est. 1970). Due, in part, to the war economy and, in part, to the high affluence of the American people.

5. Anticipated Social and Economic Development.

Anticipated economic activity is expected to develop in FY 70 at a faster pace than experienced in the past.

Control Data, 3 M Company and Omni Corporation have recently announced plans to open manufacturing sites in South Dakota. Existing non-agricultural industry is also expected to expand.

Farm income is expected to increase in FY 70. Production increases rather than price increases is expected to raise the farmers income.

The need for added school construction, announcement of the opening of new shopping centers at Sioux Falls, Rapid City and Aberdeen will provide employment with building and special trade contractors.

Table I A

A SUMMARY OF ACTUAL EXPERIENCE AND ECONOMIC ASSUMPTIONS TO FISCAL YEAR 1970

ANNUAL AVERAGES (in 000's) FISCAL YEARS

	Actual Experience				Economic Assumptions	
	1965	1966	1967	1968	1969	1970
Total Civilian Work Force	265.9	264.3	264.0	265.8	268.1	270.2
Total Unemployment	10.3	9.3	8.1	7.8	8.3	8.1
Rate (% of Work Force)	3.9%	3.5%	3.1%	2.9%	3.1%	3.0%
Total Employment	255.6	255.0	255.9	258.0	259.8	262.1
Agriculture	68.0	66.0	63.1	62.0	60.7	59.4
Hired Ag Workers	10.3	10.6	9.9	9.9	9.7	9.5
Self-Employed & Unpaid Family Worker	57.7	55.4	53.2	52.1	51.0	49.9
Nonagriculture Employment	187.6	189.0	192.5	196.0	199.1	202.9
Self-Employed & Domestics	34.4	32.8	31.4	30.6	30.2	29.8
Wage and Salaried	153.2	156.2	161.5	165.4	168.9	173.1
1. State U.I. Covered Employment	79.9	82.0	85.0	88.5	90.2	93.1
Manufacturing	12.9	13.3	14.6	15.3	14.9	15.3
Durable Goods	3.6	4.1	4.7	5.3	4.8	5.2
Nondurable Goods	9.3	9.2	9.9	10.0	10.1	10.1
Food and Kindred	7.6	7.4	7.6	7.5	7.4	7.3
Nonmanufacturing	67.0	66.7	70.4	73.2	75.3	77.8
Mining and Quarrying	2.4	2.3	2.3	2.4	2.4	2.4
Contract Construction	7.5	7.0	6.3	6.6	6.5	6.7
Building Construction	2.1	2.1	1.8	1.9	1.8	2.0
Highway Construction	2.0	1.8	1.8	1.8	1.8	1.7
Other Heavy Construction	1.1	0.7	0.5	0.7	0.7	0.7
Special Trade Construction	2.2	2.3	2.1	2.2	2.2	2.3
Trans. Comm. & P. U.	7.9	8.1	8.1	8.2	8.4	8.5
Wholesale Trade	8.0	8.4	8.5	8.7	8.8	9.0
Retail Trade	26.4	27.4	28.7	29.9	31.3	32.5
Finance, Ins. & R. E.	5.4	5.5	5.7	5.8	5.9	6.1
Service and Misc.	9.3	9.9	10.9	11.6	12.0	12.6
2. Other Covered Wage and Salaried Employment	12.8	12.7	12.6	12.4	12.4	12.4
Federal Government	11.3	11.2	11.1	11.0	11.0	11.0
Railroads	1.5	1.5	1.5	1.4	1.4	1.4
3. Noncovered Wage and Salaried Employment	60.5	61.5	63.9	64.5	66.3	67.6
State Government	9.4	10.0	11.7	11.7	12.2	12.7
Local Government	23.8	24.2	24.9	25.6	26.3	27.0
Small Firms (1-3)	14.0	14.0	14.0	14.0	14.6	14.6
Nonprofit Org. and Other Noncovered	13.3	13.3	13.3	13.2	13.2	13.3

The sum of parts may not equal the total due to rounding.

C. Identification of Manpower Problems

1. Unemployment

a. The rate of unemployment for February, 1969 was 3.3%. The average rate of unemployment for the calender year of 1968 was 3.0%. These rates are the insured unemployment rate which do not reflect a true unemployment rate. Insured unemployment includes only those employers with four (4) or more employees, or a taxable payroll of $24,000 in a calendar year, or anyone subject to the Federal Unemployment Tax Act.

Figures used below are from base year 10/67 to 9/68 and include only civilian labor force members.

Approximately 41,660 of the labor force were partially or fully unemployed in this period. Of this figure, 25,550 are classified as poor. This includes 16,270 designated as disadvantaged poor. The remaining 9,280 are classified as "other" poor.

It is also estimated that 8,941 of the State's Indian population, 33,904 were unemployed during this period. Obtaining hard statistics about the Indian residents of the State is difficult, due mostly to their mobility on and off the reservations.

b. Trends in Unemployment During 1968 Calender Year

Unemployment in calender year 1968 decreased from 3.3% in January to 2.6% in December. These percentages are based on a total civilian work force of 246,700. This was not a steady increase, but rather a fluctuating one with a June percentage of 3.7%. (This rate includes youth entering the labor market.) The lowest rate of 2.2% was shown in October. (Youth returning to school decreased the total number in the labor force.)

Rate of Unemployment by Quarters

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
3.4%	3.1%	2.8%	2.8%

c. Characteristics of the Unemployed

Table 2 A is an approximation of the characteristics of the unemployed. It should be noted that this table was compiled from applications for work as received by the South Dakota Employment Security Department over a period of eight months. It is anticipated that any other unemployed person, who did not file a work application would fall into the classifications causing no change.

Table 2 A

Characteristics of Unemployed

General

Females	42%
Heads of Households	50%
Handicapped	10%
HRD	17%

Veteran Status

Veterans	25%
Sel. Serv. Rejectees	8%
Other Non Vets	67%

By Ages

Under 19	15%
19 - 21	20%
22 - 34	35%
35 - 44	16%
45 and over	14%

Years of Gainful Employment

Less than 3 years	45%
3 - 9 years	35%
Over 10 years	20%

Number of Dependents

0 Dependents	44%
1 Dependent	18%
2 Dependents	13%
3 Dependents	10%
4 Dependents	7%
5 Dependents or more	8%

Race

White	80%
Non White	20%

Educational Level

Less than 8 years	17%
8 years	44%
9 - 11 years	18%
12 years	18%
Over 12 years	3%

Above table consists of data provided from new applications taken by the South Dakota Employment Service. (Period: 7/68 to 2/69) While applications for work are not the true numbers of the unemployed, the characteristic breakdown would be approximately the same.

d. Factors Causing Unemployment

The closing of the Wright - McGill Fishhook Plant on the Pine Ridge Reservation caused unemployment of Indian workers. These workers had performed the duties of "fishhook snellers and tiers". The Sioux Indian had a natural ability for this type of work and had become proficient in their jobs.

Construction workers experience the usual seasonal lay-offs, along with in-between job unemployment. But it should be kept in mind that seasonal lay-offs are being decreased in the building trades with the new innovations of weather protecting devices. Highway construction is nearly at a standstill for five (5) months of the year.

Seasonal agriculture workers are forced to re-locate to the cities for the winter months in order to seek employment. This condition helps create an over population of workers for the amount of jobs available.

Tourism is active for four (4) months of each year. Unfortunately, not all employed in the tourist industry are students who return to school at the end of the season. Approximately 25% are those individuals who are seeking year-round employment.

2. Underemployed

Estimates below are based on a 12 month period from 10/67 to 9/68.

Table 3 A	
Underemployed in the State	15779
Employed part-time for economic reasons	1503
Employed full-time but with family income at or below the poverty level	13021
Individuals not in the labor market but should be	1255

The estimated underemployed in the State is 15779. These people range from jobs in the unskilled category to some professional occupations. Most of the underemployment is in the small towns and rural areas. Service occupations such as waitress, nurse aid, farm labor, certain clerical jobs, and sales clerks are, for the most part, marginal paying and classed as under employment. Hard, solid information and/or statistics in this area are all but nonexistent.

Most of the employment, except for federal, on the various Indian reservations is considered underemployment. Because of the lack of occupational opportunities, the reservations become a labor surplus area. Many of these opportunities are seasonal in nature. This combination controls the wages with an adverse effect.

Seasonality contributes to an extent to underemployment. Most of the persons engaged within the structure of tourism are working from 3 to 6 months. This is a different form of underemployment.

Also included in these figures are those persons employed full-time but with a family income at or below the OEO poverty level guidelines. To compound the problem, the worker's skill may be saleable in another area and he won't move. More industrial development may be the answer to that

individual's problem. However, this is beyond the ken of the CAMPS Committee.

The biggest obstacle faced with the underemployment problem is recognizing it and alerting the under-employed of this fact. Most employed, full-time or part-time persons would not admit they are underemployed or be aware of it. Education in this area is non-existent. More information plus a data gathering system are needed in this area.

Individuals not in the labor market but should be, is difficult to ascertain. These are the persons who need assistance in obtaining employment and are available for employment. Previous attempts to correct this problem with part-time training programs have not been successful. The first big step to take is to make the recipient aware of his problem. The second step can be one of many: job development, basic education or some vocational training. Statistical records in this area are meager to none. Some type of more accurate measurement than those now used will need to be devised to obtain a better sensing of the numbers of persons in this category.

3. Occupational Shortages and Surpluses

Labor and Supply Demand reports covering the first quarter of 1968 indicate the following:

Table 4 A.

Applicant Shortages	Applicant Surplus
Engineers (Electrical & Const.)	Construction Workers (a)
R.N.'s	Heavy Equipment Operators (a)
LPN's	Truck Drivers (a)
Inhalation Therapists	Laborers (Unskilled)
Managerial Positions	Factory Workers (Entry Level)
Bookkeepers	Office Workers (Entry Level)
Clerk Typists	Sales Clerks
Secretaries	Warehousemen
Salesmen	
Cooks	
Printing Occupations	
Auto Mechanics	
Diesel Mechanics	
TV & Appliance Servicemen	
Cement Finishers	
Welders	

(a) 80% of this surplus can be attributed to seasonal conditions.

Two facts are proved out in the shortages and surpluses listed above:

1. Employers are badly in need of trained employees.
2. Applicant surplus (for the most part) is saturated with untrained, unskilled, and entry level applicants.

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4. Problems of Target Groups

The main target groups can be classified into three (3) areas -

a. Residents of Indian Reservations (minority)

b. Residents of rural areas

c. Poverty Level Families residing in the cities.

The three(3) groups listed all possess unique problems plus sharing common roadblocks.

a. Residents of Indian Reservations (Minority)

1) 40% of the minority group that are in the labor force and residing in reservation counties do lack the necessary skill in order to secure employment.

2) Reservations are far removed from major population centers, consequently, transportation to work sites is a problem.

3) Discrimination in both our social and economic structure does exist. This discrimination is being broken down at a steady pace.

b. Residents of Rural Areas

1) Most of the rural areas residents are only familiar with farming or ranching. With the constant co-op and corporating of small farms, the small operators and hired hands are being forced into seasonal or part-time employment. These individuals do not have formal training for any one occupation.

2) The rural resident, as the Indian, are also remote from major populated areas and job sites.

3) Experience requirements imposed by employers are a stoppage to many of the rural area residents seeking employment.

c. Poverty Level Residents Residing in the Cities

1) Lack skills plus basic education in order to secure employment.

2) Environment is such that it is not conducive to good work habits.

All of our groups experience artificial hiring specifications. One barrier is that of education. Not only employers, but our area vocational schools are guilty of requiring high school diplomas or GED's before entrance can be obtained. Slowly these barriers are being lowered. However, this must be accomplished carefully as we don't want to lower the occupational standards. Several licensure groups also have artificial barriers, as do some unions.

With four (4) area vocational schools completing their first year of operation, we can look forward to having a more trained work force. Approximately 500 trained persons will be emerging from these schools annually.

5. Other Problems

The State population in 1960 census was 680,514. In mid year 1968, it was estimated at 699,000. This is an average annual increase of 2,300 which is below the national average. Out-migration of the 22 - 44 age group continues to be a major problem. The bulk of our college graduates leave the State to seek their fortunes in greener pastures. Yet, in spite of the out-migration of the prime producing group, the population continues to grow. The growth is slow and below the national average. Table 1 A reflects this growth in its study of the labor force.

If the present economic development continues, South Dakota will become an importer of people for its labor force. This in turn will provide more jobs for our own people in the out-migration group and slow this flood down.

Labor management disputes were all but non-existent in FY 69 and no change is foreseen for FY 70.

Discrimination still exists in many forms in the State. The largest minority group, the American Indian, has an unfavorable image, in the

minds of most of the State's residents, and must be overcome. Many people in the State are working daily at this problem. It will not be solved overnight nor in a decade. The first steps have been taken, succeeding steps are and will be easier to take. Each step taken makes the next one a necessity.

D. Target Populations

1. Youth and Older Worker

Two main target population groups are the unemployed youth (ages 14-22) and the older worker (45 years old and over). These two groups combined, contribute to approximately half of the chronic unemployed in the State of South Dakota. Youth groups make up 33%, while the older worker is estimated at 18% of the total unemployed. These two groups are, for the most part, school drop-outs lacking basic education and vocational training.

No special MDTA projects were structured for these groups. Rather, an integrated evaluation center has been most successful. Their occupational training has been provided in the same manner.

The only distinct projects for the various age groups are those that were dictated so by their procedures. These would include the Neighborhood Youth Corps, Operation Mainstream and Green Thumb projects.

2. Underemployment

Underemployment is a major problem in the State. Many of the service occupations jobs are scaled toward a low economic and social status. A minimum of job experience or training is required in order to secure most service occupation employment. Therefore many young adults locate their first jobs in a service occupation. The job may be an adequate entry level position, until the responsibility of self-support and rearing a family arise. At the time this takes place, the individual is

technically employed but, theoretically underemployed.

Table 3A estimates that 15,779 South Dakota residents are underemployed. However, it is extremely difficult to pin-point exact numbers working full-time below their skill level.

Other underemployed classifications include some of the smaller farm owners, a portion of farm laborers, youth reservation workers, and older workers.

New industry and expanded existing industry plus minimum wage increases, will aid in reducing the total number of underemployed.

3. Families and Poverty Levels

Many of the full-time workers in South Dakota have incomes below poverty level standards, as defined by the Office of Economic Opportunity. Under the aegis of informed opinion, there are some 13000 workers with earnings at or below poverty level standards.

4. Disadvantaged Persons

Minority groups, drop-outs, rural and urban below poverty level residents, youth, older workers and the handicapped make up the disadvantaged groups in the State. Eighty-three hundred are able and available for training purposes.

The largest target populations reside on the Indian reservations. Tables A-5, 6 and 7 present a picture of each reservation's population and employment problems. Note, 64% or 8,941 of reservation Indians in the labor force are unemployed. Forty percent or 3,576 of the reservation unemployed are able, available, and require training before they can be considered employable. Few people concerned, question the need for some type of job training. However, the need to train Mr. Indian

Table 5 A

NON - WHITE
AGE GROUPS BY RESERVATION
September 1968

	Under 15	16 - 19	20 - 24	25 - 34	35 - 44	45 - 64	65 & Over	Total
Cheyenne	1654	368	378	529	358	698	170	4155
Crow Creek	532	90	140	129	84	125	50	1150
Lower Brule	286	50	56	49	61	57	22	581
Pine Ridge	5055	925	885	1290	1001	1292	614	11062
Rosebud	3346	496	599	739	787	668	558	7163
Sisseton	960	194	105	168	128	258	130	1943
Standing Rock	2100	395	470	642	385	490	230	4712
Yankton	586	76	103	121	131	162	79	1258
TOTAL	14519	2594	2706	3667	2935	3750	1853	32024

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Table 6 A

NON - WHITE

RESERVATION POPULATION DATA

September 1968

Reservation	Total	Male	Female	On Reservation	Off Reservation
Cheyenne	4155	2123	2032	4050	105
Crow Creek	1150	596	554	1120	30
Lower Brule	581	283	298	539	42
Pine Ridge	11062	5619	5443	10656	406
Rosebud	7163	3653	3510	6681	482
Sisseton	1943	939	1004	1758	185
Standing Rock	4712	2396	2316	4500	212
Yankton	1258	604	654	1042	216
Totals	32024	16213	15811	30346	1678

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Table 7 A

NON - WHITE

POPULATION BY RESERVATION

September 1968 - 16 Years or Older

Reservation	Labor Force	Unemployed	% Unemployed of Labor Force	Employed
Cheyenne	2202	1342	61%	860
Crow Creek	482	336	70%	146
Lower Brule	234	150	64%	84
Pine Ridge	4795	3176	66%	1619
Rosebud	2848	1850	65%	998
Sisseton	636	416	65%	220
Standing Rock	2017	1282	64%	735
Yankton	733	389	53%	344
Totals	13947	8941	64%	4996

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to relate his job to everyday living is often forgotten, resulting in numerous failures.

Training precedents on the reservation must be continued and extended. Approximately 45% of the reservation population is under 15 years of age. The reservation labor force will soon be vastly increased with new entrants. This factor will require enlarged programs of all types in the near future years.

All target populations combined average an educational level of 8.5 years, and are generally hard core unemployed.

5. Program Participation

A group of unemployed individuals do not realize and will not admit to their own lack of qualifications and skills. Typical statements of job applicants might best explain this fact.

Example: "I can do anything if someone will give me a job."

Example: "Who needs training? I need a job."

Example: "I went to school for eight years and that is enough."

Example: "My last boss didn't do things the right way, but I showed him."

The above four statements are somewhat trite, but are often being repeated by some of the unrealistic, undereducated, and untrained job seekers.

A second group of the unemployed include those individuals who physically display their adversity to the use of soap, water, toothpaste, and clean clothes. However, it should be noted that many rural area and reservation residents do lack proper facilities and environments for adequate personal hygiene habits.

Among the unemployed include a number of individuals not possessing the confidence to request aid from the appropriate agencies. The door to the

local Employment Service or Community Action Office resembles an impossible giant to these people. An actual job interview with an employer is an impossibility to the no confidence job seeker.

The above groups mentioned can only be helped through an extensive program of outreach, counseling, and personal involvement by trained workers in the field. Unfortunately, no statistics are available to indicate the number of unemployed who are hindered by adverse personality and characteristics traits.

6. Persons Affected by Technological Change

A minority of the unemployed, in both the rural and urban areas do possess a saleable skill. Most of these people are actively seeking work. The problem stems from the fact that a full time market does not exist for their particular skill. The trained, proficient welder in South Dakota is an example. Only a limited few areas in the State provide employment consisting of job duties performing only welding. This man is in need of a related skill to couple with his welding knowledge.

Technological changes in the State will not affect any sizable number of presently employed workers.

Table 4 A indicates areas of manpower skill shortages (applicant shortages) existing in the State. Institutional or on-the-job training is a prerequisite necessary to adequately fill these positions. Table 4 A also indicates that the applicant surplus is primarily made up of untrained job seekers. Training a portion of the unemployed is a necessity to help erase present manpower shortages.

The number of unskilled, unemployed is estimated at 8300.

E. Current Manpower Activity Situation

1. Manpower Programs in FY 69

Table 8 A gives a breakdown of the manpower programs that operated in the State in FY 69. The program areas considered were the operating agency, source of funds, amount of funds, target groups, the numbers served, geographical scope, services offered and remarks. Generally, the CAMPS agencies have supplied the necessary information. Many of the programs are still accepting referrals so that the numbers served will increase.

Most of the programs will meet their FY 69 goals as to the number of trainees as per the FY 69 CAMPS Plan.

Several of the programs have been successfully integrated and compliment each other. Maximum use of ancillary services available has been accomplished with the Manpower Development and Training Act programs.

In FY 70 the Committee plans to integrate more fully the various manpower programs. This is especially needful for South Dakota because of its limited manpower funds and its geographical dispersion of its residents.

Table 8 A

FY 69 MANPOWER PROGRAMS

PROGRAM	OPERATING AGENCY	SOURCE OF FUNDS	AMOUNT OF FUNDS	TARGET GROUPS	NUMBER SERVED	GEOGRAPHIC SCOPE	SERVICES OFFERED	REMARKS
MDTA Institutional	South Dakota Employment Security & Div of Vocational Education	90% Federal 10% State Matching	$563000	35% Unemployed 65% Disadvantaged	223 (Referral not Complete)	Statewide	Vocational Evaluation & Vocational Training	In addition to the 223 trainees listed there were 37 assigned to FY 68 projects after FY 69 began
MDTA OJT	Bureau of Works Training Programs & SDESD	100% Federal	$266000	Disadvantaged	96 (Referral not Complete)	Statewide	Occupational Training	Several projects approved still pending
Neighborhood Youth Corp	BWTP in Cooperation with Local Sponsors	Federal & Sponsor	In School $273092 Out of School $491612 Summer $551860	Poverty Guideline Youth 14 Years-21 Years of Age	In School 423 Out of Sch. 190 Summer 1420	Within Local Sponsor s Area	Paid Work Experience & Counseling	Inadequate number of training slots, need for all 3 types of projects should be operated
New Careers	BWTP and Oglala Sioux Tribe	Federal & Sponsor	$146800	Low Income & Unemployed Reservation Residents	25	Pine Ridge Reservation	Opportunity to Qualify for Sub-Professional Jobs Work Experience	Job opportunities lacking for New Careers enrolled
Operation Mainstream	BWTP & Sponsors	Federal & Sponsor	$631440	Poverty Guideline Enrollees 22 Years & Older	185	Within Local Sponsor s Area	Paid Work Experience Counseling	
Title V	BWTP & Western CAP	Federal	$ 25960	AFDC Recipients	120	Pennington County	Job Placement Job Development Counseling & Followup	Project no longer active. Has been replaced with a Work Incentive Program

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PROGRAM	OPERATING AGENCY	SOURCE OF FUNDS	AMOUNT OF FUNDS	TARGET GROUPS	NUMBER SERVED	GEOGRAPHIC SCOPE	SERVICES OFFERED	REMARKS
Work Incentive Program	BWTP, SDESD & State Welfare Dept.	Federal	$365727	AFDC Recipients	400 (Referral not Complete)	Minnehaha & Pennington Counties only	Counseling, Vocational Training, Job Placement	
Green Thumb	BWTP & Farmers Union	Federal	$119035	Disadvantaged over 55	70	McCook, Moody, Hutchinson, Minnehaha & Douglas Co.	Work Experience	
Vocational Rehabilitation	State Div. of Vocational Rehabilitation	75% Federal 25% State	$820000	Persons with a Disability	450(est) (Operations not Complete)	Statewide	Counseling, Vocational Training, Job Placement, Prothesis	Program has been integrated with other programs successfully Not enough funds for FY 69 operations
Indian Education	State Dept. of Public Instruction	State	$ 21000	Resident Indian 1/4 or Better Degree Blood	60	Statewide	Academic or Vocational Training	Primarily used for academic training
Adult Basic Education	State Dept. of Public Instruction	State	$165232	Persons needing ABE to Retain or Secure Jobs or Training	900	Statewide	Basic Education such as Reading, Writing, Speaking	Program has been integrated with other programs successfully
Service to the Blind	Service to the Blind	State	$200000	Persons with Visual Problems & Defects	275 (Referral not Complete)	Statewide	Vocational Training, Eye Exams, Glasses	The Service has integrated its program with MDTA and other training programs
Adult Vocational Training PL 959	Bureau of Indian Affairs	Federal	$131400	Unskilled, Unemployed, Underemployed Indians	210	Statewide	Vocational Training	
On The Job Training	Bureau of Indian Affairs	Federal	$ 5120	Unskilled, Unemployed, Underemployed Indians	10	Statewide	Occupational Training	

2. Non-Federally Assisted Programs

Table 9 A lists the non-federally supported programs operating in the State in FY 69. It is anticipated that the funding level will remain the same in FY 70. The main problem with this project is that we cannot secure the I.D.E.A.'s cooperation nor willingness to include these funds for CAMPS planning. The Committee will continue to work for more cooperation.

Basically, this program provides a quick source of training funds that South Dakota I.D.E.A. has at its disposal. They provide training through a grant program.

The Indian education program provides for the training of Indian residents, 1/4 blood or more. The maximum scholarship is $350.00. A Board of Examiners shall make the selection for receipt of the scholarship.

Table 9 A

NON-FEDERALLY ASSISTED PROGRAMS

Program	Operating Agency	Source of Funds	Amount of Funds	Target Group	Number Served	Geographic Scope	Services Offered	Remarks
On-The-Job Training	South Dakota Industrial Development Expansion Agency	State	$100000	Employees of New Industries	Unknown Still Accepting Referrals	Statewide	Occupa-tional Training	Not included in CAMPS planning
Indian Education	Department of Public Instruction	State	$ 21000	Resident Indian Peoples	60	Statewide	Academic and Occupa-tional Training	

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3. Carryover Funds

The only carryover funds will be some institutional and on-the-job Manpower Development and Training Act funds. These funds are already ensconed in FY 69 projects, referral into these projects will be made after June 30, 1969.

All funds are anticipated to be expended by the dates indicated. No change in their useage is expected nor programmed.

Table 10 A

CARRYOVER FUNDS

Project	Termination Date	Training Spaces	Funds
SD (X) 9002	9-30-69	25	$86072.00
44-9-3005	1-15-70	60	$40218.00

4. Unmet Needs

We shall attempt to provide information on unmet needs as per program.

- Manpower Development and Training Act

  Approximately 326 trainees will be enrolled in institutional projects in FY 69. As this program is the best training vehicle we have at our disposal, we naturally have more demands for its usage. There are over 400 training requests by applicants on file at the present time. Under the proposed multioccupational concept for FY 70 operations we should be able to train another 325 - 350 persons should the funding level in FY 70 remain the same as FY 69. We will fall short by some 500 training slots of staying up with our requirements. There are approximately 41660

unemployed persons, 15779 underemployed persons in the State, most of whom need some type of training or assistance to be employable. The State does not have the facilities nor the instructors to train many more than the 500 extra trainees cited above. We cannot estimate the number of applicants desiring training that are advised that their chances are nil by selection and referral officers.

The 25 carryover referrals will not begin to alleviate the need. The non-federally assisted programs will only provide a small number, 60, of training slots.

The greatest unmet need was for medical services and for more evaluation facilities. Because of their allocation, the Division of Vocational Rehabilitation could not provide for medical assistance. It is estimated that between 75 and 100 trainees could have benefitted from this service. The second item concerns the rigid location of our Human Engineering Laboratory. Currently this facility is located in Sioux Falls. Because of the size of the staff, equipment and materials, this facility cannot be moved. To be effective, the trainee must come to the facility - the facility cannot go to the trainee. Evaluation centers such as the Human Engineering Laboratory should be made available at each area vocational-technical school.

The greatest unmet need in the on-the-job training part is the lack of funds for coupled projects and the lack of built in prevocational sections. In short, a lack of funds and facilities. The section 241 projects, in particular, need prevocational training as an essential part of the project. Available funds limit what can be done in this area.

The Indian peoples of the State represent the group with the greatest unmet needs. Section 241 funds with their arbitrary time limits on training severely limit the types of occupations training can be given in. The reservation areas generally lack some of the services a project with prevocational attached to it needs. The Committee feels that occupational training should go hand in hand with industrial development.

- Bureau of Indian Affairs

The Bureau Employment Assistance program has not had the funds available to meet the needs for services. At the present time we have 63 South Dakota Adult Vocational Training applications awaiting scheduling at our field offices. We have pending, 54 South Dakota applications for relocation for employment. From our labor force reports we know that there are many others who would be requesting services if the lag time were not so great.

For within area relocation for employment, we lack substantial employment opportunities accompanied by adequate housing accommodations within reasonable proximity to the job.

The unmet need for solo parents is very great. The exact numbers who would participate we do not have. The request for services at our Family Training Centers far exceed the number we are able to assist. It is anticipated that a Family Training Center will be opened in North Dakota to serve people from the upper midwest. This installation, when at full capacity, will serve 100 units.

Coordination is needed between the WIN program and the Bureau of Indian Affairs. A joint agreement to serve those eligible under the Bureau program could be effected. The Bureau could pay

institutional and related costs while the Welfare and Incentive program could be used to pay subsistence costs. This would be a realistic approach as under our standards we find that most trainees return from employment because they cannot command a high enough wage upon graduation. The WIN portion of the incentive program would induce these persons to remain on the job.

At the present time, Area Vocational Schools are just coming to the fore in this area. They will be able to meet the training needs of many of our people and, at the present time, all of industries need. There are not sufficient training facilities to meet the need in the health fields particularly in practical nursing and nurse aid. For some of our applicants, we also need a pre-nursing course.

- Adult Basic Education

Unmet needs - the Adult Basic Education program has now written under Public Law 89-750 which should be revised to include the completion level of grade 12 and all special project money designated for Adult Basic Education in the national level for section 309B and C of the act should be distributed as supplementary ancillary services to meet the needs of each individual state. All federally supported programs which have basic education, of which at the present time there are approximately 20 individually existing programs, should be brought under one roof so that the basic education now existing could more adequately serve a broader group of people and duplication which now exists would be eliminated in the individual governmental departments which administer some phase of basic education. In other words, all basic education services now operating could more efficiently

function under our existing State Plan.

At this point, we are not certain that funding will be approved for the Special Mobile Project designed for our Indian reservations in North Dakota, South Dakota, and Nebraska. This project is of most urgent need to satisfy conditions existing in these isolated areas and thus will enhance and supplement a number of Adult Education services by improving the basic education attitude of the adults concerned. The value gap must be closed before logical progress will be observed. There must be further management education in our State which will reinforce a much higher degree of comprehensive planning before we whall see the industrial development so badly needed. This should be a prime target program for CAMPS to analyze and encourage full and progressive development.

To further improve the "mixing" of programs and needs would be a higher degree of communication somehow developed between related areas of interest.

- Vocational Rehabilitation

It is the feeling of our Division that there exists substantial numbers of our citizenry who are disabled and who are not receiving services currently. While the exact number of disabled within the State is not known, we are currently conducting a state-wide study to determine incidence of disability which will be extremely helpful to the agency in planning for the future. This information should be available in Fiscal 1970. If federal funding should be maintained at the same level as currently in the forthcoming year, we will continue to have considerable numbers who will not and cannot be served due to the lack of funding. The

Division is currently planning to develop additional cooperative plans with other agencies of State Government whose function is service to the citizenry and, specifically, service to the disabled. A new cooperative agreement will be negotiated with Welfare in order to develop a closer working arrangement in the servicing of the disabled welfare recipient. Additionally, continued emphasis will be placed on the rehabilitation of the Social Security Disability applicant. The Division anticipates a continuation of its cooperation with Rehabilitation clients who are in a MDTA program in providing them with services which are not provided by the Manpower Development and Training Act. We are in hopes that the level of cooperation can be increased even beyond the standard already established. The Division plans on making available in Fiscal 1970 a limited sum of money for minor medical services to individuals involved in a Manpower Development and Training program who otherwise may have to terminate their program because of some minor medical problem. These individuals would not be clients of our Division at the time the service is rendered but may at a later date be referred to our agency for additional services beyond the $100 maximum established by the Minor Medical Services Agreement. The referral process has been formulated by the two agencies but to date has not been utilized. We anticipate continued use and expanded use of the Vocational Area Schools in the providing of appropriate training to our clients. We feel that they can effectively train clients who are in need of the service provided by the Area Trade Schools, and in addition, provide a saving to our agency and the State in terms of potential expenditure if this service had to be purchased outside of the State.

- Green Thumb Program

  Twenty counties, other than the five enrolled under Green Thumb, have requested this program. Because of lack of funds, 280 persons will be denied enrollment in Green Thumb. This program is valuable in that it provides work experience and income for the enrollees. Projects for women should also be designed and funded.

- Work Incentive Program

  Currently this program is operative in only two counties of the State. Because of the size of the evaluation staff required, it will not be feasible to operate in every county. However, mobile teams or half teams may be the answer. Mobile teams to operate in several county areas on an itinerant basis may be one answer to serve more of the state's AFDC recipients. Another answer may be in the establishment of a half team approach. Under this idea, half of an evaluation team would be stationed within a county until the AFDC load goes down. A third possibility would be the combining of the two methods. It is estimated that 1200 more WIN training spaces could be utilized in FY 70 provided funds were available.

These then are the unmet demands - greater program funding, lifting of some procedural restrictions and funds for more personnel to perform outreach on the reservations and in our rural areas. Funds should also be provided to establish an Indian training facility or skill center. A necessary part of this facility would be provision for the housing and feeding of the trainees. Prevocational training should be mandatory with each section 241, the MDTA, project. The mixing of the various program funds is a necessity and easy procedures must be established.

VT 012 495
1970 Evaluation Report on Wyoming
Occupational Education.

Wyoming State Advisory Council on
Occupational Education, Cody.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Sep70 21p.

DESCRIPTORS - *STATE PROGRAMS; *VOCATIONAL
EDUCATION; *PROGRAM EVALUATION; ADVISORY
COMMITTEES; ANNUAL REPORTS
IDENTIFIERS - WYOMING

ABSTRACT - This evaluation of vocational
education in Wyoming describes progress in
five areas: (1) state goals, (2) human
resources development, (3) adjustment to the
1968 Vocational Education Amendments, (4)
effectiveness in serving people's needs, and
(5) occupational opportunities. The report
recommends improvements in several areas,
including planning, evaluation, and target
population selection. (BH)

VT 012 495

ED0 57254

1970 EVALUATION REPORT ON WYOMING OCCUPATIONAL EDUCATION

September, 1970

WYOMING ADVISORY COUNCIL
ON
OCCUPATIONAL EDUCATION

VT012495

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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4691

THE STATE OF WYOMING

ADVISORY COUNCIL FOR OCCUPATIONAL EDUCATION

P.O. BOX 380 -:- CODY, WYOMING 82414

M. DALE ENSIGN
CHAIRMAN

CLINTON L. HARRIS
EXECUTIVE SECRETARY

September 28, 1970

Mr. Vernon T. Delgado, Chairman
State Board of Education
Capitol Building
Cheyenne, Wyoming 82001

Dear Mr. Delgado:

The State of Wyoming Advisory Council on Occupational Education is required by law to make "... annual evaluation reports... and recommendations ... to the State Board for transmittal to the U. S. Commissioner of Education and the National Advisory Council."

Accompanying this letter is our first report indicating our concern for various areas of occupational education with recommendations we hope will be given reflective consideration for occupational education in 1971.

Occupational education is moving forward. A new State Master Plan has been developed, and it is being implemented. Accordingly, next year's evaluation will be more meaningful as measured against the new Master Plan.

The Council members are dedicated to upgrading Occupational Education for the State of Wyoming.

Sincerely,

M. Dale Ensign
Chairman

cc: U. S. Commissioner of Education

1970 EVALUATION REPORT ON WYOMING OCCUPATIONAL EDUCATION

INTRODUCTION AND SUMMARY

The initial State plan for Occupational Education was established in keeping with federal guidelines. Owing to the timetable, the Advisory Council was unable to become personally involved in directing the State plan. Furthermore, it was determined by the Advisory Council that the federally directed State plan did not anticipate the circumstances and essential planning required for programs of Wyoming.

It is expected that next year's evaluation, as measured against a new State Master Plan, will be far more meaningful than this 1970 evaluation against the federally oriented State plan. In our judgment, the federal format is a poor standard for this State.

The Advisory Council has encouraged the usage of the term "Occupational Education." This was done in an effort to improve the existing image often associated with vocational-technical education programs. Therefore, in this report, the term "occupational" is to have the same meaning as the terms "vocational" and "vocational-technical."

Following is a summary of the initial priorities considered essential to the development and growth of Occupational Education in Wyoming. Following each priority, is a brief evaluation of the progress of the past year.

1. Establish goals, objectives, priorities and plans for long term planning of Wyoming's Occupational Education.

   Significant progress has been accomplished in the development of a five-year plan with measurable goals, objectives and priorities, utilizing PERT programming and other up-to-date planning techniques. Area planning between secondary schools, community colleges, various agencies and employers was begun.

2. Develop comprehensive Occupational Education programs designed to begin in kindergarten and continue through the community college, university and adult continuing education.

   State Department of Education and its Occupational Education section have exercised resourcefulness and imagination in the development of Comprehensive Occupational Education programs which have gained widespread interest. Parts of the program have begun.

3. Re-enthrone and impress in the minds of the people of Wyoming the dignity of work and vocational opportunities.

   The Advisory Council held 11 public hearings along with State staff to begin to change the image of Occupational Education as necessary for all children. The Public Relations Sub-Committee of the Advisory Council has issued several press releases. They have appointed occupational educators to serve as liaison workers who are responsible for disseminating occupational information. Still, public relations and publicity need to be stepped up.

4. Improve the human resources development programs of the State.
   a. Closer liaison was maintained among the State Board, the various State and federal educational agencies, Employment Service, C.A.M.P.S., vocational rehabilitation, Manpower Development, and the State Office of Economic Opportunity and OEO. Positive effects were attributed to the State's community colleges becoming the major preparation stations for manpower students.

   b. Two Boards of Cooperative Services were organized by school districts who worked together and cooperated to provide educational services. These services include occupational education, adult education and services to exceptional children.

5. Determine the effects the Vocational Education Amendments of 1968 had on the State.
   a. New Occupational Education programs were designed and implemented in five major areas:
      1. Cooperative Occupational Education at secondary and community college level.

      2. Programs for the disadvantaged.

      3. Programs for the handicapped.

      4. Consumer and homemaking programs.

      5. Work study programs.

   b. Recent redistribution of federal funding has created serious setbacks in occupational education programs, particularly in community colleges. The term "disadvantaged" is as well applied to enterprising youth attending small, often isolated rural schools as to those minority groups attending city schools.

6. Increase the effectiveness with which the people and their needs are served.

   Many new occupational programs were begun during the past year. These programs are serving more public school and community college students, adults, disadvantaged and the handicapped than ever before in Wyoming. Even with this recent progress, many more people need occupational training and service, using new and improved techniques. A more detailed study of the effectiveness of these new programs will be reported at a later date.

   Greater coordination is needed between secondary, post-secondary and community colleges; i.e., State Board of Education, Community College Commission, working as an independent unit; and the University of Wyoming, functioning as another independent unit.

7. Within the State, improve the matching of employment opportunities with occupational services.

   The State Department of Education is fostering cooperation at the regional levels between employers, public school districts and community colleges. More programs are matching employment demands. Greater attention is needed to develop lists of present and future job opportunities in order that schools may respond to employment needs. Little duplication of programs is noted at the community college level due to the coordination between community colleges. The most serious impairment to the action is lack of funds.

II. EVALUATION

GOAL I. 1969-70 STATE GOALS AND PRIORITIES

A. Priorities with respect to Vocational Education Amendments of 1968.

1. Occupational program assistance under Part B was made to needy districts for their secondary and post-secondary programs.

   a. Secondary programs reimbursed: Rawlins; Sheridan; Lingle; Laramie; Evanston; Newcastle; Rock Springs; Green River; Lovell; Cheyenne; Casper; Big Horn; Fort Laramie; Lander; Greybull; Cody and Clearmont.

   b. Post-secondary schools reimbursed: All seven community colleges and the University of Wyoming teacher education programs.

2. The State Department of Education, Occupational Education Section, reimbursed. These programs:

   a. Programs for the Disadvantaged - Part B

      1. Boys' Industrial Institute, Worland.

      2. Western Wyoming Community College in conjunction with model cities program.

      3. Laramie County Community College in conjunction with model cities program.

      4. Secondary school project at Riverton.

      5. WORK (Wyoming Occupational Resource Kits) kits for disadvantaged students.

   b. Programs for Handicapped Persons - Part D

      1. Secondary Schools: Sheridan; Laramie; Cheyenne (Chaplin School) and Cody.

      2. Casper - Work Training Center for Handicapped.

      3. Thermopolis - Big Horn Basin Children's Center.

   c. Consumer and Homemaking Programs - Part F

      1. Upgrading and expanding secondary programs in: Lovell; Sheridan; Newcastle; Cheyenne; Lander; Greybull; Cowley; Medicine Bow; Albin; Glendo; Kemmerer; Worland and Mill Creek.

2. State Girls' School, Sheridan.

3. Laramie County Community College.

4. University of Wyoming improved teacher education program.

5. Seven-hundred, thirty-two visits by staff were conducted to assist local districts in developing more varied programs.

6. Secondary adult programs were supported at Laramie; Lovell; Lander; Newcastle and Cody.

7. Post-secondary adult programs at: Casper College; Central Wyoming College; Laramie County Community College; Sheridan College.

d. Cooperative Occupational Education - Part G

1. Six community colleges received first priority on cooperative funds to establish diversified cooperation occupational education.

2. A cooperative program for handicapped youth was begun in the Powell schools.

3. Secondary cooperative programs of a diversified type were funded at Rawlins; Sheridan; Lovell; Buffalo and Saratoga.

4. Rural Tongue River school received funds to transport students to Sheridan for cooperative education.

5. A cooperative exploratory program was approved and funded for Cody.

6. Support for the development of a cooperative occupational education teacher education curriculum at the University of Wyoming.

e. Work Study Programs - Part H

Work study programs were supported at Evanston; Cheyenne; Rock Springs; Lusk; Laramie County Community College and Casper College. Forty-six students participated in the three-month summer program.

B. New Directions

1. Comprehensive Occupational Education Program Design

A comprehensive occupational education program design was developed beginning in kindergarten or preschool and continuing throughout life.

Wyoming's approach to Comprehensive Occupational Educational is based upon this model which provides attitudes, skills, understandings, basic tools and competencies as the child progresses through the various levels or grades of education. The following is a brief description of various components of the model:

a. Kindergarten to Grade 6

Emphasis is placed upon development of ATTITUDES TOWARD THE WORLD OF WORK without changing the existing curriculum. Projects to develop in ALL children a respect for ALL work and a motivation for productive citizenship in the world of work.

b. Grades 7 and 8

A CAREER-ORIENTATION PROGRAM for all youth to provide them with an understanding about broad areas of our economy, such as manufacturing, construction, service, marketing, agriculture, business and professions.

c. Grades 9 and 10

A broad CAREER EXPLORATION PROGRAM will utilize classes in industry, business, marketing, agriculture, etc. Industrial arts exploration will be expanded.

d. Grades 11 and 12

Development of CAREER PREPARATION BROAD-SKILL PROGRAMS serving a wide range of interests and abilities and employment opportunities in occupational programs found in eleven clusters.

GOAL II. EVALUATION OF HUMAN RESOURCES DEVELOPMENT PROGRAMS

A. General

A questionnaire was developed in order to gather information concerning Human Resources Development Programs. The instrument questionnaire was mailed to 40 Wyoming agencies that worked directly in the area of occupational education. The data on Table I and Table II was computed on the basis of 83% questionnaire return. From results of data analysis, implications and conclusions are:

1. Eighty-two per cent of the responding agencies were providing either one or more services in job information, job preparation and job placement.

2. Thirty-three per cent provided services in all three areas.

3. As few as 18% did not provide services in any area.

4. Fifteen, or 46%, agencies indicated they worked closely with the State Department of Education to obtain services.

5. Forty per cent indicated they worked closely to obtain special service programs, i.e., Manpower Development, Veterans, Adult Basic Education.

6. Fifteen, 46%, agencies were not cognizant of other agencies that provide occupational education services.

B. Actions Taken to Expand and Improve Joint Program Planning

Close liaison was maintained with the State Board, Employment Service, C.A.M.P.S., vocational rehabilitation, Manpower Development and the Division of Exceptional Children. Positive effects were attributed to the State's community colleges becoming the major preparation stations for manpower students. Two boards of Cooperative Services were organized by school districts who worked together and cooperated to provide educational services. These services did include occupational education, adult education and services to exceptional children.

C. Actions Taken to Enhance Image of Occupational Education

A comprehensive occupational education program design was developed. Beginning in kindergarten and continuing throughout life, all children are provided educational experiences in attitudes, broad skills, and career orientation and preparation.

The Advisory Council, along with State staff, held eleven hearings oriented to changing the image of occupational education as necessary for all children. The Public Relations Committee issued press releases centered around occupational education.

D. Eliminating Duplication and Competition in Occupational Programs
The formation and implementation of comprehensive occupational education plan, coordination agreements between community colleges and boards of cooperative services have been approaches to preventing duplication and competition in occupational programs.

TABLE I

Numbers and Percentages of 33 Wyoming Agencies Working Directly in the Area of Occupational Education Who Provided Services in Job Information, Job Preparation and Job Placement[a]

Area of Service	No. of Agencies	Percentage of Agencies
Job Information	3	9
Job Preparation	5	15
Job Placement	1	3
Job Information and Preparation	2	6
Job Information and Placement	2	6
Job Preparation and Placement	3	9
Job Information, Preparation and Placement	11	33
No Service	6	18

[a] Data computed on 83 per cent return of questionnaires.

TABLE II

Numbers and Percentages of 15 Agencies Who Stated They Worked Closely with The State Department of Education to Obtain Services[a]

Area of Service	Receiving Services	
	No. of Agencies	Percentage of Agencies
Special Programs, e.g., MDTA, DECA, Veterans, ABE	6	40
Licensing Service	3	20
General Advisory Information	3	20
Funding	1	7
Curriculum	2	13

[a] Tabulations are based on 15 (46 per cent) positive responses gathered from 33 Wyoming agencies working directly in area of Occupational Education. Namely, those agencies were:

1. Wyoming Industrial Institute, Worland.
2. Career Beauty College, Cheyenne.
3. Farmers Home Administration, Casper.
4. Wyoming State Penitentiary, Rawlins.
5. Employment Security Commission, Casper.
6. Vocational Rehabilitation, Casper.
7. Cannon Aeronautical Center, Cheyenne.
8. Casper Air Service, Inc., Casper.
9. Beauty School of Fashion, Casper.
10. Wyoming Education Association, Cheyenne.
11. Division of Public Assistance and Social Service, Cheyenne.
12. Brand's School of Western Saddlery, Ralston.
13. Elgin Flying Service, Cody.
14. Wyoming Beauty Academy, Riverton.
15. Intermountain Aviation, Inc. Casper.

GOAL III. EVALUATION OF THE EFFECTS OF 1968 VOCATIONAL EDUCATION AMENDMENT IN WYOMING

A. Termination of Programs
No programs were terminated this past school year (1969-1970).

B. New Programs
These were mentioned under Goal I.

C. Research
1. The Research Coordinating Unit continued to function during the period and provided the following services:

a. Continuation of occupational research.

b. Consultation to secondary and post-secondary schools.

c. Participation on department and interagency councils.
d.
d. Support of graduate research assistantship at University of Wyoming.

e. Served on school evaluation teams.

f. Conducted a survey between a community college and three school districts. These schools have presently developed a cooperative services board for occupational education, K-12, Community Colleges and Adult.

g. To serve our state, the $15,000 we received in research funds are not adequate.

D. State Management Changes

With the advent of the present state plan, the Chief of Occupational Education was assisted by an administrative assistant. Close liaison was maintained with Manpower Development and the Division of Exceptional Children. The State's community colleges became the major preparation stations for manpower students. Consultation services were expanded with a full-time staff member in the office occupations. Future steps will be taken to bring non-occupational staff into close contact with members of the occupational education section for comprehensive programming services to secondary and post-secondary institutions (K-12, Community Colleges and Adult).

E. The State System of Allocating Federal Funds

1. Federal funds have assisted the state under this plan; however, we are most hopeful of the day when broader guidelines become available which permit the state to identify its needs and devise a local formula for distribution of funds.

2. The isolated rural schools in our state do not always meet national criteria for disadvantaged. Modification of federal guidelines should be undertaken.

3. The state is making a concerted effort to meet the major priorities of the 1968 Act, with the limitations mentioned above. Timing of federal monies is a crucial issue, since schools are usually in session before we receive federal allotments.

4. Since FY 70 funding has been extended for an additional year, this has made our task more realistic.

5. A summer workshop was held for 200 occupational education teachers at Casper College. The theme was "Expanding Occupational Education in Wyoming to Include the Disadvantaged." This workshop alerted educators to the national need, and new programming directions were embarked upon.

F. Concerted Effort Toward Occupational Education by the State of Wyoming

1. The Governor's Committee on Vocational-Technical Education in 1968 issued a comprehensive report which was published in 1970 by the State Department of Education.

2. The Committee recommended a Master Plan of action. The State Advisory Council will publish this plan in 1971.

3. The State Department of Education, State Board of Education, State Advisory Council on Occupational Education and State Manpower Coordinating Council are all dedicated to the (K-12, Community College and Adult) philosophy of the comprehensive occupational education program.

4. The Advisory Council held 11 hearings along with State staff to begin to change the image of occupational education as necessary for all children, not somebody else's. These meetings are already showing progress as some schools have implemented the comprehensive program.

GOAL IV. THE PEOPLE AND THEIR NEEDS
Effectiveness Which People's Needs Were Served

The University of Wyoming, College of Commerce and Industry, Division of Business and Economic Research, was contracted to compile an evaluation report on Goals IV and V. The investigator submitted a summary report of his findings. A more complete report will be submitted at a later date.

Three Wyoming cities, Casper, Rawlins and Wheatland, were selected as pilot evaluation communities. Approximately 61 personal interviews were conducted, including administrators and program personnel on the staffs of the State and local employment service offices, State and County welfare offices, local school districts, the State education department, local community programs that work with underprivileged persons, and State and community programs for the handicapped. (The following data pertains to the sample study.)

A. What people were in need of vocational programs, services and activities?

1. Opportunities are available to receive advanced occupational education at seven community colleges and several trade and technical schools throughout the State. Despite this, a small number of non-college bound students were enrolled in these schools.

2. The Mexican-American population in Rawlins and Casper.

3. Negro population in one urban community expressed the need for programs which would elevate their employment opportunities.

4. The underemployed adults who found it necessary to hold two jobs in order to subsist.

B. What people were actually served and how well?

1. Grades 9, 10, 11 and 12. Total number of boys and girls enrolled in occupational education:

   a. Carbon County, School District #3, Rawlins: Business Education - 413, Distributive Education - 72, Home Economics - 75, Industrial Arts - 224, and T and I - 25. Total enrollment - 801.

b. Natrona County, Natrona County High School District and District #2, Casper: Agriculture - 46, Business Education - 1542, Distributive Education - 162, Home Economica - 784, Industrial Arts - 1182, and T and I -105. Total enrollment - 3,821.

c. Platte County, School District #9, Wheatland: Agriculture -52, Business Education - 195, Home Economics - 52 and Industrial Arts - 150. Total enrollment - 449.

2. New programs providing occupational education to boys and girls, grades 8, 9, 10, 11, 12:
   a. Rawlins: Office Occupations, 11, 12 - 83; Computer Science, grades 11, 12 - 25; Home Economics, grades 9, 10, 11 and 12 - 82; and Industrial Arts Orientation, grade 8 - 98. Total enrollment - 288.

   b. Casper: Introduction and Orientation to Typing, grades 8 and 9 - 684.

3. In the near future, programs are being planned and implemented in the State's seven community colleges which will provide continuing occupational education for the students from the sample study cities.

C. What people were not served because occupational programs, services and activities were not available or were not acceptable?

1. Opportunities are available to receive advanced occupational education at seven community colleges and several trade and technical schools throughout the State. Despite this, a small number of non-college bound students were enrolled in these schools.

2. All high school and college drop-outs.

3. Disadvantaged population throughout the target study:
   a. Casper: 500 negroes, 250 underemployed adults, 725 Mexican-Americans.

   b. Wheatland: 14 migrant Mexican-American families.

   c. Rawlins: 3,250 Mexican-Americans.

4. Adult population who desired to advance their education or who desired to cross-educate into other fields.

5. Primarily occupational education programs were not available to the above-mentioned groups; however, in Rawlins, the adult population did not accept the programs offered, i.e., maintenance education programs.

GOAL V. EMPLOYMENT AND OCCUPATIONAL EDUCATION SERVICES WITHIN THE STATE[a]

A. Within the target study, what occupational opportunities exist and may exist?

1. There were demands for skilled and experienced workers in the non-manufacturing industries, in the target study, with 19,209 workers in 235 employing units and having an average turnover rate of 12%. Whereas, the manufacturing segment remained almost constant with a turnover rate of 4 per cent in 71 employing units with an employee force of 2,358.

2. Manufacturing was limited to a few small (15 or less employees) and medium-sized (15-50 employees) plants. There are only four manufacturing plants, in the target study, that employ over 50 persons.

3. Oil and gas exploration continues in all three target areas. Carbon County has the Washakie Basin, Hannah, Shirley and Laramie fields; Platte County the Denver Basin; and Natrona County the Wind River Basin, in which activities are proceeding. These areas have an estimated total gross value of $60,600,000.

4. Uranium exploration activities in the target study is quite active. Two of the most active operations, Gas Hills and Shirley Basin, employ 1,346 workers in such duties as loading, hauling and shipping, pit ripping and grading, drilling and blasting, pumping, stock piling, ore control and sampling, equipment maintenance, clerical and supervision.

5. The contract construction industry, in the target study, employed 1,739 people in all fields of construction. The labor force consists of workers in heavy equipment operations, state highway and local street construction, to general contract construction for carpenters, plumbers, electricians, masonry workers, etc. This segment made up approximately 13% of the total work force in the target study.

6. As the primary industries continue to grow, the need for supporting activities will grow with them, such as pipelines, truck and rail traffic and new and better Wyoming highway network.

[a]The following information pertains to the sample study - Rawlins, Casper and Wheatland.

7. Tourism provides economic activity within the target area, not only will the hospitality outlets, which provide employment for 1, 214 workers, but this activity also effects the retail and wholesale trades, personal services, amusement and recreation, and almost any other industry in the target study because of the multiplier effect.

B. What occupational education programs, services, and activities are provided to educate individuals for actual and potential job opportunities?

In order to gain full knowledge of actual programs offering occupational education, the investigator felt it necessary to broaden the scope of study area. Rather than only sample the programs in Rawlins, Wheatland, and Casper, it was deemed essential to study post-secondary and community college programs, in as much as these schools were available to students wanting to leave the target study area to pursue higher level programs.

1. Rawlins High School occupational program was developed to meet the needs of the people. The programs are Office Occupation, Drafting, Automotive Technology and Electronics.

2. Four of the secondary schools within the target study have office occupation, automotive and vocational agriculture courses. Three schools offer data processing, graphic arts, welding and industrial arts classes.

3. Community Colleges offer these occupational education programs which would be available to students from the target study area:

   a. Laramie County Community College. Data Processing; Engineering Technology; Computer Science; Secretarial Science; Industrial Maintenance; Surgical Technician; Office Occupations.

   b. Casper College. Automobile Service and Repair; Electronic Engineering and Technology; Licensed Practical Nursing; Welding and Machine Shop; Petroleum Engineering Technology; Commercial Drafting; Data Processing; Secretarial Science.

   c. Central Wyoming College. Industrial Management; Nursing; Computer Program Technology; Electronics; Secretarial Science; Broadcasting; Mid-Management; Forestry; Business Education.

   d. Sheridan College. Secretarial Science; Engineering Technology; Dental Assistant; Para-Medical, Consumer and Homemaking.

e. Northwest Community College. Commercial Art; Offset Reproduction; Welding; Data Processing; Secretarial Science; Accounting; Bookkeeping; One-year Agriculture Program.

f. Western Wyoming Community College. Data Processing; Engineering Technology; Computer Science; Secretarial Science; Industrial Maintenance; Auto Mechanics.

g. Eastern Wyoming. Business Education; Vocational Agriculture; Distributive Education; Data Processing.

C. Were the programs appropriate?

1. At the time of the investigation, Rawlins occupational education programs were not adequate. However, with the advent of new programs, i. e., Office Occupation, Computer Science, and Industrial Arts Orientation, the students' occupational education needs should be met.

2. In Casper, the secondary programs were not adequate because they lacked skill building methods, technique s and equipment. On the other hand, the Casper Office Occupation classes were providing the students with skills which enabled them to obtain future employment. The post-secondary programs appeared to be functioning adequately, i. e., Licensed Practical Nursing, Petroleum Engineering Technology, Secretarial Science.

3. Wheatland's occupational education programs were acceptable in the areas of vocational agriculture and office occupations.

III RECOMMENDATIONS

A. The Division of Occupational Education, continuing to move forward, should further implement the Comprehensive Occupational Education Program Design, K-12, Community College and continuing education.

B. The State Department, in cooperation with local districts, should continue to develop an evaluation and planning system which will offer continuous assessment of occupational program effectiveness and efforts.

C. Cooperative systems, i. e., boards of cooperative services and community college agreements, should be strengthened and encouraged to avoid duplication of occupational education programs.

D. Recommend the National Advisory Council and the U. S. Commissioner of Education revise the federal system for allocating federal funds. In the future, broader guidelines should be established, whereby the State Department of Education and the Division of Occupational Education could identify their program needs and could devise a local formula for distribution of federal funds.

E. Concerning disadvantaged youth, we recommend to the National Advisory Council and U. S. Commissioner of Education that the term "disadvantaged" be revised to include children in small rural, geographically isolated schools, where there are inadequate funds to develop and support occupational offerings. The present definition and guidelines are directed toward urban centers.

F. Extend and expand programs for disadvantaged and handicapped youth.

G. It is not always possible to build elaborate and expensive occupational facilities; therefore, we encourage the development of cooperative education programs, utilizing the community classroom philosophy.

H. Elevating the image of occupational education and the dignity of work must be launched through comprehensive education. The endeavor must recognize employment as an integral part of education.

I. The University of Wyoming and the Division of Occupational Education should provide in-service workshops for all occupational education staff and non-occupational educators.

WYOMING ADVISORY COUNCIL
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OCCUPATIONAL EDUCATION

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VT 012 497
Special Project for the Implementation of Cooperative Education.

Omaha Public Schools, Nebr. Dept. of Vocational and Adult Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 21p.

DESCRIPTORS - *COOPERATIVE EDUCATION; *PROGRAM DEVELOPMENT; *SCHOOL INDUSTRY RELATIONSHIP; *COMMUNITY SURVEYS; *PROGRAM PROPOSALS; VOCATIONAL EDUCATION; ADULT EDUCATION; PROGRAM IMPROVEMENT; DISADVANTAGED YOUTH; PROGRAM PLANNING

ABSTRACT - The Special Program for the Implementation of Cooperative Education (SPICE) was conducted between June 15 and August 15, 1970 to determine the willingness of business and industry to serve as active resource personnel in classroom activities and to determine the means available in the business world that will help meet the needs of disadvantaged youth. A total of 776 business firms were contacted through personal interviews, and 599 firms approved the expansions of programs and 442 indicated a possibility of accepting student trainees. Results indicated that these and other objectives were achieved. (Author/JS)

VT 012 497

Special Project For

THE IMPLEMENTATION OF COOPERATIVE EDUCATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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DEPARTMENT OF VOCATIONAL AND ADULT EDUCATION

VT012497

4713

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SPECIAL PROJECT FOR

THE IMPLEMENTATION OF COOPERATIVE EDUCATION

Summer, 1970

Department of Vocational and Adult Education
Omaha Public Schools
Omaha, Nebraska

Mildred C. Blair
Project Director

James L. Nebel
Project Leader

Owen A. Knutzen
Superintendent of Schools

Edwin H. Parrish
Assistant Superintendent
Vocational and Adult Education

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Omaha Public Schools
Department of Vocational and Adult Education

Summer, 1970

The Special Program for the Implementation of Cooperative Education in the Omaha Public Schools was conducted between June 15 and August 15, 1970.

This program was funded through the State Department of Vocational Education as a special project under Section G of the Vocational Education Amendments of 1968; and, it was conducted in accordance with the provisions of the Nebraska State Plan for Vocational Education. A copy of the approved proposal is attached to this report.

Purposes

The purposes of the study were to try to determine:

1. The receptivity of more widely developed community cooperative-education programs.

2. An inventory of potential training stations in future years as well as an indication of some direct needs for the 1970-1971 school term.

3. The initiation of cooperative-education programs during the 1970-1971 school term in Agriculture Education, Home Economics Related Occupations, Industrial Education, and Office Education.

4. The outlook for the expansion of all the cooperative-education programs.

5. The willingness of business and industry to serve as active resource personnel in classroom activities.

6. The means that are available in the business world that will help to better meet the needs of youth who are culturally different, unemployed, and/or "early school leavers."

Plan

Under the direction of Dr. Edwin H. Parrish, the proposal was developed by the project director and the project leader with some assistance from others who later worked as staff members. In addition to the project director and the project leader, staff members for the project consisted of technical assistants and a field staff with representation from each of the vocational areas. An organizational chart is on page 13 of this report.

Activities during the first three weeks of the project included:

1. Determining businesses to be contacted and the names of people to call upon.

2. Preparing letters to business executives explaining the purposes of the calls and scheduling appointments.

3. Developing and printing brochures on cooperative education to be enclosed with the letters.

4. Developing a system to be used in recording summaries of visitations.

5. Preparing for in-service training of those who would make the calls.

In carrying out the first activity, The Directory of Major Employers for the Omaha Area provided the basic list of businesses to be contacted. This directory, compiled and published by the Omaha Chamber of Commerce, is a listing of the 900 area firms which employ 25 or more persons. Another listing, containing the names of approximately 1500 additional businesses, was obtained through the Office of the Mayor of the City of Omaha. This was a list used in the spring of 1970 to contact businessmen in a city wide drive for summer youth employment.

Because of time and staff limitations, it was determined that the first goal would be to contact as many as possible of the 900 firms on the Chamber List. The supplementary list was to be used to extend contacts in specific areas as far as might be possible.

Using both lists as guides, field staff members in each of the areas modified the lists by determining selections of firms to be contacted on the basis of special relationships to their vocational areas.

As the aim was to cover as many businesses as possible in the time available, all lists were "open-ended." In other words, modification was a continuing activity throughout the entire period of visitation.

After the names of firms to be contacted were ascertained, the second and third activities were performed. The letters and brochures were mailed a week in advance of the proposed appointments. On pages 14 and 15 are

samples of the letter and brochure. Page 16 shows the system developed in the fourth activity which was used in recording summaries of visitations. The fifth activity involved the training and preparation for the field staff members during the in-service period and included:

1. Explaining the principles and philosophy of the cooperative education programs.

2. Explaining the goals and objectives of the project with emphasis on the importance of community involvement in planning a cooperative education program in all of the vocational areas. (A sample kit of the materials used during the in-service training is included with the copy of this report that is being sent to the State Department of Vocational Education.)

3. Planning the individual field staff member's interview assignments and pointing out on a special map of the city of Omaha the locations of prospective employers. The map was placed on a special board and was used as a motivational device for the field staff. As calls were completed, each member in his particular vocational area would indicate with colored pins the locations of the businesses he called upon. At the close of the study, 776 pins had been placed on the map.

Field Program

Field staff members from each of the vocational areas made appointments and visitations between July 13 and August 15, 1970. Upon completion of the interviews, summaries of the visitations were recorded on special cards, and a personalized thank you note was then sent by the interviewer to each employer interviewed a few days following the interview. A sample of the thank you is on page 17.

Table I, page 6, denotes the number of firms contacted in each vocational area and also the total number in all areas. This table also includes the number of firms approving or disapproving of the expansion of cooperative programs and the number of firms who have indicated the possibilities of employing student trainees. Of the 776 firms contacted, 599 firms approved of the expansion of the programs, 160 did not indicate such approval, and 17 did not indicate an opinion. Also 442 firms indicated a possibility of taking student trainees, 293 did not think they could, and 41 thought they might or might not take student trainees. It should also be noted that though 293 firms did not feel they would have openings for trainees in the immediate future in areas where the school offers training, many of them were heartily in favor of the expansion of the cooperative programs.

Table II, page 7, lists the number of possible student trainee openings in each vocational area as they were indicated by the firms who said they could employ trainees. It is important when reading Table II to take note of the explanations about the table which are found on the following page.

The last table, Table III, page 9, indicates ways other than employing student trainees in which business firms wish to cooperate with the schools. For example, in the Home Economics Related Occupations area, out of 47 firms who said they would help in other ways, 30 are willing to provide speakers, 11 are willing to counsel students, 2 are willing to provide films or filmstrips, 8 are willing to provide for field trips, 8 are willing to provide instructional materials, and 5 are willing to cooperate in some other special way. For example, one of the prospective employers suggested that all of his department heads work with the school coordinator in developing the curriculum for trainees working in his firm.

Although contacts were made in the Distributive Education area where time permitted, the emphasis was put on the other areas as Distributive Education is already a successful on-going program in six of the Omaha Public High Schools. It is anticipated that it will be in operation in the seventh existing high school when the building is completed, and will be a part of the program in the additional high school now under construction.

All of the figures in the tables included in this report were derived from information recorded on the special cards by the field staff members as they made the visitations.

Publicity Programs

Dr. Parrish, the project director, the project leader, and one representative from each of the vocational areas appeared on a local radio station's program, Education 1970, a one-half hour program, to present a report of the study. At the time of the presentation, a recording was made which made it possible for the program to be broadcast four times. In addition, the project director, the project leader, and a field staff member from the Business Education area presented a panel discussion of the study to Business Education personnel at the Nebraska Vocational Association's annual meeting in Lincoln, Nebraska, in August. Part of the activity during the panel discussion included the playing of the tape used in the radio broadcasts.

Summary

As a result of the SPICE Program, the information obtained is of value to the vocational education programs in the Omaha Schools by having:

1. Secured suggestions from executives in the business and industrial communities on ways to improve current cooperative education programs in Distributive Education and implementing new programs in Agri-Business, Home Economics Related Occupations, Industrial Education, and Office Education. This information is available to the schools on the special cards used in recording summaries, and is also included in the general observations made by the field staff.

2. Secured suggestions on means to better meet the needs of youth who are culturally different, unemployed, and/or "early school leavers." This information is also found in the general observations made by the field staff.

3. Informed executives in business and industry of the schools' desire to have them become more involved in helping to educate youth for the world of work. This was done through the letters, brochures, interviews, and radio programs.

4. Secured indications of the willingness of individual employers to be more involved in serving youth:

   a. Through actual participation in some of the classroom activities.

   b. By supplementing or augmenting vocational counseling opportunities of pupils through individual or small-group counseling. This information was summarized in Table III.

5. Developed lists of prospective training stations. This information to be available to vocational area supervisors.

6. Developed better communication so that:

   a. The schools may better know and understand the needs and opportunities in business and industry. This information was indicated in Tables I, II, and III and in the general observations made by the field staff.

   b. Business and industry may be more cognizant of the educational opportunities that the schools have to offer. This information was made known mainly through the interviews.

Summary reports including individual listings of firms, contact persons, number of possible student trainee openings, and other ways in which firms would like to work with the schools are being supplied, together with copies of this report, to the supervisors in each of the vocational areas so they may make them available for use in each of the high schools.

Note:

On pages 10, 11, and 12 are some general observations gleaned from comments made by field staff members.

SPICE PROGRAM
Summer, 1970

Summary of Firms Contacted
(Table I)

Vocational Area	Number of Firms Contacted	Approval of Program			Possibility of Trainees		
		Yes	No	?*	Yes	No	?**
Agri-Business	72	47	25	--	32	40	--
Business--Office Education	202	178	20	4	113	70	19
Business--Distributive Education	78	77	1	--	57	16	5
Home Economics Related Occupations (HERO)	174	130	37	7	116	54	4
Industrial Education	250	167	77	6	124	113	13
TOTAL	776	599	160	17	442	293	41

*indicates those businessmen who did not necessarily approve or disapprove of a cooperative program

**indicates businessmen in firms who might or might not take student trainees

SPICE PROGRAM
Summer, 1970

Summary of Firms Contacted
(Table II)*

Vocational Area	No. of Firms Who Plan to Take Student Trainees	Number of Possible Trainees in Each Area														
		Agri-Business Education			Bus.--Office Education			Bus.--Dist. Education			Home Economics Related Occup.			Industrial Education		
		?	No.	Sev.	?	No.	Sev.	?	No.	Sev.	?	No.	Sev.	?	No.	Sev.
Agri-Business	29	6	32 (21)	--	--	6 (6)	--	--	--	--	--	--	--	--	--	--
Business--Office Education	185	--	1 (1)	1	40	208 (74)	2	5	21 (10)	1	1	16 (2)	1	4	20 (6)	1
Business--Distributive Education	64	--	--	--	13	22 (12)	--	21	58 (17)	3	6	3 (1)	1	4	5 (3)	1
Home Economics Related Occupations (HERO)	128	--	--	--	8	10 (5)	--	1	--	1	31	249 (79)	5	9	2 (2)	1
Industrial Education	156	--	--	--	15	8 (9)	1	4	--	1	1	--	--	67	48 (48)	10
TOTAL	562	6	33 (22)	1	76	254 (106)	3	31	79 (27)	6	39	268 (82)	7	84	75 (59)	13

* See next page for footnotes

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SPICE PROGRAM
Summer, 1970

Summary of Firms Contacted
(Table II Continued--Footnotes)

* Some firms wish to cooperate with trainees in more than one vocational area--hence--totals carried across the chart will not always equal number listed in this column. (For example: Of the 29 firms in the group interviewed in the area of Agriculture, 27 wanted to take Agri-Business trainees--four of these 27 also wanted office trainees. Two others wanted only Office trainees. This accounts for the 29 firms.)

? Indicates the business would plan to take trainees but did not state a specific number.

Figures in parentheses in "No." Column signify the number of firms who are willing to take the total number of students indicated.

Total estimated numbers of trainee openings in each vocational area are indicated below.**

Agri-Business Education	Business--Office Education	Business--Distributive Education	Home Economics Related Occupations	Industrial Education
42	339	128	328	198

**In order to reduce this information to one comparative figure for each area, the following formula has been used:

1. Each firm stating no specific number was assigned a figure of one.
2. Any firm stating "several" trainees would be employed was assigned a figure of 3.
3. Totals obtained in this way for these two columns were added to the total number specifically stated by other firms. For example: In Office Education 76 firms stated no specific number; 106 said they could employ 254; and 3 said they could employ "several." 76 + 254 + (3 x 3) 9 = 339 training openings in Office Education.

SPICE PROGRAM
Summer, 1970

Summary of Firms Contacted
(Table III)

Vocational Area	Other Ways Business Firms Wish to Cooperate*					
	*1	2	3	4	5	6
Agri-Business	(5) -- (5)	2	1	--	--	2
Business--Office Education	(68) 47	11	7	8	7	21
Business--Distributive Education	(17) 11	1	1	3	1	4
Home Economics Related Occupations (HERO)	(47) 30	11	2	8	8	5
Industrial Education	(35) 19	4	--	12	2	10
TOTAL	(172) 107	29	11	31	18	42

*Indicates the following:

1 - speakers
2 - counselors
3 - films or filmstrips
4 - field trips
5 - instructional materials
6 - see interview card for special instructions or unusual ways of cooperating

Figures in parentheses in Column 1 indicate the number of firms who are willing to cooperate in other ways in each area.

Some General Observations Gleaned From Comments Made By Field Staff Members

1. Most executives in business and industry are very receptive to the cooperative education plan.

2. It was anticipated that if employers would give twenty minutes of their day for interviews, the staff members could do a good job in presenting the "Cooperative Story" and at the same time, receive many good suggestions from employers in the planning of cooperative education. As it turned out, it was not unusual for interviews to last an hour. Some interviews lasted as long as three and four hours, the average length being thirty minutes. Businessmen wanted to discuss their problems and their businesses with the educators.

3. A number of executives had present during the interviews their top staff. They definitely wanted them to hear the "Cooperative Story" and discuss procedures to follow in implementing the program in to their companies. Some of them had photocopied our brochures before the scheduled interviews so all who attended from their staffs would have preliminary information.

4. Many businessmen were glad to learn the schools are doing more to promote vocational education. They feel more emphasis should be placed in this area, as there are many job openings for well-qualified vocational education trainees. A number of them felt there is too much emphasis on preparing for college.

5. A common question at the beginning of the interviews was, "Is this a government project? If so, I do not wish to participate." Upon explanation of the program, 99 per cent of the employers were favorably impressed with the plan.

6. In the beginning of the interviews, many executives confused the cooperative education program with JOBS, NYC, TOPS, JOB CORPS, and other work experience programs.

7. Many of the executives liked the idea of having plenty of time to think about the program before the actual implementation. Some stated, "We want to very much participate in the cooperative program, but I am not sure just where we could use at this time part-time help. However, between now and next fall, 1971, we certainly will give your program serious thought. I think it is a great idea!" They also approved of the schools' attitude about advance planning.

8. Many national firms, with home offices in other cities, could not give us definite information until they contacted them for approval. Many of them felt the home offices would be very receptive to the cooperative plan.

9. Many businessmen were acquainted with similar programs in other areas of the United States such as: Texas, Tennessee, New York and Virginia.

10. Nearly all employers made it known that students enrolled in the cooperative program must be high caliber students with a sincere interest and desire to do well on the job. Students would be expected to meet and to conform with the standards and regulations set forth by the company where they are employed. In sending student trainees under this program, the school implies that though the student may not have reached a very advanced skill level, he does have good work attitudes and enough maturity to accept adult responsibilities.

11. A number of businessmen were very happy to learn that cooperative education is a program for all students who can benefit from it, and that it is not limited to minority groups, the disadvantaged, the culturally deprived, the early school leavers, or only for students with special abilities.

12. At the same time, two or three of the major employers are very much interested in getting "good workers" from the minority groups. One employer indicated that his company at the present time would be interested only in hiring good workers from this group. (The percentage of minority group employees in his firm is down and he feels real pressure to bring it up.)

13. A number of the employers were pleased to learn that the students coming to them would be enrolled in advanced vocational courses. This means they are a select group, who already have had some training, and would go through the usual steps in applying for jobs.

14. Business leaders want the coordinators to work closely with the supervisors on the job in training students.

15. A number of businessmen contacted indicated that this is the first time that many of them had ever considered hiring seniors in high school. They also stated that they really do not see any major reasons why seniors could not be employed to fill entry-level jobs.

16. In entering the program, many of the businessmen contacted are willing to employ one or two student trainees. If these trainees work out satisfactorily, in the future they would plan to employ more students from the cooperative education programs.

17. A number of employers asked about using two students--one for morning work; one for afternoon. Some employers, particularly in the office area, indicated they would really like to be involved in the cooperative education program. However, the bulk of their work is in the mornings, and they could not envision, because of this, how they could participate.

18. Most employers would plan to pay the beginning wage for a respective job, rather than to plan to employ under any special permits.

19. A number of the executives in the Agri-business, Industrial Education areas indicated students must be 18 years of age before they could employ them. Because of the type of employment, more occupations in these areas are affected by legal requirements under Safety and Child Labor Laws and by union agreements than are occupations in the other vocational areas.

20. There appears to be a dire need for good trainees in the food service areas. Hospitals and nursing homes indicated great needs.

21. Nearly all of the businessmen contacted are willing to cooperate with the schools in whatever way they can. This may be by providing training stations for cooperative students, speakers for the classroom, guidance counseling, films, and other instructional materials.

22. Most firms are interested in working with the school staff in developing training plans for the student trainees. Many businessmen would be willing to volunteer the services of various staff members to assist in curriculum development.

23. No one wished to be burdened with paper work and were vociferous about not taking on the duties of a school with reference to discipline and attendance. This does not mean that they were not willing to share the responsibility for training.

24. A number of firms indicated that if the schools do not do a better job in preparing students for the world of work, the companies will have to develop their own special training programs, perhaps at the government's expense.

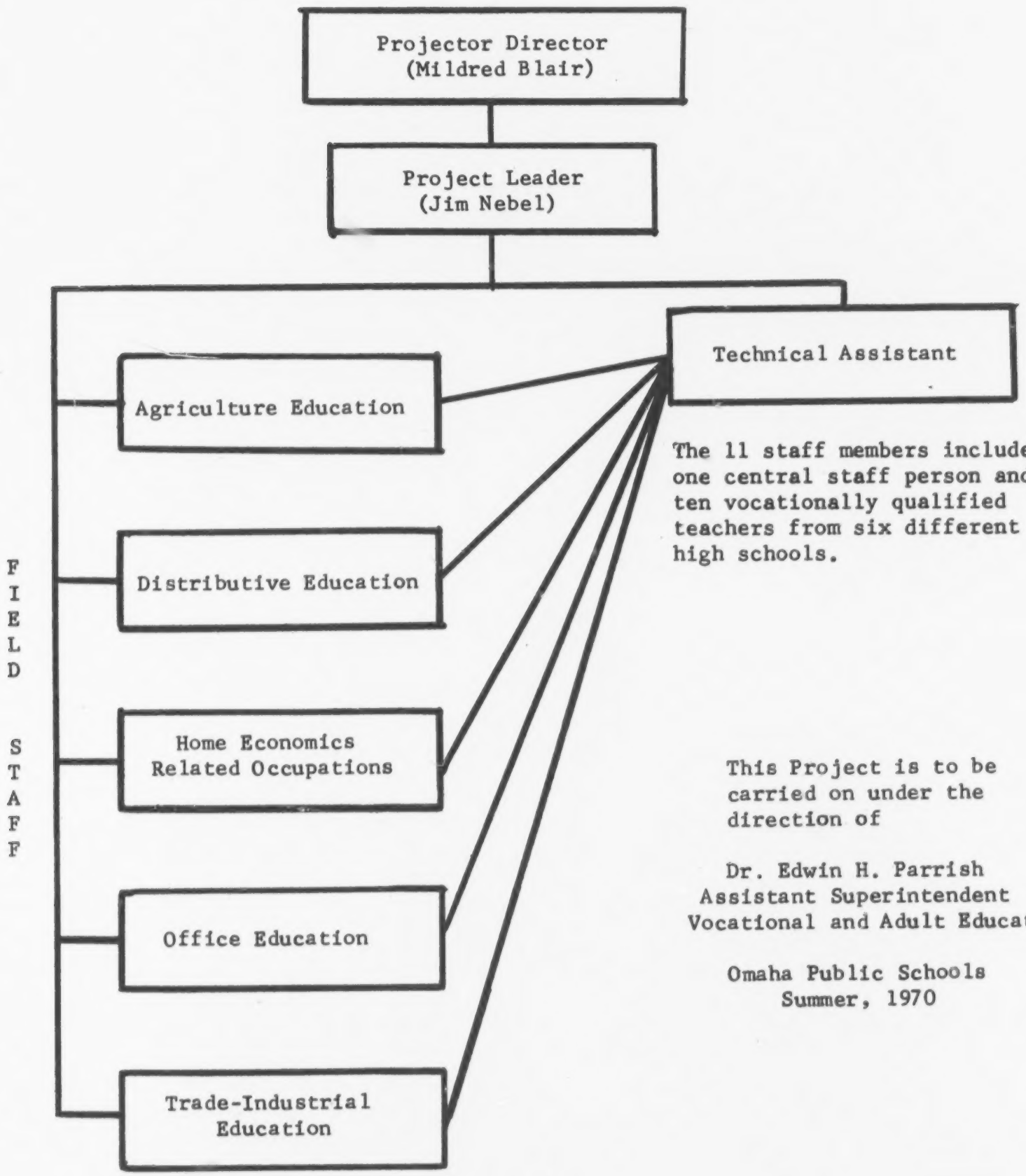
ORGANIZATIONAL CHART

A PROJECT FOR THE IMPLEMENTATION

OF

COOPERATIVE EDUCATION PROGRAMS

IN OMAHA UNDER PART G



The 11 staff members included one central staff person and ten vocationally qualified teachers from six different high schools.

This Project is to be carried on under the direction of

Dr. Edwin H. Parrish
Assistant Superintendent
Vocational and Adult Education

Omaha Public Schools
Summer, 1970

Omaha Public Schools

ADMINISTRATIVE OFFICES
3902 DAVENPORT STREET
OMAHA, NEBRASKA 68131

July 6, 1970

Mrs. Alene Nielsen, President
Nielsen's Furniture Store
4519 South 88 Street
Omaha, Nebraska 68127

Sample Letter

Dear Mrs. Nielsen:

Members of the Department of Vocational and Adult Education of the Omaha Public Schools will be conducting a Business-Industry Survey on Cooperative Vocational Education from July 13, 1970, through August 7, 1970.

Some of the purposes of the survey will be to:

1. Secure suggestions from you on ways to develop cooperative vocational education programs.

2. Secure information concerning your company's interest in becoming more involved in serving youth:

   a. By providing training stations.

   b. By supplementing or augmenting vocational counseling opportunities of pupils through individual or small group counseling.

3. Develop better channels of communication so that:

   a. The school may know and understand the needs and opportunities in business and industry more extensively.

   b. Business and industry may be more cognizant of the educational opportunities that the school has to offer.

A brochure introducing cooperative vocational education is enclosed. A staff member will be calling your secretary for an appointment. We hope you may be able to take the time for a brief conference.

Your participation in this survey will be very much appreciated.

Sincerely yours,

Edwin H. Parrish

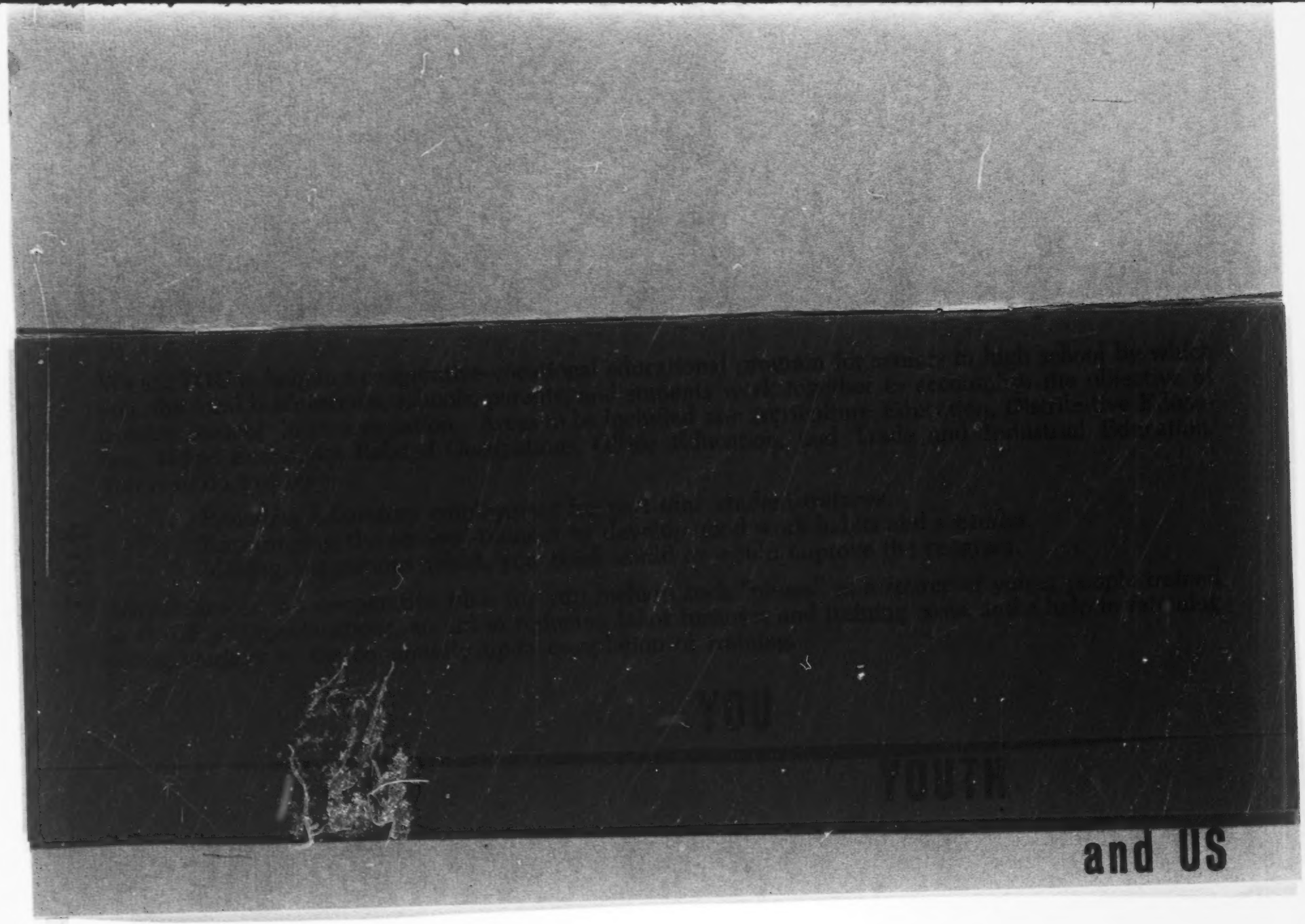
Edwin H. Parrish
Assistant Superintendent
Vocational and Adult Education

EHP/jh

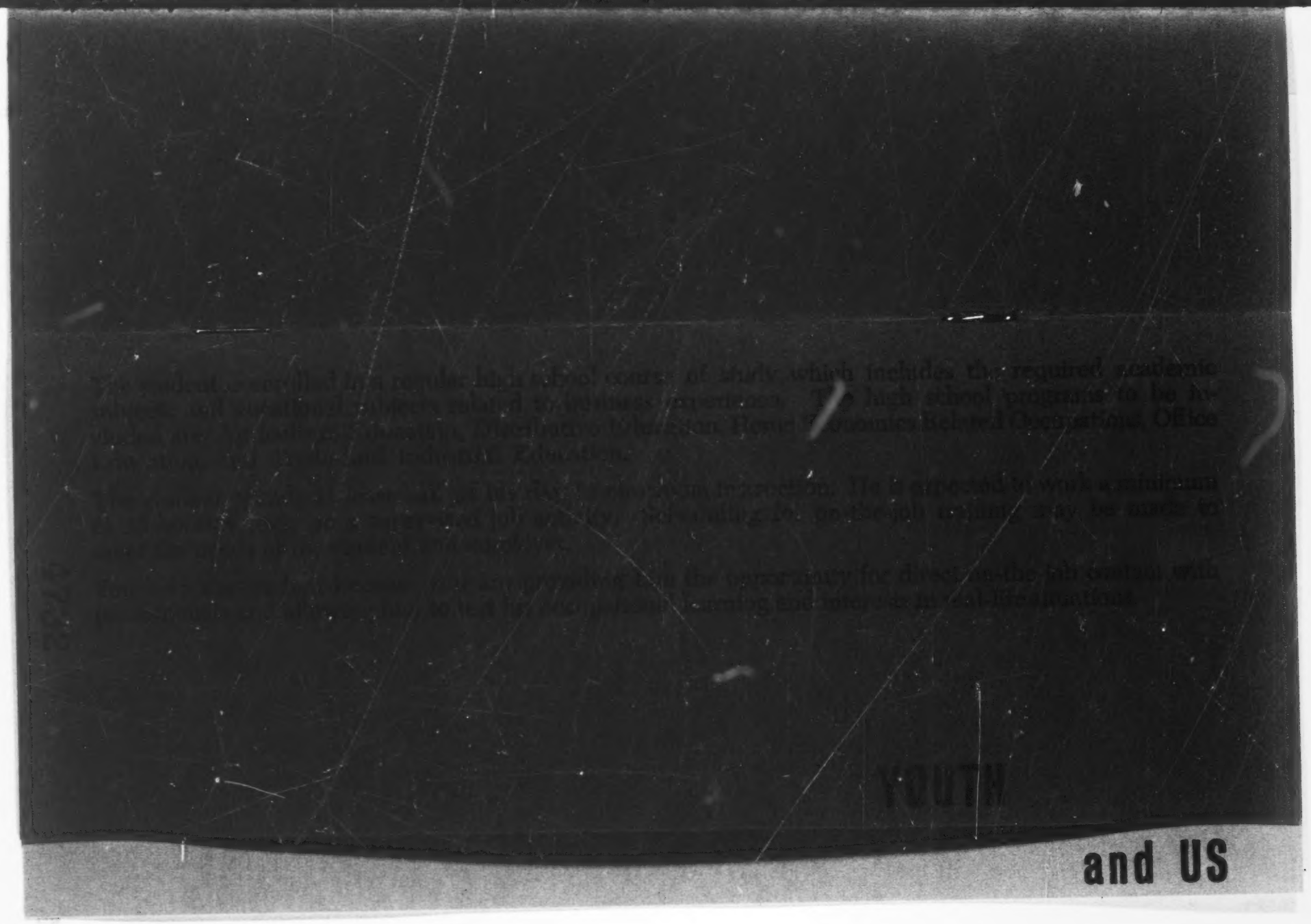
Enclosure

4730

The above brochure is a sample of the brochures enclosed with the letters to executives in business and industry.



The above brochure is a sample of the brochures enclosed with the letters to executives in business and industry.



The above brochure is a sample of the brochures enclosed with the letters to executives in business and industry.

Asking for your help has become a necessity because of the number of students who need realistic training to compete in a rapidly growing technological world of work.

Vocational cooperative education programs develop skills, abilities, work habits, and appreciations of our business system. These qualities can not be gained as well by other methods, as job performance and progress are constantly evaluated by the employers and school coordinators.

OMAHA PUBLIC SCHOOLS
Department of Vocational and Adult Education
Omaha . . . Nebraska

and US

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The above brochure is a sample of the brochures enclosed with the letters to executives in business and industry.

Person Contacted - Position -

Contact By - Date -

Appr. of Prog. Expan. -

Poss. of Open for Trainees -

Other Ways Desire to Cooperate -

Narrative Report -

Continue on other side of card -

The above card is the sample of the cards used in recording summaries of visitations.

4735

Thank You

for the courtesy you extended during my recent interview.

The many suggestions you had to offer are invaluable for the further development of cooperative education in the Omaha Public High Schools.

We will want to keep you informed as plans develop.

James L. Nebel

COOPERATIVE EDUCATION PROJECT
DEPARTMENT OF VOCATIONAL AND ADULT EDUCATION
OMAHA PUBLIC SCHOOLS

August 12, 1970

The above is a sample of the Thank You cards mailed to executives in business and industry within a few days following the interviews.

OMAHA PUBLIC SCHOOLS

Department of Vocational and Adult Education

SPICE Program
Summer, 1970

Operating Expenses for the Project:

Budget Code				
351-21	2-1-06	Salaries	(Budgeted: $16,150.00)	$12,259.50
		Eleven on staff: Project Director, Project Leader, Technical Assistant, and a Field Staff of eight.		
	2-5-08	Printing	($1,200.00)	493.82
		Barnhart Press	263.00	
		Answering Secretaries	230.82	
	2-5-24	Postage	($250.00)	149.80
		First Mailing--Letters (865 @ 6¢)	51.90	
		Thank You Notes (565 @ 6¢)	33.90	
		Brochure Envelopes (800 @ 8¢)	64.00	
	2-5-44	Supplies	($600.00)	187.72
		Texas Exten. Division	14.00	
		ERIC Clearinghouse	11.25	
		Stephenson's	152.47	
		Royal Typewriter Co.	10.00	
	2-5-62	Equipment Rental	($185.00)	25.15
		Royal Typewriter Co.	25.15	
	6-1-03	Retirement	($807.50)	612.98 (Estim.)
	6-1-04	Social Security	($807.50)	612.98 (Estim.)
		TOTAL OPERATING EXPENSES		$14,341.95

Note: Retirement and Social Security costs are estimated, since Project Director and Project Leader did not write requisitions for these items and were not informed of exact costs.

Omaha Public Schools furnished and bore the costs (without reimbursement) of all letterheads, mailing envelopes, recording tape, costs of xeroxing and other duplicating of all materials. (Also three-fourths of Agri-Business Field Staff member's salary, since he was already employed for some summer time.)

VT 012 498
Thomas, Hollie B.; Leighty, George W.
Knowledges and Skills Needed by Employees in Agricultural Supply Businesses: A Cooperative and Factor Analytic Study.

Illinois Univ., Urbana-Champaign.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Jul70 56p.

DESCRIPTORS - *AGRICULTURAL SUPPLY OCCUPATIONS; *VOCATIONAL AGRICULTURE; *EDUCATIONAL NEEDS; CURRICULUM DEVELOPMENT; *EMPLOYMENT QUALIFICATIONS; JOB SKILLS; JUNIOR COLLEGES; FACTOR ANALYSIS

ABSTRACT - Eight Illinois junior colleges cooperated with this study, which sought to provide information useful in planning agricultural supply programs to meet student needs. Questionnaires were mailed to instructors, employers, and students to determine the degree of consensus in rating various job skills. Similarities between the three groups show that the instructors correctly perceive the needed knowledge and skills. Factor analysis produced meaningful clusters of items that could be used as either a grouping of instructional units or areas of a training plan to be prescribed for an individual student. (BH)

VT 012 498

ED0 57254

(c1)

KNOWLEDGES AND SKILLS NEEDED BY EMPLOYEES IN AGRICULTURAL SUPPLY BUSINESSES: A COMPARATIVE AND FACTOR ANALYTIC STUDY

by

Hollie B. Thomas
Assistant Professor of Agricultural Education

and

George W. Leighty
Graduate Assistant in Agricultural Education

July, 1970

University of Illinois, Urbana-Champaign

VT012498

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Introduction

The post-high school agricultural supply program, a part of the junior college system in Illinois, had its beginning at Joliet Junior College in 1964. On July 1, 1969, eight junior colleges in the State of Illinois were offering a specific curriculum in agricultural supply occupations.

Since many of these programs were in their infancy, it seemed desirable to determine whether there was agreement in regard to the knowledges and skills needed by employees in this field among the student trainees who had been on placement, the employers where the students were placed, and the instructors of the agricultural supply courses who taught the courses that the student trainees were required to take while on campus. In order to ascertain this information a questionnaire enumerating the various skills and knowledges that had previously been proclaimed in the literature to be of importance in agricultural supplies occupations was prepared.

It was anticipated that the information gained by this study would be of assistance to instructors in planning educational experiences and adjusting programs to meet the expressed needs of the student trainees and their employers. It was also anticipated that this study could help high school instructors plan agricultural supply programs, by giving an indication of the key knowledges and skills needed by students who are placed for experience in off-farm agricultural experiences.

Objectives

The major objectives of this study are:

1. To determine if there was agreement among the student trainees, employers of the trainees, and instructors in the junior college programs as to the degree to which certain knowledges and skills were needed by persons employed in agricultural supply businesses.
2. To determine if there was agreement among employers grouped by type of business as to the degree to which certain knowledges and skills were needed by persons employed in agricultural supply businesses.
3. To determine if factor analysis could be used to group knowledges and skills into meaningful categories.
4. To determine the degree to which certain knowledges and skills were essential to persons seeking employment in the agricultural supply industry.

Review of Literature

Albracht (1966) in a study of competencies in the feed industry identified 40 competencies that were essential in feed industry. Of these 40 competencies, 5 were better suited for post-secondary level. These five competencies identified as post-high school material were: understanding research findings, writing and interpreting feed test results, techniques for increasing feed sales, expressing feed and nutrition information to groups, and knowledge of methods used in collecting bills.

Binkley (1966) in a study of competencies needed in agricultural supply businesses noted that competencies in the area of feeds were necessary for all salesmen who have sales contacts with farm people. He found that more service competencies were needed in seed, fertilizer, and chemical area. Binkley concluded that general competencies were needed to succeed in agricultural supplies. Seventy-five percent of the 240 competencies tested by Binkley were rated as being essential for agricultural supply businesses.

Hamilton and Bundy (1966) in a study of agricultural competencies in retail feed business indicated that employees and managers in retail feed business need definite competencies in agriculture. Of the 41 important competencies identified in this study, 25 were in the area of crop and livestock production and farm management and the remaining items were related to business and dealership management.

Meyer and Whitten (1965) developed a list of knowledges and skills in the areas of feed, fertilizer, chemicals, and mechanics for use in teaching students in high school agriculture occupations courses. Knowledges and skills identified were not validated by any group in these industries.

Kahler and Bundy (1965) in a study of competencies needed by farm machinery workers noted that by comparing the years of vocational agriculture training of employees in farm sales and service that as the years of vocational training increased, the degree of competencies needed and possessed by managers and employers increased. Kahler and Bundy noted that instruction needed in many of the competencies identified in this study for various occupational groups cannot be provided by high school or area vocational school.

Van Loch and Bundy (1965) in a study of competencies needed by fertilizer distribution indicated that successful job performance of certain functions of

business depends on the amount of competencies possessed. The need for increased training beyond the high-school level was evident when several thousand of the employees of the retail fertilizer business do not possess the needed competencies included in this study. Van Loch stated that it is possible that these competencies can be developed in college level curricula.

In a study of the grain industry, Mabon and Bundy (1965) found that the higher the level of classification of job of the grain marketing employee, the greater was the importance of agricultural competencies. Since so many of these grain marketing competencies are taught to vocational agriculture students they concluded that these competencies would carry over to grain marketing employees who had had vocational agriculture training.

Procedures

As a preliminary step, the lead instructor at each of the junior colleges listed as having an agricultural supply program by the Illinois Division of Vocational and Technical Education was contacted by phone and permission to conduct the study was obtained. A list of the names and addresses of students who were placed for on-the-job training during 1969 and the names and addresses of the student trainees' employers were obtained from each junior college.

A list of agribusiness knowledges and skills was gleaned from the literature. These knowledges and skills along with some distractors were included on a questionnaire. A nine-point scale ranging from very essential to nonessential was provided for responses. An information sheet of pertinent information about the agricultural supply program and an instruction sheet to help each individual fill out the questionnaire were developed. The questionnaire was designed to gather as much information as possible with a minimum amount of effort on the part of the instructor, student trainee, or employer. Simple check-off and numerical answers were used to facilitate responses.

The questionnaire (Appendix A), information sheet (Appendix B), and a cover letter (Appendix C) with a stamped self-addressed envelope were mailed to each of the 14 instructors, 79 student trainees, and 78 employers of student trainees identified to be included in the study. A follow-up letter was mailed to those who had not responded within two weeks after the first mailing.

Mean ratings were computed for the agricultural supply knowledges and skills for the employers, student trainees, and instructors for each participating junior college as well as for the total group. Instructors at each junior college received feedback information regarding these mean ratings.

Analysis of variance (Winer, 1962) was employed to ascertain if significant differences existed among the group means. The .05 level of significance must have been attained before an F ratio was considered significant. The Newman-Keuls (Winer, 1962) technique was employed to determine which pairs of means were significant when a significant F ratio was observed. In order for a difference between means, or an F ratio, to be considered significant, the .05 level of significance must have been obtained.

Varimax factor analysis (Guertin and Bailey, 1970) was employed to analyze the employer ratings in order to obtain clusters of knowledges and skills.

Description of Respondents

This section contains a description of student respondents regarding the age of the students, number of quarter hours of college work completed, type of agricultural supply business in which students were placed, years of high school vocational agriculture completed, and the number of weeks of on-the-job training completed. A student trainee information sheet (Appendix B) was employed to obtain these data.

Ages of the student respondents

Table I shows the ages of the students responding to the questionnaire. It was noted that over four-fifths of the students (83.33%) were 21 years of age or younger. Of those at the age of 21 or less, there was nearly an even distribution of students at the ages of 19, 20, and 21. One-sixth (16.67%) of the student respondents were over 21 years of age. The average age of all respondents was 20.6 years.

TABLE I

Frequency of Student Respondents of Various Ages

Junior college	Age				
	19	20	21	22	Over 22
1	0	5	5	2	2
2	0	1	2	0	0
3	1	2	2	0	1
4	0	0	4	1	0
5	2	1	0	0	0
6	2	1	0	2	0
7	12	3	0	0	1
8	0	1	1	0	0

College work completed

The quarter hours of college work completed at the time of the survey by the students who returned the questionnaire is shown in Table II by 20 quarter-hour intervals. When the data in Table II were examined, it was found that 61 percent of the students had completed enough quarter hours to have completed at least one year of college work.

TABLE II

Quarter Hours of College Work Completed by Student Respondents

Junior college	Number of Hours			
	21-40	41-60	61-80	Above 81
1	0	3	11	0
2	0	0	0	3
3	0	0	0	6
4	0	0	1	4
5	0	2	1	4
6	1	2	2	0
7	12	4	0	0
8	0	1	1	0

Types of agricultural supply businesses

Employers requesting 26 different types of agricultural supply businesses responded to the questionnaire. Five of these types of businesses were represented by four or more employer respondents. Thus, these five types, plus a sixth for all other types, were used for analysis purposes. These types of businesses were:

Type of Business	Number of Employer Respondents
1. Seed	4
2. Grain-feed	10
3. Fertilizer	6
4. Fertilizer-petroleum	9
5. Seed-grain-feed-fertilizer	7
6. Any additional combination of seed-grain-feed-fertilizer and petroleum	22

Table III includes the types of agricultural supply business in which student respondents indicated that they were placed and the type of agricultural supply business operated by the employer respondents. From the data in Table III, it was noted that 15 of the 54 student respondents (27.78%) and 10 out of 58 employer respondents (17.24%) were involved in the fertilizer business. It was also noted that 12.96 percent of the student respondents and 10.34 percent of the employer respondents were involved in the fertilizer-petroleum business. The percentage of student respondents involved in the grain-feed business was 27.78; while 15.52 percent employer respondents were involved in the grain-feed industry. A small percentage of the student respondents (1.85%) were employed in the seed industry while a higher percentage of the employer respondents

(6.90%) were connected with the seed industry. Approximately two-fifths (40.74%) of the student respondents and one-half (50.00%) employer respondents were involved in various other combinations of the seed-grain-feed-fertilizer-petroleum businesses.

TABLE III

Type of Agricultural Supply Businesses in Which Student Respondents Were Placed and Which Employers of Student Trainees Represent

Junior college	Type of Business: Seed		Grain-Feed		Fertilizer		Fertilizer Petroleum		Seed-Grain-Feed-Fertilizer Only		Combination of Seed-Grain-Feed-Fertilizer-Petroleum	
	E	S	E	S	E	S	E	S	E	S	E	S
1	3	0	3	5	2	2	3	5	1	1	7	1
2	0	0	0	2	0	1	0	0	0	0	2	0
3	0	0	0	0	5	3	0	1	0	1	1	1
4	0	0	1	3	0	0	0	0	1	1	3	1
5	0	0	0	0	1	1	0	0	1	0	2	2
6	1	0	1	0	1	0	0	0	1	1	2	4
7	0	1	4	5	1	1	1	1	2	3	4	5
8	0	0	0	0	0	1	2	0	1	0	1	1

E = Employer; S = Student

Years of high school vocational agriculture

Table IV shows the years of vocational agriculture in high school that each student respondent had completed. When the data in Table IV were examined, it was found that 74.07 percent of the students had four years of vocational agriculture training at the high school level. The percentage of students who had had no vocational agriculture, one year of vocational agriculture, two years of vocational agriculture, and three years of vocational agriculture were 11.11 percent, 1.85 percent, 3.70 percent, and 9.26 percent, respectively.

Weeks of on-the-job training completed by students

The students of all the junior colleges had at least two separate on-the-job-training periods during the two-year program for agricultural supplies curriculum. At the time of the study, some of the students had completed one, two, or were involved in the second training period. Some students were participating in on-the-job training while other students had completed all of their training periods at the time of the study. The data in Table V show that

21 of the 54 (38.89%) of the student respondents had completed 10 or less weeks of on-the-job training. Nineteen out of 54 student respondents (35.19%) and 10 out of 54 student respondents (18.52%) had completed 11-20 weeks and 21-30 weeks of on-the-job training, respectively. Four out of 54 student respondents (7.41%) had completed 31-40 weeks of on-the-job training in agricultural supplies businesses.

TABLE IV

Frequency of Student Respondents Completing Various Levels of High School Vocational Agriculture

Junior college	Years of High School Vocational Agriculture				
	0	1	2	3	4
1	3	0	1	0	10
2	0	0	1	0	2
3	0	0	0	2	4
4	0	0	0	1	4
5	0	0	0	1	2
6	1	0	0	0	4
7	1	1	0	1	13
8	1	0	0	0	1

TABLE V

Weeks of On-the-Job Training Completed by Student Respondents

Junior college	Weeks of Training			
	0-10	11-20	21-30	31-40
1	0	9	3	2
2	0	1	2	0
3	0	0	4	2
4	0	5	0	0
5	3	0	0	0
6	3	2	0	0
7	15	1	0	0
8	0	1	1	0

Description of Agricultural Supplies Programs

Information regarding the nature of junior college programs in agricultural supplies is included in this section. Types of courses required by junior college, supervisory visits, and length of on-the-job-training periods are discussed in turn.

Types of courses required by junior colleges

The instructors in each of the junior colleges were asked to indicate the number of courses in three areas that students in the agricultural supplies program are required to take. These areas were agricultural supplies courses, courses related to agricultural supplies, and nonvocational courses required. It was noted as shown in Table VI that of the courses required by the various junior colleges an average of 72.19 percent were agricultural supplies courses, 14.20 percent were courses related to agricultural supplies, and 13.61 percent were nonvocational required courses.

Supervisory visits

Table VII shows the number of supervisory visits, length of time spent with the employer during the visit, and the total length of time spent at the training station as reported by the instructors of the various junior colleges. Agricultural supply programs include an average of six supervisory visits to each student with an average of 82.50 minutes at each training station, of which an average of 33.75 minutes was spent with the employer of the student.

TABLE VI

Frequency of the Agricultural Supply, Related Agricultural Supply, and Nonvocational Courses Required in Each Junior College Agricultural Supply Program

Junior college	Courses Required		
	Agricultural Supplies	Related to Agricultural Supplies	Nonvocational
1	14	1	3
2	10	2	6
3	14	3	3
4	22	5	2
5	20	2	2
6	12	5	5
7	16	3	1
8	14	3	1

TABLE VII

Frequency of Supervisory Visits, Length of Visits, and Length of Time Spent with Employer

Junior college	Supervisory Visits		
	Number of Visits	Length of Visits	Length of Time Spent with Employer
1	6	90 minutes	60 minutes
2	5	90 minutes	30 minutes
3	8	60 minutes	30 minutes
4	6	60 minutes	30 minutes
5	5	60 minutes	30 minutes
6	5	90 minutes	30 minutes
7	8	120 minutes	30 minutes
8	5	90 minutes	30 minutes

Length of on-the-job-training placement periods

Each of the junior colleges participating in the study had a different plan in the training and required different length of on-the-job training in their two-year certificate programs. The data in Table VIII show that all junior colleges had an on-the-job-training period during the spring quarter of the second year. The total time students were required to be employed as part of an on-the-job-training program ranged from 10 to 30 weeks.

Results

The results will be presented in three main sections: (1) comparison of ratings by employers, students, and instructors; (2) comparison of ratings by employer groups, (3) essential agricultural supply knowledges and skills identified, and (4) a factor analysis of the employer ratings.

Comparison of ratings by employers, students, and instructors

Table IX includes the comparison of the mean ratings given by employers, students, and instructors for the degree to which employees of agricultural supplies businesses need certain knowledges and skills. Means, on the one-to-nine rating scale, were obtained for the 58 employer respondents, 54 student trainee respondents, and 14 instructor respondents for each of the 100 items included on the Agricultural Supply Questionnaire (Appendix A).

Analysis of variance (Winer, 1962) was employed to ascertain if differences existed among the mean ratings of agricultural supply knowledges and skills given by employers, students, and instructors. No significant differences

TABLE VIII

Length and Duration of On-the-Job Training for Each Placement in the Junior College Agricultural Supply Programs

Junior college	Length and Duration of Placement						
	Fall Quarter First Year	Winter Quarter First Year	Spring Quarter First Year	Summer Quarter First Year	Fall Quarter Second Year	Winter Quarter Second Year	Spring Quarter Second Year
1				12 weeks			16 weeks
2				12 weeks			12 weeks
3			8 weeks	6 weeks	6 weeks		8 weeks
4							10 weeks
5			8 weeks				8 weeks
6				8 weeks			8 weeks
7			8 weeks				8 weeks
8			8 weeks				8 weeks

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were observed among the ratings given by employers, students, and instructors for 95 of the 100 knowledges and skills rated. A significant difference at the .01 levelamong group means was observed for item 69, "Know food and transportation laws affecting supplies." By employing the Newman-Keuls technique it was determined that there was a significant difference at the .05 level between the instructor mean and employer mean for this item.

A significant difference at the .05 level among group means was obtained for four items. These items along with the pairs of groups between which significant differences were observed are:

Item Number	Item	Significant Pairs
15	Filling out order blanks	Instructors--students
33	Mixing chemicals	
47	Identify insects of livestock	Employers--instructors
64	Know how to buy supplies and products	

TABLE IX

Comparison of Ratings of Agricultural Supply Knowledges and Skills by Employers, Students, and Instructors

	Item	Employers	Students	Instructors	F Ratio
1.	Operating a combine	2.483	2.722	2.286	.39
2.	Hauling products to market	3.103	4.019	3.336	2.43
3.	Identifying noxious weeds	5.741	6.259	6.929	1.61
4.	Operating a crop dryer	5.293	5.444	5.929	.28
5.	Measuring grain stored in bin	5.483	4.981	6.214	1.37
6.	Determine moisture content of grain	5.983	5.870	7.214	1.26
7.	Communicating with customers	8.483	8.389	8.643	.19
8.	Keeping records of sales	8.103	7.907	7.929	.19
9.	Keeping records of purchases	7.862	7.537	7.929	.54
10.	Operating product-moving equipment	6.621	7.074	6.929	.61
11.	Putting corn header on combine	2.500	2.685	2.500	.11
12.	Purchasing supplies	6.276	6.074	7.357	1.91
13.	Loading and unloading supplies	6.127	6.000	6.714	.56
14.	Using telephone two-way radio properly	4.948	5.055	6.786	2.60
15.	Filling out order blanks	6.724	6.296	8.214	4.32 *
16.	Taking an inventory	7.741	7.519	8.143	.73
17.	Bagging products or supplies	4.414	5.093	5.429	1.33
18.	Putting groceries on shelf	1.793	2.704	2.000	2.67
19.	Collecting soil samples	5.552	5.370	6.357	.60
20.	Conducting seed germination tests	3.897	4.537	5.571	2.69
21.	Making soil tests for P_1, P_2, and K	3.793	5.019	5.286	2.97

TABLE IX

Comparison of Ratings of Agricultural Supply Knowledges and Skills by Employers, Students, and Instructors (continued)

Item	Employers	Students	Instructors	F Ratio
22. Conducting fertilizer use survey	4.638	5.519	6.000	2.37
23. Checking crop yields	5.707	5.667	7.000	2.36
24. Figuring a balanced ration	5.776	5.852	6.714	.65
25. Demonstrating the propagation of plants	3.776	4.574	3.929	1.61
26. Figuring bulk fertilizer ratios	6.224	6.500	7.500	1.07
27. Following directions	8.627	8.638	8.357	.51
28. Using proper English	7.379	7.463	7.500	.04
29. Checking compression ratio of diesel engines	2.155	2.481	1.929	.54
30. Demonstrating product to customer	6.603	6.630	8.000	1.99
31. Pricing supplies	6.362	6.333	7.358	1.13
32. Calibrating equipment	6.914	7.407	7.929	1.61
33. Mixing chemicals	5.776	7.000	7.357	3.41 *
34. Removing and replacing fuel lines	3.190	3.593	3.857	.63
35. Writing legibly and making distinct figures	7.672	7.426	8.429	1.85
36. Making mathematical calculations	7.948	7.907	8.143	.15
37. Reading product tags and labels	7.948	7.444	8.357	2.33
38. Practicing safety on the job	8.328	8.241	8.786	1.17
39. Maintaining physical plant equipment	7.621	7.315	6.357	2.62
40. Operating electrical controls in the business	6.741	6.704	6.571	.04
41. Pricing agricultural products	6.552	6.130	7.857	2.75
42. Working with people in business	8.362	8.185	8.214	.28
43. Driving trucks and cars safely	7.568	7.722	7.857	.20
44. Figuring sales tax on a ticket	6.586	6.426	7.929	2.36
45. Identifying common insects of crops	6.052	6.389	7.214	1.46
46. Identifying effects of diseases of crops	5.097	6.407	6.500	.80
47. Identifying insects of livestock	4.776	5.315	6.857	3.56 *
48. Interpreting directions to the customers	7.310	6.888	8.071	1.78
49. Providing information on chemicals, insects, and diseases to customers	6.793	6.722	7.929	1.36
50. Setting up displays for customers	5.345	5.593	6.357	.88
51. Cleaning out fuel line of gas engine	3.172	3.037	2.500	.65
52. Advising farmers on feeds and management practices	5.931	5.870	7.071	1.07
53. Filing business transactions and records	6.466	6.833	7.571	1.62
54. Doing work accurately	8.448	8.278	8.357	.26
55. Paying attention to his work	8.534	8.389	8.429	.28
56. Reporting to work on time	8.466	8.352	8.786	1.24
57. Making effective use of work time	8.328	8.241	8.786	1.07

TABLE IX

Comparison of Ratings of Agricultural Supply Knowledges and Skills by Employers, Students, and Instructors (continued)

Item	Employers	Students	Instructors	F Ratio
58. Fitting animals for show or sale	2.672	3.222	2.571	.93
59. Interpreting feed results to customers	5.121	5.148	6.286	.97
60. Showing research findings to customers	6.207	5.963	6.357	.27
61. Know how to determine proper time for harvest	5.362	5.815	5.786	.51
62. Know how to make recommendation for planting	6.172	6.056	6.214	.05
63. Know how to determine quality of grain	6.759	6.519	6.929	.22
64. Know how to buy supplies and products	6.241	6.556	8.071	4.52 *
65. Know how to protect products from rodents	5.948	6.556	6.857	1.74
66. Know how to plan a customer credit program	6.155	6.574	7.714	2.41
67. Know how to take proper care of equipment	7.110	7.593	7.357	.63
68. Know how to repair equipment	6.621	7.130	5.786	2.61
69. Know food and transportation laws affecting supplies	4.569	5.907	7.000	5.26 **
70. Know fertilizer requirements	6.897	6.981	7.500	.31
71. Know sources of fertilizer	6.052	6.370	7.286	1.19
72. Know crop varieties	6.397	6.704	7.286	.88
73. Know tillage requirements	5.655	6.574	6.571	2.09
74. Know soil reaction principles	5.948	6.407	6.928	1.03
75. Know crop rotation principles	6.121	6.333	6.500	.19
76. Know proper use of animal feeding equipment	4.862	5.056	5.857	.80
77. Know how to feed grain properly to livestock	5.276	5.370	5.643	.10
78. Know how to use protein supplement in feeds	5.466	5.704	6.500	.70
79. Know how to provide minerals for livestock	5.259	5.611	6.071	.52
80. Know vitamin requirements for livestock	5.259	5.463	6.429	.96
81. Know approved livestock feeding methods	5.362	5.426	6.640	1.25
82. Know local feed practices and methods	5.224	5.599	6.643	1.58
83. Know competitors' products	6.224	5.556	7.786	2.91
84. Know grain and feed prices	6.276	6.704	7.143	.82
85. Know how to operate a feed mill	4.810	4.833	6.071	1.32

TABLE IX

Comparison of Ratings of Agricultural Supply Knowledges and Skills by Employers, Students, and Instructors (continued)

Item	Employers	Students	Instructors	F Ratio
86. Know how to transport feed or seed	5.190	5.352	6.143	.77
87. Know feeding and watering space requirements for livestock	4.983	4.926	5.786	.57
88. Know general principles of chemical insects controls	6.659	6.667	6.857	.11
89. Know general principles of controlling plant diseases	6.069	6.481	6.500	.50
90. Know general principles for using of herbicides	6.466	6.852	7.000	.52
91. Know definitions of agriculture product terms	6.879	7.222	7.286	.52
92. Know where to find latest publications on recommendations for product use	7.483	7.185	8.357	2.11
93. Understand physical plant operations	7.037	6.907	6.786	.11
94. Know the principles of salesmanship	7.759	7.370	8.357	1.74
95. Know principles of customer relationship	8.155	7.778	8.643	2.07
96. Know the principle of suggestive selling	7.500	7.259	8.071	1.12
97. Have a good product knowledge	8.000	8.222	8.286	.49
98. Understanding promotional techniques of sales increase	7.190	6.926	7.714	.92
99. Understand influence of heredity on livestock rate of gain	4.948	5.019	5.429	.17
100. Know the physical makeup and digestive system of livestock	4.603	5.037	6.357	2.43

* Significant at the .05 level.
** Significant at the .01 level.

Comparison of ratings by employer groups

Table X includes the comparison of the ratings given to the various agricultural supply knowledges and skills by employer respondents representing six types of agricultural supply businesses. These six groups were designated as employer-respondent groups. These groups were:

1. Seed
2. Grain-feed
3. Fertilizer
4. Fertilizer-petroleum
5. Seed-grain-feed-fertilizer
6. Any additional combination of seed-grain-feed-fertilizer and petroleum

TABLE X

Comparison of Ratings of Agricultural Supply Knowledges and Skills of Employers by Type of Business

Item	Mean of employers by areas						
	Seed (1)	Fertilizer (2)	Fertilizer-petroleum (3)	Grain-feed (4)	Grain-seed-feed-fertilizer (5)	Combination of feed-seed-grain-fertilizer-petroleum (6)	F ratio
1. Operating a combine	3.000	2.800	2.667	1.778	3.143	2.273	.561
2. Hauling products to market	4.500	2.400	3.500	2.667	3.714	3.045	.964
3. Identifying noxious weeds	7.750	6.000	8.000	3.111	4.857	6.000	5.091**
	(4,5)	(4)	(4,5)	(1,2,3,6)	(1,3)	(4)	
4. Operating a crop dryer	4.750	3.100	4.500	6.556	6.714	5.636	2.514*
5. Measuring grain stored in a bin	6.000	2.600	4.833	6.889	7.286	5.727	4.745**
6. Determining the moisture content of grain	7.750	2.700	4.667	7.444	8.429	6.136	7.234**
	(2)	(1,4,5,6)		(2)	(2)	(2)	
7. Communicating with customers	9.000	9.000	8.833	8.667	7.429	8.318	.109
8. Keeping records of sales	8.500	8.000	8.833	7.667	8.286	8.000	.351
9. Keeping records of purchases	7.500	7.800	8.333	7.667	7.714	7.955	.191
10. Operating product-moving equipment	4.750	8.600	7.833	7.000	6.571	5.591	3.161*
	(2)	(1)					
11. Putting a corn header on a combine	1.750	2.600	3.333	2.000	3.714	2.182	.722
12. Purchasing supplies	5.000	6.000	7.500	6.000	6.000	6.182	.999
13. Loading and unloading supplies	5.500	7.000	6.667	5.111	6.714	5.591	.112
14. Using the telephone two-way radio properly	3.500	7.400	5.500	3.000	3.857	5.091	3.409*
		(4)		(2)			
15. Filling out order blanks	6.500	6.700	6.667	6.778	6.857	6.727	.147
16. Taking an inventory	8.500	7.000	8.500	8.111	8.429	7.364	.983
17. Bagging products and supplies	7.000	4.800	4.667	5.556	4.714	3.136	.232
18. Putting groceries on the shelf	2.000	2.300	1.500	1.000	1.000	2.182	.907
19. Collecting soil samples	6.000	7.700	6.833	2.556	6.000	5.227	3.817**
20. Conducting seed germination tests	7.500	4.800	4.000	2.111	2.429	4.000	3.416**
	(4,5)			(1)	(1)		
21. Making soil tests for P_1, P_2, and K	5.500	6.400	4.333	1.556	2.857	3.364	3.509**
		(4)		(2)			
22. Conducting fertilizer use survey	3.250	5.700	6.667	2.222	5.286	4.646	3.504**
		(4)	(4)	(2,3)			

TABLE X

Comparison of Ratings of Agricultural Supply Knowledges and Skills of Employers by Type of Business (Continued)

Item	Mean of employers by areas						
	Seed (1)	Fertilizer (2)	Fertilizer-petroleum (3)	Grain-feed (4)	Grain seed-feed-fertilizer (5)	Combination of feed-seed-grain-fertilizer-petroleum (6)	F ratio
23. Checking crop yields	6.750	6.400	7.000	3.889	6.143	5.455	.225
24. Figuring a balanced ration	4.250	5.200	4.333	5.444	8.429	6.000	.186
25. Demonstrating the propagation of plants	4.750	5.000	4.000	2.000	3.714	3.727	.165
26. Figuring bulk fertilizer ratios	4.250 (2)	8.500 (1,4)	7.333 (4)	2.556 (2,3,5,6)	6.714 (4)	6.591 (4)	5.354**
27. Following directions	8.750	9.000	8.333	7.667	8.857	8.864	3.288*
28. Using proper English	8.250	7.700	6.833	7.222	6.571	7.545	.578
29. Checking compression ratio of diesel engines	1.750	1.400	4.500	2.000	1.429	2.228	.191
30. Demonstrating product to the customer	5.000	6.200	6.500	5.556	7.429	7.273	.115
31. Pricing supplies	5.500	5.200	6.333	6.222	6.571	7.045	.848
32. Calibrating equipment	7.500 (4)	8.900 (4)	7.667 (4)	4.222 (1,2,3,6)	6.000	7.091 (4)	5.185**
33. Mixing chemicals	7.000 (4)	8.200 (4)	8.000 (4)	2.556 (1,2,3,5)	6.286 (4)	5.000	5.972**
34. Removing and replacing fuel lines	2.750	4.600	2.833	1.667	3.714	3.182	.182
35. Writing legibly and making distinct figures	8.250	7.500	7.167	7.000	8.286	7.863	.676
36. Making mathematical calculations	6.750	7.700	8.333	8.333	8.857	7.727	.172
37. Reading product tags and labels	7.750	8.200	8.000	7.556	8.571	7.818	.394
38. Practicing safety on the job	8.250	9.000	7.333	8.333	8.714	8.182	.162
39. Maintaining physical plant equipment	6.750	8.300	7.500	8.222	8.286	7.273	2.894*
40. Operating electrical controls in the business	7.750	7.200	6.833	7.556	7.429	6.136	.145
41. Pricing agricultural products	4.250	5.600	7.333	6.667	7.000	7.000	.125

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TABLE X

Comparison of Ratings of Agricultural Supply Knowledges and Skills of Employers by Type of Business (Continued)

Item	Mean of employers by areas						
	Seed (1)	Fertilizer (2)	Fertilizer-petroleum (3)	Grain-feed (4)	Grain-seed-feed fertilizer (5)	Combination of feed-seed-grain-fertilizer-petroleum (6)	F ratio
42. Working with people in business	7.750	8.600 (3)	7.000 (2,4,5)	8.778 (3)	9.000 (3)	8.364	2.700*
43. Driving trucks and cars safely	6.500	8.200	7.333	6.667	9.000	7.455	.212
44. Figuring sales tax on a ticket	3.500	7.100	7.333	5.889	7.000	6.864	.166
45. Identifying common insects of crops	7.500	6.900	7.167	6.444	7.571	7.545	3.635**
46. Identifying effects of diseases on crops	8.000 (4)	6.700 (4)	7.667 (4)	2.889 (1,2,3,5,6)	5.857 (4)	6.136 (4)	6.033**
47. Identifying insects of livestock	3.000	3.300	4.333	4.222	6.571	5.545	2.447*
48. Interpreting directions to the customers	6.000	8.000	7.167	6.444	7.571	7.545	.989
49. Providing information on chemicals, insects, and diseases to customers	6.500	7.900	7.667	4.889	6.857	6.864	.144
50. Setting up displays for customers	3.250	5.800	6.667	4.000	6.143	5.455	.136
51. Cleaning out fuel lines of gas engines	2.500	4.300	3.667	2.000	3.143	3.136	.124
52. Advising farmers on feeds and management practices	4.750	4.600	4.667	6.222	7.429	6.500	.145
53. Filing business transactions and records	6.000	6.000	7.000	6.667	7.715	6.136	.665
54. Doing work accurately	7.750	8.300	8.000	8.444	9.000	8.581	.880
55. Paying attention to his work	7.500	8.600	7.666	8.667	9.000	8.727	3.561**
56. Reporting to work on time	8.500	8.600	7.833	8.667	8.867	8.364	.917
57. Making effective use of work time	8.250	8.700	7.000	8.778	8.714	8.227	.146
58. Fitting animals for sale and show	1.750	2.300	1.833	2.889	4.000	2.727	.935
59. Interpreting feed results to customers	3.000 (5)	3.100 (5)	3.000 (5)	5.556	7.429 (1,2,3)	6.091	3.954**

TABLE X

Comparison of Ratings of Agricultural Supply Knowledges and Skills of Employers by Type of Business
(Continued)

Item	Mean of employers by areas						
	Seed (1)	Fertilizer (2)	Fertilizer-petroleum (3)	Grain-feed (4)	Grain-seed-feed-fertilizer (5)	Combination of feed-seed-grain-fertilizer-petroleum (6)	F ratio
60. Show research findings to customers	5.000	6.700	7.000	6.000	7.000	5.818	.854
61. Know how to determine proper time for harvesting	7.750	5.900	5.833	4.111	5.429	5.045	.166
62. Know how to make recommendations for planting	8.250 (4)	6.600 (4)	6.000 (4)	2.667 (1,2,3,5,6)	7.000 (4)	6.818 (4)	6.607**
63. Know how to determine the quality of grain	7.750	6.100	5.000	7.222	8.000	6.773	.140
64. Know how to buy supplies and products	5.250	5.700	5.833	6.000	7.857	6.363	.100
65. Know how to protect products from rodents	5.500	5.500	4.833	5.111	7.143	6.500	.148
66. Know how to plan customer credit program	3.750	6.800	7.167	5.333	6.143	6.364	.105
67. Know how to take proper care of equipment	6.500 (2,5)	8.700 (1)	7.167	7.556	8.714 (1)	7.636	2.908*
68. Know how to repair equipment	5.500	7.300	6.833	6.111	7.571	6.364	.975
69. Know food and transportation laws affecting supplies	3.250	5.600	4.667	3.778	4.143	4.773	.718
70. Know fertilizer requirements	6.750 (4)	8.300 (4)	8.667 (4)	2.778 (1,2,3,5,6)	7.857 (4)	7.182 (4)	10.381**
71. Know sources of fertilizer	5.750 (4)	8.200 (4)	6.883 (4)	2.889 (1,2,3,5,6)	7.000 (4)	5.909 (4)	5.705**
72. Know crop varieties	8.000 (4)	6.900	5.833	4.000 (1)	7.143	6.773	2.558*
73. Know tillage requirements	6.250 (4)	6.900 (4)	5.667 (4)	2.222 (1,2,3,5,6)	6.714 (4)	6.045 (4)	5.003**

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TABLE X

Comparison of Ratings of Agricultural Supply Knowledges and Skills of Employers by Type of Business (Continued)

Item	Mean of employers by areas						
	Seed (1)	Fertilizer (2)	Fertilizer-petroleum (3)	Grain-feed (4)	Grain-seed-feed-fertilizer (5)	Combination of feed-seed-grain-fertilizer-petroleum (6)	F ratio
74. Know soil reaction principles	6.000 (4)	7.600 (4)	6.833 (4)	2.444 (1,2,3,5,6)	6.143 (4)	6.318 (4)	6.288**
75. Know crop rotation principles	6.250 (4)	7.600 (4)	6.833 (4)	2.667 (1,2,3,5,6)	6.571 (4)	6.500 (4)	6.382**
76. Know the proper use of animal feeding equipment	2.250 (5,6)	2.600 (5,6)	3.333 (5)	3.889 (5)	7.714 (1,2,3,4)	6.273 (1,2)	9.155**
77. Know how to feed grain properly to livestock	2.250 (5,6)	2.600 (5,6)	3.667 (5)	5.222	8.571 (1,2,3)	6.455 (1,2)	8.770**
78. Know how to use protein supplement in feeds	2.250 (5,6)	2.800 (5,6)	3.500 (5)	5.444 (5)	9.000 (1,2,3,4)	6.682 (1,2)	8.551**
79. Know how to provide minerals for livestock	2.250 (5,6)	2.800 (5,6)	3.333 (5)	5.222	9.000 (1,2,3)	6.273 (1,2)	8.151**
80. Know vitamin requirements for livestock	2.250 (5,6)	2.900 (5,6)	3.333 (5)	5.222	8.286 (1,2,3)	6.455 (1,2)	7.188**
81. Know approved livestock feeding methods	3.000 (5)	3.000 (5)	3.500 (5)	5.222	8.286 (1,2,3)	6.500	5.801**
82. Know local feeding practices and methods	3.500 (5)	2.900 (5)	3.667 (5)	4.667	7.857 (1,2,3)	6.409	5.167**
83. Know competitors' products	6.750	6.500	7.333	4.889	6.571	6.136	.122
84. Know grain and feed prices	5.750	4.600	4.000 (5)	6.778	8.286 (3)	6.909	3.300*
85. Know how to operate a feed mill	4.000 (5)	2.500 (5)	3.333 (5)	5.556	8.143 (1,2,3)	5.045	5.529**
86. Know how to transport feed or seed	5.250	3.600	3.333 (5)	6.222	7.286 (3)	5.000	4.594**
87. Know feeding and watering requirements for livestock	2.250 (5,6)	2.600 (5,6)	4.000 (5)	4.556 (5)	8.143 (1,2,3,4)	6.000 (1,2)	6.261**

TABLE X

Comparison of Ratings of Agricultural Supply Knowledges and Skills of Employers by Type of Business (Continued)

Item	Mean of employers by areas						
	Seed (1)	Fertilizer (2)	Fertilizer-petroleum (3)	Grain-feed (4)	Grain-seed-feed-fertilizer (5)	Combination of feed-seed-grain-fertilizer-petroleum (6)	F ratio
88. Know general principles of chemical insect control	5.750	7.300	7.500 (4)	4.222 (3,5)	7.286 (4)	6.864	3.144*
89. Know general principles of controlling plant diseases	5.750 (4)	7.300 (4)	7.000 (4)	2.667 (1,2,3,5,6)	6.857 (4)	6.455 (4)	7.137**
90. Know general principles of using herbicides	5.750 (4)	7.900 (4)	7.667 (4)	2.556 (1,2,3,5,6)	7.857 (4)	6.773 (4)	11.292**
91. Know definitions of agriculture product terms	6.250 (4)	8.000	7.667 (4)	4.778 (1,3,5)	7.714 (4)	6.864	3.356*
92. Know where to find latest publications on recommendation for product use	5.750	8.200	7.667	6.556	8.286	7.545	.154
93. Understanding physical plant operations	6.000	7.800	6.667	6.778	8.286	6.682	.127
94. Know the principles of salesmanship	7.250	7.700	8.333	8.556	7.571	7.455	.860
95. Know the principles of customer relationship	7.250	8.400	8.667	8.889	8.143	7.773	.123
96. Know the principles of suggestive selling	6.000	7.700	8.667	7.444	7.714	7.318	.110
97. Have a good product knowledge	8.000	8.200	8.667	8.222	7.571	7.773	.506
98. Understanding the promotional techniques of sales increases	6.500	7.200	7.500	6.667	8.143	7.136	.651
99. Understanding influence of heredity on livestock rate of gain	2.250 (5)	3.700	3.333 (5)	4.556	7.429 (1,3)	5.818	3.835**
100. Know the physical makeup and digestive system of livestock	2.250 (5)	2.800 (5)	3.000 (5)	4.889	7.143 (1,2,3)	5.364	4.534**

( ) Indicates significant pairs at .05 significance level.
* Significant at .05 level.
** Significant at .01 level.

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The analysis of variance procedure was used to determine if there were differences among the mean ratings of the agricultural supply knowledges and skills given by the employer respondent groups.

A significant difference was obtained among the mean rating of the six employer respondent groups for nearly one-half (46.00%) of the 100 agricultural supply knowledges and skills. Of the 46 significant F ratios, 34 were significant at the .05 level.

The Newman-Keuls technique was used to determine which pairs of means were significantly different at the .05 level when significant F ratios were observed. Significant pairs of employer respondent group means are indicated in Table X by the number that appears in parentheses below the mean score. For example, the significant pairs of respondent group means for item 3, "Identifying noxious weeks," are:

Seed (1)	>	Grain-feed (4)
Seed (1)	>	Grain-seed-feed-fertilizer (5)
Fertilizer (2)	>	Grain-feed (4)
Combination (6)	>	Grain-feed (4)
Fertilizer-petroleum (3)	>	Grain-feed (4)
Fertilizer-petroleum (3)	>	Grain-seed-feed-fertilizer (5)

The grain-feed employer respondent group rated this item significantly lower than did the seed, fertilizer, fertilizer-petroleum and combination respondent groups. The grain-seed-feed-fertilizer respondent group rated the item significantly lower than did the fertilizer and fertilizer-petroleum respondent groups. Similar interpretations can be made for the other items where significant F ratios were observed. In a case where a significant F ratio was observed and no significant pairs are indicated, there was a significant difference among the mean ratings but not between any pair.

Essential agricultural supply knowledges and skills

One of the major objectives of this study was to determine which of the 100 knowledges and skills enumerated on the questionnaire were considered essential for an employee in an agricultural supply business. Items that had a mean rating by the employer group of 8.0 or more on a nine-point scale were considered to be very essential. These items, in descending order of the mean ratings were:

Item Number	Item
27	Following directions
55	Paying attention to his work

Item Number	Item
7	Communicating with customers
56	Reporting to work on time
54	Doing work accurately
42	Working with people in business
38	Practicing safety on the job
57	Making effective use of work time
95	Know principles of customer relationship
8	Keeping records of sales
97	Have a good product knowledge

Items that had a mean rating by the employer group of 5.0 to 8.0 on a nine-point scale were considered to be essential for the agricultural supply employee. These items, in descending order, were:

Item Number	Item
37	Reading product tags and labels
36	Making mathematical calculations
9	Keeping records of purchases
94	Know the principles of salesmanship
16	Taking an inventory
35	Writing legibly and making distinct figures
39	Maintaining physical plant equipment
43	Driving trucks and cars safely
96	Know the principle of suggestive selling
92	Know where to find latest publications on recommendations for product use
28	Using proper English
48	Interpreting directions to the customers
98	Understanding promotional techniques of sales increase
67	Know how to take proper care of equipment
93	Understand physical plant operations
32	Calibrating equipment
70	Know fertilizer requirements
91	Know definitions of agriculture product terms
49	Providing information on chemicals, insects, and diseases to customers
63	Know how to determine quality of grain
40	Operating electrical controls in the business
15	Filling out order blanks
88	Know general principles of chemical insects controls
30	Demonstrating product to customer
10	Operating product-moving equipment
68	Know how to repair equipment
44	Figuring sales tax on a ticket
41	Pricing agricultural products
53	Filing business transactions and records
90	Know general principles for using of herbicides
72	Know crop varieties
31	Pricing supplies
12	Purchasing supplies
84	Know grain and feed prices
64	Know how to buy supplies and products

Item Number	Item
83	Know competitors' products
26	Figuring bulk fertilizer ratios
60	Showing research findings to customers
62	Know how to make recommendation for planting
66	Know how to plan a customer credit program
13	Loading and unloading supplies
75	Know crop rotation principles
89	Know general principles of controlling plant diseases
71	Know sources of fertilizer
45	Identifying common insects of crops
6	Determine moisture content of grain
74	Know soil reaction principles
65	Know how to protect products from rodents
52	Advising farmers on feeds and management practices
33	Mixing chemicals
24	Figuring a balanced ration
3	Identifying noxious weeds
23	Checking crop yields
73	Know tillage requirements
19	Collecting soil samples
5	Measuring grain stored in bin
78	Know how to use protein supplement in feeds
81	Know approved livestock feeding methods
61	Know how to determine proper time for harvest
50	Setting up displays for customers
4	Operating a crop dryer
77	Know how to feed grain properly to livestock
80	Know vitamin requirements for livestock
79	Know how to provide minerals for livestock
82	Know local feed practices and methods
86	Know how to transport feed or seed
59	Interpreting feed results to customers
46	Identifying effects of diseases of crops

Items receiving a mean rating from the employer group of 4.0 to 5.0 on a nine-point scale were considered to be somewhat essential. These items, listed in descending order of employer ratings, were:

Item Number	Item
87	Know feeding and watering space requirements for livestock
14	Using telephone two-way radio properly
99	Understand influence of heredity on livestock rate of gain
76	Know proper use of animal feeding equipment
85	Know how to operate a feed mill
47	Identifying insects of livestock
22	Conducting fertilizer use survey
100	Know the physical makeup and digestive system of livestock
69	Know food and transportation laws affecting supplies
17	Bagging products or supplies

Items receiving a mean rating from the employer group of less than 4.0 were considered to be nonessential for employees in the general field of agricultural supply. These items, in descending order of employer rating, were:

Item Number	Item
20	Conducting seed germination tests
21	Making soil tests for P_1, P_2, and K
25	Demonstrating the propagation of plants
34	Removing and replacing fuel lines
51	Cleaning out fuel line of gas engine
2	Hauling products to market
58	Fitting animals for show or sale
11	Putting corn header on combine
1	Operating a combine
29	Checking compression ratio of diesel engines
18	Putting groceries on shelf

Factor analysis of employer ratings

Table XI includes the Varimax factor analysis of the employers' ratings of the knowledges and skills essential for an employee in an agricultural supply business to know or be able to do. Knowledges and skills were considered to be essential if they received a rating of 4.0 or greater on the nine-point scale. Thus delimited, 89 items were subjected to factor analysis.

The analysis yielded six meaningful factors which were named: (1) knowledges and skills in feed, seed, and fertilizer businesses; (2) livestock industry knowledges and skill; (3) sales and business operations in agricultural supply businesses; (4) management of agricultural supply businesses; (5) work habits; and (6) interacting with customers. In order for an item to be included in a factor, a factor loading of .35 or greater must have been attained from the factor analysis. Knowledges and skills included in these factors are shown in descending order of the factor loading in Table XI. Thus, the first items for each factor are most indicative of the nature of the factor.

These factors present a possible grouping for knowledges and skills that could serve as a core for units of instruction in agricultural supply courses or serve as grouping for training plans for trainees in agricultural supply curriculums.

TABLE XI

Factors of Agricultural Supply Business Knowledges and Skills

Factor	Item	Factor Loading	Other Factors
1. Knowledges and skills in agronomy	74. Know soil reaction principles	.910	
	75. Know crop rotation principles	.904	
	90. Know general principles for using of herbicides	.903	
	89. Know general principles of controlling plant diseases	.891	
	70. Know fertilizer requirements	.887	
	73. Know tillage requirements	.847	
	46. Identifying effects of diseases on crops	.838	
	63. Know how to determine quality of grain	.812	
	45. Identifying common insects of crops	.796	
	71. Know sources of fertilizer	.796	
	36. Making mathematical calculations	.751	
	31. Pricing supplies	.733	
	88. Know general principles of chemical insect controls	.763	
	27. Following directions	.712	
	72. Know crop varieties	.713	
	91. Know definition of agriculture product terms	.687	
	23. Checking crop yields	.619	
	5. Measuring grain stored in bins	.619	5(-.413)
	30. Demonstrating product to customers	.618	
	26. Figuring bulk fertilizer ratio	.583	
	49. Providing information on chemicals, insects, and disease to customers	.578	3(.548)
	35. Writing legibly and making distinct figures	.577	
	92. Know where to find latest publications for recommendations for product use	.493	5(.418)
	15. Filling out order blanks	.467	
	50. Setting up displays for customers	.439	3(.528)
	24. Figuring a balanced ration	.438	
	32. Calibrating equipment	.428	5(.441)
	66. Know how to plan a customer credit program	.401	2(.414) 4(.403)
	98. Understanding promotional techniques of sales increases	.379	3(.501)

TABLE XI

Factors of Agricultural Supply Business Knowledges and Skills
(continued)

Factor	Item	Factor Loading	Other Factors
	83. Know competitors' products	.369	3(.471)
2. Feed industry knowledges and skills	80. Know vitamin requirements for livestock	.967	
	77. Know how to feed grain properly to livestock	.960	
	81. Know approved livestock feeding methods	.955	
	78. Know how to use protein supplement in feeds	.948	
	79. Know how to provide minerals for livestock	.940	
	82. Know local feed practices and methods	.911	
	76. Know proper use of animal feeding equipment	.910	
	99. Understand influence of heredity on livestock rate of gain	.884	
	100. Know the physical makeup and digestive system of livestock	.881	
	47. Identifying insects of livestock	.867	
	65. Know feeding and watering requirements for livestock	.857	
	61. Know how to determine proper time for harvesting	.831	
	85. Know how to operate a feed mill	.680	
	53. Filing business records and transactions	.662	
	28. Using proper English	.635	
	84. Know grain and feed prices	.562	4(.539)
	60. Showing research findings to customers	.541	
	86. Know how to transport feed or seed	.497	4(.404) 6(.435)
	66. Know how to plan a customer credit program	.414	1(.401) 4(.403)
	67. Know how to take proper care of equipment	.394	3(.650)
3. Sales and business operations in agricultural supply businesses	96. Know principles of suggestive selling	.880	
	97. Have a good product knowledge	.834	
	9. Keeping records of purchases	.781	
	94. Know the principles of salesmanship	.768	

TABLE XI

Factors of Agricultural Supply Business Knowledges and Skills
(continued)

Factor	Item	Factor Loading	Other Factors
	95. Know the principles of customer relationship	.768	
	10. Operating product-moving equipment	.684	
	67. Know how to take proper care of equipment	.650	2(.394)
	42. Working with people in business	.599	4(.374)
	62. Know how to make recommendations for planting	.579	
	48. Interpreting directions to customers	.572	
	49. Providing information on chemicals, insects, and diseases to customers	.548	1(.578)
	50. Setting up displays for customers	.528	1(.439)
	98. Understanding promotional techniques of sales increases	.501	1(.379)
	83. Know competitors' products	.471	1(.369)
	16. Taking an inventory	.458	4(.367)
	14. Using telephone two-way radio properly	.423	
	17. Bagging products or supplies	.378	4(.464)
	13. Loading and unloading supplies	.382	6(.405)
	39. Maintaining physical plant equipment	.343	
	69. Know food and transportation laws affecting supplies	.325	
4. Management of agricultural supply businesses	8. Keeping records of sales	.741	
	64. Know how to buy supplies and products	.729	
	7. Communicating with customers	.728	
	6. Determine the moisture content of grain	.611	
	65. Know how to protect products from rodents	.560	5(.358)
	12. Purchasing supplies	.552	
	84. Know grain and feed prices	.539	2(.562)
	17. Bagging products or supplies	.464	3(.378)
	86. Know how to transport feed or seed	.404	2(.497)
	66. Know how to plan a customer credit program	.403	1(.401) 2(.414)
	42. Working with people in business	.374	3(.599)
	16. Taking inventory	.367	3(.458)

TABLE XI

Factors of Agricultural Supply Business Knowledges and Skills
(continued)

Factor	Item	Factor Loading	Other Factors
5. Work habits in agricultural supply businesses	56. Reporting to work on time	.678	
	59. Interpreting feed results to the customers	.526	
	40. Operating electrical controls in the business	.514	
	55. Paying attention to work	.647	
	57. Making effective use of work time	.606	
	43. Driving trucks and cars safely	.481	
	32. Setting up displays for customers	.441	1(.428)
	93. Understand physical plant operations	.428	
	34. Doing work accurately	.425	
	92. Know where to find latest publications of recommendations for product use	.418	1(.493)
	68. Know how to repair equipment	.416	6(.530)
	38. Practicing safety on the job	.401	
	44. Figuring sales tax on a ticket	.372	6(.456)
	65. Know how to protect products from rodents	.358	4(.560)
	22. Conducting fertilizer use survey	.314	
	4. Operating a crop dryer	.384	6(.431)
	33. Mixing chemicals	.463	
	5. Measuring grain stored in bins	.413	1(.619)
6. Interacting with customers	52. Advising farmers on feed and management practices	.719	
	37. Reading product tags and labels	.673	
	41. Pricing agricultural products	.589	
	68. Know how to repair equipment	.530	5(.416)
	44. Figuring sales tax on a ticket	.456	5(.372)
	86. Know how to transport feed or seed	.435	2(.497) 4(.404)
	3. Identifying noxious weeds	.433	
	4. Operate a crop dryer	.451	5(-.384)
	13. Loading and unloading supplies	.405	3(.382)
	19. Collecting soil samples	.399	

Summary and Discussion

Agricultural supply programs at the junior college level in Illinois started with one program in 1964. Since that time, programs have emerged in various stages of development in many of the junior colleges.

Purpose of the study

Because many of the agricultural supply programs in Illinois junior colleges were in their infancy, it seemed desirable to determine whether there was agreement with regard to the knowledge and skills needed by employees in this field among the student trainees who had been on placement, the employers where the students were placed, and the instructors who taught the agricultural supply courses that the student trainees were to take while on campus. In addition, answers to these questions were sought:

1. Are there differences among the ratings of agricultural supply knowledges and skills given by employers in the various types of agricultural supply businesses?
2. Which of the knowledges and skills included on the questionnaire are considered to be essential for employees in agricultural supply businesses?
3. Can factor analysis be used to group knowledges and skills into meaningful instructional categories?

Answers to these questions were sought in a study conducted by the researchers with the cooperation of eight junior colleges in Illinois.

It is anticipated that the information gained by this study would be of assistance to instructors in planning educational experiences and adjusting programs to meet the expressed needs of the student trainees and their employers. It was also anticipated that this study could help junior college and high school instructors plan agricultural supply programs.

Procedures

To answer the questions posed, a 100-item questionnaire which included knowledges and skills essential to agricultural supply programs gleaned from the literature along with some distractors was developed and mailed to three populations. These populations were instructors in agricultural supply programs, student trainees who had completed some on-the-job training in an agricultural supply business, and the employers of the businesses in which the students

were placed. Each individual in the three populations was asked to rate the degree to which the knowledges and skills are essential for an employee in an agricultural supply business to know or be able to do. Responses were recorded on a nine-point scale which ranged from very essential to not essential.

Response to the mailed questionnaire included 54 student trainees, 56 employers and 14 instructors; 68.4 percent, 71.8 percent, and 100.0 percent, respectively.

Results

Significant differences at the .05 level among the mean ratings given by the employers, student trainees, and instructors to the agricultural supply knowledges and skills were obtained for five of the 100 items when the analysis of variance procedure was employed. These items were: filling out order blanks, mixing chemicals, identifying insects of livestock, knowing food and transportation laws affecting livestock. Ratings of these items were consistently higher for the instructors than for the employers.

Employer respondents were divided into six categories for the purpose of comparison. These were:

1. Seed
2. Fertilizer
3. Fertilizer-petroleum
4. Grain-feed
5. Grain-seed-feed-fertilizer
6. Any additional combinations of feed-seed-grain-fertilizer or petroleum.

As shown in Table XII, significant differences were obtained among the mean ratings given to the knowledges and skills by the employers in the various categories of agricultural supply businesses for 46 of the 100 items. Thus slightly over one-half of the knowledges and skills was equally essential in each of the six identified areas, identifying a core of knowledges and skills for which trainees in the agricultural supply areas identified will need equal preparation and experiences. These knowledges and skills could provide the basis for training plans for each agricultural supply area. Item 8, keeping records of sales, and item 24, figuring a balanced ration, are illustrations of the items which received a uniform rating from employers representing the six areas. This uniformity is indicated by the absence of a significant difference among the average ratings given by the employer groups. An item illustrative of those which did not receive a uniform rating, as indicated by

the significant levels of .05 and .01, from the employers is item 3, identifying noxious weeds. As might be predicted, employers in the seed industry rated the item as being essential, while those in the fertilizer business rated it as being nonessential.

The average rating received by each knowledge and skill from the employer groups was considered to be low (L) if the average rating was below 3.67, medium (M) if the average rating was between 3.67 to 6.33, and high (H) if the average rating was 6.33 or higher. These notations (L, M, H) are reported for each item by employer groups in Table XII.

Data from the employers for the knowledges and skills which received a rating of four or greater on the nine-point scale from the three groups were subjected to Varimax factor analysis. The analysis yielded six meaningful factors (groups of items) which were named:

1. Knowledges and skills in feed, seed, and fertilizer businesses
2. Livestock industry knowledges and skills
3. Sales and business operations in agricultural supply businesses
4. Management of agricultural supply businesses
5. Work habits
6. Interacting with customers.

Here, a knowledge or skill item was assigned to the factor for which the highest factor loading was obtained. Knowledges and skills included in these factors are grouped in Table XII in descending order of the factor loadings. Thus, the first items in each factor are the most descriptive of the factor. These factors present a possible grouping of knowledges and skills that could serve as a core for units of instruction in agricultural supply courses.

Many items were related to more than one factor, hence, clear-cut factors did not emerge. Also, factors such as Factor VI appear to have more than one concept involved. These concepts are, however, related statistically in some way. Items in this factor such as advising farmers on feeds and management practices, figuring sales tax on a ticket, and reading product tags and labels are clearly related to the interaction and communication of the employee with the customers. On the other hand, items such as collecting soil samples and loading and unloading supplies, are less related to customer-employee interaction. However, these activities are directly related to services provided to the customer.

TABLE XII

Comparison of Employer Ratings of Agricultural Supply Knowledges and Skills by Type of Business Listed by Factors

Item	Type of business						
	Seed	Fertilizer	Fertilizer-petroleum	Grain-feed	Grain-seed-feed-fertilizer	Combination of feed-seed-grain-fertilizer-petroleum	Significance level
Factor I: Knowledges and Skills in Feed, Seed, and Fertilizer							
74. Know soil reaction principles	M	H	H	L	M	M	.01
75. Know crop rotation principles	M	H	H	L	H	H	.01
90. Know general principles of using herbicides	M	H	H	L	H	H	.01
89. Know general principles of controlling plant diseases	M	H	H	L	H	H	.01
70. Know fertilizer requirements	H	H	M	L	H	H	.01
73. Know tillage requirements	M	H	M	L	H	M	.01
46. Identifying effects of diseases on crops	H	H	H	L	M	M	.01
63. Know how to determine the quality of grain	H	M	M	H	H	H	NS
45. Identifying common insects of crops	H	H	H	H	M	H	.01
71. Know sources of fertilizer	M	H	H	L	H	M	.01
36. Making mathematical calculations	H	H	H	H	M	H	NS
31. Pricing supplies	M	M	M	M	H	H	NS
88. Know general principles of chemical insect control	M	H	H	M	H	H	.01
27. Following directions	H	H	H	H	H	H	.05
72. Know crop varieties	H	H	M	M	H	H	.05
91. Know definitions of agriculture product terms	M	H	H	M	H	H	.05
23. Checking crop yields	H	H	H	M	L	L	NS
5. Measuring grain stored in a bin	M	L	M	H	H	M	.01
30. Demonstrating product to the customer	M	M	H	M	H	H	NS
26. Figuring bulk fertilizer ratios	M	H	H	L	H	H	.01

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TABLE XII

Comparison of Employer Ratings of Agricultural Supply Knowledges and Skills by Type of Business Listed by Factors (continued)

Item	Type of business						
	Seed	Fertilizer	Fertilizer-petroleum	Grain-feed	Grain-seed-feed-fertilizer	Combination of feed-seed-grain-fertilizer-petroleum	Significance level
49. Providing information on chemicals, insects, and diseases to customers	H	H	H	M	H	H	NS
35. Writing legibly and making distinct figures	H	H	H	H	M	H	NS
92. Know where to find latest publications on recommendation for product use	M	H	H	H	H	H	NS
24. Figuring a balanced ration	M	M	M	M	L	L	NS
50. Setting up displays for customers	L	M	H	M	M	M	NS
15. Filling out order blanks	H	H	H	H	H	H	NS
Factor II: Livestock Industry Knowledges and Skills							
80. Know vitamin requirements for livestock	L	L	L	M	H	H	.01
77. Know how to feed grain properly to livestock	L	L	M	M	H	H	.01
81. Know approved livestock feeding methods	L	L	L	M	H	H	.01
78. Know how to use protein supplement in feeds	L	L	L	M	H	H	.01
79. Know how to provide minerals for livestock	L	L	L	M	H	M	.01
82. Know local feeding practices and methods	L	L	M	M	H	H	.01
76. Know the proper use of animal feeding equipment	L	L	L	M	H	M	.01
99. Understanding influence of heredity on livestock rate of gain	L	M	L	M	H	M	.01
100. Know the physical makeup and digestive system of livestock	L	L	L	M	H	M	.01

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TABLE XII

Comparison of Employer Ratings of Agricultural Supply Knowledges and Skills by Type of Business Listed by Factors (continued)

Item	Type of business: Seed	Fertilizer	Fertilizer-petroleum	Grain-feed	Grain-seed-feed-fertilizer	Combination of feed-seed-grain-fertilizer-petroleum	Significance level
47. Identifying insects of livestock	L	L	M	M	H	M	.05
87. Know feeding and watering requirements for livestock	L	L	M	M	H	M	.01
61. Know how to determine proper time for harvesting	H	M	M	M	M	M	NS
85. Know how to operate a feed mill	M	L	L	M	H	M	.01
53. Filing business transactions and records	M	M	H	H	H	M	NS
28. Using proper English	H	H	H	H	H	H	NS
84. Know grain and feed prices	M	M	M	H	H	H	.05
60. Show research findings to customers	M	H	H	M	H	M	NS
86. Know how to transport feed or seed	M	L	L	M	H	M	.01
54. Know how to buy supplies and products	M	M	M	M	H	H	NS
66. Know how to plan customer credit program	M	H	H	M	M	H	NS
Factor III: Sales and Business Operations in Agricultural Supply Businesses							
96. Know the principles of suggestive selling	M	H	H	H	H	H	NS
97. Have a good product knowledge	H	H	H	H	H	H	NS
9. Keeping records of purchases	H	H	H	H	H	H	NS
94. Know the principles of salesmanship	H	H	H	H	H	H	NS
95. Know the principles of customer relationship	H	H	H	H	H	H	NS
10. Operating product-moving equipment	M	H	H	H	H	M	.05
67. Know how to take proper care of equipment	H	H	H	H	H	H	.05
42. Working with people in business	H	H	H	H	M	H	.05
62. Know how to make recommendations for planting	H	H	M	L	H	H	.01

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TABLE XII

Comparison of Employer Ratings of Agricultural Supply Knowledges and Skills by Type of Business Listed by Factors (continued)

Item	Type of business						
	Seed	Fertilizer	Fertilizer-petroleum	Grain-feed	Grain-seed-feed-fertilizer	Combination of feed-seed-grain-fertilizer-petroleum	Significance level
48. Interpreting directions to the customers	M	H	H	H	H	H	NS
98. Understanding the promotional techniques of sales increases	H	H	H	H	H	H	NS
83. Know competitors' products	H	H	H	M	H	M	NS
16. Taking an inventory	H	H	H	H	H	H	NS
14. Using the telephone two-way radio properly	L	H	M	L	M	M	.05
39. Maintaining physical plant equipment	H	H	H	H	M	H	.05
69. Know food and transportation laws affecting supplies	L	M	M	M	M	M	NS
Factor IV: Management of Agricultural Supply Businesses							
7. Communicating with customers	H	H	H	H	H	H	NS
8. Keeping records of sales	H	H	H	H	H	H	NS
65. Know how to protect products from rodents	M	M	M	M	H	H	NS
6. Determining the moisture content of grain	H	L	M	H	H	M	.01
12. Purchasing supplies	M	M	H	M	M	M	NS
17. Bagging products and supplies	H	M	M	M	M	L	NS
Factor V: Work Habits							
56. Reporting to work on time	H	H	H	H	H	H	NS
59. Interpreting feed results to customers	L	L	L	M	H	M	.01
40. Operating electrical controls in the business	H	H	H	H	M	M	NS

TABLE XII

Comparison of Employer Ratings of Agricultural Supply Knowledges and Skills by Type of Business Listed by Factors (continued)

Item	Type of business: Seed	Fertilizer	Fertilizer-petroleum	Grain-feed	Grain-seed-feed-fertilizer	Combination of feed-seed-grain-fertilizer-petroleum	Significance level
54. Doing work accurately	H	H	H	H	H	H	NS
55. Paying attention to his work	H	H	H	H	H	H	.01
57. Making effective use of work time	H	H	H	H	H	H	NS
43. Driving trucks and cars safely	H	H	H	H	M	H	NS
38. Practicing safety on the job	H	H	H	H	M	H	NS
22. Conducting fertilizer-use survey	L	M	H	L	M	M	.01
32. Calibrating equipment	H	H	H	M	L	H	.01
93. Understanding physical plant operations	M	H	H	H	H	H	NS
33. Mixing chemicals	H	H	H	L	L	M	.01
Factor VI: Interacting with Customers							
52. Advising farmers on feeds and management practices	M	M	M	M	H	H	NS
37. Reading product tags and labels	H	H	H	H	M	H	NS
41. Pricing agricultural products	M	M	H	H	M	H	NS
44. Figuring sales tax on a ticket	L	H	H	M	M	H	NS
3. Identifying noxious weeds	H	M	H	L	M	M	.01
4. Operating a crop dryer	M	L	M	H	H	M	.05
13. Loading and unloading supplies	M	H	H	M	H	M	NS
19. Collecting soil samples	M	H	H	L	M	M	.01
68. Know how to repair equipment	M	H	H	M	H	H	NS
Items Not Subjected to Factor Analysis							
1. Operating a combine	L	L	L	L	L	L	NS
2. Hauling products to market	M	L	L	L	M	L	NS
11. Putting a corn header on a combine	L	L	L	L	M	L	NS
18. Putting groceries on the shelf	L	L	L	L	L	L	NS

TABLE XII

Comparison of Employer Ratings of Agricultural Supply Knowledges and Skills by Type of Business Listed by Factors (continued)

Item	Type of business						
	Seed	Fertilizer	Fertilizer-petroleum	Grain-feed	Grain-seed-feed-fertilizer	Combination of feed-seed-grain-fertilizer-petroleum	Significance level
20. Conducting seed germination tests	H	M	M	L	L	M	.01
21. Making soil tests for P_1, P_2, and K	M	H	M	L	L	L	.01
25. Demonstrating the propagation of plants	M	M	M	L	L	L	NS
29. Checking compression ratio of diesel engines	L	L	M	L	L	L	NS
34. Removing and replacing fuel lines	L	M	L	L	L	L	NS
51. Cleaning out fuel lines of gas engines	L	M	M	L	L	L	NS
58. Fitting animals for sale and show	L	L	L	L	M	L	NS

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Conclusions

Instructors of agricultural supply courses in Illinois junior colleges have an accurate perception of the degree to which knowledges and skills are needed in agricultural supply businesses in general. This conclusion was based on the fact that there were few differences among the ratings of the employers, student trainees and instructors to the agricultural supply knowledges and skills.

Many differences and similarities exist among the ratings that employers in the various types of business gave to the agricultural supply knowledges and skills. Thus, it may be concluded that some knowledges and skills are useful in all the types of agricultural businesses surveyed while others are useful in one or more types of businesses. Hence, the ratings of these items provide a basis for the development of training plans in specific types of agricultural supply businesses.

The factor analysis when applied to the ratings given to the various essential knowledges and skills by the employers in the various agricultural supply businesses, produced meaningful clusters of items that could be used either as a grouping of instructional units or areas of a training plan to be prescribed for an individual student.

A combination of the ratings given by the various employer groups and the factors which emerged from the factor analysis provide a starting place from which teachers of agricultural supply programs may generate their own ideas for agricultural supply courses.

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APPENDIX A

THE AGRICULTURAL SUPPLY BUSINESS QUESTIONNAIRE

THE AGRICULTURAL SUPPLY BUSINESS QUESTIONNAIRE

Prepared by Hollie Thomas and George Leighty

Name_____ Position_____

Type of business of employer_____

Type of business in which student trainee was employed_____

Note: Grain, seed, feed, fertilizer, petroleum, etc., or combination of these.

This questionnaire provides you the opportunity to express your opinions about the knowledges and skills that are needed by an employee in an agricultural supply business. Note that: (1) Skills are something you do. (2) Knowledge is something you need to know.

Direction for marking your responses:

1. Read each statement carefully.

2. Indicate by a check mark (✓) in the appropriate column your rating for each skill or knowledge.

3. List items used or needed but not included in the listing on the last page.

When selecting your responses, consider the response words as if they were points on the same straight line.

Very essential				Essential			Nonessential	
9	8	7	6	5	4	3	2	1

Below are sample statements with responses marked.

	Very essential				Essential		Nonessential		
Agribusiness skills	9	8	7	6	5	4	3	2	1
1. Riding a horse									✓
2. Operating a high loader	✓								
3. Repairing a fuel pump							✓		

Your response to each item should be made by checking an appropriate number from one to nine.

Agribusiness skills	Very essential 9	8	7	Essential 6	5	4	Nonessential 3	2	1
1. Operating a combine									
2. Hauling products to market									
3. Identifying noxious weeds									
4. Operating a crop dryer									
5. Measuring grain stored in a bin									
6. Determining moisture content of grain									
7. Communicating with customers									
8. Keeping records of sales									
9. Keeping records of purchases									
10. Operating product moving equipment									
11. Putting a corn header on a combine									
12. Purchasing supplies									
13. Loading and unloading supplies									
14. Using the telephone two-way radio properly									
15. Filling out order blanks									
16. Taking an inventory									
17. Bagging products or supplies									
18. Putting groceries on the shelf									
19. Collecting soil samples									
20. Conducting seed germination tests									
21. Making soil tests for P_1, P_2, and K									
22. Conducting fertilizer use survey									
23. Checking crop yields									
24. Figuring a balanced ration									
25. Demonstrating the propagation of plants									
26. Figuring bulk fertilizer ratios									
27. Following directions									
28. Using proper English									
29. Checking compression ratio of diesel engines									
30. Demonstrating product to the customer									
31. Pricing supplies									
32. Calibrating equipment									
33. Mixing chemicals									
34. Removing and replacing fuel lines									
35. Writing legibly and making distinct figures									
36. Making mathematical calculations									
37. Reading product tags and labels									
38. Practicing safety on the job									
39. Maintaining physical plant equipment									
40. Operating electrical controls in the business									
41. Pricing agricultural products									
42. Working with people in the business									

Agribusiness skills	Very essential			Essential			Nonessential		
	9	8	7	6	5	4	3	2	1
43. Driving trucks and cars safely									
44. Figuring sales tax on a ticket									
45. Identifying common insects of crops									
46. Identifying effects of disease on crops									
47. Identifying insects of livestock									
48. Interpreting directions to the customer									
49. Providing information on chemicals, insects, and diseases to customers									
50. Setting up displays for customers									
51. Cleaning out fuel line of gas engine.									
52. Advising farmers on feeds and management practices									
53. Filing business transactions and records									
54. Doing work accurately									
55. Paying attention to his work									
56. Reporting to work on time									
57. Making effective use of work time									
58. Fitting animals for show or sale									
59. Interpreting feed results to customer									
60. Showing research findings to customers									
Agribusiness knowledges									
61. Know how to determine proper time for harvesting									
62. Know how to make recommendation for planting									
63. Know how to determine quality of grain									
64. Know how to buy supplies and products									
65. Know how to protect products from rodents									
66. Know how to plan a customer credit program									
67. Know how to take proper care of equipment									
68. Know how to repair equipment									
69. Know food and transportation laws effecting supplies									
70. Know fertilizer requirements									
71. Know sources of fertilizer									
72. Know crop varieties									
73. Know tillage requirements									
74. Know soil reactions principles									
75. Know crop rotations principles									

Agribusiness knowledges	Very essential			Essential			Nonessential		
	9	8	7	6	5	4	3	2	1
76. Know proper use of animal feeding equipment									
77. Know how to feed grain properly to livestock									
78. Know how to use protein supplement in feeds									
79. Know how to provide minerals for livestock									
80. Know vitamins requirements for livestock									
81. Know approved livestock feeding methods									
82. Know local feed practices and methods									
83. Know competitors' products									
84. Know grain and feed prices									
85. Know how to operate a feed mill									
86. Know how to transport feed or seed									
87. Know feeding and watering space requirement for livestock									
88. Know general principles of chemical insect controls									
89. Know general principles of controlling plant diseases									
90. Know general principles for using of herbicides									
91. Know definitions of agriculture products terms									
92. Know where to find latest publications on recommendations for product use									
93. Understand physical plant operations									
94. Know the principles of salesmanship									
95. Know principles of customer relationship									
96. Know the principle of suggestive selling									
97. Have a good product knowledge									
98. Understand promotional techniques of sales increase									
99. Understand influence of heredity on livestock rate of grain									
100. Know the physical makeup and digestive system of livestock									

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APPENDIX B

INFORMATION SHEETS

Agricultural Education Division
Department of Vocational and Technical Education
University of Illinois

AGRICULTURAL SUPPLY
INSTRUCTOR INFORMATION SHEET

1. Name _____

2. Number of weeks of on-the-job training received by students.

   A. Two-year program _____

   B. One-year certificate program _____

3. Length and duration of on-the-job training of each placement.

Year placed for on-job training	Weeks		Time of Year	
	First Placement	Second Placement	First Placement	Second Placement
Freshman				
Sophomore				

4. Number of courses offered in agricultural supplies in your junior college.
   _____

5. Number of nonvocational courses students in agricultural supplies are required to take in your junior college. _____

6. Number of related courses students in agricultural supplies are required to take in junior college. _____

7. Average number of supervisory visits made to each student during total placement experience. _____

8. Average length of time spent with each student during each supervisory visit.
   Hours _____ Minutes _____

9. Is a training plan made for each student who is placed on the job?

   ☐ Yes ☐ No

10. Are students required to systematically report experiences they have completed which were included on the training plan?

    ☐ Yes ☐ No

11. Average length of time spent with the employer during each supervisory visit.
    Hours _____ Minutes _____

Agricultural Education Division
Department of Vocational and Technical Education
University of Illinois

AGRICULTURAL SUPPLY
STUDENT TRAINEE INFORMATION SHEET

1. Name _____

2. Age _____

3. Hours of college work completed _____

4. Type of business _____

5. Present place of employment _____

6. Number of years of vocational agriculture in high school

   None _____ One _____ Two _____ Three _____ Four _____

7. Did you have on-job training while in high school?

   Yes _____ No _____

8. If yes, in what type of business were you placed?

   _____

9. Which of the following programs were you in or are you in junior college?

   One-year certificate _____
   Two-year program _____

10. Did you have a prepared training plan for your junior college on-the-job experience?

    Yes _____ No _____

11. How many weeks to date have been placed in on-the-job training as part of your junior college agricultural supply curriculum? _____

APPENDIX C

COVER LETTERS

A study is being conducted by the University of Illinois, Urbana-Champaign Campus, Agriculture Education Division to determine the relative importance of some knowledges and skills that may be needed by employees in the agricultural supplies businesses. Having completed part or all of your on-the-job training in an agricultural supplies business as part of your junior college education, you are in a position to assist us in determining the knowledges and skills needed to become an employee in an agricultural supply business.

With your help, we hope to be able to provide junior college instructors with information which will enable them to provide better programs for future student trainees. Also, in a few years you may be in the situation of having a trainee placed with the agricultural supply business in which you are employed. Your contribution will help instructors, future students, and employers.

Enclosed is a questionnaire and a page of instructions to help you complete it. If you will take 10-15 minutes to complete it now, put it in the enclosed stamped, self-addressed envelope, and drop them in the mail, we will be able to complete the study on schedule. We hope to be able to get this information to the junior college instructors by the beginning of spring quarter.

We appreciate your help very much.

Sincerely,

Hollie B. Thomas
Assistant Professor

George Leighty
Graduate Assistant

A study is being conducted by the University of Illinois, Urbana-Champaign Campus, Agriculture Education Division to determine the relative importance of some knowledges and skills that may be needed in agricultural supplies businesses. In regard to the knowledges and skills needed in the agricultural supplies business, we are collecting the opinions from the on-the-job trainers and student trainees as well as from instructors of agricultural supply courses in the junior colleges in Illinois.

We feel that a knowledge of the opinions of these three groups will assist you in planning educational experiences and adjusting your agricultural supply program to meet the expressed needs of student trainees and their employers. We will make the results available to you as soon as the study is completed.

Enclosed is a questionnaire and a page of instructions to help you complete it along with an information sheet. If you will take 10 to 15 minutes to complete it now, put it in the enclosed stamped, self-addressed envelope, and drop them in the mail, we will be able to complete the study on schedule. We hope to be able to get this information completed by the beginning of spring quarter.

We appreciate your help very much.

Sincerely,

Hollie B. Thomas
Assistant Professor

George W. Leighty
Graduate Assistant

T*L:mwc
Enclosures

A study is being conducted by the University of Illinois, Urbana-Champaign Campus, Agriculture Education Division to determine the relative importance of some knowledges and skills that may be needed by employees in agricultural supplies businesses. As an employer of the junior college trainee, we feel that you are in the best position to determine what skills and knowledges are needed by people who are to be employed in businesses like your own.

The results of this study will give junior college instructors some idea of skills and knowledges which need to be incorporated in their programs. It is anticipated that this study will benefit you indirectly by enabling junior colleges to train more competent individuals as trainees and persons that you may wish to employ.

Enclosed is a questionnaire and a page of instructions to help you complete it. If you will take 10 to 15 minutes to complete it now, put it in the enclosed stamped, self-addressed envelope, and drop them into the mail, we will be able to complete the study on schedule. We hope to be able to get this information back to the junior college instructors by the beginning of spring quarter.

We appreciate your help very much.

Sincerely,

Hollie B. Thomas
Assistant Professor

George W. Leighty
Graduate Assistant

T*L:mwc
Enclosures

December 10, 1969

We have not received your completed agricultural supply questionnaire sent to you on November 26. Perhaps they have been lost in the mail or misplaced.

This study is being done to help develop better agricultural supply programs in the junior college system of Illinois. In order to be able to be of assistance to the junior college instructors who are conducting agricultural supply programs, we feel that it is necessary to obtain the opinions of instructors, student trainees, and employers of student trainees who are presently involved in agricultural supply programs. Your contribution is needed to make this study meaningful.

In case the first questionnaire and information sheet were lost or misplaced, we are enclosing additional copies hoping that you will find time to complete and return them to us. If you have completed and mailed the questionnaire and information sheet within the last three days, please disregard this letter.

May we thank you again for your cooperation.

Sincerely,

Hollie B. Thomas
Assistant Professor

George Leighty
Graduate Assistant

T*L:psh
Enclosure

M/AE-20
11-12-70

4793

VT 012 505
Hull, William L.
Implementing Evaluation Findings.

Ohio State Univ., Columbus. Center for Vocational and Technical Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 19p.Presentation made at a workshop on Evaluating Programs of Vocational Education (Lexington, Ky., Oct. 27, 1970).

DESCRIPTORS - *VOCATIONAL EDUCATION; EVALUATION; *PROGRAM EVALUATION; *PERCEPTION; *EDUCATIONAL CHANGE; COMMUNICATION PROBLEMS; *RESEARCH UTILIZATION; ADMINISTRATOR ROLE; BIAS; GUIDELINES

ABSTRACT - The incorporation of findings as a segment of the evaluation process can be enhanced or retarded by the disposition of the chief school administrator and the individual biases held by each of us. The implementation process contains stages of adoption which prescribe activities for installation. Individuals' perceptions of proposed changes dictate their reactions to them. Evaluation findings must be communicated to potential users in clear, purposeful language which emphasizes their relative advantages. This is necessary because systematic implementation of evaluation findings demands commitment of people to ideas and a belief in planned change as a viable alternative to existing programs. (Author/JS)

VT 012 505

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ED0 57254

IMPLEMENTING EVALUATION FINDINGS[a]

William L. Hull

The Ohio State University

> "Those educators today who are taking the most irresponsible risks with our lives and the lives of our children are those educators who are taking no risks at all."

This quote from the September issue of the Kappan (2) recognizes the need for planned change in educational systems. Improvement of educational programs should be a dynamic process which is continuous and future oriented. Evaluation plays a key role in the process of education improvement.

This workshop focuses on the evaluation process. We shall discuss conditions and strategies affecting the process of implementing evaluation findings. My comments are limited to the local school situation including conditions which are typical of area vocational-technical schools. Since I am not directly concerned with state systems of evaluation, no attempt will be made to discuss coordination procedures among local educational agencies or between state and local educational agencies. We shall not infringe on previous comments regarding interpretation of evaluation findings, although the nature of the findings and the evaluation process in general set limits on what can be implemented. For example, an out-

[a]Presentation made to local leaders at a Workshop on Evaluating Programs of Vocational Education in Lexington, Kentucky, 10/27/70. Dr. Hull is chairman of the Change Process Program Area at The Center for Vocational and Technical Education, Columbus, Ohio.

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side review team may alienate the teachers in a school system during the process of evaluation. In this case, it may be nearly impossible to achieve any degree of acceptance for the evaluation finding.

Definitions and Delimitations

Implementation of evaluation findings is one of five areas of evaluation identified by the Center for the Study of Evaluation on the University of California Los Angeles campus. Implementation is defined as the extent to which the operating program differs from the program's original, theoretical description. Merriman (10) agrees with this definition of implementation. He views program implementation as process evaluation. It asks the question: how well is the program functioning according to the plan? Persons responsible for installing evaluation findings in a system should be alert for unanticipated outcomes of program implementation.

In the interest of continuity, I shall digress a moment to highlight the boundaries of program implementation activities. The person charged with responsibility for evaluation in your school must understand his or her relationship to the school administration by recognizing that school superintendents are usually responsible to elected boards which represent and interpret the needs and values of the community to the chief school officer. This person often becomes the key decision-maker in matters of school administration and an evaluator working within the school system must provide relevant information to the appropriate decision-

maker. I think the following definition captures the key ingredients of the evaluator's role (1) :

> Evaluation is the process of ascertaining the decision areas of concern, selecting appropriate information, and collecting and analyzing information in order to report summary data useful to decision-makers in selecting among alternatives.

In some cases decision-makers are defined to include more than school administrators. Merriman (9) suggests that all members of the educational community, e.g., teachers, administrators, parents, interested citizens, and students, are potentially educational decision-makers. These groups may represent opposing points of view on school issues. School officials charged with the responsibility of implementing evaluation findings must consider the relative power positions of special interest groups in the community.

Conditions Affecting Implementation

One of the more obvious conditions affecting the implementation of evaluation findings is the disposition of the chief school administrator towards the findings. If the administrator's position is likely to be enhanced by the evaluation finding, his support may be enthusiastic. The issue of school consolidation of two adjoining districts may be "swept under the rug" by a school superintendent or supported depending on his perception of the threat to his position and prestige in the community.

The willingness of a school administrator to take risks influences his posture towards program renewal. Striking contrasts may be observed in real life situations. One administrator may adopt a "don't rock the

boat" attitude, minimizing the criticism which may be forthcoming from the introduction of programs which differ drastically from the existing situation. Another may encourage the implementation of exemplary programs within a developmental, pilot project framework. A strong leader may be called upon to risk his job on occasion to implement a program which he believes will make a substantial contribution to the improvement of the school system.

Usually a wide base of support for innovative programs can be developed in the community if sufficient trust exists among evaluators, school officials and community leaders. Merriman (9) advocates school accountability to the community. But he adds this warning:

> You don't tell the community what you want them to know, and withhold the rest--you tell them what they want to know, and provide whatever related information may be necessary to fully understand the situation.

While we recognize that leadership styles and dissemination policies differ widely, it does appear that a school system with a renewal system which includes accountability to the community is likely to have a superior education program. Often an administrator is called upon to mediate between a traditional, "comfortable" program and one which is innovative, dynamic and forward-looking. I hope we will always have adequate resources and sufficient moral fortitude to recommend the implementation of programs which diverge from existing ones when such action is justified.

A second condition which affects the implementation of evaluation findings is <u>the inevitability of individual biases</u>. Bennis (3) has

clustered these biases around four major headings: the rationalistic bias, the technocratic bias, the individualistic bias, and the insight bias.

The rationalistic bias assumes people will accept suggestions which are accurate, true, and result in an improved educational system. The person with this bias forgets man is an ego-centered being whose perception sometimes distorts "rational" information by making it consistent with previously held beliefs.

The technocratic bias characterizes individuals who implement an idea mechanically, disregarding the context of the situation and the real concerns of persons affected by the evaluation finding.

The individualistic bias in people tends to appraise program implementation as a series of special cases. This tendency ignores existing situations and structures.

The insight bias results in people taking "no action" on an evaluation recommendation because the proposed change is perceived as "interesting" and "insightful" but not very helpful in manipulating the situation.

Both of these conditions, the receptivity of administrators to change and the biases of people, tend to inhibit or enhance the probability of implementing evaluation findings. These conditions are related to people, for only individuals create school climates and make decisions which influence program renewal.

The Implementation Process

The adoption of new ideas by people seems to follow predictable

stages. These stages may not always occur in sequence. They have been plotted by Rogers (12) as: awareness, interest, evaluation, trial, and adoption.

The awareness stage is the first step of the implementation process. Mass media seems to be effective in motivating potential adopters to consider the innovation being suggested. Some interest is generated in the idea at this time.

During the interest stage the potential adopter initiates action to learn more of the pending idea. He withholds judgement on the utility of the new idea and continues to receive additional information on the subject.

The evaluation stage calls for very specific information on the value of the innovation for the potential adopter's situation. Frequently, he travels to a school or meeting where the new idea is being discussed or demonstrated. An on-site visit to an operational project frequently assists an individual in making a decision.

The trial stage represents "an acid test" of the viability of the innovation in the proposed setting. The potential adopter tries out the new idea on a limited scale with careful observations. In this manner he determines the utility of the proposed program for his school system.

The adoption stage occurs when the proposed change is fully installed into the operating system. A commitment is made by the adopter to continue the innovation as a regular part of the school program.

These five stages of the adoption process grew out of rural sociology research on adoption habits of farmers. It represents one of the most durable approaches to encouraging innovation and planned change in operation today. I must raise a note of caution: school systems differ in many ways from farms as adopting units. Teachers and administrators function as members of a social system. Teachers are more dependent on others when adopting a new practice than most farmers. The implementation of school-wide activities requires the cooperation of other professionals. Thus, interpersonal relations become quite important in the school setting. Administrators should define professional roles which encourage teachers to be mutually supportive.

Local teachers may be used on in-house self-study teams to aid the implementation of evaluation findings (4). This provides an opportunity for persons affected by the proposed changes to think through the reasons for the suggestions. An alternative to a self-study committee is an outside review team. A visiting team of experts can bring objectivity to an evaluation effort. But the lack of credibility with local teachers could inhibit implementation of the findings. Citizen committees should not be overlooked as a means of community participation in an evaluation study of the school system (8). They can bring the same kind of involvement and receptivity to implementation procedures as the in-house teacher study group.

The selection of qualified teachers for exemplary programs influences the success of the implementation effort. A teacher must

have confidence in his own ability to manage the innovative idea. His prior relationships with his peers determine their attentiveness to his efforts with the exemplary program. Other teachers in the school system need to identify with the teachers of exemplary programs.

The acceptance of an evaluation finding by persons affected by it depends on how they perceive the idea and the people promoting it. If a situation is defined as real in the mind of the perceiver, it will be real in its consequences. According to Rogers (12), the adoption of innovative practices depends on the following perceived characteristics: relative advantage, compatibility, complexity, divisibility, and communicability.

If a proposed program is superior to the existing program it may be said to have a relative advantage. This advantage may be economic or it may be social in its consequences. Evaluation findings perceived to have a relative advantage will be implemented more rapidly than other findings.

Compatibility with the existing school structure and procedures can enhance the acceptance of an evaluation finding. If the proposed change is consistent with system values and expectations it can be installed relatively easily.

Complexity of the proposed change influences its likelihood of adoption. A relatively simple change in the class schedule is easy to understand and accept compared to a complex reorganization of the school system. Simple, direct changes in the system can be implemented sooner than complex changes.

Divisibility is a key variable in the implementation of evaluation findings. If the proposed change can be piloted first in a limited way, it is much more likely to be adopted. Divisibility is particularly important for early adopters of an innovation.

Communicability speeds the rate of adoption. If an idea can be described in rather empirical terms, it is more likely to be accepted. People tend to accept ideas when results are observable.

The implementation of evaluation findings requires cooperation of persons affected by the changes. Much time and effort in working with teachers and others can be justified in the implementation process. This investment of resources should be geared to the appropriate stage of the adoption process. An individual in the awareness stage should not be bombarded with detailed information on the merits of the proposal. Rather he should be acquainted with the general merits of the proposal, then he is in a position to receive and evaluate more detailed information.

Implementation Strategies

Many approaches may be used by key administrators and others to influence the implementation of evaluation findings. According to Merton (11) forms of interpersonal influence range from coercion to the exchange of information: coercion, domination, manipulation, clarification, prototypes of imitation, advice, and exchange.

The specific attributes of these strategies will be discussed under three more generalized categories. It is sufficient to say at this point that administrators do use the power of their office to set limits on the activities of their subordinates. The manner in which they do this influences the desires of others to work toward prescribed goals.

Chin and Benne (7) have classified strategies of planned change into three major types: empirical-rational, normative-reeducative, and power-coercive. Each approach to effecting change has implications for implementing evaluation findings. You will note similarities to Merton's forms of interpersonal influence and the biases presented by Bennis.

The empirical-rational approach to implementing evaluation findings emphasizes man's ability to think and behave rationally. This strategy encourages knowledge building through research and development. Research "findings" are engineered into educational products and tested before their introduction in school systems. This nation's complex of research and development centers and regional laboratories are predicated on the assumptions underlying this approach to planned change. Rather elaborate systems have evolved to manage a planned innovation. The program planning and budgeting system (PPBS) is representative of a systems approach to implementing program innovation. A linear model exists which starts with an idea, develops it with empirical tests, and finally installs it into operating school systems. A linkage system has grown up from the R and D centers to

regional laboratories to state departments of education to local educational agencies. At decision points along the way, technical assistance is available to explain the innovation and discuss its application for the next step.

Although local school systems rarely have the resources which allow them to initiate research and development activities on their own, they are frequently asked to participate in research and development studies. Such proposals should be carefully evaluated to determine the value of the study to the school system. Frequently, such participation in research studies assumes a passive role for teachers and students. I would encourage teachers and local administrators to seek ways of becoming a full partner in the planning process for school improvement. Personnel changes occur in all school systems. A systems approach to the development of norms and standards for operation safeguards valuable current practices which could be lost with a change of personnel. Mechanisms for participative management of local school systems involve teachers in planning and evaluation decisions, thereby enhancing the chances of successful program implementation.

Normative-reeducative strategies for implementing evaluation findings capitalize on man's need to function as an active organism, seeking stimuli and variety. Intelligence is social as well as psychological. The astute administrator will take advantage of social tendencies to encourage acceptance of innovative programs. The selection of teachers to implement an idea who are opinion

leaders among their peers is consistent with this approach to planned change. Most teachers find collaborative relationships such as serving on committees rewarding if they feel their recommendations are seriously considered. Communication feedback loops should exist between and among various levels and work units in the school hierarchy. Reactions to proposed implementation of evaluation findings should not become filtered out of the comments going to the chief school administrator.

A systematic program for the professional development of teachers and other staff members in a local school system is imperative to the normative-reeducative approach to program implementation. Rubin (13) asserts that "any school can, if it wishes, arrange for the professional growth of its teachers as a regular part of the work load." He suggests approximately ten hours a month should be devoted to professional growth activities during the school day.

Power-coercive strategies for implementing evaluation findings emphasize political, economic, and moral sanctions. Political power carries with it legitimacy and authority. A school board member elected on a platform of "reducing school costs" is likely to be placed on the finance committee of the board. Economic power can be used to influence implementation of evaluation findings.

Economic risk can be shared between the sponsor of the planned change and the client system. Frequently federal contracts provide for a gradual withdrawal of federal funds in favor of more state and

local monies. A decision to terminate the project can be made at any one of several logical decision points along the way. Local school superintendents may want to consider special temporary incentive provisions for teachers willing to risk their reputations with new and untried programs.

The use of power-coercive strategies by those in legitimate control is in widespread use in school systems. Elected representatives of teacher unions as well as administrators find it expedient to implement decisions in this manner. The decision to use this approach usually does not involve those outside of the power system. Thus, a special effort must be made to inform others about the reason for a decision when this approach is used to effect change. Special attention must be given to public information because the use of coercive strategies tend to divide and polarize individuals in the social system.

This discussion of implementation strategies has suggested approaches which have ranged from rational decision-making based on the merits of a proposed change, through the use of inservice training experiences to clarify issues and promote participative management by teachers, to the use of coercive strategies resulting in manipulation of people and programs through domination. I suspect each of us would have our own opinion of when to use which strategy. In any event, the selection of a strategy to implement evaluation findings depends on our ability to properly assess the conditions of the school system and anticipate the reactions of other people.

I would like to coalesce the previous comments by presenting highlights of a study done by Carpenter (5). Some of the findings should be disquieting to those of us who assume we are developing sophisticated systems for implementing evaluation findings. The study was conducted with interviews and mail questionnaires to the superintendent, principal and teachers of 57 school systems representative of the North Central Association membership. The purpose of the study was to determine the effectiveness of systems for bringing about change in these secondary schools. The following findings are noteworthy:

1. Recommendations are not implemented when nobody pushes for them.

2. Implementation is positively related to teacher satisfaction and teacher perception.

3. Cost of implementation is inversely related to rate of implementation.

4. Greater implementation of findings occur in less "sophisticated" schools. "Less sophisticated" schools are defined by the study as (a) lack of a professional negotiation agreement with teachers' groups, (b) a principal with fewer semester hours in administration, and (c) a greater percentage of students intending to go to a post secondary school other than college or junior college.

5. The greatest implementation of findings occured with (a) the self study team, (b) recommendations for change in existence prior to the outside review team, and (c) the outside review team, in that order.

These results emphasize the importance of self determination in the implementation of evaluation findings. The evaluation process in this study seemed to be more of a "bringing-up-to-standards" type rather than agressive decision-making which allows for the participation of teachers and community leaders.

This discussion of ideas and procedures for implementing evaluation findings has focused on local administrators. They have direct responsibility for the operation of the school system. No one really likes the new. We are afraid of it. We can never be totally prepared for the consequences of any new invention. Consequently, our solution rests with the development of tested systems for incorporating new programs into the existing situation. This requires the greatest amount of competence and self-confidence we can muster.

Guidelines for Implementing Evaluation Findings

1. Are the evaluation findings sufficiently precise to allow measurements of their achievement? If not, sharpen the statement by identifying a means of measuring program outcome.
2. Can the finding be implemented by the classroom teacher alone? If not, take steps to provide necessary technical assistance.
3. Was a visiting team of experts used to conduct the evaluation study? If yes, be concerned about the teachers' perceptions of these experts.
4. Were the persons affected by the findings involved in the evaluation process? If not, determine their degree of receptivity to the proposed change.
5. Do the people charged with implementing the finding agree with its objective? If not, commit resources to persuade them of the proposal's merit or find another means of implementing the finding.

6. Can the evaluation finding be adopted by the individual or individuals within the existing structure of the school? If not, persons losing status or prestige by the change need to be convinced of its necessity or such individuals may be redirected into other activities of the school.
7. Are the evaluation findings significant steps to improve the educational process? If not, question the assumptions of the evaluation effort and adopt other approaches to more realistic evaluation.
8. Has the evaluation report considered alternatives to the existing school structure? If not, the reasons for this restricted view should be reviewed.
9. Is the evaluation process continuous? If not, establish schedules with deadlines which encourage a program renewal cycle.
10. Do the evaluation findings reflect a time dimension for implementation processes? If not, develop a program review technique which encourages systematic implementation.

We have discussed the implementation of findings as a segment of the evaluation process. The incorporation of evaluation findings can be enhanced or retarded by the disposition of the chief school administrator and the individual biases held by each of us. The implementation process contains stages of adoption which prescribe activities for installation. Individuals' perceptions of proposed changes dictate their reactions to them. Evalua-

tion findings must be communicated to potential users in clear, purposeful language which emphasizes their relative advantages. This is necessary because systematic implementation of evaluation findings demand commitment of people to ideas and a belief in planned change as a viable alternative to existing programs.

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VT 012 507
A Report of the National Center for World-of-Work Economic Education Programs.

Henderson State Coll., Arkadelphia, Ark. M.H. Russell Center for Economic Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Sep70 5p.For the Annual Meeting of the Committee of Affiliated Council and Center Directors of the Joint Council on Economic Education (2nd).

DESCRIPTORS - *VOCATIONAL EDUCATION; INFORMATION DISSEMINATION; INFORMATION STORAGE; *EDUCATION SERVICE CENTERS; RESOURCE MATERIALS; RESEARCH; EDUCATIONAL RESEARCHERS; *PROGRAM DEVELOPMENT; *ECONOMICS; *LEADERSHIP RESPONSIBILITY; ANNUAL REPORTS

ABSTRACT - The role of the M.H. Russell Center for Economic Education is to provide nationwide leadership in seeing that economic education makes an appropriate response by preparing people for the world of work. This leadership consists of carrying out many of the traditional functions of the Center, but concentrating attention on world-of-work programs. Specific activities of the Center have included inservice training programs and the development and distribution of materials explaining the contribution that economic education can make to vocational education. The cooperation of other centers and councils is requested to assure that economic education plays its rightful role in world-of-work programs. (JS)

VT 012 507

ED0 57254

A REPORT OF THE NATIONAL CENTER FOR WORLD-OF-WORK ECONOMIC EDUCATION PROGRAMS[1]

For the Second Annual Meeting of the Committee of Affiliated Council and Center Directors of the Joint Council on Economic Education

Role

Our Center has assumed nationwide responsibility for the dissemination and further development of information and materials about the worker or income-earner approach to economic education.[2] This human resource perspective is found in Larry Senesh's elementary level material, Our Working World[3] and the Manpower and Economic Education (MEE) program[4] of Bob Darcy and Phill Powell, which is designed for secondary schools.

The Center provides information and services for economic educators and other groups such as vocational educators and counselors who are interested in developing and improving world-of-work programs for the schools. Economic education can help men and women prepare for employment, and our job involves assisting educators in recognizing the valuable contribution which economic education can make to occupational preparation -- especially to orientation and exploration type programs.

We also help educators to identify economic education programs and materials which can be used for providing world-of-work training. For example, at the elementary level, Learning About People Working for You by John Maher and Stowell Symmes is a valuable publication for students. How to Make $50,000 by the Rehabilitation Research Foundation of Elmore, Alabama, is an example of an interesting programmed lesson for secondary school students.

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[1] M. H. Russell Center for Economic Education.

[2] See "Helping Youth Bridge the Gap from School to Work through Manpower and Economic Education" paper by Robert L. Darcy for more details on this approach to economic education. Available from the Russell Center.

[3] Lawrence Senesh, Our Working World, Science Research Associates. Program materials available for grades 1-3.

[4] Robert L. Darcy and Phillip E. Powell, Manpower and Economic Education, Joint Council on Economic Education. Student text and teacher manual available from JCEE. Information on other aspects of MEE program available from the Russell Center.

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Our library has world-of-work materials, and we do loan them to interested educators. Helping to develop new world-of-work materials for all levels of instruction is also one of the Center's concerns. We are also interested in evaluating both old and new programs and materials.

In addition, we provide consulting services in world-of-work programs to schools, state departments of education, colleges, and other groups in Arkansas and elsewhere in the nation. The Center also has been active in providing in-service and workshop training programs for teachers and others involved in implementing the MEE program.

In summary, we look upon our role as being one of providing nationwide leadership for economic educators and others who are interested in seeing that economic education makes an appropriate response to the challenge of preparing people for the world of work. This leadership consists of carrying out many of the traditional functions of the Center, but concentrating attention on world-of-work programs. We promote; consult; train teachers; collect, develop, and disseminate materials; research like other Centers; but we do so in a framework of our national responsibilities with respect to the world-of-work approach to economic education.

Activities

Most of the Center's activities during the past two years have revolved around our concern with world-of-work economic education programs. We have concentrated most of our attention on secondary school programs, because this is the educational level where we have the greatest amount of experience and expertise. The MEE program has been our primary interest; it offers an opportunity to make a major contribution to curriculum improvement with a minimal additional investment of resources.[5]

And this Center, like all the other Centers, cannot actually do all it should, because it continues to operate with an inadequate staff in view of its responsibilities and the challenge it is trying to meet. Most of our activities have been

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[5] See "Implementing the Manpower and Economic Education Program" paper for more details. Available from the Russell Center.

centered in Arkansas, since the State is the source of most of our funding, and because this is where the MEE program has had its greatest acceptance.

Specifically, we have done the following since last March in carrying out our responsibility as the national Center for world-of-work economic programs:

--promoted world-of-work economic education programs through nationwide mailings of materials to Council and Center directors; directors of vocational education Research Coordination Units; school systems using MEE program; economic education, counseling, and vocational education institute and workshop directors.

--fostered nationwide working relationships with vocational educators, guidance counselor educators, manpower agencies personnel, and others to promote the idea that economic education can be a valuable input in world-of-work programs. We also work with these people in planning, developing, and/or implementing new programs. For example, I am currently working with educators from Memphis, Tennessee; Oregon Board of Education; and Louisiana State Department of Education.

--provided consulting services by visitation, correspondence, or phone to schools, state departments of education, colleges, and governmental manpower agencies in Arkansas; Colorado; Washington; Ohio; Wyoming; Oklahoma; Baltimore, Maryland; Washington, D.C.; and elsewhere.

--held in-service training programs for MEE teachers in Little Rock, Ft. Smith, and Magnolia, Arkansas.

--presented a one-week workshop for MEE teachers in the Ft. Smith area.

--visited MEE classrooms in ten Arkansas schools.

--taught MEE class for three days in Westside Junior High School, Little Rock, using Life Career game.

--continued evaluation of MEE program throughout Arkansas with detailed work in Ft. Smith and Magnolia.

--proposed a study of vocational orientation programs for elementary and secondary schools to the Southern States Work Conference. This study was approved, and I was selected as chairman of the study group.

--developed materials for distribution which explain the contribution that economic education can make to vocational orientation[6] and other vocational education programs.[7]

--wrote a report on the strategy used in implementing the MEE program and the lessons we have learned.

--added to holdings of Center's library so that it has a good collection of curriculum and other materials relating to world of work.

--mailed out MEE TV program tapes and other library materials to more than 15 different states.

All the above activities have been carried out by a staff consisting of one full-time director, one full-time secretary, one unpaid part-time consultant (Bob Darcy, Professor of Economics, Colorado State University), and one unpaid part-time administrative and research associate (Mrs. Jean Powell). Without Bob and Jean's help, we would not have accomplished nearly as much. Their skills, dedication, and effort has contributed greatly to the Center's effectiveness.

Help

Centers and Councils could assist us in the job of making sure that economic education plays its rightful role in world-of-work programs by:

--promoting the idea that economic education has a role to play in these programs.

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[6] "Vocational Orientation, When and Where?"

[7] "Vocational Education, The Bridge Between Man and His Work".

--keeping informed on what is happening in vocational education and manpower activities.

--working with vocational educators, guidance educators, manpower agencies such as the State Employment Service, and business and labor leaders in planning, developing, and implementing programs. Show them what we have done in economic education, and tell them what we can do. Make it clear that everyone doesn't have to "reinvent the wheel".

--letting us know what is going on in your area so we might help and/or pass the information on to others.

--calling upon us for help in planning, developing, and implementing programs or in providing personal contacts and/or materials.

--following up on leads which I send you. If there are people in your area who write me and need help which you can supply, I will let you know about them.

With the help of the Joint Council and the Affiliated Councils and Centers, we can generate enough concern, resources, and effort to assure that economic education is an active ingredient in world-of-work programs.

Phillip E. Powell
Director

M. H. RUSSELL CENTER FOR ECONOMIC EDUCATION

Henderson State College

Arkadelphia, Arkansas 71923

VT 012 508
Occupational Employment Statistics, 1960-67.

Bureau of Labor Statistics (DOL), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
Bulletin 1643
Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (L2.3:1643, $.50).
PUB DATE - 70 46p.

DESCRIPTORS - *EMPLOYMENT STATISTICS; *EMPLOYMENT TRENDS; *OCCUPATIONAL SURVEYS; EMPLOYMENT PATTERNS; *NATIONAL SURVEYS; *LABOR FORCE

ABSTRACT - Data for the period 1960-1967 were compiled from a national sampling of employer reports, licensing statistics, professional society membership records, and household interviews. Eighteen tables present data tools on average employment by occupational groups, selected professional groups, industries, size of establishment, and government agencies. Two earlier editions of this report which together cover the period from 1947 to 1966 are available as ED 023 853, or VT 006 374 (ARM Summer 1969) and VT 006 692 (ARM Summer 1970). (BH)

VT 012 508

ED0 57254

OCCUPATIONAL EMPLOYMENT STATISTICS, 1960–67

BULLETIN 1643

U.S. DEPARTMENT OF LABOR

Bureau of Labor Statistics

1970

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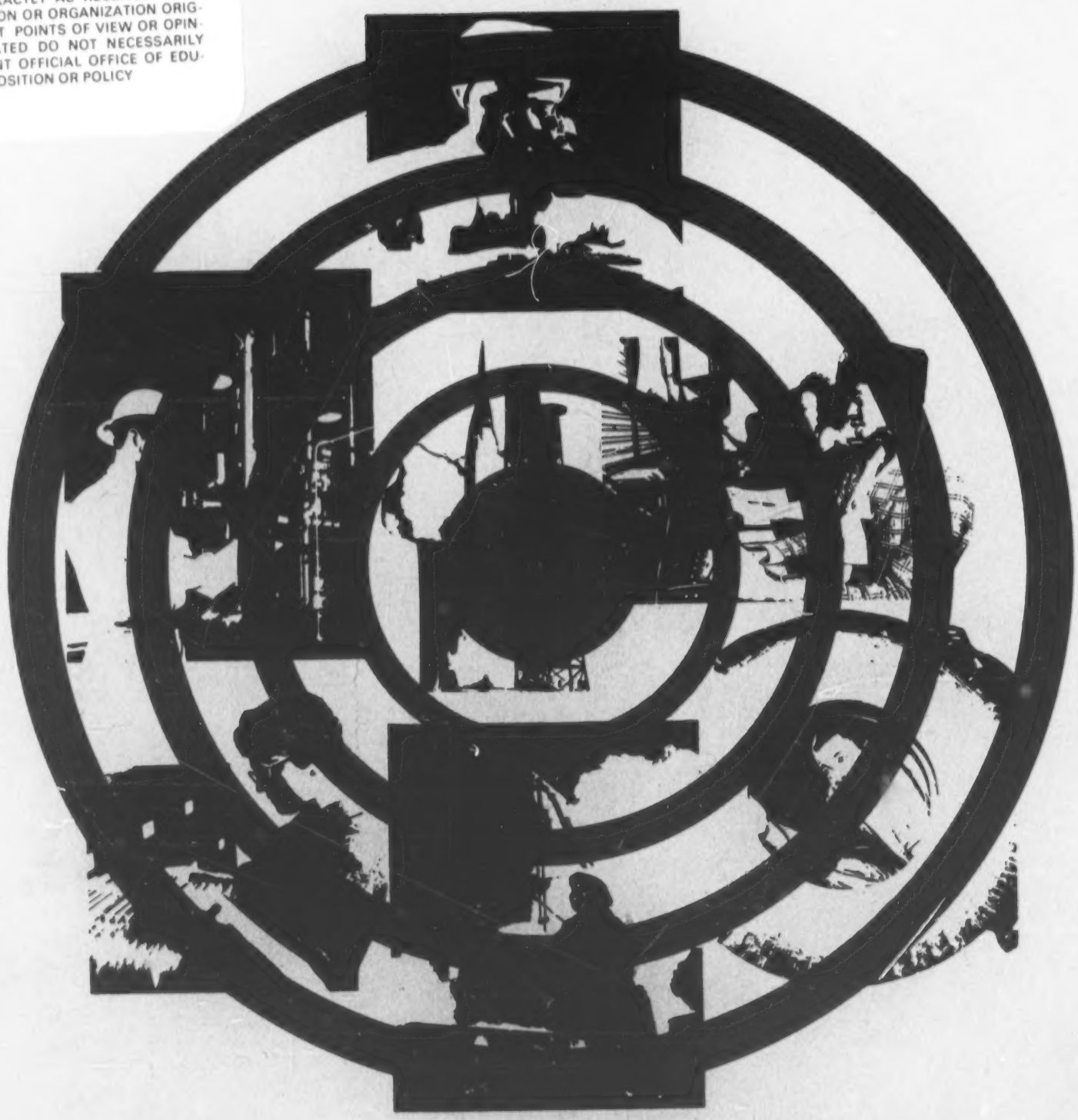

VT012508

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OCCUPATIONAL EMPLOYMENT STATISTICS, 1960–67

BULLETIN 1643

U.S. DEPARTMENT
OF LABOR
George P. Shultz,
Secretary

BUREAU OF
LABOR STATISTICS
Geoffrey H. Moore,
Commissioner

1970

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price 50 cents

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PREFACE

This bulletin is the third in a series of bulletins and reports. It covers the period 1960 through 1967. The first two publications, *Occupational Employment Statistics, Sources and Data* (Report 305, June 1966) and *Occupational Employment Statistics 1960-66* (Bulletin 1579, January 1968), together presented information on occupational employment statistics from 1947 to 1966. The purpose of this bulletin is twofold. First, to provide a handy reference to the various sources of occupational employment statistics and second, to make available in one place the more recent firgures on major occupations. This information should be useful to the ever-increasing number of researchers and students of the manpower and employment fraternity concerned with the changing occupational composition of the labor force and its implications for training programs, counseling, and manpower policy.

This bulletin was prepared in the Bureau's Office of Manpower and Employment Statistics by Douglas F. Schmude under the supervision of Richard E. Dempsey. George Silvestri developed the occupational matrix segment and Arthur Gartaganis provided technical assistance to the bulletin.

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OCCUPATIONAL EMPLOYMENT STATISTICS 1960-67

Chapter 1. Introduction

The need for reliable and timely statistics on the occupational composition of the work force has long been recognized. Nearly three decades ago Alba Edwards performed a vital role in focusing attention on occupational statistics and his influence was largely responsible for the improvements and expanded use of the occupational data collected in the decennial censuses of 1950 and 1960. In 1940, he stated the following evaluation that emphasizes the economic and social importance of information on occupational employment:

> The most nearly dominant single influence in a man's life is probably his occupation. More than anything else, perhaps, a man's occupation determines his course and his contribution in life. And when life's span is ended, quite likely there is no other single set of facts that will tell so well the kind of man he was and the part he played in life as will a detailed and chronological statement of the occupation or occupations he pursued. Indeed, there is no other single characteristic that tells so much about a man and his status--social, intellectual, and economic--as does his occupation. A man's occupation not only tells, for each workday, what he does during one-half of his waking hours, but it indicates, with some degree of accuracy, his manner of life during the other half--the kind of house he will live in, and even, to some extent, the kind of food he will eat. And, usually, it indicates, in some degree, the cultural level of his family. In similar manner there probably is no single set of closely related facts that tell so much about a nation as do detailed statistics of the occupations of its workers. The occupations of a people influence directly their lives, their customs, their institutions—indeed, their very numbers. In fact, the social and economic status of a people is largely determined by the social and the economic status of its gainful workers. And, were the figures available, the social and industrial history of a people might be traced more accurately through detailed statistics of the occupations of its gainful workers than through records of its wars, its territorial conquests, and its political struggles. [1]

What later observers have noted is that the Nation's economic growth depends greatly upon the way it trains and uses its manpower resources. This development culminated in recent legislation in the vocational education fields which specifically calls for the development of estimates of occupational manpower requirements as a basic tool in planning vocational programs. It is obvious that if future occupational manpower requirements are to be prepared in a reliable manner, occupational data are needed more often than once in 10 years, and with a degree of detail meaningful to vocational training and education specialists. Unfortunately, the present sources of occupational statistics are inadequate to meet these demands. However, the Bureau is making available what information it possesses and is helping Federal, State, and local manpower agencies to make maximum use of these data.[2]

The term "occupation" as used in this bulletin means an aggregation of similar types of work. At the broadest level it may mean a grouping of all professional and technical jobs in all the skilled crafts; at a more detailed level it may mean all the engineering jobs or all the metalworking crafts. At a fairly specific level it may mean a distinct occupation--an electrical engineer or a patternmaker. In general, it is the same use of the term as is found in the decennial census of population, but not all the occupations shown in this bulletin were shown separately in the 1960 census publications, for example, "line, cable and conduit craftsmen."

The term occupation in employment statistics refers to the job at which a person is working rather than the specialty, craft, or discipline for which he considers himself best trained. Thus, a person trained as a sociologist but who was reported to be working as a salesman is classified with sales jobs rather than with professional jobs.

[1] Alba M. Edwards, *Comparative Occupation Statistics for the United States, 1870 to 1940*, Washington, D.C., 1943. (U.S. Bureau of Census, Sixteenth Census of the U.S.: 1940, Population.)

[2] *Tomorrow's Manpower Needs* (Bulletin 1606, Washington, D.C.), February 1969.

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Many of the estimates in table 1 were derived directly or indirectly from 1960 census statistics, but have been updated by a variety of techniques so as to reflect the occupational and industrial trends. Overall controls for the estimates at the broadest occupational levels were obtained from household-type data collected in the monthly sample survey of the labor force. At the detailed levels, a typical procedure involved the application of occupational ratios [3] to current industrial employment statistics. In other words, current (1967) estimates of employment by industry, known to be highly accurate, were used as weights against which the specific occupational ratios were applied. Following this procedure occupational employment estimates are made in each industry and the results summed to national totals. (See discussion in chapter 3.)

Various sources of data other than the census were utilized when they appeared to be reliable, and these sources are presented in later chapters. As a general rule, data on occupations collected directly from employing organizations are considered preferable, if minimum statistical standards have been observed. This preference is based on the assumption that job functions are created by the employer and therefore, are best known to him. If we were interested primarily in the craft or discipline for which a person has been trained, the person himself would be the logical source. For this reason, the census data are considered merely a "proxy" for the type of information which the Bureau of Labor Statistics (BLS) is trying to develop for occupations. Since the overall controls for the estimates at the broadest occupational levels were obtained from households, they may or may not reflect the actual jobs as might be reported by employers.

Some of the statistics in this bulletin are obtained from the Bureau's own direct collection programs, which are expected to cover more industries and occupations in the future. In the past, this work has been mostly in the scientific and engineering professions (chapter 8) but in 1968 it was extended to blue-collar and other jobs in some manufacturing industries (chapter 4).

Table 1 presents the full occupational detail of the 1960 and 1967 industry-occupational employment matrices at the broad industry level. The industry employment estimates presented in the matrix are based on the total employment concept and differ in this respect from other BLS employment data. In addition to private wage and salary employment, the matrix industries also include self-employed persons, unpaid family workers, and Federal, State, and local government workers employed in activities having counterparts in private industry (for example, Federal Government employees at naval shipyards are included in the matrix durable goods industry). Only government workers involved in activities unique to government are classified into the public administration industry. The matrix estimates are also adjusted to exclude the secondary jobs of multiple jobholders.

In the previous edition of this bulletin, annual averages of employment for selected occupations from the monthly household survey were presented. These data are not included in this edition since more detail can be obtained from table 1. Chapter 3 is devoted to a detailed description of the industry-occupational employment matrix.

Caution should be exercised when comparing the 1960 and 1967 occupational estimates within the major industry groups in table 1. Small changes between 1960 and 1967 estimates should not convey the notion of general reliability but rather should indicate the general level and position the estimates hold in relation to the other occupational estimates within the major industry groups. In general, the smaller the occupational estimates the less the reliability. Small occupational estimates derived independently from highly reliable sources would be more reliable than those which were not.[4] Obviously, procedural factors, such as rounding, have a greater effect upon a small occupational estimate and its change than upon a large occupational estimate. The Bureau's staff will answer any inquiries regarding the reliability of specific occupational estimates.

Table 2 presents comprehensive occupational data on a specific industry collected directly from employers by BLS through a mail survey. This table contains the results of the September 1967 and 1968 surveys of occupational employment in the communication equipment industry, except telephone and telegraph. Certain occupations were subject to a relatively high degree of sampling error; therefore, the employment data should be used with

[3] The ratio is represented by a fraction, the numerator being the employment in a given occupation in a given industry, and the denominator being the total employment in all occupations in that industry.

[4] For example, engineers, scientists, and technicians data used from the 1960 and 1967 surveys of scientific and technical personnel in industry.

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caution. Preliminary analysis showed no significiant response error.

Occupational employment data for seven health occupations, registered architects and foresters are presented in table 3. These data are not subject to sampling error since the data, except where indicated, are based upon licensure data and membership records of professional societies. Response error is generally small.

Tables 4 through 10 and 12 through 18 present occupational employment data collected from industry establishments. These data may differ somewhat from similar occupational estimates shown in table 1 because of time period difference, elimination of double counting, and various other minor adjustments to insure data comparability in the industry-occupational matrices. Table 4 presents data on elementary and secondary school teachers in public and nonpublic schools as well as college instructional staff and librarians. Occupational employment statistics for the regular industries, such as airlines, railroads, and telephone communications are shown in table 5. Tables 6 through 10 show employment statistics for engineers, scientists, and technicians by industry and occupation during the period 1961 through 1967. Tables 12 through 15 show employment in selected professional and technical occupations by universities and other research organizations in 1965 and 1967. White-collar employment by occupation in the Federal Government excluding the Post Office, is presented in table 16. Table 17 gives data for the Post Office separately. Table 18 shows occupational employment data in State governments for January 1964 and January 1967.

Additional occupational information will be forthcoming as the Bureau expands its direct collection of occupational employment statistics. These data will materially improve the identification of occupational patterns for all major industries.

Table 1. Number of employed persons by occupation and industry, 16 years of age and older, 1960 and 1967

(In thousands)

Occupation	Total		Agriculture, forestry, and fisheries		Mining		Construction		Durable goods, manufacturing		Nondurable goods, manufacturing	
	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967
Total, all industries	65,778.0	74,372.0	5,590.9	3,937.7	719.8	628.4	4,056.3	4,335.8	9,701.0	11,666.2	7,442.7	8,050.6
Professional, technical, and kindred	7,469.0	9,879.0	58.6	57.4	60.2	58.1	225.9	241.8	944.5	1,209.4	420.6	479.1
Engineers	810.0	1,028.4	1.1	1.4	19.5	17.7	86.2	90.4	413.9	512.6	69.0	86.0
Aeronautical	45.8	62.4	-	-	-	-	-	-	40.1	49.6	.1	.1
Chemical	39.6	48.7	-	-	1.9	1.5	.3	.2	8.5	10.2	24.0	29.4
Civil	146.0	167.3	.6	1.1	1.3	1.3	75.8	80.4	9.7	11.3	3.6	3.8
Electrical	174.7	220.5	-	-	1.2	1.0	2.5	2.1	109.9	133.0	3.2	3.6
Industrial	83.2	111.0	-	-	1.2	1.6	.9	.7	57.1	72.4	10.5	14.8
Mechanical	153.5	201.2	-	.1	1.4	1.8	3.7	3.1	103.6	135.0	13.8	17.7
Metallurgical	20.1	24.0	-	-	.3	.5	-	-	16.9	18.4	.8	1.2
Mining	14.0	13.9	-	-	10.7	8.3	.1	.1	.4	.7	1.1	1.2
Sales	50.1	64.6	-	-	1.0	1.0	1.2	.8	32.0	37.2	3.7	4.6
Other	83.0	114.8	.5	.2	.5	.7	1.7	3.0	35.7	44.8	8.2	9.6
Medical and other health workers	1,321.4	1,625.2	15.1	17.2	.3	.2	.3	-	10.0	7.2	6.7	6.2
Dentists	86.7	92.2	-	-	-	-	-	-	-	-	-	-
Dietitians and nutritionists	27.1	30.0	-	-	-	-	-	-	.3	.5	.2	.3
Nurses, professional	495.6	629.0	.1	-	.1	.1	.1	-	5.6	4.6	3.2	2.4
Optometrists	17.0	17.0	-	-	-	-	-	-	.1	-	-	-
Osteopaths	13.1	12.1	-	-	-	-	-	-	-	-	-	-
Pharmacists	113.8	122.4	-	-	-	-	-	-	.1	.2	1.8	2.1
Physicians and surgeons[1]	220.9	259.3	.1	-	.1	.1	.1	-	.8	.9	.6	.5
Psychologists	17.0	27.0	-	-	-	-	-	-	.3	.3	.1	.1
Technicians, medical and dental	140.8	228.8	.2	-	.1	-	.1	-	2.8	.7	.6	.5
Veterinarians	18.6	23.0	14.7	17.2	-	-	-	-	-	-	.1	.2
Other[2]	170.8	184.4	-	-	-	-	-	-	-	-	.1	.1
Teachers	1,945.1	2,706.4	.1	-	.1	.1	.6	.3	2.3	2.4	1.0	1.2
Elementary	977.9	1,197.7	-	-	-	-	-	-	-	-	-	-
Secondary	602.7	890.3	-	-	-	-	-	-	-	-	-	-
College[3]	206.2	399.9	-	-	-	-	-	-	-	-	-	-
Other	158.3	218.5	.1	-	.1	.1	.6	.3	2.3	2.4	1.0	1.2
Natural scientists	235.6	305.7	10.3	10.8	12.4	14.0	1.7	2.3	38.4	48.9	68.3	78.0
Chemists	91.0	111.9	.9	.2	1.3	1.0	.5	.3	16.0	18.1	47.5	55.3
Agricultural scientists	30.0	35.7	7.7	8.3	-	-	.1	.1	.8	.4	4.3	3.2
Biological scientists	29.5	35.6	1.6	2.2	-	-	.1	.1	.3	.7	7.3	6.8
Geologists and geophysicists	18.0	21.9	-	-	10.8	12.3	.6	1.0	.6	.8	1.0	.4
Mathematicians	20.7	38.0	-	-	.1	.3	.3	.6	8.3	16.5	1.2	2.7
Physicists	24.0	28.2	-	-	.2	.2	-	-	9.7	9.7	1.5	2.5
Other	22.4	34.4	.1	.1	-	.2	.1	.2	2.7	2.7	5.5	7.1
Social scientists	45.7	57.2	.1	.1	.3	.4	.5	.4	6.7	8.0	4.3	4.5
Economists	17.1	22.1	.1	.1	.1	.1	.1	-	2.9	3.5	2.0	2.0
Statisticians and actuaries	22.8	26.9	-	-	.2	.2	.4	.4	3.6	4.3	2.0	2.1
Other	5.8	8.2	-	-	-	.1	-	-	.2	.2	.3	.4
Technicians, except medical and dental	730.9	911.7	6.0	8.3	15.7	11.6	91.7	98.6	261.4	324.3	70.3	71.6
Draftsmen	235.0	294.3	.2	.1	5.6	4.4	26.3	28.1	117.5	131.7	11.1	9.4
Surveyors	44.0	41.9	.5	.5	1.7	1.4	13.5	15.1	.4	1.2	.3	.3
Air traffic controllers	12.0	13.5	-	-	-	-	-	-	-	-	-	-
Radio operators	17.0	20.5	-	.1	.2	.2	.3	.3	.5	.7	.1	.1
Electrical and electronic	117.6	187.7	.1	.2	.5	1.2	2.9	5.3	64.7	91.7	.7	3.6
Other engineering and physical scientists	238.0	258.0	.8	2.2	6.8	3.1	46.5	47.0	75.6	95.3	43.2	38.5
Other	69.3	95.8	4.4	5.2	.9	1.3	2.2	2.8	2.7	3.7	14.9	19.7
Other professional, technical, and kindred	2,380.3	3,244.4	25.9	19.6	11.9	14.1	44.9	49.8	211.8	306.0	201.0	231.6
Accountants and auditors	429.3	556.2	1.0	.9	7.3	8.8	10.9	12.6	69.5	89.5	42.7	50.5
Airplane pilots and navigators	28.5	51.1	1.6	1.8	.4	.6	.4	.5	1.9	3.0	.6	.9
Architects	30.0	32.5	.1	.1	-	-	1.4	1.3	.8	.8	.2	.3
Clergymen	200.0	202.0	-	-	-	-	-	-	-	-	.1	.1
Designers, except design draftsmen	66.0	87.5	.6	.6	.1	.1	3.6	4.3	23.0	30.0	14.2	17.5
Editors and reporters	100.0	103.3	.1	-	-	-	.2	.1	4.0	4.5	69.6	68.1
Lawyers and judges	225.0	270.3	.1	.1	1.4	1.4	1.1	1.2	3.8	4.7	2.5	2.9
Librarians	80.0	116.4	.1	.1	-	.1	.1	-	.8	1.5	.6	.6
Personnel and labor relations workers	100.0	140.0	.1	.1	1.0	1.1	1.1	1.6	23.2	30.0	11.7	14.9
Photographers	51.0	54.0	-	-	.1	.1	.2	.1	4.1	4.6	10.8	12.6
Social and welfare workers	105.0	155.4	-	-	-	-	-	-	.2	.2	.1	.1
Teachers, workers in arts and entertainment	470.0	632.8	4.5	3.1	-	-	.6	.8	24.3	28.3	20.1	23.5
Other	495.5	842.9	17.7	12.8	1.6	1.9	25.3	27.3	56.2	108.9	27.8	39.6
Managers, officials, and proprietors	7,067.0	7,495.0	31.1	23.0	68.0	63.7	471.4	438.7	557.3	623.9	512.6	516.7
Conductors, railroad	43.3	43.0	-	-	-	-	.1	.1	.6	.6	.1	.1
Officers, pilots, engineers, ship	35.0	35.0	1.4	1.5	.7	.8	1.3	1.2	.6	.7	.5	.5
Creditmen	50.0	60.6	-	-	.2	.2	.1	.1	3.3	4.1	5.5	6.0
Purchasing agents	115.0	145.7	.3	.2	1.6	1.8	1.0	1.1	45.7	60.3	21.7	23.9
Postmasters and assistants	39.2	37.9	-	-	-	-	-	-	-	-	-	-
Other	6,784.5	7,172.8	29.4	21.3	65.5	60.9	468.9	436.2	507.1	558.2	484.8	486.2

See footnotes at end of table.

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Table 1. Number of employed persons by occupation and industry, 16 years of age and older, 1960 and 1967—Continued

(In thousands)

Occupation	Transportation, communication, and public utilities		Wholesale and retail trade		Finance, insurance, and real estate		Private households		Services, except private households		Government public administration	
	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967
Total employment	4,508.4	4,756.9	13,208.6	14,509.3	2,832.2	3,408.7	2,303.1	2,012.7	12,206.2	16,928.2	3,208.8	4,137.5
Professional, technical, and kindred	241.1	307.0	257.1	320.6	77.1	104.0	3.9	2.2	4,730.9	6,458.0	449.1	641.4
Engineers	51.7	61.6	15.4	24.8	2.6	4.4	-	-	91.9	152.8	58.7	76.7
Aeronautical	.4	.5	-	-	-	-	-	-	1.7	3.1	3.5	9.1
Chemical	.6	.6	.5	.6	-	-	-	-	3.3	5.2	.5	1.0
Civil	10.3	10.6	.9	1.4	.7	1.0	-	-	21.7	31.9	21.4	24.5
Electrical	26.9	33.2	1.1	1.1	.1	-	-	-	19.1	29.9	10.7	16.6
Industrial	2.3	2.9	.8	1.8	1.5	2.9	-	-	6.2	10.7	2.7	3.2
Mechanical	6.2	7.1	2.1	3.0	.1	.2	-	-	16.9	25.3	7.6	7.9
Metallurgical	.4	.6	.1	.1	-	-	-	-	1.2	2.6	.4	.6
Mining	.2	.6	.2	.7	.1	.1	-	-	.6	1.5	.6	.7
Sales	1.3	1.6	7.7	12.2	-	-	-	-	3.2	7.2	-	-
Other	3.1	3.9	2.0	3.9	.1	.2	-	-	19.9	35.4	11.3	13.1
Medical and other health workers	1.5	1.1	111.3	114.4	1.2	1.2	2.6	1.4	1,158.1	1,459.6	14.3	16.7
Dentists	-	-	.1	.1	-	-	-	-	86.1	91.4	.5	.7
Dietitians and nutritionists	.1	.1	1.0	1.7	.1	.2	-	-	25.0	26.4	.4	.8
Nurses, professional	.6	.5	.9	.8	.6	.5	2.4	1.3	478.3	615.8	3.7	3.0
Optometrists	-	-	3.2	2.7	-	-	-	-	13.7	14.3	-	-
Osteopaths	-	-	-	-	-	-	-	-	13.1	12.1	-	-
Pharmacists	-	-	104.7	107.0	-	-	-	-	6.4	12.1	.8	1.0
Physicians and surgeons [1]	.4	.4	.5	.5	.4	.4	-	-	215.6	253.8	2.3	2.7
Psychologists	.1	-	.1	-	-	-	-	-	14.4	23.9	2.0	2.7
Technicians, medical and dental	.2	.1	.5	1.5	.1	.1	.1	-	134.5	224.1	1.6	1.8
Veterinarians	-	-	.1	-	-	-	-	-	1.8	2.1	2.3	3.5
Other [2]	.1	-	.2	.1	-	-	.1	.1	169.6	183.6	.7	.5
Teachers	1.7	1.7	5.2	6.1	.5	.6	.5	.3	1,922.1	3,680.4	11.0	13.3
Elementary	-	-	-	-	-	-	.2	.1	977.1	1,197.2	.6	.4
Secondary	-	-	-	-	-	-	.1	-	601.9	889.3	.7	1.0
College [3]	-	-	-	-	-	-	-	-	206.2	399.9	-	-
Other	1.7	1.7	5.2	6.1	.5	.6	.2	.2	136.9	194.0	9.7	11.9
Natural scientists	2.2	2.7	2.5	10.0	.7	1.4	.1	-	61.9	85.8	37.1	51.8
Chemists	1.1	1.1	1.4	4.3	-	-	-	-	18.1	25.0	4.2	6.6
Agricultural scientists	.3	.3	-	1.4	-	.1	.1	-	3.6	7.1	13.1	14.8
Biological scientists	-	.1	.1	.3	-	-	-	-	14.8	16.9	5.3	8.5
Geologists and geophysicists	.5	.4	-	.2	-	-	-	-	2.1	3.3	2.4	3.5
Mathematicians	.2	.7	.8	2.3	.6	1.2	-	-	4.7	8.3	4.5	5.4
Physicists	-	-	.1	.3	-	-	-	-	8.4	10.3	4.1	5.2
Other	.1	.1	.1	1.2	.1	.1	-	-	10.2	14.9	3.5	7.8
Social scientists	4.0	3.9	3.0	3.4	5.5	6.7	-	-	9.4	14.1	11.9	15.7
Economists	1.3	1.3	1.6	1.8	1.5	2.1	-	-	3.8	5.6	3.7	5.6
Statisticians and actuaries	2.6	2.5	1.4	1.6	3.9	4.5	-	-	3.5	5.0	5.2	6.3
Other	.1	.1	-	-	.1	.1	-	-	2.1	3.5	3.0	3.8
Technicians, except medical and dental	53.0	71.4	20.6	31.1	2.0	1.5	-	-	135.9	198.5	74.3	94.8
Draftsmen	9.3	10.1	5.4	4.8	.1	.7	-	-	50.9	97.6	6.6	7.2
Surveyors	3.4	3.7	.3	-	.5	-	-	-	16.0	15.2	7.4	4.5
Air traffic controllers	-	-	-	-	-	-	-	-	-	-	12.0	13.5
Radio operators	7.6	8.7	.2	.1	.1	-	-	-	.4	.6	7.6	9.7
Electrical and electronic	21.8	25.9	3.6	17.1	.5	.1	-	-	10.3	23.6	12.5	19.0
Other engineering and physical scientists	7.5	17.9	6.5	2.6	.5	.4	-	-	33.1	24.9	17.5	26.1
Other	3.4	5.1	4.6	6.5	.3	.3	-	-	25.2	36.4	10.7	14.8
Other professional, technical, and kindred	127.0	164.6	99.1	130.8	64.6	88.2	.7	.5	1,351.6	1,966.8	241.8	372.4
Accountants and auditors	31.9	38.4	47.6	58.4	36.3	48.2	.1	.1	124.1	169.8	57.9	79.0
Airplane pilots and navigators	19.5	37.5	.5	.8	.1	.1	-	-	1.2	2.5	2.3	3.4
Architects	.2	.2	.3	.2	.3	.3	-	-	25.5	28.0	1.2	1.3
Clergymen	-	-	-	-	-	-	.1	-	199.7	201.8	.1	.1
Designers, except design draftsmen	1.2	1.4	5.8	7.3	.1	.2	-	-	16.9	25.4	.5	.7
Editors and reporters	4.5	4.5	1.8	2.2	.6	.7	-	-	15.8	19.4	1.4	3.8
Lawyers and judges	2.7	2.7	1.6	2.0	8.4	9.9	-	-	167.8	200.0	35.6	45.4
Librarians	.3	.3	.2	.2	.2	.3	-	-	76.0	111.3	1.7	2.0
Personnel and labor relations workers	7.3	8.8	8.1	11.6	4.4	6.1	-	-	15.0	25.1	28.1	40.7
Photographers	1.1	1.2	1.5	1.6	.3	.2	-	-	29.7	30.1	3.2	3.5
Social and welfare workers	.1	.1	.1	-	.2	.3	-	-	42.9	62.1	61.4	42.6
Teachers, workers in arts and entertainment	7.3	8.9	17.5	23.2	.5	.6	.3	.2	389.4	537.3	5.5	6.9
Other	50.9	60.6	14.1	23.3	13.2	21.3	.2	.2	247.6	454.0	40.9	93.0
Managers, officials, and proprietors	376.4	389.1	3,231.5	3,129.0	578.3	721.3	1.0	.7	929.9	1,201.3	309.5	387.6
Conductors, railroad	42.2	41.9	-	-	.1	.1	-	-	-	-	.2	.2
Officers, pilots, engineers, ship	28.4	28.4	.4	.3	-	-	.9	.7	.4	.5	.4	.4
Creditmen	1.0	.9	29.2	34.0	7.9	11.1	-	-	2.8	4.2	-	-
Purchasing agents	4.3	4.7	20.2	23.7	3.1	4.1	-	-	10.5	16.8	6.6	9.1
Postmasters and assistants	-	-	-	-	-	-	-	-	-	-	39.2	37.9
Other	300.5	313.2	3,181.7	3,071.0	567.2	706.0	.1	-	916.2	1,179.8	263.1	340.0

See footnotes at end of table.

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Table 1. Number of employed persons by occupation and industry, 16 years of age and older, 1960 and 1967—Continued

(In thousands)

Occupation	Total		Agriculture, forestry, and fisheries		Mining		Construction		Durable goods, manufacturing		Nondurable goods, manufacturing	
	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967
Clerical and kindred workers	9,762.0	12,333.0	33.1	27.3	64.2	67.3	175.1	199.1	1,211.9	1,438.6	924.3	1,036.6
Stenographers, typists, and secretaries	2,383.0	3,190.0	9.1	7.2	21.3	22.9	51.2	59.0	319.0	392.8	220.5	258.9
Office-machine operators	375.2	482.2	.3	.2	1.1	1.9	1.7	2.1	50.9	68.7	47.4	55.4
Other clerical and kindred	7,003.8	8,660.8	23.7	19.9	41.8	42.5	122.2	138.0	842.0	977.1	656.4	722.3
Accounting clerks	382.7	440.5	1.1	.9	3.1	3.1	21.1	24.5	44.0	50.1	45.0	45.8
Bookkeepers, hand	667.3	769.5	8.2	6.7	5.0	5.0	27.5	31.0	42.3	44.2	55.2	58.0
Bank tellers	127.0	189.6	-	-	-	-	-	-	-	-	-	-
Cashiers	478.8	691.4	.4	.1	.1	.1	.3	.4	3.7	4.2	6.5	6.6
Mail carriers	205.5	230.2	-	-	-	-	-	-	-	-	-	-
Postal clerks	242.7	295.6	-	-	-	-	-	-	-	-	-	-
Shipping and receiving clerks	325.0	371.5	.6	.2	.7	.9	1.0	.8	103.6	120.9	101.1	106.6
Telephone operators	355.2	388.9	.1	-	.7	.7	1.6	1.6	13.9	15.2	14.0	14.5
Other	4,219.6	5,283.6	13.3	12.0	32.2	32.7	70.7	79.7	634.5	742.5	434.6	490.8
Salesworkers	4,224.0	4,525.0	8.3	5.6	3.0	3.1	11.9	12.5	175.7	198.6	301.3	306.9
Insurance agents	365.0	407.0	-	-	-	-	-	-	-	-	-	-
Real estate agents	195.0	205.0	-	-	.1	.1	.5	.6	-	-	.1	.1
Other	3,664.0	3,913.0	8.3	5.6	2.9	3.0	11.4	11.9	175.7	198.6	301.2	308.8
Craftsmen, foremen, and kindred	8,554.0	9,845.0	27.4	27.6	172.8	162.9	2,119.7	2,307.0	2,187.4	2,633.1	1,079.0	1,163.1
Construction craftsmen	2,552.0	2,763.0	7.9	7.3	44.5	40.3	1,803.7	1,931.2	260.2	290.5	81.3	80.0
Carpenters	832.0	840.0	4.2	3.9	3.6	2.8	656.5	648.5	62.9	67.1	15.5	13.3
Brickmasons and tile setters	186.0	209.7	.3	.4	.7	.7	162.8	183.2	11.9	12.4	2.0	2.1
Cement and concrete finishers	46.0	54.1	-	-	-	-	45.0	53.1	.3	.3	.2	.2
Electricians	359.0	406.5	.2	.1	11.0	9.4	137.0	166.4	89.4	101.8	31.3	31.6
Excavating, grading machine operators	245.0	267.1	2.1	1.9	26.0	24.6	184.8	203.2	9.2	8.9	3.2	3.7
Painters and paperhangers	416.0	466.5	.9	.9	1.2	.9	299.0	324.3	22.4	23.4	3.6	3.3
Plasterers	50.0	52.3	-	-	-	-	47.5	49.2	.3	.3	.2	.2
Plumbers and pipefitters	303.0	335.0	.2	.1	1.8	1.7	186.9	209.5	38.3	44.1	24.6	24.7
Roofers and slaters	50.0	53.2	-	-	-	-	46.7	49.6	.6	.6	.4	.5
Structural metalworkers	65.0	78.6	-	-	.2	.2	37.5	44.2	24.9	31.6	.3	.4
Foremen, n.e.c	1,137.0	1,427.0	5.6	6.3	39.7	41.7	90.6	118.3	414.3	541.0	297.9	345.0
Metalworking craftsmen, except mechanics	1,090.0	1,260.0	.5	.2	10.0	8.1	48.2	56.9	874.9	1,032.2	64.4	71.8
Machinists and related occupations	495.3	575.7	.3	.2	3.8	3.6	2.8	3.0	413.7	493.6	29.4	32.6
Blacksmith, forgemen, and hammermen	33.6	31.9	.2	-	4.9	3.4	1.1	1.5	16.5	17.3	.9	1.0
Boilermakers	24.1	24.8	-	-	.6	.4	4.0	4.8	10.8	11.6	3.3	3.1
Heat treaters, annealers	20.4	23.6	-	-	-	-	.2	.1	20.0	23.2	-	-
Millwrights	69.0	78.3	-	-	.4	.4	5.0	6.8	43.1	48.6	18.5	20.3
Molders, metal, except coremakers	54.2	60.3	-	-	-	-	.1	-	53.9	60.0	.1	.2
Patternmakers, metal and wood	40.4	48.4	-	-	-	-	.1	-	36.7	43.1	1.3	1.8
Rollers and roll hands	31.5	32.7	-	-	-	-	.1	.1	31.2	32.4	-	-
Sheet-metal workers	138.5	161.3	-	-	.1	.1	34.6	40.5	77.4	92.1	4.1	3.8
Toolmakers, diemakers, and setters	183.0	223.0	-	-	.2	.2	.2	.1	171.6	210.3	6.8	9.0
Mechanics and repairmen	2,014.0	2,539.0	10.7	11.6	28.6	32.0	96.3	102.8	319.8	419.5	167.9	209.4
Air conditioning, heating and refrigeration	62.7	111.2	-	-	.1	.2	18.4	38.4	5.6	11.7	3.1	5.3
Airplane mechanics and repairmen	111.6	155.0	.3	.6	.1	.1	-	-	38.7	52.4	.3	.4
Motor vehicle mechanics	678.9	802.6	1.2	1.1	1.3	1.5	5.8	6.6	35.9	38.1	8.5	9.0
Office machine mechanics	51.0	73.4	-	-	-	-	-	-	6.0	9.1	.3	.3
Radio and television mechanics	103.3	118.5	.1	.1	.1	.2	.8	.8	6.7	9.6	.1	.1
Railroad and car shop mechanics	39.2	37.0	-	-	.1	.1	.1	-	1.2	1.6	.1	.1
Other	967.3	1,241.3	9.1	9.8	26.9	29.9	71.2	57.0	225.7	297.0	155.5	194.2
Printing trades craftsmen	302.0	311.5	-	-	.1	.1	.3	.3	13.0	15.0	271.1	273.9
Compositors and typesetters	182.5	178.0	-	-	.1	.1	.1	.1	5.2	5.5	165.1	156.8
Electrotypers and stereotypers	9.0	6.5	-	-	-	-	-	-	.1	.2	8.8	6.2
Engravers, except photoengravers	10.9	12.7	-	-	-	-	.1	-	4.0	4.6	5.5	6.6
Photoengravers and lithographers	24.2	33.0	-	-	-	-	-	-	1.6	2.1	21.5	29.5
Pressmen and plate printers	75.4	81.3	-	-	-	-	.1	.1	2.1	2.6	70.2	74.8
Transportation and public utility craftsmen	373.8	401.8	.1	.1	1.4	1.4	7.3	10.7	8.5	14.6	.9	1.1
Line and servicemen, telephone and power	285.7	336.9	.1	.1	.1	.1	7.2	10.5	6.2	11.7	.5	.7
Locomotive engineers	46.5	43.6	-	-	1.2	1.2	.1	.1	2.1	2.7	.4	.4
Locomotive firemen	41.6	21.3	-	-	.1	.1	-	.1	.2	.2	-	-
Other craftsmen and kindred	1,085.2	1,142.7	2.6	2.1	48.5	39.3	73.3	86.8	296.7	320.3	195.5	181.9
Bakers	102.5	100.0	-	-	.1	.1	.2	.1	.2	.2	69.7	62.4
Cabinetmakers	66.0	67.1	-	-	-	-	6.3	6.7	35.5	36.2	.8	.8
Cranemen, derrickmen, and hoistmen	124.0	140.9	.2	.1	6.2	6.0	16.7	20.9	78.4	86.8	6.1	6.6
Glaziers	15.8	18.8	-	-	-	-	5.0	6.7	3.2	3.6	.2	.2
Jewelers and watchmakers	37.0	35.8	-	-	-	-	-	-	10.1	10.2	-	-
Loom fixers	25.0	24.8	-	-	-	-	-	-	.2	.2	24.8	24.6
Opticians, lens grinders and polishers	20.4	21.2	-	-	-	-	-	-	9.2	9.1	-	-
Inspectors, log and lumber	19.5	19.7	.2	-	-	-	.1	.1	15.9	15.5	.9	1.0
Inspectors, other	95.5	99.0	.6	.5	2.6	2.0	13.1	17.6	10.6	10.6	2.1	1.9
Upholsterers	59.0	61.9	-	-	-	-	.4	.4	26.4	27.0	1.3	1.6
Other	520.5	553.5	1.6	1.3	39.6	31.2	31.5	34.3	107.0	120.9	89.6	82.8

See footnotes at end of table.

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Table 1. Number of employed persons by occupation and industry, 16 years of age and older, 1960 and 1967—Continued

(In thousands)

Occupation	Transportation, communication, and public utilities		Wholesale and retail trade		Finance, insurance, and real estate		Private households		Services, except private households		Government public administration	
	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967
Clerical and kindred workers	1,097.3	1,176.6	1,865.3	2,327.2	1,286.1	1,586.4	4.0	4.3	1,729.6	2,773.6	1,371.1	1,695.9
Stenographers, typists, and secretaries	129.4	149.7	270.7	321.5	369.4	456.7	2.9	3.0	721.1	1,163.6	268.5	354.7
Office-machine operators	36.7	42.5	99.8	119.2	78.5	103.7	-	-	25.0	44.5	33.8	44.0
Other clerical and kindred	931.2	984.4	1,494.9	1,886.5	838.2	1,026.1	1.1	1.3	983.5	1,565.5	1,068.8	1,297.2
Accounting clerks	46.5	48.0	102.3	116.3	41.8	46.2	-	-	39.0	56.5	38.8	49.1
Bookkeepers, hand	16.2	17.8	269.9	296.5	138.2	166.4	.2	.1	104.6	143.8	-	-
Bank tellers	-	-	-	-	127.0	189.6	-	-	-	-	-	-
Cashiers	27.8	34.5	348.5	513.2	30.3	40.1	-	-	54.7	84.0	6.5	8.2
Mail carriers	-	-	-	-	-	-	-	-	-	-	205.5	230.2
Postal clerks	-	-	-	-	-	-	-	-	-	-	242.7	295.6
Shipping and receiving clerks	10.0	12.4	96.8	112.9	1.2	1.7	-	-	7.5	11.7	2.5	3.4
Telephone operators	230.9	228.0	22.2	27.9	13.4	16.2	-	-	48.7	73.0	9.7	11.8
Other	599.8	643.7	655.2	819.7	486.3	565.9	.9	1.2	729.0	1,196.5	563.1	698.9
Salesworkers	39.3	46.8	3,010.9	3,163.9	581.4	661.9	-	-	88.5	121.4	3.7	4.3
Insurance agents	.2	.1	.2	.2	363.9	405.9	-	-	.1	.1	.6	.7
Real estate agents	-	-	.5	.7	193.3	202.9	-	-	.2	.3	.3	.3
Other	39.1	46.7	3,010.2	3,163.0	24.2	53.1	-	-	88.2	121.0	2.8	3.3
Craftsmen, foremen, and kindred	959.1	1,010.9	902.3	1,095.6	46.1	61.1	6.8	6.0	784.2	1,021.3	269.2	356.4
Construction craftsmen	92.6	86.6	69.0	72.3	16.0	21.9	4.7	3.9	102.8	147.1	69.3	81.9
Carpenters	13.7	12.0	27.6	28.6	5.5	7.3	2.3	2.0	26.5	40.4	13.7	14.1
Brickmasons and tile setters	.6	.7	4.8	6.0	.2	.2	.2	.1	1.5	2.6	1.0	1.3
Cement and concrete finishers	.1	.1	.2	.2	-	-	-	-	.1	.1	.1	.1
Electricians	38.4	34.8	8.6	8.5	1.2	1.3	-	-	20.1	27.0	21.8	25.6
Excavating, grading machine operators	7.8	9.0	2.8	2.9	.4	.5	-	-	1.6	3.0	7.1	9.4
Painters and paperhangers	9.5	8.8	11.8	13.1	7.5	11.3	2.1	1.8	42.4	59.3	15.6	19.4
Plasterers	-	-	.1	.1	.5	.6	-	-	1.2	1.6	.2	.3
Plumbers and pipefitters	21.2	20.0	11.4	11.1	.7	.7	.1	-	8.9	12.4	8.9	10.7
Roofers and slaters	.1	-	1.5	1.6	-	-	-	-	.3	.5	.4	.4
Structural metalworkers	1.2	1.2	.2	.2	-	-	-	-	.2	.2	.5	.6
Foremen, n.e.c	122.3	131.8	98.8	136.7	3.9	5.9	-	-	37.0	61.2	26.9	39.1
Metalworking craftsmen, except mechanics	44.4	37.1	8.0	7.3	.1	.1	-	-	16.3	19.2	23.2	27.1
Machinists and related occupations	30.6	24.5	.6	.6	-	-	-	-	3.1	4.9	11.0	12.7
Blacksmith, forgemen, and hammermen	2.8	2.4	.4	.4	-	-	-	-	6.4	5.4	.4	.5
Boilermakers	3.6	2.9	.2	.2	-	-	-	-	1.2	1.5	.4	.3
Heat treaters, annealers	-	-	-	-	-	-	-	-	-	-	.2	.3
Millwrights	.6	.6	.7	.6	-	-	-	-	.4	.8	.3	.2
Molders, metal, except coremakers	.1	.1	-	-	-	-	-	-	-	-	-	-
Patternmakers, metal and wood	.1	-	.2	.2	-	-	-	-	.8	1.5	1.2	1.8
Rollers and roll hands	-	-	.2	.2	-	-	-	-	-	-	-	-
Sheet-metal workers	5.8	6.0	5.0	4.6	.1	.1	-	-	2.9	4.2	8.5	9.9
Toolmakers, diemakers, and setters	.8	.6	.7	.5	-	-	-	-	1.5	.9	1.2	1.4
Mechanics and repairmen	244.2	292.0	542.8	684.6	15.4	21.5	1.8	1.9	467.9	596.7	118.6	167.0
Air conditioning, heating, and refrigeration	1.3	2.5	16.0	28.5	.2	.5	-	-	15.1	17.2	2.9	6.9
Airplane mechanics and repairmen	37.6	55.5	1.7	2.9	-	-	-	-	1.8	3.8	31.1	39.3
Motor vehicle mechanics	56.6	69.9	320.6	394.9	.2	.4	-	-	233.9	260.4	14.9	20.7
Office machine mechanics	.3	.2	33.9	49.9	.3	.4	-	-	9.7	12.9	.5	.6
Radio and television mechanics	3.6	3.8	32.1	34.7	-	-	-	-	51.1	58.0	8.7	11.2
Railroad and car shop mechanics	37.5	34.9	-	-	-	-	-	-	.1	.1	.1	.2
Other	107.3	125.2	138.5	173.7	14.7	20.2	1.8	1.9	156.2	244.3	60.4	88.1
Printing trades craftsmen	1.2	1.1	3.5	4.0	2.4	2.6	-	-	6.1	9.0	4.3	5.5
Compositors and typesetters	.8	.7	2.5	3.1	2.0	2.2	-	-	4.6	6.8	2.1	2.7
Electrotypers and stereotypers	.1	.1	-	-	-	-	-	-	-	-	-	-
Engravers, except photoengravers	.1	.1	.6	.6	-	-	-	-	.2	.2	.4	.5
Photoengravers and lithographers	.1	.1	.1	.1	.1	.1	-	-	.3	.4	.5	.7
Pressmen and plate printers	.1	.1	.3	.2	.3	.3	-	-	1.0	1.6	1.3	1.6
Transportation and public utility craftsmen	351.7	367.0	.4	.5	-	.1	-	-	.6	1.5	2.9	4.8
Line and servicemen, telephone and power	268.0	307.2	.4	.5	-	.1	-	-	.6	1.5	2.6	4.5
Locomotive engineers	42.5	38.9	-	-	-	-	-	-	-	-	.2	.3
Locomotive firemen	41.2	20.9	-	-	-	-	-	-	-	-	.1	-
Other craftsmen and kindred	102.7	95.3	179.8	190.2	8.3	9.0	.3	.2	153.5	[illegible]	24.1	31.0
Bakers	.2	.2	23.5	25.4	.1	-	.1	-	8.1	[illegible]	.3	.3
Cabinetmakers	.4	.3	16.8	16.2	.1	.1	-	-	5.3	5.9	[illegible]	[illegible]
Cranemen, derrickmen, and hoistmen	7.6	8.7	6.1	8.3	.1	.1	-	-	.7	1.2	1.9	2.[illegible]
Glaziers	-	-	6.7	7.6	.1	.1	-	-	.5	.5	.1	.1
Jewelers and watchmakers	-	-	17.0	17.0	-	-	-	-	9.8	8.5	.1	.[illegible]
Loom fixers	-	-	-	-	-	-	-	-	-	-	-	-
Opticians, lens grinders and polishers	-	-	9.3	9.2	-	-	-	-	1.8	2.7	.1	.2
Inspectors, log and lumber	.2	.1	1.9	2.0	-	-	-	-	.2	.7	.1	.1
Inspectors, other	46.5	41.6	6.7	7.1	3.0	3.2	-	-	10.3	14.5	-	-
Upholsterers	.9	.7	9.3	10.7	-	-	-	-	19.9	20.6	.8	.9
Other	46.9	43.7	82.5	86.7	4.9	5.5	.2	.2	96.6	120.7	19.8	26.2

See footnotes at end of table.

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Table 1. Number of employed persons by occupation and industry, 16 years of age and older, 1960 and 1967—Continued

(In thousands)

Occupation	Total		Agriculture, forestry, and fisheries		Mining		Construction		Durable goods, manufacturing		Nondurable goods, manufacturing	
	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967
Operatives and kindred workers	11,950.0	13,883.0	103.0	91.7	343.0	266.1	318.5	412.9	3,717.7	4,727.4	3,651.4	4,072.8
Drivers and deliverymen	2,367.0	2,511.0	65.0	60.3	33.1	32.1	144.8	162.7	168.8	171.0	316.1	311.8
Drivers, bus, truck, and tractor	1,769.2	1,859.2	62.3	58.3	32.7	31.5	142.4	160.2	157.3	156.9	142.9	136.7
Deliverymen, routemen, and cab drivers	597.8	651.8	2.7	2.0	.4	.6	2.4	2.5	11.5	14.1	173.2	175.1
Semiskilled metalworking occupations	1,452.8	1,898.4	.4	.6	7.8	9.5	30.9	46.1	1,336.6	1,744.5	16.3	20.6
Assemblers, metalworking, class A	101.1	142.7	-	-	-	-	-	-	101.1	142.7	-	-
Assemblers, metalworking, class B	467.9	599.6	-	-	-	-	-	-	467.9	599.6	-	-
Inspectors, metalworking, class B	179.0	231.2	-	-	-	-	-	-	179.0	231.2	-	-
Machine-tool operators, class B	258.9	321.5	-	-	-	-	-	-	258.9	321.5	-	-
Electroplaters	11.7	15.8	-	-	-	-	-	-	11.7	15.8	-	-
Electroplater helpers	20.2	26.4	-	-	-	-	-	-	20.2	26.4	-	-
Furnacemen, smeltermen, and pourers	52.1	60.6	-	-	.2	.3	-	-	51.6	59.9	.2	.2
Heaters, metal	6.9	8.3	-	-	-	-	-	-	6.9	8.3	-	-
Welders and flamecutters	355.0	492.3	.4	.6	7.6	9.2	30.9	46.1	239.3	339.1	16.1	20.4
Transportation and public utility operatives	156.4	148.8	-	-	.6	.6	2.3	2.8	6.8	7.5	3.6	4.3
Brakemen and switchmen, railroad	103.2	92.9	-	-	.2	.2	-	-	4.7	4.9	.4	.4
Power station operators	20.9	22.1	-	-	.1	.1	.4	.5	1.7	2.1	2.8	3.5
Sailors and deckhands	32.3	33.8	-	-	.3	.3	1.9	2.3	.4	.5	.4	.4
Semiskilled textile occupations	780.0	992.6	-	-	-	-	-	-	28.9	39.0	750.6	952.9
Knitters, loopers and toppers	44.0	47.3	-	-	-	-	-	-	-	-	44.0	47.3
Spinners, textile	50.0	50.1	-	-	-	-	-	-	.1	.1	49.9	49.9
Weavers, textile	61.0	61.3	-	-	-	-	-	-	.5	.5	60.0	60.2
Sewers and stitchers, manufacturing	625.0	833.9	-	-	-	-	-	-	28.3	38.4	596.7	795.5
Other operatives and kindred	7,193.8	8,332.2	37.6	30.8	301.5	223.9	140.5	201.3	2,176.6	2,765.4	2,564.8	2,783.2
Asbestos, insulation workers	19.6	23.6	-	-	-	-	11.4	13.4	4.2	5.7	2.3	2.7
Auto attendants, gas and parking	380.0	397.0	-	-	-	-	.3	.3	1.4	1.6	.6	.5
Blasters and powdermen	5.1	4.9	-	-	3.2	2.7	1.2	1.5	.4	.5	.3	.2
Laundry and drycleaning operatives	392.1	405.0	-	-	-	-	-	-	.2	.1	3.1	2.0
Mine operatives, laborers, n. e. c	281.0	204.3	-	-	281.0	204.3	-	-	-	-	-	-
Meat cutters, except meat packing	189.9	203.4	.1	-	.1	.1	-	-	.3	.2	.8	.9
Other	5,926.1	7,094.0	37.5	30.8	17.2	16.8	127.6	186.1	2,170.1	2,757.3	2,557.7	2,776.9
Service workers	8,023.0	9,325.0	12.9	10.3	8.6	7.2	20.3	18.8	174.9	172.1	153.9	131.3
Private household workers	1,973.0	1,769.0	-	-	-	-	-	-	-	-	-	-
Protective service workers	765.0	954.0	2.2	1.4	4.2	3.1	7.4	5.7	76.7	74.4	40.1	33.4
Firemen	148.0	192.0	-	.1	-	-	.2	.1	2.0	2.7	.6	.6
Policemen and other law enforcement	287.0	396.3	.1	-	.1	.1	.5	.2	2.6	2.7	1.3	1.8
Guards, watchmen, and doorkeepers	330.0	365.5	2.1	1.3	4.1	3.0	6.7	5.4	72.1	69.0	38.2	31.0
Food service workers	1,653.0	2,061.0	3.5	2.3	.7	.7	1.8	1.6	8.1	9.0	11.9	11.5
Bartenders	163.7	188.0	-	-	-	-	-	-	-	-	.1	.1
Cooks, except private households	530.0	676.1	3.3	2.2	.7	.7	1.1	.9	2.6	2.7	4.7	4.3
Counter and fountain workers	150.4	232.3	-	-	-	-	.3	.3	3.6	4.2	3.0	3.1
Waiters and waitresses	808.9	964.6	.2	.1	-	-	.4	.4	1.9	2.1	4.1	4.0
Other service workers	3,632.0	4,541.0	7.2	6.6	3.7	3.4	11.1	11.5	90.1	88.7	101.9	86.4
Airline stewards and stewardesses	12.9	23.5	-	-	-	-	-	-	-	-	-	-
Attendants, hospital and other institutions	450.0	713.1	3.8	3.8	-	-	-	-	.3	.7	.2	.2
Charwomen and cleaners	200.0	273.4	.2	.1	.3	.4	2.6	3.1	11.6	13.4	14.7	12.9
Janitors and sextons	625.0	849.2	.8	.3	2.2	1.9	4.5	4.9	47.0	46.2	45.1	40.1
Nurses, practical	225.0	304.2	.1	-	-	-	-	-	.5	.4	.2	.2
Other	2,119.1	2,377.6	2.3	2.4	1.2	1.1	4.0	3.5	30.7	28.0	41.7	33.0
Laborers, except farm and mine	3,553.0	3,533.0	140.5	140.8	-	-	713.5	705.0	731.6	663.1	399.6	344.1
Farmers and farm workers	5,176.0	3,554.0	5,176.0	3,554.0	-	-	-	-	-	-	-	-

See footnotes at end of table.

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Table 1. Number of employed persons by occupation and industry, 16 years of age and older, 1960 and 1967—Continued

(In thousands)

Occupation	Transportation, communication, and public utilities		Wholesale and retail trade		Finance, insurance, and real estate		Private households		Services, except private households		Government public administration	
	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967	1960	1967
Operatives and kindred workers	1,188.1	1,235.1	1,695.2	1,901.8	11.4	15.1	13.9	8.6	796.4	1,011.0	111.4	140.5
Drivers and deliverymen	839.6	890.6	615.1	635.7	2.6	3.2	10.6	6.2	134.9	191.0	36.4	46.4
Drivers, bus, truck, and tractor	700.7	758.6	420.2	397.5	1.7	2.0	.3	.1	76.2	115.6	32.5	41.8
Deliverymen, routemen, and cab drivers	138.9	132.0	194.9	238.2	.9	1.2	10.3	6.1	58.7	75.4	3.9	4.6
Semiskilled metalworking occupations	15.0	16.1	15.6	20.1	-	-	-	-	26.3	35.5	3.9	5.4
Assemblers, metalworking, class A	-	-	-	-	-	-	-	-	-	-	-	-
Assemblers, metalworking, class B	-	-	-	-	-	-	-	-	-	-	-	-
Inspectors, metalworking, class B	-	-	-	-	-	-	-	-	-	-	-	-
Machine-tool operators, class B	-	-	-	-	-	-	-	-	-	-	-	-
Electroplaters	-	-	-	-	-	-	-	-	-	-	-	-
Electroplater helpers	-	-	-	-	-	-	-	-	-	-	-	-
Furnacemen, smeltermen and pourers	.1	.1	-	-	-	-	-	-	-	.1	-	-
Heaters, metal	-	-	-	-	-	-	-	-	-	-	-	-
Welders and flamecutters	14.9	16.0	15.6	20.1	-	-	-	-	26.3	35.4	3.9	5.4
Transportation and public utility operatives	140.5	131.1	1.1	.9	-	-	-	-	.3	.7	1.2	.9
Brakemen and switchmen, railroad	97.4	86.9	.3	.3	-	-	-	-	-	-	.2	.2
Power station operators	15.2	14.8	.2	.2	-	-	-	-	.2	.5	.3	.4
Sailors and deckhands	27.9	29.4	.6	.4	-	-	-	-	.1	.2	.7	.3
Semiskilled textile occupations	-	.1	.3	.4	-	-	-	-	.2	.2	-	-
Knitters, loopers and toppers	-	-	-	-	-	-	-	-	-	-	-	-
Spinners, textile	-	.1	-	-	-	-	-	-	-	-	-	-
Weavers, textile	-	-	.3	.4	-	-	-	-	.2	.2	-	-
Sewers and stitchers, manufacturing	-	-	-	-	-	-	-	-	-	-	-	-
Other operatives and kindred	193.0	197.2	1,063.1	1,244.7	8.8	11.9	3.3	2.4	634.7	783.6	69.9	87.8
Asbestos, insulation workers	.3	.3	1.0	1.1	-	-	-	-	.2	.2	.2	.2
Auto attendants, gas and parking	1.8	1.6	351.4	364.6	1.4	1.6	-	-	22.0	24.7	1.1	2.1
Blasters and powdermen	-	-	-	-	-	-	-	-	-	-	-	-
Laundry and drycleaning operatives	.1	.1	1.5	1.4	.1	.1	-	-	385.1	399.6	2.0	1.7
Mine operatives and laborers	-	-	-	-	-	-	-	-	-	-	-	-
Meat cutters, except meat packing	2.9	2.5	181.9	193.6	-	-	.1	-	3.0	5.2	.7	.9
Other	187.9	192.7	527.3	684.0	7.3	10.2	3.2	2.4	224.4	353.9	65.9	82.9
Service workers	148.0	137.7	1,687.7	1,959.5	207.8	201.6	2,037.0	1,807.7	2,991.5	4,119.9	580.4	758.9
Private household workers	-	-	-	-	-	-	1,973.0	1,769.0	-	-	-	-
Protective service workers	33.0	28.4	17.0	16.7	19.4	20.8	.4	.3	75.6	110.5	489.0	659.3
Firemen	.4	.4	.1	-	-	-	-	-	1.2	1.8	143.5	186.5
Policemen and other law enforcement	6.6	6.8	1.4	1.8	1.0	1.3	-	-	13.3	18.1	260.1	363.5
Guards, watchmen, and doorkeepers	26.0	21.2	15.5	14.9	18.4	19.5	.4	.3	61.1	90.6	85.4	109.3
Food service workers	19.1	16.6	1,194.3	1,448.0	4.3	4.1	.3	.1	399.0	555.4	10.0	11.7
Bartenders	.3	.2	141.2	164.0	-	-	-	-	22.1	23.7	-	-
Cooks, except private households	10.1	9.0	302.6	377.3	1.4	1.3	-	-	197.0	269.8	6.5	7.9
Counter and fountain workers	1.1	1.0	87.8	129.7	1.2	1.2	-	-	52.2	91.4	1.2	1.4
Waiters and waitresses	7.6	6.4	662.7	777.0	1.7	1.6	.3	.1	127.7	170.5	2.3	2.4
Other service workers	95.9	92.7	476.4	494.8	184.1	176.6	63.3	38.3	2,516.9	3,454.0	81.4	88.0
Airline stewards and stewardesses	12.9	23.5	-	-	-	-	-	-	-	-	-	-
Attendants, hospital and other institutions	-	-	.2	.2	-	-	4.5	3.9	438.5	695.9	2.5	8.4
Charwomen and cleaners	6.8	7.2	23.6	34.6	26.5	27.3	3.1	2.6	103.2	163.1	7.4	8.7
Janitors and sextons	24.0	21.7	47.1	51.5	74.8	76.1	5.4	4.1	332.1	561.0	42.0	41.4
Nurses, practical	.1	.1	.1	.1	.2	.2	49.0	26.7	179.2	274.0	1.9	2.5
Other	52.1	40.2	405.4	408.4	82.6	73.0	1.3	1.0	1,470.2	1,760.0	27.6	27.0
Laborers, except farm and mine	459.1	453.7	558.6	611.7	44.0	57.2	336.5	183.2	155.2	221.7	114.4	152.5
Farmers and farm workers	-	-	-	-	-	-	-	-	-	-	-	-

[1] In 1967 physicians on the faculty of medical schools were counted as college teachers, and those doing full-time research were counted as scientists. In 1960 all physicians, regardless of function, were counted as physicians.

[2] In 1960, "other medical and health workers" included all enrolled student nurses, but in 1967 only that portion of enrolled student nurses actually working and in the labor force were counted.

[3] The 1960 definition of college teachers was expanded in 1967 to include faculty for extension courses, resident nondegree credit courses, instruction by mail, radio or television, short courses, and individual lessons.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

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Chapter 2. Summary of Occupational Changes Between 1960 and 1967

During the past few years many new occupations have been created and the occupational relationships of many others have been altered by technological and other factors affecting American industry. Many of the occupational changes are inconsequential in themselves but the cumulative impact is undeniable. New products and services have been created to meet new demands, and both the old and new industries have been affected as occupational patterns changed. For instance, new specialties have arisen in the scientific and engineering profession especially in fields such as bionics, cryogenics, microelectronics, and ultrasonics. Electronic data processing has eliminated many routine clerical jobs in addressing, billing, payroll, and inventory control but it often requires many new and higher grade jobs in program planning and equipment operation and repair. Likewise, many new skills are required for the operation and repair of numerically controlled machine tools of which more than 8,000 were installed by mid-1966 mainly in the aircraft and missile, motor vehicle, and machinery industries.

Some of the occupational effects resulting from these technological and other changes, over the past 7 years, and shown in table 1 are summarized below.

Professional, technical, and kindred workers

Between 1960 and 1967 the professional, technical, and kindred worker broad occupational group recorded the sharpest employment gains, increasing by 33 percent. Over 70 percent of this growth was centered in the service industry and largely reflects the rapid expansion in employment being experienced in the medical and educational service industries. The number of teachers (including college) alone jumped over 750,000 during the 1960-67 period and 300,000 new medical workers were added to the work force.

Engineer employment topped 1 million in 1967, growing 218,000 or by 27 percent during the 7-year period. Durable goods manufacturing, by far the largest employer of engineers, experienced nearly 50 percent of the employment gains; government and service industries also recorded significant employment increases.

The number of natural scientists was up nearly 30 percent as employment gains were recorded in every major industry division. Mathematicians experienced the sharpest employment increases among the various scientific occupations; their numbers rose over 83 percent during the 7-year period as the growth in computer technology and increases in research and development activities spurred demand for these highly trained workers.

Technician (except medical and dental) employment rose by nearly 25 percent to over 911,000. More than two-thirds of the increase was centered in durable goods manufacturing and the service industry divisions. Draftsmen remained the largest occupation among the technician group, over 294,000 workers in 1967, up 61,000 from 1960. Electrical and electronic technicians recorded the largest and sharpest employment gains during the 1960-67 period, increasing by nearly 60 percent or by 70,000 workers.

Managers and salesworkers

Managers, officials, and proprietors employment increased by 6 percent during the 1960-67 period, the slowest growth rate experienced by a white-collar occupational group. The trade industries recorded a decline in the number of these workers during the 7-year period but remained their principal employer with 3.1 million in 1967. Employment was also down significantly in the construction industry, while above average gains were recorded in services, government, and durable goods manufacturing.

Over 4.5 million salesworkers were employed in 1967, up 7 percent from 1960. Employment remained highly concentrated, 70 percent of the

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workers were located in the trade industry. With the exception of agriculture, employment gains were recorded in all major industry divisions during the 1960-67 period. The trade industries had over 50 percent of the total increase but the sharpest growth rates were experienced in the service; and finance, insurance, and real estate sectors where the number of salesworkers grew by 37 and 14 percent, respectively.

Clerical and kindred workers

Over 2.5 million new clerical jobs were added during the 1960-67 period, the largest expansion experienced by a broad occupational group. With the exception of agriculture, all major industry divisions recorded gains in clerical employment during the 7-year period. By far the largest and most rapid increases were centered in the service industry division where clerical employment jumped by 1 million, up 60 percent over the 1960 level.

The employment of stenographers, typists, and secretaries rose by 807,000 between 1960 and 1967, an increase of 33 percent. More than 50 percent of the rise was concentrated in the service industries, but strong gains were also experienced in most other industry divisions.

Bank tellers recorded the sharpest employment growth rate among the clerical workers; the number of such workers increased by 49 percent over the 7-year period. Cashier employment also rose sharply by 44 percent as population growth, rising incomes, and the trend towards larger self-service stores contributed to their expansion.

Telephone operators employment, while up slightly overall, experienced a decrease in the telephone industry where the new direct dialing systems eliminated the need for many long distance operators.

Craftsmen, foremen, and kindred workers

The number of craftsmen, foremen, and kindred workers grew to 9.8 million workers in 1967, up 15 percent from 1960. Durable goods manufacturing widened its lead as the largest employer of these skilled workers, employing 445,000 or more—a 20 percent increase. Durable goods employment increases were largely centered in production occupations such as machinists or among the workers required to maintain and service the increasingly complex production machinery. Significant increases in skilled workers were also experienced in the trade industries where requirements for motor vehicle mechanics rose in new car dealerships and the number of skilled installation, maintenance, and service workers grew sharply at wholesale distributors of machinery and equipment.

Construction craftsmen increased by only 8 percent, considerably below the average of all skilled workers, as growth in construction activity was slowed by rising interest rates. The total number of carpenters increased less than 1 percent during the period, and in the construction industry, their employment dropped slightly.

The number of skilled mechanics and repairmen rose by 525,000 between 1960 and 1967, an increase of over 25 percent. The spreading residential and business use of air-conditioning spurred especially sharp increases in the number of air-conditioning and heating repairmen. Employment rose 77 percent over the 7-year period. The employment of office machine mechanics and repairmen also experienced significant gains, as the growth in the utilization of data-processing equipment generated a sharp rise in employment of maintenance and installation workers. Airplane mechanics recorded well above average increases in employment in response to the growing maintenance requirements of the Nation's larger and more complex commercial and general aviation aircraft fleets.

Operative and kindred workers

Operatives and kindred workers were the largest of the broad occupational groups in 1967; they numbered 13.9 million workers or over one-sixth of the total work force. During the 1960-67 period, the number of these semiskilled workers rose by nearly 2 million, an increase of 16 percent, a rate slightly faster than the work force as a whole.

Manufacturing continued as the principal employer of operatives in 1967, with over 8.8 million workers divided between durable and nondurable goods manufacturing. Between 1960 and 1967, the number of operatives in durable goods manufacturing increased by more than 1 million workers, approximately 52 percent of the total employment growth experienced by this occupational group. A significant gain was also recorded by nondurable goods manufacturing,

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where over 420,000 workers were added. Most of the operatives employed in manufacturing are machine operators and tenders, assemblers, or other production process workers and much of the recent employment increases can be traced to rapidly expanding demand for military related products during the past 5 years. For example, employment in semiskilled metalworking occupations, almost entirely concentrated in durable goods manufacturing, increased by 445,000—an increase of over 30 percent between 1960 and 1967.

Drivers—bus, truck, and tractor; experienced a modest employment gain of 90,000 or 5 percent during the 7-year period. Deliverymen and routemen increased at a faster pace (9 percent) with most of the growth centered in the trade industries.

Mine operatives and laborers experienced a significant decline in employment, a drop of 27 percent to an all-time low of 204,000 in 1967. The continued trend towards larger more highly mechanized mining operations has led to a substantial reduction in the requirements for mine workers.

The textile occupational group recorded a strong employment gain; sewers and stitchers in apparel manufacturing accounted for nearly all the increase. Rising personal incomes together with increased military orders has resulted in a sharp rise in demand for nearly all types of apparel.

Service workers

The employment of service workers grew by 1.3 million between 1960 and 1967, an increase of 16 percent or only slightly above the 13 percent increase experienced by the total work force. However, if private household workers are excluded, the remaining service worker employment shows a much sharper increase of 25 percent during the 7-year period, a rate nearly double that of total employment.

Service workers such as janitors, cleaners, and guards are found in nearly every industry, yet, in 1967, 6 out of 7 service workers were concentrated in 1 of 3 major industry divisions—services, trade, and private households—and between 1960 and 1967, nearly all the growth in service worker employment occurred either in the trade or service industry divisions. The rapid expansion in medical and health services resulted in sharp employment growth in health related occupations such as practical nurses and hospital attendants, up 35 and 58 percent, respectively, over 1960 employment levels. Food service workers, largely concentrated in retail trade, increased substantially; counter and fountain workers' employment was up by 54 percent, and cooks (except private household) increased 28 percent. Waiters and waitresses also recorded employment gains, 155,000 workers during the 1960-67 period.

Firemen and policemen were among the service workers experiencing significant employment gains. Population growth, together with further urbanization, and the growing public concern over the rising crime rate were largely responsible for increases in employment in these important occupations.

Laborers (except farm and mine)

The employment level of laborers remained relatively stable during the 1960-67 period, decreasing less than 1 percent. Although little overall employment change was recorded, several important shifts did occur within the individual industries. Increased mechanization of production, and material movement functions have reduced the requirements for laborers in some industries. For example, in manufacturing, the number of laborers declined by 9 percent in durable goods and nearly 14 percent in nondurable goods, and during the same 7-year period total employment in these industries was increasing. Offsetting these decreases in manufacturing were employment gains in the trade, service, and government industries. The construction industry remained a large employer of unskilled workers; the employment of laborers experienced only a small decrease during the 1960-67 period.

Farmers and farm workers

Farmers and farm workers employment continued its long run downward trend; it dropped by 1.6 million between 1960 and 1967, or by over 30 percent. Much of the decrease occurred in the smaller marginal farms unable to keep pace with the new agricultural technology.

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Chapter 3. The BLS Industry-Occupational Employment Matrix and Its Use in Estimating Current Occupational Employment Levels

An industry-occupational employment matrix is a table showing the distribution of total employment in the economy by industry and by occupation. From the matrix it is possible to analyze the occupational structure of industries, and also, to determine how total employment in an occupation is distributed by industry. The Bureau of Labor Statistics has prepared an employment matrix for 1960 containing 124 specific industries and 163 specific occupations or groupings of occupations. This matrix, based primarily on the occupational statistics obtained from the decennial census[5] represents the compilation in one comprehensive table of the best occupational employment data obtained from many varied sources.[6]

The need for a comprehensive and systematic method of estimating current employment by occupation arose because reliable inter-census information is scanty. This chapter describes how the BLS employment matrix has been used to fulfill that need. It also describes the procedures used to estimate total employment for 163 occupations for 1967. (Table 1 shows the 1960-67 trends in employment for each of these occupations for 11 broad industry sectors, as well as in total.)

Development of an employment matrix for 1967

The use of the BLS matrix as a tool for estimating current occupational employment is based on the fact that each industry's occupational structure (defined as the percent of total industry employment found in each occupation), changes slowly, and that the occupational pattern within many industries is relatively stable over short periods of time. Therefore, shifts in employment among industries have a significant effect on the short-run growth or decline of specific occupations, and on the changing occupational structure of total employment for the United States as a whole. For example, a more rapid growth in employment for the insurance industry than for the printing and publishing industry will create a greater growth of demand for clerical workers than for printing trades craftsmen. Thus, if a good set of occupational patterns is available for a particular year, reasonably reliable employment estimates for specific occupations in the next year can be obtained by applying the occupational structure for each industry in the first year to estimates of total employment for each industry in the second year and then summing the resulting occupational employment estimates to national totals.

The first experiment using the occupational matrix as a tool for estimating current employment was the development of a matrix for 1967. Occupational patterns for 124 specific industries were obtained by extrapolation of trends in the structures of industries from 1950 to 1960, allowing for factors such as changing technology of production, shifting product mix, and changing supply of workers to each occupation.[7] The pattern for each mining and manufacturing industry was then modified to achieve consistency with 1960-67 production-nonproduction worker trends reported in the BLS current industry employment statistics series.

The resulting preliminary set of occupational patterns then were applied to the total employment in their respective industries for 1967. The resulting occupational employment estimates within each industry were summed to national totals,

5 *United States Census of Population: 1960, Subject Reports, Occupation by Industry, Final Report (PC(2)-7C, May 1963)* (U.S. Department of Commerce, Bureau of the Census).

6 See *Occupational Employment Patterns for 1960 and 1975* (Bulletin 1599), December 1968, for a detailed description of how the basic matrix was developed and how national manpower requirements were projected to 1970 and 1975. This bulletin also describes the classification of industries and occupations in the matrix.

7 For a complete discussion of the procedures followed in projecting occupational patterns see Bulletin 1599, *op. cit.*

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and analyzed for reasonableness. Outside data on occupational employment from a variety of sources (for example, from BLS survey programs, from regulated industries, and other sources shown in tables 2-10 and 12-18) were inserted into their appropriate matrix cells. Employment in the reamining cells were made consistent with industry employment levels (developed from BLS payroll data) and intermediate occupational group employment levels (available from the current population surveys) through an iterative forcing procedure. This procedure forces the internal cells of the matrix into consistency with known control levels by alternately forcing first to industry employment controls then to occupation controls. (The procedure is repeated until the internal cells are consistent with both sets of marginal controls.)

Once completed, the procedure results in national employment estimates for 163 specific occupations and occupational employment patterns for 124 industries that are consistent with (a) national employment by industry (b) Current Population Survey (CPS) employment by broad intermediate occupational groups (c) trends in production worker employment by industry (d) trends in occupational structure within industries, and (e) reliable estimates of occupational employment available from other sources.

Employment estimates for specific matrix industries

One of the first steps necessary in developing the 1967 occupational estimates through the matrix system was to establish employment controls for each matrix industry. The authoritative estimate of total employment in the United States for a particular year is an annual average of the monthly data collected from the Census Bureau's Current Population Survey and published by BLS in *Employment and Earnings.*[8] However, because of gaps between CPS estimates and estimates of total employment for specific matrix industries which are based on the current industry employment statistics (CES) collected and published by BLS,[9] CES data had to be adjusted to CPS employment concepts.

The employment data reported for specific industries by the CES, consist only of private wage and salary employees; government workers are shown as a separate industry group. However, the CPS, Census, and the occupational matrix estimates of employment, include all classes of workers—self-employed workers, government employees, unpaid family workers, as well as private wage and salary employees. The CES data were adjusted to include an estimate for each of the omitted categories. Unpublished CPS estimates for unpaid family workers were used in all industries, and also for estimates for self-employed and government workers in industries for which no other sources of information were available.[10]

Another difference between the CPS household data and the CES establishment data is that in the former, workers with a job but on unpaid leave are counted as employed. Therefore, the number of unpaid absences in each broad Monthly Report on the Labor Force (MRLF) industry was distributed proportionately to specific matrix industries. Finally, since the same worker may be counted more than once in the CES survey depending upon whether he is employed by more than one establishment, the number of secondary jobholders reported in the CPS survey was subtracted proportionately from each matrix industry. Once completed, the above procedures bridged the gap between the two authoritative sources of data--CES data for industry employment and MRLF data for total employment.

8 However, recent research by the Census Bureau of the undercount in Population Censuses and research by BLS on the possible implication of this for the estimates of employment suggest that we have not included about 2 million workers in the CPS. See Denis F. Johnston and James R. Wetzel, "Effect of the Census Undercount of Labor Force Estimates," *Monthly Labor Review,* March 1969.

9 Labor force data from the Current Population Survey are obtained from a nationwide sample of about 50,000 households and pertain to the noninstitutionalized population 16 years of age and over. CES survey data are based on monthly payroll reports from a sample of establishments and provide, among other things, detailed industry information on nonagricultural wage and salary employment. The only industry estimates not based on CES data were for agriculture, forestry, and fisheries, private households, and government public administration (except postal service) which were based on Monthly Report of the Labor Force data.

10 Estimates for some industries of the number of government workers were derived from *Public Employment in 1967,* U.S. Department of Commerce, Bureau of the Census, July 1968 and *Employment and Wages of Workers Covered by State Unemployment Insurance Laws and Unemployment Compensation for Federal Employees by Industry and State*--Fourth Quarter 1967 and Annual Summary, U.S. Department of Labor, Manpower Administration. Ratios on the number of self-employed to total employed in several industries were obtained from the *1963 Census of Business,* U.S. Department of Commerce, Bureau of the Census, 1965. These ratios were used to estimate the number of self-employed for 1967.

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Employment estimates for specific matrix occupations

While the simple application of the initial set of occupational structures to industry employment estimates provides a complete and systematic procedure for estimating total employment by occupation, certain reliable estimates of occupational employment are available from other sources. Therefore, a framework was necessary to achieve consistency among estimates derived from the matrix system and estimates derived from other sources. The CPS provides this framework through the published estimates of broad and intermediate group occupational employment.

One major justification for using CPS data in a census-based employment matrix is that the classification of industries and occupations in the monthly household survey is the same as that used in the decennial population census. However, the occupational data obtained from a sample of households and complete censuses have certain deficiencies. For example, responses obtained from individuals concerning the occupations of family members often do not correspond to the job titles used by employers. In addition, the size of the CPS sample is too small to provide reliable results for most specific occupations.[11] The data for nine broad socioeconomic occupational groups and a few specific skill groups, however, are considered to be very reliable and are published monthly. Therefore, in developing estimates for specific matrix occupations, the 1967 annual averages for the following occupational categories were used as overall control totals:[12]

Total employment
Professional and technical
Managers, officials, and proprietors
Clerical workers,
- Stenographers, typists, and secretaries
- Other clerical workers

Salesworkers
Craftsmen and foremen,
- Carpenters
- Construction craftsmen, except carpenters
- Mechanics and repairmen
- Metal craftsmen, except mechanics
- Other craftsmen and kindred workers
- Foremen, not elsewhere classified

Operatives,
- Drivers and deliverymen
- Other operatives

Nonfarm laborers
Service workers,
- Private household workers
- Protective service workers
- Waiters, cooks, and bartenders
- Other service workers

Farm workers

Wherever possible, other specific occupational employment estimated were made independently of the matrix. In some cases unpublished CPS data were used when it was felt that both response error and sampling error were relatively small. Other estimates were derived from BLS occupational surveys, the reports of professional societies and licensure statistics, Federal regulatory and other agencies, and other sources.[13] Estimates derived from these sources include about 60 percent of the individual occupations in the matrix. The remaining occupational totals were developed through the matrix system described earlier.

While there is a great overall lack of reliable occupational information between census years, this lack is not evenly distributed among white-collar and blue-collar occupations. Blue-collar occupations, for example, made up about three-quarters of the matrix derived employment estimates. Among the white-collar occupations, most of the independently derived estimates are found in the professional group. In addition to the availability of current data for many white-collar occupations from nongovernmental sources, BLS, in cooperation with the National Science Foundation, conducts an annual survey of scientists, engineers, and technicians in private industry. Other industry surveys have been developed that will provide additional information on employment in certain white-collar occupations, and also, much needed data on employment in many blue-collar occupations.[14] As more such data become available and are incorporated into the employment matrix, they will provide a more sound basis for estimating employment changes by occupation.

11 The reliability of the estimates was increased somewhat in 1967, when the number of households was increased from 35,000 to about 50,000.

12 *Employment and Earnings and Monthly Report on the Labor Force*, January 1968, table A-14.

13 These sources are presented elsewhere in this bulletin.

14 BLS has just concluded a survey that will provide data for about 60 specific blue-collar and white-collar occupations in the metalworking industries (except primary metals, SIC 33). In addition, a new survey will soon be undertaken to collect data for about 100 occupations in the printing and publishing industry.

Table 2. Estimated distribution for selected occupations in the communications equipment industry, except telephone and telegraph (SIC 3662), September 1967 and September 1968[1]

Selected occupation	1967 employment	1968	
		Employment	Percent distribution
Total employment	385,300	390,600	100.0
Administrative, managerial, professional, sales, and technical personnel	172,700	172,200	44.1
Clerical workers	63,400	64,000	16.4
Accounting clerks	3,500	3,400	.9
Expediters	5,500	5,700	1.5
Office machine operators	5,300	5,200	1.3
Console operators	1,200	1,100	.3
Keypunch operators	2,100	2,000	.5
Tabulating-machine operators, A, B, C	600	700	.2
Other office-machine operators	1,400	1,500	.4
Payroll or timekeeping clerks	1,000	1,100	.3
Secretaries	12,300	12,500	3.2
Shipping or receiving clerks	1,700	1,900	.5
Stenographers	3,400	3,100	.8
Typists	5,300	5,500	1.4
Stock clerks	2,900	3,500	.9
Other	22,500	22,100	5.7
Skilled trades and other	143,400	148,100	37.9
Assemblers, A	9,400	11,000	2.8
Assemblers, B	16,100	17,700	4.5
Assemblers, C	22,000	23,600	6.0
Coil winders	2,100	2,000	.5
Electricians	900	1,100	.3
Filers, grinders, and polishers	900	1,100	.3
Foremen (nonworking)	5,600	5,700	1.5
Inspectors, A	4,100	4,200	1.1
Inspectors, B	3,700	4,300	1.1
Inspectors, C	3,400	3,600	.9
Machine-tool operators, A	3,100	3,300	.8
Machine-tool operators, B	1,900	2,400	.6
Machine-tool operators, C	1,700	1,400	.4
Machinists	4,100	4,400	1.1
Mechanics and repairmen	2,400	2,700	.7
Millwrights	300	200	.1
Painters, maintenance	400	400	.1
Painters, production	900	1,100	.3
Platers	800	900	.2
Platers, helpers	300	200	.1
Plumbers and pipefitters	400	400	.1
Power truckers	300	400	.1
Punch-press operators, A	400	500	.1
Punch-press operators, B	600	700	.2
Setup men, machine tool	500	500	.1
Sheet-metal mechanics	1,700	2,000	.5
Stationary engineers	100	200	.1
Testers, A	3,500	3,000	.8
Testers, B	4,500	4,000	1.0
Testers, C	1,200	1,700	.4
Toolmakers and diemakers	2,200	2,000	.5
Truckdrivers	700	700	.2
Welders, hand	800	700	.2
Welders, machine	300	400	.1
Wiremen, A	2,400	2,900	.7
Wiremen, B	2,200	2,700	.7
Wiremen, C	4,500	5,900	1.5
Other skilled trades and other manual occupations	32,900	27,900	7.1
Service workers	7,100	6,400	1.6

[1] 1967 data revised; 1968 data preliminary.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

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Chapter 4. Sources of Industry Occupational Patterns

Occupational patterns for various industries during intercensal years usually are limited in their occupational detail. However, some industry occupational patterns are available which show a good quantity of detail. Table 2, for instance, presents employment data by occupation as of September 1967 for the communication equipment industry, except telephone and telegraph.[15] In the future, the Bureau's occupational employment survey program will be expanded and will provide additional important occupational employment data.

The Bureau also conducts numerous other industry based surveys on a regular basis. Industry Wage Surveys currently cover about 70 industries, the major of which are surveyed every 5 years and most of the remainder every 3 years. Area Wage Surveys (formerly called Community Wage Surveys) are conducted annually. Data are collected in these surveys[16] for approximately 50 occupations in six industry divisions representing more than 60 industries in over 160 regions--over three-quarters of which are Standard Metropolitan Statistical Areas.

15 "Occupations in Radio-TV Communication Equipment Manufacturing," *Monthly Labor Review*, June 1968.

16 See *Occupational Employment Statistics, Sources and Data* (Report 305), June 1966, pp. 55-73, for a detailed description of the nature and uses of these surveys.

Chapter 5. Employment Data for Selected Professional Occupations

Virtually all the information in table 3 is from professional associations and societies, which maintain and publish annual or biennial information on occupational employment from licensure statistics, from their own memberhsip records, and from other sources. Their estimates have been adjusted to eliminate double counting due to multiple licensing in various States, association membership overlap, nonmembers, and retirees. Current sources and descriptions of the occupations are presented below.

Dentists

The employment estimates for dentists exclude the military and the retired. In 1968, 6,800 dentists were in the Armed Services. The data on the American Dental Association's annual report, *Distribution of Dentists in the U.S. by State, Region, District and County* are based on a count of licensed dentists listed in the American Dental Directory.

Nurses

Facts about nursing, 1968 edition, an annual report of the American Nurses Association, contains biennial employment estimates for professional nurses. The interagency Conference on Nursing Statistics, including representatives of the American Nursing Association, the National League for Nursing, and the U.S. Public Health Service, meets biennially to prepare a joint estimate based on their data and on records, registration data, and employment data obtained from the American Hospital Association, American Osteopathic Association, State Boards of Nursing, American Red Cross, National Student Nurses' Association, National Federation of Licensed Practical Nurses, and Bureau of Labor Statistics.

Osteopaths

The American Osteopathic Association publishes an annual report, *A Statistical Study of the Osteopathic Professions.* These estimates exclude the retired and those for whom status was not reported.

Pharmacists

Licensure Statistics and Census of Pharmacy, annual report, published by the National Association of Boards of Pharmacy (NABP). The data for 1968 are preliminary estimates from NABP. Data prior to 1967 is from the *NABP Bulletin* published by the National Assciation of Boards of Pharmacy. The data from both sources represent a count of registered pharmacists in practice obtained from NABP census and licensing data.

Physicians

Distribution of Physicians, Hospitals and Hospital Beds in the U.S., Regional, State, County, Metropolitan Area 1968, annual report, published by the Department of Survey Research, American Medical Association (AMA). Data for years prior to 1967 are from *AMA Directory Reports Service,* a quarterly report of the American Medical Association. Data in table 3 refer to licensed physicians as of the end of each year shown except for 1966, which are mid-year estimates. In order to conform to a civilian labor force concept the estimates exclude military, retired, and physicians other than those in Federal employment who have a temporary foreign address.

Podiatrists

American Podiatry Association reports based on State licensing: *Podiatry as a Career,* by Wilfred E. Belleau revised 1965 edition for 1962 data;

Numbers and the Podiatry Professions, by Lloyd E. Blauch, for 1963 data, and *Journal of the American Podiatry Association,* March 1965; "1964 Survey of the Podiatry Profession: The Podiatrist; Distribution, Education, Organizational Relationships," by Lloyd E. Blauch, for 1964 data. Estimates for 1965, 1966, 1967, and 1968 furnished by the American Podiatry Association.

Veterinarians

Dimensions of Veterinary Medicine and various editions of *AVMA Directory* a biennial publication, published by the American Veterinary Medical Association. Data refer to licensed veterinarians and excludes the military and those who are retired. Data for 1968 are estimates made by AVMA.

Architects

The 1968 estimate is from the National Architectural Accrediting Board, Washington, D.C. Data for previous years are from the Architectural Institute of America. Both sources may include some retired registered architects.

Foresters

Data for 1961 are from a survey of alumni by colleges granting degrees in forestry plus a count of the nondegree members of the Society of American Foresters. The data were published in an article "How Many Foresters" by F. H. Eyre in the *Journal of Forestry, 1962.* The 1962 and 1966 data are estimates made by the Society. They are based upon the 1961 figure and have been adjusted to include recent entrants (degree recipients) and exclude retired personnel. The data for 1968 are estimates of the Bureau of Labor Statistics.

Table 3. Occupational employment data available from professional associations, 1960-68

(In thousands)

Occupation	1968	1967	1966	1965	1964	1963	1962	1961	1960
Health professions: [1]									
Dentists	93	92	91	91	90	89	89	88	87
Nurses, professional	659	(2)	621	(2)	582	(2)	550	(2)	504
Osteopaths	12	12	12	11	11	11	[3] 11	12	12
Pharmacists	122	122	121	118	118	117	117	117	117
Physicians	289	275	272	265	255	248	239	231	224
Podiatrists	9	8	8	8	8	8	8	(2)	(2)
Veterinarians	24	23	23	(2)	21	(2)	21	(2)	20
Other professions:									
Architects, registered	34	(2)	32	32	30	(2)	27	(2)	26
Foresters	25	(2)	23	(2)	(2)	(2)	20	18	(2)

[1] For a detailed and comprehensive presentation of employment and other characteristics of health professions and occupations, see Health Resources Statistics, 1968, 1968, U. S. Department of Health, Education, and Welfare, Public Health Service.

[2] No estimates made.

[3] Approximately 2,200 osteopaths in California were awarded M. D. degrees in 1962, thus decreasing the number of Doctors of Osteopathy in that year.

Chapter 6. Employment of Teachers and Librarians

Occupational data relating to the educational system are available from the Office of Education, U.S. Department of Health, Education and Welfare. The annual publication *Projections of Educational Statistics* contains occupational data on elementary and secondary and college and university teachers for the most recent past 10 years as well as projections for the next 10 years. The occupational statistics for teachers and librarians in educational institutions presented in table 4 are based on the academic year; those estimates included in the national industry-occupational matrix in table 1 are annual averages.

The number of employed librarians presented in table 4 for the years 1959 to 1966 are contained in the *Digest of Educational Statistics.* The estimates for librarians exclude part-time partly-trained librarians and all elementary and secondary school librarians with less than 15 semester hours of library science. Moreover, the librarian estimates include the full-time equivalents of all the part-time professional librarians.

Table 4. Employment of teachers and librarians in fall of school year, 1959–60 through 1967–68

(In thousands)

Occupation	1967–68	1966–67	1965–66	1964–65	1963–64	1962–63	1961–62	1960–61	1959–60
Elementary and secondary teachers	[1]2,095	2,028	1,951	1,882	1,806	1,727	1,668	1,600	1,531
Elementary school	1,193	1,159	1,123	1,096	1,062	1,036	1,015	991	952
Public	1,040	1,006	965	940	908	886	869	858	832
Nonpublic [2]	153	153	158	156	154	150	146	133	120
Secondary school	902	869	828	786	743	690	653	609	580
Public	815	783	746	708	669	621	592	550	524
Nonpublic [2]	87	86	82	78	74	69	61	59	56
College instructional staff [3]	478	449	427	387	356	334	311	294	282
Instructors or above	406	382	363	329	303	285	265	253	243
Full-time	271	255	243	220	202	190	177	169	162
Part-time	135	127	120	109	101	95	88	84	81
Junior instructional staff	72	67	64	58	53	49	46	42	39
Librarians [4]	([5])	([5])	81	77	73	69	66	63	62
Public elementary and secondary	([5])	([5])	28	27	25	23	22	20	20
Nonpublic elementary and secondary	([5])	([5])	5	5	4	4	4	3	3
College and university	([5])	([5])	14	12	12	11	10	10	9
Public library [6]	([5])	([5])	22	21	21	20	20	20	20
Special library	([5])	([5])	13	12	12	10	10	10	10

[1] Preliminary.

[2] The estimates of nonpublic classroom teachers and instructional staff during 1960–61 through 1965–66 were revised in 1968 on the basis of the 1965 Office of Education Survey.

[3] Data are for the 50 States and the District of Columbia. Data cover only faculty for resident instruction in degree credit courses. Data for 1964–65, 1962–63, and 1960–61 are interpolated. Data for 1967–68, 1966–67, and 1965–66 are estimates.

[4] Includes full-time equivalent of part-time professional librarians. Excludes part-time partly trained librarians. Elementary and secondary school librarians are those with 15 or more semester hours of library science.

[5] Not available.

[6] Based on survey of libraries serving population of 35,000 or over.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data from U.S. Department of Health, Education, and Welfare, Office of Education: For elementary and secondary school teachers from Projections of Educational Statistics to 1977–78, 1968 ed., publication no. OE-10030-68, table 23, and for college instructional staff from table 28; for librarians from Digest of Educational Statistics, 1965 ed., publication no. OE-10024-65, table 128 and 1966 ed., publication no. 10029-66, table 138.

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Chapter 7. Occupational Employment Data from Regulated Interstate Industries

Occupational statistics for the regulated industries (transportation, communication, and the utilities) engaged in interstate commerce are compiled annually from mandatory reports filed with the Federal regulatory agencies. Except for trucking, industry coverage is relatively complete, since the greater part of each of these industries is involved in interstate commerce.

However, some of the broader occupational classifications (construction installation and repair employees, business office and sales employees) included in these reports are not consistent with generally accepted occupational classifications, for example, U.S. Census. Nevertheless, the employment trends indicated in the broad occupational categories provide helpful information in discerning the change in employment of occupations within the broad categories.

Selected occupational data from these reports are presented in table 5. The sources are described below.

Railroads

Railroad companies regulated by the Interstate Commerce Commission (ICC) which have 3-year average operating revenues generally of $5 million or more, are classified as class I railroads. Those railroad companies having 3-year average operating revenue of below $5 million are classified as class II railroads.

Class I Railroads

In 1967, class I railroads had 88 percent of the railroad transportation industry's employment. The railroad transportation industry is defined as including class I and II line haul railroads, class I and II switching and terminal companies, the Pullman company, the Railway Express Agency Inc., and electric railways.

Class I railroads submit annual reports to the ICC, which summarizes them in Statement No. A300, *Wage Statistics of Class I Railroads in the United States.* Prior to 1966, the employment data for class I railroads were summarized in Statement No. M300, *ibid.* These statements show employment for 128 occupational categories. A few of these categories consist of a mix of occupations. Only a selected number of occupational categories which do not contain a mix of occupations are shown in this bulletin.

Railway Express Agency

In 1967, the Railway Express Agency had over 4 percent of the employment in the railroad transportation industry. Employment data for 28 occupations and occupational groups employed by the Railway Express Agency are provided in the annual issues of *Transport Statistics in the United States,* Part 1, Section F; The Railway Express Agency Inc., Interstate Commerce Commission, Bureau of Transport Economics and Statistics. Prior to 1966 these data may be found in *Transport Statistics in the United States,* Part 3.

Pullman Company

In 1967, the Pullman Company had less than 1 percent of the employment in the railroad transportation industry. Occupational data for this company are provided on an annual basis for 14 occupations and occupational groups. These data may be found in the annual issues of *Transport Statistics in the United States,* Part 1, Section E. Prior to 1966 these data appeared in Part 2 of *Transport Statistics in the United States.*

Oil Pipelines

Ninety pipeline companies representing over 88 percent of the industry employment filed reports with ICC for the year 1967 compared with 87 companies representing about 85 percent of the industry employment for 1966. These data appear in *Transport Statistics in the United States,* Part 6.

Scheduled Airlines

The Air Transport Association of America annaully obtains occupational employment data from airline industry information filed with the Civil Aeronautics Board and publishes them in *Air Transport Facts and Figures.* In 1967, these data covered over 90 percent of the airline industry employment. The Federal Aviation Agency publishes an annual publication *FAA Statistical Handbook of Aviation* in which employment and other scheduled airlines information appears in great detail.

Telephones

Occupational employment information in the telephone industry can be acquired from annual reports of the Federal Communications Commission (FCC) and the U.S. Independent Telephone Association. The U.S. Department of Labor publishes an annual wage survey in the communication industry entitled *Industry Wage Survey: Communications.* The data contained in the wage survey are compiled from annual reports filed with FCC by telephone companies having annual revenues exceeding $1 million. Prior to 1965 the revenue test was $250,000.

Annual employment data for the independent telephone segment of the telephone industry is available in the *Independent Telephone Statistics* published by the U.S. Independent Telephone Association. The combination of the two reports covers all employment in the telephone industry except for officials and managerial assistants employed by the Bell System.

Telegraph

Annual occupational employment data for the telegraph industry are published in the *Industry Wage Survey: Communications.* The data contained in this survey are compiled from annual reports filed with the FCC by all companies in the telegraph industry having annual revenues exceeding $50,000. The data covers the 26,000 employees of the Western Union Telegraph Company and 5,100 employees of six international telegraph carriers. Approximately 2,300 employees working outside the conterminous United States and the District of Columbia are excluded. These data include, substantially, the whole industry.

Table 5. Employment in selected occupations, regulated interstate industries, 1960–67

(In thousands)

Occupation[1]	1967	1966	1965	1964	1963	1962	1961	1960
Class I railroads (line-haul)	610.2	630.9	640.0	665.0	680.0	700.1	717.5	780.5
Conductors, railroad	38.0	38.7	38.0	37.4	37.1	37.0	36.9	39.0
Office-machine operators	6.0	6.1	6.1	6.0	6.0	6.3	6.6	7.0
Secretaries	3.3	3.4	3.4	3.4	3.5	3.5	3.6	3.8
Stenographers and typists	7.6	7.9	8.0	8.3	8.6	9.0	9.5	10.4
Telephone operators	1.8	1.9	2.0	2.1	2.3	2.4	2.5	2.8
Carpenters	5.2	5.5	5.7	6.0	6.1	6.3	6.5	7.1
Linemen and servicemen (telephone and telegraph)	2.1	2.2	2.2	2.3	2.3	2.3	2.4	2.5
Blacksmiths, forgemen, and hammermen	1.5	1.7	1.8	1.8	1.8	1.8	1.7	2.0
Boilermakers	1.7	1.8	1.8	1.9	2.0	2.0	2.1	2.3
Stationary engineers	.6	.7	.7	.8	.8	.9	.9	1.0
Locomotive engineers	35.3	36.2	35.1	34.3	33.9	34.2	34.1	36.2
Locomotive firemen	19.2	19.6	21.8	30.0	35.9	36.5	36.6	38.8
Drivers and deliverymen	5.7	5.9	5.9	5.8	5.8	5.8	5.7	5.9
Railway Express Agency, Inc.	29.5	30.9	32.1	31.4	30.4	30.4	30.4	30.8
Drivers and deliverymen	10.0	10.3	10.4	10.0	9.6	9.4	9.2	9.0
Train messengers	.5	.7	.9	1.1	1.1	1.2	1.3	1.5
Warehouse and platform laborers	5.0	5.3	5.9	5.7	5.3	5.2	5.3	5.5
The Pullman Company	4.2	4.9	5.3	5.5	5.9	6.4	6.7	7.3
Conductors	.4	.5	.5	.5	.6	.6	.6	.7
Porters	1.7	2.0	2.1	2.2	2.2	2.5	2.6	2.9
Oil pipelines	15.9	16.2	16.9	17.1	18.2	19.2	20.3	21.3
Station engineers and pumpers	2.1	2.2	2.3	2.5	2.5	2.8	3.0	3.3
Gager-deliverymen and oil receivers	2.7	2.8	2.9	2.9	3.1	3.2	3.4	3.6
Pipeline repairmen	1.4	1.4	1.5	1.7	1.8	2.0	2.1	2.3
Other mechanics	.8	.7	.7	.7	.7	.7	.7	.8
Laborers	1.1	1.1	1.1	1.1	1.2	1.2	1.1	1.1
Scheduled airlines	276.0	244.0	205.9	191.8	178.9	172.8	169.9	166.1
Airline pilots and copilots	23.4	21.0	16.3	15.1	14.3	13.8	13.9	13.5
Airline stewardesses and pursers	25.1	20.9	17.1	14.5	13.1	12.2	11.9	10.6
Other flight personnel	7.5	6.8	4.8	4.4	4.0	4.2	4.2	3.8
Communications personnel	3.3	3.2	3.2	3.2	3.7	3.4	3.7	4.2
Mechanics and maintenance personnel	50.0	45.3	40.7	39.4	34.5	34.9	34.1	34.2
Aircraft and traffic service personnel	74.9	66.6	56.3	51.9	49.1	46.7	44.6	43.3
Office employees	59.3	51.0	42.9	40.3	37.9	37.0	36.6	35.4
Other employees	32.4	29.2	24.7	23.0	22.4	20.7	20.9	21.1
Telephone industry	760.0	750.3	722.5	699.9	678.7	669.6	672.5	694.9
Professional and semiprofessional personnel	74.5	72.4	67.5	64.0	60.9	53.4	52.0	50.5
Business office and sales employees	59.4	58.8	54.3	52.7	51.4	52.0	51.6	49.8
Clerical employees	164.1	161.9	152.2	147.9	142.5	142.9	142.6	144.9
Telephone operators	212.8	212.2	199.1	193.1	189.2	188.5	196.8	216.3
Foremen, telephone craftsmen	32.1	31.4	28.9	27.2	26.1	25.9	25.5	26.0
Central office craftsmen	78.0	75.3	69.0	65.9	63.1	62.0	59.1	58.0
Installation and exchange repair craftsmen	86.8	85.1	79.6	77.7	75.1	73.2	72.0	71.2
Line, cable, and conduit craftsmen	41.2	41.6	39.2	38.3	37.0	38.1	38.8	43.0
Building, supplies, and motor vehicle employees	25.1	25.2	24.9	25.4	26.0	27.2	27.9	28.8
Laborers	.5	.4	.4	.4	.4	.5	.5	.5
Other employees	2.8	2.7	2.7	2.3	2.4	1.4	1.5	1.7
Telegraph industry	31.4	31.9	30.9	31.6	32.8	34.9	36.5	37.6
Professional and semiprofessional personnel	1.7	1.7	1.4	1.2	1.2	1.4	1.4	1.4
Office superintendents	2.5	2.5	2.6	2.6	2.8	2.9	3.0	3.1
Sales employees	.5	.5	.5	.5	.5	.6	.6	.6
Clerical employees	7.5	7.5	7.2	7.3	7.7	8.1	8.5	8.7
Telegraph operators	6.0	6.2	6.1	6.3	7.0	7.4	8.0	8.7
Telephone operators	1.5	1.5	1.3	1.3	1.5	1,6	1.8	1.9
Construction, installation, and repair employees	7.2	7.4	6.9	6.9	6.5	7.1	6.9	6.6
Building service employees	.6	.6	.6	.6	.7	.8	.9	.9
Messengers	3.9	4.1	4.3	4.5	5.0	5.1	5.6	5.9

[1] Group totals include data not shown separately.

SOURCE: See text, pp. 22 and 23.

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Chapter 8. Employment in Engineering, Scientific, and Technical Occupations in Private Industry

Since the middle 1950's, the Bureau of Labor Statistics has been conducting a series of employment surveys of scientists, engineers, and technicians in private industry. The results of the 1967 survey[17] based on an extensive sample (27,000 establishments) are the most reliable estimates available of occupational employment of scientific personnel in 82 industries. Private industry constitute the largest segment of total occupational employment statistics. The remaining segments contributing occupational employment statistics to total employment are colleges and universities, government, and nonprofit organizations all of which are provided for in separate surveys, and the self-employed which are estimated separately. The scientific and technical personnel data for 1966 and earlier years which appeared as preliminary data in the previous bulletin[18] have been revised in this bulletin to agree with final estimates.

Some of the results of the 1961 through 1967 surveys are presented in tables 6 through 10 of this report. Since 1961, these surveys have been on an establishment basis which has improved the industry classification. Consequently, the information from the pre-1961 surveys which were on a company basis are not exactly comparable to those after 1961.[19] Moreover, since 1961, the survey of scientific and technical personnel in industry was refined to show a greater subdivision of industry detail. For instance, the private payroll employment of scientists, engineers, and technicians was tabulated for 82 industries in 1967 compared with 55 in 1961. This expansion and finer classification has provided more detail on the functions and structure of the occupational patterns in industry. Furthermore, the sampling universe covers about 34 million workers in 530,000 establishments from which a sample of 27,000 establishments was drawn.

Some of the more significant "out of scope" components in the 1967 survey of private industry were those regarding the nature of the industry, the size of the establishment, and the self-employed. For example, analysis of previous surveys indicated that (1) some industry groupings should be omitted from the scope of the survey because of their negligible numbers of scientists and engineers (for example, apparel and accessory stores) and that (2) the minimum employment size of an establishment to be surveyed should be determined separately for each industry in order to improve the efficiency of the survey. Those establishments below the minimum size were omitted from the survey. (See table 11.)

Tables 6, 7, and 8 present occupational employment statistics for total engineers, scientists, and technicians by industry and year. Tables 9 and 10 include the occupational employment of six occupations each of scientists and technciains by industry for January 1967. These tables include only the people working as engineers, scientists, and technicians for a wage or salary, regardless of the field of degree or whether they hold a college degree. For example, an employee trained as an engineer but working as a chemist was counted as a chemist.

Tables 6, 7, and 8 are a composite of several surveys. Each year reflects the results of a separate survey because of additions to the sample, reports not necessarily received from the same establishments each year, and the degree of inconsistency in reporting where different depart-

17 A publication containing the results of the 1967 survey of scientific and technical personnel in industry is in preparation. The latest published in the series which also contains back year data is *Scientific and Techncial Personnel in Industry 1961-66* (Bulletin 1609, Washington, D.C., 1968).

18 *Occupational Employment Statistics 1960-66* (Bulletin 1579). Bureau of Labor Statistics, January 1968.

19 For information on the pre-1961 surveys see National Science Foundation: *Scientific and Technical Personnel in Industry, 1960* (1961); *Scientific and Technical Personnel in American Industry, Report on a 1959 Survey* (1962); *Science and Engineering in American Industry, Final Report on a 1953-54 Survey* (Oct. 1956) *and* 1956 Survey *(Nov. 1956).*

ments or company officials may complete the survey for different years. Despite such fluctuations on a year to year basis, the data provide the best estimates available on the employment of scientific and technical personnel in private industry and the only estimates on an establishment basis.

The tabulation shows the relative sampling error for employment estimates of the major scientific and technical occupational groups surveyed, as of January 1967, for all industries. The relative error shows the amount (in percentage terms) of deviation due to sampling variability, assuming no bias due to nonresponse, between an estimate and the figure that would have been obtained had it been possible to take a complete census using the same schedules and procedures. The tabulation shows that an estimate will differ 2 times out of 3 from a complete census by less than the above relative error. The effect of nonsampling errors, for example, response errors, processing errors, or bias arising from the collection steps, is not shown in the above tabulation.

Occupational group	Relative sampling error (Percent)
Engineers	1.9
Physical scientists	3.5
Mathematicians	11.5
Technicians	2.4

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Table 6. Employment of engineers by industry, as of January 1961–67

(In thousands)

SIC code	Industry	1967	1966	1965	1964	1963	1962	1961
	All industries	824.0	776.2	749.2	726.4	711.6	669.7	640.1
07-09	Agriculture, forestry, and fisheries [1]	-	-	-	-	-	-	-
10-14	Mining	17.3	17.2	17.3	17.0	17.0	([2])	([2])
15-17	Contract construction	43.3	46.7	42.0	38.8	38.8	37.5	36.2
	Manufacturing	577.5	536.2	519.9	504.4	503.3	472.3	450.2
19	Ordnance and accessories	51.9	51.5	50.7	47.4	46.2	41.1	36.2
20	Food and kindred products	6.2	4.9	4.8	4.4	5.8	5.8	5.8
22, 23	Textile mill products and apparel	3.7	3.7	3.4	3.8	2.9	2.7	2.6
26	Paper and allied products	9.4	9.7	9.6	9.3	9.5	9.5	9.0
28	Chemicals and allied products	42.5	40.6	38.6	39.4	34.6	33.2	32.2
29	Petroleum refining and related industries	10.7	9.9	10.1	9.8	9.6	9.5	9.4
30	Rubber and miscellaneous plastics products	9.7	7.8	7.2	6.0	5.6	5.1	5.3
32	Stone, clay, and glass products	9.6	8.9	8.4	7.8	8.0	7.9	7.6
33	Primary metal industries	21.4	20.5	20.0	18.6	20.3	21.1	20.5
34	Fabricated metal products	29.2	27.9	26.2	24.8	24.7	23.9	23.9
35	Machinery, except electrical	81.5	75.1	73.5	72.7	69.6	65.3	62.3
36	Electrical machinery, equipment, and supplies	142.0	135.5	132.1	129.6	133.9	122.7	117.7
37	Transportation equipment [3]	119.5	103.6	100.6	96.7	97.3	90.5	85.9
38	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	32.4	29.6	27.9	26.7	26.8	25.9	24.3
	Other [4]	7.8	7.0	6.7	6.5	6.7	6.4	6.1
	Transportation, communication, and utilities	53.2	51.6	50.8	46.6	44.8	44.7	43.2
40	Railroad transportation	4.2	4.1	4.1	8.8	8.3	8.7	8.8
41-47	Other transportation services	5.1	4.3	4.3				
48	Communication	17.9	17.1	16.8	13.7	12.9	12.8	12.5
49	Electric, gas, and sanitary services	25.9	26.1	25.5	24.1	23.6	23.2	21.9
50-59	Wholesale and retail trade	24.8	23.0	21.6	23.1	18.2	16.7	15.0
60-67	Finance, insurance, and real estate	4.4	4.2	4.0	5.0	3.1	3.1	2.5
	Services	103.4	97.3	93.7	90.5	85.5	78.9	75.7
70-79, 81	Hotel, personal, business, repair, amusement, recreation, and legal [5]	39.4	36.1	35.2	36.5	35.7	30.0	28.8
807	Medical and dental laboratories	-	-	-	-	-	-	-
891	Engineering and architectural services	64.0	61.2	58.5	54.0	49.8	48.9	46.9

[1] Estimates for engineers in this industry group are included in the total only, since they have averaged fewer than 1,000 over the years.

[2] No estimates for engineers in mining are shown for 1961 and 1962 because the data are not comparable with later years.

[3] Due to a change in estimating procedure and the allocation of consolidated reports in the motor vehicle industry, the 1967 data are not comparable with 1966 and earlier years. This adjustment also affects to a lesser degree ordnance and industries in the electrical machinery group.

[4] Included are: Tobacco manufactures (SIC 21); lumber and wood products (SIC 24); furniture and fixtures (SIC 25); printing and publishing (SIC 27); leather and leather products (SIC 31); and miscellaneous manufacturing (SIC 39).

[5] Virtually all the employment is contained in commercial laboratories, research and other business services (SIC 739).

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data cover payroll employment in private industry and are drawn from the annual surveys conducted by the U.S. Department of Labor, Bureau of Labor Statistics with the support of the National Science Foundation. (For further details, see Bulletin 1609, Scientific and Technical Personnel in Industry, 1961-1966, and a forthcoming bulletin soon to be published entitled Scientific and Technical Personnel in Industry, 1967.) Scientific and technical personnel in governments, colleges and universities, and nonprofit institutions were excluded because they are covered in separate surveys.

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Table 7. Employment of scientists[1] by industry, as of January 1961–67

(In thousands)

SIC code	Industry	1967	1966	1965	1964	1963	1962	1961
	All industries	189.1	178.4	168.6	164.6	158.8	154.3	146.9
07-09	Agriculture, forestry, and fisheries[2]	-	-	-	-	-	-	-
10-14	Mining	14.4	12.0	11.6	10.1	10.5	([3])	([3])
15-17	Contract construction[2]	-	-	-	-	-	-	-
	Manufacturing	135.8	129.7	123.5	125.9	122.4	120.1	115.2
19	Ordnance and accessories	9.0	8.4	7.8	7.2	6.7	6.1	4.5
20	Food and kindred products	7.4	6.9	7.2	7.6	7.1	6.7	7.2
22, 23	Textile mill products and apparel	1.8	2.5	2.3	1.2	1.3	1.3	1.2
26	Paper and allied products	4.5	4.1	3.9	4.0	3.9	3.9	3.6
28	Chemicals and allied products	56.9	57.1	53.4	51.5	50.4	49.9	47.2
29	Petroleum refining and related industries	4.0	4.0	4.0	5.1	5.0	4.9	4.9
30	Rubber and miscellaneous plastics products	2.7	3.2	3.0	2.0	2.1	2.0	1.9
32	Stone, clay, and glass products	2.4	1.7	1.5	2.1	2.1	2.1	2.1
33	Primary metal industries	7.8	7.2	7.3	9.5	9.5	10.5	9.9
34	Fabricated metal products	2.6	2.3	2.6	2.6	2.3	2.1	2.2
35	Machinery, except electrical	7.1	6.5	6.5	7.1	5.8	5.2	4.9
36	Electrical machinery, equipment, and supplies	10.5	9.0	8.2	9.7	10.4	9.5	9.2
37	Transportation equipment[4]	11.3	8.9	8.7	9.1	8.7	8.9	9.5
38	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	5.7	6.0	5.4	4.7	4.7	4.6	4.4
	Other[5]	2.0	1.9	1.7	1.9	1.7	1.6	1.7
	Transportation, communication, and utilities	1.9	1.8	1.8	2.0	1.7	1.6	1.6
40-47	Transportation and related services[2]	-	-	-	-	-	-	-
48	Communication[2]	-	-	-	-	-	-	-
49	Electric, gas, and sanitary services	1.2	1.2	1.2	1.2	1.1	1.0	1.0
50-59	Wholesale and retail trade	10.1	8.6	7.9	4.3	3.5	3.1	2.7
60-67	Finance, insurance, and real estate	4.8	4.8	4.4	2.3	2.1	2.1	2.1
	Services	21.2	20.5	18.6	19.0	17.2	15.3	13.2
70-79, 81	Hotel, personal, business, repair, amusement, recreation, and legal[6]	16.6	16.2	15.1	14.7	13.8	12.4	10.3
807	Medical and dental laboratories	1.6	1.4	1.3	1.2	1.1	1.1	1.0
891	Engineering and architectural services	3.0	2.9	2.2	3.1	2.3	1.8	1.9

[1] Scientists include chemists, physicists, metallurgists, geologists and geophysicists, other physical scientists, agricultural scientists, biological scientists, medical scientists, other life scientists and mathematicians.

[2] Estimates for scientists in this industry group are included in the totals only, since they have averaged fewer than 1,000 over the year.

[3] No estimates for scientists in mining are shown for 1961 and 1962 because the data are not comparable with later years.

[4] Due to a change in estimating procedure and the allocation of consolidated reports in the motor vehicle industry, the 1967 data are not comparable with 1966 and earlier years. This adjustment also affects to a lesser degree ordnance and industries in the electrical machinery group.

[5] Included are: Tobacco manufactures (SIC 21); lumber and wood products (SIC 24); furniture and fixtures (SIC 25); printing and publishing (SIC 27); leather and leather products (SIC 31); and miscellaneous manufacturing (SIC 39).

[6] Virtually all the employment is contained in commercial laboratories, research and other business services (SIC 739).

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data cover payroll employment in private industry and are drawn from the annual surveys conducted by the U.S. Department of Labor, Bureau of Labor Statistics with the support of the National Science Foundation. (For further details, see Bulletin 1609, Scientific and Technical Personnel in Industry, 1961-1966, and a forthcoming bulletin soon to be published entitled Scientific and Technical Personnel in Industry, 1967.) Scientific and technical personnel in governments, colleges and universities, and nonprofit institutions were excluded because they are covered in separate surveys.

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Table 8. Employment of technicians [1] by industry, as of January 1961–67

(In thousands)

SIC code	Industry	1967	1966	1965	1964	1963	1962	1961
	All industries	734.7	673.2	646.5	636.5	619.0	589.5	570.0 [2]
07-09	Agriculture, forestry, and fisheries [3]	-	-	-	-	-	-	-
10-14	Mining	12.3	10.1	10.3	10.4	10.4	([4])	([4])
15-17	Contract construction	25.7	30.2	25.4	23.8	27.8	26.2	26.0
	Manufacturing	416.0	380.4	369.4	370.0	365.3	355.9	329.6
19	Ordnance and accessories	20.9	19.3	19.4	19.2	19.3	18.2	16.9
20	Food and kindred products	5.1	4.2	4.1	4.7	4.0	3.9	3.2
22, 23	Textile mill products and apparel	2.4	2.6	2.2	2.7	2.8	2.8	2.6
26	Paper and allied products	8.1	6.0	6.0	6.3	6.3	6.2	5.7
28	Chemicals and allied products	40.8	38.3	36.7	38.0	36.8	35.5	35.6
29	Petroleum refining and related industries	6.2	5.8	5.7	4.6	4.7	5.8	5.4
30	Rubber and miscellaneous plastics products	5.5	4.9	5.0	4.7	4.9	5.1	5.1
32	Stone, clay, and glass products	7.4	5.6	5.6	5.8	5.7	5.4	5.1
33	Primary metal industries	18.2	17.6	17.4	17.3	16.5	18.1	16.0
34	Fabricated metal products	25.8	24.7	24.7	25.9	25.3	25.8	23.3
35	Machinery, except electrical	77.8	67.4	65.5	64.9	61.7	57.9	53.8
36	Electrical machinery, equipment, and supplies	104.4	100.9	96.8	93.8	93.8	92.6	84.1
37	Transportation equipment [5]	64.4	56.8	55.2	56.0	55.4	51.2	47.8
38	Professional, scientific, and controlling instruments; photographs and optical goods; watches and clocks	22.5	20.2	19.3	18.7	20.6	20.0	18.5
	Other [6]	6.2	6.2	5.8	7.9	7.5	6.9	6.5
	Transportation, communication, and utilities	62.4	58.4	56.9	57.9	55.6	54.3	42.3
40	Railroad transportation	4.0	4.7	4.5	6.5	6.0	6.0	6.2
41-47	Other transportation services	2.7	2.1	2.1				
48	Communication	34.5	31.7	30.6	31.3	30.7	30.4	29.8
49	Electric, gas, and sanitary services	21.2	19.8	19.6	20.1	18.9	17.9	16.3
50-59	Wholesale and retail trade	38.0	31.2	29.4	25.8	23.3	21.6	22.9
60-67	Finance, insurance, and real estate	7.2	5.8	5.2	4.6	4.6	4.4	4.3
	Services	172.5	156.2	149.1	142.5	129.2	113.8	106.6
70-79, 81	Hotel, personal, business, repair, amusement, recreation, and legal [7]	48.5	39.9	39.6	40.2	39.8	36.0	37.0
807	Medical and dental laboratories	20.7	18.5	18.6	18.7	16.2	15.6	13.5
891	Engineering and architectural services	103.3	97.8	90.9	83.6	73.2	62.2	56.1

[1] Technicians include draftsmen, surveyors, electrical and electronic technicians, other engineering and physical science technicians, life science technicians, and all other technicians.

[2] The 1961 technician total includes the addition of 15,000 surveyors, made to insure comparability of the time series on an occupational level, but it has not been possible to allocate this input on an industry level.

[3] Estimates for technicians in this industry group are included in the total only, since they have averaged fewer than 1,000 over the years.

[4] No estimates for technicians in mining are shown for 1961 and 1962 because the data are not comparable with later years.

[5] Due to a change in estimating procedure and the allocation of consolidated reports in the motor vehicle industry, the 1967 data are not comparable with 1966 and earlier years. This adjustment also affects to a lesser degree ordnance and in industries in the electrical machinery group.

[6] Included are: Tobacco manufactures (SIC 21); lumber and wood products (SIC 24); furniture and fixtures (SIC 25); printing and publishing (SIC 27); leather and leather products (SIC 31); and miscellaneous manufacturing (SIC 39).

[7] Virtually all the employment is contained in commercial laboratories, research, and other business services, SIC 739.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data cover payroll employment in private industry and are drawn from the annual surveys conducted by the U.S. Department of Labor, Bureau of Labor Statistics with the support of the National Science Foundation. (For further details, see Bulletin 1609, Scientific and Technical Personnel in Industry, 1961-1966, and a forthcoming bulletin soon to be published entitled Scientific and Technical Personnel in Industry, 1967.) Scientific and technical personnel in governments, colleges and universities, and nonprofit institutions were excluded because they are covered in separate surveys.

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Table 9. Employment of scientists by occupation and industry, as of January 1967

(In thousands)

SIC code	Industry	Total physical and life scientists	Physical scientists					Life scientists	Mathematicians
			Total	Chemists	Physicists	Geologists, geophysicists	All other		
	All industries	189.1	135.3	85.2	16.2	16.4	17.5	22.4	31.3
07-09	Agriculture, forestry, and fisheries	0.7	(1)	(1)	(1)	(1)	(1)	0.7	(1)
10-14	Mining	14.4	14.0	0.9	0.2	12.3	0.5	.8	0.6
15-17	Contract construction	.2	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	Manufacturing	135.8	100.6	72.6	11.7	1.2	15.2	16.3	18.8
19	Ordnance and accessories	9.0	4.9	1.6	2.5	.2	.6	.3	3.8
20	Food and kindred products	7.4	4.5	4.[illegible]	.1	(1)	.4	2.6	.3
22, 23	Textile mill products and apparel	1.8	1.6	1.5	(1)	(1)	.1	(1)	.1
26	Paper and allied products	4.5	3.3	2.7	.1	(1)	.5	.8	.3
28	Chemicals and allied products	56.9	44.3	40.5	2.1	.1	1.5	11.2	1.4
29	Petroleum refining and related industries	4.0	3.8	3.3	.1	.3	.1	(1)	.2
30	Rubber and miscellaneous plastics products	2.7	2.6	2.2	.1	(1)	.3	.1	.1
32	Stone, clay, and glass products	2.4	2.3	1.4	.2	.2	.4	(1)	.2
33	Primary metal industries	7.8	7.4	2.3	.1	.1	4.9	.1	.3
34	Fabricated metal products	2.6	2.0	.9	.3	(1)	.8	(1)	.6
35	Machinery, except electrical	7.1	3.7	1.8	.6	(1)	1.3	.2	3.2
36	Electrical machinery, equipment, and supplies	10.5	7.0	2.5	2.9	.1	1.4	.2	3.4
37	Transportation equipment[2]	11.3	6.9	2.9	1.6	(1)	2.4	.2	4.2
38	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	5.7	5.0	3.5	1.0	(1)	.5	.2	.5
	Other[3]	2.0	1.4	1.4	(1)	(1)	(1)	.3	.3
	Transportation, communication, and utilities	1.9	.9	.5	(1)	(1)	.4	.2	.7
40-47	Transportation and related services	.4	.2	.1	(1)	(1)	.1	.1	.1
48	Communication	.4	(1)	(1)	(1)	(1)	(1)	(1)	.4
49	Electric, gas, and sanitary services	1.2	.7	.3	(1)	(1)	.3	.1	.2
50-59	Wholesale and retail trade	10.1	5.0	4.3	.2	.2	.3	2.7	2.3
60-67	Finance, insurance, and real estate	4.8	(1)	(1)	(1)	(1)	(1)	.2	4.5
	Services	21.2	14.5	6.8	4.0	2.4	1.4	2.1	4.4
70-79, 81	Hotel, personal, business, repair, amusement, recreation, and legal[4]	16.6	12.1	6.0	3.3	1.8	1.1	.7	3.5
807	Medical and dental laboratories	1.6	.4	.3	(1)	(1)	(1)	1.2	(1)
891	Engineering and architectural services	3.0	2.0	.5	.7	.6	.3	.2	.9

[1] Fewer than 50.

[2] Due to a change in estimating procedure and the allocation of consolidated reports in the motor vehicle industry, the 1967 data are not comparable with earlier years. This adjustment also affects to a lesser degree certain other industries, namely ordnance and industries in the electrical machinery group.

[3] Included are: Tobacco manufactures (SIC 21); lumber and wood products (SIC 24); furniture and fixtures (SIC 25); printing and publishing (SIC 27); leather and leather products (SIC 31); and miscellaneous manufacturing (SIC 39).

[4] Virtually all the employment is contained in commercial laboratories, research and other business services (SIC 739).

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data cover payroll employment in private industry and are drawn from the annual surveys conducted by the U.S. Department of Labor, Bureau of Labor Statistics with the support of the National Science Foundation. (For further details, see forthcoming bulletin Scientific and Technical Personnel in Industry, 1967.) Scientific and technical personnel in governments, colleges and universities, and nonprofit institutions were excluded because they are covered in separate surveys.

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Table 10. Employment of technicians by occupation and industry, as of January 1967

(In thousands)

SIC code	Industry	Total	Draftsmen	Surveyors	Electrical and electronic	Other engineering and physical scientists	Life scientists	All other technicians
	All industries	734.7	270.7	22.8	161.0	167.4	29.3	83.6
07-09	Agriculture, forestry, and fisheries	0.7	(1)	(1)	(1)	(1)	0.6	0.1
10-14	Mining	12.3	4.4	1.3	1.2	3.1	.1	2.1
15-17	Contract construction	25.7	17.4	3.1	2.3	.5	(1)	2.4
	Manufacturing	416.0	140.2	1.4	94.1	128.6	6.9	44.8
19	Ordnance and accessories	20.9	4.8	(1)	9.1	5.7	.2	1.1
20	Food and kindred products	5.1	.8	(1)	.3	1.4	1.1	1.6
22, 23	Textile mill and apparel products	2.4	.4	(1)	.2	.6	(1)	1.2
26	Paper and allied products	8.1	1.5	.1	.7	4.9	.2	.8
28	Chemicals and allied products	40.8	4.2	.1	1.5	24.1	3.9	7.0
29	Petroleum refining and related industries	6.2	.8	.1	.3	3.8	(1)	1.2
30	Rubber and miscellaneous plastics products	5.5	1.4	(1)	.2	2.7	.1	1.1
32	Stone, clay, and glass products	7.4	2.1	.1	1.5	2.3	.1	1.2
33	Primary metal industries	18.2	5.1	.2	1.5	8.5	.1	2.9
34	Fabricated metal products	25.8	17.5	.2	1.3	5.1	(1)	1.6
35	Machinery, except electrical	77.8	39.1	.1	12.8	17.6	.2	7.9
36	Electrical machinery, equipment, and supplies	104.4	29.9	.4	47.4	19.2	.2	7.3
37	Transportation equipment[2]	64.4	23.1	.1	9.8	26.1	.2	5.3
38	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	22.5	6.6	(1)	6.5	5.4	.5	3.5
	Other[3]	6.2	2.8	.1	.7	1.4	.1	1.1
	Transportation, communication, and utilities	62.4	9.1	2.7	29.0	15.8	.1	5.7
40-47	Transportation and related services	6.7	2.0	1.2	1.7	.6	.1	1.2
48	Communication	34.5	.8	(1)	21.0	10.6	(1)	2.0
49	Electric, gas, and sanitary services	21.2	6.3	1.5	6.2	4.5	.1	2.5
50-59	Wholesale and retail trade	38.0	4.8	(1)	17.1	2.6	1.8	11.6
60-67	Finance, insurance, and real estate	7.2	.7	(1)	.1	.4	.1	5.8
	Services	172.5	94.0	14.1	17.2	16.4	19.6	11.1
70-79, 81	Hotel, personal, business, repair, amusement, recreation, and legal[4]	48.2	16.6	.4	13.5	12.4	.7	4.6
807	Medical and dental laboratories	20.7	(1)	(1)	(1)	(1)	18.8	1.8
891	Engineering and architectural services	103.3	77.3	13.8	3.7	4.0	.1	4.5

[1] Fewer than 50.

[2] Due to a change in estimating prodedure and the allocation of consolidated reports in the motor vehicle industry, the 1967 data are not comparable with earlier years. This adjustment also affects to a lesser degree certain other industries, namely, ordnance and industries in the electrical machinery group. However, the impact of this adjustment is largely restricted to 2 occupations, engineers and engineering and physical science technicians.

[3] Included are: Tobacco manufactures (SIC 21); lumber and wood products (SIC 24); furniture and fixtures (SIC 25); printing and publishing (SIC 27); leather and leather products (SIC 31); and miscellaneous manufacturing (SIC 39).

[4] Virtually all the employment is contained in commercial laboratories, research and other business services (SIC 739).

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data cover payroll employment in private industry and are drawn from the annual surveys conducted by the U.S. Department of Labor, Bureau of Labor Statistics with the support of the National Science Foundation. (For further details, see forthcoming bulletin Scientific and Technical Personnel in Industry, 1967.) Scientific and technical personnel in governments, colleges and universities, and nonprofit institutions were excluded because they are covered in separate surveys.

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Table 11. Minimum employment[1] size of establishments by industry covered by 1961–67 surveys

SIC code	Industry	1961–64	1965–67
07-09	Agriculture, forestry, and fisheries	50	10
	Mining:		
10	Metal	10	10
11-12	Anthracite, bituminous, and lignite	10	10
13	Crude petroleum and natural gas	1	4
14	Nonmetallic minerals, except fuels	10	10
15-17	Contract construction	10	4
	Manufacturing:		
19	Ordnance and accessories	1	4
20	Food and kindred products	10	10
21	Tobacco manufactures	10	50
22	Textile mill products	50	50
23	Apparel and other finished products	10	100
24	Lumber and wood products	50	50
25	Furniture and fixtures	50	50
26	Paper and allied products	10	10
27	Printing and publishing	10	100
28	Chemicals and allied products	1	4
29	Petroleum refining and related industries	1	10
30	Rubber and miscellaneous plastics products	10	10
31	Leather and leather products	10	50
32	Stone, clay, and glass products	10	4
33	Primary metal industries	1	4
34	Fabricated metal products	1	4
35	Machinery, except electrical	1	1
36	Electrical machinery, equipment, and supplies	1	4
37	Transportation equipment	1	4
38	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	1	4
39	Miscellaneous	10	10
	Transportation, communication, and utilities:		
40	Railroad transportation	100	50
41-47	Other transportation services	1	50
48	Communication	1	4
49	Electric, gas, and sanitary services	1	4
50-59	Wholesale and retail trade	50	10
60-67	Finance, insurance, and real estate	50	50
	Services:		
739	Commerical laboratories; business and management consulting services	1	1
807	Medical and dental laboratories	1	1
891	Engineering and architectural services	1	1
70-79 (excl. 739), 81	Other services	50	100

[1] Slightly different minimum employment sizes may apply to some sectors within major industry groups.

SOURCE: 1961–66: Scientific and Technical Personnel in Industry, 1961–66, Bulletin 1609, p. 64. In 1967 the minimum employment size of the surveyed establishments was the same as during 1965–66.

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Chapter 9. Employment of Engineers, Scientists, and Technicians by Universities and Colleges and by Scientific and Research Nonprofit Organizations

This chapter contains information published by the National Science Foundation concerning the employment of scientific and technical personnel employed in universities and colleges and nonprofit organizations. Included with universities and colleges are the Federally funded research and development centers. These research centers were established to satisfy a particular need of a Federal agency and are exclusively or substantially financed by the Federal Government and administered by universities or groups of universities, for example, the Jet Propulsion Laboratory administered by the California Institute of Technology and funded by the National Aeronautical and Space Administration; the Los Alamos Scientific Laboratory administered by the University of California and funded by the Atomic Energy Commission; or the Applied Physics Laboratory administered by John Hopkins University and funded by the Defense Department. These centers had nearly 6 percent of the full-time employment (4 percent of the full-time and part-time employment combined) of engineers and scientists employed by universities and colleges in 1967. The engineers and scientists employed by these centers were almost exclusively engaged in research and development and related activities. Moreover, the research centers though small in employment when compared with total engineering and scientific personnel employed by universities and colleges, nevertheless, employed 20 and 18 percent of the full-time physicists and engineers, respectively.

Tables 12 and 13 contain employment data for engineers and scientists employed by universities and colleges in 1965 and 1967, respectively. Employment data for technicians at universities and colleges for 1965 and 1967 are presented in table 14. Estimates on the annual staffing requirements through 1975 of engineers and scientists in universities and colleges are available from the National Science Foundation.[20] In another recent publication, the National Science Foundation has noted the employment characteristics of the 250,000 scientists and engineers employed by universities and colleges in the United States in 1965.[21]

Occupational employment data for engineers, scientists, and technicians employed by independent nonprofit organizations in 1965 and 1967, are presented in table 15. For the interested reader, the National Science Foundation has available two recent publications concerning the number of scientists and engineers employed by independent nonprofit organizations.[22]

20 *Science and Engineering Staff in Universities and Colleges, 1965-1975* (May 1967), National Science Foundation.

21 *Scientific Activities at Universities and Colleges, 1964* (May 1968). National Science Foundation, Washington, D.C.

22 *Scientific Activities of Nonprofit Institutions—1966, Expenditures and January 1967 Manpower* (1969), NSF 69-16, National Science Foundation and *Scientific Activities of Nonprofit Institutions—1964 Expenditures and January 1965 Manpower* (1967), NSF 67-17, National Science Foundation, Washington, D.C.

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Table 12. Employment of engineers and scientists by universities and colleges, as of January 1965 [1]

(In thousands)

Field of employment	Full time			Part time [2]		
	Total	Teaching	Other [3]	Total	Teaching	Other [4]
Total	159.6	98.2	61.2	102.1	60.1	42.0
Engineers	22.9	13.2	9.7	14.5	7.1	7.4
Aeronautical	1.1	.6	.6	.9	.4	.6
Chemical	1.6	1.0	.6	1.6	.7	1.0
Civil	2.8	2.2	.6	2.0	.9	1.0
Electrical	6.7	3.2	3.5	3.7	2.1	1.6
Mechanical	4.7	2.9	1.8	2.4	1.5	.9
Industrial	1.0	.8	.3	.6	.4	.1
Other engineers	4.9	2.6	2.3	3.3	1.2	2.1
Physical scientists	38.7	26.6	12.1	29.4	18.2	11.2
Chemists	11.0	7.3	3.7	9.9	5.8	4.2
Earth scientists	3.7	2.7	1.0	2.8	1.6	1.1
Physicists	10.4	6.0	4.4	8.1	4.1	4.0
Mathematicians	11.9	10.0	1.9	7.7	6.4	1.3
Other physical scientists	1.8	.7	1.1	1.0	.3	.7
Life scientists	63.4	29.3	34.1	38.0	20.2	17.8
Agricultural	13.4	2.9	10.5	5.0	1.0	4.0
Biological	21.0	12.7	8.3	12.4	6.7	5.7
Medical	29.0	13.7	15.3	20.6	12.5	8.1
Psychologists	7.1	5.7	1.3	5.7	3.7	2.1
Social scientists	26.6	22.9	3.6	14.3	10.8	3.4
Economists	6.4	5.1	1.3	3.7	2.6	1.1
Sociologists	4.9	4.3	.5	3.0	2.2	.8
Political scientists	4.9	4.5	.4	2.3	1.9	.4
Other social scientists	10.4	9.0	1.4	5.3	4.2	1.1
Other scientists, not specified	.9	.5	.4	.2	.1	.1

[1] Includes employment in Federally funded research and development centers administered by universities and colleges. These centers accounted for almost 5 percent of employment and were almost exclusively involved in research and development.

[2] Graduate students were slightly more than 50 percent of all part-time employees and were concentrated in the physical sciences occupations. Other part-time employees were concentrated in the life sciences occupations.

[3] Includes administrative and other functions. Over 70 percent were involved with research and development functions. Less than 20 percent were employed in the Federally funded research and development centers.

[4] Includes administrative and other functions. Almost all were employed by the universities and colleges, and over 85 percent were involved with research and development functions.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Scientific Activities at Universities and Colleges, 1964, May 1968, National Science Foundation, and unpublished data at the National Science Foundation.

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Table 13. Employment of engineers and scientists by universities and colleges, as of January 1967[1]

(In thousands)

Field of employment	Full time			Part time[2]		
	Total	Teaching	Other[3]	Total	Teaching	Other[4]
All occupations	184.7	107.7	77.2	118.5	67.3	51.4
Engineers	25.8	13.4	12.4	17.0	7.5	9.6
Aeronautical	1.3	.6	.7	1.0	.3	.8
Chemical	1.6	.9	.7	1.7	.7	1.0
Civil	3.3	2.3	1.0	2.4	1.0	1.4
Electrical	7.6	3.3	4.2	4.5	2.2	2.3
Mechanical	5.2	2.7	2.5	2.5	1.3	1.1
Industrial	.8	.6	.2	.7	.5	.3
Other engineers	5.9	2.9	3.0	4.2	1.5	2.7
Physical scientists	47.1	30.8	16.3	34.5	20.8	13.7
Chemists	12.9	8.2	4.7	11.5	6.5	5.0
Earth scientists	4.6	3.1	1.6	3.7	1.9	1.8
Physicists	12.3	6.4	5.9	8.5	4.1	4.5
Mathematicians	15.3	12.3	2.9	9.7	7.9	1.8
Other physical scientists	1.9	.8	1.2	1.1	.4	.7
Life scientists	70	30.2	40.1	41.5	21.2	20.3
Agricultural	15.3	3.0	12.3	5.4	.9	4.6
Biological	23.9	14.3	9.6	15.2	8.0	7.2
Medical	30.9	12.8	18.1	20.9	12.3	8.6
Psychologists	8.6	6.6	2.0	6.8	4.4	2.4
Social scientists[5]	32.3	26.4	5.9	17.9	13.1	4.8
Economists	7.9	5.9	2.0	4.8	3.1	1.6
Sociologists	5.9	4.9	1.0	3.3	2.6	.8
Political scientists	5.9	5.2	.7	2.9	2.3	.6
Other	12.6	10.4	2.2	6.9	5.1	1.8
Other scientists, not specified	.8	.3	.5	.8	.3	.6

[1] Includes employment in Federally funded research and development centers administered by universities and colleges.

[2] Part-time employment was nearly 40 percent of total employment; graduate students employed as scientists and engineers were over 60 percent of the part-time employment and were concentrated in the physical sciences and mathematics group. Other part-time employees were concentrated in the life sciences occupations.

[3] Includes administrative and other functions. Over 70 percent were involved with research and development functions. Less than 15 percent were employed in the Federally funded research and development centers.

[4] Includes administrative and other functions. Almost all were employed by the universities and colleges, and 90 percent were involved with research and development.

[5] The social science definition was expanded in 1967 to include research in education.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Based on unpublished survey data at the National Science Foundation.

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Table 14. Employment of technicians by universities and colleges,[1] as of January 1965 and January 1967

(In thousands)

Field of employment	Total		Research and development		Other activities	
	1965	1967	1965	1967	1965	1967
Total	47.0	57.5	36.2	44.8	10.8	12.7
Engineering and physical science	16.0	22.6	14.1	19.0	1.9	3.5
Life science	26.1	30.5	19.0	22.9	7.1	7.6
Social science	1.2	1.3	1.0	1.0	.2	.3
Other	3.7	3.1	2.1	1.8	1.6	1.3

[1] Includes employment in Federally funded research and development centers managed exclusively or primarily by universities and colleges. These centers had about 20 percent of employment in 1965 and 15 percent in 1967 and were engaged almost exclusively in research and development.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: 1965 data, Scientific Activities at Universities and Colleges, 1964, May 1968, and Scientific Activities of Nonprofit Institutions - 1964 Expenditures and January 1965 Manpower, National Science Foundation, 1967; 1967 data, unpublished at the National Science Foundation.

Table 15. Employment of engineers, scientists, and technicians by independent nonprofit institutions, as of January 1965 and January 1967

(In thousands)

Field of employment	Employment[1]	
	1965[2]	1967[3]
Engineers	4.8	5.5
Physical scientists	4.0	3.7
Mathematicians	1.6	2.5
Life scientists	5.0	4.2
Psychologists	.8	1.5
Social scientists[4]	1.8	2.2
Technicians[5]	6.9	7.4

[1] Employment includes full- and part-time workers. Employment excludes that in voluntary nonprofit hospitals and health agencies. Almost 90 percent of the employment shown for both years was involved in research and development.

[2] Includes independent research institutes and operating foundations, Federally funded research and development centers administered by nonprofit institutions, private philanthropic foundations, professional and technical societies, academies of science, science exhibitors, and other nonprofit organizations.

[3] Ibid., except that 1967 employment excludes 2,525 scientists and engineers; 2,055 in academies of science and 470 in private philanthropic foundations.

[4] The definition of social scientists was expanded in 1967 to include research in education.

[5] Includes engineering and all science fields.

SOURCE: 1965 data, Scientific Activities of Nonprofit Institutions - 1964 Expenditures and January 1965 Manpower, National Science Foundation, 1967; 1967 data, Scientific Activities of Nonprofit Institutions 1966, 1969, National Science Foundation.

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Chapter 10. Occupational Employment in Federal and State Governments

Federal Government

The U.S. Civil Service Commission (CSC) complies comprehensive occupational employment information[23] on the Federal work force. In its latest publications, *Occupations of Federal White-Collar Workers, October 31, 1967,* data are presented for over 450 occupational series for each of 23 agencies (including one catch-all category).[24] Some of the white-collar occupational employment information is shown in table 16 which presents data for over 150 series containing employment of 1,000 or more persons at least once during the periods ending October 31, 1964, October 31, 1966, and October 31, 1967. A similar publication, *Occupations of Federal Blue-Collar Workers, October 31, 1966,* contains data for nearly 1,500 categories of craftsmen, operatives, laborers, and related workers for each of 23 agencies (including one catch-all category).[25] Unpublished occupational data for both white-collar and blue-collar workers in 1968 are available and will be published in 1970.

White-collar occupational employment data for most of the series contained in table 16 are also published by the CSC.[26] The mid-year data are obtained from a 10 percent sample of each series. The yearend data are based upon the October 31 actual count of all Federal employees. Four-year projections of employment in these series are provided in the Commission's annual publication Federal Workforce Outlook.[27]

State Government

Employment of scientific, professional, and technical personnel by State government in January 1964 and 1967 was obtained from sample surveys conducted by the Bureau of Labor Statistics and is shown in table 18. State data are for the 50 States and exclude State educational institutions. Similar surveys of State government employment were made for 1959 and 1962.[28]

23 Excluding the Central Intelligence Agency and the National Security Agency.

24 Earlier data are contained in similarly titled publications dated Oct. 31, 1966; Oct, 31, 1961; Oct. 31, 1960; Oct 31, 1959; Oct. 31, 1958; Feb. 28, 1957; and Aug. 31, 1954. Unpublished data are available for 1964 and 1962. Data for 1951 and 1947 are in Bulletin 1117, which was published in cooperation with the U.S. Civil Service Commission.

25 Earlier data are contained in similarly titled publications dated Oct. 31, 1960; Oct. 31, 1958; and Feb. 28, 1957. Unpublished data are available for 1961, 1962, and 1965.

26 *Current Federal Workforce as of December 1966 and June 1967* (U.S. Civil Service Commission, June 1968). This publication contains total government employment, excluding the Post Office, the Central Intelligence Agency, and the National Security Agency, as of June 30 and December 31. Data for December 1967 and June 1968 are expected to be published in 1970. Earlier data are contained in similarly titled publications dated September 1966 and August 1965.

Employment in selected postal occupations during 1960-67 is presented in table 17.

27 The fifth report in this series, covering fiscal years 1969-72 was published in July 1969. The sixth report covering the fiscal years 1970-73, is expected to be available in 1970.

28 *Employment of Scientific and Technical Personnel in State Government Agencies,* 1962 (Bulletin 1412).

Employment of Scientific and Technical Personnel in State Government Agencies, Report on a 1959 Survey, 1961, NSF 61-17 National Science Foundation. This survey was sponsored by the National Science Foundation and conducted by the Bureau of Labor Statistics.

Table 16. Federal employment in selected white-collar occupations, as of October 1964, October 1966, and October 1967

Series code	Series	1967	1966	1964
	All white-collar occupations	1,261,697	1,204,565	1,097,396
	Professional occupations	236,915	226,435	220,654
	Social science	8,602	8,116	7,633
0110	Economics	4,451	4,136	3,641
0180	Psychology	1,936	1,879	1,843
0185	Social work	2,215	2,101	2,149
	Biology and agriculture	18,422	15,370	16,263
0401	General biological science	2,437	1,235	1,027
0457	Soil conservation	4,819	4,825	4,780
0460	Forestry	6,086	6,094	5,974
0470	Soil science	1,887	1,876	1,903
0475	Agricultural management	3,173	3,216	2,579
	Accounting	33,781	32,263	31,038
0510	Accounting	19,791	19,030	18,265
0512	Internal revenue agent	13,990	13,233	12,773
	Medical	37,936	37,552	38,742
0602	Medical officer	10,121	9,689	11,653
0610	Nurse	22,727	22,959	22,570
0630	Dietitian	1,066	1,113	1,161
0644	Medical technologist	1,550	1,403	1,147
0660	Pharmacist	1,184	1,144	939
0680	Dental officer	1,288	1,244	1,272
0701	Veterinary science	2,393	2,338	2,285
	Engineering	78,325	79,025	79,358
0801	General	12,396	11,562	10,359
0808	Architecture	1,513	1,428	1,383
0810	Civil[1]	17,585	17,562	8,461
0811	Construction	-	-	3,451
0812	Structural	-	-	1,286
0813	Hydraulic	-	-	2,178
0819	Sanitary	1,285	1,034	975
0820	Highway	-	-	1,938
0830	Mechanical	9,723	8,796	8,376
0840	Nuclear	1,062	1,009	879
0850	Electrical	4,426	4,388	4,370
0855	Electronic	14,991	13,935	13,176
0861	Aerospace	9,371	8,898	8,211
0870	Marine	1,021	953	887
0871	Naval architecture	1,184	1,045	1,100
0893	Chemical	1,544	1,326	1,290
0896	Industrial	2,224	2,089	2,038
0905	Attorney	9,447	9,086	9,057
1224	Patent examining	1,149	1,107	1,106
	Physical science	27,639	26,964	26,018
1301	General physical science	6,267	6,227	6,466
1310	Physics	5,806	5,531	5,026
1320	Chemistry	8,302	8,135	7,716
1340	Meteorology	2,394	2,257	2,190
1350	Geology	1,858	1,949	1,965
1370	Cartography	3,031	2,865	2,655
	Mathematics	5,790	4,961	4,149
1515	Operation research	1,088	852	637
1520	Mathematics	4,113	3,591	3,089
1529	Mathematical statistics	589	518	423
1710	Education and vocational training	13,431	14,653	14,005
	Administrative-technician (general) occupations	347,774	323,159	292,001
0018	Safety management	1,781	1,646	1,420
0080	Security administration	2,602	2,329	2,113
0132	Intelligence	3,152	3,046	2,776
0188	Recreation	2,247	2,025	1,811

See footnotes at end of table.

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Table 16. Federal employment in selected white-collar occupations, as of October 1964, October 1966, and October 1967—Continued

Series code	Series	1967	1966	1964
	Personnel	16,952	16,177	14,987
0201	Personnel management	9,196	8,795	7,959
0212	Personnel staffing	3,543	3,305	2,949
0221	Position classification	2,384	2,339	2,433
0235	Employee development	1,829	1,738	1,646
	Computer and management services	63,371	53,934	44,195
0330	Digital computer systems administration	1,231	1,238	1,107
0331	Digital computer programer [2]	-	-	5,438
0332	Digital computer systems operation	6,550	5,523	3,728
0334	Computer specialist [3]	14,802	12,092	3,354
0335	Computer aid and technician	2,076	903	-
0340	Program management	3,048	2,842	2,562
0341	Administrative officer	9,574	9,444	9,500
0342	Office services and management and supervision	2,291	1,992	2,008
0343	Management analysis	8,820	8,479	8,313
0344	Management technician	4,123	3,929	3,529
0345	Program analysis	4,992	2,518	-
0362	Electric accounting machine project planning	701	877	1,509
0392	General communication	3,237	2,489	2,010
0393	Communication specialist	1,926	1,608	1,137
	Agricultural support	9,026	8,697	6,329
0403	Microbiology	1,394	1,382	1,215
0404	Biological technician	4,680	4,432	2,237
0458	Soil conservation technician	2,952	2,883	2,877
	Accounting, finance support	26,774	26,100	26,805
0501	General accounting, clerical, and administration	10,750	10,581	11,073
0525	Accounting technician	12,867	12,553	12,990
0570	Financial institution examiner	3,157	2,966	2,742
	Medical	4,663	4,551	4,114
0645	Medical technician	2,983	2,920	2,639
0647	Radiology technician	1,680	1,631	1,475
	Engineering support	60,517	54,817	49,853
0802	Engineering technician	27,295	25,262	21,785
0809	Construction inspection	3,037	2,985	2,772
0817	Surveying technician	3,932	4,228	4,597
0818	Engineering drafting	4,034	3,870	3,863
0856	Electronic technician	20,320	18,334	16,836
0895	Industrial engineering technician	1,899	138	-
	Fine arts	15,896	14,739	13,365
1020	Illustrating	2,763	2,570	2,369
1060	Photography	3,205	2,922	2,500
1081	Public information	2,323	2,077	1,731
1082	Writing and editing	1,888	1,828	1,719
1083	Technical writing and editing	1,836	1,673	1,471
1085	Foreign information	2,000	1,870	1,884
1087	Editorial assistance	1,881	1,799	1,691
	Business and industry	41,962	39,649	36,068
1101	General business and industry	2,799	2,486	1,942
1102	Contract and procurement	18,036	16,981	14,971
1104	Property disposal	1,224	1,234	1,336
1150	Industrial specialist	5,161	4,590	3,802
1152	Production control	6,598	6,314	6,531
1165	Loan specialist	2,627	2,399	2,179
1170	Realty	2,888	2,876	2,751
1171	Appraising and assessing	2,629	2,769	2,556
	Physical science support	9,554	9,238	8,039
1311	Physical science technician	3,642	3,445	2,898
1341	Meteorological technician	2,523	2,390	2,607
1371	Cartographic technician	3,389	3,402	2,534
1410	Librarian	3,528	3,483	3,387
1530	Statistician	2,268	2,307	2,337
	Equipment and construction	16,401	15,316	13,704
1640	Construction and maintenance	2,625	2,651	2,568
1670	Equipment specialist	13,776	12,665	11,136
1712	Instruction	9,306	8,432	6,622
	Investigation	4,531	4,403	4,373
1810	General investigation	2,896	2,853	2,821
1825	Aviation safety officer	1,635	1,550	1,552

See footnotes at end of table.

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Table 16. Federal employment in selected white-collar occupations, as of October 1964, October 1966, and October 1967—Continued

Series code	Series	1967	1966	1964
	Quality control and inspections	13,696	12,841	10,447
1901	General commodity quality control and inspection	2,233	2,043	2,123
1903	Quality control and inspection management	1,957	1,776	1,550
1936	Electronic equipment quality control and inspection	3,108	3,047	2,368
1940	Mechanical equipment quality control and inspection	2,681	2,381	1,480
1942	Aircraft quality control and inspection	1,702	1,619	1,008
1948	Ammunition quality control and inspection	1,214	1,063	828
1950	Missile quality control and inspection	801	912	1,090
	Supply	30,797	31,190	31,299
2001	General supply	9,394	10,152	11,785
2010	Inventory management	14,451	14,431	13,033
2030	Distribution facilities and storage management	1,146	1,116	1,172
2050	Supply identification systems	4,206	4,027	3,917
2090	Publications supply	1,600	1,464	1,392
	Transportation	8,750	8,239	7,957
2101	General transportation	1,906	1,784	1,794
2130	Traffic management	1,802	1,706	1,486
2131	Freight rate	2,236	2,155	2,263
2132	Travel	1,668	1,549	1,401
2181	Aircraft operation	1,138	1,045	1,013
	Administrative-technician (Government) occupations	98,501	93,647	88,002
0007	Correctional officer	2,703	2,788	2,905
0105	Social insurance administration	9,922	9,652	9,503
	Accounting	18,099	17,051	15,396
0526	Tax technician	3,012	2,991	2,798
0560	Budget administration	6,759	6,351	6,209
0592	Tax accounting	8,328	7,709	6,389
0685	Public health program specialist	2,374	1,925	1,646
	Claims examining	12,808	11,808	10,177
0962	Contract representative	1,318	1,285	1,168
0963	Legal instruments examining	2,192	2,112	2,186
0993	Social security claims	7,070	6,231	5,071
0996	Veterans claims	2,228	2,180	1,752
1169	Internal revenue officers	6,434	6,199	6,422
	Investigation	25,181	24,324	22,428
1811	Criminal investigation	12,618	12,295	11,258
1813	Wage and hour law	1,191	1,202	1,162
1816	Immigration inspection	1,207	1,186	1,159
1854	Alcohol, tobacco tax inspection	1,150	1,144	1,149
1863	Food inspection	4,915	4,449	3,723
1890	Customs inspection	2,848	2,777	2,667
1896	Immigration patrol inspection	1,252	1,271	1,310
1980	Agricultural commodity grading	2,931	2,952	2,923
2152	Air traffic control	18,049	16,948	17,602
	Aid-assistant occupations	45,691	44,674	42,194
	Medical support	42,703	42,115	39,903
0621	Nursing assistant	38,147	37,427	35,955
0636	Physical-medical rehabilitation therapy assistant	1,115	1,061	1,047
0681	Dental assistant	1,972	1,758	1,308
0699	Medical aid	1,469	1,869	1,593
1411	Library technician	2,988	2,559	2,291
	Clerical (specialized) occupations	114,856	108,209	93,721
	Personnel clerical	18,000	15,568	13,491
0203	Personnel clerical and assistance	9,046	7,827	7,522
0204	Military personnel clerical and technician	8,954	7,741	5,969

See footnotes at end of table.

Table 16. Federal employment in selected white-collar occupations, as of October 1964, October 1966, and October 1967—Continued

Series code	Series	1967	1966	1964
0309	Correspondence clerk	1,850	1,855	1,729
	Accounting clerical	29,293	28,056	27,080
0520	Accounts maintenance clerical	11,788	11,632	11,626
0540	Voucher examining	5,807	5,524	5,447
0544	Payroll	4,602	4,515	4,355
0545	Military pay	5,098	4,517	3,598
0590	Time and leave	1,998	1,868	2,054
0998	Claims clerical	10,734	9,239	2,873
1531	Statistical assistant	6,757	6,778	7,019
	Supply clerical	48,222	46,713	41,529
2020	Purchasing	9,124	8,624	8,186
2040	Supply clerical and assistance	33,594	32,680	28,994
2091	Sales store clerical	3,014	2,845	2,451
2134	Shipment clerical	2,490	2,564	1,898
	Clerical (general) occupations	278,550	276,374	243,883
	Office occupations	275,715	273,599	240,567
0302	Messenger	1,958	1,928	1,702
0304	Information receptionist	1,155	1,174	801
0305	Mail and file	27,640	26,661	23,967
0312	Clerk-stenographer and reporter	51,827	53,256	51,859
0316	Clerk-dictating machine transcribing	6,685	6,689	6,493
0318	Secretary	59,512	57,140	54,935
0322	Clerk-typist	93,430	93,970	70,647
0350	Office-machine operating	1,704	1,708	1,487
0356	Card punch operation	17,145	16,075	12,276
0357	Coding	2,031	1,724	1,466
0359	Electric accounting machine operation	3,773	4,412	5,836
0382	Telephone operating	6,610	6,713	6,756
0385	Teletypist	2,245	2,149	2,342
0530	Cash processing	2,835	2,775	3,316
	Other occupations	139,410	132,067	116,941
	Protective	28,837	27,860	26,785
0081	Fire protection and prevention	12,291	11,829	11,406
0083	Police	2,737	2,638	2,254
0085	Guard	13,809	13,393	13,125
0301	General clerical and administrative	110,573	104,207	90,156

[1] Coverage of 0870 expanded to include series 0811, 0812, 0813, and 0820, which were discontinued in 1966.
[2] Included in 0334 computer specialist after 1964.
[3] Includes digital computer programer after 1964.

SOURCE: 1967, Occupations of Federal White-Collar Workers, October 31, 1967, Pamphlet SM 56-7, October 1968; 1966, Occupations of Federal White-Collar Workers October 31, 1966. Pamphlet MS 56-6, June 1968; 1964 unpublished data at the U.S. Civil Service Commission.

Table 17. Employment in selected Post Office occupations, as of October 1960–67

(In thousands)

Occupation	1967	1966	1965	1964	1963	1962	1961	1960
All occupations [1]	705	692	610	593	590	585	580	568
Postmasters	32	33	33	34	34	35	35	35
Supervisors	34	33	32	32	32	31	31	30
Postal clerks	304	300	250	240	239	239	239	234
Mail carriers	230	225	207	202	200	198	195	190
Special delivery carriers	5	5	4	4	4	4	4	5
Mail handlers	44	44	32	32	31	31	30	29

[1] Includes data not shown separately.

SOURCE: Post Office Department, Bureau of Finance and Administration, Paid Employees Report, form 1988.

Table 18. Employment of scientific, professional, and technical personnel by State governments, as of January 1964 and January 1967

(In thousands)

Occupation	1967	1964
All occupations [1]	200.5	156.8
Engineers	34.2	34.5
Civil engineers [2]	30.6	31.0
Sanitary engineers	1.3	1.2
Other engineers	2.3	2.3
Scientists	20.6	16.7
Chemists	1.7	1.4
Geologists and geophysicists	1.1	1.0
Other physical scientists	.4	.1
Agricultural scientists	4.6	3.3
Biomedical scientists	2.4	2.0
Other life scientists	3.3	2.9
Mathematicians	.3	.3
Statisticians	1.6	1.6
Economists	.9	.7
Sociologists and anthropologists	.3	.2
Other social scientists	1.0	.5
Clinical psychologists	2.3	2.0
Social psychologists	.2	.1
Other psychologists	.5	.4
Social workers [3]	42.8	9.2
Selected health professions [4]	41.0	36.2
Public health officers (M. D.)	1.0	.8
Psychiatrists (M. D.)	4.1	3.8
All other physicians (M. D. and D. O.)	4.9	4.4
Dentists (D. D. S. or D. D. M.)	1.2	1.0
Professional nurses (R. N.)	25.3	21.6
Veterinarians (D. V. M.)	1.0	1.1
Sanitarians	3.5	3.4
Technicians	61.9	60.2
Draftsmen	7.1	7.9
Surveyors [5]	7.8	12.0
Engineering technicians	33.1	30.5
Physical science technicians	2.5	1.5
Agricultural technicians	2.1	2.0
Biological technicians	1.8	1.8
Medical and dental technicians	4.5	3.7
Other technicians [6]	3.1	.8

[1] The 1964 and 1967 totals are not comparable. See footnote 3.

[2] Includes electrical, mechanical, and traffic engineers.

[3] Data for 1967 are not comparable with 1964 because of a change in definitional requirements. The 1967 data include holders of bachelor's degrees and above, while the 1964 data include only holders of master's degrees and above.

[4] The relevant occupations do not include physicians and dentists dealing with patients.

[5] Data for 1964 were overstated to the extent that chainmen and rodmen were included.

[6] Computer programers included for the first time in 1967.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: 1964 data, Employment of Scientific, Professional, and Technical Personnel in State Governments January 1964, Bulletin 1557 (1967). 1967 data, Bureau of Labor Statistics, unpublished sample survey preliminary data.

☆ U.S. GOVERNMENT PRINTING OFFICE : 1970 O - 385-918

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VT 012 514
Gillie, Angelo C., And Others
Geographic-Job Mobility of the Pennsylvania State University Two-Year Technician Graduates.

Pennsylvania State Univ., University Park. Dept. of Vocational Education.
Pennsylvania State Dept. of Education, Harrisburg. Bureau of Vocational, Technical, and Continuing Education
MF AVAILABLE IN VT-ERIC SET.
Voc-Ind Ed RR
PUB DATE - Dec70 65p.

DESCRIPTORS - *OCCUPATIONAL MOBILITY; JOB ANALYSIS; *RELOCATION; *DRAFTSMEN; *ELECTRONIC TECHNICIANS; ASSOCIATE DEGREES; *GRADUATE SURVEYS; SALARIES; MULTIPLE REGRESSION ANALYSIS

ABSTRACT - This study of associate degree electronics and drafting design graduates identified mobility factors and job activity characteristics and analyzed the relationships between the variables. A stratified random sample of 33 percent of 6,200 graduates during the 1965-1969 period provided the data. A random sample of nonrespondents was used to verify that the respondents were representative of the entire population. Using zero-order correlations and multiple regression analysis, the study found six relationships between the job-residence change variable and other mobility factors. The choice between types of work, whether related to data, people, or things, was found to be related in 15 combinations to the mobility factors. Significant differences were found between the electronics and drafting design graduates. (BH)

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GEOGRAPHIC-JOB MOBILITY OF THE PENNSYLVANIA STATE UNIVERSITY TWO-YEAR TECHNICIAN GRADUATES

ANGELO C. GILLIE
assisted by
RICHARD OLSON
and
EDWARD CORY

VOCATIONAL - INDUSTRIAL EDUCATION **Research Report**

DECEMBER, 1970

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The research reported herein was partially supported by The Center for the Study of Higher Education (P.S.U.), The Department of General Engineering (College of Engineering), and The Bureau of Vocational, Technical, and Continuing Education, State Department of Education, Commonwealth of Pennsylvania.

Department of Vocational Education
The Pennsylvania State University
University Park, Pennsylvania

December, 1970

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ACKNOWLEDGEMENTS

A number of individuals have made meaningful contributions to this study. Initial encouragement and advice was received from Dr. Joseph T. Impellitteri, Chairman of Graduate Studies and Research of the Department of Vocational Education. Mr. Ernest R. Weidhaas, Assistant Dean of Commonwealth Campuses, provided assistance in establishing communications with key faculty and administrators in the various campuses of the university. Special thanks are also given to Dr. Curtis R. Finch and Mr. Jerome T. Kapes for their invaluable assistance relating to the design of the instrument and the statistical strategy. The author also wishes to express his appreciation to the various faculty and administrators who were so helpful with suggestions during the questionnaire design and pretesting phase.

The major financial support for this study was derived from the Department of Vocational Education. It should be mentioned that significant financial assistance was given by The Center for the Study of Higher Education of the university and The Department of General Engineering. This effort was also supported by the Bureau of Vocational, Technical and Continuing Education, Pennsylvania Department of Education.

The author is especially appreciative for the sustained efforts of Mr. Richard R. Olson and Mr. Edward D. Cory, who by and large were responsible for the collection of the data.

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ABSTRACT

The study is based on a total population of about 6,200 graduates of electronics and drafting design curriculum from the years 1955-1969. Thirty-three percent of this population was selected in a stratified random manner. Fifty-three percent of our sample responded after a series of three follow-up letters. Eleven percent of the questionnaires were returned by the Post Office as being undeliverable. A ten percent random sample was taken from the remaining non-respondents for the purpose of comparing them with the original respondents. They were contacted by telephone, which resulted in an eighty-seven percent response from this group.

The pooled variance t-test was used to compare these two groups on 59 variables and it was found that the respondent group was not significantly different from the non-respondents. On that basis, we were able to make general statements about the entire population from which the sample was drawn.

The mobility factors considered are: (a) year of graduation; (b) number of dependents; (c) initial salary; (d) present salary; (e) distance between hometown high school and present job; (f) distance between hometown high school and first job; (g) number of simultaneous job-resident changes; (h) number of job-company changes; (i) initial salary; (j) present salary.

Zero-order correlations and multiple regression analysis were used to find relationships between the mobility factors. Job characteristics of the graduates by curriculum were identified. The interrelationships between the mobility factors and the job

characteristics were found by the zero-order correlation and the multiple linear regression techniques.

It was found that: (a) there are six significant interrelationships within the mobility factors (three for each curriculum); and (b) there are fifteen significant relationships between the data, thing, and people job characteristics with some of the mobility factors (eight for the EET graduates and seven for the DDT graduates).

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STATEMENT OF THE PROBLEM

This investigation is an outcome of a concern for ascertaining the relationships that exist between the associate degree electronics and drafting design graduates and mobility. Graduation groups from 1955 through 1969 have been included. Our two major reasons for searching for answers to the above are:

1. To provide a feedback of information to the faculty and administration that might be translatable into a modification of the curriculum;

2. To contribute to the literature dealing with the mobility of technicians.

Faculty and administrators of technician programs have long been concerned about what happens to the graduates. These concerns were expressed by the faculty and administrators contacted by this investigator during the process of determining what specific information should be sought. They became the basis for building the questionnaire (6, Chapter 1). The final version of the questionnaire is shown in the Appendix.

This report concerns itself with a portion of that study, i.e., to identify:

a. relationships among the variables defined as mobility factors;

b. the job activities characteristics of the graduates;

c. the relationships between the mobility factors and job activities characteristics.

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RELATED STUDIES

A limited number of studies dealing with the mobility of workers have been conducted during the past twenty years. Several of these have been under the auspices of the federal government and they deal with the overall work force (7, 8). Also reported in the literature are several studies, generally of a short term nature, of worker mobility in terms of moving from one job level to another. These tie in with the ladder type curriculums which many junior colleges are attempting to bring into operation. One such example is reported by Ogden (9:45). As a whole, the follow-up studies in junior colleges have not sought to examine the mobility characteristics of the graduates (10). Therefore it appears that studies dealing with the job-geographic characteristics of post-secondary two-year occupational program graduates have not been frequently reported in the literature.

One recent study did deal with this specific topic (for graduates of a post-secondary mechanical technology program), and examined the mobility of the graduates two-years after graduation (11). This study found no significant relationship between job mobility and educational level at the start of training, mechanical occupational experience, aptitudes and grades received in training. It did find that the younger graduates are significantly more mobile than their older classmates.

THE SAMPLE AND THE SAMPLING STRATEGY

The population consisted of the associate degree graduates of the electrical-electronics technology (EET) and drafting design technology (DDT) programs of the Commonwealth Campuses of The Pennsylvania State University for the graduation years of 1955 through 1969 (inclusive). The entire population consisted of about 6,200 associate degree graduates. A ten step stratified random sampling procedure (1:87-88) was used to obtain the sample from this entire population (the sampling strategy is illustrated in the flow diagram of Figure 1). A random sample of thirty-three percent of the entire population was selected as our sample.

A follow-up letter was sent approximately every two weeks, for a total of three tries. Eleven percent of the questionnaires were returned by the postal authorities as undeliverable (See Table 1). After a period of around six weeks from the time the questionnaire was first sent out, the second phase of our strategy was put into effect. The non-respondent group (excluding those returned by the Post Office Department) represented about thirty-six percent of the original sample and was given special treatment. A ten percent stratified random sample from this group was taken.* They were contacted either at home or at their place of employment by telephone. The approach was successful, as almost nine-tenths of the special telephone sample (87%) completed and returned their questionnaires

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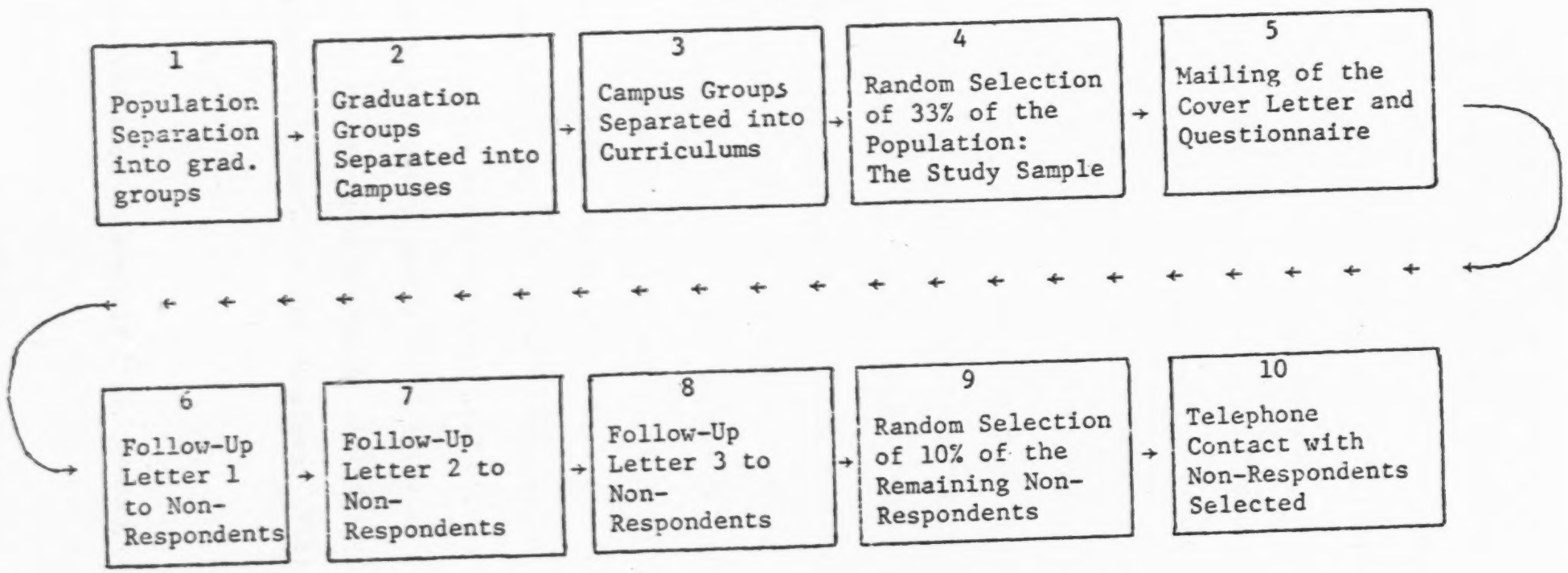
*This actually became 12.7% because of rounding within each stratum.

FIGURE 1

Sampling Strategy

Flow Diagram



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(See Table 1). This provided us with some basis for statistically comparing the original respondents with the non-respondents (the assumption being made that the telephone respondents are typical of the non-respondent group since they were also selected in a random fashion).

Results: The original sample size was 2,098 associate degree graduates (1,100 DDT and 998 EET graduates). The sampling results were as follows:

1. About 230 questionnaires (11% of the entire sample) were returned by the postal authorities because the graduate had moved and no forwarding address was available;

2. About 1,100 (53% of the total) were completed and returned by the regular mailing and three follow-up letter strategy;

3. Ninety-seven graduates were selected for the telephone group (which represented 4.8% of the total sample). Eighty-four of them filled out and returned the questionnaire (a response rate of 87%).

Note: A brief explanation as to why it was felt that obtaining a high response rate from the telephone group was essential is in order. Since the persons in the telephone group were selected on a random basis, it could be assumed they would be representative of the non-respondent group. Comparing the questionnaire returns of this group with those of the original respondents would be an acceptable basis for examining these two groups (i.e., the original respondents and the telephone group) for similarities and differences.

Comparing the Original and the Telephone Follow-up Groups: The questionnaire received from individuals in the two groups (regular respondents and the telephone group) were compared in order to

identify any significant differences in their responses. We elected to use a t-statistic for this analysis because:

1. The population from which the sample was taken is normally distributed;

2. The sample is representative of the population being studied, since a stratified random sampling strategy was utilized.

We then had to select the t-statistic that was most appropriate for our purpose. In comparing the size of the original group of respondents to that of the telephone follow-up group, we found that the ratio is about 13/1. From this we assumed the variances of corresponding items for the two groups were not similar.

In order to carry out the analysis, a pooled t-test (2:197-198) was used. One of the required assumptions of this test is that the variances of the two groups are equal. If the variances are equal the actual value of alpha (α) is equal to the value selected (i.e., $\alpha = .05$). If the variances are not equal the result is to increase alpha and therefore increase the probability of a type one error (in this case the chance of finding a difference between groups is greater than alpha, i.e., $\alpha > .05$). We chose to use the pooled t-test in violation of the assumption of pooled variances because it was felt that the conventional t-statistic would tend to mask the differences between groups.

These two groups were tested for the following items:

1. First job salary;

2. Number of miles between first job and hometown high school;

3. Present job salary;

4. Number of miles between present job and and hometown high school;

5. Number of times there has been a simultaneous job and residence change;

6. Number of times there has been a simultaneous job change and change in company or business firm;

7. The respondent's evaluation of the course work (there was a total of 48 items in this category).

A total of 59 t-tests were conducted for each of the three graduation groups in each curriculum, these six groups were:

EET	1955-59	1960-64	1965-69
DDT	1955-59	1960-64	1965-69

Having used about 60 t-tests for each of the groups, we would expect up to three items to be significantly different for a confidence level of .05 (α = .05). Only the 1965-69 DDT (with six items) and 1955-59 EET (with four items) groups fell outside these limits, and then only barely so. The conclusions drawn from conducting the t-tests is that the original respondents and the non-respondents were found to be the same in terms of responses to the questionnaire items. Having established this fact, we are now able to say that the characteristics found for the respondents are also applicable for the entire technician population of the study.

THE MOBILITY FACTORS AND THEIR INTERRELATIONSHIPS

A total of eight mobility factors were defined for the purpose of this investigation. Two of these factors became our mobility variables because they dealt with the actual event of changing jobs, they were:

1. Number of simultaneous job-residence changes
2. Number of simultaneous job-company changes

The other six variables were theoretically expected to be related to the actual mobility variables, they were:

3. Year of graduation
4. Number of dependents
5. Initial salary
6. Distance between first job and hometown high school
7. Present salary
8. Distance between present job and hometown high school

A zero-order correlation matrix for these eight factors were computed for each curriculum group (EET and DDT) thereby providing us with a basis for identifying relationships between them. See Tables 2 and 3 for the zero-order correlation matrices.

<u>Mobility Factor 1 - Year of Graduation</u>: We had two assumptions relating to this mobility factor. They were:

A. The number of simultaneous job-residence changes experienced by the graduates would be inversely related to their year of graduation (i.e., the 1969 graduates would be lowest in job-residence changes and the 1955 graduates would be highest);

B. The number of simultaneous job-company changes experienced by the graduates would be inversely related to their year of graduation (i.e., the 1969 graduates would be lowest in job-residence changes and the 1955 graduates would be highest).

The zero-order correlation coefficients values found for these two combinations were above the minimum value required to achieve significance at the .05 level, which resulted in our acceptance of both assumptions. The relationships for four representative years are displayed in Table 4.

Examination of the two actual mobility factors (i.e., job-resident changes and job-company changes) showed that the zero-order correlation coefficient between them exceeded +.60 for both curriculum groups. This led us to suspect that they were in fact highly overlapping and it was decided to limit our actual mobility factor to the job-residence change variable.

Mobility Factor 2 - Number of Dependents: There are several elements within this factor that relate to mobility, but we conjectured that the relationships were in opposite ways. First, the older graduates would be expected to have a greater number of dependents. We also assumed (for testing purposes) that having a large number of dependents would have a constraining effect upon the graduates' propensity toward job-residence changing.

The zero-order correlation analysis indicated a positive relationship between the number of dependents and job-residence changes (i.e., the greater the number of dependents, the larger the number of job-residence changes). In other words, the findings rejected our assumption. Although we cannot say that having more dependents encourages mobility, the findings would suggest that having a larger number of dependents did not seriously constrain the extent of job-residence changing for the group as a whole. Table 5 displays these relationships for four representative years by curriculum group.

Mobility Factor 3 - Initial Salary: We had two assumptions related to this variable. They were:

A. Those graduates who commanded the highest initial salaries are those who would move to greater distances from their hometown high school for their first job after graduation;

B. Those graduates who commanded the highest initial salaries are those who would make the most frequent job-residence changes.

Both assumptions proved to be true for the EET graduates and false for the DDT group, using the zero-order correlations as our indicators.

The zero-order correlations results and associated data for four representative years are displayed in Table 6.

Mobility Factor 4 - Distance Between Hometown and High School AND First Job: In addition to the first assumption in the preceding section, we also had the following two assumptions to be tested:

A. Those graduates who moved the greatest distance from their hometown high schools for their first job would also be furthest from their hometown high schools for their present jobs;

B. Those graduates who moved the greatest distances from their hometown high schools for their first job would also have the greatest number of job-residence changes.

The zero-order correlation computations proved both these assumptions to be true for the EET group and false for the DDT graduates.

The zero-order correlation values and associated data for four representative years are displayed in Table 7.

Mobility Factor 5 - Present Salary: We had two assumptions dealing with this variable. They are:

A. Those graduates earning the higher present salaries also presently hold jobs that are further away from their hometown high schools;

B. Those graduates earning the higher present salaries also have had the greatest number of job-residence changes.

The zero-order correlation computations proved the first assumption true for the EET graduates and false for the DDT group. The second assumption was found to be true for both curriculum groups.

The zero-order correlation values and associated data for four representative years are displayed in Table 8.

Mobility Factor 6 - Miles Between Hometown High School and Present Job: We had the following assumption for this variable:

A. The graduates who hold jobs that are furthest away from their hometown high schools also have the largest number of job-residence changes.

The zero-order correlation computations proved that the assumption is false for both curriculum groups.

The associated data for four representative years, along with the zero-correlation values, are displayed in Table 9.

The Multiple Regression Analysis: So far, we have examined the relationships between the seven mobility factors by utilization of the zero-order correlations (See Tables 2 and 3). The major shortcoming of this approach is that while identifying significant relationships between two variables, it fails to account for the effect the other five variables have on the particular relationship under consideration.

Therefore, in the interest of identifying significant relationships between pairs of variables that are due solely to the effect of that particular independent variable upon the dependent variable, we resorted to using the linear multiple regression technique.

In the following analysis the true mobility variable, number of job-residence changes, is assigned the role of the dependent variable. Each one of the other six mobility factors (i.e., year of graduation, number of dependents, initial salary, miles between first job and hometown high school, present salary, miles between present job and hometown high school) is examined for its relationship to the dependent variable.

Through the use of multiple regression analysis, it is possible to simultaneously partial out the effects of five of the six independent variables. This results in the isolation of the unique contribution made by the sixth independent variable to the dependent variable (5:155). It should be pointed out that this unique contribution made by the sixth independent variable to the dependent variable holds only for this particular combination of variables. In some other combinations, each independent variable could make an entirely different contribution to the dependent variable.

Example: Consider the dependent variable number of job-residence changes with the six independent variables. The sole effect of independent variable 1 (year of graduation) upon the dependent variable is determined by partialing out the effects of the remaining five independent variables. The process is repeated for each of the independent variables, until all six have had their own turn in being examined. This process was performed for all graduates of the electronics program and then repeated for all drafting design program graduates.

The multiple linear regression model used is of the following form:

$$Y = a_o + a_1x_1 + a_2x_2 + \ldots a_nx_n + e$$

where

Y = dependent variable

$x_1, x_2, \ldots x_n$ = independent variables

$a_o, a_1, a_2, \ldots a_n$ = partial regression coefficients

e = error term

The particular equations used here are:

$$Y_i = a_o + a_1x_1 + a_2x_2 + \ldots a_6x_6 + e$$

where

$i = 7$

and

Y_7 = number of job-residence changes

and

x_1 = year of graduation

x_2 = number of dependents

x_3 = first salary

x_4 = number of miles between hometown high school and first job

x_5 = present salary

x_6 = number of miles between hometown high school and present job

As noted earlier, this procedure was performed for all graduates of the electronic program and then repeated for the drafting design graduates.

Table 10 reports the results of the multiple regression analysis. Each coefficient represents the raw score units of the dependent variable (job-residence changes) which is associated with a one unit change in the independent variable being considered. The standard error of the coefficient is reported in parentheses

directly below each coefficient. Only those coefficients with asterisks can be interpreted as significantly different from a zero relationship.

Let us interpret the significant relationships found in Table 10. On the average, those EET graduates who had higher numbers of job-residence changes, for each unit increase in the independent variable:*

A. Score -.06 units lower on the (1) graduation year item;

B. Score .0004 units higher on the (3) initial salary item;

C. Score .0005 units higher on the (4) miles between hometown high school and first job item.

Those DDT graduates who had higher numbers of job-residence changes, for each unit increase in the independent variable:*

A. Score -.05 units lower on the (1) graduation year item;

B. Score -.0003 units lower on the (3) initial salary item;

C. Score .0007 units higher on the (5) present salary item.

It should be noticed that the changes in the raw score units of the dependent variable (job-residence changes) are very small, since its maximum range was found to be between 1.0 and 3.0.

The preceeding multiple regression analysis has shown that significant relationships exist between the mobility variable job-residence changes and some of the other mobility factors. These relationships may be stated as follows:

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*In each case, these are true when the effect of the other five independent variables are partialed out.

Those EET graduates who rank highest in the job-residence change category are, on the average:

1. Among the graduates of earlier classes;

2. Among those who earned higher initial salaries;

3. Among those who had the greater number of miles between their hometown high schools and the first job.

Those DDT graduates who rank highest in the job-residence change category are, on the average:

4. Among the graduates of earlier classes;

5. Among those who earned lower initial salaries;

6. Among those who are presently earning higher salaries.

A commonality found among the graduates from both curriculums is that those who have been out of school the longest are those most apt to score highest in the job-residence change item, which appears to be a logical finding. Of interest, and not readily explainable, is the contradictory relationship between the dependent mobility variable and the initial salary independent variable (positively related for the EET group but negatively related for the DDT graduates). It is seen that those DDT graduates who have made the largest salary gains are those most apt to score highest in the job-residence change variable.

JOB CHARACTERISTICS

Because of our interest in learning about the type of work performed by the graduates, we attempted to analyze their job tasks. We elected to use a modified version of the analysis technique that was developed by U. S. Employment Service and used in the preparation of the Dictionary of Occupational Titles (1965 Edition). As pointed out by Wiersteiner (4:71):

> A key focus of this type of analysis is the determination of the level at which the job requires the employee to deal with data, people, and things. In general, a hierarchy has been established in each of these three areas in which a lower code number identifies a higher level of involvement required by the job. Thus a job of compiling data requires a higher level of involvement by the worker than does a job of computing. Each of the terms used in these hierarchies is defined in the Appendix to Volume 2 of the 1965 Edition of DOT. The code numbers derived by use of the hierarchy constitute digits 4, 5, and 6 of the six digit DOT code numbers.

The lists were slightly modified so that there would be only seven items within each of the three hierarchies. The respondents were asked to indicate those items in each of the three lists that describe some of the tasks they perform in their present job. The seven items in each of the hierarchies were randomized in the questionnaire so as to minimize the tendency to favor those items at the top of the lists. Furthermore, each list was identified only by the letter A, B, and C. They are listed below by descending level of complexity:

List A: (Data Related Tasks)

1. Synthesizing
2. Coordinating
3. Analyzing
4. Compiling
5. Computing
6. Copying
7. Comparing

List B: (People Related Tasks)

1. Mentoring
2. Negotiating
3. Instructing
4. Supervising
5. Persuading
6. Speaking-signaling
7. Serving

List C: (Thing Related Tasks)

1. Setting-up
2. Precision working
3. Operating-controlling
4. Driving-operating
5. Manipulating
6. Tending
7. Handling

Inasmuch as the respondents were permitted to circle more than one item in each list, it was possible to have several items in each category that were selected by more than fifty percent of the graduates.

Table 11 lists the things done on the job by graduation year for the drafting-design curriculum graduates and table 12 does the same for the electrical-electronics groups. The following paragraphs consider trends within each of the three job characteristics categories (data, people, and things).

Data related items: The items "coordinating" and "analyzing," numbers 2 and 3 from the top of the seven-step

hierarchy, were most frequently selected by the graduates in both curriculums for the majority of the graduation years. The highest ordered item (synthesizing) and lowest ordered item (copying) were selected least often by the graduates in both curriculums for all the graduation groups. Therefore the distribution of the choices is more narrowly confined to items 2 through 6 (rather than 1 through 7) and is skewed toward the higher ordered items.

People related items: The items "instructing" and "supervising," ordered 3 and 4 from the top of the hierarchy, were most frequently selected by the graduates of both curriculums for the majority of the graduation years. The top ordered item (monitoring) and two lower ordered items (speaking-signaling and serving) were not often selected by most of the graduation groups in both curriculums. Therefore the distribution of choices is more narrowly confined to items 2 through 5 (rather than 1 through 7) and is skewed toward the higher ordered items.

Thing related items: The seven items in this cluster were infrequently selected by graduates in both curriculums for most of the years. There is a weak trend toward more frequent selection of the two top ordered items (setting-up and precision-working) by the graduates of the last four or five years.

Summary of Job Characteristics Responses: The items selected by more than fifty percent of a graduation group by curriculum are as follows:

EET Data Related

Coordinating - all groups except 1968 and 1969
Analyzing - all groups except 1969
Computing - seven of the fifteen groups

EET People Related

Instructing - group 1955 through 1962 inclusive
Supervising - group 1955 through 1962 inclusive

EET Thing Related

No item for more than one year

Note that there is consistent utilization of coordination and analyzing data related items for most of the EET classes. The people related items of instructing and supervising become of greatest importance for the older graduation groups (i.e., the 1955 through 1962 classes). The thing related items are consistently ranked lower by all groups.

DDT Data Related

Coordinating - all groups except 1968 and 1969
Analyzing - all groups
Compiling - eight of the fifteen classes
Computing - eleven of the fifteen classes

DDT People Related

Instructing - seven of the fifteen classes (older groups)
Supervising - eleven of the fifteen classes (older groups)

DDT Thing Related

No item for any year

The DDT groups stressed the importance of coordinating and analyzing tasks, as did the EET classes, but they also indicated considerably more involvement with compiling and computing. Both the EET and DDT earlier graduating groups

indicated involvement with the people related tasks of instructing and supervising. No thing related task was stressed by any class in either curriculum.

Each respondent was also asked to rank order the three lists so as to indicate which of the hierarchies was of greatest importance to them in their present job. As would be expected, the results were highly consistent with the selections they made on an item-by-item basis within each of the lists. The more recent graduates assigned a middle ranking for people related tasks, while the older classes indicated this to be the most important of the three categories. The data related category was the most important list for the more recent classes but was rated second to people related tasks by the older graduation groups. All classes ranked the thing related hierarchy of tasks lowest.

A clearly discernible trend was found: the longer a technician is out in the world of work, the more important the people related tasks are to his present job and the less important the data related items become, with a consistently low ranking assigned to the thing related items.

It appears to this writer that the above findings can be useful in curriculum modifications. Knowledge of the type of activities the graduate engages in when he is on the job should serve as one of the major guides in selecting in-school activities for students in that curriculum.

A brief description on how the data dealing with the three dependent variables was treated prior to its use in the statistical treatment discussed in the next section is in order. In the questionnaire, each respondent was asked to check those items within each of the three job activities clusters of seven tasks that best describe what he does on his present job. Many of the respondents checked more than one item in some of the clusters. But only the highest order item checked by each respondent was selected for use in the statistical treatment that follows.

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INTERRELATIONSHIPS BETWEEN MOBILITY FACTORS AND JOB CHARACTERISTICS

Several major assumptions relative to the relationships between job characteristics and mobility were made. This section concerns itself with what they are and how they were tested.

The Assumptions: The assumptions can be stated in the form of three major questions. They were posed for the entire graduation group by curriculums, so each question is stated for the EET graduates and then repeated for the DDT group. The questions are sub-divided into seven parts, one for each of the mobility factors described earlier. They are stated such that one of the job characteristics (data, people, or things) is the dependent variable in each. The questions are as follows:

I. Does a significant relationship exist between those graduates of the (EET) (DDT) curriculum who selected the higher levels of data-related tasks and:

   A. year of graduation?

   B. number of dependents?

   C. initial salary?

   D. distance between hometown high school and first job?

   E. present salary?

   F. distance between hometown high school and present job?

   G. number of job-residence changes?

II. Does a significant relationship exist between those graduates of the (EET) (DDT) curriculums who selected the higher levels of people related tasks and:

   A. year of graduation?

   B. number of dependents?

   C. higher initial salary?

   D. distance between hometown high school and present job?

E. present salary?

F. number of job-residence changes?

III. Does a significant relationship exist between those graduates of the (EET) (DDT) curriculums who selected the higher levels of thing related tasks and:

A. year of graduation?

B. number of dependents?

C. initial salary?

D. distance between hometown high school and first job?

E. present salary?

F. distance between hometown high school and present job?

G. number of job-residence changes?

The Analysis: We sought to test for these relationships first by utilization of the zero-order correlations (see Table 13). Recall the major shortcoming of this type of analysis is that while identifying significant relationships between two variables, it fails to account for the effect other variables might have on the relationship under consideration.

Therefore, in the interest of identifying significant relationships between pairs of variables that are due solely to the effect of that particular independent variable upon the dependent variable, we again resorted to using the linear multiple regression technique.

The multiple linear regression model displayed earlier was again used here. In this case we had three dependent variables, namely data, people, and things. Also, we used all of the seven mobility factors as independent variables. The relationship of each independent variable to the first dependent variable data, with the effects of the other independent variables partialed out, was examined. As pointed out earlier, this independent variable could

make an entirely different contribution to the dependent variable in some other combination. This process was repeated for the other six independent variables, one at a time. The same analysis was again performed with people as the dependent variable, and for a third time with things in the role of the dependent variable.

Statistical Results: The preceding three questions actually become twenty-one questions per curriculum, a total of forty-two for both groups. Each one of these questions was tested by use of the zero-order correlations displayed in Table 13. The asterisked quantities are those that are significant to the .05 Confidence Level. Out of the 42 assumptions made within the three overall questions, only six of them have been found to have significant relationships by this technique. This means, in effect, that no significant relationships for the other 36 questions were found by use of zero-order correlations (see Table 14).

The variables found to be significantly related to some of the job characteristics are as follows:

For the EET group: The earlier one graduated from the program and the greater the number of dependents he has, the more likely the graduate is doing higher ordered tasks in both the data and people job characteristics.

For the DDT group: The greater the number of dependents and the higher the present salary, the more likely the graduate is doing higher ordered tasks in the data job characteristics hierarchy.

Table 15 displays the results of the multiple regression analysis and each coefficient represents the raw score units of the dependent

Those identified as significant by the zero-order correlations were as follows:

A. For the EET group

On the average, those graduates who selected higher level tasks in the data and people related job characteristics categories are most likely to be graduates of earlier classes and have a greater number of dependents.

B. For the DDT group

On the average, those graduates who selected higher level data related tasks are most likely to have the greater number of dependents and a higher present salary.

The above relationships do not take into account the effect of other variables upon the relationship between the factors mentioned.

Fifteen significant relationships were identified by the linear multiple regression analysis. It is noteworthy to again restate that each of these relationships is free from the influence of the other variables because of using the multiple regression technique.

For the EET group

A. On the average, those graduates who selected the higher levels of data related tasks are among those who have:

1. Smaller distances between hometown high school and first job;*

2. Lower initial salaries;*

3. Higher present salaries.*

---

*The relationship of this independent variable to its associated dependent variable was found to be significant with the effects of all the other independent variables partialed out.

B. On the average, those graduates who selected higher levels of people related tasks are among those who have:

4. Graduated from an earlier class;*

5. A greater number of dependents;*

6. Lower initial salaries;*

7. Smaller distances between hometown high school and first job;*

8. Higher present salaries.*

For the DDT group

C. On the average, those graduates who selected higher levels of data related tasks are among those who have:

9. Higher initial salaries;*

10. Higher present salaries.*

D. On the average, those graduates who selected higher levels of people related tasks are among those who have:

11. Graduated from an earlier class;*

12. Higher initial salaries;*

13. Higher present salaries.*

E. On the average, those graduates who selected higher levels of thing related tasks are among those who have:

14. Higher initial salaries;*

15. Greater distance between hometown high school and present job.*

---

*The relationships of this independent variable to its associated dependent variable was found to be significant with the effects of all the other independent variables partialed out.

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TABLE 1

SAMPLING RESULTS

	Orig. Sample Number	No. of Bad Addresses*	Orig. Respondents Number	Orig. Respondents % of Original Sample	Tel. Sample Number	Tel. Respondents Number	Tel. Respondents % of Follow-up Sample
1955							
DDT	28	7	14	50	-	-	-
EET	40	9	15	38	2	2	100
1956							
DDT	39	7	18	46	1	1	100
EET	29	4	15	52	1	1	100
1957							
DDT	65	12	33	51	2	2	100
EET	46	6	21	46	1	1	100
1958							
DDT	86	8	45	52	4	4	100
EET	52	9	28	54	6	6	100
1959							
DDT	79	10	44	56	5	5	100
EET	62	8	28	45	2	2	100
1960							
DDT	69	16	32	46	3	2	67
EET	76	12	39	51	2	2	100
1961							
DDT	57	10	25	44	3	3	100
EET	49	7	21	43	2	2	100
1962							
DDT	62	8	30	48	2	1	50
EET	64	11	34	53	2	2	100
1963							
DDT	95	10	48	51	7	6	86
EET	79	12	28	35	6	4	67
1964							
DDT	76	7	35	46	3	2	67
EET	63	8	30	48	5	4	80
1965							
DDT	94	7	53	56	2	2	100
EET	78	11	40	51	1	1	100

TABLE 1 (continued)

	Orig. Sample Number	No. of Bad Addresses*	Orig. Respondents Number	Orig. Respondents % of Original Sample	Tel. Sample Number	Tel. Respondents Number	Tel. Respondents % of Follow-up Sample
1966							
DDT	86	7	44	51	5	4	80
EET	78	8	46	59	4	4	100
1967							
DDT	75	7	44	58	4	3	75
EET	87	3	46	52	1	1	100
1968							
DDT	95	1	60	63	6	4	67
EET	101	5	54	54	7	6	86
1969							
DDT	94	1	68	72	4	4	100
EET	94	-	67	71	4	3	75
Total							
DDT	1100	118	593	54	51	43	84
EET	998	113	512	51	46	41	89
TOTAL	2098	231	1105	53%	97	84	87%

*Questionnaires returned as undeliverable by the postal authorities.

TABLE 2

ZERO-ORDER CORRELATIONS FOR MOBILITY VARIABLES
EET GRADUATES

Variables	Graduation Year 1	Dependents 2	F Salary 3	F Miles 4	P Salary 5	P Miles 6	Job-Residence Changes 7	Job-Company Changes 8
1	1.00	-0.67*	0.09	-0.12	-0.36*	0.05	-0.30*	-0.36*
2		1.00	0.09	0.16	0.44*	-0.01	0.28*	0.35*
3			1.00	0.56*	0.71*	0.29*	0.28*	0.21*
4				1.00	0.52*	0.32*	0.40*	0.27*
5					1.00	0.23*	0.35*	0.34*
6						1.00	0.14	0.06
7							1.00	0.62*

*Significant at the .05 level

4907

TABLE 3

ZERO-ORDER CORRELATIONS FOR MOBILITY VARIABLES
DDT GRADUATES

Variables	Graduation Year 1	Dependents 2	F Salary 3	F Miles 4	P Salary 5	P Miles 6	Job-Residence Changes 7	Job-Company Changes 8
1	1.00	-0.54*	0.22*	-0.02	-0.45*	0.05	-0.28*	-0.38*
2		1.00	-0.07	0.06	0.45*	-0.08	0.22*	0.31*
3			1.00	0.14	0.21*	0.04	-0.02	-0.02
4				1.00	0.02	0.19	0.16	0.06
5					1.00	-0.03	0.26*	0.32*
6						1.00	0.04	-0.04
7							1.00	0.67*

*Significant at the .05 level

4908

TABLE 8

COMPARISON OF PRESENT SALARIES WITH DISTANCE BETWEEN HOMETOWN HIGH SCHOOL-PRESENT JOB AND JOB-RESIDENCE CHANGES

Curriculum	Graduation Year	Present Salary	Present Miles	Zero-Order Value	Job-residence changes	Zero-Order Value
EET	1955	1075	348	+.23*	1.6	+.35*
	1961	941	494		1.9	
	1965	728	316		1.4	
	1969	615	198		1.3	
DDT	1955	865	129	-.03	2.8	+.26*
	1961	879	393		2.5	
	1965	719	638		1.8	
	1969	557	252		1.3	

*Significant to the .05 confidence level.

Note: The zero-order correlations are based on the entire sample by curriculum. The table presents data for 4 representative years in order to demonstrate the trend over the 15 year period.

49613

TABLE 9

COMPARISON OF MILES BETWEEN HOMETOWN HIGH SCHOOL-
PRESENT JOB AND NUMBER OF JOB-RESIDENCE CHANGES

Curriculum	Graduation Year	Present Miles	Job-residence changes	Zero-Order Value
EET	1955	348	1.6	+.14
	1961	494	1.9	
	1965	316	1.4	
	1969	198	1.3	
DDT	1955	129	2.8	+.04
	1961	393	2.5	
	1965	638	1.8	
	1969	252	1.3	

*Note: The zero-order correlations are based on the entire sample by curriculum. The table presents data for 4 representative years in order to demonstrate the trend over the 15 year period.

4914

TABLE 10

REGRESSION EFFECT OF THE SIX INDEPENDENT MOBILITY FACTORS ON THE MOBILITY VARIABLE JOB-RESIDENCE CHANGES (IN RAW SCORE UNITS)

Curriculum	Independent Variables → Graduation Year	Number of Dependents	First Salary	First Mile	Present Salary	Present Miles	Intercept	$\bar{R}^2$	Significance of F-ratio
EET Number of Job-Residence Changes (N=545)	-.06** (.01)	.04 (.03)	.0004* (.0002)	.0005** (.00009)	-.00008 (.0001)	.00002 (.00003)	1.08 (.21)	.233	.01
DDT Number of Job-Residence Changes (N=621)	-.05** (.01)	.03 (.04)	-.0003 (.0003)	.0003** (.00008)	.0007** (.0002)	.00003 (.00004)	.92 (.23)	.124	.01

*Significant at .05 level.
**Significant at .01 level.

4915

TABLE 11

THINGS DONE ON THE JOB: DDT CURRICULUM

	Graduation Year→														
	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
DATA															
synthesizing	2	2	3	3	2	14	2	2	4	1	6	6	2	5	11
coordinating	9	17	26	40	37	20	20	22	35	25	36	24	25	20	18
analyzing	9	17	24	32	35	27	21	17	34	25	37	27	29	32	40
compiling	8	13	19	20	18	19	14	9	16	25	26	23	21	31	26
computing	7	9	16	20	21	20	15	13	29	21	30	30	27	38	36
comparing	6	13	14	17	15	17	13	7	16	14	22	23	14	26	24
copying	5	4	7	10	2	8	5	4	2	5	15	12	12	25	32
PEOPLE															
mentoring	0	2	2	2	3	3	1	0	2	2	6	4	1	1	1
negotiating	5	7	14	20	21	16	12	7	17	14	21	13	14	8	16
instructing	7	12	16	32	22	19	13	15	18	15	26	17	14	11	11
supervising	9	12	25	38	28	18	13	18	25	19	30	15	16	14	8
persuading	5	12	6	21	15	14	13	12	17	11	26	10	12	13	14
speaking-signaling	0	5	5	13	8	10	8	2	8	5	14	7	8	6	11
serving	3	7	6	6	9	12	10	5	12	9	12	14	14	17	18
THINGS															
setting-up	3	2	9	4	7	7	3	5	10	7	8	13	11	9	11
precision-working	5	4	6	11	12	6	4	6	10	9	22	19	17	21	24
operating-controlling	0	4	6	10	4	4	3	3	8	4	5	11	4	7	5
driving-operating	0	0	1	3	0	3	3	1	1	2	2	5	2	5	5
manipulating	0	2	3	7	2	3	1	2	2	3	9	4	3	3	6
tending	0	0	0	0	1	0	0	2	3	0	3	1	3	2	2
handling	1	2	5	2	6	3	4	1	3	1	7	5	7	3	3

TABLE 12

THINGS DONE ON THE JOB: EET CURRICULUM

	Graduation Year →														
	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
DATA															
synthesizing	1	0	2	3	0	8	1	2	2	5	3	8	4	3	5
coordinating	12	11	17	19	20	30	17	20	15	12	25	27	30	18	23
analyzing	13	12	16	16	19	31	18	28	25	22	30	36	34	29	33
compiling	6	7	8	8	10	18	10	16	11	11	16	22	27	26	20
computing	4	4	10	13	12	25	11	19	19	15	14	23	25	23	20
comparing	6	5	8	7	7	12	11	13	10	12	22	19	20	18	20
copying	2	0	1	7	1	4	2	3	2	8	9	6	13	9	15
PEOPLE															
mentoring	2	1	2	2	3	2	0	2	2	2	2	3	1	3	3
negotiating	8	6	13	10	13	16	10	14	7	7	7	17	13	7	10
instructing	13	11	14	20	15	23	14	19	12	11	18	22	18	14	13
supervising	9	11	17	18	17	25	13	18	12	12	13	23	15	14	13
persuading	5	5	6	10	9	14	8	12	5	7	8	13	10	10	8
speaking-signaling	7	3	6	9	8	9	2	6	5	6	7	9	7	10	7
serving	2	4	3	6	7	9	5	8	7	5	10	14	11	13	16
THINGS															
setting-up	2	4	6	7	7	9	2	12	11	10	14	24	16	22	19
precision-working	3	5	1	5	11	12	4	10	10	15	11	13	18	9	15
operating-controlling	1	4	3	5	7	10	4	15	16	11	9	20	13	16	15
driving-operating	0	0	1	1	1	3	2	2	1	6	6	6	8	5	7
manipulating	3	1	3	7	2	8	2	5	8	5	6	15	5	9	7
tending	1	0	0	1	1	2	0	2	2	2	4	6	1	4	3
handling	0	1	2	4	2	3	1	6	6	3	8	6	4	9	7

TABLE 13

THE ABSOLUTE ZERO-ORDER CORRELATIONS BETWEEN THE THREE DEPENDENT VARIABLES (DATA, PEOPLE, THINGS) AND THE SEVEN INDEPENDENT VARIABLES (MOBILITY FACTORS)

Curriculum	Graduation Year	Number of Dependents	First Salary	First Mile	Present Salary	Present Miles	Number of Job Residence Changes
EET							
Data	-.25*	.24*	-.07	-.09	.15	-.04	.02
People	-.37*	.32*	-.08	-.04	.19	-.05	.05
Things	.07	-.08	.00	-.04	-.07	-.00	-.02
DDT							
Data	.04	.20*	.09	.11	.20*	.11	.04
People	.00	.09	.06	.10	.10	.09	.06
Things	-.01	.02	.01	.03	.06	.05	.01

*Significant to the .05 Confidence Level.

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TABLE 14

TESTING THE QUESTIONS WITH ZERO-ORDER CORRELATION: THE RESULTS

Question 1: Is there a significant relationship between those graduates of the (EET) (DDT) curriculum who selected higher levels of data related job tasks and -

STATEMENT	CURRICULUM EET	DDT
a. year of graduation	Yes	No
b. number of dependents	Yes	Yes
c. initial salary	No	No
d. distance between home town high school and first job	No	No
e. present salary	No	Yes
f. distance between home town high school and present job	No	No
g. number of job-residence changes	No	No

Question 2: Is there a significant relationship between those graduates of the (EET) (DDT) curriculum who selected higher levels of people related job tasks and -

a. year of graduation	Yes	No
b. number of dependents	Yes	No
c. initial salary	No	No
d. distance between home town high school and first job	No	No
e. present salary	No	No
f. distance between home town high school and present job	No	No
g. number of job-residence changes	No	No

Question 3: Is there a significant relationship between those graduates of the (EET) (DDT) curriculum who selected higher levels of thing related job tasks and -

a. year of graduation	No	No
b. number of dependents	No	No
c. initial salary	No	No
d. distance between home town high school and first job	No	No
e. present salary	No	No
f. distance between home town high school and present job	No	No
g. number of job-residence changes	No	No

TABLE 15

REGRESSION EFFECT OF THE SEVEN INDEPENDENT VARIABLES ON THE THREE JOB CHARACTERISTICS (IN RAW SCORE UNITS) BY CURRICULUM

	Mobility Factors[a]							Intercept	R^2	Significance of F-ratio
	1	2	3	4	5	6	7			
EET N=545 Data	-.03 (.03)b	.15 (.08)	-.001** (.0004)	-.0007** (.0002)	.001** (.0003)	.00001 (.00008)	-.03 (.10)	4.74 (.50)	.111	.01
People	-.12** (.04)	.16* (.08)	-.001** (.0004)	-.0005* (.0002)	.001** (.0003)	-.00001 (.00008)	-.08 (.11)	4.65 (.54)	.175	.01
Things	.002 (.05)	-.07 (.12)	.0008 (.0006)	-.0002 (.0003)	-.0006 (.0004)	.000008 (.0001)	.07 (.15)	3.79 (.76)	-.0006	NS
DDT N=621 Data	-.03 (.02)	.06 (.05)	.003** (.0004)	-.0001 (.0001)	.002** (.0002)	.0008 (.00005)	-.05 (.05)	2.70 (.32)	.290	.01
People	-.06** (.02)	.09 (.06)	.001* (.0006)	-.0001 (.0001)	.002** (.003)	.00007 (.00007)	.06 (.06)	2.30 (.40)	.251	.01
Things	.06 (.03)	.10 (.09)	.003** (.0009)	-.0002 (.0002)	.0004 (.0004)	.0003* (.0001)	.05 (.10)	.47 (.59)	.038	.01

a.Numbers 1 through 7 are: 1=graduation year; 2=number of dependents; 3=initial salary; 4=miles between hometown high school and first job; 5=present salary; 6=miles between hometown high school and present job; 7=number of job-residence changes.

b.Values in parenthesis are the standard error of the coefficients.

* Significant at .05 level.

** Significant at .01 level.

NS=Not significant at .05 level.

N=Number of observations.

4920

Circle those items in each list that described some of the things that you do in your job:

A	B	C
1. Copying	1. Supervising	1. Precision Working
2. Synthesizing	2. Serving	2. Tending
3. Comparing	3. Mentoring	3. Driving-Operating
4. Compiling	4. Instructing	4. Setting-Up
5. Coordinating	5. Persuading	5. Handling
6. Computing	6. Negotiating	6. Operating-Controlling
7. Analyzing	6. Speaking-Signaling	7. Manipulating

P. Rank order general groups A, B, and C above in accordance with their importance to your present job.

_____ most important _____ less important _____ least important

Q. Circle the highest degree earned to date:

1. associate 2. bachelors 3. masters 4. doctorate

Your Course Work at Penn State

Following are several items relating to some of the basic courses you took in your Associate Degree Program at The Pennsylvania State University. For each item, "X" the appropriate spaces that best indicate your opinion of the quality of teaching in that subject, the degree to which you used it immediately after graduation, the degree to which you use it now, and its importance in the job you hope to get in the future. Please check one in each column.

SUBJECT	QUALITY OF INSTRUCTION				NEED FOR IT AFTER GRADUATION				YOUR NEED FOR IT NOW				NEED FOR IT TO GET DESIRED JOB IN THE FUTURE			
	Exc.	Good	Fair	Poor	Very Much	Much	Some	None	Very Much	Much	Some	None	Very Much	Much	Some	None
Freshman Mathematics	1___	2___	3___	4___	1___	2___	3___	4___	1___	2___	3___	4___	1___	2___	3___	4___
Freshman Science	1___	2___	3___	4___	1___	2___	3___	4___	1___	2___	3___	4___	1___	2___	3___	4___
English	1___	2___	3___	4___	1___	2___	3___	4___	1___	2___	3___	4___	1___	2___	3___	4___
Social Sciences	1___	2___	3___	4___	1___	2___	3___	4___	1___	2___	3___	4___	1___	2___	3___	4___

III. DDT GRADUATES ONLY

This is the final section of the survey and you are asked to give three responses for each of the items below. These topics deal with some of the major topics in the specialized portion of your Associate Degree Program. You are requested to evaluate them in terms of a) quality of instruction, b) the extent to which you used them immediately after graduation, and c) the extent to which you use them at the present time.

TOPIC	QUALITY OF INSTRUCTION					EXTENT USED WHEN FIRST GRADUATED				EXTENT USED NOW			
	Exc.	Good	Fair	Poor	Not Taught	Very Much	Much	Some	None	Very Much	Much	Some	None
AA Freehand sketching	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
AB Multiview layout	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
AC Graphical solutions	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
AD Kinematics	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
AE Strength of materials	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
AF Static load analysis	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
AG Dynamic load analysis	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
AH Analysis of structures	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
AI Manufacturing process	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
AJ Product design	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
AK Report writing	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
AL Computer programming	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___

III. EET GRADUATES ONLY

This is the final section of the survey and you are asked to give three responses for each of the items below. These topics deal with some of the major topics in the specialized portion of your Associate Degree Program. You are requested to evaluate them in terms of a) quality of instruction, b) the extent to which you used them immediately after graduation, and c) the extent to which you use them at the present time.

TOPIC	QUALITY OF INSTRUCTION					EXTENT USED WHEN FIRST GRADUATED				EXTENT USED NOW			
	Exc.	Good	Fair	Poor	Not Taught	Very Much	Much	Some	None	Very Much	Much	Some	None
BA Vacuum tube theory	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
BB Transistor circuit theory	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
BC Integrated circuits	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
BD Use of Electronic test equipment	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
BE Pulse circuits	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
BF Logic circuits	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
BG Communications circuits	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
BH Industrial Electronics circuits	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
BI Microwave theory	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
BJ Trouble-shooting analysis	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
BK Binary Arithmetic	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___
BL Boolean Algebra	1___	2___	3___	4___	5___	1___	2___	3___	4___	1___	2___	3___	4___

The Follow-Up Letter:

Dear Penn State Graduate:

Some time ago we sent you a questionnaire so that we could learn about you since you graduated from The Pennsylvania State University. Your responses will serve as a very important part of the evaluation of the Commonwealth Campus Associate Degree curriculums. This evaluation will serve as the basis for recommending changes that could lead to the improvement of the Associate Degree Programs for the benefit of future graduates. Therefore, you can see that your help is critically needed.

Would you be kind enough to take fifteen minutes and fill out the questionnaire? Also, we request that you be completely honest and direct with your answers.

If you have lost the questionnaire, would you let us know? We will see that one is sent to you immediately.

Upon completing the questionnaire, would you send it back to us at the address given below? Thank you for your invaluable assistance.

Sincerely,

Description of Job-Related Tasks (12:649-650):

DATA: Information, knowledge, and conceptions, related to data, people, or things, obtained by observation, investigation, interpretation, visualization, mental creation; incapable of being touched; written data take the form of numbers, words, symbols; other data are ideas, concepts, oral verbalization.

Synthesizing: Integrating analyses of data to discover facts and/or develop knowledge, concepts, or interpretations.

Coordinating: Determining time, place, and sequence of operations or action to be taken on the basis of analysis of data; executing determinations and/or reporting on events.

Analyzing: Examining and evaluating data. Presenting alternative actions in relation to the evaluation is frequently involved.

Compiling: Gathering, collating, or classifying information about data, people, or things. Reporting and/or carrying out a prescribed action in relation to the information is frequently involved.

Computing: Performing arithmetic operations and reporting on and/or carrying out a prescribed action in relation to them. Does not include counting.

Copying: Transcribing, entering, or posting data.

Comparing: Judging the readily observable functional, structural, or compositional characteristics (whether similar to or divergent from obvious standards) of data, people, or things.

PEOPLE: Human beings; also animals dealt with on an individual basis as if they were human.

Mentoring: Dealing with individuals in terms of their total personality in order to advise, counsel, and/or guide them with regard to problems that may be resolved by legal, scientific, clinical, spiritual, and/or other professional principles.

Negotiating: Exchanging ideas, information, and opinions with others to formulate policies and programs and/or arrive jointly at decisions, conclusions, or solutions.

Instructing: Teaching subject matter to others, or training others (including animals) through explanation, demonstration, and supervised practice; or making recommendations on the basis of technical disciplines.

Supervising: Determining or interpreting work procedures for a group of workers, assigning specific duties to them, maintaining harmonious relations among them, and promoting efficiency.

Diverting: Amusing others.

Persuading: Influencing others in favor of a product, service, or point of view.

Speaking-Signaling: Talking with and/or signaling people to convey or exchange information. Includes giving assignments and/or directions to helpers or assistants.

Serving: Attending to the needs or requests of people or animals or the expressed or implicit wishes of people. Immediate response is involved.

THINGS: Inanimate objects as distinguished from human beings; substances or materials; machines, tools, equipment; products. A thing is tangible and has shape, form, and other physical characteristics.

Setting Up: Adjusting machines or equipment by replacing or altering tools, jigs, fixtures, and attachments to prepare them to perform their functions, change their performance, or restore their proper functioning if they break down. Workers who set up one or a number of machines for other workers or who set up and personally operate a variety of machines are included here.

Precision Working: Using body members and/or tools or work aids to work, move, guide, or place objects or materials in situations where ultimate responsibility for the attainment of standards occurs and selection of appropriate tools, objects, or materials, and the adjustment of the tool to the task require exercise of considerable judgment.

Operating-Controlling: Starting, stopping, controlling, and adjusting the progress of machines or equipment designed to fabricate and/or process objects or materials. Operating machines involves setting up the machine and adjusting the machine or material as the work progresses. Controlling equipment involves observing gages, dials, etc., and turning valves and other devices to control such factors as temperature, pressure, flow of liquids, speed of pumps, and reactions of materials. Setup involves several variables and adjustment is more frequent than in tending.

Driving-Operating: Starting, stopping, and controlling the actions of machines or equipment for which a course must be guided, in order to fabricate, process, and/or more things or people. Involves such activities as observing gages and dials; estimating distances and determining speed and direction of other objects; turning cranks and wheels; pushing clutches or brakes; and pushing or pulling gear lifts or levers. Includes such machines as cranes, conveyor systems, tractors, furnace charging machines, paving machines and hoisting machines. Excludes manually powered machines, such as handtrucks and dollies, and power assisted machines, such as electric wheelbarrows and handtrucks.

Manipulating: Using body members, tools, or special devices to work, move, guide, or place objects or materials. Involves some latitude for judgment with regard to precision attained and selecting appropriate tool, object, or material, although this is readily manifest.

Tending: Starting, stopping, and observing the functioning of machines and equipment. Involves adjusting materials or controls of the machine, such as changing guides, adjusting timers and temperature gages, turning valves to allow flow of materials, and flipping switches in response to lights. Little judgment is involved in making these adjustments.

Feeding-Offbearing: Inserting, throwing, dumping, or placing materials in or removing them from machines or equipment which are automatic or tended or operated by other workers.

Handling: Using body members, handtools, and/or special devices to work, move, or carry objects or materials. Involves little or no latitude for judgment with regard to attainment of standards or in selecting appropriate tool, object, or material.

VT 012 515
Ward, William Gary
Process Evaluation of Vocational Education. Review and Synthesis of Selected "Research in Education" Documents January 1, 1968 to August 31, 1970.

Oklahoma Vocational Research Coordinating Unit, Stillwater.
MF AVAILABLE IN VT-ERIC SET.
RCU Report No. 12
PUB DATE - Dec70 31p.

DESCRIPTORS - *SYNTHESIS; *EVALUATION; *VOCATIONAL EDUCATION; *EDUCATIONAL RESEARCH; RESEARCH REVIEWS (PUBLICATIONS); SYSTEMS APPROACH; DECISION MAKING
IDENTIFIERS - PROCESS EVALUATION

ABSTRACT - Evaluation has become increasingly important in federally funded educational programs. The only concern in this report is the evaluation process as it relates to vocational education. From the original 71 documents concerned with process evaluation listed in "Research in Education" from January 1968 through August 1970, 24 were selected for review and synthesis. The primary purpose of this paper was to eliminate insignificant material and to include data that would be valuable for future process evaluation projects in vocational education. The findings indicate that an insufficient amount of "empirically hard" research is available on process evaluation, that most evaluation relies upon subjective rating scales, and that the current move is toward a systems approach. Recommendations for future studies on process evaluation, based on the findings, are included. (GEB)

VT 012 515

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CHAPTER I

INTRODUCTION

It would seem that when money in the United States becomes a scarce resource, public agencies are confronted with mounting competition in securing funds and increased accountability in the use of those funds.

There are two occurrences that may indicate that education is in that market. The first is the taxpayer's revolt which is being experienced by some local schools. The second is the enlarged accountability required when using federal funds.

That situation seems to have caused some educators and many congressmen to look to data gathered by evaluation of educational programs as one of the means of strengthening their competitive status.

The interest in evaluation has been compounded by the movement of the systems approach into the management area of education. A workable system requires continual feedback from the evaluation of its activities.

Also, the most common reason given for the use of evaluation is to improve education.

Whatever the reason, evaluation is here. The need for evaluation has become paramount in programs that use federally issued funds. Vocational Education, as one recipient, has become increasingly concerned with proper evaluation procedures.

If the results of evaluation of vocational programs are to be used, at any level, as an input into decision making, the total system of evaluation is too important to rely upon unvalidated methods, instruments, and ideas.

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Is process evaluation usable? Does it provide needed data? What is the present status? Where are we going? Where do we need to go?

This review and synthesis concerns only process evaluation as related to Vocational Education. It is designed to give interested parties a brief, concise, and accurate report on the current status of process evaluation in Vocational Education as reflected in selected literature.

Statement of the Problem

Anyone who takes the time to read this review and synthesis would probably already be aware of the federal mandate on evaluation written into the 1968 amendments to the 1963 Vocational Education Act (1).

This writer shall not bore the reader with a full reiteration of the meaning and impact of the federally required evaluation.

Simply stated, the legislation requires the State Advisory Councils to yearly evaluate the programs, services, and activities of the vocational offerings of its state and report the findings to the National Advisory Council.

It would seem to suffice to just say that the law has motivated many individuals and groups to become interested in evaluation.

They have become so interested that the literature has grown rapidly to monstrous size. It is seemingly so vast that it appears unusable.

The sheer bulk of the information in its present form is possibly as useless as no information at all.

Purpose of this Study

The purpose of this paper is to cut through the vast amount of insignificant information and synthesize selected documents that relate to process evaluation in Vocational Education and to draw conclusions from the synthesis relative to the status of process evaluation.

Need for the Study

The federal mandate, the use of the systems approach in education, and the continual drive to improve education requires that decisions be made about process evaluation. The increased interest is also causing research to be undertaken in this area.

Now, why should a person have to go through the ERIC System and sift this information out? This writer would have saved so much time if there had been available one document that synthesizes this information into a foundation for use by decision makers and researchers in Vocational Education, if that same document based on the review of the literature drew conclusions about the status of process evaluation, and for individual use included an annotated bibliography of the selected documents. This writer hopes that this paper professionally fulfills those requirements.

Scope of the Study

This review synthesizes selected documents (related to process evaluation in Vocational Education) that were disseminated throughout the ERIC System between January 1, 1968 and August 31, 1970.

Basis and Procedure for Document Selection

The central theme of this paper is brevity.

Document selection was based on the satisfaction of any one of the four following guidelines:

(1) Did the document concern, in part or in whole, research (data gathered and validated) on process evaluation of Vocational Education?

(2) Was the document on process evaluation that could apply, in principle or technique, to Vocational Education?

(3) Did the information present well-thought-out, recommended procedures for process evaluation research that could be applicable to Vocational Education?

(4) Did the document present actual process evaluation instruments that could be used in Vocational Education?

This reviewer wants to make it very plain to the reader that a great deal of personal judgment was used in document selection and rejection.

The procedural steps were:

(1) Review of the subject indexes of Research in Education, ERIC.

(2) Based on the main descriptions and titles, documents were selected and the abstracts were read.

(3) Based on the abstracts, seventy-one documents were pulled and scanned by this reviewer.

(4) Based on the scanned readings, forty-three documents were duplicated and read in entirety.

(5) Based on the readings, twenty-four documents were selected for synthesis.

This study should not be considered as research. This reviewer capitalized upon a well-recognized research format because of the structure and clarity it brings to an article.

This writer cautions any reader that the findings, conclusions, and recommendations may or may not have any inference value.

The specific limitations are:

(1) A main purpose was to cut through and do away with the vast amount of insignificant information.

(2) The actual procedure for acceptance and rejection was based on four guidelines (see Scope of Study) and a great deal of personal opinion.

(3) The source of the information, ERIC, does not propose to include every article written in this area.

(4) The documents were selected from the time period this writer considered as reflecting the most interest in evaluation, January 1, 1968 to August 31, 1970.

Definition of Terms

Documents--Selected publications that are reproduced on microfiche and disseminated throughout the ERIC System.

ERIC--Educational Resources Information Center. An organization for the collection, duplication, and dissemination of educational information.

Evaluation Instrument--Usually a written form(s) that require(s) the recording of answers to judgment questions.

Process Evaluation--Examining and judging the educational experiences and environment that a student progresses through in a training program.

Rating Scale--A method of ranking answers by subjective preference from a predetermined graduated series or scheme.

Validated--Has the instrument been proven to evaluate what it says it evaluates?

CHAPTER II

REVIEW OF THE LITERATURE

The most comprehensive review and synthesis that this writer has found was the April, 1970, Review of Educational Research (2). The authors covered a very wide spectrum of evaluation and dealt mainly with evaluation studies in the academic realm of the cognitive and affective domain.

The principles of evaluation that are presented are certainly applicable to Vocational Education.

But, since the psychomotor domain is of the utmost importance to vocational educators, this writer feels that the techniques of evaluation might be different.

It is desirable for this review and synthesis to complement the April, 1970 issue of Review of Educational Research.

Other authors have also contributed in areas that were helpful in this study.

Eidell (3) has compiled an annotated bibliography of sixty-four books, pamphlets, and papers on evaluation of educational programs. The publication saved this reviewer a great deal of time, but the data was concerned with many different areas of evaluation and was not synthesized.

Wakefield (4) has also contributed an annotated bibliography on evaluating educational facilities. This also saved time but the

CHAPTER IV

SYSTEMS APPROACH

The systems approach is well-represented in vocational evaluation. There are several methodologies but most build along the same framework as Wilhelms', 1967, "Evaluation as Feedback and Guide" (10). This does not indicate credit as being the first or most important but as representative of all the models.

The basic system seems to be very similar for all the studies (10, 11, 12, 13, 14).

The areas of agreement are: evaluation is continuous, a data base for storage of information is needed, most input is from the local school, process evaluation is one of the inputs, and most of the work is done by the local school. Also the method of validating the actual process evaluation instruments was consistently unclear.

There are some individual differences.

Merriman (11) bases the system on four stages: context, input, process, and product. This model is a way of viewing planned educational changes and is a decision-making tool for the local school.

The Wisconsin State Department of Public Instruction (12) has completed a three-year study on the effectiveness of Vocational Education. The purpose of this study is somewhat different in that it was determined how well Vocational Education did in a comprehensive school. The criteria for success were: How well was the school able to identify

and meet local needs? and How well were the programs accepted? The evaluation instruments were developed and approved by local committees.

Harold Bryram's study (13) is based on local evaluation. It set up a system of local involvement where the personnel (staff, citizens, and students) do their own evaluation. It requires a small amount of input from the state level personnel. The process instruments are tailored by the local personnel.

Spiess (14) used more of a cooperative system of evaluation with state and local personnel working together. There are also four stages in this model: program evaluation, process-product evaluation, cost benefit evaluation, and an impact study of Vocational Education.

Summary

It seems to this reviewer that the systems approach has rather stereotyped evaluation. The inputs vary only slightly.

Could it be that this is the answer to evaluation? It would seem that a system is only as good as its inputs. How valid are the inputs from process evaluation?

CHAPTER V

EVALUATION INSTRUMENTS

There are many types of "check-list" or "fill-in-the-blanks" evaluation instruments.

The most commonly seen in this review were of the "rating scale" type. Rosenshine (1) classifies these as high-inference measures because they require a personal opinion as an answer to a normally subjective question. The disadvantages of using rating systems include: the halo effect, the error of central tendency, generosity or leniency error, and the lack of common referent for scoring calibrations such as "excellent" or "seldom."

Items on rating instruments such as "clarity of presentation," "enthusiasm," or "helpful toward student" require that an observer infer these constructs from a series of events.

The rating scales are normally economical and can have a quick feedback.

On the other side is the category system that is of low-inference measures because the items focus upon specific, denotable, relatively objective behaviors such as "teacher repetition of student ideas," or "teacher asks evaluative question." The events are recorded as frequency counts. This method provides more empirical information but seems to leave out many subjective areas that are present in teaching.

There is the convergence of these two methods in many instruments.

Since the most common was the rating scale, some discussion should be useful.

Queer (15) surveyed the teacher rating systems used in sixty of the nations largest schools. He asked for the purpose and type of scales being used, the frequency of rating, and the major evaluation categories. The results are very interesting.

Of the fifty-three responding districts, fifty indicated that they are currently using some type of rating scale to measure teacher performance.

Fifty percent of the responding school districts failed to report the purpose of their rating activity. Most districts which did specify a purpose viewed evaluation as a way of leading the teacher to improve his own classroom performance. The second most frequent objective of rating teachers was for improvement of instruction. Another purpose stated with relatively low frequency was that of selecting and retaining the best possible teachers.

Fifty percent of the reporting districts used a five-point rating scale. Although support was given for a three-point, two-point, and a four-point scale, the range extended from a nine-point scale to an open-ended comment by the rater.

The major responsibility for the rating of teachers falls upon the principal in most of the districts responding, while others distribute the responsibility among the superintendent, coordinator, supervisor, department, and, in some cases, to the teacher in the form of self-evaluation.

Beginning or probationary teachers were named as the ratee most often. Less than fifty percent indicated that all teachers were rated. Several schools also indicated a rating procedure for substitute teachers.

The frequency with which teachers were rated ranged from as often as twice a year to as infrequently as once every five years. In most cases, the controlling factor was years of experience.

The contents of the instruments were categorized. Physical, personal, social or emotional qualities made up twenty-two percent of all the variables considered. Only three percent were concerned with academic preparation. An additional thirty-six percent were concerned with those responsibilities associated with the conduct of classroom activity. Twenty-one percent emphasized those responsibilities of the teacher outside the classroom.

Eighteen percent of the contents of the rating scales was found to be unclassifiable in the previous categories.

It would seem that the only constant finding would be that the findings are not constant.

There have been serious attempts (16, 17, 18, 19, 20, 21) to overcome the apparent problems in teacher and teaching rating scales.

Cohen (16) reports in a two-part monograph. The first part was devoted to discussing and appraising the methods currently being employed in teacher rating in junior colleges. This covered rater bias, ambiguity of purpose, and lack of definite criterion in most scales.

A case for changing the purposes, methods, and the criteria of faculty assessment was presented in part two. Some of the suggested

changes were: using trained observers, self-evaluation, peer evaluation, evaluation by an outsider, and student evaluation.

Many school systems (17, 18, 19, 20, 21) attempted to remove some of the problems by inservice training, clarification of guidelines, and publishing of handbooks that structure the evaluation procedures.

Pittsburg Public Schools have developed a Discrepancy Evaluation Model (17) with five stages. The stages are: (1) program design, (2) program operations, (3) program interim products, (4) program terminal products, and (5) program cost.

A "Handbook for Evaluators" (18) explains the Discrepancy System and gives a detailed outline of the administrative procedures necessary to conduct day-to-day activities in program evaluation.

The state of Pennsylvania, as reported by Reynolds (19), is utilizing a structured self-evaluation for vocational-technical evaluation. The State Department of Education supplies a manual with three-point rating scales for most service areas and some general forms for administration and guidance. The self-evaluation is directed by a steering committee and involves the entire vocational staff of the school.

Another state, Rhode Island (20), developed a procedure that calls for self-analysis, team-analysis, and an analysis by a representative from industry. It is not clear if Rhode Island is using this procedure.

Los Angeles City Schools (21) published a guide for administrators to use in evaluation of adult education programs. Its main purpose seems to be to orientate the evaluator to the specific type of program he is observing.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Summary

A portion of the 1968 amendments to the 1963 Vocational Education Act requires yearly evaluation by the State Advisory Council of the vocational offerings of its state and reporting of their findings to the National Advisory Council.

If these findings are to be used in decision making, it is too important an area to rely upon unvalidated methods, instruments, and ideas.

What is the current status of process evaluation? Does it yield usable information? Can it be relied upon to accurately represent what is happening in Vocational Education? Where can a decision maker go to get information about process evaluation? The current bulk of information is so vast as to make it almost unusable.

The ERIC System contains a vast amount of information on process evaluation. Many of the documents do not shed light on the working aspects of process evaluation.

The purpose of this paper is to cut through the vast amount of insignificant information and synthesize only the data that could be used as a foundation for future process evaluation projects in Vocational Education.

Findings

1. There was no evidence that any document examined the impact of process evaluation to determine its effect on education.

2. Very little "empirically hard" research is available on process evaluation.

3. Most process evaluation relies upon a subjective rating scale (5,6,8,10,11,12,13,14,15,16,17,19,20,21).

4. Most rating scales are validated by the author's opinion, committee opinion, or show no evidence of being validated (3,6,7,8,10, 11,12,13,14,15,16,17,19,20,21).

5. The worth of process evaluation is questioned. The results of the questioning normally are to increase the structuring of the instrument and procedures. The number and type of personnel performing the ratings are increased or dispersed (16,17,18,19,20,21).

6. The more recent studies tend to reflect a move toward a systems approach with process evaluation as one of the many inputs (6,8,10,11,12,13,14,17).

Conclusions

1. The impact of process evaluation is assumed to be useful; even though it is questioned, it is still here.

2. Most process evaluation methods are based on a rating scale. These scales are normally validated by personal opinion, group opinion, or show no evidence of being validated.

3. The systems approach is becoming a popular procedure for evaluation. Process evaluation is normally just one of the many

(11) Merriman, Howard O. "Evaluation of Planned Educational Change at the Local Education Agency Level." February, 1967, ERIC, ED 025 042.

Based upon a systems analysis approach, a four-stage evaluation model called CIPP (context, input, process, product) assesses innovative programs in education. The model is both a way of viewing planned educational change and a decision-making tool for the administrator within the local education agency. Development of the model includes a method for organizing relevant factors of the total information flow, a procedure for identifying program deficiencies, and an extensive outline of evaluative criteria.

(12) Wisconsin State Department of Public Instruction. "Evaluation of a Three-Year Pilot Program of Vocational Education in Thirty-Four Wisconsin Comprehensive High Schools." ERIC, ED 025 659.

A study to determine if the introduction of Vocational Education to thirty-four comprehensive high schools was successful.

(13) Bryram, Harold M. "Evaluation Systems for Local Programs of Vocational-Technical Education, Final Report." October, 1968, ERIC, ED 029 999.

The purpose of this study was to determine if Michigan schools can conduct an evaluation of their own programs of Vocational Education, with emphasis on outcomes and attainment of local objectives.

The study was conducted by the cooperation of ten school systems. The emphasis was on local staff and citizen involvement, curriculum analysis, assessment of outcomes through follow-up, and special activities and projects of interest to each school. The following elements were established as relevant in a local program self-evaluation:

(1) administrative endorsement and support
(2) a local leadership team
(3) a program of local leadership preservice and inservice training
(4) an evaluation program plan
(5) a staff committee for evaluation

(14) Spiess, Kathryn H., and Eugene R. Spiess. "A Guide to Evaluation; Massachusetts." September, 1969, ERIC, ED 034 071.

A total educational information system for evaluation of Vocational Education in Massachusetts is described. Specifically, the evaluation guide describes the evaluation plan, reveals the philosophy of evaluation upon which the design was built, outlines the processes of evaluation called

for in the design, introduces the forms for data collection that will be used in the design, and acts as a reference manual for those persons at the local level responsible for conducting specified segments of the design.

(15) Queer, Glen. "An Analysis of Teacher Rating Scales: A National Survey." June, 1969, ERIC, ED 030 968.

The content of teacher rating scales was investigated in a survey of the nation's sixty largest school districts. Of the fifty-three responding districts, fifty indicated that they are currently using some type of rating scale to measure teacher performance. Districts reported the purpose and type of scale being used, the frequency of rating, and the major evaluation categories. Respondents also indicated the types of teachers normally rated and the person(s) responsible for teacher rating. The appendix includes a frequency count of all responses.

(16) Cohen, Arthur M., and Florence B. Brawer. "Measuring Faculty Performance." 1969, ERIC, ED 031 222.

This report focuses on the techniques, objectives, and problems associated with teacher and teaching evaluation.

(17) Provus, Malcolm M. "The Discrepancy Evaluation Model." 1969, ERIC, ED 030 957.

A systems method for the evaluation of ESEA, Title I, and Title III programs.

(18) Glassner, Leonard E. "Handbook for Evaluators." October, 1969, ERIC, ED 035 980.

This is a handbook guide for new evaluators in the Pittsburgh Public School.

(19) Reynolds, Harris W. "Evaluative Criteria for Vocational-Technical Programs." 1967, ERIC, ED 022 861.

This manual provides forms for self-evaluation of Vocational-Technical School programs, covering most program service areas.

(20) Rhode Island State Department of Education. "Program Analysis Questionnaire for Vocational and Technical Education." No date given, ERIC, ED 029 969.

Evaluation criteria to measure various aspects of the vocational program, procedures, and responsibilities are listed.

(21) Los Angeles City Schools, California. "Criteria for Evaluating Instruction in Adult Education." ERIC, ED 021 164.

This article is a series of check lists for supervisors to use in evaluating the process of adult education programs.

(22) Messick, Samuel. "Evaluation of Educational Programs as Research on Educational Process." 1969, ERIC, ED 038 165.

More research is needed on the factors that make programs effective. This research methodology can be undertaken without sacrificing action-orientation, by carrying out the research and the program simultaneously.

(23) Welty, Gordon A. "The Logic of Evaluation." October, 1968, ERIC, ED 026 732.

The logic of evaluation is discussed from a methodological viewpoint. Also, it is discussed from the viewpoint of the systems approach and some engineering aspects.

(24) Bruhns, Arthur E. "Evaluation Processes Used to Assess the Effectiveness of Vocational-Technical Programs." December, 1968, ERIC, ED 031 209.

A list of different methods and procedures that could be used for evaluation of programs is given.

(25) Knox, Alan B. "Critical Appraisal of the Needs of Adults for Educational Experiences as a Basis for Program Development." No date given, ERIC, ED 022 090.

This article provides an idea of the variables needed to set up and evaluate adult education programs.

VT 012 516
Exploring the World of Work, Grades 6-9.

North Carolina Committee on Occupational Exploration in the Public Schools.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Apr69 38p.

DESCRIPTORS - *VOCATIONAL EDUCATION; EDUCATIONAL NEEDS; *STUDENT NEEDS; *CAREER PLANNING; OCCUPATIONAL INFORMATION; *PROGRAM DEVELOPMENT; PROGRAM EVALUATION; *REPORTS; EDUCATIONAL STRATEGIES
IDENTIFIERS - *OCCUPATIONAL EXPLORATION

ABSTRACT - A 13-member committee was established in the fall of 1968 to investigate occupational exploration opportunities in junior high schools of North Carolina, determine the need for such a program, and find alternative approaches that might be used to satisfy this need. Revealed through the investigation was an overwhelming need for occupational exploration in the early grades. To meet this need an 11-point plan which calls attention to the components of this type program is proposed, including points such as the need for teachers to relate subject content more directly to occupations, providing more counseling-coordinating programs, and purchasing commercial materials and equipment. (JS)

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EXPLORING THE WORLD OF WORK, GRADES 6-9

A Report of the Committee on Occupational Exploration

in the Public Schools of North Carolina

April 1969

VT012516

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EDUCATION & WELFARE
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The committee gratefully acknowledges the contributions made by lay people; local school personnel including superintendents, their assistants, principals, and instructional personnel; staff of the State Department of Public Instruction; and individuals in other States. Without the assistance of these people, the committee could not have fulfilled its charge.

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PREFACE

This is the report of a committee established in the fall of 1968 at the direction of A. G. Bullard, State Director of Vocational Education. The committee was charged with the responsibility of investigating occupational exploration opportunities in our junior high grades. Specifically, the charge involved determining the needs of such a program and finding alternative approaches that might be used to satisfy these needs.

This report is not intended to serve as a guide for implementing any program of occupational exploration at the local level. It is intended to serve as a basis for planning such programs.

It is recognized that local administrative units in North Carolina, and the schools in each of these units, differ. It was not the intent of this committee to plan a program approach or project a course or courses to be offered, but rather to project sufficient alternative approaches in such a manner that any local administrative unit or any school within such a unit--regardless of its size, available resources, student need for such a program, or any other identified variable--might find practical approaches that would fit that given situation.

SECTION I

INTRODUCTION, RATIONALE, AND JUSTIFICATION FOR OCCUPATIONAL EDUCATION

Public school education in North Carolina is stepping into a new area. The Governor's Study Commission on the Public School System has completed its investigation, released its findings, and proposed challenging new directions. Plans for implementation of these findings are now being formalized. A new State Superintendent of Public Instruction, a former member of the Governor's Study Commission, has been elected. The new Governor of North Carolina has unequivocally stated his support for expanding and extending public education in the State, including vocational education and industrial arts education--with special emphasis on vocational education offerings in the middle grades.

The Vocational Education Amendments of 1968, passed unanimously by Congress, emphasize "establishing, operating, or evaluating exemplary programs" which "broaden occupational aspirations and opportunities for youth." These programs or projects "include those designed to familiarize elementary and secondary school students with the broad range of occupations for which special skills are required and the requisites for careers in such occupations . . . ."

A good educational program for all children requires an individualized program to help a person learn "how to live" and "how to make a living". Good general education is, therefore, good vocational education, and good vocational education is good general education. It is important that there be little or no gap between general education and vocational education. Exploratory programs should be cooperatively planned and carried out, and the entire effort should be supported with a sound guidance program.

Programs for occupational exploration at the early high school level are justified by the needs of this age group. Early adolescents lack first-hand knowledge of the world of work; they need experiences -- both direct and vicarious -- to supply this knowledge. They have not had an opportunity to explore their capabilities in various areas or to appraise their potentials. This age group, which is characterized by a lack of self-confidence, needs experiences which will build self-assurance.

Research indicates that young people tend to make occupational choices in stages. They don't reach a final vocational decision at a single moment in time; their choice is the outgrowth of a series of decisions made over a period of years. However, students in many high schools are required to make a number of educational decisions at about the ninth grade level. They must decide such questions as whether to continue in school beyond the age 16 (and, if so, what courses to take) and whether to consider continuing their education beyond high school. These decisions influence their future careers by either limiting or increasing the amount of education they receive, thereby limiting or increasing the number of vocational choices open to them.

In hearings before the General Subcommittee on Education in February and March 1968, it was established that an adequate system of vocational education should have certain characteristics:

1. Occupational preparation should begin in the elementary schools with a realistic picture of the world of work. Its fundamental purposes should be to familiarize the student with his world and to provide him with the intellectual tools and rational thinking needed to play a satisfying role in it.

2. In junior high school economic orientation and occupational preparation should reach a more sophisticated stage, with all students studying the economic and industrial system by which goods and services are produced and distributed. The objective should be exposure to the full range of occupational choices which will be available at a later point and full knowledge of the relative advantages and the requirements of each.

3. Occupational preparation should become more specific in the high school, though preparation should not be limited to a specific occupation. Given the uncertainties of a changing economy and the limited experiences upon which vocational choices must be made, instruction should not be narrow, but should be built around significant families of occupations or industries which promise expanding opportunities.

Role of Education for Junior High School in the State of North Carolina

One of the functions of the junior high school is providing the early adolescent with exploratory experiences. Another function is providing a comprehensive guidance program. Exploratory experiences are most often provided by involving students in special programs in the context of the regular classroom. Junior high school should also provide, in addition to the regular course offerings, a comprehensive program in areas such as industrial arts, home economics, and business education -- areas oriented toward helping students make intelligent decisions concerning future educational plans. Systematic work experiences for some students might also be desirable. Such a background should help the student consider avocational and vocational choices and help him determine which high school vocational courses will be most helpful to him in planning his future.

The educational program provided the early adolescent child should be designed to demonstrate clearly the relationship between education and work. Specifically, it should illustrate the relationship between the type of education -- the length of formal educational experience -- and the standard of living a person may anticipate. The program should provide motivation for the student to effectively plan his school career, encouraging him to remain in school until graduation. The program is dependent, therefore, upon effective guidance and counseling, provided by a specialist, as well as classroom experiences. Exploratory experiences offered in the junior high school program should be broad enough to include the exploration of professional, technical and

managerial occupations; they should allow the individual to explore, in depth, large clusters of occupational skill areas -- service, clerical, and sales.

Statements and Data Emphasizing Need for the Program

Guidance:

1. Pupil-counselor ratio in grades 7-12 for the 1967-68 school year was 849 to 1. The recommendation of the American Personnel and Guidance Association and the American School Counselors Association is 250 to 1.

2. In the elementary grades during 1967-68, there were 42 full-time elementary counselors; 21 were school based, 21 were itinerant, and 5 were part-time counselors.

Survey of Failure Rates and Dropouts:

1. The percentage of nonpromotions in grades 1-8 was 4.92 for the 1967-68 school year. Nonpromotion percentage in grades 9-12 for the same year was 7.85.

2. Comparison of Percent of Dropouts and Graduates 1958-67*

Year	Enrollment 5th Grade	High School Graduates	Losses	Percent Graduates	Percent Lost
1950-51	86,934	(1958) 40,126	46,808	46.2	53.8
1951-52	88,829	(1959) 42,954	45,875	48.4	51.6
1952-53	90,836	(1960) 45,291	45,545	49.9	50.1
1953-54	96,704	(1961) 50,187	46,517	51.9	48.1
1954-55	92,786	(1962) 48,344	44,442	52.1	47.9
1955-56	90,678	(1963) 48,480	42,198	53.5	46.5
1956-57	94,607	(1964) 53,106	41,501	56.1	43.9
1957-58	112,112	(1965) 67,401	44,711	60.1	39.9
1958-59	108,103	(1966) 66,181	41,922	61.2	38.8
1959-60	104,634	(1967) 65,009	39,625	62.1	37.9

*Statistical Services, Department of Public Instruction

The dropout rate cannot be accurately stated for a school year, because available information does not show students who dropped out during the summer months or students who may have re-entered school. The table compares the number of students who actually graduated with the number enrolled in the fifth grade. The dropout rate is slowly decreasing, but the percentage is still high.

Special Needs:

More than 1,200 persons with special educational needs -- economic, social, academic and other handicaps -- were enrolled in special needs programs in 1967-68. In addition, several thousand disadvantaged persons were served through regular vocational education programs and through basic adult education programs.

More programs of this type are still needed. The U. S. Senate Committee states:

> Many young people in high school need special occupational instruction if they have not been able to adjust to the regular school program and lack interest and motivation.
>
> A large proportion of the high school dropouts are representative of youth with special needs. Those who leave school early are usually unprepared to enter the labor market, where entry-level proficiency is demanded. Consequently, school dropouts comprise a large proportion of the unemployed.

Exceptionally Talented:

1. There were 378 teachers for exceptionally talented students during 1967-68. (239 State allotment, 115 regular school allotment, 16 local funds, 8 Title III.)

2. Percentages in State-allotted programs for 1967-68 were as follows:

Grades 2-6	17.89%
Grades 7-8	29.62%
Grades 9-12	52.48%

Trends Affecting Education Today:

- Population growth
- Complex social and economic relations
- Growing interdependence within states and among states
- Expanding and improving communication facilities
- Increasing mobility and urbanization
- Increasing efficience of labor
- The greater role women are assuming in the work force. Many of them continue to be homemakers, thus assuming dual roles and increasing management problems.
- Increased leisure, increased unemployment, increased production of skilled and/or semi-skilled labor due to improved technology
- Continuing problems of maintaining adequate consumer purchasing power
- Decreasing employment opportunities for unskilled workers

- Reduced employment opportunities for farm labor. However, production of certain basic agricultural commodities will increase greatly.
- The need for increased supply of qualified manpower -- especially at the skilled, technical and professional levels.

Summary of Responses of Superintendents and Principals to Statements concerning the need for an Occupational Orientation and Exploration Program for All 6th, 7th and 8th Grade Students. Prepared by John L. Huffman, Jr.

Statements	C[a]	N[b]	Distribution of Responses[c]					Mean Purposes
			SA	A	N	D	SD	
1. An occupational orientation & exploration program is needed for all sixth grade students.	P	80	15	21	15	22	7	2.88
	S	58	7	11	16	19	5	3.07
3. An occupational orientation & exploration program is needed for all seventh grade students.	P	78	22	25	15	11	5	2.38
	S	61	10	25	10	13	3	2.57
5. An occupational orientation & exploration program is needed for all eighth grade students.	P	75	35	26	7	5	2	1.84
	S	60	25	23	3	7	2	1.97

[a]Category of respondents — P - Principals

[b]Number of respondents by category — S - Superintendents

[c]Scale:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	2	3	4	5

Governor's Study Commission

All education must in some way help prepare youngsters for intelligent, contributing citizenship. This includes preparation for the world of work.

The world of work is changing.

- When today's pupil becomes an adult, he will probably change his work 10 or 12 times during his lifetime.
- Agriculture jobs have decreased 27 percent during the past five years; service related jobs have increased 29 percent in our State.
- Women comprise 36 percent of the work force.
- By 1970 there will 81 million workers in the U. S. A.
- Every decade 2 million new jobs involving technical skills are created and 2 million unskilled jobs become obsolete.

Since the world of work is changing so rapidly, programs conditioning students for work should be updated.

The concept of education toward an occupation is an important part of comprehensive education -- educating the whole child and educating all children. Too many pupils have little, if any, opportunity for education toward an occupation. Not enough pupils are being guided toward vocational courses. An unrealistic stigma against vocational education continues to exist.

Occupational education begins in the elementary school. The lower grades should relate to the world of work as the child observes it around himself.

(The Report of the Governor's Study Commission on the Public School System of North Carolina. Summary, p. 21.)

SECTION II

STATUS OF EXISTING PROGRAMS, GRADES 1-8, RELATING TO OCCUPATIONAL ORIENTATION

This section of the report provides background information and supporting data in an effort to determine the extent to which existing educational programs, in North Carolina grades 1-8 orient students to the world of work. Information and data is based upon considerable study, discussion sessions, individual conferences, review and interpretation of the program of studies, curriculum guides, statistical reports, the biennial report, standards of accreditation, special study reports, and school personnel interviews.

The basic organizational pattern in the public schools of North Carolina is a 12-year program, with the first eight years making up the elementary school and the last four years, the secondary or high school. In recent years, however, there has been an increasing tendency for many of the State's school systems to deviate from the 8-4 structure. Table 1 shows the organizational structure of the State's 2,117 schools during 1967-68.

Table I

Organizational Pattern and Number of Public Schools in North Carolina 1967-68

Regular Four-Year High Schools (9-12)	153
Senior High Schools (10-12)	76
Union Schools (both elementary and high school levels, usually 1-12)	315
Junior-Senior High Schools (7-12)	47
Regular Junior High Schools (7-9)	107
Irregular Junior High Schools (1-9)	21
Incomplete Union Schools (high schools incomplete)	6
Elementary Schools (no grade above eight)	1,385
Special Schools (orthopedic, sanatoriums, etc.)	7
Total	2,117

Purposes of the Elementary School

The major purpose of education is to help each child reach his potential for a creative and useful life. Regardless of organizational structure, the elementary school plays an important part in achieving this goal by providing a program to help students acquire knowledge, skills, and understandings basic to further learning; develop wholesome attitudes toward self, society, and learning; and seek lasting values in a changing world. Every effort is made to meet the needs of individuals and to provide a continuous program designed so that each child will find some measure of success as he grows, develops, and achieves.

The elementary school helps the child develop fundamental, basic skills of communications, computations, and citizenship. In this stage of his school life, he begins to learn the skills of reading, writing and speaking; he acquires an understanding of the number system; he begins learning how to interact in a social setting and how to get along with people; and he develops study skills and work habits that will enable him to work successfully.

Comparing 1960 and 1968, Table II shows a trend toward larger schools employing more teachers. Thus, there are implications for expansion of curriculum, more subject and special teachers, team teaching, and innovations.

Table II

Public Schools with Elementary Grades

No. Teachers	1	2-3	4-6	7-9	10-14	15-more	Total
1959-60 No. Schools	16	117	284	348	440	814	2,019
1967-68 No. Schools	0	15	130	229	382	1132	1,888

The 1967-68 enrollment in elementary schools reached 872,758 with an average daily membership of 846,785. These pupils were taught by 33,602 teachers. There were 24 pupils in average daily attendance for each teacher employed.

The Program of Studies--Grades 1-6

More educational programs and services are now available to a greater number of school children than at any previous time in the history of North Carolina. This is the result of Federal, State, and local efforts to insure that the needs of all children are met in a more equitable manner and that all children have widened educational opportunities.

Basic studies in elementary education consist of language arts (reading, language, speaking, writing, spelling, listening), mathematics, science, social studies, art, music, health, and physical education. Table III shows the distribution of time by subject in an instructional day.

Table III

Distribution of Time in Instructional Day

Primary Grades (1-3)	Suggested Allocation of Time		Upper Grades (4-8)	Suggested Allocation of Time
Language Arts Listening Speaking Writing Spelling Reading	50 per cent		Language Arts Listening Speaking Writing Spelling Reading	30 per cent
Social Studies Music Art Science	30 per cent		Social Studies Music Art Science	30 per cent
Arithmetic	10 per cent		Arithmetic	15 per cent
Health and Physical Education	10 per cent		Health Science	15 per cent
			Physical Education	10 per cent

Topics directly related to the world of work are found in social studies, science, and health programs. These topics are incorporated into the curriculum to help the child develop an understanding of his culture and environment. They are not presented as occupational information. However, occupations--world or work--are a recognizable influence in the content and structure of the elementary school program. At this level a study of occupations is not a separate subject, but can be an integral part of the already established curriculum.

A review of the program of studies and curriculum guides for elementary schools shows many topics which provide opportunities for the student to associate his studies

with the world of work. Beginning with the first grade, the child is exposed to persons, places, and things in a manner commensurate with his understanding and environment. As the student advances through the elementary grades, there is a sequential development of environmental relationships, broader in scope and depth. A broad study of occupations, from semi-skilled to professional, can be included in the subject matter in grades 1 through 8.

Methods and Materials

The methods and materials used by teachers in the elementary schools determine the quality of the program and the opportunities available to pupils for exploring the world of work. These vary, of course, with individual teachers and may include field trips to see a farm, dairy, bakery, grocery store, post office, fire station, airport, public library, florist greenhouse, house or building under construction, tobacco market, manufacturing plant, telephone office, telegraph office, pet shop, or museum.

Resource people are often invited to the school to talk with children about their work--for example, dentists, nurses, doctors, musicians, artist, policemen, firemen, geologists, and sheriffs. Many films, filmstrips, recordings, books, pamphlets, and magazines are being used for gathering information about the world of work. Exploratory experiences are being provided by schools in the fields of art and music, weaving, ceramics, wire sculpture, construction activities, rhythm bands, orchestra bands, and physical education.

Program of Studies--Grades 7-8

The sixth grade curriculum is continued and expanded in grades 7-8. Basic and required subjects consist of language arts, social studies, mathematics, science, health and safety education, physical education, music, and art. In most schools these subjects are taught by the regular teacher; however, a number

of schools now have specialists who work with teachers and students in the areas of music, art, and physical education. When grades 7-8 are included in a regularly organized junior high school program, specialists are usually provided in these areas.

The equivalent of one semester of homemaking and industrial arts, taught by specialists, is ordinarily required. This instruction is most often found at the eighth grade level. Typing is taught as an elective by a certified business teacher in many junior high schools in the larger school units. Foreign language electives are also taught by specialists in a number of junior high schools. Guidance services and trained counselors are provided in most organized junior high schools. Only a few elementary schools housing grades seven and eight offer guidance services.

Seventh Grade

The themes for social studies in the seventh grade are North Carolina history, geography, and government, and their relationships to the nation and the world. A concentrated study of community and State needs and problems is made. The student is given many opportunities to explore the community through field trips and interviews with various lay people.

As the North Carolina theme is developed, occupational opportunities are mentioned and explored in varying depths. Many levels of employment fit naturally into the central social studies theme, and they may be discussed when these subjects are presented in class. Pertinent areas include:

- Agriculture
- Educational system (from public schools through higher education)
- Government services
- Transportation systems (bus, air, rail)
- Utilities (gas, electricity, water, telephone)
- Merchandising (wholesale, retail, distribution, processing)
- Financial institutions (insurance, banking)
- Manufacturing (textile, furniture, tobacco)

Art education is related to the student's personal interest and in many cases correlated with North Carolina history. Students create three-dimensional designs in wood, metal, stone, clay, and a variety of painting materials. Opportunities are available to explore the sources of these materials, their processing, and their distribution. Field trips are possible to craft displays, pottery, factories, and art galleries throughout the State. Skyscrapers and contemporary buildings are available for study in a number of cities. If an art specialist is provided at the sevehth grade level, additional learning experiences are possible.

Life science is the theme of seventh grade science. Emphasis is placed on living things. Topics include the study of cells, the organization of multicellular organisms, conditions essential to life, life processes, effect of environment, evolution, paleontology, and related subjects. Opportunities to explore the nursing and medical professions are present during the study of diseases. Marine science, forestry, sanitation, biological research, laboratory vocations, and many other occupational areas are explored.

Health instruction covers the structure and function of various systems of the body. Health areas include hygiene, medical examinations, dental care, corrections of defects, good grooming, and mental and emotional health. Opportunities are provided to explore the dental and medical professions. Nutrition--with respect to body needs, sources of nutrition, and wise food selection--is explored. Opportunities are numerous for the study of food sources, processing, and distribution. The effects of tobacco, alcohol, and narcotics on the body are shown. North Carolina health resources and health problems are covered. Safety, with emphasis on civil defense and emergency measures in times of need, is considered.

Eighth Grade

The theme of eighth grade social studies is the United States and the Western

hemisphere, and content is often correlated with the language arts program. Students study how the country was settled, and how it grew and developed as a nation. Our problems, contributions, and future are also explored. Teachers have an excellent opportunity to explore job opportunities in North Carolina and the nation in both the seventh and eighth grade levels.

Eighth grade students study in the same art media as seventh grade students. They also work with yarn, fabrics, paper, and wheat paste, and study their characteristics, sources, etc. They work with hammers, saws, files, and scissors. Again, part of the instruction is correlated with the social studies and language arts instruction. If a specialist is available, additional areas are taught in greater detail just as they are at the seventh grade level.

Earth science is stressed in the eighth grade. Students are involved in laboratory activities, classroom discussion, field trips, and the study of various phenomena. The origin of the earth, its place in space, elementary astronomy, the solar system, and space exploration are studied. Other areas included are physical geology, oceanography, weather, and climate, meterology, and the structure and composition of the earth. This course is a rich one in opportunities to explore many occupational clusters. Mining, engineering, landscaping, brickmaking, navigation, farming, and transportation are but a few of the many job opportunities that are available for consideration during the course of this study.

The study of problems of adolescence and mental health is continued. Consumer education as related to the selection of health products, such as cosmetics, is also studied. Safety--related to the recognition and elimination of hazards, recreational safety, and safety with guns--is included. Students explore health careers. Food handling, in relation to preservation and storage, is studied. Nutrition is explored again and in greater depth; local, State, Federal, and international health agencies are discussed.

Industrial Arts

Several industrial arts programs are being tried on an experimental basis in the elementary schools between kindergarten and sixth grade. The programs are derived from regular classroom subjects and are combined with manipulative experiences to help children better understand their environment.

Industrial arts is concentrated in grades 7, 8, and 9, with the equivalent of a semester's instruction required in grade 8 in most junior high schools. Level One, the introductory-exploratory course, consists of experiences in four industrial areas--woods, metals, electricity, and drawing. Students work with tools and various materials. They learn numerous processes and industrial information which can help them learn something of the socio-economic, technical, and cultural contributions of industry.

Level Two provides more advanced opportunities for occupational orientation and self-inquiry. Students' purposes, needs, and wants are met through unique experiences in a simulated "laboratory of industry" and courses in industrial crafts and graphic communications. The "laboratory of industry" is a mass production experience that typifies a real corporation or company.

North Carolina has a limited number of schools organized as middle or junior high schools. There are 119 programs of industrial arts operating at this level.

Home Economics is taught to eighth grade students in at least 80 schools in North Carolina. Such things as foods, personal and family relationships, grooming, consumer education, clothing, child development, housing, and home furnishings are included. Most of the student's time at this level is spent on foods, clothing, and family relationships. Experience is gained in the use of commercial patterns and sewing machines. A study of family relationships includes making and keeping friends, being a cooperative family member, and sharing home responsibilities. Housing and home furnishings topics include simple cleaning tasks and care of personal surroundings.

Special Programs and Other Data

In recent years there has been a rapid increase of special programs designed to enrich the elementary curriculum. It is difficult to obtain a complete picture of all these programs; however, the following data presents part of the picture.

- ESEA Title I. During 1967-68, 160 local school systems participated in a variety of programs, serving 228,243 children in grades 1-6, and 142,555 children in grades 7-12. The programs were primarily for the deprived. The main thrust was improvement of language arts.

- CSIP. Comprehensive School Improvement Project is a field-oriented program designed to improve the teaching of reading, writing, and arithmetic in the elementary grades. One hundred and seventy-six schools participated during 1967-68.

- NDEA. National Defense Education Act, Title III, provides teaching equipment and materials to enrich instruction. All of North Carolina's local school systems have NDEA projects.

- Special Education. During 1967-68, 43,221 handicapped children received a variety of services from special education programs. The total does not separate elementary from secondary students.

- Television Education. Programs in physical science and eighth grade mathematics are broadcast from five stations. "Exploring the World of Science" is aired for primary grades once a week.

- Exceptionally Talented Children. Two hundred and thirty-one special self-contained classes were provided in grades 1-8 during 1967-68. Included were language arts, science, mathematics, social studies, and various combinations of these subjects.

Typewriting and basic business are taught in a number of junior high schools at seventh, eighth, and ninth grade levels. Numerous other experimental programs, providing enrichment and motivation, are offered. During 1967-68, there were 42 full-time elementary counselors--21 were school-based and 21 were itinerant. A unit in careers is taught in at least one school at the seventh grade where there is a full-time counselor. These special programs and others are providing enriching experiences for many elementary and middle school students.

A major purpose of the elementary school is to help the child develop a base for further learning. Standards for Accreditation of Elementary Schools states in its

introduction:

> The skills which mark the civilized person and provide the basis for all further intellectual growth are the special concern of any good elementary school: reading, writing, speaking, listening, observing, reasoning, computing, discovering, and creating.
>
> Here, too, the pupil receives his first systematic look into the social studies, science, literature, music, and art. Through them he begins to acquire information, ideas, skills, sensitivity, and understanding about himself and his environment. He is introduced to the variety of ways of living and to the diversity of man's institutions, learns how some of them developed, and acquires a basis for tolerance and sympathy for those whose ways differ from his own.

The middle school and junior high schools build upon the elementary school foundation with more specialization in both subject matter and teaching personnel. One of the major functions of the junior high school is providing many exploratory experiences and opportunities. This is being accomplished through courses such as industrial arts, homemaking, music, art, typing, foreign languages, regular academic offerings, and organized activity programs. The extent to which exploratory experiences and opportunities are related to life and work outside the school is a variable. It is dependent upon the prevailing educational philosophy of educational institutions, administrators, teachers, and the demands of the public.

The elementary basal and supplemental books currently in use often neglect relating subject matter to the world of work and how people make a living. A skillful and knowledgeable teacher, however, can develop the interrelationship between what is learned in school and life and work outside. Many of them do. More should be done, but first the concept must be built into textbooks, course syllabi or supplements, administrator and teacher preparation, and the overall philosophy and policies for elementary education.

Supportive evidence and information used in the development of this section was derived from many sources. It was collectively contributed by a committee of seven persons. This section of the report contains both qualitative and quantitive aspects, the

latter being documented by official reports.

There is ample evidence, in a wide variety of literature, of the extent to which the existing educational programs in grades 1-8 relate to occupational orientation.

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Supervisor, Business and Office Occupations
Supervisor, Industrial Arts Education
Associate Supervisor, Distributive Education
Associate Supervisor, Agricultural Education

Study, conferences, and contributions: members of Sub-committee, Grades 1-9

Interviews, principals, and teachers

SECTION III

OCCUPATIONAL NEEDS OF STUDENTS IN GRADES 6-9

Investigation has shown that superintendents, supervisors, principals, teachers, students, and parents across the State feel that the middle school or junior high school years are most significant. Students at that age are grasping for self-identification, seeking new experiences, and trying desperately to bridge the gap between childhood and adolescence.

After giving equal consideration to suggestions coming from all disciplines within the total educational program in North Carolina; after reviewing present industrial, business, and agricultural trends and requirements; and after involving persons representative of these areas--eleven aspects of student need have been pinpointed for more extensive attention in the middle school years.

These points should be studied with the understanding that occupational education results from all the activities a person participates in throughout his life. More student involvement and additional occupational exploratory work should occur during the middle school years.

1. Students need more opportunities and assistance in appraising their abilities, potentials, interests, desires, and needs:

   - Student-teacher-parent-conferences
   - Testing, explanation, and application of abilities
   - Developmental logs, including grades, ability ranges, achievement scores, personality traits, etc.
   - Opportunities to compare grades with ability and achievement.

2. Students need more opportunities and assistance in developing wholesome human relationships, positive self-concepts, and positive attitudes toward the world of work:

   - Doing things successfully
   - Observing people who succeed in their work and reap the benefits
   - Studying the many problems teenagers face
   - Utilizing community resource people and films

3. Students need additional counseling:

- Orientation, testing, and placement; the testing-explanation-application approach
- Group counseling
- Students being counseled by other students
- Lay people helping in counseling situations
- Big brother projects

4. Students need "pre-constructed" situations to identify vocations available in their communities and to explore the occupational trends of a mobile work force:

- Learning what vocations are available--what their neighbors do
- Interviews with parents about their jobs
- Film strips and community resource people
- Visits to local businesses and industries
- Visits from workers in the community
- Studying projections of manpower needs in local areas
- Learning about the experiences of recent graduates in the world of work
- Role-playing situations

5. Students need additional opportunities to familiarize themselves with our basic economic system:

- Learning what it costs to support a family (food, shelter, clothing)
- Reviewing taxes, social security, utilities, insurance, etc.
- Finding out how business firms make profits
- Seeing the part of one employee in the total business picture
- Visits to places of business and industry
- Games relative to occupations

6. Students need additional opportunities to explore the world of work through actual or simulated work experience:

- School stores
- Holding classes in business settings
- Using teaching aids which directly relate to the world of work and to subjects being covered (Motors, for example, when studying mechanics and certain aspects of science)
- Part-time jobs, such as hospital aides, secretaries, lunch-room helpers, librarians, etc.

7. Students need additional opportunities to make educational choices as they relate to future employment possibilities:

- Visits to high schools

- Auditing of various classes and courses
- Class visitations and orientations
- Exposure to the vocation possibilities found in various subjects and clusters of subjects.

8. Students need more knowledge of the occupational training opportunities available in grades 9 through 12 and on the post high school level:

- Class observations, slides, and tapes explaining course offerings
- Exhibits of training opportunities
- Visits to trade, technical and community colleges, business schools, etc.
- Occupational fairs
- Talks by former students now employed
- Buddy system approach to future training

9. Students need more opportunities to experience success and develop personal pride through educational experiences involving manipulative activities:

- Math--use of tools such as micrometers and rulers, liquid measurements, solid measures, and undertaking various projects
- English--familiarity with job applications, business letters, telephone conversations, speech
- Art--a study of commercial art and graphic arts including store displays, etc.
- Music--a knowledge of the relationship of electronics (radio, television, stereo) to music.

10. Students need more opportunities to make decisions and accept responsibilities:

- Exposure to the choices inherent in various situations
- Allowing students to teach other students
- Learning Activity Packets
- Youth Councils
- Clubs--an integral part of school programs
- Group projects

11. Students need more opportunities to observe actual work situations:

- Field trips
- Observing workers in the school
- Relating the community to school work
- Industry and business open-houses
- Trade Fairs
- Holding school outside of the school building
- Summer opportunities

SECTION IV

AN ELEVEN POINT PLAN TO PROVIDE OCCUPATIONAL EXPERIENCES IN GRADES 6-9

Introduction

There is much evidence that adequate exploratory education in occupations is generally lacking in the middle and junior high schools. The evidence supports the contention that occupational education is urgently needed at these grade levels. For too long this phase of education has been left to the later high school years, and little effort has been directed toward exploring occupations during the child's formative years.

Elementary and secondary education seems to have split into two directions -- general education and vocational education. This split has caused occupational exploratory education to be inadequately provided in the middle school and junior high years, which have emphasized general or basic subjects. Occupational exploratory and preparatory education is not sufficiently accepted and implemented as part of the mainstream of elementary, secondary, and higher education. The schools must help each student become all he can become. Life and work outside the school must be considered in this context. A man's livelihood is of utmost importance; yet, often educational philosophy has placed education in one category and work in another.

An improved relationship between school studies and life and work outside school must begin early in a child's school experience. One educator aptly said:

> In our modern society, it is becoming increasingly difficult to ascertain for children or youth whether a given exposure to people, ideas, and things is vocational, educational or avocational. Any attempt to make this differentiation is arbitrary and meaningless.
>
> If we accept the assumption that vocational-educational-avocational development is a life-long process, it is also logical to assume that the elementary school years provide the critical beginnings in the formation

of generalizations about self and environment. Whatever the school, home and community provide during childhood and early adolescence in terms of exposures to people, ideas, and things, they are likely to influence significantly how adolescents later see people, ideas, and things.

If the elementary school environment is lacking in exposure to people, ideas, and things associated with industrial, business, service, and related processes, elementary school children might conceivably develop negative generalizations about these kinds of human activities when they reach secondary schools. (Edward C. Roeber, "Let's Stop Trying to Separate the Vocational", American Vocational Journal, Oct., 1967. pp. 18-20.)

There is much to be done if the suggestions and recommendations of this report are accepted, developed and implemented in the public schools of North Carolina.

The State Department of Public Instruction must continue to move forward in bringing about a new philosophy of education in North Carolina -- a philosophy recognizing the world of work and resulting in revised educational programs.

The four-year colleges and universities can be influential change agents in the field of occupational education; our teachers, administrators, and educational leadership are trained by these institutions. If the attitude of individuals in higher education is negative toward occupational education, teachers and administrators trained by these institutions are likely to have negative attitudes. These attitudes are then picked up by children and parents who, in turn, continue the cycle.

The State Department of Public Instruction and colleges and universities exert a vast influence on the general public and the local schools. If the public and local school personnel can be favorably influenced, the suggestions contained in this report may be implemented in varying degrees, and much needed programs in occupational exploration can be provided.

Plan

It is clearly recognized that the characteristics of schools in this State are dependent upon many variables. These variables include geographic location, community resources, local leadership, the needs of students, availability of facilities, and many other factors. The plan is, therefore, comprised of many parts, each of which

may be worthy of consideration in meeting certain needs identified in Section III.

A given administrative unit, due to these variables, may find implementation of the total plan impossible. The implementation of any combination of the parts composing the plan, however, could be valuable in moving toward a long-range plan of occupational exploration.

1. All teachers should be involved in relating their subject content more directly to occupations:

   Teachers should be strongly encouraged to correlate occupational information and opportunities with each subject as it is being taught. They should make a concerted effort to integrate this information into regular classroom work by providing appropriate laboratory experiences, classroom demonstration, and perhaps, by inviting community resource persons into the school for illustrated lectures concerning particular occupations. Students at each grade level could be provided opportunities in each subject area to explore and understand the value and dignity of all types of work and to develop an awareness of the skills, knowledge and attitudes that are necessary for success. Some teachers are already doing a good job in this respect, but many teachers are unsuccessful in their efforts to effectively relate occupational exploration to subject content.

   In order to become more effective, these teachers will need to become more familiar with job opportunities. They will need guideline materials to be used with textbooks and existing syllabi, and numerous teaching aids and equipment.

2. Manipulative exploratory programs such as industrial arts, home economics, and business education should be expanded and revised:

   Opportunities should be made available for students to experience activities that require planning, designing, pattern-making, blueprint reading, copying, cost estimating, constructing, processing and assembling. Opportu-

nities to use hand tools, power equipment, business machines, and household appliances are important.

Limited programs in industrial arts, homemaking, and business education do exist in a number of junior high schools in the seventh and eighth grades. Only a few elementary schools provide these programs at the present time. Existing programs in these areas should be revised to place additional emphasis upon relating laboratory experiences to occupational possibilities. Revised programs in industrial arts, homemaking, and business education should be financed by State and Federal funds. Such programs, provided by specialists, should be included in many more schools.

It is further suggested that where courses in both introduction to vocations and industrial arts are offered at the 9th grade level, these programs should be cooperatively planned. Joint planning will enable industrial arts students to profit from the broad occupational information provided in introduction to vocations; students in introduction to vocations might, in turn, profit from experiences available in industrial arts laboratories.

The use of shops, portable shops, mobile units, laboratories, and other space already available should be considered. Areas abandoned by high schools as a result of consolidation could be used to give students the opportunity to work with their hands and relate these experiences to occupational possibilities. Both short and long-range exploratory programs could be planned to utilize such spaces.

3. Expanded counseling-coordinating programs should be provided:

Guidance and counseling programs need to be expanded. Qualified personnel should be available to help plan, to give direction, to coordinate, and to counsel with teachers, individual pupils, and groups of pupils in relation to educational plans, occupational possibilities, and personal

problems. Guidance specialists should be available to help students assess their interests, abilities, needs, and desires as they plan for the future. One trained counselor should be available for each 300 pupils.

4. Additional personnel and planning time should be provided:

Funds should be provided to give teachers sufficient release time from other duties so that they may prepare class materials for occupational exploration. This would mean, in some instances, the employment of additional teachers to reduce class loads.

A sufficient number of teacher aides should be provided to assist with the preparation of occupational exploration materials. Teacher aides should also be provided to assist teachers with other duties necessary to implement occupational exploration programs.

Funds should be made available to employ teachers in the middle school to teach practical arts. This would provide students with necessary experiences in shop and laboratory activities. The objective should be exploration and not proficiency in specific skills. This approach also supports industrial arts, home economics, and business education at the middle school level. It is recommended that existing programs be utilized to provide occupational exploration shop and lab experiences on a broad basis.

In some schools or school systems coordinators might be provided to help plan and organize programs, assist with in-service activities, and locate materials and other resources. Such persons could coordinate, in one or more schools, the work of personnel in various subject areas as they implement occupational exploration objectives. The coordinator would act as a liaison between the school and the community, and he could implement dissemination of business and industrial materials in the school.

Advisory councils, at the school or unit level, might be formed to give direction, assistance, and support to the teacher's efforts to bring pertinent

information and experiences to students. Councils could be composed of lay and professional people, representing the school, home and community. Such councils would be effective instruments for opening the doors of the business world, with its resources, to the classroom.

5. Guideline materials should be developed correlating subject areas with occupational education objectives:

Guideline materials should be developed and made available for teachers and coordinators to use with basic subject content in grades 6-9. These materials should be developed by the Department of Public Instruction and others; they should parallel the content of textbooks and any other course materials being used in each subject area. Planning grants could be established, enabling specialists from colleges, universities, and local school units to assist in this work. Some materials might be developed on a regional basis, and it may be desirable for local personnel to develop material and guides applicable only to their local situations. Films, filmstrips, and videotapes could be developed on certain occupations, such as those in the area of business, industry, agriculture, homemaking, distribution of goods and services, transportation, and health. Printed materials should be made available to all local personnel.

6. Commercial occupational materials should be purchased:

A wide variety of commercially produced occupational materials, on different reading and interest levels, should be provided for use by students, teachers, counselors, and coordinators. These materials might include occupational kits, pamphlets, booklets, tapes, films, filmstrips, recordings, and books, providing information about occupational clusters and specific job opportunities. Currently, extremely limited State funds are provided to purchase such materials--only at the high school level. Most schools have only a minimum amount of money available for this purpose.

Therefore, State funds should be furnished to establish and maintain occupational materials.

7. Equipment should be purchased to implement manipulative exploratory programs:

A wide variety of equipment, related to a broad range of occupations, should be provided to give students simulated manipulative experiences. Much of this equipment should be simple, inexpensive, and multi-purpose. This equipment should be used to help students acquire knowledge, discover aptitudes, develop attitudes, and become aware of the world of work. It should not be used to develop salable skills. Manipulative exercises with such equipment could motivate students and provide a balance with printed and visual materials.

Equipment could include simple drawing sets, wood and metal hand tools, simple power tools and machines, simple electronic equipment, homemaking equipment and appliances, seed germinators, and typewriters, and other machines. Equipment funding could range from a 50/50 matching basis to a 100 percent State reimburseable basis, depending on the fiscal conditions of participating schools.

8. State level direction and coordination should be provided:

Sufficient funds should be provided for State-level coordination of occupational exploration. The force of vocational education, general education, and guidance and counseling should be brought to bear on occupational exploration. Wide coordination is deemed necessary and desirable in developing activities, materials, and in-service opportunities. Such coordination would also assist institutions of higher education to initiate pre-service programs and orient prospective teachers to their roles in occupational exploration. In addition, State-level coordination should provide assistance in organizing local advisory councils on a regional basis. This would enable the State's full resources of business and industry to become more closely involved with public school programs of occupational exploration.

State-level coordination must also provide in-service training of staff personnel in the Department of Public Instruction. These individuals should be oriented to their role in a statewide program of occupational orientation in the public schools. Attitude development--orienting individuals in the public school program toward the necessity of occupational exploration--should become a top priority.

9. Teacher orientation should be provided:

College level education courses should include one or more units showing future teachers how occupational information can be correlated with subject content. Some colleges might want to develop separate courses designed to introduce teachers to the occupational opportunities that can be taught in courses at various grade levels.

Funds should be made available to provide in-service workshops for State personnel, regional directors, local coordinators, counselors, and school personnel. Such workshops should provide direction and understanding of goals; they should develop a positive attitude toward coordinating the teaching of a subject content and occupational information. Personnel should be compensated for this time. In-service sessions could be conducted during the summer months to precede the initiation of new programs in the schools. Follow-up sessions could be scheduled for the summer following the initiation of such programs. Television could also be used effectively for in-service programs. Such instruction could be implemented at the State or local level.

10. Pilot projects should be established:

A number of pilot programs or projects could be planned and implemented. Since no one project can fit every school in the State, several projects, with various approaches, might be initiated. Approaches could include the development of group guidance techniques, the initiation or expansion of practical arts, and the use of specially prepared materials by the regular classroom

teacher. One approach might be the establishment of a mobile unit to be used at several schools.

Variables--dropout rate, geographic location, existing programs and needs--should be considered in determining project locations. The selection of schools for pilot programs should be determined cooperatively by the Department of Public Instruction and local educational leaders.

Adequate planning at all levels will be necessary, and funds will be needed for these programs. Guideline materials will also be needed.

Current projects, such as those in Bertie County, Lenoir County, and McDowell County, should be considered. Evaluation criteria should be established, and projects that are successful might be duplicated in other schools.

11. Evaluation procedures should be planned:

Definite plans should be established to evaluate the degree of success reached in providing occupational information to middle grade children through this plan. Evaluation plans should be built into the project itself.

After objectives have been clearly stated and understood, evaluation criteria should be developed. Data collecting methods should be determined, and personnel should be provided to be responsible for evaluation.

Procedures should be developed for disseminating findings and making recommendations. This information should then be used to expand those approaches most successfully providing students with improved understandings of the occupational opportunities available to them.

Summary

The committee's extensive investigation reveals an overwhelming need in North Carolina's schools for occupational exploration in the early grades. Through such programs students at the middle and junior high levels will become familiar with vocational opportunities and be able to more adequately plan for their senior

high school learning experiences. Although the committee's investigation was confined to grades 6-9, it found numerous indications that occupational exploration opportunities throughout the elementary school (K-5), would benefit many children.

No plan may be expected to reach its full potential in a few years. If implemented in full or in part, these recommendations can build a solid foundation for a long-range program of occupational exploration--a program that should, ultimately, permeate the entire public school system.

An annotated bibliography is available upon request.

VT 012 525
Annual Evaluation Report.

Nevada State Vocational-Technical Education
Advisory Council, Carson City.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Sep70 33p.

DESCRIPTORS - *STATE PROGRAMS; *VOCATIONAL
EDUCATION; *PROGRAM EVALUATION; ADVISORY
COMMITTEES; ANNUAL REPORTS
IDENTIFIERS - NEVADA

ABSTRACT - This first annual evaluation of
Nevada's vocational programs covers current
research projects, employers' knowledge of
program offerings, and state and local plans
for vocational education. Recommendations are
made to improve administrative coordination,
planning, curriculum coordination,
consideration of minorities, cooperation with
private agencies, and occupational emphasis.
(BH)

VT 012 525

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nevada state vocational - technical education advisory council

VT012 525

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ANNUAL EVALUATION REPORT TO STATE BOARD FOR VOCATIONAL EDUCATION . . . 1970

5002

NEVADA STATE VOCATIONAL-TECHNICAL
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R. COURTNEY RILEY
Executive Director

September 22, 1970

Mr. Louis Bergevin, President
State Board of Education
P.O. Box 188
Gardnerville, Nevada 89410

Dear Mr. Bergevin:

The Nevada State Vocational-Technical Education Advisory Council hereby submits its first report concerning Vocational Education in Nevada as prescribed by Federal Law P.C. 90-576, to wit: ---"prepare and submit through the State Board to the Commissioner and to the National Council an annual evaluation report, accompanied by such additional comments of the State Board as the State Board deems appropriate---."

As pointed out in the Foreword, this report is the initial phase in the Council's plan for the development of a continuous evaluation system to keep the State Board advised as to the effectiveness of vocational education programs in the State.

The Council Membership is hopeful that the Board will give serious consideration to the recommendations. It is the desire of the Council that all youth and adults will have access to vocational preparation and that during the "Seventies" great strides will be effective to this end.

Sincerely,

Max M. Blackham
Chairman

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The Nevada State Vocational-Technical Education Advisory Council was created by the State Board for Vocational Education as mandated by the Amendment of 1968 to P.L. 90-576. It is composed of twenty-one (21) members appointed by the State Board and confirmed by the Governor. The membership of the Council represents diverse segments of society.

By law the Council is to advise the State Board concerning the operation of vocational programs, services and activities with an annual evaluation of same, make recommendations and submit an annual report to the State Board for transmittal to the U. S. Commissioner of Education and the National Advisory Council.

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R. Courtney Riley, Executive Director

PREFACE

Considerable research evidence points up the cyclical relationship between unemployment, underemployment, maladjustment and inept parenthood when youth leaves school either before graduation or after graduation without a saleable skill. The early school leaver is virtually inevitably doomed to chronic unemployment and to long periods of economic dependency upon welfare dole. The untrained graduate struggles to find a place in the labor market, tries further education and fails and ends up with cynical attitudes towards employers. Both of these courses generally engender unhealthy attitudes towards self and thus hamper the development of appropriate psychological sub-strata for economic self-sufficiency.

A strong system of vocational education at both the high school and post-high school level offers our state the most effective vehicle yet devised for upgrading our society. During the past several years, other governmental institutions, agencies and/or departments have initiated vocational training to help solve the above mentioned problems. Although some good has been accomplished, these programs are basically remedial in nature and do not get to the root of the cause and consequently will never provide a remedy for unemployment, underemployment and maladjustment of our youth. The splintered approach is inefficient and costly; therefore, a concentrated massive attack of providing sophisticated in-depth vocational training through educational institutions must be initiated through a coordinated cooperative

approach by Federal, state and local educational units with the close cooperation of business and industry.

To effectively solve our sociological problems relating to employment, from which spring the roots of other social problems, the Council submits the following report.

FIRST ANNUAL EVALUATION REPORT

"The society which scorns excellence in plumbing because plumbing is a humble activity and tolerates shoddiness in philosophy because it is an exalted activity will have neither good plumbing nor good philosophy. Neither its pipes nor its theories will hold water."

-- John W. Gardner

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FOREWORD

The responsibility given the State Vocational-Technical Education Advisory Council in the evaluation of vocational programs, services and activities is a monumental task and would therefore be impossible to accomplish in any one year. Consequently the Council, in its wisdom, directed that the first step to a total and continuous evaluation system should focus on three questions:

1. What is the current and pertinent research concerning Nevada's vocational education? A precis should be made of each appropriate research document to enable lay individuals to grasp the substance and formulate recommendations.

2. Does the State Plan for Vocational Education ensure that a statewide framework exists to provide vocational education to all citizens? An analysis of the State Plan and of local plans should be made to discover if educational agencies are indeed making a coordinated, comprehensive effort.

3. How do employers feel about the end products of vocational-technical education in Nevada? An assessment should be made of the knowledge, interest, desires and attitudes of employers concerning the on-going programs.

The material in the following report then is directed toward these questions. It contains the recommendations of the Council as determined from the information prepared by those involved in the collection of data.

To accomplish the objectives, a three phase approach was initiated. The collection and abstraction of the research was performed by the Research and Educational Planning Center, University of Nevada, Reno; the analysis of state and local plans was completed by the Educational Affairs Research, Inc., a consultant firm, Berkeley, California; the assessment of

employers was made by the Executive Director of the Council, utilizing a survey instrument and individual contact in the execution.

It is anticipated that the Council will undertake different aspects of evaluation each year. These component parts will be so interrelated as to ensure the evolution of a continuous evaluative system. The end product must be a system which is sensitive to the labor market and to the needs of the individual and one which assures to each individual in the state the opportunity to learn a vocation.

R. Courtney Riley
Executive Director
Nevada State Vocational-Technical
Education Advisory Council

RECOMMENDATIONS OF THE STATE ADVISORY COUNCIL

TO THE

STATE BOARD FOR VOCATIONAL EDUCATION

1. The State Board for Vocational Education should request that State and Local Plans for Vocational Education be developed in a clear concise manner which reflects planning for the yearly activities, the unexpected outcomes, and the follow-up or evaluation of same. The plans should be a management tool which is used throughout the year to give direction and enable administrators to provide more effective supervision and management over program operation and expenditure of funds. (See pages 10 and 11).
2. The State Board for Vocational Education should recommend that each local district board appoint a general advisory committee to work in harmony with the State Advisory Council to effect a statewide advisory structure.
3. The system of data collection should be reviewed with the State Employment Security Department and procedures set up to obtain manpower statistics by county at the State level for use by both the State Department and local school districts in the development of their respective yearly plans.
4. The State Board for Vocational Education should reaffirm the legal requirement that the Advisory Council be consulted regarding any application, plan or proposal seeking Federal and/or State funds for vocational programs; regarding significant changes in statewide programming

priorities; and regarding assignment of research projects to the Research Coordinating Unit, all of which have a direct effect on Nevada's vocational education.

5. The State Board for Vocational Education should require more stress on the development of vocational-technical programs along the lines of actual and projected employment figures so that the emphasis in training reflects availability of jobs.
6. The State Department should encourage counselors to continuously update information on jobs - local availability, starting salaries, average income, turnover, promotion opportunities, etc. - for use in realistically advising students.
7. The State Department should coordinate efforts to expand vocational knowledge and attitudes, orientation, testing, guidance, etc., throughout the entire educational sequence (K-14); it should also seek better means of integrating these aspects into the total curriculum.
8. The State Department should assist in the expansion of cooperative education programs featuring work experience.
9. The State Department should assist in the expansion of the cluster approach to vocational education.
10. The State Department should encourage operating educational agencies to provide for intensive work with minority communities to determine their particular vocational education needs and recruit members into programs designed to meet these needs.

11. The State Department should develop workable methods whereby closer coordination and integration of Adult Basic Education and vocational programs can occur.
12. The State Plan should be developed in cooperation with local district vocational administrators to insure articulation in the development of the State Plan and local awareness of the purposes, objectives and guidelines for local plan development.
13. The State Department should assign State Staff members to facilitate local plan development in small enrollment counties. It is difficult for said counties with small administrative staffs to comply with complicated planning procedures expected of the large urban areas.
14. The State Director of Vocational Education should coordinate the overall planning of institutional programming in counties which have educational agencies at both the secondary and post-secondary levels to insure that programs and services are not duplicated.
15. More dialogue between union organizations and school administrators concerning the implementation and operation of part-time courses and/or programs must take place to meet their needs and gain their support.
16. The State Department should develop and make available for the use of local school districts a standardized form of a certificate of completion to be awarded a student completing a prescribed vocational course of study.

17. The State Department should develop and encourage the use of a plan of action whereby local vocational education administrators can make themselves and their programs better known to business, industrial and labor leaders.

EXECUTIVE SUMMARY

Introduction

This is an executive summary of the first report concerning an evaluation of Nevada's vocational education program, services and activities. The objective of the State Advisory Council is to make available to the State Board for Vocational Education recommendations which will improve career training programs at such levels as high school, post secondary and adult.

The scope of the evaluation included:

1. A review and summary of current research projects on Vocational Education in Nevada.
2. An analysis of the State Plan for Vocational Education.
3. A review of Local Educational District Plans for Vocational Education.
4. An assessment of employers to ascertain their knowledge and perception of vocational education programs and the products thereof.

The Report presents the key findings of the evaluation of Nevada's vocational education and offers a framework for implementing recommendations in such important program elements such as community involvement, curriculum design and State and Local Plan development.

I. Review and Summary of Current Research Projects

A. Introduction

All available studies dealing with vocational education in the State of Nevada were reviewed and abstracted. Of these, the following were judged pertinent:

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1. Governor's 1967 Conference - A Review of Status of Recommendations - Economic Forecast

2. Nevada Employment Security Semi-Annual Area Manpower Review (Reno and Las Vegas Standard Metropolitan Statistical Areas) (Fall 1969) (Spring 1970)

3. Manpower Horizons '75

4. Studies of Vocational-Technical Education in Selected Nevada School Districts

   a. Churchill County

   b. White Pine County

   c. Washoe County

   d. Yerington High School

5. An Analysis of the Educational and Employment Needs of the Washoe County Black Community, Report No. 1

6. Information Concerning the Washoe County Indian Community, Report No. 2

7. Assessment of Functional Illiteracy in Washoe County and a Strategy of Recruitment for the Adult Basic Education Program

8. A Study to Determine Needed Improvement in Nine Nevada High Schools

9. A Compilation and Assessment of Data on Post-Secondary Vocational Educational Facility Needs

10. The Role of Vocational-Technical Education and the Holding Power of the Schools

11. Vocational Education and the Comprehensive High School

12. Multi-State Project on Evaluation Systems

13. Education in Nevada: An Assessment (1969)

14. Education in Nevada: An Assessment for 1970

The abstractions were then searched for findings and recommendations.

B. Major Findings From the Review

1. Excellent figures of actual and projected employment within the state are readily available.

2. Not all districts are making the optimum use of advisory committees.

3. Some districts tend to be weak in vocational guidance, which is a key aspect of the entire program.

4. Cooperative education is a valuable experience but is not serving enough students.

5. Some areas are not as yet taking full advantage of the cluster approach to vocational education.

6. Suitable facilities are not being built or used as extensively as desirable.

7. Post-secondary programs, while doing an excellent job, are not yet reaching as many people as they should.

8. Minority communities have special needs in vocational education; they need special programs and special recruitment techniques.

9. Adult Basic Education and Vocational Education programs tend to be operated without reference to each other, creating opportunities for gaps and overlapping.

10. Present bases of financial support are not adequate to support all desirable phases of vocational education.

11. Evaluation of programs and products tends to be inadequate, segmented and inconsistent.

12. Different groups perceive a different priority of needs among vocational programs.

C. Considerations suggested by the Review

1. More emphasis on the development of vocational-technical programs along the lines of actual and projected employment figures so that the emphasis in training reflects availability of jobs.

2. Establishment and strengthening of local advisory committees.

3. Vocational attitudes, orientation, testing, guidance, etc., to be expanded throughout the entire educational sequence and integrated into the total curriculum.

4. Development of cooperative education programs featuring work experience.

5. Development of the cluster approach to vocational education.

6. Development and expanded use of suitable facilities.

7. Development and expansion of post-secondary vocational education programs.

8. Intensive work with the Black and Indian communities to determine their vocational education needs and recruit members into programs designed to meet these needs.

9. Closer coordination and integration of Adult Basic Education and Vocational Education programs.

10. Expanded and improved bases of financial support.

11. Increased systematic program of evaluation, including local self-evaluation.

12. Consideration of the perceived relative importance of the various programs within vocational-technical education in the design of secondary and post-secondary curricula.

II. Analysis of the State Plan

A. Introduction

An analysis of Nevada's State Plan for Vocational Education reveals that the Plan was developed according to rigid federal guidelines. Those writing the Plan systematically followed the guide numbering system filling in under each category statistical data and descriptive information. This system of State Plan development so stratifies planning that in essence the so-called plan becomes an agreement or contract for the expenditure of funds.

In the opinion of the Council, the State Plan should be a document prepared in such manner that one can readily understand what programs, services and activities are currently in effect; what outcomes are expected; what evaluation techniques will be employed to measure expected outcomes; and what changes in goals and objectives are planned for the future with assigned priorities.

The Council does not reject the need for a contractual relationship regarding the expenditure of federal funds; however, the contractual aspect of the Plan should be developed as a separate document. The separate contractual approach would then enable the planners to provide an action oriented plan developed in a logical manner with proper explanation and reasoning to motivate those who must implement the various programs, services and activities.

B. Major Findings From the Analysis

Finding #1

Important unexplained changes occur in the FY70 Long Range Plan when compared to the FY69 Long Range Plan in the areas of statistical data and research priorities.

Finding #2

The Annual Plan omits specific information regarding "non-P.L. 90-576" vocational education programs.

Finding #3

Not every local educational agency has found it advantageous to participate in the State Plan. For such nonparticipants, there is no way that the State Department of Education can determine whether unrepresented groups (particularly the disadvantaged and the handicapped) receive adequate vocational education in the district.

Finding #4

Sections 1.0 through 3.0 of the Long Range Plan do not utilize all the demographic and economic data currently available in Nevada for the accurate assessment of economic trends, manpower supply and demand, fiscal control and analysis, needs of the disadvantaged and handicapped, and employer interest in vocational education.

C. Considerations Suggested by Analysis of the State Plan

1. The system of data collection should be reviewed and closer liaison be maintained with the Employment Security Division in regard to manpower forecasting.

2. When priorities change regarding research, consultation should take place with the Advisory Council and the reasons effecting changes should be so noted.

3. The Annual Plan should expand its coverage of "non-P.L. 90-576" vocational programs in order to present a clear picture of all vocational training within the State, in this way reducing duplication of federal and private programs and making a positive identification of weak areas.

4. The Department should explore the use of an entitlement system which automatically reserves by formula a set amount of P.L. 90-576 funds

for each district. To receive its entitlement, the local district has only to submit its local plan. To decline, the district must file a written refusal statement for public record.

5. The Department should explore collecting the following data for inclusion in the State Plan. Landmark studies by the Pennsylvania Education Department (1969) and the Ohio Center for Vocational and Technical Education can make such data a practical guide for setting priorities.

Data on the Competitive Posture of Nevada

Population trends

Birth rates and migration data

Employment trends: state and national comparisons, and changes by industrial components

Regional changes in Nevada labor markets

Projected growth and demographic characteristics of the Nevada labor force

Comparative growth of the Nevada economy by industrial components

School population and entry age into labor force

List of information sources for local agencies

Bankruptcies

Data on Fiscal Control and Analysis

Data can be collected on program expenditures versus program enrollments. Funds spent for construction, special needs programs for the disadvantaged and instructional categories can be plotted against yearly enrollments and percentage figures can be obtained as to how the part compares with the whole. Information is thus provided as to the trend of federal-state-local funding, especially the local burden, the

provision for the socially turbulent and disadvantaged groups, and the over-all balance of the educational program.

Data on the Disadvantaged and Handicapped

Data can be collected on sub-employment and poverty, according to U. S. Department of Labor standards.

One emphasis is employment in low wage industries: retail trade (eating and drinking places), hotels, motion pictures (temporary employment), amusement and recreation, and non-profit organizations.

Demographic data for each county can be collected as to educational attainment, school dropout rates, color of family, urban versus rural residence, sex of head of family, age of head of family (under 35, 35-44, 45-64, 65+), and number of earners in family. Additional data can be collected on juvenile crime and delinquency.

Actual tallies can be made of the enrollment of key problem groups in each vocational education course offered by local agencies, and percentage compilations can be made.

III. Review of Local District Plans

A. Purpose

The purpose of requiring the submission of a local plan is to insure that a State-wide program of vocational education is in effect and that the programs carried out by local agencies are meeting the

needs of individuals and manpower requirements; that the standards for performance and expected outcomes are consistent with the State Plan; and that the program objectives meet the requirements of the legislation.

B. The Case for Reform

A review of local plans indicates inconsistency with the overall intent of the State Plan. This is particularly noticeable in the manner of stating program objectives and the format used in organizing the information presented. Also, it appears that local educational agencies are responding to a local plan request in much the same manner as the State Plan responds to federal request. Instead of a plan for action to meet needs, most local plans are addressed to categorical information requests.

C. Strategies for Change

For good management of vocational program, services and activities at both the State and local levels, clear, concise planning needs to take place with all parties seeking to carry out predetermined objectives with expected outcomes. To accomplish this, much articulation between local educational agencies and the State Vocational Division must take place when all plans are developed. Local vocational administrators must and should participate in State Plan development. For a State Plan to accomplish its

purpose, it must be a document created and composed in cooperation with local educational agencies especially since these agencies are to operate the various programs. In addition, a total state-wide approach to the development of the State Plan would motivate and give direction to administrators in the preparation of local plans.

D. Articulation Among Educational Agencies

Effective articulation between educational agencies within geographical boundaries of the State is critical to prevent duplication or gaps in programming. Within each geographical area the Vocational Division should designate a planning chairman to work with all educational agencies within the area to insure that needs are being met and programs are not being duplicated.

E. Considerations Suggested by Review of the Local Plans

1. The State Plan should be developed in cooperation with local district vocational administrators to insure articulation in the development of the State Plan and local awareness of the purposes, objectives and guidelines for local plan development.

2. It is difficult for local districts with small administrative staffs to follow complicated planning procedures expected of the large urban areas. A pooling of resources among small enrollment counties with State staff members would facilitate local plan development and insure a cohesive approach rather than a cumbersome exercise.

3. In counties which have educational institutions other than the public schools, the State Director of Vocational Education should coordinate the planning of various programs to eliminate duplication and identify overall weaknesses.

IV. Assessment of Employers to Ascertain Their Knowledge and Perception of Vocational Education

A. The Survey and/or Assessment

The survey was carried out in four geographical areas: Ely, Elko, Reno and Las Vegas, through individual contact with employers and utilization of a survey instrument. Seventy-two employers participated. The occupations were classified into ten categories: Hotel-Casino, Mining, Ranching, Health, Automotive, Banking, Office, Retailing, Refrigeration and Air Conditioning and assorted industry. Individuals participating in the project were either proprietors, managers or personnel directors.

All of those interviewed expressed interest in vocational education and felt that career training should occupy an important position in the educational structure of various educational institutions. In addition, many of the individuals were pleased that they had been contacted for the purpose of expressing their views concerning various training programs.

B. Community Involvement

The various occupational categories in the survey represented approximately 80 percent of Nevada's work force. Approximately 50 percent of those interviewed had no understanding of vocational education and/or career training programs and approximately

30 percent had limited knowledge; consequently, there is a great need throughout the state for better liaison with business and industry. As the National Advisory Council has pointed out, employment must be an integral part of education. Therefore, much more community involvement is necessary for vocational education to be relevant. Since it has been proven that work experience education provides occupational experiences beyond those the school could possibly offer, the community must become involved to implement this type of education.

C. A New System of Communication Between Educators and Employers

First, in order to assure a continuous flow of information from the industry and business groups of the State as to vocational and technical education needs and problems, each school district should establish a General Advisory Committee for Vocational Education. These advisory committees should involve from five to ten representatives from local businesses, industry, and the professions. Each of the district advisory committees should include a member from the State Advisory Council. The advising structure would then have statewide cohesion and organized relationship throughout the advisory structure.

The Board of Education of each school district should be the appointing authority for the district advisory committees and said committee will be responsible to District Boards.

D. Analysis of the Survey

The following statistical tables represent a summary of the replies given to specific questions concerning vocational education.

		Las Vegas	Reno	Elko	Ely	Totals
1. Are you familiar with vocational programs at either high school or post high school level?	Yes	18	23	3	7	51
	No	9	5	1	0	15
2. Do you employ vocational graduates from either the high school or post high school level?	Yes	17	16	1	4	38
	No	10	8	3	3	24
3. Are you knowledgeable about part-time courses to upgrade employees which are available through an educational institution within your community?	Yes	13	23	2	7	45
	No	14	5	2	0	21
4a. Are your employees attending part-time courses?	Yes	15	19	1	3	38
	No	8	7	3	4	22
4b. If so, does your company encourage participation?	Yes	15	17	3	4	39
	No	5	6	1	1	13
5. Are you acquainted with the local vocational education administrator in your community?	Yes	15	12	1	3	31
	No	13	16	1	3	33
6. Are you aware of any local vocational advisory committees in your community?	Yes	10	8	1	4	23
	No	19	19	1	1	40
7a. Have you ever visited the vocational facilities in the high school and/or college?	Yes	17	13	1	2	33
	No	11	14	2	4	31

(Continued on next page)

	Las Vegas	Reno	Elko	Ely	Totals
7b. If so, how do you evaluate them?					
Generally Good	10	10	1	1	22
Mixed	3	0	0	1	4
Generally Bad	2	1	0	0	3
8. Are you acquainted with the types of programs offered in a Community College?					
Yes	0	9	2	4	15
No	0	1	0	2	3
Total Responses	31	30	4	7	

		Hotel and Casino	Mining	Ranching	Health	Automotive	Banking	Office	Retailing	Air Conditioning	Assorted Industrial	Totals
1. Are you familiar with vocational programs at either high school or post high school level?	Yes	12	1	2	5	7	4	5	2	0	13	51
	No	8	0	1	1	0	2	0	0	1	2	15
2. Do you employ vocational graduates from either the high school or post high school level?	Yes	8	1	2	5	3	4	4	0	0	11	38
	No	10	0	1	0	3	2	1	2	1	4	24
3. Are you knowledgeable about part-time courses to upgrade employees which are available through an educational institution within your community?	Yes	10	1	2	3	4	5	4	2	1	13	45
	No	10	0	1	3	3	1	0	0	0	3	21
4a. Are your employees attending part-time courses?	Yes	9	1	2	4	3	3	2	0	0	14	38
	No	6	0	1	2	4	3	2	2	0	2	22
4b. If so, does your company encourage participation?	Yes	8	1	2	4	3	2	4	0	0	15	39
	No	9	0	1	0	0	1	0	1	0	1	13

(Continued on next page)

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		Hotel and Casino	Mining	Ranching	Health	Automotive	Banking	Office	Retailing	Air Conditioning	Assorted Industrial	Totals
5. Are you acquainted with the local vocational education administrator in your community?	Yes	4	1	1	5	4	1	3	0	0	12	31
	No	15	0	2	1	1	5	1	1	1	6	33
6. Are you aware of any local vocational advisory committees in your community?	Yes	2	1	2	5	1	1	3	0	0	8	23
	No	18	0	0	1	5	4	1	1	1	9	40
7a. Have you ever visited the vocational facilities in the high school and/or college?	Yes	5	1	1	3	4	3	3	0	0	13	33
	No	14	0	2	3	2	3	1	1	1	4	31
7b. If so, how do you evaluate them?	Generally Good	6	1	1	1	3	1	1	0	0	8	22
	Mixed	0	0	0	0	0	0	1	0	0	3	4
	Generally Bad	0	0	0	0	0	0	1	0	0	2	3
8. Are you acquainted with the types of programs offered in a Community College?	Yes	0	0	2	0	4	2	3	1	0	3	15
	No	0	1	0	0	0	1	0	0	0	1	3
Total Responses		21	1	3	6	7	6	5	2	1	20	

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E. Findings

1. There is considerable confusion among employers as to what constitutes a high school graduate with a major in vocational education.

2. Many of the major employers are not acquainted with the local administrator for vocational education and consequently have not had the opportunity of exploring the use of vocational graduates and vocational upgrading courses for employees.

3. Many employers were unaware of local advisory committees, and those who were felt that such committees were inactive.

4. Emphasis in the area of Distributive Education needs to be made. The largest businesses within the State are those involved with the distribution of goods and services; however, this is not reflected in vocational enrollments and expenditure of funds.

5. Many employers expressed interest in cooperating with educational institutions in either cooperative education programs or work experience programs.

6. More dialogue between union organizations and school administrators concerning the implementation of part-time courses and/or programs must take place to meet their needs and gain their support.

F. Considerations Suggested by the Findings

1. The business and industry of the community should be more closely involved with vocational education through a series of specific actions:

   a. Local vocational education administrators should conduct deliberate campaigns to make themselves known to leaders in business industry.

   b. Routine publicity does not seem to acquaint either executives or workers with programs; special efforts should be made to do so.

   c. More managers and executives should be involved in advisory committees; committees should be more specific to the programs, i.e., farmers and ranchers advising regarding agricultural education, etc.

d. Not only general information about part-time courses for employees, but also specific schedules for these should be called to the attention of all to whom they might be appropriate.

e. Planning sessions should be held by representatives of business and industry and education to formulate significant means of company encouragement of employee enrollment in part-time upgrading courses.

2. Counselors should continuously up-date information on jobs--local availability, starting salaries, average income, turnover, promotion opportunities, etc.--and use this realistically with students.

3. Liaison should be maintained between education and business to assure that the end product of education would be useful to business.

4. Business and industry should be given a voice in the planning of new institutions, e.g., community colleges, vocational-technical institutes, etc.

5. Exploration must be made jointly by business and industry and education into the role of the school in the formation of attitudes. Lay people must become aware of the school's limitations in this area; educators must seek to overcome these limitations.

6. Surveys of this nature, revised in light of the findings of this one and more proportionately representative of the state's economy, should be made periodically and use made thereof.

VT 012 528
Occupational and Technical Education Needs of Business and Industrial Firms of the Big Horn Basin.

Northwest Community Coll., Powell, Wyo.
Student Personnel Services.

MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Oct68 52p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *EMPLOYMENT OPPORTUNITIES; *MANPOWER NEEDS; *PROGRAM EVALUATION; COMMUNITY COLLEGES; *OCCUPATIONAL SURVEYS; EDUCATIONAL NEEDS; EMPLOYERS; TECHNICAL EDUCATION

ABSTRACT - To help determine employer needs in relation to programs at Northwest Community College, a survey of business and industry was conducted. The survey revealed that employers in the area desire to hire persons with some postsecondary education and that there is a scarcity of qualified employees in the area. Specifically, there seems to be an increased need for qualified employees in the health field, the data processing field, the mechanics area, the general office worker area, and in the graphic arts area. Only eight of the 34 employees said that training needs were being met fairly or very well at this time. The programs that have been established at Northwest Community represent the needs in the area very well and tie in directly with nationwide needs for training programs. Therefore, these programs should be continued. (JS)

VT 012 528

ED0 57254

NORTHWEST COMMUNITY COLLEGE

Powell, Wyoming

OCCUPATIONAL AND TECHNICAL EDUCATION NEEDS OF BUSINESS & INDUSTRIAL FIRMS OF THE BIG HORN BASIN

OCCUPATIONAL-TECHNICAL DIVISION

STUDENT PERSONNEL SERVICES

October 1968

VT012528

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ED0 57254

ACKNOWLEDGMENTS

The study could not have been conducted without the excellent participation of the business and industrial firms in the Big Horn Basin. The cooperation they gave in supplying the data for the study was indicative of their interest and sincerity toward the improvement of education for individuals of this area, the state and nation.

The college is also indebted to the Advisory Committee who gave freely of their time and efforts to render guidance and constructional criticisms which contributed a great deal toward improvement of the study. The Wyoming Employment Security Service, the State Department of Education and Research Coordinating Unit also helped to make the study possible through the information they made available for institutional use.

Sincere gratitude is extended to Professor Norman C. Harris, University of Michigan in Ann Arbor, Michigan, for his guidance and the sample questionnaires he provided to aid in the development of the survey instrument used by Northwest Community College.

A particular thanks is reserved for Miss Mary Ann Riedel, instructor at Northwest Community College, who personally visited the firms to collect the data for the study.

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SUMMARY

RECOMMENDATIONS

AND

CONCLUSIONS

SUMMARY

The purpose of this section of the writing is to recapitulate the study and report in terms of the purposes expressed at the outset and to accord such conclusions as the data warrants. Serious consideration should be given to each conclusion that is drawn as it relates to the findings.

The study revealed that employers in the area desire to hire persons with training beyond that of a high school level. It should also be noted that for fifty-three of the listed categories, the responding firms required some college training for their employees while there were 103 categories in which the employer desired their employees to have some college education.

There were several jobs in the business categories in which employers did not require training beyond high school; however, they did prefer to hire personnel who had some college training. This was again examplified in the crafts, for example, in the fields for welders and welding technicians it was indicated that a high school education was required for employees in this area, but these employees would be better skilled with at least some training on the college level.

There seems to be increased activity for qualified help in the areas of health and medical jobs in general. There are also increasing opportunities for computer programmers, operators, and system analysts in the computer science and data processing fields. Mechanics, general office workers, and graphic arts printers were also listed as specific jobs in which an increase in employment was expected.

Over half of the respondents indicated that there was a scarcity of qualified employees in the local area. This scarcity was especially true

in the more skilled and technical levels such as accountants, computer programmers, electronics, mechanics, printers, salesmen, and welders.

The study further revealed that respondents seldom or never hire persons who have less than a high school diploma for highly skilled jobs, business or office or sales jobs. In the majority of cases, employers did make it a practice to hire non-high school graduates for some service jobs or unskilled labor positions. The study further emphasized, according to sampling, that students who leave high school will have to be content with less than skilled or technical types of jobs.

Only eight of the thirty-four employers responded that training needs for highly skilled jobs were being met fairly or very well at this time. It was indicated that training needs were being met in the business area to certain degrees.

The programs that have been established at Northwest Community College represent the needs in the area very well and tie in directly with nation-wide needs for training programs. There were areas identified in the study which indicated definite needs for training programs and are not now available at the college. These areas included health services, general mechanical jobs, and specific training in some areas of computer science. A total of 140 job categories were checked by respondents indicating a scarcity of qualified employees. In the same token, 260 categories were checked to indicate that the supply of qualified employees was adequate. It is interesting to note that only two categories were checked indicating a surplus of qualified workers.

RECOMMENDATIONS

The programs already developed at Northwest Community College should be continued for the present time. Programs that have been initiated

which were not listed by this particular study as critical in need, should be studied to determine their future value. In this respect, the worth of these programs will, to a large extent, depend on how well students are received by employers after they have completed their training and have been on the job for a reasonable length of time so an evaluation can be determined. Another important factor to consider is the number of students who actually enroll as majors in each of the programs.

Another study being conducted by Northwest Community College should reveal the interest that students have toward participation in programs at Northwest Community College. As the studies recommended by the Governor's Committee are completed, Northwest Community College can make valuable comparisons to these surveys which will aid in further needs for occupational education. The college should then correlate these needs with the offerings being made by other community colleges and area schools in the state. It is also a recommendation that one of the studies to be conducted in the vocational area should make an attempt to identify firms who will hire young people who have just graduated from high school after they have completed a skilled program at this level. The point to consider here is that some industries have indicated they do not desire to employ students who have just graduated from high school. Sometimes this is not a lack of skills, but more often due to their age and maturity.

There also needs to be an all-out effort put forth in educating business and industry to the advantages of establishing Industrial Cooperative Programs and Distributive Education programs at the community college and high school levels. These types of programs have a particular importance to this state since the total population of Wyoming is a little over 360,000 people. Wyoming cannot afford to establish an overabundance of area vocational schools or facilities which require heavy and expensive

equipment. The state can, however, establish cooperative-type programs with business and industry which will eliminate the need for duplication of these efforts in our schools. Some schools, for instance, cannot and should not offer auto mechanics. It may be that the student could not travel to Casper for such a program, but through a cooperative education program, he could be employed by a firm in his area and receive the necessary related instructions for his chosen skill at his own local school through a cooperative-type program.

It is recommended that some attention be given to the establishment of Cooperative Education Programs between high schools, community colleges, and business and industry on an area basis. Such a plan might be worked out so that a director and one or more assistants might establish a program of this nature that involved two or three high schools and a community college in a cooperative arrangement. This could be initiated as a pilot program for the first year or two; and if it was successful, it could then be expanded throughout the state.

Employers, too, need to recognize the fact that educational skills a student acquires should be recognized in terms of their advancement opportunities, salary, and other areas of concern when they accept a position. Although needs have been indicated in this study for programs in auto mechanics, offset printing, electronics, radio and television, welding, etc., Northwest Community College should not consider any duplication of efforts at this time. In the same token, programs in areas such as welding, offset production, and commercial art, should not be duplicated at other area schools.

It is also recommended that consideration be given to a reciprocal agreement of tuition plan for area vocational schools so they become available to all students who can benefit from such instruction.

The schools that have been indicated as area vocational schools should fulfill their obligations in this vital area of education. If they do not plan to meet the requirements, then all efforts should be put forth to further establish and finance other institutions who are prepared and have established programs to meet the needs of students. It is further recommended that no additional programs be established at Northwest Community College, or any other area school, until they have been approved by all area school representatives concerned and also approved by the State Department of Vocational-Technical Education. Additional programs and area school establishments also need to be based on the outcome of the needs of business and industry for Wyoming as they relate to nationwide needs.

CONCLUSIONS

The factual data that was obtained through this study brought forth evidence of a substantial nature that seemed to indicate the following conclusions:

1. Leaders of business and industrial firms desire persons for employees who have received training above that of a high school level.
2. There is need to develop more programs in certain highly-skilled and technical levels of occupational education in our area schools.
3. The findings reveal that several programs are already established at institutions other than Northwest Community College in which there is need for training. These programs should be duplicated only when absolutely necessary. Serious consideration need be given to some sort of cooperative agreement between the institutions for student attendance and tuition charges.

4. Serious considerations should be given to the establishment of Industrial Cooperative Educational programs that will permit students the opportunity to spend part of their time learning a skill in a business or industrial firm when programs for such training are not available at local schools.

5. Employment opportunities by training standards and by age limitations must be established within the business and industrial firms for the State of Wyoming and correlated to the needs on a national level.

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INTRODUCTION

Northwest Community College was designated as an area vocational school in 1967. It was during this same year that five vocational programs were united. The programs established at this time were selected by several factors. One of these factors, as far as could be determined, was the needs of business and industrial firms. Other factors that influenced the selection of these programs were the physical facilities available, the equipment that could be purchased, and the instructional staff available.

Vocational and Technical Education began with programs in Business Machines, Graphic Arts, Medical Stenography, Meat Processing, Radio and Television,and Secretarial Science. Secretarial training had been taught previously as a vocational offering before the other five programs were established. Machine Accounting was also one of the first programs established in this area. In 1968-1969 three more programs were developed which included Commercial Art, Data Processing, and Welding.

Occupational Education developed at a rapid pace at Northwest Community College, perhaps too rapidly, since there was very little time available to conduct needed studies and compile information to determine the needs for vocational education in this area. A survey for the area was initiated by the State Department of Education in 1966-1967 in an effort to determine such needs. However, this survey was never successful in getting underway; therefore, the information desired was never made available.

The need for such studies will continue to be of great significance to the development of this program. Realizing the importance to determine occupational needs of the area, the college selected four areas to be

included in the survey. These areas consisted of this study of the needs of business and industry for training programs; the type of programs in which high school juniors and seniors desired to participate; the needs of adults in the way of courses and programs that would provide them the opportunity to upgrade a present skill, learn a new skill or establish educational programs reflecting their needs. The fourth study was a follow-up of students who had been enrolled in Occupational Education and completed their training or left the institution. This study of determining the needs of business and industry was of great importance for the development of this vital area of education.

LIMITATIONS TO THE STUDY

Perhaps the most critical limitation to the study was the timing. One study had actually been planned previous to the establishment of occupational programs at Northwest Community College. However, it never became a reality until eight programs had been started, a new building under construction, and several thousand dollars worth of equipment was purchased. Thus the most critical limitation pointed out here is the fact some programs may not be as successful as they should. To determine this will require a year or more of exploration which might have been eliminated through an earlier study. An earlier study might also have been important in choosing the equipment which was purchased.

The study was further limited because of the number of firms that could be surveyed. Every effort was made to conduct and complete the studies for the purpose of improvement of this area prior to the opening of

the fall semester for 1968-1969 school year. Time did not permit the implementation of any activities derived from the studies.

There was also a lack of funds to conduct such a study. Requests were made to the Research Coordinating Unit of the State Department of Education for financial assistance, but these requests could not be granted for this particular study. Additional funds would have made it possible to survey more firms and increase the reliability of the data collected. This, too, would have made it possible to follow up immediately certain areas which were identified as possibilities for the establishment of needed programs.

Another handicap to the study was the fact that employers were not familiar with the aims and objectives of Occupational and Technical Education. The limitation here was the time that was devoted to explaining these objectives of the program. This, however, turned out to be an important asset to the cause and should be only considered as a limitation due to the time factor involved.

The important factor, even though other limitations could be listed, is that certain strengths in the study have been identified that has offered sound guidance and direction for the future.

METHOD OF STUDY

One of the essential requirements in establishing Occupational and Technical Education in a community college is to determine the need of certain areas. In order to do this, Northwest Community College developed a questionnaire to be used throughout Big Horn Basin. This questionnaire was a cooperative venture between the college and an Advisory Committee made up of business and industrial leaders in Park County. The preliminary questionnaire developed by staff members from the institution was submitted to the advisory group for their review. The Advisory Group met to review the rough draft of the instrument; their suggestions were then

incorporated into the questionnaire and it was printed into final form. To retrieve the information desired, a representative from the college made direct contact with business and industrial firms in the Big Horn Basin. A few questionnaires were left with firms to be completed and mailed to the college. This entire study provides a 92 percent return of the questionnaires. Visitations to individual firms also provided an excellent opportunity for the representative to explain any questions concerning the study and also inform individuals about Northwest Community College and its occupational programs.

SAMPLE

The Wyoming Research Coordinating Unit of the Department of Education provided a list of the names, addresses, and standard industrial classifications of businesses in Big Horn, Park, Washakie, and Hot Springs Counties. These names and addresses were listed as they appeared on the sales tax files. One thousand five hundred sixty (1,560) names were included on the list. The names of the business and industrial firms were categorized according to general classifications that appear in Item 6 of the questionnaire. From this list a sample of one hundred (100) business and industrial firms were selected to be included in the survey. The 100 firms selected to participate were based on the total number represented in the above listed categories to make up the study.

RESULTS OF THE STUDY

Table I lists the general classifications that were itemized in Question 6, Part I, and the number of companies or businesses that were contacted for each of the general categories. All of the categories are

represented except Item 6, which is titled Education. Because of the lateness of the year and the fact that the interviewer had difficulty in contacting the administrators of the public schools in the area, this part of the study was not completed.

The general categories of retailing other than food, dairy, and drink, and service establishment contained the greatest number of businesses that are represented in the questionnaire.

The general categories were well distributed and the fact that the retailing, service, and food establishments are represented more often probably due to the location. Several firms listed two general categories which gave a larger number of firms for the total than there were included in the study.

For a glimpse at the response of this section, refer to Table I.

TABLE I

GENERAL CATEGORIES OF CLASSIFICATIONS

Job Category	Number of Firms Checking
1. Agricultural Services	7
2. Advertising	2
3. Banking and Finance	5
4. Communication	3
5. Construction	5
6. Education	0
7. Entertainment and Recreation	1
8. Food, Dairy, and Drink	10
9. Government-Federal, State, Local	1
10. Health, Hospital, Medical, Dental	6
11. Motel and Hotel	3
12. Industrial or Manufacturing	7
13. Insurance	3
14. Marine Services	1
15. Printing and Publishing	4
16. Professional-other than Medical and Dental	4
17. Real Estate	2
18. Retailing-other than Food, Diary, and Drink	14
19. Service Establishment	14
20. Transportation	5
21. Utilities	3
22. Wholesaling	4
23. Other	16

Table II represents specific jobs as listed in the Dictionary of Occupational Titles which were classified by the three-digit code system. A specific point of the study was to try to determine the educational qualifications that were presently required by business and industrial firms. The value of this part in the study lends support to the necessity of establishment of certain programs on the college or post high school level. Data collected by the survey, when compared to national needs, will give direction toward establishing programs which prepare students for a nation-wide market as well as meeting the needs of the local area. Information requested in Column II of this table was to determine the education that employers desired of their employees. Since Occupational Education is relatively new to this area, it seemed logical in such a study to try to determine the emphasis that employers in this area placed on education at the post high school level which is aimed directly toward employment skills.

Also of significant importance was the number of employees presently working, the number expected to be employed in the future, and what the local supply of qualified help appears to be in the eyes of employers.

Table II gives a description of the results of this section of the survey and the information described above.

Directions for Reading Table II:

> Education Required and Education Desired. Respondents were asked to check the amount of education they required for employment entry for each job listed. Four numbered sub-columns were listed. No. 1 is less than high school; No. 2, a high school education; No. 3, some college education; and No. 4 college degree. Column II lists the education desired by employers and is indicated in the same manner as Column I.

TABLE II INFORMATION FROM INDUSTRIAL FIRMS

Job Category	Column I Education Required				Column II Education Desired Table II				Column III Average No. on Payroll This Year	Column IV Expected Annual Rate of Employm. 1968-70			Column V Local Supply of Qualif. Employee		
										Increase	Same	Decrease	Scarce	Adequate	Surplus
	1	2	3	4	1	2	3	4	Number	1	2	3	1	2	3
A. INDUSTRIAL JOBS:															
637. Air Cond., Refrig., and/or Heating		2	1			1	2		8	1	2		2	1	
723. Appliance Repairman		1				1			1		1			1	
734. Assembly Line Worker	1	1					2		94		2			2	
822. Automotive Technician	1	2				2	1		8	1	2		1	2	
860. Carpenter	1	4				3	2		16	1	4		2	3	
022. Chemical Technician				1				1	6		1		1		
*005. Drafting & Design Technician		1	1			1	1		2		2		1	1	
825. Electrician-Lineman	1	1				2			5		2		1		
829. Electrician-Wireman	1	4				3	2		8	1	4		2	2	
828. Electronics Repairman		3	1			3	1		7	1	3		3		
003. Electronics Technician		1	1			1		1	3	1	1		1	1	
737. Explosives Worker		1				1			4		1			1	
183. Foreman-First-Line	1	6				4	2		26		6		4	2	
141. Graphic Arts-Printing	1	2				1	1	1	10	1	2		3		
424. Heavy Equipment Operator	2	3			1	3	1		16	2	3		1	4	
003. Instrumentation Technician		1	1			1		1	1		2		1	1	
616. Machine Operator	1	2				3			9		3		1	2	
600. Machinist	1	1				2			2		1		1		
310. Meat Processor		1					1		2		1		1		
007. Mechanic---General	4	6			1	8	2		25	4	7		6	3	
007. Mechanical Technical		2				2			3	2			2		
735. Painter	1					1			1		1			1	
862. Plumber	1	1				2			4		2			2	
207. Printer-Offset		1						1	3		1		1		
579. Quality Control Technician		2	1			2		1	12		3		1	2	
804. Sheet-Metal Worker		1					1		2	1				1	
869. Steel Worker		1					1		1		1			1	
905. Truck Driver	2	5	1		1	6	1		47	1	7		2	6	
810. Welder (Skilled Craftsman)	4	4			1	5	2		14	3	4		5	2	

Table II (Cont'd) Job Category	Column I Education Required				Column II Education Desired Table II				Column III Average No. on Payroll This Year	Column IV Expected Annual Rate of Employm. 1968-70			Column V Local Supply of Qualif. Employee		
										Increase	Same	Decrease	Scarce	Adequate	Surplus
	1	2	3	4	1	2	3	4	Number	1	2	3	1	2	3
810. Welding Technician		1					1		1		1			1	
OTHER: Service St. Att; Cont. Labor; Plumber Hlpr; Metalworker; Salesman; Alignmentman; Bowling Ball Mech.	5	5			2	7	1		30	3	7		4	6	
OTHER: Recapper, Pumpman	1	1				2			1		2			2	
B. BUSINESS JOBS:															
160. Accountant			6	4			2	8	33	3	9		6	5	
141. Advertising and/or Comm. Art		2		4			3	4	7		4		2	2	
219. Bank Clerk or Teller		2				1	1		6		2			1	1
210. Bookkeeper	2	20	3	1		15	8	3	34	3	23		5	20	1
215. Business Machine Operator		3	1	3		3	1	2	27		5		2	4	
186. Business Management		2	3	2	1	1		4	7	2	3		4	1	
209. Clerk Typist	2	9	1		2	6	3	1	35	2	9		2	9	
216. Computer Operator		1					1		3		1		1		
213. Computer Programer	1		1	1			1	1	5	1			1		
213. Computer Systems Analyst			1	1				1	2	1			1		
213. Key Punch Operator		1				1			14	1				1	
213. Tab Machine Operator			1				1		1		1			1	
213. Utility Computer Clerk		1					1		3		1			1	
912. Dispatcher		2				2			2		2		1	1	
201. General Office Worker	2	9	1		2	7	4		20	4	8		2	10	
216. Machine Accounting Specialist				1				1	6		1		1		
202. Medical Stenographer			2				2		3		1		1	1	
249. Merchandising	1														
208. Office Machine Operator		2				1	1		1		2			2	
293. Outside Salesman		6	1	1		5	2	1	12	2	6		5	2	
651. Offset Printers	1							1	3		1		1		
250. Real Estate, Insurance and/or Finance			1	3				4	8	1	3		3	1	
352. Receptionists		5	1			2	4		7	2	4		2	4	

Table II (Cont'd)

Job Category	Column I Education Required 1	2	3	4	Column II Education Desired Table II 1	2	3	4	Column III Average No. on Payroll This Year Number	Column IV Expected Annual Rate of Employm. 1968-70 Increase 1	Same 2	Decrease 3	Column V Local Supply of Qualif. Employee Scarce 1	Adequate 2	Surplus 3
185. Retail Management & Buying Clerk		3	2	1			3	3	8	1	5		4	1	
187. Sales Manager		2	2	1			2	3	4	1	4		2	2	
201. Secretary		11	5	1		4	11	2	26	1	15		5	11	
202. Stenographer		3	1	1		1	3	1	21		6		3	3	
OTHER: Lawyer, Management, Switchboard Operator		1	1	1		2		1	6	2	1		3		
OTHER: Executive Secretary; Cashier; Mngr.; Bkkpr.; Rep.; Acct. Clerk		3	1	1			4	1	25		5		3	3	
C. SALES AND SERVICE JOBS:															
330. Barber		1				1			2		1			1	
312. Bartender	2				1	1			2		2			2	
332. Beautician		2				2			5	2	1			2	
211. Cashier (Retail Store)		3				2	1		10		3		2	1	
313. Cook or Chef	3	1			2	2			8	1	3		1	3	
187. Food Management		1	1				2		4	1	1		2		
355. Hospital Attendant		1				1			18	1			1		
142. Interior Designer			1				1		2		2			2	
382. Janitor, (cleaning girls, maid, housekeeper)	8	3			6	5			33	3	7		1	9	
361. Laundry & Dry Cleaning Worker	1	2			1	2			10	1	2		1	2	
231. Postal Worker (Mailroom Clerk)		1				1			1		1			1	
289. Salesperson (Retail)	4	5			1	9			20	1	9			9	
915. Service Station Attendant			1				1		1		1		1		
785. Tailoring Occupations		1				1			1		1		1		
350. Waiter or Waitress	3	2			2	3			26	1	4		1	4	
005. Water Treatment or Sanitation Worker															

Table II (Cont'd)

Job Category	Column I Education Required				Column II Education Desired Table II				Column III Average No. on Payroll This Year	Column IV. Expected Annual Rate of Employm. 1968-70			Column V. Local Supply of Qualif. Employee		
	1	2	3	4	1	2	3	4	Number	Increase 1	Same 2	Decrease 3	Scarce 1	Adequate 2	Surplus 3
OTHER: Desk Clerk, Barmaid, Dishwasher, Roustabout, Taxi Driver, General Ser.	8	3	1		6	4	1	1	21	3	9		4	8	
OTHER: Bus Driver, News Reporter, Hostess, Stockboys, Cocktail Waitress	2	2			1	2			4	1	3			4	
D. AGRICULTURAL JOBS:															
187. Agriculture	1				1				1		1		1		
469. Agriculture	1					1			1		1			1	
421. Farm Worker		2				2			6		2			2	
187. Ranch Manager				1				1	1		1			1	
OTHER: Yard Maintenance, Stockmen, Ditchrider	1	2	[illegible]				1		16		3		2	1	
OTHER: Supervisors		1					1		3		1		1		
E. HEALTH AND MEDICAL JOBS:															
079. Dental Office Assistant			1				1		2			1	1		
078. Medical Lab Technician			1				1		2	1			1		
354. Nurse (Practical)			1				2		5	1	1		2		
075. Nurse (Registered)			1	1			1	1	18	1	1		1	1	
199. X-Ray Technician			1				1		2	1			1		
OTHER: Nursemaid, Pharmacist				2		1		1	4		2		2		
F. MISCELLANEOUS JOBS:															
Meat Pkg; Salesman; Pkng & Crating; Engineer; Attend; Clerk; General Help Reporter; Maintenance Mech; Laborer	4	3	2	3	3	3	2	4	23	3	9		4	8	
Refinery Operator, Meat Wrapper, Creditman	1	2		2		3		2	57	1	3		2	3	
Clerk, Produce Manager		2		1			2		3	1	1		1	1	
Reference Clerk, Produce Workers		2				1	1		3		2		1	1	

Table II (Cont'd)	Column I Education Required				Column II Education Desired Table II				Column III Average No. on Payroll This Year	Column IV Expected Annual Rate of Employm. 1968-70			Column V Local Supply of Qualif. Employee		
										Increase	Same	Decrease	Scarce	Adequate	Sur-plus
Job Category	1	2	3	4	1	2	3	4	Number	1	2	3	1	2	3
Dairy frozen food department		1					1				1			1	
GRAND TOTAL	77	198	53	38	35	172	103	57	1015	75	279	1	140	260	2

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In looking at the total responses to Columns I and II of the categories in Table II of this report, Education Required and Education Desired, the statistics indicate that many of the respondents desired to hire employees with at least two years of college. While fifty-three of the respondents indicated they required some college education for 106 specific categories, 103 checked that they desired their employees to have some college education. There was an indication in this part of the study that employers will continue to place more emphasis on education beyond the high school diploma for job entry in most areas of work. This point is more specifically visualized in the area of business. Eleven respondents required that their secretaries have a high school diploma. Five required secretaries to have a two-year or junior college education, but only four desired that their secretaries have only a high school diploma. Eleven employers desired their secretaries to have some college education. This seems to hold true throughout most of the business areas. Even in the clerk-typist classification there seems to be a greater desire for employees to have some education beyond the high school level. This trend is also true in the industrial jobs, which include such areas as air conditioning, refrigerating or heating repairmen, appliance repairmen, electricians, etc. While respondents to this area seldom indicated that the job required more than a high school education, it was indicated that an employee with some college training was more desirable.

Education beyond high school is also exemplified in the crafts. Although employee fields of welders and welding technicians indicated that they require only a high school degree or diploma for their employees in this area, it was also indicated that their employees would be much better skilled with training at the college level.

Some college, not necessarily a four-year college program, is both required and desired in the health and medical jobs. This includes dental office assistants, medical lab technicians, practical nursing, and x-ray technicians.

In summary it might be stated that employers of the area desire their employees, almost universally, to have training beyond a high school education.

Column III of Table II was included to provide information concerning the average number of persons employed by the responding firms for each category. There were, as indicated, a total average of 1,015 persons on the payroll for the ninety-two firms that replied.

In a follow-up to the column concerning average numbers on a firm's payroll, each firm was asked in the next column to indicate the expected annual rate of employment.

While 26 percent of the replies indicated that they expected an increase in the annual rate of employment for the period of time from 1968 to 1970, the remaining 74 percent indicated that the annual rate of employment would remain the same. The largest increase of employment seemed to be in the areas of the health and medical jobs in general. Increases were also indicated for categories in mechanics, welders, computer programmers, systems analysts, general office workers,and graphic arts. These particular categories were of significant importance to the study.

Over 50 percent of the respondents indicated that there was a scarcity of qualified employees at the local level. This is especially true in the more skilled areas such as electronic technicians, computer programmers, welders, graphic arts, printing, mechanics, accountants, and salesmen. An interesting point in the last section of Column IV was the fact that only

two firms indicated a surplus of qualified employees, which was in bank work as clerks or tellers and in the area of bookkeeping.

Another important factor of the study was to determine the educational requirements for employment entry in certain occupations for students who had not completed high school. The purpose of this section of the study was to determine the practice that was being followed in this region of the country in regard to employment of non-high school graduates. The results of this section may be studied in Table III.

TABLE III

JOB ENTRY CATEGORIES FOR NON-HIGH SCHOOL GRADUATES

A. Entry Job Category	Percentage of Firms Checking				
	Common Practice	Occa-sionally	Infre-quently	Never	Total Number Firms
1. Highly skilled jobs	5.13	5.13	23.08	66.66	39
2. Business office jobs	4.44	6.66	17.77	71.11	45
3. Sales jobs		13.00	27.00	60.00	25
4. Apprenticeship for highly skilled trades and crafts	14.27	35.32	7.51	42.90	21
5. Semi-skilled jobs (Assembly Line and Production workers; Machine Operators	16.67	29.16	12.50	41.67	24
6. Service jobs	20.69	48.28	10.34	20.69	29
7. Unskilled labor	29.42	35.29	20.59	14.70	34

Read Thus: Of the thirty-nine firms responding to number 1 of Table III, 5.13 percent made it a common practice to employ students in highly skilled jobs who had not completed high school.

The above table indicates the importance that employers in the area have placed on students to acquire a high school education. Such importance

is stressed in category seven, for example, in which 35 percent of thirty-four responding firms indicated they infrequently or never employed students even in unskilled jobs if they had not finished high school.

Employers were asked in Section 3, Part B of the study to indicate their practice of hiring young persons who have just graduated from high school. This section listed eight job entry categories including those jobs of a technician. The information revealed in Part B is helpful in determining the extent of education in which employers feel should exceed that of high school by the listed categories.

The number of firms as they replied to each category are listed in Table IV.

TABLE IV

JOB ENTRY CATEGORIES FOR HIGH SCHOOL GRADUATES

B. Entry Job Category	Percentage of Firms Checking				
	Common Practice	Occa-sionally	Infre-quently	Never	Total Number Firms
1. Technician jobs	17.65	23.54	5.88	52.93	17
2. High-skilled jobs	20.59	17.65	20.59	41.17	34
3. Business office jobs	36.96	26.08	15.22	21.74	46
4. Sales jobs	37.04	25.92	22.22	14.82	27
5. Apprenticeship for the highly-skilled trades and crafts	25.00	37.50	20.84	16.66	24
6. Semi-skilled jobs (Assembly Line & Production Workers; Machine Operators) Clerks	43.47	26.08	8.68	21.77	23
7. Service jobs	63.33	23.33	6.67	6.67	30
8. Unskilled labor	44.44	37.04	7.41	11.11	27

It should be pointed out that Table IV indicates that 58.8 percent of the respondents infrequently or never hire high school graduates for technician jobs. In the same token 61.7 percent of the firms follow the same practice in regard to highly-skilled jobs. An interesting note was also revealed that 11.1 percent of twenty-seven responding firms do not make it a practice to hire individuals with only a high school diploma even for unskilled labor. Another 7.4 percent of the firms make it a practice to only infrequently hire individuals with a high school degree for unskilled labor. The majority of replies did indicate that they hire high school graduates for business office jobs, sales jobs, semi-skilled jobs and unskilled labor.

Employers indicated in Tables III and IV that for the highly-skilled jobs and technical employment that they desire persons who have education and training beyond that of a high school level.

It is of importance to any institution to continually keep abreast of how well its occupational program is meeting the occupational needs of firms in its own area. Since Occupational Education is just being established in this area, the response to this section of the study is very limited. There was an indication of some activity taking place in the areas of business and secretarial skills training which was indicated by the data revealed. However, the areas of trade and industrial education and technical programs have been nearly non-existent.

Table V presents the responses that employers gave to the question eliciting their opinion as to the extent which the Big Horn Basin area has met the occupational training needs for each of the job categories.

TABLE V

EXTENT TO WHICH TRAINING NEEDS ARE BEING FULFILLED IN THE BIG HORN BASIN

C. Entry Job Category	Percentage of Firms Checking				
	Very Well	Fairly Well	Poorly	Not at All	Total Number Firms
1. Technician jobs	20.00	20.00	33.33	26.67	15
2. Highly skilled jobs	2.94	20.59	17.65	58.82	34
3. Business office jobs	30.61	48.97	8.17	12.25	49
4. Sales jobs	13.64	50.00	22.72	13.64	22
5. Apprenticeship for the highly-skilled trades and crafts.	10.00	25.00	40.00	25.00	20
6. Semi-skilled jobs (Assembly Line & Production Workers; Machine Operators)	26.32	21.05	15.79	36.84	19
7. Service jobs	22.22	37.04	7.41	33.33	27
8. Unskilled labor	37.50	50.00		12.50	24

Two questions were included in the instrument to determine the number and type, or types, of formal training programs that had been established by the responding firms. Part D of Section III revealed twenty-four employers responding positive to this question. Fifty-nine employers said their firms did not provide for any formalized training programs.

The types of formal training that have been established by the participating firms are revealed in Table VI.

TABLE VI

TYPE OF FORMAL TRAINING PROGRAMS AS CHECKED BY TWENTY-THREE FIRMS

Type of Training	*Number Firms Checking	Number Firms Not Checking
Apprenticeship	7	85
Supervisory Training	11	81
Technician Training	4	88
Plant Management	1	91
Job Upgrading	7	85
Executive	3	89
Other	6	86

*There were a total of sixty-nine firms that had no formal training.

The above table indicates that several employers have developed their own training program in an effort to improve the skills of their employees. Seven firms were participating in an apprenticeship program; however, a weakness of the questionnaire was evident in the fact that the type of apprenticeship training was not made clear to the respondent. It is impossible to determine if the replying firms were working in a registered apprenticeship program through the unions or if they had developed their own type of apprenticeship training.

The following comments as they were listed concerning the question on formal training in the firms:

Is there a formally organized training program in your company or firm?

Those who answered "No" added the following comments:

1. American Van Lines Training School
2. Not anymore--AGC has formal training which contractor's can participate in.
3. Go to California for training on bowling machines.
4. Informal
5. Armstrong Installation School

Those who answered "Yes" indicated the type of program they operated other than those listed on the questionnaire:

1. 6-week course--by Hosp. Nurs. Staff (for nurses aids)
2. Heavy equipment operators
3. Dental Assts. Training
4. Train own mechanics
5. Train own salesmen
6. On job training
7. In the shop
8. Chrysler & GMM schools

RELATED INFORMATION

Of particular value to a study of this nature, is related studies and other information that can be obtained. Very little information on the needs of occupational programs for the Big Horn Basin was revealed in a search of past records. There were a few articles published which identified several occupational fields for training programs on a state-wide level. Of special value to this research was a study developed by the State Department of Education in which critically needed areas for occupational training programs were listed. The source of information identifying these areas was gathered by the Cooperative Manpower Plan, State of Wyoming, 1968.

Last year the Wyoming Employment Service experienced a record high number of unfilled job openings in the State and the same conditions

are anticipated for the 1968 fiscal year. Most of these unfilled openings were in the skilled and professional fields and qualified applicants or trainees were not available for referral. The employability gap between these unemployed and underemployed people and those who will enter the labor force can only be bridged by a comprehensive system of vocational-technical education. It is recognized that in some cases the services of many other agencies may need to be utilized in total program development. The total civilian work force for the 1968 fiscal year is estimated as follows:

Civilian Work Force	139,500
Agriculture Employment	17,300
Non-Agriculture Employment	116,500
Total Employment	133,800

Analysis of current economic conditions indicates as increase of economic activity for the 1968 fiscal year. Employment demands are expected to remain relatively steady in agriculture; wholesale and retail trades; transportation and public utilities; and government. Small increases are anticipated in manufacturing and contract construction. Expansion is predicted in mining, the largest gains being in trona (soda ash) mining with predicted increases in other mining activities such as bentonite, coal, uranium, and iron ore.

Some of the predictions are based on the noted increase in leasing activities relative to the above-mentioned resources. Considerable activity is also expected in the oil and gas industry through 1968.

Recreation and tourism is an ever-increasing facet of Wyoming's economy and is rapidly becoming a year-round industry. Occupational categories classified as critical need areas within the State which are in short supply of skilled help and which represent all of the services of Vocational-Technical Education are as follows:

Accounting Clerk	Automobile Body Repairmen
Barber	Welder
Draftsman	Electrician
Electronics Technician	Electrical Appliance Serviceman
Nurse, Licensed Practical	Heavy Equipment Operator
Clerk-Stenographer	Carpenter
Clerk, General Office	Truck Driver
Bookkeeper	Automobile Service Station Attendant
Cashier	Warehouseman
Key-Punch Operator	Machine Operator
Computing Machine Operator	Rotary Driller
Receptionist	Waitress
Waiter	Meat Cutter
Cook	Machinist
Nurse's Aide	Cash Register Serviceman
Automobile Mechanic	Painter [1]

[1]Source: State of Wyoming, Cooperative Manpower Plan, Fiscal 1968; as taken from "Projected Program Activities in Vocational Education for Fiscal Year 1968", State Department of Education, Cheyenne, Wyoming.

Of the occupational areas listed above, Northwest Community College has established programs that can meet the major requirements for the following needs:

Accounting Clerk	Computing Machine Operator
Clerk-Stenographer	Receptionist
Clerk, General Office	Welder
Bookkeeper	Meat Cutter
Key-Punch Operator	

Wyoming has an advantage toward the fundamental development of Occupational and Technical Programs since this area of education is relatively new to the state. Educators have the opportunity to capitalize and build from the trials and efforts of other states that have had experience in the establishment of programs for this area of education. It is of particular value while the state is in the younger stages of this development that it does not overproduce or excessively duplicate the expensive trade and industrial and technical programs that become a burden to the tax payers. Colleges that are promoting Occupational Education need also to become more aware of the difficulty that exists to locate and hire adequately trained instructors and staff for this area. Equipment costs for most technical and skills programs are very high and excessive duplication should be avoided whenever possible. There will be areas in which some duplication is necessary, and the needs for qualified persons in these areas cannot be adequately met by one or more institutions.

Some excellent advantages have already been initiated for Wyoming. At the present time, according to the report from the State Department of Education, there are appointed six area vocational schools.

> The six existing community colleges have received the designation as area vocational schools by the State Board for Vocational Education and all offer some vocational-technical education. However, only two, namely Casper College and Northwest Community College, are truly operational in providing for a minimum of five programs. Central Wyoming Community College, located at Riverton, is new and

> will offer courses for the first time in the fall of 1967. It appears that all of the community colleges will eventually be operating as area vocational schools.[2]

Definite attention should be drawn to the fact that the above designated area vocational schools are geographically located in such a manner that Occupational Education can become readily available to most youth and adults for the entire state. Although some of the community colleges do not presently meet the requirements necessary for area vocational schools, considerable attention should be devoted to the types of programs in which these institutions do become involved when they expand their offerings.

There is considerable value to be gained from the report published by the State Department in regard to the projected activities for Occupational-Technical Education. There is a close relationship to this study and the projected needs that have been found in other reports.

An excellent Progress Report published by the Governor's Committee on Vocational-Technical Education proposed several recommendations with definite value that relates to this particular study which is certainly worthy of mention. One of the recommendations from the Governor's Committee was written as follows:

> To determine the establishment of specific vocational-technical programs, the Committee recommends a survey be made of Wyoming, concentrating on both the secondary and post-secondary levels. This survey should consider the following on an area basis:
>
> A. Current vocational-technical program offerings, existing facilities and instructional personnel now available to students.
>
> B. The student population, to determine their needs and interests.
>
> C. The adult population, including those persons currently employed who need upgrading in current skills to remain competitive in their jobs, and unemployed individuals who need retraining to compete in the labor market.

---

[2] Ibid., p. 7.

D. The needs of the business community, to insure that programs fit the existing work opportunities. However, local programs should not be limited to local needs; in other words, vocational-technical education should be aimed at educating Wyoming people, not necessarily educating people for Wyoming.[3]

It should be noted that the Governor's Committee recommended surveys to be conducted to determine the needs for Occupational and Technical Programs for students; for business and industry; for adults in this area, and also, to further determine what current vocational and technical program offerings now exist. It is interesting to note that Northwest Community College has completed, or is in the process of completing studies that include the information listed in B, C, and D above. The Governor's Committee recommendations also pointed out that there must be a master plan developed to provide correlation between our schools and community colleges, and that the community colleges themselves need to guard against duplication of effort. For the purpose of this report it should be noted that there was revealed a need for some programs in the area of general mechanics; some indication was made toward electronics programs, etc. However, in keeping with the philosophy that must be established within the State of Wyoming as our occupational and technical programs grow, educators must not try to duplicate these particular areas of instruction. Casper College presently has in its offerings excellent programs in electronics, auto mechanics, and other areas which probably should not be duplicated at Northwest Community College or other community colleges. In the same token, Northwest Community College has established high quality programs in the areas of Graphic Arts or Offset Printing, Welding Technology, Commercial Art, and other areas which are also expensive to establish and operate and probably need not

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[3]Progress Report of the Governor's Committee on Vocational-Technical Education, June 1968, (Published By: Research Coordinating Unit, Vocational-Technical Division, State Department of Education, Cheyenne, Wyoming).

be duplicated at other area schools. The distance in transporting students to such programs that are available, needs to be investigated in an effort to gain the most mileage from such education.

Further emphasis toward improvement of this area of education was pointed out by the Governor's report as follows:

> The Committee recommends that vocational-technical programs in such areas as keypunch and programming, welding, machine operation, secretarial science and others need to involve in-depth training.
>
> The Committee recommends that a certificate of proficiency be given to occupational education students who have satisfactorily completed an occupational training program. This would not take the place of the regular high school diploma awarded to all students satisfactorily completing their academic program.[4]

The Governor's Committee Report offered several excellent recommendations that will help to further develop Occupational and Technical Education throughout the State of Wyoming. It is sincerely hoped that such surveys as recommended will be conducted in the very near future and that they will be correlated with other related surveys that have been conducted in the Big Horn Basin. These studies also need to be matched against other surveys which were previously completed for other community colleges. As mentioned earlier in the study, this particular survey was limited in the number of responses that were contacted due to the time involvement and the funds available. However, definite value has been gathered from this report and can be related to other reports that need to be made in the future.

GENERAL COMMENTS

General comments are of significant value to any study. The comments as supplied on the replies are listed below:

---

[4] Ibid., p. 21.

The printing industry is moving in one direction--OFFSET. The introduction of a training program in offset printing at NWCC is a basic ground floor move--specialized, but directed toward opportunity that is fast growing--

Pleased to see college proceeding with proposed data-processing class--will support it.

Expansion of vo-tech is excellent--dental hygiene, etc., would be excellent--flight school good.

Our needs require business machines and/or computer training for the girls we hire, our trend is to specialize in this field.

This area needs better secretarial training as far as our company is concerned. Most of our placement problems are in areas of employment which can't be helped much by educational facilities in this area i.e., recruiting engineers, programmers, systems analysts, accountants, etc.

Courses provided for Public Relations--Sales Management--also courses in advertising directed to local, regional and national, etc.

(1) Courses in typing, shorthand and general accounting are being provided fairly well.
(2) In payroll taxes, sales taxes, federal income taxes, etc. I think the rating would be poorly.

Do not make this factory for turning out people for volume--they must have the ability to do the job and produce--

Vo-tech Program something needed for a long time--many young people will benefit.

Mechanics don't have necessary ability--think that vo-tech could do some real good as far as this is concerned.

I would think a centralized vocational college with emphasis on more common skilled and semi-skilled jobs would be a great asset both to the businesses in the Basin and the youth who are coming out of our high schools.

Doing pretty good--perhaps in furniture moving and crating them would be opportunities for training--hard to get.

I would like to see a training course for licensed practical nurses. If this course were close enough there would be many applicants.

Students attending NWCC are in a more favorable atmosphere than those attending Laramie.

Type I want (credit) cannot be trained--but business background with stress on accounting helps.

Need for more vocational training in this area.

Anybody to convince to go into service jobs should be done--getting very scarce--need to "upgrade" service jobs in the public mind.

A 2 yr. Assoc. Degree R.N. program would be excellent--universally needed.

Vocational school idea is great--skilled labor in area is purely by accident.

Our apprenticeship program is through Casper College Vocational Dept.--On job training, correspondence course and week of job training at Casper each year.

Programs should be developed that are directed toward development of skills and background of the individual to not only do a job capably but to convey and converse his ideas with the public.

Dental Assistant & Hygienist school--Dental Laboratory Technicians

Train more mechanics for automobiles. There is just no auto mechanics available.

Bigger demand for electronics

Training in dairying and dairying processing--

Short, concise courses for employees on salesmanship, public relations, logical solutions to simple problems.

We find we have more problems in hiring semi-skilled workers--mechanics--welders--electricians--carpenters--foremen--getting young people who can look and see things that should be done.

Vo-tech looks good.

Formal education does not play a big part in selection of our employees--Job experience is more desirable in most cases--

There is a need for more specialized training, such as welding, farm mechanics, etc.

Sheet metal work would fit in pretty well--

Plumbing

Hope Vo-tech works out good--needed--can't really "train" welders-until they have worked 4 or 5 years they can't really be 1st class.

Class on carburetion or auto transmission or something on that order.

Not much demand for welders so welding program not really needed.

Trade school-like development--doesn't even have to be on the college level.

Salesmanship training very helpful.

There should be some type of training for L.P.N. and R.N. both as there is a distinct shortage.

Feels there is good progress being made.

Glad to expansion of vocational carpenter, electricians, auto mechanics should have opportunities.

Good.

None. 6

A P P E N D I X A

QUESTIONNAIRE

CONFIDENTIAL

NORTHWEST COMMUNITY COLLEGE EDUCATION STUDY

Business and Industry Survey

Introduction: Northwest Community College is in the process of expanding its Occupational and Technical education programs to train students for entering gainful employment in business and industrial firms. It is the desire of Northwest Community College to establish quality programs that are needed and necessary in northwest Wyoming and the surrounding area. The results will be used for statistical analysis, and your firm will not be identified in any published reports.

PART I - General Information

1. Firm Name _____

2. Mailing Address _____

3. Name of Person Reporting _____

4. Your Job Title _____

5. Telephone Number _____

6. Please check the space opposite the description which best identifies the activities of your firm: (Check more than one if needed).

____ 1. Agricultural Services
____ 2. Advertising
____ 3. Banking and Finance
____ 4. Communication
____ 5. Construction
____ 6. Education
____ 7. Entertainment and Recreation
____ 8. Food, Dairy, and Drink
____ 9. Government-Federal, State, Local
____ 10. Health, Hospital, Medical Dental
____ 11. Hotel and Motel
____ 12. Industrial or Manufacturing
____ 13. Insurance
____ 14. Marine Services
____ 15. Printing and Publishing
____ 16. Professional-other than Medical and Dental
____ 17. Real Estate
____ 18. Retailing-other than Food, Dairy, and Drink
____ 19. Service Establishment
____ 20. Transportation
____ 21. Utilities
____ 22. Wholesaling

Other: (Write in Below)

____ 23. _____
____ 24. _____
____ 25. _____

PART II - Types of Jobs

(This section contains a list of jobs. You are to evaluate only those jobs that relate to your business or industry. You will notice that there are five categories, labeled I, II, III, IV, and V, which you are to respond to for each job).

I. This category refers to the amount of education that you require for entry in the job. If you think that the person entering this job could qualify with less than a high-school education, write the No. 1 in Category I beside the specific job. If you believe the candidate needs a high-school education, write the No. 2 in the appropriate space. If you believe the applicant should have some college education, write the No. 3; and, if you think that he should have a college degree, write the No. 4.

II. This category refers to the amount of education that you would desire the applicant to have under ideal conditions. If you believe that the person can either adequately do the job with less than a high-school education, write the No. 1. If you believe that the person should have at least a high-school diploma to most effectively do the job, write the No. 2 in the appropriate space, etc.

III. This category requests that you estimate the average number of employees on your payroll for this year that have performed the specific job you are evaluating, enter the number in the appropriate space.

IV. This category elicits your expected annual rate of employment for the years 1968 through 1970. If you think that the number of employees that you will need for the specific job will increase, check the column labeled increase. If you feel the number of employees that you will hire for this period will be the same, check the column labeled same; and if you think the number of employees for this job will decrease, check that column.

V. This category requests your opinion as to the supply of employees for each of the jobs you are evaluating that are in supply locally. Please check the appropriate column.

JOB CATEGORY	I EDUC. REQUIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	II EDUC. DESIRED 1. Less H. S. 2. H. S. 3. Coll 4. Coll. Dgr.	III AVERAGE No. on Payroll this yr.	IV Expected Annual Rate of Employment 1968-70 (CHECK ONE)			V Local Supply of Qualif. Employees (CHECK ONE)		
				In- 1 crease	2 Same	De- 3 crease	1 Scarce	Ade-2 quate	Sur-3 plus
A. INDUSTRIAL JOBS:									
637. Air Cond.,Refrig., and/or Heating									
723. Appliance Repairman									
001. Architectural Draftsman									

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JOB CATEGORY	I EDUC. REQUIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	II EDUC. DESIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	III AVERAGE No. on Payroll this yr.	IV Expected Annual Rate of Employment 1968-70 (CHECK ONE)			V Local Supply of Qualif. Employees (CHECK ONE)		
				In- 1 crease	2 Same	De- 3 crease	1 Scarce	Ade-2 quate	Sur-3 plus
INDUSTRIAL JOBS:(Cont.)									
734. Assembly Line Worker									
822. Automotive Technician									
621. Aviation Mechanic									
860. Boat Builder									
660. Cabinet Maker									
860. Carpenter									
022. Chemical Technician									
559. Chemical Worker									
018. Civil & Highway Technician-Surveyor									
*005. Drafting & Design Technician									
003. Electrical Technician									
825. Electrician - (Lineman)									
829. Electrician - (Wireman)									
828. Electronics Repairman									
003. Electronic Technician									
737. Explosives Worker									
183. Foreman-(First-Line)									
518. Foundry Worker									
141. Graphic Arts-(Printing)									

* Computer Programer, Computer System Analyst

JOB CATEGORY	I EDUC. REQUIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	II EDUC. DESIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	III AVERAGE No. on Payroll this yr.	IV Expected Annual Rate of Employment 1968-70 (CHECK ONE)			V Local Supply of Qualif. Employees (CHECK ONE)		
				In- 1 crease	2 Same	De- 3 crease	1 Scarce	Ade-2 quate	Sur-3 plus
INDUSTRIAL JOBS: (Cont.)									
424. Heavy Equipment Operator									
012. Industrial Technician									
003. Instrumentation Technician									
616. Machine Operator									
600. Machinist									
316. Meat Processor									
007. Mechanic-General									
007. Mechanical Technical									
011. Metallurgical Technician									
638. Millwright									
650. Miner									
735. Painter									
842. Plasterer									
550. Plastics Worker									
862. Plumber									
207. Printer-Offset									
579. Quality Control Technician									
869. Railway Worker									
866. Roofer									
804. Sheet-Metal Worker									
950. Stationary Operator									
869. Steel Worker									
905. Truck Driver									
810. Welder- (Skilled Craftsman)									
810. Welding Technician									
Other:									
Other:									

JOB CATEGORY	I EDUC. REQUIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	II EDUC. DESIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	III AVERAGE No. on payroll this yr.	IV Expected Annual Rate of employment 1968-70 (CHECK ONE)			V Local Supply of Qualif. Employees (CHECK ONE)		
				In- 1 crease	2 Same	De- 3 crease	1 Scarce	Ade-2 quate	Sur-3 plus
B. BUSINESS JOBS:									
160. Accountant									
141. Advertising and/or Commercial Art									
219. Bank Clerk or Teller									
210. Bookkeeper									
215. Business Machine Operator									
186. Business Management									
216. Business Machine Specialist									
209. Clerk Typist									
216. Computer Operator									
213. Computer Programer									
213. Computer Systems Analyst									
213. Key Punch Operator									
213. Tab Machine Operator									
213. Utility Computer Clerk									
912. Dispatcher									
201. General Office Worker									
216. Machine Accounting Specialist									
202. Medical Stenographer									
249. Merchandising									
208. Office Machine Operator									

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JOB CATEGORY	I EDUC. REQUIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	II EDUC. DESIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	III AVERAGE No on payroll this yr.	IV Expected Annual Rate of Employment 1968-70 (CHECK ONE)			V Local Supply of Qualif. Employees (CHECK ONE)		
				In- 1 crease	2 Same	De- 3 crease	1 Scarce	Ade-2 quate	Sur-3 plus
BUSINESS JOBS: (Cont.)									
293. Outside Salesman									
651. Offset Printers									
250. Real Estate, Insurance and/or Finance									
352. Receptionists									
185. Retail Management and Buying									
187. Sales Manager									
201. Secretary									
202. Stenographer									
Other:									
Other:									
C. SALES AND SERVICE JOBS:									
330. Barber									
312. Bartender									
332. Beautician									
311. Bus Boy									
913. Bus Driver									
211. Cashier (Retail Store)									
313. Cook or Chef									
373. Fireman									
187. Food Management									
407. Gardener (yard care)									
355. Hospital Attendant									
142. Interior Designer									
382. Janitor									
361. Laundry and Dry Cleaning Worker									

JOB CATEGORY	I EDUC. REQUIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	II EDUC. DESIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	III AVERAGE No. on payroll this yr.	IV Expected Annual Rate of Employment 1968-70 (CHECK ONE)			V Local Supply of Qualif. Employees (CHECK ONE)		
				In- 1 crease	2 Same	De- 3 crease	1 Scarce	Ade-2 quate	Sur-3 plus
SALES & SERVICE JOBS (Cont.)									
119. Law Enforcement Officer									
368. Marine Service Worker									
3 2. Plant Security Guard									
231. Postal Worker									
289. Salesperson (Retail)									
915. Service Station Attendant									
785. Tailoring Occupations									
350. Waiter or Waitress									
184. Water Management									
005. Water Treatment or Sanitation Worker									
Other:									
Other:									
D. AGRICULTURAL JOBS:									
187. Agriculture Business Management									
040. Agriculture Chemical Technician									
469. Agriculture Mechanic									

JOB CATEGORY	I EDUC. REQUIRED 1. Less H. S. 2. H. S. 3. Coll 4. Coll. Dgr.	II EDUC. DESIRED 1. Less H. S. 2. H. S. 3. Coll. 4. Coll. Dgr.	III AVERAGE No.on payroll this yr.	IV Expected Annual Rate of Employment 1968-70 (CHECK ONE)			V Local Supply of Qualif. Employees (CHECK ONE)		
				In- 1 crease	2 Same	De- 3 crease	1 Scarce	Ade-2 quate	Sur-3 plus
AGRICULTURAL JOBS (Cont.)									
529. Dairy Herdsman									
421. Farm Worker									
406. Nursery Worker									
187. Ranch Manager									
Other:									
Other:									
E. HEALTH AND MEDICAL JOBS:									
078. Dental Hygienist									
079. Dental Office Assistant									
078. Medical Lab Technician									
079. Medical Office Assistant									
354. Nurse (Practical)									
075. Nurse (Registered)									
070. Psychiatric Technician									
199. X-Ray Technician									
Other:									
Other:									
F. MISCELLANEOUS JOBS									
1.									
2.									
3.									

PART III - Employer Opinion and Practice

A. With respect to the requirements of your firm for entry employment, in what job categories do you employ young persons who have "dropped out" without finishing high school? (Please put check marks under the headings which best describe your firm's operating policies.)

Entry Job Category	Frequency of Employment			
	Common Practice (1)	Occasionally (2)	Infrequently (3)	Never (4)
1. Highly-skilled Jobs				
2. Business Office Jobs				
3. Sales Jobs				
4. Apprenticeship for Highly-skilled Trades and Crafts				
5. Semi-skilled Jobs (Assembly Line and Production Workers; Machine Operators)				
6. Service Jobs				
7. Unskilled Labor				

B. With respect to the requirements of your firm for entry employment, in what categories do you employ young persons who have just graduated from high school? (Please put check marks under the headings which best describe your firm's operating policy.)

Entry Job Category	Frequency of Employment			
	Common Practice (1)	Occasionally (2)	Infrequently (3)	Never (4)
1. Technician Jobs				
2. Highly-skilled Jobs				
3. Business Office Jobs				
4. Sales Jobs				
5. Apprenticeship for the Highly-skilled Trades and Crafts				
6. Semi-skilled Jobs (Assembly Line and Production Workers; Machine Operators)				
7. Service Jobs				
8. Unskilled Labor				

C. To what extent do existing educational facilities in the Big Horn Basin area meet the occupational training of each of the job categories in your firm? (Please put check marks under the category that best describes the training facilities).

Entry Job Category	Frequency of Employment			
	Very Well (1)	Fairly Well (2)	Poorly (3)	Not at all (4)
1. Technician Jobs				
2. Highly skilled Jobs				
3. Business Office Jobs				
4. Sales Jobs				
5. Apprenticeship for the Highly skilled Trades and Crafts				
6. Semi-skilled Jobs (Assembly Line and Production Workers; Machine Operators)				
7. Service Jobs				
8. Unskilled Labor				

D. Is there a formally organized training program in your company or firm?

____ 1. Yes ____ 2. No

E. If "Yes", please check each type of program you now operate on a formal basis:

____ 1. Apprenticeship
____ 2. Supervisory Training
____ 3. Technician Training
____ 4. Plant Management
____ 5. Job Upgrading
____ 6. Executive Development

Other: (Write in Below)

____ 7. _____
____ 8. _____
____ 9. _____

F. General Comments: (Add any comments which you, or other officials of your firm may wish to make about the improvement of education and training opportunities in the Big Horn Basin area. Include your suggestions as to the kind and level of educational programs which should be provided. Your comments will be of great value to the study.

_____

_____

_____

_____

_____

(If more space is needed, please use reverse side)

Please return this questionnaire at once in the envelope provided. Thank you for your interest and co-operation.

APPENDIX B

ADVISORY COMMITTEE MEMBERS

ADVISORY COMMITTEE MEMBERS

Vocational-Technical

1. Robert Lofland
   Pan American Oil Company
   Powell, Wyoming

2. Louis Kohnke
   High School Instructor
   Powell, Wyoming

3. Harold Hand
   American National Bank
   Powell, Wyoming

4. Dr. L. D. Kattenhorn
   Physician-Surgeon
   Powell, Wyoming

5. Ernest Mecca
   Wyoming Employment Service
   Cody, Wyoming

6. D. C. Norcross, Jr.
   Husky Oil Company
   Cody, Wyoming

7. Louis Kousoulos, Jr.
   Manager-Mayflower Cafe
   Cody, Wyoming

8. W. C. Headlee
   Big Horn Gypsum Plant
   Cody, Wyoming

9. James Hillberry
   Wyoming State Employment Service
   Cody, Wyoming

VT 012 534
Whypp, David A.
An Aviation Program--Getting it Off the Ground.

Aviation Distributors and Manufacturers' Association
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 7p.

DESCRIPTORS - *FLIGHT TRAINING; *HIGH SCHOOL STUDENTS; *COURSE DESCRIPTIONS; *PROGRAM GUIDES; HIGH SCHOOL CURRICULUM; INSTRUCTIONAL AIDS; TEACHER EDUCATION; PROGRAM DEVELOPMENT

ABSTRACT - This pamphlet provides guidelines for establishing a high school aviation course. Information is provided on program cost, instructir training, student requirements, program problems, and sources of materials. Although ownership of an airplane is not necessary, the program includes flying experience as well as ground school. (BH)

VT 012 534

ED0 57254

(1)

AN AVIATION PROGRAM---

GETTING IT OFF THE GROUND

by David A. Whypp
Lawrence High School
Trenton, New Jersey 08638

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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VT012534

The Aviation Distributors and Manufacturers' Association is pleased to be able to make available, with the author's permission, this account of his experiences in starting and running a high school aviation course.

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It was only a bit more than 65 years ago since the Wright Brothers made their historic flight, yet in those few years the field of aviation has grown to the second largest occupational field in the world. With this in mind there is little wonder why modern educators have turned their attention to the clouds, for this is where most of their brood will eventually migrate.

INITIATION

To start this type of a program it is imperative that someone initiate the proposal to the school system. Perhaps this sounds trite, but this is the big step. Procrastination is the number one cause of the unfinished. Matters are much easier, and things go smoother if an administrator starts it, but this is not a prerequisite. People in almost every educational area may be interested, but lack the guidance and desire to push the proposed program.

Interest can show in the science department, the math department, the history department or in any other department. No one department has a monopoly on teaching aviation, even though the science department is perhaps better equipped to handle the course. (Obviously, I'm prejudiced).

While in the process of introducing the course it is necessary to select an instructor. There are people who have a passing interest in aviation, but the instructor must exceed the casual interest stage. His time and energies will be needed to keep abreast of current aviation topics and to attain a degree of proficiency. This may sound like a homework assignment, but it will become more like a rash or a fever that takes over once the course begins. This is what your choice of instructor will have to handle.

TYPE OF COURSE

Once an instructor is selected, your course can be outlined and objectives can be stated. This is sequential, because not all instructors can teach a ground school type of course. Furthermore, it would be wrong to force one course when the instructor feels more comfortable with another. Thus, the choice can be historical, sociological, ground school, vocational, etc. depending mainly upon what the instructor can comfortably handle.

INSTRUCTOR TRAINING

If the gods are smiling on you, you may be lucky enough to find an instructor who has already been trained by the military. This is ideal, but in most instances he will have to be trained or at least refreshed. The following is a list of the ways of preparing your instructor for a professional handling of the course.

(Over)

1. There is a limited number of colleges and universities throughout the country where an instructor can refresh or gain basic principles for aviation education. Wichita State University is such a college. This school offers a three week course sponsored by Sanderson Films and Cessna Aircraft. The instructor is a top notch pilot and a former teacher of aviation education who knows the problems of the classroom. He, being a representative of Sanderson Films, used the latest in audio-visual aids, and thus enabled us to view the latest in teaching aids and textbooks.

Included in the course are five hours of actual flight experience. Whether this is an initial or a refresher type of training, it is a must. Teaching aviation without flight experience places the instructor at a severe disadvantage.

As a finale to the course, each student takes two FAA exams. Whether or not he passes is almost immaterial; the experience of taking the exams is its own reward. He has a chance to see for himself how the FAA sets up their exams. How well he relates this to his students will probably determine the degree of his success.

The quality of the surroundings, the living facilities, the instructors, the flight training and the use of current audio-visual materials is superior and recommended for those who can finance it. (Cost including transportation from New Jersey was approximately $500).

2. Back at your school district, aviation education is more meaningful if it can be translated into something concrete rather than all theory. To help, several companies provide their materials for your consideration. I have first hand experience with two of them:

- Sanderson Films have a complete line of audio-visual materials and aviation education supplies, but their film strip-record combination are outstanding. For an instructor who is weak and needs the professional touch, this is an asset. I personally use them as a review for the class after I have presented the basic topic.

- Jeppesen & Co. has an aviation course based mainly around overlays. These do a fine job for the teacher who knows his material and who can talk freely on the subjects. (Cost - $250)

These companies offer their materials as a kit or as individual segments, and they are expensive--just as other pieces of quality merchandise are.

3. Almost every airport conducts ground school classes in order to aid their student pilots to pass the Private Pilot exam. I was indeed fortunate in being able to audit classes at Trenton Aviation without charge. This is a way to become exposed to the facts of flight and also to talk and to discuss the practical aspects of flying. This serves to solve problems which occur in the classroom and to gain interpretations for printed facts.

4. Refreshers on basic facts of aviation in preparation for the FAA written exam are offered. This means three days of concentrated study with the finale being the exam itself. I doubt if a person could absorb all of the material in three days if it were the initial exposure, and, therefore, I feel that it is fine as a refresher but not as a basic course. Accelerated ground school offers such a course--cost $125.

5. Trenton State College is one institution which offers a semester course designed to whet the appetite of potential teachers with the fascination of flight. The same course is offered as a summer program. These courses are not necessarily technical in nature but strike all aspects with the hope of hitting an area of interest. Three credits and a fine time are had by all--cost $85.

6. Every year Cessna Aircraft invites ten teachers from across the United States to Wichita, Kansas to view the production of their aircraft and to exchange ideas. These teachers are selected based on their experience and their ability to develop innovations in the field of aviation education.

One day is spent in viewing airplane production. If nothing else was gained, and insight to the numerous career potential is enough to come away fully rewarded.

Another day is spent at the FAA Center in Oklahoma City, Oklahoma. The magnitude and the completeness of this organization is beyond description.

Finally a day was used to share teaching experience and innovations with the other nine teachers. In a new field such as ours, any hints or clue are appreciated and may open a door.

All in all the trip was more than just a success: it served to show that we are not fighting the masses alone and that someone beyond our classroom circle cares enough about our work to express their gratitude and to reward it.

STUDENT REQUIREMENTS

In considering students for enrollment, I place primary emphasis on desire. In fact I will accept students for my class weeks after the class has begun if they assure me that they have the desire and are willing to make up the back work. Too often a course like aviation is allowed to attract those who want only to reap the pleasure of the class but offer nothing in return.

Secondly, a student should be 16 years of age or reasonably close. The reason is that the FAA requires that a student be 16 in order to solo.

The size of the class is not a magic number, but 15 students per class is about right--especially when each tries to open up a navigational chart.

(Over)

INITIAL PROBLEMS

Problems in a class of this type are many, but none are beyond solving. Your first meeting with the students will probably make you instantly aware of the fact that they are sold on the course and that they think that they are ready for flying. Thus your job is to temper their appetite but not destroy it. Their ambition is infectious and before you know it, you too are trapped.

Our course is designed to provide the students with a flight type of experience as opposed to the dull, monotony of straight classes, and hence flying is a must. We knew that the student would have to finance his flight time, so the first contact was with Trenton Aviation. They agreed to permit three students to fly in a Cessna 172 with an instructor for the cost of eight dollars per student. Each would handle the controls for a half an hour while the other two would look on as observers, and as a result they received 1 1/2 hours of flight time for eight dollars. The normal fee is $21 per hour with an instructor.

As another inducement a triangular flight was suggested for when the students became more proficient in navigation and flight planning. Each student would plan and fly one leg of a three-legged cross country trip which would cover parts of New Jersey, New York and Pennsylvania. The time of this flight was about three hours, and the cost was eleven dollars per student.

These two proposals were quite conducive and inviting, however the cost was still beyond some of the students. Although we were quite positive in stating that none of the students were required to fly in order to pass the course, we were interested in getting all of them familiar with the handling of a plane. It took much leg work, but we managed to partially solve this problem by purchasing a Link trainer. This was done mainly through the financial support of the State Department in the form of a "Minigrant." This grant paid for the trainer and for its maintenance. Although this tool has not been the asset that we expected, it does provide a stimulus during those winter months when little actual flying is done.

Perhaps you wouldn't expect it, but timing is a major problem. You have to set your own pace and gauge yourself to complete your course on time. In our system the students take the FAA exam, but it is not required that they pass this exam to pass the course. Since a majority of the non-pilots are kept from their license by their inability to pass this written exam, it was felt that we would render the students a service if we could prepare them and then allow them to take the exam. To make conditions more attractive, an FAA examiner agreed to administer the exams at our school. As you can see, the need to set a tight schedule and keep it, requires letter-perfect planning and timing.

In case anyone is interested, I do not feel that an airplane is an absolute necessity in such a program. In fact, I feel that the liability, insurance, and maintenance cost more than the advantages are worth. Certainly, I'd like a plane of our own, but we are not mechanically or financially in a position to handle one.

STUDENT RESPONSES

The magic and romance of flying has lost some of its luster, but it still holds enough to draw students without a recruiting program. They come from all parts of the IQ scale, and their final product is equally unpredictable. Last year a senior came to me, asked for admittance and convinced me of his intentions. I accepted him, and later I was told that he was one of the most undersirable students in school. In my class he was most cooperative and spent dozens of extra hours talking aviation with me after school. He progressed so well that he received the highest grades in the class and on the FAA exam.

He ultimately won a $200 Flight Scholarship that was offered by Trenton Aviation. But the story does not end here. The student needed more money for flight time, and got a job in a local hamburger parlor. But, this was still not enough. Then he acted in a manner that did more to illustrate my point than could be expected. The teen-aged potential-drop-out sold his car, paid for his lessons and was the first to receive the coveted Private Pilot's license. This not only restored my faith in man, but also earned me the undying gratitude of a most thankful father.

In this day when students seem to lack an allegiance to anyone or anything, I find that they seem to have a common tie among themselves when they take aviation. The tie is a separate language and, of course, the idea that they can do something (flying) that most others cannot. Most of the students are not the college prep type, and therefore, take pride in this accomplishment.

I've been teaching for 14 years, and in that time I've never had a student ask to audit my class, yet I have a long list of students, teachers, my principal and janitors who are regular auditors in my class. I'm sure such a deed requires an effort on their part to report and to be active without a reward, yet they come. These are the things that make up for the long, arduous days.

SOURCES

The following is just a partial list of the agencies that are willing to help you and your class for no charge or at least a very nominal fee.

1. The FAA is a superior source for current films and pamphlets at no charge.

2. The Government Printing Office has a catalogue of materials both free and inexpensive.

3. The National Coast and Geodetic Society offers outdated navigational charts for classroom work at no cost.

4. Friends, organizations and parents from within your locality will offer assistance and materials once your program is brought to their attention. Your job--make it big with stories and pictures in the local newspapers.

(Over)

5. A letter to your nearby Air Force Base, Aeronautical Testing facilities, airport, universities, etc. will also produce no-cost field trips that mean so much in bringing reality to the classroom.

6. Local industry is one of the widest fields of untapped material that you could want. They are most cooperative IF you tell them your needs.

7. If I were to begin an Aviation course today, the first letter would go to one of the major aircraft manufacturers such as Cessna. They are only too willing to let you know what has been done along your lines and aid you in whatever manner that they can. Incidentally, each company has received hundreds of requests for aircraft, so don't be disappointed if you're turned down for hardware.

8. Last but certainly not least--the airlines. They have materials, tours and career information that shouldn't be missed.

COST

Not including the salary for the teacher, our course costs well below $800 per 15 students. This included the FAA Handbook which is our text, the Federal Air Regulations, computers and plotters, a set of Jeppesen transparencies, a set of Aviation Encyclopedia, an in-service training course for the teacher and scores of miscellaneous reference materials.

CONCLUSION

The above material and information are presented in the hope that they will be of help to someone who is in the process of beginning a course in Aviation and could use a little aid in getting their feet off the ground. Sometimes a little push at the right time produces immeasurable results.

VT 012 536
New England Labor and the Economy at Year-End 1970. Regional Report Number 71-1.

Bureau of Labor Statistics (DOL), Washington, D.C. New England Regional Office.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 29p.

DESCRIPTORS - *EMPLOYMENT LEVEL; *ECONOMIC CLIMATE; ECONOMIC RESEARCH; EMPLOYMENT TRENDS; *COLLECTIVE BARGAINING; BUSINESS CYCLES; *MANPOWER NEEDS; LABOR FORCE
IDENTIFIERS - *NEW ENGLAND

ABSTRACT - With inflation slowing but still the second largest in 20 years, wages and prices hit record levels in New England at the end of 1970. Even though weekly earnings more than kept up with price rises, much greater increases resulting from large negotiated hourly wage increases were prevented by reductions in hours of work, as production and employment fell. Decreases in manufacturing employment were only partially offset by expanding employment in other industries, resulting in a net drop in employment in the region. (BH)

VT 012 536

ED0 57254

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NEW ENGLAND LABOR AND THE ECONOMY AT YEAR-END 1970.

I. Manpower and Employment
II. Prices and Cost of Living
III. Wages and Labor-Management Relations

Regional Report Number 71 - 1

U. S. DEPARTMENT OF LABOR
James D. Hodgson, Secretary

BUREAU OF LABOR STATISTICS
Geoffrey H. Moore, Commissioner

NEW ENGLAND REGIONAL OFFICE
Wendell D. Macdonald, Director

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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NEW ENGLAND LABOR AND THE ECONOMY AT THE YEAR-END

I. Manpower and Employment
II. Prices and Cost of Living
III. Wages and Labor-Management Relations

SUMMARY

At the end of 1970, the New England record showed new highs for both wages and prices but a downward slide in employment. The Consumer Price Index rose slightly less in 1970 than in 1969 but still recorded the second largest advance in twenty years. Some prospects of a slower retail price rise was seen for the future as wholesale price movements were almost horizontal in both October and November. The cost of an intermediate budget for a four-person family was over $12,000 in Boston, second only to New York among large U. S. cities.

Although prices skyrocketed, weekly earnings of factory workers rose at a slightly higher rate than prices, resulting in a net increase in real spendable earnings of one-half of one percent. Major contract settlements between companies and unions contained yearly wage gains over the life of the contract of 9.6 percent this year compared to 7.6 percent in 1969. Reduction in hours of work, reflecting production cutbacks, limited the rise in weekly earnings in spite of large negotiated hourly rate increases.

Although New England employment was higher by October than in any other October on record except October 1969, it is clear that the employment tide had begun to recede by last June. Total nonagricultural employment, the record shows, had made a year-to-year gain each month since 1961 up until six months ago . If factory jobs alone are considered, the record of 1970 is substantially weaker since employment outside of manufacturing--trade, services, insurance, government--has actually expanded, making up for much of the loss in the factories. The region's factories this year provided fewer jobs than in any October since 1958. Both hard and soft goods industries have been in the minus column during 1970 with respect to employment changes. Prominent losers in the region's employment cutbacks this past year have been electrical equipment, transportation equipment, fabricated metals, and scientific or controlling instruments in the hard goods sector.

Among nondurables, the greatest declines in numbers on the payrolls were in textiles, shoes and leather, and rubber and plastics. Construction employment continues to run below a year-ago in New England.

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I. MANPOWER AND EMPLOYMENT

Comparisons With 1969 Worsened As 1970 Wore On Although Total Employment Remained High

Nonagricultural employment in New England totaled 4,489,600 in the midweek of October 1970, the latest month for which data are available. Although this army of workers numbered nearly 59,000 fewer than the all-time October high attained in 1969, it surpassed any other October since record keeping began.

Each of the first five months of 1970, measured against its 1969 counterpart, recorded gains in nonfarm employment. The tide began to ebb in June, however, and monthly comparisons with last year became progressively poorer until October's nonfarm job shortage reached 59,000 with little tangible evidence pointing toward important improvement over the remaining two months of 1970.

"Same Month Year-Ago" Total Employment Declines Have an Interesting Historical Pattern

Over-the-year nonagricultural job deficits, while not rare, are relatively uncommon. Between January 1947 and October 1970--a span of 286 months--there have been 69 occasions when nonfarm employment failed to equal its previous year mark. Typically, these occurrences have been associated with full-blown recessions. Thus, the deep employment decline extending from the last two months of 1948 through April 1950, the 1954 depression involving also two months of 1953 and

three of 1955, together with the severe setback affecting late 1957 and all of 1958, accounted in the aggregate for over 70 percent of the number of "same month year-ago" deficits.

In years less heavily stricken by employment recession, the first seven months of 1952 lagged under 1951, borne downward particularly by the steeply sliding textiles. In December 1960 and early 1961, shallow nonfarm employment dips under previous year totals were attributed to sluggish conditions in electronics and in machinery manufacture along with weakness in textiles.

Since 1961, there was no month when nonagricultural employment failed to record a year-to-year gain until June 1970. Since then, however, each month has dipped further below its year-ago mark. Accordingly, the big question becomes: "Is the current decline to be a short-lived phenomenon in the style of 1952 or 1960-61, or does it foreshadow deeper drops of the order of magnitude of 1948-49, 1953-54, or 1957-58?"

Manufacturing Jobs Declined

Factory employment, historically more volatile than total nonagricultural, totaled 1,405,000 in mid-October compared with 1,529,000 in October 1969. Not since 1958, when a tenth-month manufacturing job total of 1,403,000 was reported, has New England's October factory been at so absolute a low. Virtually all of the numerical gain in factory jobs scored during the great employment boom beginning in 1964 has been eroded away in the manufacturing slide which began in early 1967 and is still in progress.

Durables Were the Heaviest Losers From 1969
But Remained At a Relatively High Mark

From October 1969, when 858,000 Yankee workers were busied in durable goods fabrication, slackening activity thinned their ranks to 773,100 in October 1970. However, despite the losses, the October 1970 count exceeded that of any other recorded October save those of 1965 through 1969 and of long-ago 1953 when 777,000 durable goods operatives staffed regional mills and factories.

The unimpressive month-to-month course followed by New England's durables thus far in 1970 is an extension of a downward movement which began quite slowly as long ago as early 1967 and intensified into a steep slide around January 1969. From the cyclical peak of 885,000 reported for January 1967, the subsequent four years of declining employment in hard goods have witnessed the loss of 112,000 jobs. Erased during this retreat has been 77 percent of the gains in durables scored during the cycle's advancing phase.

Industries Which Paced the Advance
Now Lead the Decline

During the great 1964-67 upsurge, about 93 percent of all durables' gains were scored by six industries --electrical equipment, transportation equipment, machinery, fabricated metals, scientific and controlling instruments, and ordnance.

Between the start of the downward movement and October 1970, the same group, with the exception of ordnance, lost 106,000, about 72 percent of all of the gains achieved by the durables while the boom

prospered. Thus, the greatest volatility--both upward and downward--resides in these six. It seems reasonable to impute rather direct connection between employment rates in these industries and national expenditures for defense, capital goods investment, space exploration, and consumers' durables.

Government purchases of goods and services for national defense is reported at an annual rate of $75.8 billion during the third quarter of 1970 compared with a rate of $79.8 billion during the same quarter of 1969. Gross private domestic investment expenditures reported an estimated 1970 rate of $138.3 billion during the third quarter of this year compared with $143.8 billion a year ago. Adding to the doubtlessly adverse effect upon employment of these retrenchments, prices related to the total Gross National Product rose more than five percent over the same period. Together with annual productivity gains, this price rise has acted to dampen the employment generating capacity of each of the already decreased number of dollars invested in defense by the government or in capital goods by the private sector.

Consumers' durables expenditures totaled $91.2 billion compared with $89.5 billion in the third quarter of 1969. Here also, price advances during this period were about five percent. Taken together with normal annual productivity gains, such a price increase suggests that even the modest $1.7 billion boost was not translated into comparable employment increases.

Nondurables Declined Relative to 1969
And Approached Historical Lows

Nondurables fabrication furnished employment to about 632,200 workers at mid-October 1970. Not only 39,100 below October 1969 but lower than the total recorded for the tenth month of any year--this month ranked next to July 1970 for the dubious distinction of lowest soft goods employment reported for any modern month for which records are available. 1970 began with a deficit of 18,500 nondurable jobs below January 1969. Employment weakened progressively almost without interruption, and in October all of the nine industries in this sector of manufacturing were below their year-ago positions. Heaviest single loss was that of textiles (9,200), while rubber and plastics and leather and leather products followed fairly closely (7,300 and 7,200, respectively). Lightest declines were those of food processing and chemicals, each losing fewer than 1,000 jobs.

Historical Trends in Nondurables
Vary Between Industries

There have been marked differences in the post-World War II employment histories of New England nondurable goods industries. Four of them--paper products, printing and publishing, chemicals, and rubber and plastics--gained an aggregate of 54,200 jobs between 1947 and 1969--the last year of complete data. Over the same time, however, the remaining industries lost 228,500 for a nondurables net decrease of 174,300 over the period. In 1970, as indicated earlier, the long-term

losses were extended, and the long-term gains of the four stronger industries were diluted by cyclical weakness during the year's first ten months.

Textiles the Chief Source
Of Employment Loss

Among the nondurable industries suffering declines, textiles' experience has been by a wide margin the most drastic. From about 280,000 workers in 1947 and 1948 the rosters of the industry, once New England's largest and still its sixth manufacturing line, have dwindled to the current 76,000.

Indeed, it is to the fading away of textile employment over the decades that most of the secular weakness of the nondurables category can be traced since, considered apart from textiles, the rest of nondurables employment in the region actually increased from 580,600 in 1947 to 586,000 in 1969.

Compared to the textiles record, that of leather and its products, while trending downward over the long term, has been relatively orderly. Unlike regional textiles, the New England shoe industry--largest component of leather products--long was successful in retaining its relative share of American production. According to industry sources, however, the decreasing share of the total footwear market claimed by American production, especially during the past few years, has been insufficient to maintain traditional volumes of employment. Resulting

painful losses have beset communities in which the industry is a major economic influence. Late in 1970, little evidence of improvement was visible.

Nonmanufacturing Jobs
Increased in 1970

Unlike regional manufacturing, New England's huge nonfactory industries added workers in 1970. The average increase during the year (or more properly, the first ten months) was, however, the lowest since 1964. Measured against the single month of October 1969, the aggregate gain in nonfactory jobs was 64,700 with only construction failing to share in the upward movement. In that industry, 6,000 fewer workers were employed than a year ago.

The rank order of gains from October 1969 reported by other nonmanufacturing industries was 22,900 by the service industries, 20,000 by trade, 16,000 in government (mostly state and local), 8,600 in finance, insurance and real estate, and 3,000 in transportation and public utilities.

II. Prices and Living Conditions

Prices Again Reach Peak Levels in 1970

In October of 1970, Boston wage earner and clerical worker families had experienced a decade of steadily rising prices with the cost of the day-to-day necessaries of life advancing 39.5 percent. The January-to-October portion of this ten-year increase of almost 40 percent was 4.6 percent, less than the 5.3 percent advance in 1969, but nevertheless the second highest advance through October in the past twenty years. The annual rate of change, October 1969 to October 1970, was 5.6 percent, also down from the October 1968-October 1969 price rise of 6.4 percent, but still the second highest annual rate of advance since 1951. At the national level, the consumer saw the retail cost of goods and services increase 4.3 percent compared with Boston's 4.6 percent during the first three-quarters of the year.

The Boston consumer found 1970 to be similar in many ways to 1969. All of the major groups of consumer goods and services were higher in October than in January. Food prices advanced 3.2 percent, housing 5.1 percent, apparel 7.5 percent, transportation 3.4 percent, and health and recreation 4.8 percent. In the same period a year ago, food had increased 4.9 percent, housing 6.4 percent, apparel 8.0 percent, transportation 2.2 percent, and health and recreation 4.7 percent. Only the rate of change, 4.6 percent in 1970 as opposed to 5.3 percent in 1969, was different, and it would be safe to say that the consumer was not aware of the fractional decline in the rate at which retail prices were rising during the year.

Inflation Continues Through A Decade

Since the first quarter of 1960 consumers residing in the Boston metropolitan area have lived with the problem of inflation. Retail prices have advanced each year without interruption, and at the end of the January 1960-October 1970 period the cumulative change amounted to 39.5 percent as previously noted. In this period of time, food prices increased 39 percent, housing 41 percent, apparel 37 percent, transportation 35 percent, and health and recreation 43 percent. Over the decade the consumer dollar in the Boston area declined in purchasing power from 98 cents in January of 1960 to 70 cents in October of 1970, a drop of 28 cents, or 29 percent. In each of the past two years, this area's wage earner's dollar has lost four cents a year in purchasing power because of the inflationary spiral.

Earnings Shrink

Over the first ten months of 1970, gross average weekly earnings of the Boston factory production worker advanced from $132.72 in January to $140.04 in October for a gain of 5.5 percent. Net spendable earnings after deductions for Federal income taxes and Social Security payments for a Boston factory worker with three dependents showed a gain of 5.0 percent. The "real" net spendable earnings of the same factory worker with three dependents--that is his net spendable earnings adjusted for changes in the Boston Consumer Price Index--showed a net gain of less than one-half of one percent through October.

Over the year, October 1969 to October 1970, the same factory worker with three dependents found his "real net spendable earnings" had increased only 1.4 percent since living costs had gone up 5.6 percent.

Food Costs Keep Going Up But At Slower Rate

Although food prices continued to advance during 1970, the rate at which they advanced during the first ten months of the year, 3.2 percent, was down from the 4.9 percent rise of the same 1969 period. Several of the food group components softened their sharp price rise during the year. Meats, poultry and fish, for example, averaged 3.7 percent higher in October than in January. A year-ago, the same group had shown a January-to-October gain of almost 10 percent. Increased production of red meats and poultry items during the year contributed to the general softening of meat prices.

A ten-month advance of less than one percent in the prices paid for fruits and vegetables was good news to the Boston housewife. For the second consecutive year, generally favorable growing and harvesting conditions made ample supplies of most fruits and vegetables available to the consumer. Early in the year, difficulties in California--a rain delayed harvesting of potatoes and labor troubles in the lettuce and celery fields--caused price rises in the winter crops of these three commodities. Over the year the available supply of a wide variety of fruits and vegetables improved, and retail prices in the Boston metropolitan area declined more than 6 percent between

June and October. Dairy products advanced at about the same rate as the previous year, 2.8 percent in 1970 and 2.6 percent in 1969.

The cost of food away from home, restaurant meals, continued to move ahead without interruption. For over fifteen years, the cost of "eating out" has advanced each year, and for the past three years has averaged about 5 percent per year. There was one bright spot in the food picture toward year's end. The Farm Products, Processed Foods and Feeds segement of the Bureau's comprehensive Wholesale Price Index, often the forerunner of price changes at the retail level, turned downward in the September-October period and was down almost 2 percent from its January level. Farm products--fruits and vegetables, grains, livestock, poultry, fluid milk and eggs--were down almost 4 percent between September and October and close to 5 percent since January. The cost of processing farm products was fractionally lower in October than in January, down 0.2 percent.

Shelter Costs Follow General Price Rise

The cost of keeping a roof over the family's head, homeownership and rent, was up 5.1 percent in the first ten months of 1970 and almost 7 percent since October a year-ago. For the homeowner, the pressures came from a number of different directions. Home purchase prices, mortgage interest rates, residential property tax rates, home maintenance and repair costs, heating costs, and residential telephone costs were mostly higher at the end of the year. The uninterrupted advance in residential rents continued in 1970. The January-October rent

increase of 3.1 percent exceeded the January-October advance in each of the past fifteen years.

Because of the prolonged upswing in rental costs, 18 years without a downturn according to the Bureau's quarterly survey of residential rents, an emergency rent control bill was signed by the Governor on August 31, 1970. Because of the emergency nature of the bill--the bill gave local communities the option of imposing rent controls--the legislation took effect immediately. Several communities--Boston, Cambridge, Brookline, and Somerville--sought to implement the local option bill by initiating rent control ordinances, rent appeal boards, and/or rent review boards. A variety of legal actions has stayed the implementation of the rent control law. The Cambridge and Brookline rent cases are scheduled to be heard in the Supreme Judicial Court early in 1971. A continuation of the tight money situation, including mortgage interest rates reaching and even exceeding the 8 to 8½ percent level during the spring of the year, limited the expansion in residential construction. The cost of running the home--household operations, services, furniture, major appliances, floor coverings and textiles --moved up over the year.

Transportation Costs Higher in 1970

The cost of getting to where one wanted to go showed a gain of 3.4 percent between January and October in 1970. The price hike was centered primarily in the private sector. New and used cars, regular and premium gasoline grades, tires and auto repair and maintenance costs

were higher at the end of the year than at the beginning. The General Motors strike created a multitude of problems nationally and locally. In addition to the curtailment of production, local dealers shifted their efforts to the promotion of 1970 models and the "cream-puff" variety of used cars. Used car prices were up substantially over previous years. Manufacturers' suggested retail prices on new model passenger cars, after adjustment for quality changes, were up an average of $226, or almost 6 percent over a year-ago. The increase covers a representative list of domestic cars except for the newly introduced sub-compacts. Prices for the basic vehicle and most optional equipment rose significantly when compared with last year's models.

The increase in public transportation costs, less than one-half the increase in the private segment, was the result of the upward adjustments in rail and plane coach fares and intercity bus fares. Local transit fares were unchanged over the year. The overall cost of transportation, private and public, advanced at a faster rate than at any time during the past fourteen years.

Health and Recreation Costs Continue Steady Advance

Health and recreation costs increased 4.8 percent during the first three quarters of 1970, an increase comparable to the five-year average of 4.4 percent per year. The composite group of health and recreation costs saw the cost of medical care increase 5.4 percent, personal care 3.2 percent, reading and recreation 6.9 percent, and miscellaneous goods and services 2.7 percent. The reading and recreation advance

was due in great measure to the hike in the price of newspapers sold on the street and at the newstand. The four major newspapers advanced the on-the-street price from 10 to 15 cents in November. New subscription rates, incorporating higher production and distribution costs, also advanced.

The cost of medical care went up 6.9 percent in the October 1969 to October 1970 period, and this twelve-month rise in the cost of keeping well paralleled the advance of 7 percent in the previous twelve-month period. Higher professional fees, hospital room and board rates, hospital services, health insurance, and ancillary services were reported over the year. Technological changes, higher overhead in the form of labor costs, materials, and services were the principal contributors to the medical care increase.

Very few items or categories of items escaped the upward price push during 1970. Less publicized than most items included in the Bureau's retail price index but trending upward over the year were college tuitions, theatre admissions, tobacco products, alcoholic beverages and, last but by no means least, the cost of the adult funeral service.

Cost of Intermediate Family Budget Up 7 Percent In 1970

The annual cost of an intermediate budget for a four-person family in the Boston metropolitan area in the spring of 1970 was $12,037, an increase of 7 percent over spring 1969 costs. The four-person family--a 38-year-old husband employed full time, a wife not employed outside

the home, a boy of 13, and a girl of 8--found that prices paid for living essentials had gone up by 7 percent, or $784, in the spring 1969-spring 1970 period. Food and housing costs, representing almost two-thirds of the family budget were up $318, or 5.8 percent, in the twelve-month period. Clothing and personal care items costing $1,082 in the spring of 1969 had advanced to $1,166 in the spring of 1970 for a gain of 7.8 percent. The cost of medical care of the family unit increased 6.8 percent ($38), and miscellaneous family costs such as reading and recreation, tobacco products and alcoholic beverages, education and legal services, went up 6.2 percent ($40). The tax bill, personal income taxes, for the Boston family was $1,964 in the spring of 1970, up 16 percent, reflecting a higher dollar base on which the tax bill was computed and an increase in state taxes. Boston retained its ranking as the second highest living cost city on the mainland. New York, number one, and Boston were the only two cities on the mainland where the dollar cost of an intermediate budget exceeded $12,000 for the four-person family unit.

III. WAGES AND LABOR-MANAGEMENT RELATIONS

The impact of divergent economic pressures was nowhere more clearly marked than in reviewing the wage and earnings record for the year. Wage hikes resulted in hourly earnings of production workers advancing from 13 to 20 cents an hour in all of the New England states. However, the reduction in hours worked, ranging from 3 tenths of an hour in Maine to 1.6 hours in Connecticut, limited the advance in weekly earnings. As a result, weekly earnings in Connecticut were only $1.15 above those of a year ago. By contrast, in the remaining New England states where the hours reduction was less marked, earnings were generally $4 to $5 a week higher than in October 1969. In spite of the hours reduction, however, weekly earnings in Connecticut, $140.59, still exceeded the national average, $133.85, as well as that for the other New England states. Production workers in Massachusetts averaged $127.05; Vermont, $122.29; Rhode Island, $111.93; Maine, $109.85; and New Hampshire, $109.82.

Reflecting inflationary pressures, settlements were reached over the course of the year at successively higher levels. For the first 9 months, major contract settlements called for wage increases of 9.6 percent a year over the life of the contract, as compared with 7.6 percent for the year 1969. In construction, increases averaged 14.4 percent, compared with 13.1 percent in 1969.

Wages and salaries in local labor market areas also showed a steady upward climb. The Bureau's 1970 Boston Area Wage Survey in August indicated that over a 12-month period wages and salaries of skilled maintenance workers had advanced by 8.4 percent, clerical employees by 7.5 percent and unskilled plant workers by 5.7 percent. Salaries of industrial nurses increased 8.8 percent over this same period.

Professional and administrative salaries reflected similar increases over the past year. Across the United States, salaries of accountants rose 6.7 percent, buyers 6.1 percent, chemists 5.9 percent and engineers 5.5 percent. Salaries of directors of personnel were up 7.4 percent, while those of attorneys in company practice advanced 7.1 percent. As a result of these hikes salaries of professional personnel during their first year of employment after the Bachelor's Degree averaged as follows: accountants, $8,503; buyers, $8,512; chemists, $9,164; and engineers, $10,209 a year.

Durable Goods

The General Electric settlement with the International Union of Electrical Workers and United Electrical Workers affected the largest number of New England workers over the course of the year. On January 26, 1970, following a 3-month strike, the parties signed a 40-month contract covering 106,000 employees. Included were some 26,000 workers at General Electric plants in Lynn, Everett, Fitchburg, Ashland and Pittsfield, Mass., and Bridgeport, Conn. The agreements with a coalition bargaining group of fourteen unions called for an immediate 20-cent-an-hour pay hike, with additional increases of from 5 to 25 cents an hour for skilled workers and for 15-cent-an-hour general pay hikes during the

second and third years. The escalator clause was revised to provide cost-of-living increases of up to 8 cents an hour in October of each year.

The General Motors-United Auto Workers settlement in November affected 7,000 New England workers in Framingham and Westwood, Mass., and Bristol, Conn. The agreement following a 2-month strike called for an average 51-cent-an-hour increase the first year and additional hikes of 3 percent in 1971 and 1972.

Settlements in the metalworking industries in New England generally called for pay hikes of from 6 to 7 percent, or 20 to 28 cents an hour, during the first year. Typical were the following: In June, Sylvania Electric Products and a group of unions settled on a 23-cent general hourly increase covering 10,000 workers, 2,500 of whom are employed at plants in Ipswich, Danvers and Salem, Mass. In New Britain, Conn., the Fafnir Bearing Co. and United Auto Workers settled on a 20-cent hike for 4,200 workers in April 1970. During April also, following an 8½-week strike, the UAW and Avco Corporation's Lycoming Division in Stratford, Conn., signed a 3-year contract covering 4,500 workers and calling for a 6-percent pay hike during 1970.

In Northern New England, the largest metalworking settlement involved 2,100 members of the Industrial Workers of Machine and Shipbuilding Workers of America employed by the Bath Iron Works Corp. The settlement which brought to a close a 6-week strike called for a 28-cent-an-hour pay hike with additional increases of 24 cents an hour in June 1971 and 18 cents an hour in June 1972.

Nondurable Goods

Negotiations in the soft goods sector were highlighted by the June settlement between Uniroyal, Firestone, Goodrich and Goodyear Rubber Companies. An estimated 10,000 New England workers are employed by the "Big Four" at Fall River, New Bedford and Chicopee, Mass., Providence and Woonsocket, R.I., Windsor, Vermont and Naugatuck and Shelton, Connecticut. The basic pattern called for general increases of 30 cents an hour the first year (45 cents additional for skilled workers); 26-cent-an-hour general increases (36 cents additional for skilled workers) in July 1971; and 26-cent-an-hour increases for all workers in July 1972. In an unusual development, some 4,000 employees at the Naugatuck Footwear Division of Uniroyal, Inc., in Naugatuck, Conn., voted to forego the wage increase provisions of the total settlement in return for a commitment by the company to continue production at that location over the life of the agreement. Earlier an announcement had been made that the plant would close because of the pressure of foreign imports.

Contracts in the women's dress industry generally expired during 1970. About 20,000 workers in New England, primarily in Boston, Fall River and New Bedford, Mass., and Providence, R.I., received increases resulting from subsequent negotiations between the International Ladies' Garment Workers' Union and dress and sportswear manufacturers. The agreements called for a 10 percent pay hike the first year, 5 percent the second and third years, and increases of 2½ percent of payroll over the life of the agreement to provide improved fringe benefits.

Negotiations in the pulp and paper industry brought increases to 15,000 New England workers over the course of the year. Settlements between the Pulp, Sulphite and Paper Mill Workers and the United Papermakers and Paperworkers Unions with the Brown, Great Northern, International, Oxford, Scott and Weyerhauser Paper Companies generally called for increases of from 6 to 7 percent a year over a 2-year period.

Transportation

Negotiations in the over-the-road trucking industry brought substantial increases to 20,000 New England truckdrivers. National agreements reached in July, following a refusal by Chicago Teamsters to accept an earlier agreement, called for $1.85 an hour in pay increases over a 3-year period with first-year increases of 35 cents as of April 1, 1970, and 15 cents additional on July 1, 1970.

Public Utilities

Settlements in the electric and gas utility industry generally called for pay hikes of from 8 to 9 percent. Typical was the New England Electric System settlement with a number of unions representing 4,500 workers at plants in Massachusetts and Rhode Island. The 2-year contract called for 8½ percent, plus 2 cents, in April 1970 and an additional 8 percent in April 1971. Following an 11-week strike, the Boston Gas Co. and District 50 signed contracts in January 1970 which provided pay hikes of 9 percent the first year and 8 percent the second year. The Central Maine Power Co. agreement with the IBEW called for an 8½ percent hike, plus 3 cents the first year, and 8 percent in May 1971.

Construction

Increases in the construction trades, however, continued to outdistance all others. The median increase negotiated over the first 9 months called for a 17.5 percent pay hike the first year and 14.4 percent if increases were averaged out over the life of the agreement. Two major settlements between the New England Road Builders Association, covering 5,000 laborers in Conn. and 3,000 operating engineers in Mass., called for total wage increases of $3.40 and $3.30, respectively, over a 3-year period.

By October 1970, the union scale in Boston for plumbers was $7.60, electricians $7.50, bricklayers $7.25, carpenters $6.65, plasterers $6.25, painters $6.075 and building laborers $5.35.

Government

Salaries of an estimated 5.2 million military and civilian personnel employed by the Federal Government were increased 6 percent during 1970. The pay bill signed by President Nixon on April 15 made the increase retroactive to December 27, 1969. In August when the United States Postal Service was established as an independent agency, postal employees received an additional 8 percent pay hike retroactive to April 16, 1970.

In Boston, minimum salaries for patrolmen on the Boston Police Department were raised to $10,300 after 3 years of service. Salaries of teachers were raised to $7,600 to $12,900 at the Bachelor's level; $8,200 to $13,700 at the Master's level; and $9,400 to $15,300 at the Doctor's level. The new scale became effective when the Boston School Committee accepted an arbitration award covering the 5,000 teachers in the Boston School System.

Cost-of-Living Increases

In spite of rising prices, there were few major changes in the number of workers covered by wage escalator clauses. At the beginning of the year, 2.6 million workers in the United States were covered by such clauses, the majority calling for annual adjustments with a maximum limit, typically a "cap" of 6 to 9 cents an hour.

Several major contracts renegotiated over the course of the year called for the following: General Electric agreements in January 1970 called for annual reviews in October 1970, 1971 and 1972, with a maximum limit of 8 cents an hour; trucking agreements in July called for an annual adjustment in October 1971 and 1972, with a cap of 6 cents an hour. In contrast with this trend, the United Auto Workers' agreements with General Motors and Ford called for a restoration of unlimited COL increases with the first adjustment in December 1971 and following this a return to quarterly adjustments.

In addition to the estimated 50,000 New England workers covered by the General Electric, automotive and trucking agreements, COL adjustments are received by large numbers in the aircraft engine, meatpacking and transit industries.

Deferred Increases

In addition to negotiated increases during 1970 and cost-of-living adjustments, thousands of New England workers received deferred increases under existing agreements. Typical of the soft goods industries were increases of 10 cents an hour in textiles, 14 cents in leather tanning, and 15 cents in shoes and men's apparel; in the metalworking industries, deferred increases varied widely, ranging from 3 to 6 percent and 12 to 24 cents an hour, depending on skill classification.

Work Stoppages

Strikes took a heavier toll in 1970 than in recent years. For the first 10 months of 1970 there was 34 hundredths of 1 percent of estimated worktime in the United States lost as a result of strikes; 51 million man-days, as compared with 34 million in 1969, 44 million in 1968, 36 million in 1967 and 21 million in 1966. Among major strikes in New England were the General Electric, General Motors and Avco Lycoming Division strikes in Stratford, Conn., which idled 4,500 workers for over 2 months.

Strikes by teachers were a new development in 1970. In June, 5,000 Boston teachers struck for 13 days, the first strike in the history of the Boston School System. In Connecticut, as schools opened in September, there were strikes in 5 different communities involving 3,000 teachers, namely, New Haven, West Haven, Middletown, Bristol and Milford. In late November, a 3-week strike by Hartford teachers sharply curtailed classes in that city.

The year 1970 also witnessed the first work stoppage in the history of the postal service. Although of less than a week's duration, the strike at its height involved over 200,000 of the nation's 750,000 postal workers.

# # # #

Labor-Boston

VT 012 540
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The 1970 Occupations of Recent Graduates of Vocational Agriculture in Ohio.

Ohio State Univ., Columbus. Dept. of Agricultural Education.
MF AVAILABLE IN VT-ERIC SET.
AGDEX 010/008
PUB DATE - Jan71 13p.

DESCRIPTORS - *GRADUATE SURVEYS; *VOCATIONAL AGRICULTURE; *EMPLOYMENT TRENDS; AGRICULTURAL OCCUPATIONS; OCCUPATIONAL CHOICE; *VOCATIONAL FOLLOWUP; *HIGH SCHOOL GRADUATES; STATE SURVEYS
IDENTIFIERS - OHIO

ABSTRACT - This survey of 1,400 Ohio vocational agriculture graduates from the 1969 and 1965 classes revealed the employment experience of graduates 1 and 5 years after leaving school. When compared with the experience of the 1952-1965 classes after 5 years and the 1959-1969 classes after 1 year, the data show declining numbers of graduates entering farming, especially on other than their home farms, and increases in college and technical school enrollments by graduates. (BH)

VT 012 540

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THE 1970 OCCUPATIONS OF RECENT GRADUATES OF VOCATIONAL AGRICULTURE IN OHIO

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January 1971

Fifty-five per cent of the graduates of vocational agriculture in Ohio out of school five years were engaged in farming and farm-related occupations. Less than one per cent of the graduates were unemployed. These findings were revealed in the most recent of a series of surveys in which the occupations of graduates out of school one and five years were identified as of March 1, 1970. The survey included 1,399 students of 77 departments selected at random from the 14 supervisory districts of vocational agriculture in Ohio.

Data in Table 1 indicate that 30 per cent of the graduates out of school one year and 37 per cent of those out of school five years were in farming. Slightly more than 50 per cent of the farmers were farming on a full-time basis. Four of each five (79 per cent) graduates engaged in farming were doing so on the home farm.

The percentage of graduates involved in non-agricultural work the first year out of school was 32 compared to 39 per cent for those out of school five years. A large proportion of their occupations required aptitude and ability in mechanics; however, some of the common types of employment involved skills in working with people. This has been typical of the occupational opportunities for vocational agriculture graduates throughout the years.

Twenty-five per cent of the graduates out of school one year were in college or technical schools. Of this group, 60 per cent were pursuing additional study in agriculture.

An analysis of the data accumulated during the thirteen-year period of the survey indicates that:

--Fewer graduates are becoming established in farming, but the decrease is not as great as the decrease in the number of farmers in Ohio

--Increasingly more of the graduates engaged in farming are getting started on their home farms

--An increasing percentage of the graduates are becoming employed in off-farm agricultural and non-agricultural occupations

--More graduates are enrolling in college and technical schools

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TABLE 1. VOCATIONS OF GRADUATES IN VOCATIONAL AGRICULTURE IN OHIO OUT OF SCHOOL ONE AND FIVE YEARS

Vocations as of March 1, 1970	Percentage of Graduates 1969 Class	1965 Class
Farming: Full Time	15	19
Part Time	15	18
Related to Farming	13	12
Attending College of Agriculture	9	6
Attending Agr. Technical School	6	--*
Total in Agriculture	58	55
Non-Agricultural Work	32	39
College--Other Than Agriculture	5	4
Attending Non-Agr. Technical School	5	2
Total in Non-Agricultural	42	45

*Only one student

Number of graduates in above analysis	562	519
Other graduates not included in analysis:		
Military Service	132	95
Occupations Unknown	17	50
Unemployed	8	2
Deceased	3	11
Total Number of Graduates	722	677

Based upon responses from 77 schools.

TABLE 2. VOCATIONS OF GRADUATES IN VOCATIONAL AGRICULTURE OUT OF SCHOOL ONE YEAR FOR SELECTED YEARS

Vocational Groups	Percentage of Graduates by Classes										
	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Farming: Full Time	25	33	30	30	27	21	20	15	15	12	15
Part Time	25	23	22	19	20	15	18	18	18	16	15
Related to Farming	9	9	8	11	9	11	14	18	16	12	13
Attending College of Agriculture	8	7	12	9	9	10	12	11	12	11	9
Attending Agr. Technical School	--	--	--	--	--	--	--	--	--	5	6
Total in Agriculture	67	71	71	69	65	57	63	62	61	56	58
Non-Agricultural Work	25	19	21	24	25	33	23	29	26	30	32
College-Other than Agriculture	9	10	8	7	10	10	13	9	13	8	5
Attending Non-Agr. Technical School	--	--	--	--	--	--	--	--	--	6	5
Total in Non-Agriculture	33	29	29	31	35	43	37	38	39	44	42
In addition to the above (based upon total number of graduates):											
In Military Service	13	12	14	14	11	10	20	18	19	17	18

Above analysis based upon:

Number	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Graduates	720	709	736	598	638	659	689	752	834	922	722
Departments	108	103	92	84	86	88	82	82	93	102	77

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TABLE 3. VOCATIONS OF GRADUATES IN VOCATIONAL AGRICULTURE OUT OF SCHOOL FIVE YEARS FOR SELECTED YEARS

Vocational Groups	Percentage of Graduates by Classes												
	1952	1953	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Farming: Full Time	*45	*43	25	25	24	23	24	23	21	17	22	16	19
Part Time			19	18	16	16	15	13	17	19	18	14	18
Related to Farming	9	9	11	14	12	16	16	18	15	17	13	15	12
College of Agriculture	5	3	4	3	2	4	4	6	5	7	6	6	6
Agr. Technical School	--	--	--	--	--	--	--	--	--	--	--	--**	--**
Total in Agriculture	59	55	59	60	54	59	59	60	58	60	59	51	55
Non-Agriculture Work	37	40	30	36	39	36	37	34	36	35	37	44	39
College--Other Than Agriculture	4	5	6	4	7	5	4	6	6	5	4	3	4
Non-Agr. Tech. School	--	--	--	--	--	--	--	--	--	--	--	2	2
Total in Non-Agriculture	41	45	41	40	46	41	41	40	42	40	41	49	45

*Includes part time also.
**Only one student.

In addition to the above (based upon total number of graduates):

In Military Service	21	17	13	10	17	16	17	13	18	19	19	17	14

Above analysis based upon:

Number	1952	1953	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Graduates	574	565	615	653	568	588	621	656	615	576	648	750	677
Departments	82	77	108	108	92	84	86	88	82	82	93	102	77

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Occupations Related to Farming

Twelve to thirteen per cent of the graduates in vocational agriculture out of school one to five years were engaged in farm-related occupations. Sixteen of the teachers from 77 departments indicated that one or more of their graduates worked in a grain elevator or feed mill. Other common types of work were that of working in machinery sales and service and building and construction. Many other kinds of employment were listed varying from teaching vocational agriculture to processing farm chemicals. The complete list with the number of teachers reporting one or more graduates includes:

16 Grain elevator or feed mill
15 Machinery sales and service
10 Building and construction
7 Fertilizer or lime business
5 Garden center and nursery
5 Meat cutter
5 Mechanic
4 Food processing
4 Welding
4 Truck driver
4 Voc. agr. teacher
3 Seed processing
3 Lumber year
3 Food store
2 Electrician
2 Dairy plant
2 Flower arranger
2 Veterinary or ass't.
2 Heavy equipment
1 Landscaping
1 Greenhouse
1 Drainage and tile business
1 Well driller
1 Greenskeeper
1 Elevator accountant
1 Fruit farm
1 Gounds maintenance
1 Custom farm service
1 Pulp wood
1 Warehouse
1 Milk distributor
1 Wholesale food distributor
1 Forestry
1 County Extension Agent, 4-H
1 Farm chemical processing
1 Stockyards

Occupations in Non-Agricultural Work

Thirty-two to thirty-nine per cent of the graduates in vocational agriculture became engaged in non-agricultural occupations during the first five years out of high school. Eighty-seven of the teachers from 77 departments reported that one or more of their graduates were working in industry or in a factory. The number reporting employment in building construction, welding, service stations, electrical, and mechanics indicates the importance of the development and use of mechanical skills. Another general type of work reported was that which included abilities in working with people such as store clerk and teaching. The complete list with the number of teachers reporting one or more graduates includes:

87 Factory or industry
17 Building construction
11 Mechanic
11 Service station
9 Electrical
8 Teacher
7 Store clerk
6 Carpentry
6 Machine shop
6 Welding
4 Truck driver
3 Salesman
3 Barber
3 Draftsman
3 Highway construction
3 Body shop
2 Railroad
2 IBM computer operator
2 School custodian
2 Restaurant cook
2 Deputy sheriff
2 Telephone company
2 Order clerk
2 Funeral service
1 Heavy equipment operator
1 Warehouse supervisor
1 Quality control supervisor
1 Painter
1 Printing firm
1 Surveying
1 Plumber
1 Bank teller
1 Hospital attendant
1 Radio and TV station
1 Transfer trucking
1 Policeman
1 Auto parts department
1 Vender
1 Preacher

SELECTED INFORMATION CONCERNING GRADUATES EMPLOYED IN NON-AGRICULTURAL WORK

Teachers of vocational agriculture were asked to provide the names of one or two of their graduates who were employed in non-agricultural work. Responses were received from 20 students graduating in 1965 and 19 who were graduates of the 1969 class. As may be noted in Table 4, the 1965 graduates completed an average of 3.7 years of vocational agriculture and the 1969 graduates completed 3.53 years.

TABLE 4. NUMBER OF YEARS OF VOCATIONAL AGRICULTURE COMPLETED AS INDICATED BY GRADUATE RESPONDENTS

Year Graduated	Total No. of Graduates	Average No. of Years Completed	Graduates by Number of Years Completed			
			1	2	3	4
1965	20	3.70	-	1	4	15
1969	19	3.53	1	1	3	14
Both Groups	39	3.67	1	2	7	29

An observation of Table 5 reveals that the most common type of class completed during the junior and senior years was production agriculture. Twenty-five of the 39 respondents had had some training in agricultural business and 25 completed work in agricultural mechanics. Only six were in horticulture classes.

It is of some interest to note that parents, a friend or relative, and an application at the personnel office were the major sources for locating and securing the present job. For some reason or another, there wasn't a single graduate who indicated the teacher of vocational agriculture as a source for securing his present job.

TABLE 5. VOCATIONAL AGRICULTURE CLASSES COMPLETED AS INDICATED BY GRADUATES

Year Graduated	Year in School	Number of Graduates According to Types of Classes*				
		Farm Production	Agri-Business	Agr. Mechanics	Horti-culture	Other
1965	Junior	8	5	4	2	1
	Senior	15	9	10	2	1
1969	Junior	10	3	5	1	1
	Senior	9	8	6	1	1
Both Groups	Junior	18	8	9	3	2
	Senior	24	17	16	3	2

*Totals may exceed number of respondents due to students' taking more than one class.

TABLE 6. SOURCE OF PRESENT JOB AS REPORTED BY VOCATIONAL AGRICULTURE GRADUATES

Source of Job	1965	1969	Both Groups
Vocational agriculture teacher	--	--	--
Guidance counselor	1	1	2
Parents, a friend or relative	8	13	21
Application at personnel office	11	10	21
Employment service	--	--	--
Heard on radio or TV	--	2	2
Newspaper ad	2	2	4
Other	2	1	3

The monthly income reported by the 1965 graduates averaged $643.50 ranging from $498 to $1,500 as may be noted in Table 7. Graduates in 1969 who were less than a year out of high school received an average of $446.42 ranging from $302 to $723 per month.

Table 8 reveals that there was considerable difference with reference to the level of satisfaction in their present employment. Generally speaking, the graduates were satisfied with working with fellow workers and the pay they received. They were less satisfied with supervision, work assignment, and the promotions available. The 1965 graduates were much better satisfied with their work than were the 1969 graduates.

TABLE 7. MONTHLY INCOME REPORTED BY VOCATIONAL AGRICULTURE GRADUATES

Year Graduated	Total No. of Graduates	Mean Months on Present Job	Income Per Month		
			Mean	Range	
1965	20	29.8	$643.50	$498.00	$1,500.00
1969	19	6.9	$446.42	$302.00	$ 723.00

TABLE 8. JOB SATISFACTION AS REPORTED BY VOCATIONAL AGRICULTURE GRADUATES

Job Conditions	Graduate Group	Level of Satisfaction			
		Well Satisfied	Generally Satisfied	Somewhat Dissatisfied	Dissatisfied
Fellow Workers	1965	11	9	-	-
	1969	10	8	-	1
Supervision	1965	11	5	3	1
	1969	4	6	8	1
Work Assignment	1965	11	6	2	1
	1969	5	9	4	1
Promotions Available	1965	10	3	4	3
	1969	4	6	6	3
Pay Received	1965	8	10	1	1
	1969	5	9	5	-

Twenty-six of 37 graduates replying indicated that they would like to move into agricultural work if opportunities were available. A number of them indicated by special notes on the questionnaire that they would like to farm; however, the cost of getting established in farming was prohibitive.

The graduates were asked to rate the various phases of the program of vocational agriculture. As indicated in Table 10, FFA was rated highest followed by record keeping and occupational experience programs. In their class work, management and livestock production were rated higher than crops or mechanics. This was generally true for both the 1965 and 1969 graduates.

TABLE 9. DESIRE TO WORK IN AGRICULTURE AS REPORTED BY VOCATIONAL AGRICULTURE GRADUATES

Year Graduated	Number of Graduates	
	Yes	No
1965	10	8
1969	16	3
Both Groups	26	11

TABLE 10. GRADUATE RATINGS OF VARIOUS PHASES OF VOCATIONAL AGRICULTURE TRAINING

Vocational Agriculture Program Phases	Year Group Graduated	Weighted Rating*	Number Rating			
			Excellent	Good	Fair	Poor
FFA	1965	3.56	10	5	1	-
	1969	3.59	10	7	-	-
Record Keeping	1965	3.35	10	7	3	-
	1969	3.39	8	9	1	-
Occupational Experience	1965	3.55	8	8	2	-
	1969	3.15	9	5	2	2
Classwork in Management	1965	3.15	6	9	3	-
	1969	3.15	6	9	3	-
Classwork in Livestock	1965	3.11	5	11	1	1
	1969	3.15	5	12	-	1
Classwork in Crops	1965	2.95	4	12	1	2
	1969	3.11	5	11	1	1
Classwork in Mechanics	1965	3.05	7	7	4	1
	1969	3.00	6	7	4	1

*Scale: Excellent 4, Good 3, Fair 2, Poor 1

Why Aren't You Working in the Field of Agriculture?

In response to this question, the following were typical:

"There aren't enough openings in this area."

"I haven't found anything that has appealed to me."

"I do not have enough money to set up; there are too many headaches and not enough money as a farmer."

"There is no satisfactory job in this area available."

"Haven't the opportunity to be a farmer. We don't live on a farm."

"Not any available in the area that pays as much as I am presently making."

"Takes too much money to get established in farming."

"It doesn't pay enough."

"Too limited opportunity."

"Can't find a good job without a college degree."

"I would like to, but it costs too much to get started."

"Too high an investment for prices which are unstable."

What Changes Should Be Made in Vocational Agriculture to Make It More Appropriate?

The following are typical responses in answer to the question:

"Put more emphasis on mechanics, management, and horticulture."

"Have more on-the-job experience and a good selection of classroom literature."

"It should include more practical practices."

"Have more field trips."

"Include more shop and mechanics."

"Should give more emphasis in agribusiness and specialized agriculture."

Approximately one-third of the students indicated that no changes should be made--the program was satisfactory.

What Changes Should Be Made in the FFA to Make It More Appropriate?

Approximately two-thirds of the respondents indicated that the FFA programs were very good and that no change should be made. Of those indicating changes, the following were typical:

"It needs more group participation and projects that belong to the whole organization."

"Have the FFA work more with other groups and school activities."

"More public relations to inform the community of its aims and goals and recruit more members."

"More cooperation from the teachers and students."

"Make it known to the people that FFA is not a third-rate education but a first-rate program which trains a boy to accept responsibility."

"Develop more interest in the members."

If You Had It to Do Over Again, Would You Take Vocational Agriculture?

Of the 38 graduates answering this question, 36 indicated that they would take vocational agriculture again. Typical of their reasons were:

"It was an interesting subject."

"Actually vocational agriculture should rank with math and sciences as far as major subjects because of its broad range of learning."

"Vocational agriculture taught me how to use my head more than any other subject that I took."

"It is a good experience--something that you can use the rest of your life."

"It helps open new fields of employment, knowledge, and many practical things a home owner should know. It taught me how to provide for myself--learn value of equipment, animals, etc."

"Although my interest is not in agriculture, I feel my instructor helped me in many ways."

"What I received through vocational agriculture and FFA has applied to other fields of life."

"What is good for the soil is good for the soul."

"I think that in vocational agriculture I got an education that was an all around education--an education that helped in any field. A lot that is not taught in any other class. I think that vocational agricultural education in mechanics and just plain horse sense helped me make it back from Viet Nam."

"Made me a more well rounded individual and provided an insight into the usual."

"It has helped me greatly in the management of my life and the people who live around me."

"I was raised on the farm and it was one of the most interesting subjects that I took."

"It was the most interesting subject and I learned more in there than in any other class in high school."

"Because through the excellent teachers I had I learned the importance of education."

"Because of leadership and the mingling of young brains trying to help one another."

The two respondents who indicated that they would not take vocational agriculture again if they had it to do over reported:

"I have been in the sales field for about one year and can earn more than farming full time without the larger cash outlay."

"The job opportunities I came across in vocational agriculture class were all low paying jobs and most jobs were the same with two years of technical training."

VT 012 550
Parry, Mary Ellen; Mahoney, Margaret H.
Prediction of Job Performance for Negro and White Medical Technicians. Otto Analyzer: An Anchored Rating Scale's "Main Anchor."

Educational Testing Service, Princeton, N.J.
MF AVAILABLE IN VT-ERIC SET.
PR-70-16
PUB DATE - Oct70 15p.

DESCRIPTORS - *PERFORMANCE TESTS; TASK PERFORMANCE; *TEST INTERPRETATION; *MEDICAL LABORATORY ASSISTANTS; *RATING SCALES; EVALUATION TECHNIQUES; *APTITUDE TESTS; NEGRO ACHIEVEMENT; CORRELATION

ABSTRACT - Despite the importance of rating scales in assessing job performance, their interpretation is made difficult by differences between raters and by "halo effects." Using ratings given to a fictitious person to weight different supervisors' aptitude and achievement test results without finding significant changes. The lack of improvement in correlation after adjustment was attributed to the addition of random variation in the adjustment process. Although the study did not improve correlation between ratings and test results, it did help in improving the supervisor's ability to determine important job skills and standards. (BH)

VT 012 550

ED0 57254

PR-70-16

PREDICTION OF JOB PERFORMANCE FOR NEGRO AND WHITE MEDICAL TECHNICIANS

Otto Analyzer: An Anchored Rating Scale's "Main Anchor"

Mary Ellen Parry
and
Margaret H. Mahoney

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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October 1970

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It is important for many reasons to be able to assess the quality of a person's performance on his job. Supervisors' ratings are perhaps the most commonly used indications of an employee's job performance. Ratings are an easily obtainable kind of evaluation, and it is often difficult to obtain more appropriate measures of performance.

Rating scales are, of course, not without faults. For example, there may be a tendency for those doing the ratings to be too lenient when rating, or to rate according to social desirability. "Halo effects" may also be a problem in obtaining accurate ratings. Thus, ratings of the same person by several different people may not be very similar due to these response set variations.

The present study examined the utility of adjusting supervisors' ratings by reference to ratings given to a fictitious person. This report is one of several based on a project predicting job performance for medical technicians in Veterans Administration hospitals. White and Negro technicians at various levels of the GS-645 series were used as subjects. A battery of aptitude tests was administered and the scores correlated with several indicators of job performance. One of the criterion measures used for the technicians was a set of nine ratings. One or two supervisors rated each of the technicians working under them on all nine scales. For a description of the research design, population studied, and other results obtained, refer to Pike (1969), Flaugher, Campbell and Pike (1969), Campbell, Pike and Flaugher (1969), Campbell, Pike, Flaugher and Mahoney (1970), and Rock, Campbell and Evans (1970).

The rating scales were designed with an effort to minimize the effects due to different raters' stylistic variations.[1] General descriptions and behavioral examples anchored at high, medium and low

points on each scale were used (the anchored rating scale technique). In addition to these anchors, a paragraph describing the job performance of a fictitious person for each dimension of the rating scales was provided. The supervisor was to rate this person's behavior, based only on the information given in each paragraph. The name of the fictitious person was Otto Analyzer (chosen as a "take off" on the automatic analyzing equipment found in many medical labs today). On some of the dimensions Otto was described as highly capable, while on others he was only average, or less than average. A rating for Otto was printed on the first scale, as an illustration, and Otto was not to be given an overall rating (Scale 9). Thus, each supervisor was to rate Otto on Scales 2 through 8: Organization, Interest, Learning Ability, Job Knowledge, Technique, Need for Supervision and Communication. The possible ratings for each scale ranged from 1 (lowest) to 9 (highest). Examples of Otto's descriptions for two scales are given in Figure 1.

The ratings of Otto were designed to serve two main purposes. One was to help each rater focus on the dimension on which he was to rate his technicians, for example, Interest, or Job Knowledge. The behavioral description of Otto given with each rating scale was specific to that scale, and did not contain information relevant to other aspects of Otto's performance.

Otto also served as a means of statistically manipulating the ratings obtained to (help) eliminate the various response set biases referred to earlier. How well rating Otto helped to orient each supervisor toward the dimension being rated was not easily assessable. Otto's second purpose, as a statistical aid, was evaluated and these results follow.

Otto Analyzer has a certain zest and sparkle and does just about everything with great enthusiasm. Sometimes, however, his enthusiasm gets the better of him. For instance, the other morning he got an unusual test result, and he proceeded to check it out on his own. He spent the entire morning working on the specimen and even left the laboratory to go to the hospital library. Toward the end of the day, however, it became evident that Otto would not be able to complete the required work, and one of the other people in the laboratory had to come in and give him a hand.

Use this information as a basis for rating Otto Analyzer on Scale 3

(Interest)

Otto has been at this hospital laboratory for almost 10 years and is familiar with just about every aspect of the routine work. He can perform all of the routine tests and can usually recognize unusual test results. But he has not kept up with some of the new procedures and is therefore somewhat limited in the work he can do.

Use this information as a basis for rating Otto Analyzer on Scale 5

(Job Knowledge)

Figure 1

Results

For each of the scales 2 through 8 which were accompanied by descriptions of Otto, his mean rating was obtained, based on the approximately 200 supervisors who rated him. The number varied slightly across scales, since not all supervisors rated Otto on each scale. These mean ratings were assumed to be Otto's "true" ratings.

The technicians' ratings that each supervisor had given were then adjusted, by scale, according to how the supervisor had rated Otto in relation to Otto's mean ratings. For example, on Scale 2, Supervisor Smith might have rated Otto 8, and the mean rating for Otto on this scale was 6.4. Thus, Smith seemed a little lenient. Therefore, 1.6 was subtracted from all the ratings which Mr. Smith gave his technicians on this scale. On Scale 3, Mr. Smith might have given Otto a 4; Otto's mean was 6.6. Thus, all ratings given by Smith on Scale 3 would be adjusted upward by 2.6. The means and standard deviations for Otto's ratings, for each scale, are given in Table 1. As can be seen from the variation in means across the scales, the supervisors did seem to pay attention to the behavioral descriptions given.

Each medical technician was thus given an adjusted set of ratings. For any scale, if Otto had not been rated by the supervisor, no adjustment could be made, and the supervisor's original rating for that scale was used. In cases where technicians had been rated by more than one supervisor, an average was obtained of the adjusted ratings. Table 2 shows the means and standard deviations, by scale, for the ratings received by Negro and white technicians. For the Negro technicians, the adjusted mean ratings were higher than the original on 5 scales, and

lower on 2. For the white technicians, the adjusted mean ratings were higher than the original on 4 scales, lower on 2 and equal on one. It is interesting that for both Negro and white technicians the variance of the adjusted ratings was greater than that of the unadjusted ratings for every scale but one, where it was equal. This may be partly due to the fact that the method of adjustment used increased the range of the scales. For example, if 3 were being added to all ratings given by a supervisor on a particular scale, and a technician had originally been given a 9, he would now receive a 12.

These adjusted ratings for each technician were then used as new criterion measures. The scores from the aptitude test battery, which had been administered to the technicians, were correlated with the adjusted ratings, and compared with the correlations obtained between the aptitude tests and the unadjusted ratings. Table 3 presents the correlations for the white medical technicians, and Table 4 presents the correlations for the Negro technicians. The results are very similar for both white and Negro technicians: the correlations based on the adjusted ratings were lower than those based on the unadjusted ratings in about 2/3 of the cases, and higher for only about 1/3. The differences in either direction were small, ranging from .00 to .11. No pattern of change was evident, either by rating scale, aptitude test or race. Thus, using the ratings given to Otto as a means of adjusting supervisors' ratings did not generally improve the correlations between the aptitude measures and the ratings of job performance.

The Job Knowledge Test (an achievement test) scores were also correlated with the adjusted supervisors' ratings (Tables 3 and 4), and the

correlations were lower than had been obtained with the unadjusted ratings, with only one exception. If one considers the Job Knowledge Test as another criterion measure, it is less related to those aspects of job performance which the adjusted ratings measure than it is to those which the unadjusted ratings measure.

When considering the correlations between the Job Knowledge Test and the Job Knowledge ratings, the difference between the correlations based on adjusted and unadjusted ratings is greater for the Negro technicians than for the white technicians (a difference of .11 versus .02). For both races, the correlation of Job Knowledge Test scores with unadjusted Job Knowledge ratings is higher than with adjusted ratings.

DISCUSSION

The reasons why adjusting the ratings in general failed to improve the correlations with the aptitude tests and the Job Knowledge Test are not entirely clear. Apparently adjusting the technicians' ratings on the basis of the ratings given to Otto Analyzer by the supervisors resulted in the addition of more random variation than a true correction factor.

One possible explanation is that the descriptions of the various aspects of Otto's job performance were too specific and limited. If too little information was given on which to base the ratings of Otto's performance, then adjusting all the ratings given by the supervisors according to their ratings of Otto would not be expected to improve the correlations between test scores and ratings. It may be easier for a supervisor to provide ratings for his technicians, based on many relevant behaviors and incidents, than it is to rate Otto on the basis of only a

paragraph description. The ratings of Otto may therefore include more error variance than the ratings of the real people.

Another possible explanation is that the supervisors did not take the task of rating Otto Analyzer as seriously as they did rating their own technicians. If the raters exercised less care in rating Otto, this could explain the lower correlations found when adjusted ratings were used.

For these seven scales, adjusting the supervisors' ratings on the basis of their ratings of Otto did not generally improve job prediction. It is possible that another type of analysis, such as a correction for each supervisor across scales rather than for each scale, would produce different results. Due to the rather limited findings of the present analysis, however, this seems unlikely and no further analysis of the Otto Analyzer data is planned.

It is felt that Otto may still have served the other purpose for which he was included in the rating scales, that of helping to orient the supervisor toward the qualities of each job dimension to be rated. Also, it may be that having to rate a fictitious person, where the supervisor knew that his responses could be compared with those of other supervisors, tended to make him more attentive to the standards he was using. While taking account of the definition given for the scale and the description given of Otto, he may have been led to exercise greater care in rating the actual incumbents.

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FOOTNOTE

[1]Mrs. Lila Norris held primary responsibility for the development of the rating scales and the descriptions of Otto Analyzer. We appreciate her contribution to this project.

Table 1

Means and Standard Deviations for the

Ratings Given to Otto by All Supervisors

Rating Scales	Mean	S.D.
2-Organization	6.4	2.0
3-Interest	6.6	2.3
4-Learning Ability	4.4	1.3
5-Job Knowledge	4.3	1.5
6-Technique	1.9	1.2
7-Need for Supervision	5.3	1.4
8-Communication	4.3	1.8

Table 2

Means and Standard Deviations for Original and Adjusted Supervisors' Ratings of Negro and White Technicians

Rating Scales	Negro (N=166) Mean Orig.	Negro Mean Adj.	Negro S. D. Orig.	Negro S. D. Adj.	White (N=285) Mean Orig.	White Mean Adj.	White S. D. Orig.	White S. D. Adj.
2. Organization	5.75	5.73	1.82	2.26	5.99	6.12	1.79	2.33
3. Interest	5.57	5.88	1.78	2.43	5.90	6.08	1.74	2.46
4. Learning Ability	5.79	5.82	1.88	2.07	5.96	5.82	1.77	2.05
5. Job Knowledge	5.23	5.09	1.88	2.01	5.30	5.35	1.74	2.08
6. Technique	5.90	5.97	1.73	1.73	6.01	6.06	1.73	1.86
7. Need for Supervision	5.72	5.82	1.97	2.08	6.10	5.98	1.86	2.07
8. Communication	5.49	5.85	1.81	2.13	5.75	5.75	1.75	2.06

Table 3

Correlations Between Tests and Criteria for White Technicians

Original Above - Adjusted Below

(N = ± 285)

Scale \ Test	Subtraction & Multiplication	Vocabulary	Hidden Figures	Necessary Arithmetic	Finger Dexterity	Number Comparison	Gestalt Completion	Picture Number	Paper Folding	Job Knowledge Test
Supervisor Ratings										
2. Organization	.15 .14	.01 -.02	.03 .06	.16 .15	.16 .08	.05 .03	.14 .10	.14 .09	.10 .09	.27 .25
3. Interest	.12 .06	.06 .01	.04 -.04	.15 .08	.12 .01	.07 .02	.06 -.02	.12 .04	.10 .08	.22 .17
4. Learning Ability	.24 .19	.07 .09	.12 .09	.30 .26	.26 .18	.16 .07	.19 .18	.20 .22	.28 .23	.35 .29
5. Job Knowledge	.09 .06	.13 .07	-.01 -.02	.12 .09	.10 .04	-.01 -.07	.03 -.02	.06 .06	.12 .06	.35 .33
6. Technique	.11 .08	.06 .03	.06 .05	.16 .17	.17 .15	.08 .06	.14 .13	.19 .22	.15 .14	.23 .18
7. Need for Supervision	.05 -.02	.05 .05	.03 .03	.09 .07	.07 -.01	-.01 -.08	.03 .00	.09 .01	.06 .04	.27 .30
8. Communication	.06 .02	.17 .18	.08 .01	.13 .14	.06 .03	.01 -.01	.03 .06	.05 .10	.10 .11	.27 .26

Table 4

Correlations Between Tests and Criteria for Negro Technicians

Original Above - Adjusted Below

(N = ± 166)

Scale \ Test	Subtraction & Multiplication	Vocabulary	Hidden Figures	Necessary Arithmetic	Finger Dexterity	Number Comparison	Gestalt Completion	Picture Number	Paper Folding	Job Knowledge Test
Supervisor Ratings										
2. Organization	.32	.10	.03	.19	.09	.15	.06	-.07	.01	.45
	.27	.08	.04	.23	-.01	.08	.02	-.12	-.01	.39
3. Interest	.29	.10	.05	.17	.04	.07	.03	-.07	.00	.38
	.20	.11	.12	.20	.02	.06	.04	-.09	-.02	.20
4. Learning Ability	.36	.20	.02	.34	.20	.26	.18	.06	.21	.58
	.37	.14	.00	.30	.13	.26	.11	.07	.18	.53
5. Job Knowledge	.32	.20	.07	.33	.09	.18	.14	-.02	.09	.58
	.25	.18	.13	.25	.04	.16	.06	-.07	.06	.47
6. Technique	.28	.15	.04	.23	.08	.17	.08	-.06	.07	.49
	.25	.08	.02	.21	.04	.11	.03	-.02	.09	.44
7. Need for Supervision	.27	.10	.03	.25	.05	.10	.04	-.00	.09	.43
	.27	.07	.01	.21	.02	.08	.06	.01	.08	.38
8. Communication	.23	.21	-.02	.22	.06	.14	.12	-.05	.11	.50
	.25	.19	.03	.19	.05	.15	.09	-.03	.06	.35

VT 012 551
Vocational-Technical Education in New Mexico.
1970 Annual Report.

New Mexico State Advisory Council for
Vocational-Technical Education, Santa Fe.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 22p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *STATE PROGRAMS; ADVISORY COMMITTEES; ANNUAL REPORTS; *PROGRAM DESCRIPTION; EDUCATIONAL NEEDS; EDUCATIONAL TRENDS; EDUCATIONAL ADMINISTRATION
IDENTIFIERS - NEW MEXICO

ABSTRACT - This report describes the rapidly expanding New Mexico vocational education program, including background and future developments. In identifying problem areas requiring additional effort in the 1970's, the report lists 14 unmet educational needs, as described by businessmen, school administrators, counselors, and teachers. (BH)

VT 012 551

VOCATIONAL-TECHNICAL EDUCATION IN NEW MEXICO

ED0 57254

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THE 1970 ANNUAL REPORT OF THE STATE ADVISORY COUNCIL FOR VOCATIONAL-TECHNICAL EDUCATION

VT012551

A GROWING EDUCATIONAL PHENOMENON

Major growth is taking place in the New Mexico vocational-technical program. This booklet attempts to summarize the scope and nature of that growth. It also highlights directions for the future and significant developments of the recent past, with pertinent concern for the New Mexico scene.

As you examine this report, it is suggested that you ask yourself evaluative questions such as the following:

- How does the development of vocational-technical education in New Mexico relate to the resolution of some of the State's critical social and economic problems?

- What priority rating should be assigned to the use of the State's resources for funding vocational-technical education programs?

- What recent developments in New Mexico's vocational-technical education program can the State's citizens be most proud of?

- How best might the vocational-technical education programs of New Mexico meet the comprehensive needs of its youth, including their self-development and the identification and attainment of their occupational goals?

- How can the general academic and the vocational-technical education of over 50,000 New Mexico students be best accomplished?

- What direction should the vocational-technical education growth curve take in the 1970's?

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PAST AND PRESENT

HOW MUCH HAS VOCATIONAL-TECHNICAL EDUCATION GROWN IN NEW MEXICO?

SUMMARY

	1964	1970
Expenditures	$1,441,000	$6,668,000
Student Enrollment	14,003	34,428
Number of Teachers	251	729
Number of Public Schools Offering Programs	96	98
Number of Programs Offered	186	680

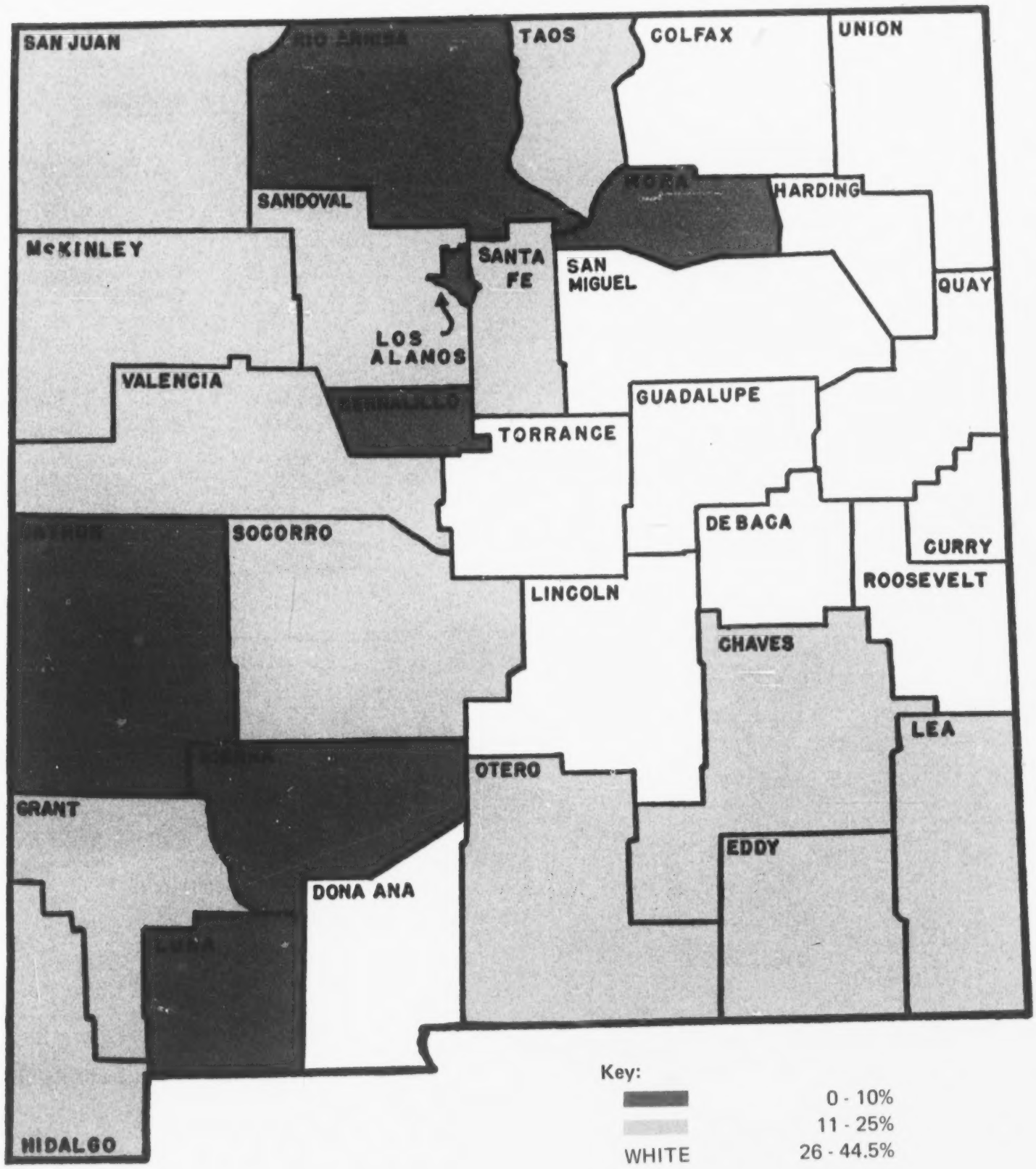
FINANCES

SOURCE OF FUNDS

Year	Total	Federal	State	Local	Four Corners Commission
1964	$1,441,000	$ 301,000	$167,000	$ 973,000	$ -0-
1970	6,668,000	2,431,000	551,000	3,686,000	68,068
(Gain or Loss)	$5,227,000	$2,130,000	$384,000	$2,713,000	$ 68,068

EXPENDITURE DISTRIBUTION

	1964	1970
By Student Target Group		
Regular	(Data	$4,508,700
Disadvantaged	Incomplete)	1,482,900
Handicapped		676,400
TOTAL:		$6,668,000
By Educational Level		
Elementary	$ -0-	$ -0-
Secondary	1,441,000	3,999,200
Post-secondary	-0-	2,394,500
Adult	-0-	274,300
TOTAL:	$1,441,000	$6,668,000
Per Student		
Secondary School Level	(Not	$ 137
Post-secondary School Level	Reported)	486
Adult Programs		48



PERCENT OF PUBLIC SCHOOL SECONDARY STUDENTS ENROLLED IN "REIMBURSABLE" VOCATIONAL TECHNICAL EDUCATION PROGRAMS IN NEW MEXICO 1969-70 BY COUNTY.

Source: Vocational Division, State Department of Education Report of October 15, 1969.

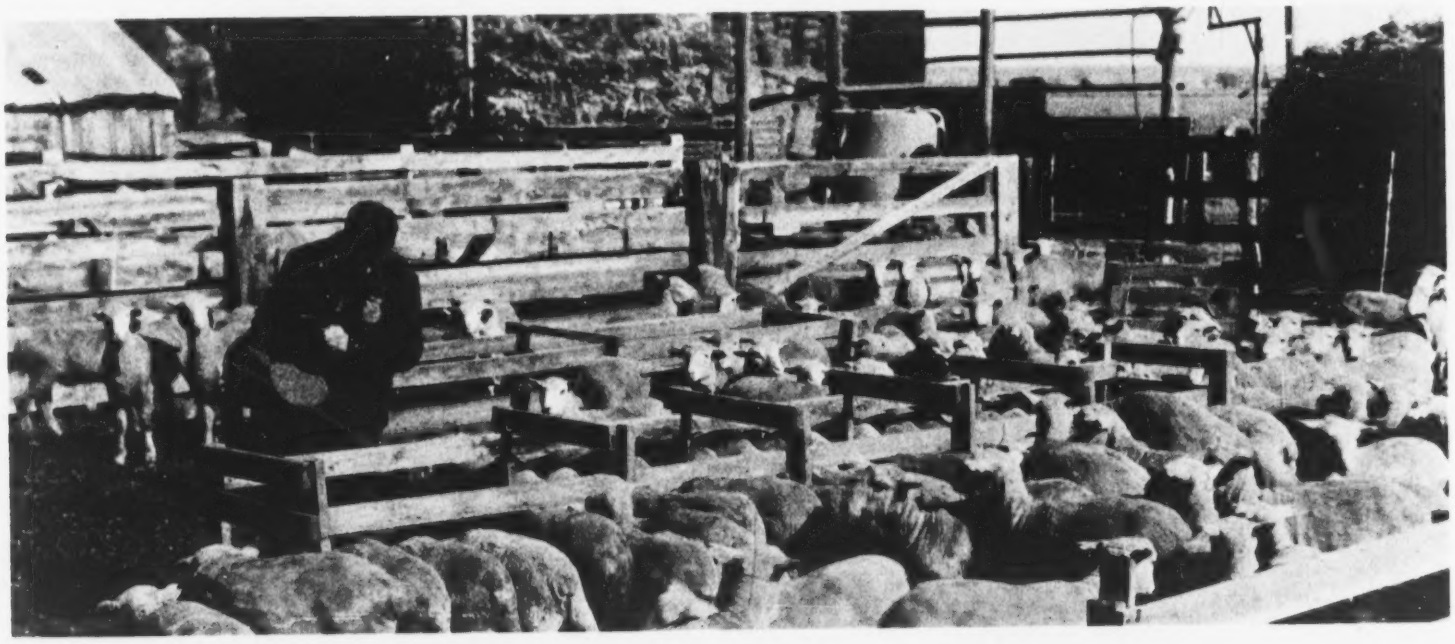
ENROLLMENT

BY TYPE OF SCHOOL

	No. of Students	
	1965	1970
Secondary	16,596	21,819
Post-secondary	471	4,927
Adult	3,781	7,682
Special Needs	83	367
TOTAL:	20,931	34,795

BY PROGRAM AREA

	1964	1970
Agriculture	2,424	3,349
Marketing & Distribution	874	1,745
Health	101	1,016
Home Economics	6,882	11,885
Office		11,005
Technical, Trade & Industrial	3,722	5,061
TOTAL:	14,003	34,061



FACULTY

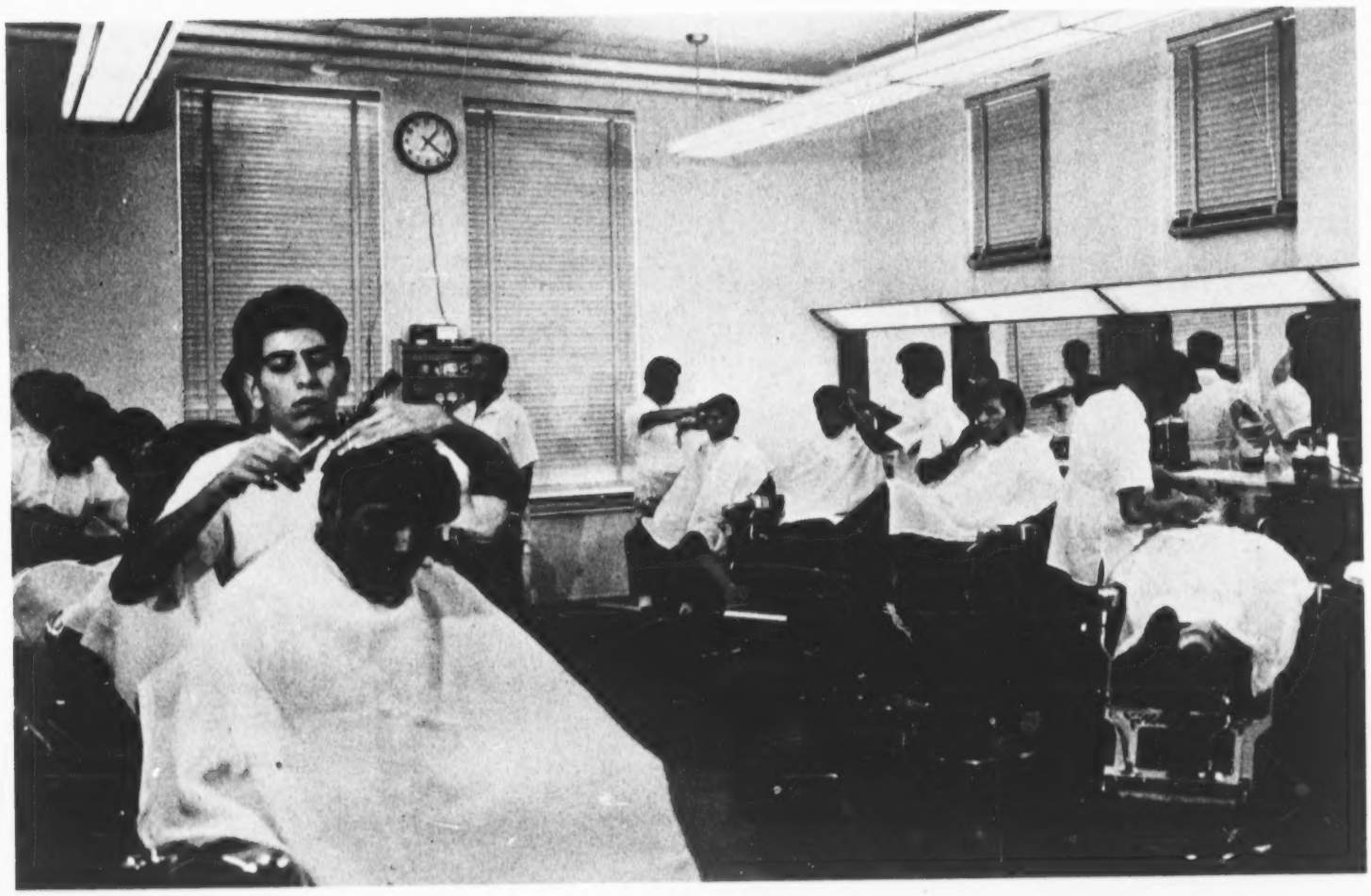
BY TYPE OF SCHOOL

	No. of Teachers	
	1964	1970
Secondary	190	379
Post-secondary	0	171
Adult	99	198
Special Needs	0	0
TOTAL:	289	748*

*Includes 19 regular secondary and post-secondary teachers.

BY PROGRAM AREA

	No. of Teachers	
	1964	1970
Agriculture	59	66
Distribution	17	31
Health	11	83
Home Economics	90	99
Office Education	0	208
Technical	29	44
Trades & Industry	73	191
Other	10	7
TOTAL:	289	729



SCHOOLS WITH VOCATIONAL-TECHNICAL EDUCATION

BY TYPE OF SCHOOL

	No. of Schools	
	1964	1970
Secondary Schools	96	93
Area Skill Centers	0	2
Area Vocational Schools	0	5
Special Schools	3	3
TOTAL:	99	103

PROGRAMS

BY TYPE OF SCHOOL

	No. of Programs	
	1964	1970
Secondary	164	327
Post-secondary	0	187
Adult	22	166
Other	0	49
TOTAL:	186	729

BY TYPE OF PROGRAM

	1964	1970
Agriculture	59	66
Distribution	18	31
Health	3	83
Home Economics	77	99
Office	0	208
Technical	10	44
Trades & Industry	19	191
Other	0	7
TOTAL:	186	729

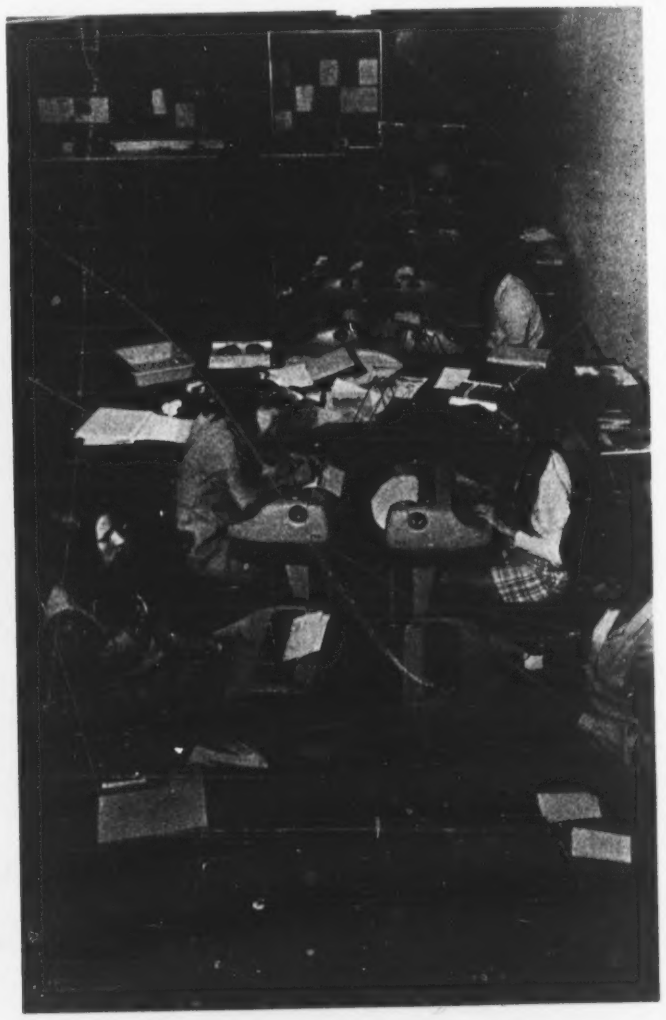
FACILITIES

Among the most expensive of all educational facilities provided by the public are those which house vocational-technical education programs. Subsequently, New Mexico, having a relatively low economic base has found it extremely difficult to finance new equipment and construction for vocational-technical education.

Facilities provided at the secondary level vary from absolutely nothing to facilities having fine industrial arts programs. Adequate secondary vocational-technical education facilities do not appear to exist in any New Mexico high schools.

At the post-secondary levels the infusion of federal funds has considerably helped the conditions over that existing at the secondary level. So has the leadership and other assistance provided by some of the State's universities to the development of comprehensive branch community college programs. But it is necessary to conclude that facilities and equipment provided at the post-secondary level are also woefully lacking.

Despite the increase which has been made in equipment and facilities in recent years in New Mexico, the vocational-technical educational facilities in this State's high schools and post-secondary schools are not sufficient to help attract and hold thousands of youth who will later succeed as college dropouts, unemployed, and underemployed young adults, or quite possibly unemployed parents.



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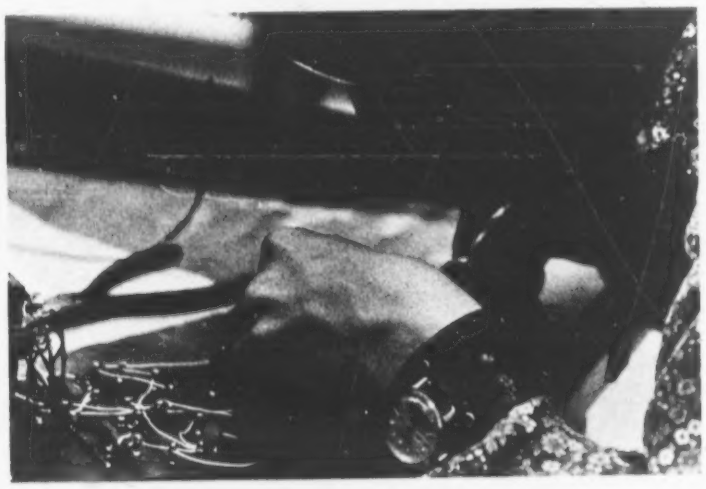
WHAT SIGNIFICANT DEVELOPMENTS HIGHLIGHT NEW MEXICO'S RECENTLY EXPANDED VOCATIONAL-TECHNICAL EDUCATION PROGRAM?

700 citizens, selected for their broadscale interest in vocational and educational problems of New Mexico, were asked in the summer of 1970 to identify the state's most significant vocational-technical education developments; 350 responded:

Most Significant Developments	Identified by: Representatives of Business & Industry	Identified by: V-T Educators; Counselors & Teachers	Identified by: School Administrators	Totals
1. Establishment of Area Vocational Schools	30	79	30	139
2. Expansion and Improvement of Programs	18	45	53	116
3. Special and Additional Funding	8	38	28	74
4. Improved Public Interest and Attitude	15	44	10	69
5. Improved State Leadership	16	25	23	64
6. New V-T Legislation	5	14	12	31
7. Introduction of Jr. High V-T Training	3	26	1	30
8. Expanded Occupation Opportunity	-	24	-	24
9. Employment of Higher Qualified Personnel	4	16	-	20
10. Increased Inservice Education Programs	2	13	1	16
11. Expansion of Work-Study Programs	2	10	4	16
TOTALS	103	334	162	599

Note: Other significant developments mentioned less frequently by citizens were: College-Level Technician Training; Coordination with Industry; Purchase of Additional Equipment; Information Dissemination; Research and Development; Apprenticeship Program; Encouragement for Dropouts; Programs for Local Needs; Adult Education; Youth Organizations; and Better Pay for Teachers.



To the staff of this report the most significant developments in New Mexico's recent vocational-technical education endeavors are:

- The increase in federal and state funds which has been made available for vocational-technical education programs in New Mexico since the Vocational Act of 1963.

- The improvement in public understanding of the vital social and economic roles vocational-technical education plays in the lives of our youth and our state.

- The expanded and improved vocational-technical education program offerings and related facilities which have recently been made available to both the secondary and post-secondary school age residents of New Mexico.

- The increase in citizen involvement in guiding the growth and relevance of the state's vocational-technical education programs.

- The activation of many local vocational-technical education youth organizations.

- The development of the state's vocational-technical education leadership.

- The increase in student enrollment, at all educational levels, in vocational-technical education.

- The increase in effort being devoted to research and evaluation focused on vocational-technical education in New Mexico.

DIRECTIONS FOR THE FUTURE

WHAT OBJECTIVES SHOULD GUIDE THE DEVELOPMENT OF VOCATIONAL-TECHNICAL EDUCATION IN NEW MEXICO IN THE 1970'S?

- The preparation and improvement of students for entering into gainful employment.
- The development of appropriate vocational-technical skills, attitudes, values, and understandings in prospective and on-the-job workers.
- The preparation of individuals to advance to more responsible and better paying jobs in the world of work.
- The maintenance, extension, and improvement of occupational training for secondary and post-secondary students, adults, and persons with special needs.

WHAT ARE SOME OF THE KEY SOCIOECONOMIC FACTORS WHICH SHOULD RECEIVE THE SPECIAL ATTENTION OF VOCATIONAL-TECHNICAL EDUCATION IN NEW MEXICO IN THE 1970'S?

SOCIOECONOMIC FACTORS

YOUTH

- New Mexico has the highest youth to population ratio and the lowest average age population in the nation.
- About 40 percent of New Mexico youth do not go to college; a majority of those who do go do not complete the first year.

EDUCATION

- College degrees will not be required for eight out of ten U.S. jobs in the 1970's.
- A majority of New Mexico's 1956-57 first graders entered the labor force in the 1960's without appropriate occupational training.
- The ethnic composition of the student body multiplies the problems of education. (Statewide average 1968-70: Anglo 54%; Spanish Surname 37%; Indian 7%; Negro 2%; Other 0.2%)

UNEMPLOYMENT

- Forty percent of those seeking New Mexico unemployment assistance in 1967-68 were 22 years of age or under.
- The New Mexico unemployment rate runs considerably higher than the U.S. average; in some counties unemployment resembles conditions prevalent during the Great Depression.

INCOME

- The total annual personal income of New Mexico is lower than that of all other states except Wyoming.
- New Mexico's annual per capita income in 1968 was $2,800 (28% below the national average).
- New Mexico's economy is significantly unbalanced compared to the entire U.S.; over half of the citizens are employed in mining and government compared to only a third of the nation as a whole; manufacturing accounts for 28% of the total U.S. employment but only about 6% of New Mexico's total employment.

JOB POTENTIAL

- New Mexico's economy needs to supply 147,000 new jobs in the next ten years to meet the increase in labor supply; indications are that such an increase is very unlikely.
- A service economy, like the one developing in New Mexico, requires workers with an above-average level of skills.

WHAT ARE THE PRESSING UNMET NEEDS OF VOCATIONAL-TECHNICAL EDUCATION IN NEW MEXICO?

The 350 vocational-technical education concerned citizens who helped to identify the most significant developments reported on pages 2 - 6 of this report also stated what they believed to be New Mexico's most pressing vocational-technical education's unmet needs:

Most Pressing Unmet Needs	Identified by			Totals
	Representatives of Business & Industry	V-T Educators; Counselors & Teachers	School Administrators	
1. Expansion of Programs	20	53	33	106
2. Increase in Occupational Opportunity and Job Placement	18	45	18	81
3. Additional Funding	8	35	29	72
4. More Area Vocational Schools	12	28	10	50
5. Better Qualified Vocational Personnel	7	32	8	47
6. Expansion of Jr. High V-T Curriculum	8	31	-	39
7. More Cooperative On-The-Job Training Programs	1	32	5	38
8. More Public Interest	7	27	-	34
9. Additional On-site School Evaluations	10	16	9	35
10. Increased Coordination with Industry	11	17	-	28
11. Additional Facilities and Equipment	2	10	15	27
12. More Vocational Counseling and Guidance	5	15	5	25
13. Added Small School V-T Programs	6	15	4	25
14. More Leadership	-	22	2	24
TOTALS	115	378	138	631

Note: Other unmet needs mentioned less frequently by citizens were: More Work-Study Programs; Revision of Certification Requirements; More Programs for College-Bound Students; Basic Skills Training; State Legislation; Adult Programs; Better Student/Instructor Ratios; and Development of Alumni Programs.

WHAT ACTIONS SHOULD GUIDE THE DEVELOPMENT OF VOCATIONAL-TECHNICAL EDUCATION IN NEW MEXICO IN THE 1970'S?

PROGRAMS

High priority items requiring increased funding levels are:

- Expansion and improvement of the vocational-technical curriculum in elementary, secondary, and post-secondary schools.
- More in-service education for all teachers and administrators.
- Improvement and expansion of equipment and facilities at all levels of education, especially in area vocational schools, skill centers and senior high schools.
- More work-study and scholarship aid for students.
- Increase in exemplary and innovative programs for regular, handicapped, and disadvantaged.
- Expansion and improvement of the vocational guidance programs in secondary and post-secondary schools.

RESEARCH

During the 1970's, New Mexico should include in its federally-funded vocational-technical education research program studies which will help find solutions to these major concerns:

- The development of effective evaluation programs, including the design and implementation of an in-depth, state-wide vocational information system.
- The pilot processing and final design of a state-wide vocational guidance and counseling information system.
- A substantial reduction in the number of students who drop out.
- A substantial increase in the number of students who are employed in fields of their training.
- The utilization of vocational-technical education to attract and hold business and industry.

FOLLOW-UP AND DROPOUT

Several efforts have been undertaken to determine what happens to New Mexico youth. Unfortunately none of these studies have been conducted in sufficient depth or over a long enough period of time to completely validate what happens to youth as they progress through school and into the world of work. Still, some of the studies do give us some directions for the future.

A statistical study on the first-grade class of 1956-57 revealed the following:

- No. of students entering first grade in 1956-57. . . 23,459 (100%)
- No. of students entering ninth grade in 1964-65. . . 18,818 (80.2%)
- No. of students graduated from high school in 1968 . 15,063 (64.2%)
- No. of students entering college in 1968-69. . . . . 6,628 (28.2%)
- No. of students expected to earn a degree in 1972. . 1,995 (9%)
- No. of students who completed vocational training in 1968. . . . . 4,415 (19%)

This study indicates quite clearly that over 35% of the youth did not complete high school, that only 9% can be expected to complete college, and over twice that many had completed vocational training.

Another New Mexico study on the 1968 high school graduates (made one year after graduation) revealed that students were distributed as follows:

	Number	Percentage
Attending college	6,338	44.0
Attending trade school	895	6.2
In the military	1,308	9.1
Housewife	1,043	7.3
Employed-skilled	1,531	10.6
Employed-unskilled	1,214	8.5
Unemployed	818	5.7
Not located	1,237	8.6
Total 1968 High School Graduates	14,384	100.0

Since the development of public vocational-technical education programs was barely launched in 1968, it is not surprising that the percentage of the total class attending trade school was so low (895 students). By 1970 this figure had probably increased many times, but due to the lack of a continuing follow-up system, data are not available.

One of the essential components which needs to be established in the 1970's is a student data information system. This system needs to be implemented on a long-term and continuing basis. It needs to provide both student dropout and student follow-up data.

CAREER OPPORTUNITIES

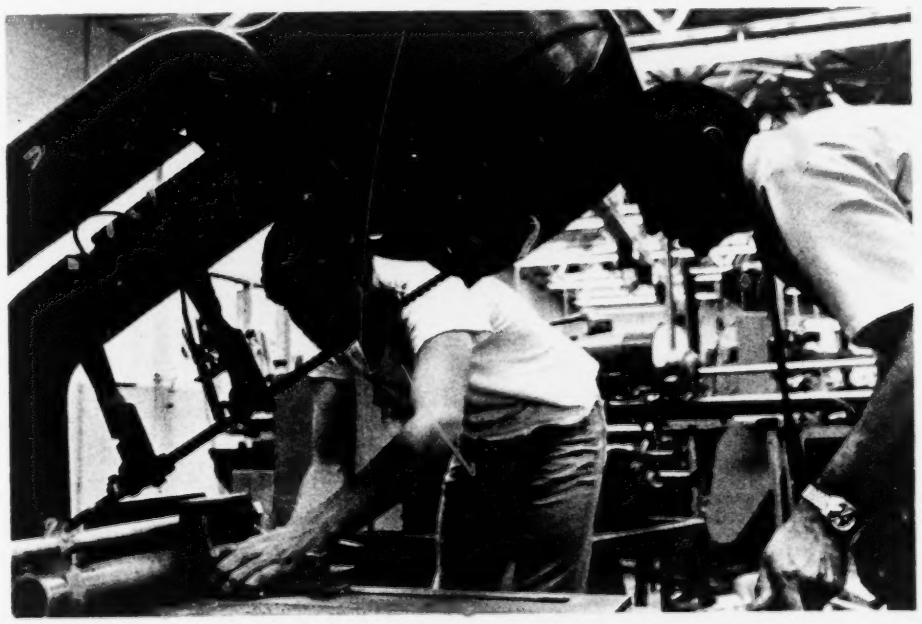
A second special vocational-technical education problem in New Mexico is that of securing employment. A critical shortage of continuously updated job information exists. A system is needed which will match available workers with job openings. This same system can provide input into curriculum design by clarifying the specific skills, knowledge, and attitudes which employers look for in prospective employees.

This system can help greatly to identify the employment patterns of different occupational fields. It can help education to learn which high school graduates are most desired in the job market and which should continue with post-secondary education. A 1969 New Mexico study revealed that only 54% of the graduates of secondary level vocational programs compared to 89% of the graduates of post-secondary level programs were employed soon after graduation. Does this mean that too many high school youth are considered too immature, inadequately skilled, or just what? In-depth long-term research is needed.

THE COLLEGE-BOUND LOCKSTEP

For years our schools have concentrated on college-bound programs. Parents in large numbers have demanded that their youth have college-bound opportunities. Youth and adult vocational guidance and counseling systems are needed to better inform students and parents of the many wonderful occupational opportunities which exist for youth who do not have or do not want to secure college educations.

New Mexico, like all states, needs a large number of skilled persons. Many of the skills are required in well-paying, mentally and physically satisfying jobs. Many of the skills are required in jobs that are essential to the economics and the moral well-being of the state. Breaking the college-bound lockstep and establishing a positive image for vocational-technical education have begun in New Mexico, but both still have a long way to go.



PROGRAM ADMINISTRATION

WHAT ORGANIZATIONAL RESPONSIBILITIES EXIST FOR THE INITIATION, IMPLEMENTATION AND EVALUATION OF NEW MEXICO'S VOCATIONAL-TECHNICAL EDUCATION STATE-WIDE PROGRAM?

The State Department of Education, guided by the State Board of Education and administered by the State Superintendent of Public Instruction, has a unit, the Vocational Education Division, which is primarily responsible for implementing the state-wide program. It receives assistance from several other state agencies, including the Board of Educational Finance, the Public School Finance Division of the Department of Finance and Administration, the Employment Security Commission, and the Bureau of Business Research of the University of New Mexico.

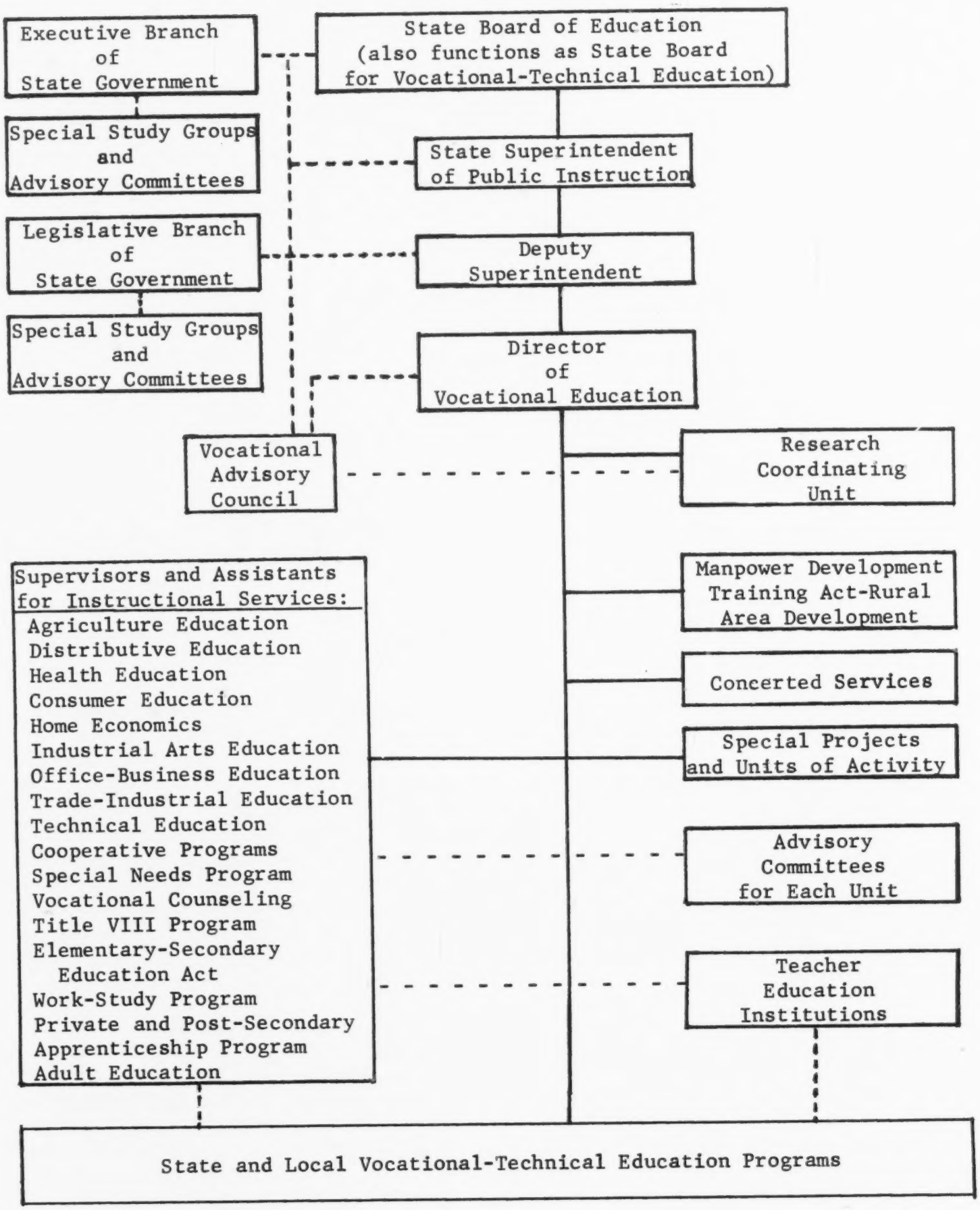
The implementation of vocational-technical education objectives is continuing to be enhanced by numerous federal programs of the U.S. Office of Education. The latest, and perhaps the most significant, are those instituted as a result of the Vocational Act of 1963 and the Vocational Education Amendments of 1968. These Amendments expanded upon the Act of 1963 and authorized additional vocational-technical education grants to the states and offered encouragement for the continuance and the broadening of earlier initiated programs. The Amendments encourage the formation of citizens advisory councils, the annual evaluation of all programs, the addition of programs for handicapped persons, the expansion of vocational counseling and guidance, the establishment of residential vocational-technical schools, the establishment of consumer and home economic programs, the expansion of work-study programs, the development of cooperative work-study programs for the disadvantaged, personnel exchanges with industry, and the expansion of research.

Programs of the Office of Economic Opportunity (OEO), Concentrated Employment Practices (CEP), and several other federal programs are operated in cooperation with the State Department of Education in the development of job training and student placement.

At the local level, public and private schools, colleges, and universities initiate and operate vocational-technical education programs with the guidance and assistance of the Vocational Education Division. Prevocational career orientation, vocational-technical exploratory opportunities, curriculum development, job placement, and teacher training are just a few of the many services performed for youths and adults of the State at the local educational level.

Citizens, through advisory councils, have considerable opportunity to support and guide both state and local agency vocational-technical education efforts. The New Mexico Vocational-Technical Education Advisory Council described on page 19 of this report is one such citizen input. Schools with vocational programs, such as Albuquerque's Technical-Vocational Institute (T-VI) and the Northern New Mexico School at El Rito, have many advisory committees composed of local citizens. Each of the groups advises its sponsoring school on items such as developing trends in local job opportunities.

ORGANIZATION-ADMINISTRATION OF VOCATIONAL-TECHNICAL EDUCATION IN NEW MEXICO



THE NEW MEXICO ADVISORY COUNCIL FOR VOCATIONAL-TECHNICAL EDUCATION

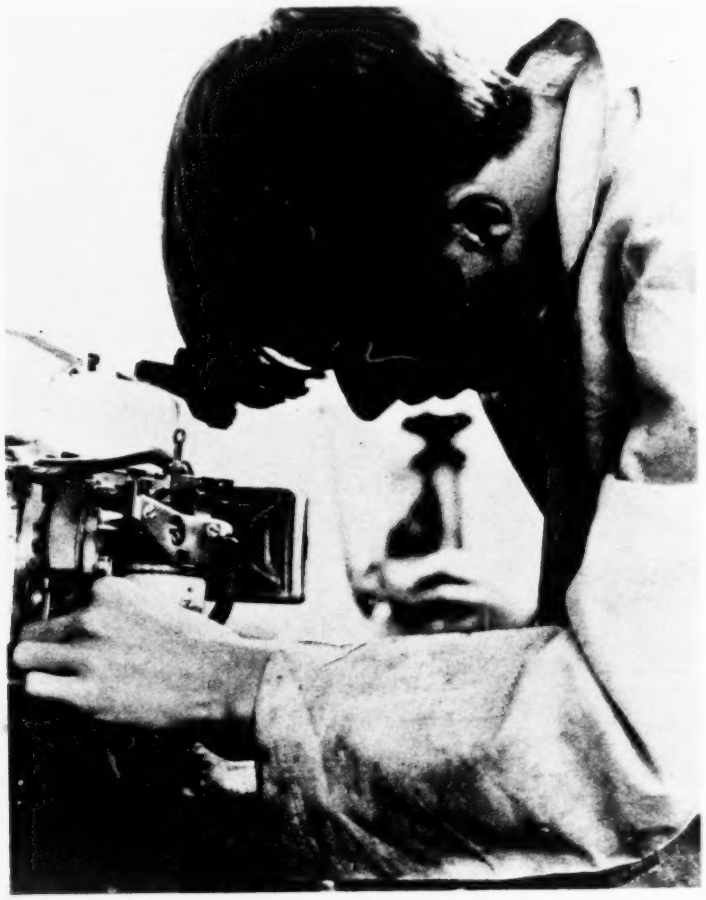
THE NEW MEXICO ADVISORY COUNCIL FOR VOCATIONAL-TECHNICAL EDUCATION is a committee appointed by the Governor to advise the State Board of Education and the State Board of Vocational Education on state-wide policy matters concerning vocational-technical education. The Advisory Council is responsible for an annual evaluation of the state's vocational-technical education programs, services, and activities funded under Public Law 90-576; this is virtually all of the public vocational-technical education available to residents of the State of New Mexico. This report is the second of two reports covering the 1970 annual evaluation; the first report, "An Evaluation of Post-Secondary Vocational-Technical Education in New Mexico" was released in December, 1969.

By law, members of the Advisory Council must broadly represent the vocational, education, commercial and industrial publics of New Mexico. The Advisory Council members during 1969-70 were:

- State Senator Jerry Apodaca, Agent, State Farm Insurance, Las Cruces
- Robert G. Call, Operating Manager, Montgomery Ward, Albuquerque
- Alva Coats, Retired, Associated General Contractors, Albuquerque
- Joe H. Herrera, Employment Specialist, New Mexico State Employment Service, Employment Security Commission, Albuquerque
- Wayne F. Johnson, Owner, Gulf Oil Products, Hobbs
- Nelson Lowery, Director, Vocational-Technical Education, Albuquerque Public Schools
- Melvin A. McCutchan, Sandia Corporation and National Alliance of American Businessmen, Albuquerque
- Ricardo M. Montoya, State Labor Commissioner, Santa Fe
- State Representative Robert M. Moran, President, Moran Oil Products and Drilling Corporation, Hobbs
- Joe Otero, Superintendent of Schools, Taos
- Pablo Roybal, President, Pojoaque Board of Education, Pojoaque
- Dr. William B. Runge, Professor of Education, the University of New Mexico, Albuquerque
- I. Abel Sanchez, Chief of Placement, Employment Security Commission, Albuquerque
- Dr. Al Soderblom, Professor of Technical Education, New Mexico Highlands University, Las Vegas
- Mrs. Edwin L. Swope, Housewife, Albuquerque
- Dr. Noah Turpen, Associate Superintendent of Schools, Albuquerque
- William Westmoreland, Facilities Specialist, Vocational Rehabilitation, Albuquerque

THE BUREAU OF EDUCATIONAL PLANNING AND DEVELOPMENT, THE UNIVERSITY OF NEW MEXICO, ALBUQUERQUE, NEW MEXICO, with the assistance of the State Department of Education, prepared this report for the New Mexico Advisory Council for Vocational-Technical Education.

Other studies in the field of vocational-technical education which have been completed by the Bureau of Educational Planning and Development include: The analysis of the feasibility of establishing community colleges possessing vocational-technical education components; the feasibility of establishing an area vocational-technical school; educational specifications to guide the architectural design of an area vocational school; statewide evaluation of post-secondary vocational-technical education; educational specifications for several high schools containing vocational-technical education centers; presentation of a U.S. Office of Education health occupations charrette; development of a training program for university staff personnel; presentation of a curriculum and facility proposal for a school housing the severely handicapped; preparation of educational and equipment specifications for a Model Cities early childhood program which is vocationally characterized by the development of community corporations and on-the-job training.



VT 012 587
Registered Apprentice Training Entry Requirements as Established by New York State Program Sponsors--1970 A Joint Report.

New York State Education Dept., Albany.
New York State Dept. of Labor, Albany. Div. of Employment.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 47p.

DESCRIPTORS - *OCCUPATIONAL INFORMATION; *ADMISSION CRITERIA; *APPRENTICESHIPS; *PROGRAM ADMINISTRATION; STANDARDS; RESIDENCE REQUIREMENTS; *QUALIFICATIONS; DEGREE REQUIREMENTS; VOCATIONAL EDUCATION; VOCATIONAL APTITUDE; VOCATIONAL COUNSELING; REPORTS

ABSTRACT - In summarizing minimum requirements and selection factors as established by sponsors of 483 registered apprenticeship programs, this document should prove valuable in the administration of programs as well as in the counseling of students. The report provides a compilation of entry requirements in the larger registered apprenticeship programs and provides information on such qualifications as age, citizenship, residency, education, aptitude, seniority, health, and criminal record. The data was extracted from those programs which enroll nearly three-fourths of the apprentices in (1) construction, (2) printing, (3) machine tool, (4) service and repairs, and (5) other manufacturing industries. (JS)

VT 012 587

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New York State
Education Department
Department of Labor

VT0 2587

Entry Requirements in Registered Apprentice Training - 1970

A JOINT STUDY

5179

REGISTERED APPRENTICE TRAINING
ENTRY REQUIREMENTS AS ESTABLISHED
BY NEW YORK STATE PROGRAM SPONSORS
- 1970 A JOINT REPORT

New York State

Department of Labor

Education Department

5180

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Highlights of Entry Requirements In Registered Apprenticeship Programs

The following is a summary of the minimum qualifications and selection factors established by program sponsors for 483 programs (in 92 trades) which have an enrollment of six or more apprentices.

Minimum Qualifications

Age - 441 programs have established minimum age requirements other than the age required by law; 388 programs have established maximum age limits; 106 of these make exceptions in the maximum age requirement for veterans.

Citizenship - 123 programs require applicants to be U.S. citizens.

Residency - 100 programs require applicants to be residents of New York State; 11 require county residence; and 84 require applicants to be residents of the area within the program sponsor's jurisdiction.

Education - 432 programs have minimum education requirements; 297 require applicants to be high school graduates; 135 establish minimal education attainment of less than high school graduation.

Seniority - 106 programs include seniority as a minimum qualification; 82 require seniority with the employer; one with the union; six in the industry; and 17 in the occupation.

Aptitude - 385 programs require applicants to possess aptitudes as demonstrated by tests; 194 programs utilize the New York State Employment Service as the test administrator. For the remaining 191 programs the sponsors administer the tests themselves or use services provided by other agencies.

Health - 292 programs require applicants to undergo a physical examination to establish physical fitness. The cost of this examination is paid for by the sponsor in 86 of these programs. Applicants are required to assume this cost in the remaining 206 programs.

No Criminal Record - Six programs require that applicants have no criminal record. Two programs require a police statement to demonstrate the absence of such a record while four programs will accept a statement from the applicant to this effect.

Selection Factors

Education - 323 programs award points for general education beyond the minimum requirements; 234 programs award points for technical education (the sum of these two figures exceeds the total number of programs because some programs award points for both general and technical).

Experience - 259 programs award points for work experience; 257 for military service; and 112 for seniority (the sum of these figures exceeds the total for the reason mentioned above).

Aptitude - 347 programs award points for job aptitude as measured by written tests.

Personal Traits - 337 evaluate and award points for personal traits by means of an oral interview (personal traits may include such items as ability to reason and comprehend, interest and motivation, ability to communicate, willingness to accept obligation of apprenticeship, etc.).

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INTRODUCTION

Article 23 of the New York State Labor Law describes the public interest in the apprenticeship system:

> Skilled manpower constitutes a great resource in this state. Apprenticeship programs, through supervised training and education, develop skilled craftsmen and help meet the increasing needs for such workers in the state's labor force. The continuing development of skilled manpower is essential for individual self-realization and for an expanding industrial economy. To these ends, it is the declared public policy of the State of New York to develop sound apprenticeship training standards and to encourage industry and labor to institute training programs.

This law assigns authority to carry out this policy to the Industrial Commissioner and establishes a State Apprenticeship and Training Council to advise him. Responsibility for providing related classroom and supplemental instruction required for the apprenticeship programs is assigned to the Education Department.

While these agencies have primary responsibility, the Federal Bureau of Apprenticeship and Training and to some extent the Veteran's Administration also have responsibilities in this field.

These governmental agencies deal with "registered" programs. Some employers in the State have formal apprenticeship training programs which are not registered with either the State or Federal agencies. Data covering such programs are excluded from the scope of this report.

An apprentice program is designated as "registered" when the sponsor voluntarily agrees in writing to:

- provide training in accordance with the standards and procedures approved by the Apprentice Training Section of the State Labor Department's Division of Employment,
- accept periodic visits from Federal or State agency representatives during the conduct of the program,
- provide information about the program and apprentices indentured under it, and
- select apprentices in accordance with the Industrial Commissioner's Regulations on equality of opportunity in apprenticeship.

The Industrial Commissioner's Regulations were issued in 1964, to implement Section 296 of the Executive Law. These regulations were issued to insure equality of opportunity for qualified persons in connection with registered apprenticeship programs. Each apprenticeship program registered with the Industrial Commissioner shall operate on the following basis:

- applicants shall be selected after full and fair opportunity for application on the basis of qualifications not based upon race, creed, color, or national origin. Such selection shall be made in accordance with objective standards which permit review
- after selections are made there shall be no discrimination on the basis of race, creed, color, or national origin in any phase of apprenticeship.

These Regulations require that each application for registration of an apprenticeship program shall include a statement of the selection

procedures and standards which the sponsor proposes to apply. Furthermore, no program may be, or remain, registered unless it includes an acceptable selection procedure and acceptable standards for admission. Notwithstanding the acceptability of its other provisions, a selection procedure is unacceptable if it fails to provide uniform application of the selection standards to all applicants. The complete text of the Regulations is contained in Appendix A.

This joint report of the Department of Labor and the Education Department of New York State provides a compilation of entry requirements in the larger registered apprenticeship programs as established by program sponsors in compliance with the Industrial Commissioner's Regulations. The data contained in this report were obtained from the statements of standards under which the individual programs were registered with the State of New York. These data were extracted from only those programs which enroll six or more apprentices. These larger programs enroll nearly three-quarters of the more than 23,000 registered apprentices in the State. The Office of Manpower Development, Division of Employment, State Department of Labor, and the Bureau of Occupational Education Research, State Education Department, prepared this report with two basic objectives:

- To provide governmental program administrators with a current statewide summary of minimum qualifications and selection standards for use in making evaluations and policy decisions.
- To provide local education people, and others who can be effective in encouraging youth to enter apprenticeship programs, with a general understanding of apprentice program recruitment procedures and entry requirements.

No attempt will be made in the report to analyze these entry requirements in terms of their meaning or impact.

The content of the report is divided into two parts:

The first summarizes the minimum requirements established by program sponsors. Minimum requirements represent those qualifications which each person must possess to apply as a candidate. These minimum requirements must be included in the public notice to apprentice training opportunities which must be disseminated each time new apprentices are to be recruited.

The second part summarizes the selection factors established by program sponsors. Each candidate is evaluated, rated, and ranked on the basis of each of these qualifications.

The data in each of these sections are presented largely in the form of a separate frequency table for each requirement or standard. The figures in each of these tables represent the number of program sponsors who have established the entry requirement as listed.

Part I MINIMUM QUALIFICATIONS

Age

One provision of Article 23 of the New York State Labor Law provides that apprentices shall not be less than 16 years of age. Of the 483 apprentice programs in New York State, 42 accept 16 as the minimum age. Of the remaining 441 programs, 107 have established 17 as the minimum age, while 334 have established 18 as the minimum age.

No maximum age is required by law. However, 198 sponsors reported a maximum age limitation in the range from 21 to 25 years of age; 163 sponsors reported a maximum age in the range from 26 to 30. Of the remaining programs, 27 set a maximum age at over 30, and 95 indicated they had no maximum age limitation.

Exceptions to the maximum age limitation are allowed for veterans by 106 of the sponsors. A prospective candidate for one of these 106 programs with a maximum age limitation may deduct the amount of time he has served in the armed forces from his age at the time of application to the program.

Table 1 shows the established minimum age requirements and maximum age limitations according to the industrial classification of the 483 apprentice programs, and the number of programs which extend the maximum age limit for veterans equal to the length of time spent in service. Appendix B contains a list of specific trades within each industrial classification.

Table 1

Age Requirements as Established by Program Sponsors.

Trade	Programs by Trade N*	Minimum Age (in years)			Maximum Age (in years)				Veterans Maximum Age Extension
		16	17	18	21-25	26-30	Over 30	None	
Construction	255	14	72	169	143	79	6	27	89
Printing	29	6	5	18	9	3	5	12	4
Machine Tool	117	13	18	86	27	50	10	30	8
Other Manufacturing	24	3	4	17	3	14	1	6	5
Service & Repair	58	6	8	44	16	17	5	20	0
TOTAL	483	42	107	334	198	163	27	95	106

*N = Total number of registered apprentice programs enrolling six or more apprentices.

Residency

Table 2 shows that U.S. citizenship is required by 123 sponsors. Five programs require applicants to be New York State residents, 11 require residence in the county in which the program is offered, and 84 require residence in the area within the program sponsor's jurisdiction.

Residency requirements range from less than 1 year to a period of 3 years.

Table 2

Residency Requirements as Established by Program Sponsors

Trade	Programs by Trade N	U.S. Citizen YES	State		County		Sponsor Jurisdiction	
			1 Yr. or less	2-3 Yrs.	1 Yr. or less	2-3 Yrs.	1 Yr. or less	2-3 Yrs.
Construction	255	103	5	0	7	4	43	39
Printing	29	0	0	0	0	0	0	0
Machine Tool	117	12	0	0	0	0	1	0
Other Manufacturing	24	2	0	0	0	0	0	0
Service & Repair	58	6	0	0	0	0	1	0
TOTAL	483	123	5	0	7	4	45	39

Education

Table 3 indicates that of 483 apprentice programs, 297 require applicants to be high school graduates. A minimal educational attainment short of high school graduation is required by 135 programs. The remaining programs did not indicate any educational requirement as a minimum qualification.

Table 3

Education Requirements as Established by Program Sponsors*

Trade	Programs by Trade N	Education		None
		H.S. Graduate	Less than H.S. Graduate	
Construction	255	153	78	24
Printing	29	17	7	5
Machine Tool	117	88	13	16
Other Manufacturing	24	11	9	4
Service & Repair	58	28	28	2
TOTAL	483	297	135	51

*Treatment of education as a minimum requirement is different from its treatment as a selection factor. Selection factors are explained in Part II.

Seniority or Experience

Seniority was reported as a minimum qualification by 89 sponsors. Of these 89 sponsors, 82 require seniority with the employer, one requires seniority with the union, and six require seniority in the industry. In addition, 17 sponsors require a prospective apprentice to have experience in the specific occupation in which he is seeking apprenticeship.

Table 4

Seniority Requirements as Established by Program Sponsors*

Trade	Programs by Trade N	Employer	Union	Industry	Occupation	None
Construction	255	22	0	2	2	229
Printing	29	9	0	2	11	7
Machine Tool	117	38	0	0	3	76
Other Manufacturing	24	7	0	2	0	15
Service & Repair	58	6	1	0	1	50
TOTAL	483	82	1	6	17	377

*Treatment of seniority as a minimum requirement is different from its treatment as a selection factor. Selection factors are explained in Part II.

Aptitude

Many sponsors require that applicants demonstrate general suitability for the apprentice program. Suitability has been defined by sponsors as successful performance--determined according to pre-established standards--on an aptitude test. Table 5 shows that in 194 programs an aptitude test is administered by the New York State Employment Service, a part of the State Labor Department's Division of Employment. In 191 programs a test is administered by the sponsor himself or by some other testing agency.

Note that treatment of aptitude as a minimum requirement is different from its treatment as a selection factor.

Table 5

Aptitude Requirements as Established by Program Sponsors

Trade	Programs by Trade N	Tested By	
		N.Y.S.E.S.*	Other (inc. Sponsor)*
Construction	255	127	93
Printing	29	9	12
Machine Tool	117	34	56
Other Manufacturing	24	2	12
Service & Repair	58	22	18
TOTAL	483	194	191

*The total of these two columns will not equal the total number of programs since some sponsors require no test while others require more than one. A more specific breakdown is not available at this time.

Health

Table 6 shows that a physical examination is required by 292 sponsors. In 86 of the programs, the sponsor pays for the physical while 206 programs require the applicant to pay for the physical.

Table 6

Health Requirements as Established by Program Sponsors

Trade	Programs by Trade N	Physical Examination		None
		Paid for by Sponsor	Paid for by Applicant	
Construction	255	14	166	75
Printing	29	11	7	17
Machine Tool	117	42	13	62
Other Manufacturing	24	4	3	17
Service & Repair	58	15	17	26
TOTAL	483	86	206	191

Police Record

Six programs, all in the construction trades, require proof that the applicant has no police record. Two of these six require such proof to be in the form of a police statement. The other four accept the applicant's statement that he has no police record. The remaining 477 programs have no requirement concerning the existence of a police record.

PART II SELECTION FACTORS

Once an applicant has met the minimum requirements for entry into an apprentice program, he is further evaluated on the basis of certain selection factors such as education, experience, and aptitude. This process is a rating procedure which determines the applicant's rank position on the apprenticeship applicant list. As openings occur in the apprentice programs, they are filled by applicants according to the applicants' rank order on the list.

The most prevalent way to determine the rank order is to award points for each selection factor. Although a selection factor may be the same as a minimum requirement, e.g. education, failure to meet a minimum requirement will exclude an applicant from further consideration while failure to score well in the selection process provides for no such exclusion. The effect that a low selection score will have is to place the applicant in a less favorable position on the apprenticeship list.

The following is an explanation of the selection factors as reported by the 483 sponsors. Sample evaluation forms are included in Appendix C.

Education

Table 7 indicates that education has been broken down for evaluation purposes into "General" and "Technical" education. Sponsors of 323 programs award points for "General" education. Sponsors of 234 programs award points for "Technical" education. There is also some overlapping since some sponsors award points for both.

Table 7

Education Selection Factor as Established by Program Sponsors

Trade	Programs by Trade N	Points For:	
		General Education	Technical Education
Construction	255	176	124
Printing	29	18	10
Machine Tool	117	72	61
Other Manufacturing	24	11	8
Service & Repair	58	46	31
TOTAL	483	323	234

Experience

Experience is established as a selection factor in all of the 483 programs. Points are awarded for work experience in 259 programs. In 257 programs points are awarded for military service and 112 programs award points for seniority.

In this instance, as in some previous instances, there is overlapping since some sponsors award points for more than one kind of experience. Therefore, the individual columns in table 8 will add to a total greater than the total number of programs.

Table 8

Experience Selection Factor as Established by Program Sponsors

Trade	Programs by Trade N	Points For:		
		Work Experience	Military Service	Seniority
Construction	255	130	136	32
Printing	29	15	14	18
Machine Tool	117	68	62	43
Other Manufacturing	24	10	11	6
Service & Repair	58	36	34	13
TOTAL	483	259	257	112

Aptitude

Sponsors of 347 programs award points for aptitude based on an applicant's performance on a written job aptitude test. Another means of determining aptitude is used by 373 sponsors. These 373 sponsors award points on the basis of information obtained in an oral interview.

Table 9 shows that, once again, there is overlapping since some sponsors administer both a written test and an oral interview.

Table 9

Aptitude Selection Factor as
Established by Program Sponsors

Trade	Programs by Trade N	Points For:	
		Written Job Aptitude Test	Oral Interview
Construction	255	187	206
Printing	29	19	20
Machine Tool	117	85	83
Other Manufacturing	24	15	12
Service & Repair	85	41	52
TOTAL	483	347	373

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Appendix A

State of New York
Department of Labor

Division of Employment

APPRENTICE
TRAINING REGULATIONS

Effective September 1, 1964

5201

12 NYCRR

Chapter IX-DIVISION OF EMPLOYMENT

Sub-chapter A-APPRENTICE TRAINING SECTION

PART 600. REGISTERED APPRENTICESHIP PROGRAMS-NON-DISCRIMINATION.

(Issued August 22, 1964, effective September 1, 1964)

Section 600.1 AUTHORITY.

It is the public policy of New York State, as expressed in Section 296 of the Executive Law, that there should be equality of opportunity in all phases of apprenticeship with no discrimination based on race, creed, color or national origin, and that all selections for registered apprenticeship programs shall be made in accordance with objective standards which permit review. The Industrial Commissioner is empowered by Section 811 of the Labor Law to encourage and promote the establishment of apprenticeship agreements which conform to state policy, to register approved apprenticeship agreements, to terminate such agreements and to promulgate appropriate regulations.

600.2 PURPOSE.

(a) These regulations are issued to assure equality of opportunity for qualified persons in connection with registered apprenticeship programs. Each apprenticeship program registered with the Industrial Commissioner shall operate on the basis of the following:

(1) Applicants shall be selected after full and fair opportunity for application on the basis of qualifications not based upon race, creed, color or national origin. Such selection shall be made in accordance with objective standards which permit review.

(2) After selections are made, there shall be no discrimination on the basis of race, creed, color or national origin in any phase of apprenticeship.

600.3 SELECTION STANDARDS.

(a) The application for registration of an apprenticeship program shall include a statement of the selection procedure and of the selection standards which the sponsor proposes to apply. The sponsors of apprenticeship programs registered prior to September 1, 1964 shall also furnish the Industrial Commissioner with such a statement within a reasonable period of time provided, however, that such statement must be furnished to the Industrial Commissioner prior to the establishment of a new applicant list.

(b) No program may be or remain registered unless it includes an acceptable selection procedure and acceptable standards for admission. Notwithstanding the acceptability of its other provisions, a selection procedure is unacceptable if it fails to provide uniform application of the selection standards to all applicants.

(c) Examples of acceptable standards are reasonable tests, school diplomas, school grades, occupationally necessary physical requirements, objective interviews, and previous work experience.

(1) A test is an acceptable standard if it is reasonably related to general intelligence and/or job aptitude and is developed and administered by competent organizations. A number of commercial and governmental organizations offers tests and testing services; educational, religious and charitable organizations may also qualify.

(2) Reasonable distinctions based upon applicability to training and job needs may be drawn among different types of diplomas or diploma equivalencies.

(3) Physical condition may be considered if it relates to the work which may be demanded of an applicant during or upon successful completion of apprenticeship. Health condition may also be considered.

(4) Where sponsor interviews are used to screen applicants for an apprenticeship program, the program sponsors shall develop and maintain a written formulation of objective criteria by which the interviewer is to judge applicants, and the interviewer shall prepare and maintain a written evaluation of the applicant in terms of the criteria.

(5) Applicants may be required to demonstrate adaptability to the occupations involved in the apprenticeship program. Whenever related previous work experience is considered as a measurement of such adaptability, an applicant must alternatively be permitted to demonstrate his adaptability through practical or applied tests.

(d) A written statement of the qualifications for admission must be given to each applicant prior to the time when each applicant is first required to demonstrate his qualifications.

600.4 APPOINTMENT OF APPRENTICES.

(a) Apprentices shall be appointed in order of rank, without regard to race, creed, color or national origin, after they have displayed qualifications in sufficient measure to meet minimum standards established by the program sponsors.

(b) (1) Each applicant, at least 10 days prior to the commencement of the apprenticeship term for which he has applied, shall be given written notification as to whether or not he has qualified for placement on the applicant list, and if he has so qualified, his ranking among the applicants. Further, such notification shall inform each qualified applicant whether or not he has been appointed and if not, the basis of non-appointment. The notification shall be sent by prepaid first class mail and the sponsor shall obtain from the postmaster, or his representative, a certificate of mailing showing the name and address of the addressee of the letter of notification.

(2) Such notification shall set forth the terms of any appellate procedure afforded by the program sponsors. Where an appellate procedure is afforded by the program sponsors, it shall provide for final determination and written notification thereof within 30 days of the appeal. Notwithstanding the availability of any such appellate procedure, each applicant who fails of appointment shall be advised in writing in such notification that he may register a complaint with the State Division of Human Rights if he believes that his failure to qualify on the applicant list, or his ranking on such list, or his failure of appointment, was caused by discrimination based on race, creed, color, or national origin, provided, however, that the complaint must be filed within one year of any such act of discrimination.

(c) After the commencement of the term of an apprenticeship program, the program sponsors may appoint available additional or replacement apprentices from the list in the order of their ranking thereon. Notice of such appointment shall be in writing. No applicant on the list may be passed over because of unavailability unless his unavailability extends seven days after delivery of notice.

(d) Complete records of the selection process shall be maintained by the sponsors for two years, or the life of the applicant list, whichever is greater, and shall be made available to the Industrial Commissioner upon request. Such records shall include copies of any written examinations taken by or documents submitted by or in connection with each applicant and a brief summary of each interview, if any, including the judgment of the interviewer for each applicant.

(e) Applicant lists compiled prior to September 1, 1964 may be used if no person had been excluded from such list because of race, creed, color or national origin. Such a list may not be used beyond September 1, 1965, unless prior to its compilation the program sponsor had publicly disseminated information about the availability of apprenticeship opportunities and had allowed a reasonable period of time for applicants to apply, or the list was compiled in accordance with subdivision (g) in this section.

(f) After September 1, 1964, the program sponsor shall, prior to the establishment of each applicant list, publicly disseminate full information about the availability of apprenticeship opportunities prior to the time of application, and allow a reasonable period of time for new applicants to apply and former applicants to reapply for apprenticeship. Full information about the availability of apprenticeship opportunities shall be posted at the normal place of application for the apprenticeship program and disseminated to the Employment Service and the Apprentice Training Section both of the New York State Department of Labor and to the local board of education provided, however, that where appointment is properly to be made in accordance with subdivision (g)of this section, such information need be disseminated only to the Apprentice Training Section.

(g) (1) Appointment may be limited to present employees of the employer and/or present members of the union sponsoring the apprenticeship program if employees have been hired and the members have been admitted without discrimination based on race, creed, color or national origin. Such appointments may be made on the basis of seniority of employment and/or seniority of union membership.

(2) The Industrial Commissioner may rely upon a certification of the sponsor that the employees have been hired and the members have been admitted without discrimination based on race, creed, color or national origin. Notwithstanding such certification, the provisions of this subdivision shall not apply if, after a hearing upon notice, or on the basis of a determination of the State Division of Human Rights, the Industrial Commissioner finds that such employees have not been hired and/or such members have not been admitted without discrimination based on race, creed, color or national origin.

(h) Notwithstanding the provisions of this section, nothing contained in subdivisions (b) through (g) hereof shall apply to an apprenticeship program which has not had for two years previously, does not have, and does not contemplate having during the term for which applications are being accepted, more than five apprentices at any one time.

600.5 NON-DISCRIMINATORY OPERATION.

After appointments have been made, there shall be no discrimination in apprenticeship including but not limited to job assignment, promotion, layoff or termination, rates of pay or other forms of compensation or conditions of work.

600.6 DENIAL OF REGISTRATION.

(a) The Industrial Commissioner shall deny registration to a proposed program unless the sponsors of such program provide reasonable assurances that it will comply with the procedures and substance of this regulation. The sponsors of such a proposed program will be given written notice of the denial of registration.

(b) The sponsors of a proposed program to which registration has been denied shall, upon demand, be entitled to a hearing and redetermination by the Industrial Commissioner within 30 days of their demand. If a complaint is pending against one or more of such sponsors before the State Division of Human Rights at the time when such hearing should be held or if an order of the Division to one or more of such sponsors has not been complied with to the satisfaction of the Division, the Industrial Commissioner may await the decision of the Division, and may, without holding a hearing, make a determination not inconsistent with the findings of the Division.

600.7 TERMINATION OF REGISTRATION

The Industrial Commissioner may, after hearing, terminate the registration of a program if he finds that it does not comply with the procedures and/or substance of this regulation except that if the State Division of Human Rights finds the existence of discrimination in connection with such program, the Industrial Commissioner may, on the basis of such findings, terminate the registration of such program without holding a hearing.

Appendix B

TRADES DECLARED APPRENTICEABLE
by the
New York State Apprenticeship and Training Council
With
Normal Term of Apprenticeship

CONSTRUCTION INDUSTRY AND ALLIED TRADES	No. of Years
Brick, Marble, and Cement Trades	
Bricklayer, Chimney	3
Bricklayer, Refractory	4
Bricklayer—Mason	3-4
Cement Finisher	3
Granite Cutter	3
Marble Bed Rubber	4
Marble Carver, Cutter and Setter	4
Marble Polisher	4
Stone Cutter (Building Trades)	4
Stone Mason	4
Stone Setter Mason	4
Bricklayer, Mason, Plasterer	4
Cleaners, Caulkers and Pointers	3
Woodworking Trades	
Carpenter	4
Millman	4
Plumbing and Heating Trades	
Asbestos Worker	4
Pipe Fitter	5
Pipe Fitter (Sprinkler Fitter)	5
Plumber	5
Plumber and Steamfitter	5
Steamfitter	5
Refrigeration and Air Conditioning Mechanic	5
Lead Burner	5
Interior Finishing Trades	
Lather, Metal	3
Lather, Metal and Wire	3
Lather, Wood	2
Lather, Wood, Wire and Metal	2-3
Painter and Decorator	3
Painter, Decorator and Paperhanger	3
Plasterer	3-4
Sheetmetal, Iron, and Roofing Trades	
Ornamental Iron Worker	3-4
Roofer	3-4
Sheetmetal Worker	4
Iron Worker (Structural)	2-3

	No. of Years
Tile, Glass, and Floor Covering Trades	
Glazier	3
Glazier, Stained Glass	4
Linoleum and Resilient Tile Layer	3-4
Linoleum, Resilient Tile and Carpet Layer or (Soft Tile and Carpet Layer)	3-4
Mosaic Worker	4
Terrazzo Worker	3
Tile Setter	3-4
Electrical Trades	
Electrical Lineman	4
Electrical Lineman (Telephone)	4
Electrician	4-5
Draftsman, Electrical	4
Electrician, Sign	5
Other Construction Trades	
Draftsman, Architectural	4
Draftsman, Structural	4
Operating Engineer, Universal Equipment	4
Operating Engineer, Grade and Paving Equipment	4
Operating Engineer, Plant Equipment	4
Operating Engineer, Heavy Duty Repairman	4
PRINTING INDUSTRY AND ALLIED TRADES	
Engraving and Composition trades, except Lithographic	
Compositor (A)	4-6
Compositor (B)	4-6
Compositor (C)	6
Designer (Steel Plate Engraver)	4-5
Die Stamper Pressman	4
Electrotyper	6
Engraver and Die Cutter	4-5
Photo Engraver (also Gravure: Roto-Gravure)	5-6
Photo Engraver; Ben Day Artist (also Gravure)	5-6
Photo Engraver; Cylinder Grinder and Polisher (also Gravure)	5-6
Photo Engraver; Etcher (includes Printers) (also Gravure)	5-6
Photo Engraver; Finisher and Engraver (also Gravure)	5-6
Photo Engraver; Stripper	5-6
Photo Engraver; Photographer (also Gravure)	5-6
Photo Engraver; Proofer	5-6
Photo Engraver; Retoucher (also Gravure)	5-6
Photo Engraver; Router (also Gravure)	5-6
Photo Etcher (Steel Slate Engraver)	4
Picture Engraver (Steel Plate Engraver)	5-10
Print Roller Router	4
Router Engraver (Steel Plate Engraver)	4
Stereotyper	6
Plate Finisher (Burnisher-Alterationist)	4
Plate Finisher (Plater Hammerer)	5
Plate Finisher (Die Finisher)	6
Siderographer	7

	No. of Years
Music Engraver	4
Die and Plate Prover	4
Plate Maker (Steel Plate Printing)	4
Engraver (Bank Note Script)	7
Engraver (Square Letter)	7
Electrotyper #2 (finisher)	6
Electrotyper #3 (molder)	6
Photo Engraver; First Year General	1
Press Trades	
Commercial Pressman	4-5
Cylinder Press Assistant and Rotary Press Assistant	2½
Cylinder Pressman (10,000 Hours)	5
Cylinder Pressman (11,000 Hours)	5½
Job Press Assistant	2
Job Pressman (10,000 Hours)	5
Job Pressman (11,000 Hours)	5½
Newspaper (Web) Pressman	5
Paper Ruler	4
Plate Printer Pressman	4
Pressman	5
Printer Pressman (Wallpaper)	4
Assistant Pressman	3
Folding Box Letter Press Pressman	5
Folding Box Cutting and Creasing Pressman	4-5
Lithographic Trades	
Lithographic Artist	5
Lithographic Ben Day Artist	5
Lithographer Dot Etcher	5
Lithographic Photographer	5
Lithographic Platemaker	5
Lithographic Press Operator	4
Lithographic Pressman	4
Lithographic Stripper	5
Lithographic Transferer	5
Bindery Trades	
Bookbinder	2-4
Bookbinder, Edition	4
Bookbinder, Looseleaf	5
Bookbinder, Pamphlet	5
Other Printing Trades	
Color Mixer (wallpaper or window shade cloth)	4
Mailer	5-6
Print Cutter (Wallpaper)	5
Printing Typecasting Machinist	6
Putter-On Sketch Maker	5
Folding Box Machine Adjuster (Maintenance Mechanic)	4

	No. of Years
MACHINE TOOL, METAL MANUFACTURING INDUSTRIES AND ALLIED TRADES	
Tool and Die Trades	
Die Maker	4-5
Die Maker (Paper Goods)	4
Die Maker (Shoe)	4
Die Sinker	7
Ornamental Die Sinker	5
Pantograph Machine Die Sinker	4
Tool and Die Maker	4-5
Tool and Jig Builder	4-5
Toolmaker	4-5
Trimmer Die Maker	4
Other Machine Shop Trades	
Machinist	4
Maintenance Machinist	4-5
Metal Spinner (Custom)	4
Millwright	4
Custom Gear Maker	4
Roll Turner	4
Machine Tool Mechanic	3-4
Machinist (Automatic Screw Machine)	4
Primary Metal Trades	
Blacksmith	4
Boilermaker	4
Coremaker	4
Moldmaker	4
Molder	4
Molder and Coremaker	4
Molder and Finisher (Hat Block Die)	4
Patternmaker	5
Sheetmetal Worker (Iron Plate)	4
Other Metal Trades, etc.	
Aircraft Sheet Metal Worker	4
Beer Pump and Block Tin Plumber	5
Draftsman Mechanical (or Designer)	4
Hat Machine Mechanic	4
Instrument Maker	4-5
Metal Plater (plates, hot dips)	3
Metal Polisher	3
Abrasive Laboratory Mechanic	4
Coppersmith	4
Heat Treater	

	No. of Years
OTHER MANUFACTURING INDUSTRIES TRADES	
Jewelry Manufacturing Trades	
Diamond Cutter	3
Diamond Setter	4
Diamond and Stone Setter	3½
Goldsmith	4
Jeweler (Hand Made)	3¼
Jeweler (Production)	2 3/4
Jewelry Caster	2½
Jewelry Polisher (or Mirror Lapper)	2 3/4
Press Hand (Jewelry)	2½
Silversmith	4
Toolmaker (Jewelry)	3
Crystal Cutter	3
Hub Cutter, Die Sinker (Jewelry)	4
Jewelry Moldmaker	3
Jewelry Chaser	2 3/4
Jewelry Engraver	2 3/4
Jewelry Lapper	3½
Model Maker (Jewelry)	4
Ring Faceteer	2½
Stone Setter (Jewelry)	3
Diamond Sawyer	3
Textile and Apparel Trades	
Card Fixer	3
Comb Fixer	3
Drawing Frame Fixer	3
Dyer (Textile)	3
Fur Cutter	2
Fur Finisher	2
Fur Nailer	2
Fur Operator	2
Garment Cutter (Men's Clothing)	2
Garment Cutter (Women's Clothing)	2
Jacquard Card Cutter	3
Jacquard Harness Tier	4
Jacquard Loom Fixer	4
Knitting Machine Fixer	4
Loom Fixer	4
Shoe Cutter (Hard Sole)	4
Shoe Maker—Custom Orthopedic	4
Spinning Frame Fixer	3
Glove Cutter, Table (leather)	2
Textile Finisher (card tender)	3
Twister Frame Fixer	3
Wool Sorter	3
Shirt Cutter (Short Knife)	3
Electrical Manufacturing Trades	
Cable Splicer (Telephone)	4
Electronic Laboratory Technician (or Electronic Technician)	4

	No. of Years
Woodworking Trades	
Boat Builder	4
Cabinetmaker	4
Cooper	3
Furniture Finisher (Painter)	3
Hand Wood Carver	4
Hat Block Carver	4
Patternmaker (Wood)	5
Ship Carpenter	4
Ship Joiner	4
Shipwright	4
Shipfitter	4
Stone, Clay, and Glass Manufacturing Trades	
Glass Blower	4-6½
Glass Engraver with Copper Wheels	4-6
Glass Engraver (Cut Glass)	4
Glass Equipment Mechanic	4
Melting Operator, Glass Furnace	3½
Optical Laboratory Technician	4
Optical Lens Grinder	4
Opto-Mechanical Technician	2
Pottery Kilnman	3
Pottery Presser and Caster	5
Sculptor	4
Stone Carver and Engraver	3
Precision Optics Polisher (Hand and Machine)	4
Grating Ruler (Optical Instrument Mechanic)	4
Flow Machine Operator	4
Granite Surface Plate Lapper	4
Other Manufacturing Trades	
Brewer	2
Brush Maker (Artist)	4
Draftsman Marine	4
Pipe Organ Building and Repairman	4
Prosthetic Appliance Mechanic	4
Saddlemaker	3
Sailmaker	4
Harpmaker	4
Chemical Laboratory Technician	4
SERVICE AND REPAIR INDUSTRIES TRADES	
Automotive	
Auto Body Repairman and Painter	4
Auto Glass Installation Mechanic	2
Automobile Mechanic	4
Automotive Machinist	4
Bus Body Repairman (or Truck)	4
Bus Electrician (or Truck)	4
Bus Mechanic	4
Bus Refinisher (Painter) (or Truck)	4

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	No. of Years
Diesel Engine Mechanic	4
Farm Machinery and Equipment Mechanic	4
Industrial Truck Mechanic	4
Truck Mechanic	4
Railroad	
Black Smith (Railroad)	4
Boilermaker (Railroad)	4
Carman (Car Inspector) (Railroad)	4
Electrician (Railroad)	4
Machinist (Railroad)	4
Sheetmetal (Railroad)	4
Aircraft Trades	
Aircraft Engine Mechanic	4
Aircraft and Engine Service Mechanic	4
Aircraft Instrument Mechanic	4
Airline Mechanic	4
Electrical Repair Trades	
Burglar Alarm Mechanic	4
Electric Motor Repairman	4
Elevator Electrician	4
Fire Alarm Mechanic	4
Maintenance Electrician	4
Radio Repairman	4
Radio and Television Repairman	4
Food Preparation Trades	
Baker	4
Baker (cake) (NYC only)	3
Cook (Chef)	3-4
Meat Cutter	2-3
Meat Cutter (Kosher)	3
Other Service and Repair Trades	
Barber	2
Business Machine Mechanic	2½
Business Machine Mechanic (Opto-Duplicating)	2½
Commercial and Advertising Artist	5
Commercial Photographer	3
Commercial and Portrait Photographer	3
Dental Laboratory Technician	4
Elevator Mechanic	4
Gunsmith	4
Instrument Mechanic	4
Locksmith	4
Pipe Fitter (Maintenance)	4
Rose Grower	4

	No. of Years
Scale Serviceman	3
Sewing Machine Mechanic	4
Signwriter and Pictorial Painter	4
Stained Glass Artist	4
Stationary Engineer	4
Tailor (Custom)	3-4
Upholsterer (Custom)	4
Watchmaker (Repairman)	4
Landscape Nurseryman	3
Maintenance Mechanic (Dry Cleaning and Laundry Equipment)	4
Dental Equipment Mechanic	2
Small Gas Engine and Equipment Mechanic	3
Appliance Serviceman	4
Photographic Equipment Technician	

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Appendix C

NEW YORK STATE DEPARTMENT OF LABOR
DIVISION OF EMPLOYMENT
Albany, New York

SUGGESTED STANDARDS AND PROCEDURES FOR COMPLIANCE WITH THE COMMISSIONER'S REGULATIONS ON NON-DISCRIMINATION IN REGISTERED APPRENTICESHIP PROGRAMS

The attached materials consist of a suggested statement of compliance and suggested forms to simplify the procedures by which sponsors of apprentice programs can meet the requirements of the Commissioner's Regulations on Non-Discrimination in Registered Apprenticeship Programs.

If a sponsor elects to use these materials, he will complete them by establishing the standards, criteria, and procedures which he elects to use and submit them in triplicate to the Industrial Commissioner for approval as meeting the requirements of the Regulations.

Upon approval, these materials will serve as devices to assist the sponsor in recruiting and selecting apprentices, and maintaining appropriate records, as follows:

1. Statement of Compliance - a statement which indicates, in detail, the minimum requirements of the Regulations and steps by which the sponsor may carry out these requirements. A sponsor may adopt this statement by filling in the requisite information called for on the last page of the statement, and affixing his signature.

2. Suggested additional forms for meeting obligations of the compliance statement:

   a. Notice of Apprentice Training Opportunity - provides a convenient means for giving public notice of the number of apprentice training opportunities and the minimum qualifications which applicants must possess to be considered for selection as an apprentice. The sponsor may establish minimum qualifications by checking and completing the items which pertain. The form also is used to identify how and where application forms may be obtained.

   b. Application for Apprenticeship - a standardized and simplified method by which an applicant may furnish the sponsor with requisite information about his minimum qualifications.

c. Notification of Status - indicates whether or not the applicant has met the minimum qualifications. If minimum qualifications have been met, the form provides for notification of where and when the applicant should report for interview and/or tests, if they apply. If minimum qualifications have not been met, the applicant is notified why, and what appeal procedure he may use.

d. Qualifications and Evaluation - a form procedure which identifies the qualifications on which an applicant will be evaluated and provides a method for rating and ranking each applicant on the basis of point values established by the sponsor. It also serves as the required notification to the applicant of the qualifications on which he will be evaluated.

e. Notification of Standing - informs the applicant whether he has been admitted, his qualifying score, his rank on the list, and time limitation for acceptance. If the applicant has been appointed as an apprentice, he is informed when and where to report. If the applicant has not qualified, he is informed of the reasons why, and the appeal procedures available to him.

NOTE: Copies of each utilization of these forms will become a part of the recordkeeping requirements of the Regulations.

STATEMENT OF COMPLIANCE

Regulations of the Industrial Commissioner
for
Non-Discrimination in Registered Apprenticeship Programs

As the sponsor of an apprenticeship program, we recognize that under Section 296 of the Executive Law of the State of New York, all qualified persons shall have equal opportunity in apprenticeship training, and we agree to adhere to the standards and procedures in the Apprentice Training Regulations on Non-Discrimination issued by the Industrial Commissioner, effective September 1, 1964, in accordance with Section 811 of the Labor Law.

The following procedures will be used in the recruitment, selection, and employment of apprentices:

A. Notification Requirements - Recruitment of Applicants

1. Public notice of apprentice training opportunities will be given each time new apprentices are to be recruited.

2. This notice will be:

   a. Posted at the normal place of business.

   b. Given to the following public agencies:

      (1) District Office of the N.Y.S. Apprentice Training Section.
      (2) Local Board of Education.
      (3) Local Office of the New York State Employment Service.

   Alternate: Where applicants will be selected only from existing employees, notification will be made only to the District Office of the N.Y.S. Apprentice Training Section. Certification is hereby made that present employees have been hired and that union members have been admitted without discrimination based on race, color, creed, or national origin.

3. This notice will contain the following information:

   a. Estimated number of apprentice job openings to be filled.

   b. Eligibility requirements.

   c. Where applications may be obtained.

   d. When applications are to be submitted.

B. Selection Standards

1. The objective standards and procedures, which are attached, will be used in the recruitment, evaluation, and selection of each apprenticeship candidate.

2. These standards will be furnished to each applicant prior to the time he is called on to demonstrate his qualifications.

3. Candidates will be selected for appointment as apprentices in order of rank determined as follows:

   a. A minimum qualifying score for admission to apprenticeship list will be established prior to the evaluation of candidates.

   b. Each candidate will be evaluated and rated on each of the qualifications to be evaluated.

   c. The individual scores will be added to obtain a total score for each candidate.

   d. Each candidate with a minimum qualifying score or greater will be ranked on the basis of his total score. The candidate obtaining the largest score will receive rank position 1, and so forth.

4. Additional or replacement apprentices, selected after commencement of the term of an apprenticeship program, will be selected in order of rank from the list and required notifications given.

C. Notification to Applicants

1. At least 10 days prior to the time when tests and/or interviews are to be held, each applicant will be notified in writing that:

   a. He does meet the initial minimum qualifications, the time and place to report for tests and/or interview, and the qualifications on which he will be evaluated, or:

   b. He does not meet the initial minimum qualifications, the reasons why, and the appropriate appeal procedure.

2. At least 10 days prior to the start of the term of apprenticeship, each applicant who has met the initial minimum requirements will be notified in writing of the following:

   a. Whether he has qualified with a minimum passing score, or greater.

   b. If qualified, his standing on the apprenticeship list.

   c. Whether he is appointed as an apprentice.

   d. If not appointed, the reasons for not being appointed.

   e. Availability of appeal procedure afforded by program sponsor.

   f. Applicants' right to register a complaint within 90 days to the State Commission for Human Rights if any discrimination based on race, creed, color, or national origin was involved in the selection processes.

   NOTE: This notification will be sent by prepaid first class mail. A Certificate of Mailing will be obtained from the Postmaster, showing the name and address of each applicant notified.

3. No applicant on the list will be passed over for appointment because of unavailability unless he fails to respond in 7 days after notice has been delivered.

D. Records Subject to Review

1. The following records will be kept for 2 years, or for the life of the apprenticeship list, whichever is greater:

   a. Records showing that appropriate public notice has been made.

   b. Records showing all applications received.

   c. Records of the complete selection process, including standards used, evaluations made, and ranking of each applicant.

   d. Records of notification of standing to each applicant.

E. Non-Discrimination after Employment

1. After appointments have been made, there shall be no discrimination in apprenticeship including, but not limited to, job assignment, promotion, lay-off or termination, rates of pay or other forms of compensation, or conditions of work.

During the past 2 years, this program has had an average of _____ apprentices in training at any one time and contemplates having _____ for the foreseeable future.

_____
Signature of Sponsor

_____
Sponsor

_____
Date

_____
Address

N O T I C E
of
APPRENTICE TRAINING OPPORTUNITY

_____, located at
(Sponsor)

_____
(Address)

is presently accepting applications for an estimated _____ apprentice training positions in the occupation of _____.
(No. openings) (Trade)

If you are interested in taking advantage of this training opportunity and meet the following qualifications as checked, you are eligible to apply.

MINIMUM QUALIFICATIONS

Age

/_/ Age _____ to ____.

Education

/_/ Completed ____ grades of school /_/ or equivalent as recognized by local school authorities.

/_/ High school diploma /_/ or equivalent as recognized by local school authorities.

/_/ Other. _____.

Seniority

/_/ Be employed at least ____ months as a _____.
(Job Title)

/_/ Other. _____.

Physical Condition

/_/ Be physically able to perform the work required as determined by _____.

/_/ Other. _____.

Aptitude

/_/ Ability to pass aptitude tests administered by the New York State Employment Service.

/_/ Other. _____.

Application forms may be obtained:

_____

_____

_____

All applications must be postmarked no later than _____.

(To be filled in by sponsor)

INSTRUCTIONS AND INFORMATION FOR APPLICATION FOR APPRENTICESHIP

_____, located at
(Sponsor)

_____, is presently
(Address)

accepting applications for an estimated _____ apprentice training positions in
(No. openings)

the occupations of _____.
(Trade)

If you are interested in taking advantage of this training opportunity, you are eligible to apply if you meet the following qualifications which have been checked.

MINIMUM QUALIFICATIONS
(only those which are checked)

Age

/_/ Years _____ to _____.

Education

/_/ Completed _____ grades of school /_/ or equivalent as recognized by local school authorities.

/_/ High school diploma /_/ or equivalent as recognized by local school authorities.

/_/ Other. _____.

Seniority

/_/ Be employed at least ____ months as a _____.
(Job Title)

/_/ Other. _____.

Physical Condition

/_/ Be physically able to perform the work required as determined by _____
_____.

/_/ Other. _____.

Aptitude

/_/ Ability to pass aptitude tests administered by the New York State Employment Service.

/_/ Other. _____.

To apply, fill in the information on attached sheet and submit to:

_____

_____.

Applications must be postmarked not later than _____.

APPLICATION FOR APPRENTICESHIP

Name: _____
Last First Middle

Social Security Number _____

Address: _____
Street

Date of Birth _____
Month Day Year

_____
City State Zip Code

EDUCATION (Circle highest grade completed)

Grade School 1 2 3 4 5 6 7 8 High School 9 10 11 12 College 1 2 3 4

Name of School and City — Dates Attended From To

_____

_____

_____

Claim of High School Equivalency -- Give details: _____

EMPLOYMENT

Present Employer — Your Job Title

_____ _____
(Name of Employer)

Duties Performed

_____
(Address)

Date Hired: _____
Month Day Year

Previous Employer — Your Job Title

_____ _____
(Name of Employer)

Duties Performed

_____
(Address)

Employment Dates From: _____ To: _____
Month Year Month Year

Previous Employer — Your Job Title

_____ _____
(Name of Employer)

Duties Performed

_____
(Address)

Employment Dates From: _____ To: _____
Month Year Month Year

MILITARY EXPERIENCE — Duties Performed

Armed Force _____ Rank/Rate _____

Length of Active Duty _____ years _____ months

NOTIFICATION OF STATUS

TO: _____
Name of Candidate

_____
Address

Your application for apprenticeship has been received.

/_/ You do not meet the minimum qualifications of:

/_/ Age _____

/_/ Education _____

/_/ Employment _____

/_/ Physical Condition _____

/_/ Other: (Specify) _____

/_/ You appear to meet the initial minimum qualifications and are to report to _____
(Location)

on _____ for /_/ Tests.
(Date)

/_/ Interview.

Your selection as an apprentice will be determined on the basis of the Qualifications for Evaluation, as checked on the attached sheet.

If you have been disqualified and believe that this decision may have been reached in error, and that you should have further consideration, you may request the sponsor to review your application. The request should be made in writing, with a detailed indication of why further consideration is deserved. If you believe your failure to qualify was caused by discriminatio based on race, creed, color, or national origin, you may file a complaint, within 90 days, with the State Commission for Human Rights.

_____
Signature of Sponsor

_____
Sponsor

_____ _____
Date Address

5223

QUALIFICATIONS AND EVALUATION

Name of Candidate _____ Trade _____

Address _____

	Maximum Points Allowable	Number Years Credited	Score
(Only those checked apply)			
EDUCATION TOTAL			
/_/____ points for each year of education past the ____ grade or equivalent as recognized by local school authorities.			
/_/_____ points for each year of technical education past the _____ grade or equivalent as recognized by local school authorities.			
/_/ Other:_____.			
EXPERIENCE TOTAL			
/_/_____ points for each year of work experience.			
/_/_____ points for each year of military experience.			
/_/ Other:_____.			
SENIORITY TOTAL			
/_/_____ points for each year of employment with the sponsoring firm.			
/_/ Other:_____.			
JOB APTITUDE TOTAL			
/_/ Measured through test administered by _____. Test results (Name of Organization) will be converted to the_____point scale on a proportional basis.			
/_/ Other:_____.			
PERSONAL TRAITS (Evaluated by interview) TOTAL			
/_/ Personality characteristics important in apprenticeship.			
/_/ Ability to communicate.			
/_/ Willingness to accept obligation of apprenticeship.			
/_/ Ability to reason and comprehend.			
/_/ Interest and motivation.			
/_/ Other:_____.			
/_/ Other:_____.			
TOTAL ALLOWABLE POINTS		TOTAL SCORE	

MINIMUM QUALIFYING SCORE _____ RANK _____

Evaluated by:_____
Signature

Sponsor:_____

_____
Date

5224

NOTIFICATION OF STANDING

TO: _____
Name of Candidate

_____
Address

Minimum qualifying score _____ /_____/

Your score _____ /_____/

The following checked items indicate your status:

/_/ You fail to qualify for admission to the apprenticeship list because you --

/_/ Failed to take the required tests.

/_/ Failed to appear for interview.

/_/ Failed to achieve minimum qualifying score.

/_/ Other: (Specify)_____

_____

/_/ You qualify for admission to the apprenticeship list and your rank is /_____/

/_/ You are not appointed at this time because there are _____ apprentice positions available, and these positions will be filled in order of rank.

/_/ You are officially appointed as an apprentice and are to report to:

_____
(Name)

_____ on _____.
(Location) (Date)

If you do not report on this date, or contact us within 7 days after delivery of this notice, we will assume that you do not wish to accept this appointment.

If you have been disqualified and believe that this decision may have been reached in error, and that you should have further consideration, you may request the sponsor to review your application. The request should be made in writing, with a detailed indication of why further consideration is deserved. If you believe your failure to qualify was caused by discrimination based on race, creed, color, or national origin, you may file a complaint, within 90 days, with the State Commission for Human Rights.

_____
Signature of Sponsor

_____ _____
Date Sponsor

5225

VT 012 593
Gillie, Angelo C., Ed.
The Honolulu Conference on Community College Occupational Education.

Hawaii Univ., Honolulu. Community Coll. System.
MF AVAILABLE IN VT-ERIC SET.

PUB DATE - Dec68 40p.

DESCRIPTORS - CONFERENCE REPORTS; *COMMUNITY COLLEGES; *STATE COLLEGES; *COLLEGE ADMINISTRATION; *STATE AID; *VOCATIONAL EDUCATION; EDUCATIONAL OPPORTUNITIES; COLLEGE ROLE; CURRICULUM DEVELOPMENT; CURRICULUM EVALUATION
IDENTIFIERS - HAWAII

ABSTRACT - At this 1-day conference on community colleges and vocational education, conferees discussed papers on the history and present status of vocational education and Hawaiian community colleges, after which national trends and their relation to the local picture were considered. After a discussion of the future role of research and evaluation, the conference concluded with a critique of the question-answer periods which followed the presentations. Papers were presented by Richard H. Kosaki, Samson S. Shiegetomi, Lewis R. Fibel, Angelo C. Gillie, and David R. Lynn, all of whom are community college administrators. (BH)

VT 012 593

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THE HONOLULU CONFERENCE ON COMMUNITY COLLEGE OCCUPATIONAL EDUCATION

Edited by

Dr. Angelo C. Gillie

Conference Coordinator and
Director of Technical-Vocational Programs,
Community College System

University of Hawaii, Community College System
Honolulu, Hawaii

December, 1968

VT012593

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PREFACE

Early in the summer of 1968, it was felt that a one-day conference devoted to community college occupational education would be of value to certain groups and individuals in the State of Hawaii who had a stake in Vocational Education. Upon deciding to go ahead with the conference, a two-element problem had to be dealt with:

1. What topics should the conference cover?

2. Who should be invited to be conference participants?

The delimitation of the conference to certain topics was not an easy task because of the great wealth of information available on two-year college occupational education. After considerable thought, it seemed most appropriate to devote half the conference time to Hawaiian issues related to the overall topic, and the remainder of time to those national trends and issues that are now, or might in the future, affect Hawaii and its community college system.

Because of space limitations, it was necessary to limit the conference to forty participants. Invitations were given to persons concerned with vocational education from several segments of the Hawaiian community, including: business, industry, labor, civic organizations, state officials and legislators, Department of Education, and the Community College System.

Much of the morning session was devoted to reviewing the Hawaiian Community College Occupational Education story. Dr. Kosaki first presented a history of the role of the Community Colleges and Occupational Education. This was followed by Mr. Shigetomi's treatment of the present state of Occupational Education in the Hawaiian Community College System. These presentations were followed by a question-answer period.

The conference then shifted gears and began to examine the national scene. This was initiated by the presentation of Dr. Fibel, in which he dealt first with the national picture today, and then went on to indicate some of the most salient trends for the future. The final presentation was made by this writer, in which the increasingly important role of research and evaluation in community college occupational education was discussed.

These papers were also followed by a question-answer period, in which the relationships between the national picture and the local situation were made more apparent. A critique of the question and answer sessions was prepared by Mr. Lynn and is included in this report.

As Conference Coordinator, I found the experience enjoyable and rewarding. Special thanks are extended to the conference speakers and to those that assisted in the planning and conduct of this event.

Angelo C. Gillie
Honolulu, Hawaii
December 16, 1968

COMMUNITY COLLEGES, THE UNIVERSITY, AND
OCCUPATIONAL EDUCATION IN HAWAII

By Richard H. Kosaki

We have invited you--community leaders, Department of Education officials, and our own community college personnel--to come to this Conference to help the community colleges plan more effectively for occupational education. We will review past and present activities and, with the assistance especially of our special consultant, Dr. Lewis Fibel of the American Association of Junior Colleges, we hope to plan for the future.

Occupational education is one of the essential programs in a comprehensive community college. Here in Hawaii, for the present and immediate future, I deem it the most important program in our community colleges.

Nationally, there seems to be a re-awakening to the need for technical and vocational education, and a growing understanding that the community colleges should be doing more of in this field. Recent developments in Hawaii place us in the forefront of this movement.

But the concern that community colleges, as colleges or institutions of higher education, will emphasize the more "respectable" academic education at the expense of vocational education persists. This feeling gains additional support in Hawaii, because the University of Hawaii administers the community colleges.

A certain amount of skepticism that a University can handle occupational education (in the narrower sense which excludes law, medicine, etc.) is healthy. And in the educational thicket, each one should guard his kuleana.

In assuming the administration of the community colleges, the University of Hawaii was well aware of its responsibilities in the field of occupational education. One of its first acts was to request the consultant services of Professor Norman C. Harris of the University of Michigan, a recognized authority on occupational education in community colleges. In the Foreword to his very helpful report, entitled "Curriculum Development for Hawaii's Community Colleges with Emphasis on Occupational Education," I stated:

> It is in the increasingly important area of occupational education that Hawaii's community colleges can be of great service to the State. Assuming jurisdiction of the technical schools makes the University of Hawaii all the more conscious of its responsibility in this field.

A better indication that the University's administering of the community colleges has not de-emphasized occupational education can perhaps be gained from the enrollment records. When the four technical schools were transferred to the University in 1964, the campuses had a total enrollment of 1,874 students, all of whom were in occupational programs. The Fall 1968 enrollment on five campuses was 5,494 students, an increase of 173 percent in three years. While much of the gain in 1968 was at the new Leeward campus with its predominant college-transfer program, the occupational students now number 3,800, which is a 89 percent increase in occupational students over 1965. Although the college transfer and general education programs will probably grow more rapidly in the next few years, we are projecting that of the 10,044 day students we expect to enroll in our community colleges in 1972, the occupational students will outnumber the liberal arts students by 6,202 to 3,842. In 1975, when we reach "maturity," we see a balance of 7,790 occupational students to 7,293 liberal arts students in our total enrollment of 15,083 day students.

In terms of occupational programs, we have deleted a program--"machine shop" at Kauai Community College. We no longer carry this as a full-time specialty because of low enrollments (consistently under ten students) on Kauai but do provide for it now as a supplementary training program. At Honolulu Community College, we began and then dropped a day program in "plumbing"; here again the problem was primarily lack of students.

On the other hand, we have begun several new programs: data processing, business mid-management, police science, fire science, library science, practical nursing on Maui (and soon on Kauai), and have provided for more options in the business and hotel-restaurant programs. We now have under active consideration programs for general technicians and several in the health fields.

We are not only on the hunt for new occupational programs, but we are also seeking better curriculum patterns and more effective learning and teaching processes. We think that special attention to new learning techniques can be especially rewarding in occupational education, and far too little experimentation has taken place in this area.

We also seek a new emphasis, for we find that occupational education more easily attracts (though it should not be held as the only alternative for) the so-called "disadvantaged" and the older student. (It is significant that over one-third of those who enroll in our occupational programs are not last year's high school graduates and come to us with some experience in the world of work.)

We, of course, are also seeking new solutions to old problems--of better articulation with the high schools as well as four-year institutions (the list of four-year institutions which will accept our occupational students with transfer credits is growing) and of providing better programs for part-time and evening students.

These are concerns that I know you share with us. We appreciate your participating in this Conference today to help us evaluate our current programs and to assist us in providing more effective occupational education in the future.

COMMUNITY COLLEGE OCCUPATIONAL EDUCATION IN HAWAII: THE PRESENT

By Samson S. Shigetomi

Each state develops a system which meets its specific requirements. Hawaii, up until June, 1964, provided vocational-technical education through its five technical schools which were administered by the State Department of Education. However, with the passage of Act 39, SLH 1964, the Board of Regents was authorized to establish community colleges in the State of Hawaii and to include four of the existing technical schools in this development. As a result of the mandate, Hawaii Technical School on the island of Hawaii was exempted and still operates under the Department of Education. The exclusion of Hawaii County makes statewide planning and coordination awkward and sometimes difficult.

Educators will certainly disagree as to which is the best way to develop community colleges. Some say that the occupational programs should be developed first so that this type of program will not be de-emphasized. On the contrary, others feel that it is easier to develop a comprehensive two-year institution by starting off with the transfer programs. Nevertheless, Hawaii's community colleges seem to be well on their way, growing and expanding by leaps and bounds.

In 1964-65, the initial year of operation, the total operating budget for the Community College System was $1.16 million. In two years, the total budget more than doubled to $2.78 million. Again, within 2 years the 1968-69 budget almost doubled the 1966-67 figure. Today with 5 community colleges in operation, the total operating budget is $4.79 million.

During the last year of operation as technical schools, Honolulu, Kapiolani, Maui, and Kauai had a total enrollment of 1500 students. All of the campuses, with the exception of Kauai Community College, either doubled or tripled their enrollment by 1967-68. By 1967-68 the total enrollment in day programs was 3494. In 1968-69 with Leeward Community College opening its doors for the first time, the total enrollment soared to 5510 students.

To keep up with the increase, the graph indicates that the number of BOR* and Civil Service positions increased proportionately. From 99 BOR positions in 1964-65, the number of positions increased to 274 in 1968-69. Likewise, Civil Service positions also climbed from 17 to 73 during the same period.

In terms of capital improvement, the colleges have enjoyed phenomenal growth for the first three years. Starting in 1964-65, with approximately $695,000, the figure jumped to almost 10 times as

* Board of Regents (Editor's note)

much or $6.82 million in 1967-68. Unfortunately, the 1968-69 capital improvement budget has dropped to a dismal $2.64 million.

Besides increases in enrollment and expenditures, there were other changes that were taking their courses. The community colleges not only expanded their counseling and guidance services, continuing education offerings, and occupational programs but also included as their purposes education for transfer, community services, and remedial or developmental education. The latter provides opportunities for those students whose achievements and preparation in high school do not meet the necessary requirements for entry into some occupational programs.

Because of the expansion of the functions of the colleges, perhaps some of you are wondering how much of the increases in enrollment and expenditures can be attributed to the growth of vocational-technical education. Although actual dollar amounts are not available, the increase in enrollment due to transfer education at Honolulu Community College, Kapiolani Community College, and Kauai Community College has been negligible.

This leads us to a topic which makes the above campuses unique when compared with Mainland community colleges. The ratio of occupational education majors to transfer education majors at Honolulu Community College is 90:10, at Kapiolani Community College 90:10, and at Kauai Community College 86:14. This same ratio in the community colleges in California and other states seems to vary from 40:60 to 30:70. Maui Community College's ratio of occupational education majors to transfer education majors is 52:48.

The community colleges are currently offering over 35 occupational programs. The majority of the programs lead to both the certificate and associate degree. The certificate programs require 30-40 units* while the associate degree curricula require 60-64 units. In the business family of occupations, the colleges offer such curricula as account clerk, accounting, bookkeeping, business data processing, clerk-typist, general business, secretarial, and stenographic.

In the mechanical occupations, we have aeronautics, automotive technology, auto body and painting, heavy equipment maintenance, machine shop, diesel mechanic, and refrigeration and air conditioning.

Speaking of air conditioning, let me tell you a story about an eighty-five year old man who wanted to marry a girl of twenty-one.

"Don't do it," advised his doctor, "for that you need young blood."

"Oh, I've got young blood," said the bridegroom, "but it's in an old container."

* Semester Hours (Editor's note)

"But why do you want to marry such a young girl?"

"Because, doctor, I've always wanted an heir."

"Well," said the doctor, "I can see you're heir-minded, but you're not heir-conditioned."

For food services, the programs include institutional food service, commercial baking, commercial cooking, dining room service, food cost control, and pantry.

Carpentry, architectural drafting, civil engineering technology, sheet metal, and welding comprise the construction and civil engineering family of occupations.

In the electrical and electronics fields, we have two programs, electrical technology and electronics.

Under health occupations, Kapiolani Community College offers dental assisting, practical nursing, and nurse's aide.

The popular personal service occupations include cosmetology and fashion arts, more commonly known as commercial sewing.

And finally, there is the family of public service occupations. Although at present there are only three programs--police science, fire science, and library aide--we will be expanding our offerings very shortly. By participating in the new careers program, we will provide an additional six new curriculums in the human services field.

The Community College System became involved in the new careers and M.D.T.* programs, because it felt that the role of a community college is not merely to serve the post-secondary student but to meet the needs of the adult, apprentice, and students with special needs whose handicaps prevent them from succeeding in the regular occupational programs. If the colleges are to evoke the full utilization of our youth and adults, talented or handicapped, rich or poor; if they are to afford all students from the educationally handicapped to the brightest the opportunity to prepare for jobs of less complicated nature to the highest level of skill occupations; if they are to combat the paradoxical manpower problem; then they must prepare untrained, unemployed, or underemployed persons to fill positions that remain unfilled in our affluent society.

New careers, under the able directorship of Mrs. Taufaasau of the Department of Personnel Services, is part of the concentrated employment program which is planned to operate for three years. The purpose of this program is to develop career opportunities in the human services occupations for the disadvantaged population. Eighty enrollees will be selected from the Kalihi-Palama and Waianae coast target areas and will be assigned to six participating State

* Manpower Development and Training (Editor's note)

agencies. On the average, the enrollees will be receiving 30 hours a week of on-the-job experiences and will be required to attend classes approximately 10 hours a week.

Depending on their choices, the trainees will be working as educational aides, health aides, social service aides, and as aides in other human service occupations. Honolulu Community College has the sub-contract to conduct classes for the supervisors of the aides from the various State agencies; provide developmental, general education, and occupational courses; and conduct weekly practicums for the trainees. The weekly practicums will consist of group counseling, sharing of experiences, and program solving through the "In Basket" technique.

The enrollees in the program will be classified into regular Civil Service positions and will receive approximately $309 a month during the first year. During the first year of operation, the matching ratio is 90% Federal, 10% State. The ratio changes to a 50-50 matching for the second year, and for the third year, the program operates completely on State funds.

The change from technical school to community college also introduced a movement toward achieving more flexibility. Large 7-10 unit courses were reduced to smaller units to provide scheduling flexibility. Concomitantly more short-term programs are being planned and implemented. Special summer programs are being developed to enable students to make up deficiencies and prerequisites, workers in the field to enroll in upgrading classes, and high school graduates wanting to enter certain occupations immediately after graduation to enroll in accelerated summer programs.

Two of the areas that have not developed as rapidly are continuing education and community services. I will now elucidate what the colleges are doing and planning in these two areas.

CONTINUING EDUCATION classes are generally held during the evening. The philosophy here is that, even if all men and women had a college education, they would still need continuing education to upgrade their skills and knowledge, achieve their personal and occupational goals, and extend their cultural interests.

It is true that a lot of adult self education is acquired outside of school. We gain a lot from books, recordings, periodicals, radio and television, and in meeting and talking with others. However, continuing education is popular because more adults are finding that supervised education is much more efficient than self education.

Here are some examples of the community colleges' participation in the area of continuing education: Honolulu Community College is involved in providing related instruction to over 2,000 apprentices and also offering journeymar upgrading programs for such companies as Hawaiian Electric, Dole Corporation, Honolulu Gas, and Hawaiian Telephone. Kapiolani Community College is presently offering courses

in the tourism area and in dietary foods. Leeward Community College emphasizes the cultural, general education, and leisure time activity type of classes. The community colleges on Maui and Kauai also provide occupational and general education classes in the evenings.

Through the coordination and assistance of the Teacher Trainer, Robert Lorenzen, the colleges can assist large companies who conduct their own training programs by providing pedagogy classes for those qualified workers and supervisors engaged in full or part-time teaching.

The Community College System has also discussed the possibility of providing credit by examination. In other words, workers in the field may receive college credits for their years of experience as a machinist, mechanic, electrician, welder, draftsman, carpenter, or sheetmetal worker. The credits earned may be applied toward an associate degree and in some cases toward a baccalaureate degree at a few 4-year institutions.

The major purpose of COMMUNITY SERVICE is to acquaint the citizens with their community college and to bring the benefits of this type of institution into each area of the many communities which it serves. Community service activities include such activities as:

1. Establishing a speakers' bureau so that the college can provide speakers with various expertise to speak to community groups.

2. Assisting industry and business in conducting workshops to demonstrate new equipment, processes, and techniques. Also, conducting workshops for industrial arts teachers.

3. Sponsoring seminars and forums dealing with topics such as personal income tax, small business management, advertising and sales promotion, insurance, and investment.

4. Providing a large meeting room to hold joint service club meetings. (It may be possible that perhaps the Lions, Kiwanis, and Rotary Clubs may want to have a speaker speak to the total group at a single meeting.)

5. Encouraging and promoting an appreciation of the fine arts by sponsoring music or drama programs and art exhibitions.

6. Identifying community needs and problems which might be met by a joint college-community action. This latter activity is presently being done on Kauai by the Kauai Community College.

Honolulu Community College plans to have a full-time community service coordinator to work directly with business, industry, and

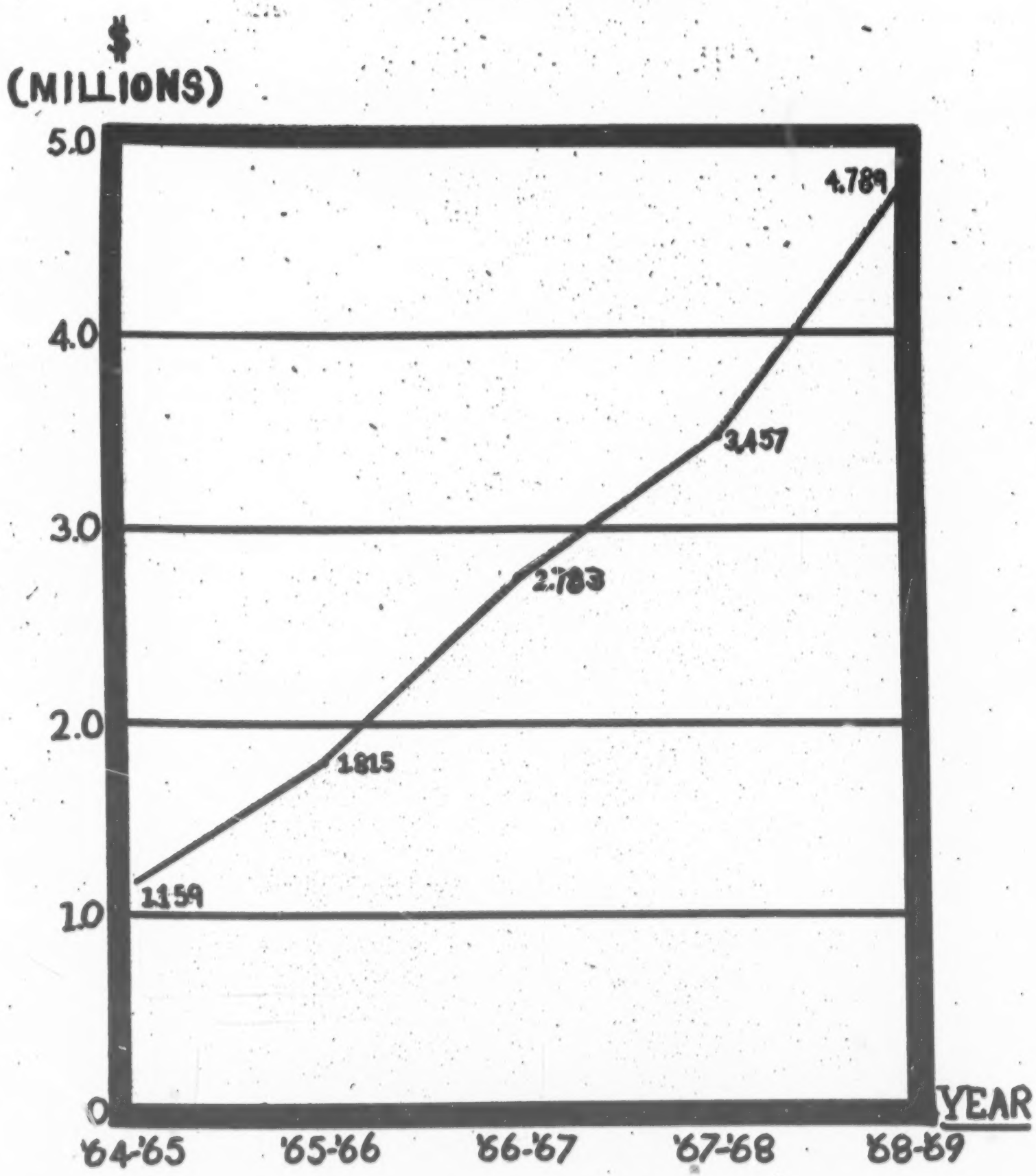
community groups and to improve our services to the community and its people. Currently, we are in the process of completing an agreement with California Packing Corporation to provide specialized training in electricity, electronics, welding, mathematics, and blueprint reading to a select group of artisans. The employees of the company will come to us four hours a day, once a week.

Another special program which we plan to undertake in cooperation with the Waimanalo Community Center group is to conduct developmental courses in the Waimanalo area. In other words, rather than wait for the students to come to us, we will be holding classes where they live.

Perhaps it may happen within our lifetime that the community colleges may expand their efforts in the area of continuing education by the use of remote computer-based terminals to monitor or manage a student's progress through a variety of self study materials. The computer terminal when used to orchestrate the medley of self study devices available at various locations is far more economical than when used for straight tutorial presentation of material.

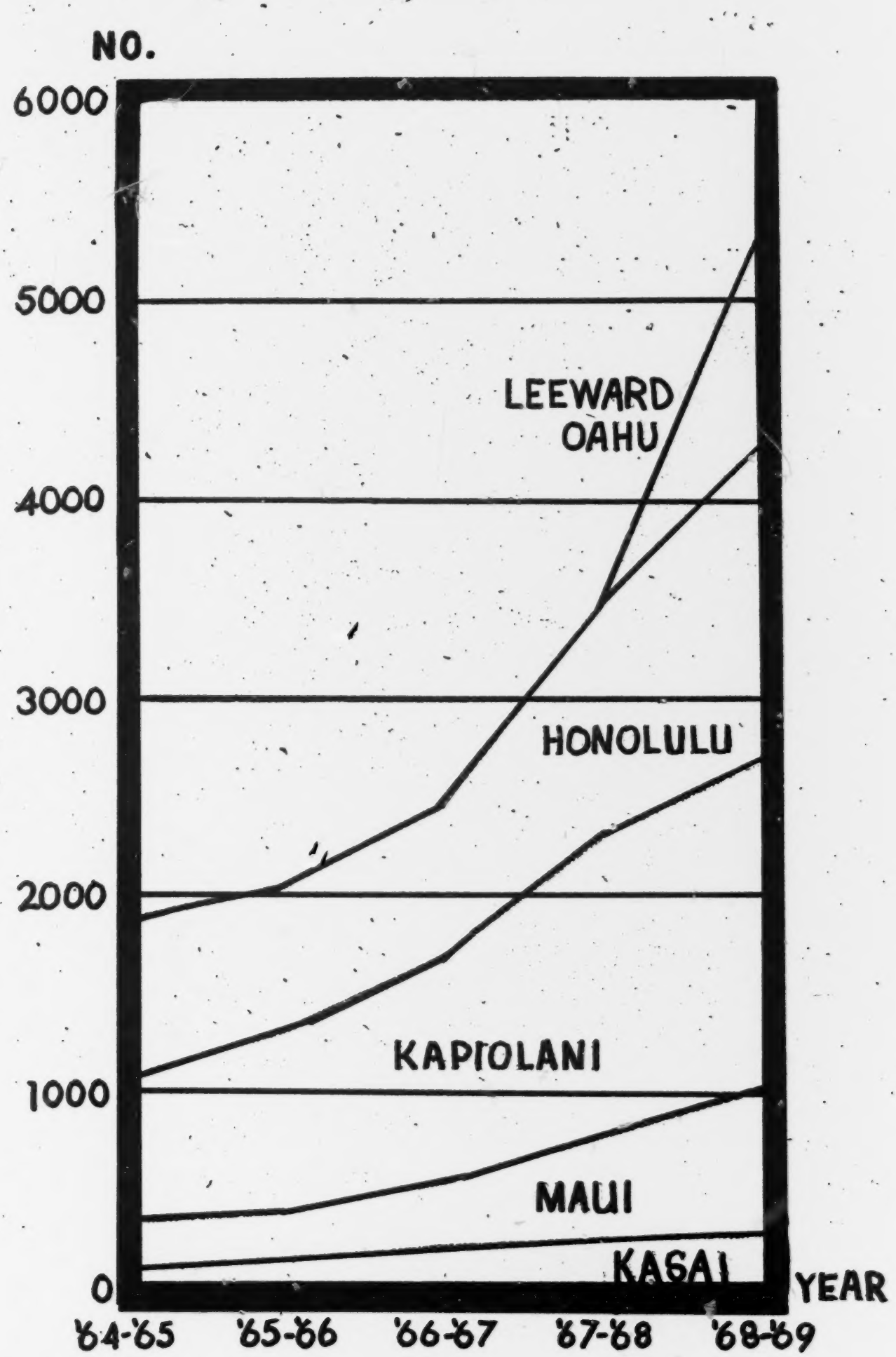
Computer terminals connected through telephone lines or other means of a central computer have already appeared in thousands of business firms and offices. In addition to the audio capacity of the telephone, these terminals also have the video capacity of the cathode ray tube which now dominates, for better or for worse, most of our homes.

Operating Budget



1,159,475	1,814,630 (56% inc)	2,783,464 (53% inc)	3,457,165 (24% inc)	4,789,483 (39% inc)	5240

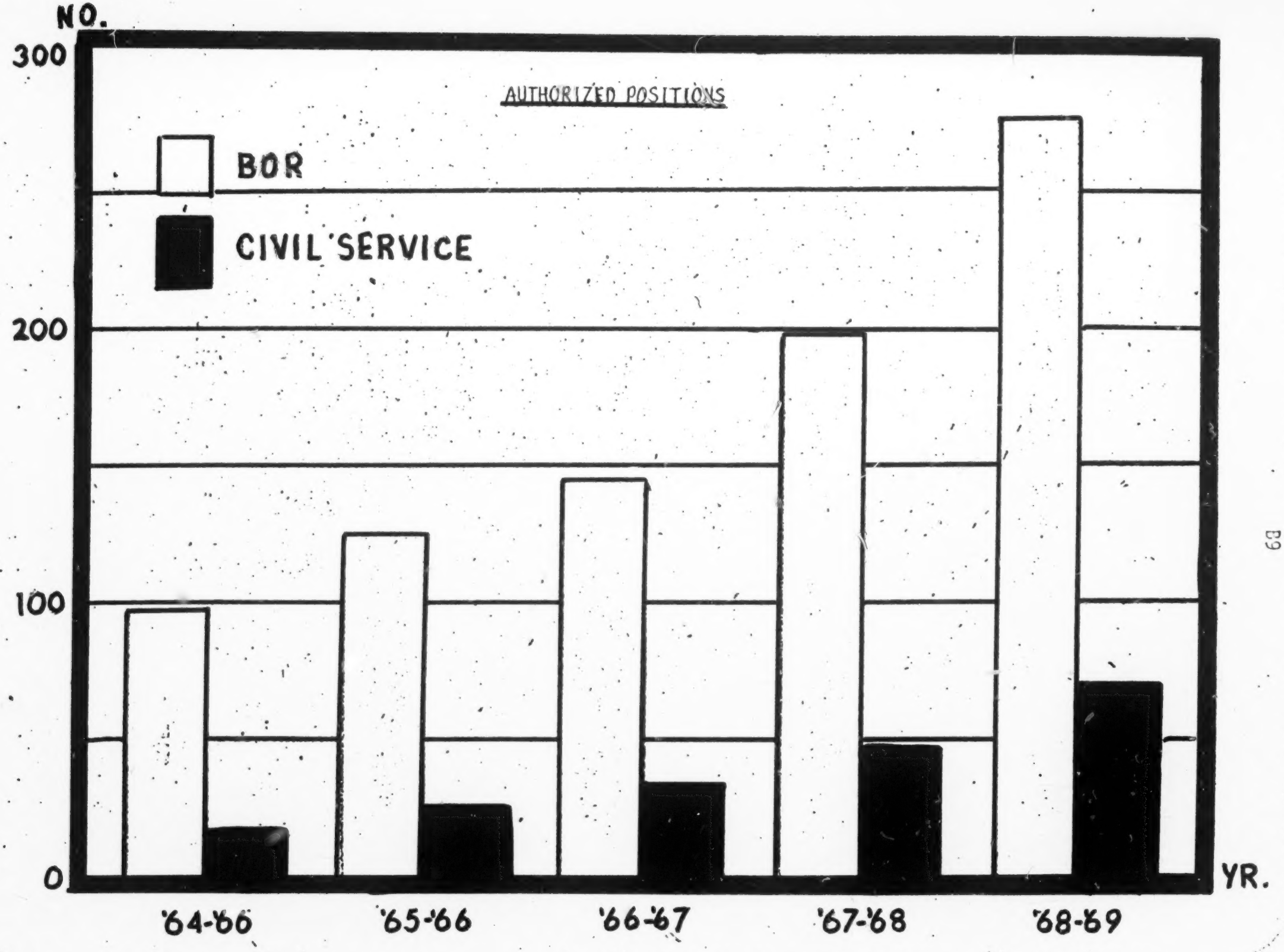
Enrollment in Day Programs



Leeward Oahu	-	-	-	-	1,887
Honolulu	710	702	828	1,209	1,643
Kapiolani	818	890	1,052	1,514	1,766
Maui	223	243	336	517	747
Kauai	123	175	228	254	287
System	1,874	2,010	2,444	3,494	5,333

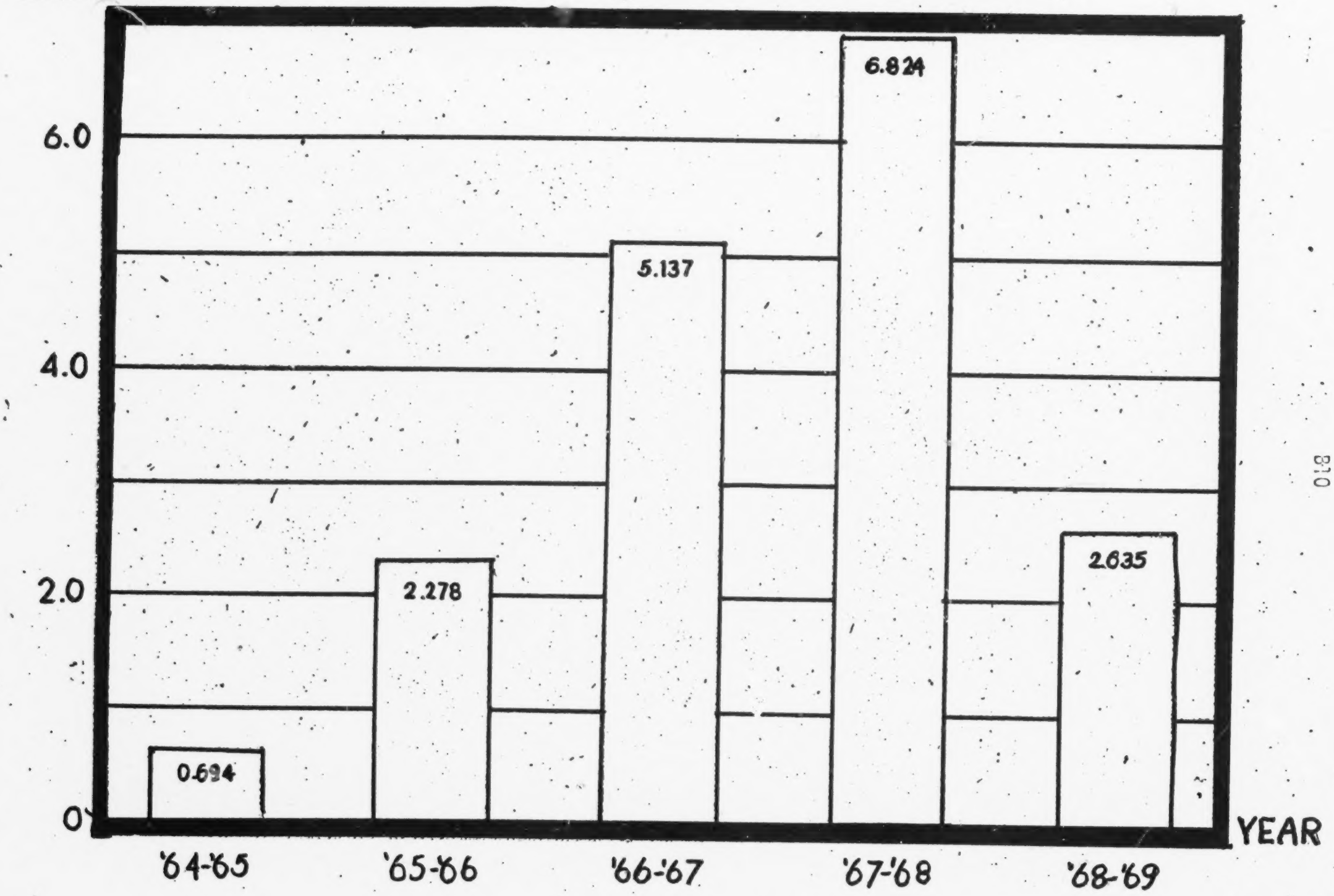
5241

76



BOR	CS	BOR	CS	BOR	CS	BOR	CS	BOR	CS
99	17	122	27.5	145	31.5	199	43.5	274	73

Capital Improvement Budget



694,916	2,278,000	9,137,000	6,824,000	2,935,000

5243

810

OCCUPATIONAL PROGRAMS

Business Occupations

Account-Clerk
Accounting
Bookkeeping
Business Data Processing
Clerk-Typist
General Business
Secretarial
Stenographic

Mechanical Occupations

Aeronautics
Automotive Technology
Auto-Body and Painting
Heavy Equipment Maintenance
Machine Shop
Diesel Mechanic
Refrigeration/Air Conditioning

Food Services

Institutional Food Service
Commercial Baking
Commercial Cooking
Dining Room Service
Food Cost Control
Pantry

Construction/Civil Engineering

Carpentry
Drafting-Building Trades
Engineering Technology
Sheetmetal
Welding

Electrical/Electronics

Industrial Electricity
Electronics

Health Occupations

Dental Assisting
Practical Nursing

Personal Service Occupations

Cosmetology
Commercial Sewing

Public Service

Police Science
Fire Science
Library

COMMUNITY COLLEGE OCCUPATIONAL EDUCATION: THE NATIONAL PICTURE

By Lewis R. Fibel

I have selected to give you some of the important and interesting impressions that I have gathered, mostly in the last year from AAJC headquarters in Washington, of what is happening in junior and community colleges around this country, especially as it related to occupational education - this being my specific assignment with the American Association of Junior Colleges.

I started in junior colleges 18 years ago with a philosophy that I have adhered to ever since. This is the keystone of my remarks today. I feel that in a democratic society, education as a whole has two major functions: one is to assist the people of our nation in earning a living - this is the aspect of education that we call occupational, vocational, and sometimes technical, or industrial education. (Parenthetically, I think any semantic dispute is relatively unimportant compared to acceptance of the basic concept.)

The second function of education in our society is to assist our young people, in fact, all of our people, in living a life and acting responsibly as individuals, as parents, and as citizens, and to develop the cultural, avocational, and recreational sides of their lives. This aspect of education is sometimes designated as general, or liberal education. (Again, I feel that the nomenclature and semantics are secondary to the concept.)

But I would make a point here that, in my opinion, these aspects of education are never discrete, and one cannot, in fact, divorce general education from occupational education, or occupational from general. If you have had experience in the classroom, as I have, I defy you in any one lesson, in any one lecture, to devote that lecture entirely to general education without it having vocational implications for some of the students, or to devote it entirely to occupational education without it having implications for the general living of some of these students. Therefore, these two are indissolvably meshed into the total complex of education in our society.

Let me turn now to community colleges. Much has been written and much said about the objectives of junior colleges. For some reason, and I'm not quite sure why, authors recently are trying to reduce the number of these objectives and put them into small numbers of categories. I find that I can't and I now conceive of at least eight such roles, objectives, or goals of the community college. Let me enumerate these very briefly for you. I think that, in one form or another, they are familiar to all of you.

The first two are the mainsprings of our academic program as we know it. First, the function of providing the first two years of the baccalaureate program so that at the end of that time students

may successfully transfer to another institution. This is the so-called transfer function. The second, the one in which I am particularly interested and of which I will talk about later at more length, is the occupational function which has as one of its goals the preparation of students for immediate entry into the world of work. There are others. For many of the students enrolled in junior colleges, other roles must be assumed and other goals must be established. There are, if you look at the figures, very substantial numbers of students enrolled in junior-community colleges that neither enroll in occupational programs nor transfer to four-year colleges. For these students, some type of a curriculum, perhaps a general studies curriculum, that will help them to meet their needs for two years more of general higher education, is required.

I think that the junior college in many parts of the country must assume a remedial role. It must provide for those students who have not by their past experiences demonstrated the ability to profit from college-level education. These students need a program to bring them as far as they can reasonably go in the given period of time. I think as we are concerned with the disadvantaged portions of our population, the junior colleges in this country can offer remedial developmental work that is very important. And yet the list goes on. For young people, or older ones, mostly on a part-time basis, who wish to continue their education, especially in the evenings, adult education - vocational or avocational, cultural or general - is an important function of the junior college.

To these can be added the very important function of general service to the community by means of such activities as lectures, concerts, art shows, participation of the faculty in the life of the community, and participation of the community in the life of the college. Guidance and counseling, helping to guide students into that kind of education which would be most meaningful to them, is a necessary function for the junior college to perform.

A list of objectives this long as the above, and I don't think this is exhaustive, must be based on some sort of philosophy. The philosophy, in fact, should come first and the objectives evolve from the philosophy. My philosophy of the role of junior colleges in our society can be very easily expressed. I see the junior college as the prime instrument for extending opportunity in higher education to more people - to those people who previously, because of financial barriers, because of geographic barriers, because they didn't have the interest, the motivation, perhaps even the ability, would not have gone to college when I went to college thirty years ago, when some of you went to college twenty years ago, or even ten years ago. The concept of the junior college as an opportunity college, as a college that will broaden the possibility for higher education for more and more students, I think dictates a long list of roles and objectives such as I have outlined here. I would not go from this to say that every junior college must function in all of these roles. There

certainly are good and sufficient reasons in various parts of the country for some of these functions to be assumed by other institutions. But with this list of goals, there certainly is a sufficient number from which to choose a series of objectives for each individual college.

Within this framework of the total mission of the junior college, let us focus on occupational education as one of the important, but certainly not the sole, goal of the community college. There are a number of reasons for the fairly recent rapid growth of occupational education in junior colleges. There are broadly two kinds of reasons that evolve from needs from two segments of our population. First, from the consumer portion (from a manpower point of view), from industries, businesses, professions and trades that use the services of the graduates of occupational programs. I think it unnecessary to belabor to you the changes in technology that have caused the changes in manpower needs that are reflected in industry's demands for more and new kinds of jobs, and the people, of course, to fill them.

In most surveys for the establishment of junior colleges, you will see prominently displayed the needs of industry in the area for so many secretaries, so many electronics technicians, so many nurses, and down through the list. Some of these surveys have been done well, and some have been done poorly. But I have not seen a survey that doesn't include this dimension.

However, I have seen many surveys that have not looked at the other side of the coin. I think that, as educators, we have a responsibility, not only to meet the needs of industry for workers, but to meet the needs of our students, as they themselves see their needs. Our students certainly have needs for jobs. (Most of them acknowledge this.) They need the income from jobs (99% of our population does anyway), but I think more than that, almost all need the satisfactions that arise from working, the dignity of work itself. This is, to my mind, as important as the income. John Stuart Mill has said, "If there is anything vitally important to the happiness of human beings, it is that they should relish their habitual pursuit." I think we also see very much today, as is evident in studies among poverty groups, the desire of people for upward mobility on the economic-social ladder. These are a second set of demands which impinge upon the junior college in its occupational program.

This might be all well and good if these needs coincided, if they were congruent. The facts of the matter are that industrial needs and student availability are often very far from being congruent. The ambitions of young people in our society are not all the same as the needs of industry in terms of specific jobs. This, I think, does not at all diminish the requirements for the junior college to engage in occupational education at the semi-professional and technical level, or in other levels for that matter. But it does suggest to me that there are at least two further responsibilities that evolve upon the junior college. One is in relation to industry; the junior college in organizing occupational programs should talk

frankly to industry in terms of whether or not the proposed jobs for which they need manpower are the kinds of jobs that young people want to fill. Is there immediate opportunity for job satisfaction? Is there opportunity for advancement in these jobs? I'm afraid in many cases a frank answer would be no. These are immediate manpower shortages; they are looking for ways to fill these shortages, and that certainly is understandable. But it is extremely difficult to get industry representatives to talk in terms of a career ladder for people at the semi-professional level, to talk in terms of giving dignity to these people in the jobs that they are doing immediately. I would submit to you that until there is a recognition on the part of industry of this responsibility to people as well as to the immediate meeting of their own manpower needs, that the problems of recruiting students in occupational programs will continue to be as difficult as it is in many occupational programs today.

The second aspect that I suggest to you is the junior college vis-a-vis the potential student. I think that we have not done nearly what we can in a knowledge of the real world of work - what it's like to have to work, what responsibilities they will have to assume as they grow older, what the potentials are in terms of income, in terms of working conditions, in terms of advancement, in terms of satisfactions. The junior college, especially in its occupational programs, is in a pivotal position with regard to the industries that it will serve on one hand, the group of potential students that it will serve on the other. Unless the junior college provides the medium (and the medium is the message) for a dialogue through itself between these two groups, I think that the total development, the total success of occupational programs in junior colleges, is going to be a lot less than we might wish.

Let me, if I may, tell you now something about the activities of the American Association of Junior Colleges in regard to occupational education and then a few words with regard to some of the developments that I see in occupational education around the country.

The American Association of Junior Colleges, three or four years ago, under the pressure of its members, became aware that among the many mouthings that it had made about junior colleges, one that did not ring particularly true in fact, was the statement that junior colleges were taking a predominant role in occupational education. It just wasn't so. However, the Association, its Board and its Staff, especially its Executive Director, thought that it should be so. They felt that the Association should exercise a leadership role in developing effective occupational education programs in junior colleges around the country. As is the custom today, when one has an idea of this sort, one turns to the foundations and says, "We have an idea; now will you help us implement this." We were very fortunate two years ago in receiving a very substantial grant from the W. K. Kellogg Foundation in Battle Creek that enabled the Association to start a five-year program in this field. To implement this program, the Association has added three additional professionals to its staff.

We have embarked on a quite ambitious and burgeoning program in occupational education. As I suggested to you earlier, we see one of the main lacks in this field is the lack of information and the dissemination of that information. So we have set as a prime target for the project, the centralization of an information function with regard to junior colleges, and are attempting, insofar as we can, to get information about occupational programs in junior colleges, about industrial needs and manpower needs, about student needs, and to filter these through the Association office and out again to all these groups, so that the junior colleges, administrators and industrial leaders in the country will be aware of the total activities in this field.

We have been trying to disseminate this information through some publications, at the moment most significantly by means of a bulletin which now has a circulation of 7,000, but also through some specialized publications, through participation in conferences such as this, through visits, through the establishment of consultant services, and in as many other ways as we can. It is real nice to be on a project that has at least a five-year life. Most foundation-funded projects tend to have only one-year commitments. You just about start and then you have to justify yourself to the foundation so that they continue your grant. I think it is somewhat similar to the situation of the Congressman; he no sooner gets elected then he has to go out and get re-elected and doesn't have the time perhaps to concentrate on the legislation that he should. We are very hopeful that in the next three years of the project we will make an impact on occupational education, and that the project will result in the establishment of many quality occupational education programs in junior colleges.

Finally, a few things on the development of occupational programs - I would like to be able to quote you some hard statistics and feed you full of data, not that you would want it, but I would want it. I like to have data; I like to deal with numbers and concrete things. However, as I discuss trends in occupational education in junior colleges, this hard data frequently doesn't exist. I can't always even give you specific examples of what I'm going to suggest to you, but these are impressions from the thinking of people who I believe are in the forefront of the development of this kind of education in junior colleges. There are a number of interesting things happening; some of them may at first seem contradictory, but I think, nevertheless, they are true. I think they are happening even if they seem to be contradictory.

One of the interesting developments is the evolution of interdisciplinary curriculums in occupational education. When I started out in this field twenty years ago, we assumed that all occupations fell into nice little groups like the electrical group, the mechanical group, the health-related group, etc. T'aint so any more. There are some very interesting ones that cross one or more fields. One that is very important is the electro-mechanical field. This was brought to my attention recently in a trip I made to a very unsophisticated plant - a food packaging plant. Now there's nothing complicated about

food packaging - even I can understand it. But when you look at the machinery that packages food, it is machinery that carries on a mechanical function, that is powered electrically, and that is controlled electronically. When something goes wrong with that machinery, the boss wants to be able to send one man there who can diagnose the trouble and fix it. He says, "Why don't you train electro-mechanical people who can deal with the mechanical components, the electrical components, and the electronic components." We are trying to get some junior colleges interested in developing curriculums along these lines.

Another that bridges a couple of fields is in bio-medical engineering or bio-medical electronics technology. Go into a hospital today; you see that the doctor doesn't use just the stethoscope - I'd almost say he doesn't use the stethoscope - he doesn't just put a tongue depressor on your tongue and look into your eyes, but he hooks you up to all kinds of electronic gadgets. If you're seriously ill - have you seen any of the intensive care units in a hospital? - you are plugged into more circuits than you can imagine. These circuits are used not only for diagnosis but also for therapy. The oxygen that is fed to a patient in intensive care units is monitored electronically and goes right into the patient without human hands touching it. The proliferation of electronic gear in the diagnosis and treatment of disease, especially in the hospital setting, has been tremendous in the last few years. The hospital authorities want one man that can go in and maintain the equipment, can operate it, and can be mindful of the needs of patients.

Just one or two others from a fairly extensive list. Let me mention to you, and this goes back to my very first remarks, some interesting experiments that are being sponsored by the United States Office of Education in which there is complete integration of general and vocational education. This has implications not only at the post-secondary level but at the secondary level as well. Within one organic curriculum, the student develops academic skills, occupational skills, general preparation for a vocation, personal attributes, and avocational interests. This curriculum, instead of being divided, as it is in most of our institutions, into little compartments where the extra-curriculum program is over here to develop your avocational interests, and the guidance department and its activities is over there to take care of your needs for personal development, the general education people are out here to develop your academic skills, and the occupational-vocational people over there in that area, is all integrated; it is all woven into one curricular fabric with teams of teachers being involved in all of the activities. It is really exciting. I don't know what will come out of it, it may be a failure. But it is exciting to look at and to see the new problems that arise, and the solutions to these problems as they are suggested and developed.

Third and last, the development of ladder curriculums. Again, I spoke earlier of what I see as the need of students to feel the potential for mobility - not be backed into a pocket from which

they can't get out. This has led to the ladder curriculum. The concept is that a student enters on that ladder in accordance with his demonstrated abilities. He starts where he is ready to start. He progresses up as far as he is able in accordance with his achievement, and he exits from it in accordance with his interests. Wherever he exits, he has developed enough skills that he can find a job. Then his interest or motivation may change, and he can come back onto that ladder a few years later and go up a couple of more notches and exit again. Dreaming aside, we are working on a curriculum with the American Physical Therapists' Association which involves (this is a start) three steps on the ladder with the physical therapist's aide, the physical therapist's assistant, and the physical therapist as steps on the ladder. The student can enter, she can go as far as aide, get off and get a job, she can come back later, enter again, go up a little higher and come out as an assistant, get a job, leave it, come back into school and progress to professional physical therapist. Will it work? I'm not sure. There are a lot of problems; there are many people that say it can't possibly work, don't even try it. But I think it is interesting; I think it is exciting; I think it is typical - maybe not typical - maybe it is atypical - of the kind of thinking that is going on among some leaders in our field.

In conclusion, as I look into the small crystal ball that I keep in the right hand drawer of my desk for purposes such as this, I see a number of things happening. I think that these are significant to you people who are concerned with the present and future growth of community colleges. There is no doubt that the community college is the fastest growing segment of higher education in this country. The number of junior colleges, the enrollment in junior colleges are all going to grow, according to every figure that we have in our office, faster than in any other segment of higher education. I think that the community college is going to become the dominant institution in the development of post-secondary occupational education. In doing so, they must respond to this double challenge of meeting needs of industry for particular kinds of workers and meeting the needs of students for a particular kind of education.

I find this field and this challenge exciting, and I hope you will join with me in this feeling of excitement and in the feeling that we are going to achieve important accomplishments on this great frontier.

THE ROLE OF RESEARCH AND EVALUATION IN
COMMUNITY COLLEGE OCCUPATIONAL EDUCATION OF THE FUTURE

By Angelo C. Gillie

It is difficult and artificial to discuss the future of occupational education in a given state or region without considering the national trends. Therefore, this discussion will treat the subject of the role of research and evaluation in future occupational education within the rubric of the national community college movement. Research and evaluation are treated as if they are separate entities in many sections of this paper, but this is done only to permit us to better examine the role of each. In actuality, research and evaluation co-exist and are often intertwined to the point where it is difficult to know where research ends and evaluation begins, and the other way around.

Research:

Up to a relatively few years ago, research in the area of occupational education was a rarity; and even where it was claimed to be in existence, it often turned out to be nothing more than a somewhat cursory gathering of statistics. The act of gathering the statistical information in many cases was the chief objective of the activity, with little attempt to obtain findings that could be translated into instructional or program improvements.

We are moving into a period where there is a serious beginning to an expanded effort in the design and conduct of research dealing with occupational education. We shall briefly discuss the need for research dealing with (1) Curriculum Design, (2) Student Characteristics, (3) Institutional Characteristics, and (4) Computer Assisted Instruction.

The future of occupational education in the community colleges is largely dependent upon our approach to it. We can no longer afford to stumble and bumble along without the information which can be obtained from properly designed and conducted research. If we should persist in acting in the same old way, i.e., establish programs primarily on the basis of the perceived present day needs of the business-industrial community, occupational education will go on being the least attractive segment of the community college program. The notion that vocational education should serve industry is an old one, going back to the 1890's, reaffirmed in the Smith-Hughes Act of 1917, and reaffirmed a thousand times over by occupational educators. This gives students and their parents the feeling that they are being shunted away from the mainstream of higher education and adds to its unpopularity.

This writer believes that occupational educators should not consider themselves primarily as the trainers of highly specialized

manpower for the business-industrial community. Not only is such a task next to impossible because of the rapid changes going on in the world of work, it is also undesirable from the human values point of view. Narrow training for a specific job as part of an occupational education program deprives the student of those aspects of education that are vital for his today and tomorrow. Henry David expressed it this way (1:298):

> What is required ..... is preparation for the central fact of continuing change: of continuing change in bodies of knowledge, in ways of doing things and utilizing skills, in materials and products, in occupational functions, in forms of organization and structure ..... highly specialized manpower must not only be equipped to perform existing tasks, but, by virtue of the breadth of education, also prepared to assume new functions without great strain or sizable new training costs.

This approach calls for research in curriculum design, if we are to accurately identify the materials and techniques to be used in futuristic oriented occupational programs. By research, we mean the kind of inquiry described by Charles F. Kettering. He said (2:216):

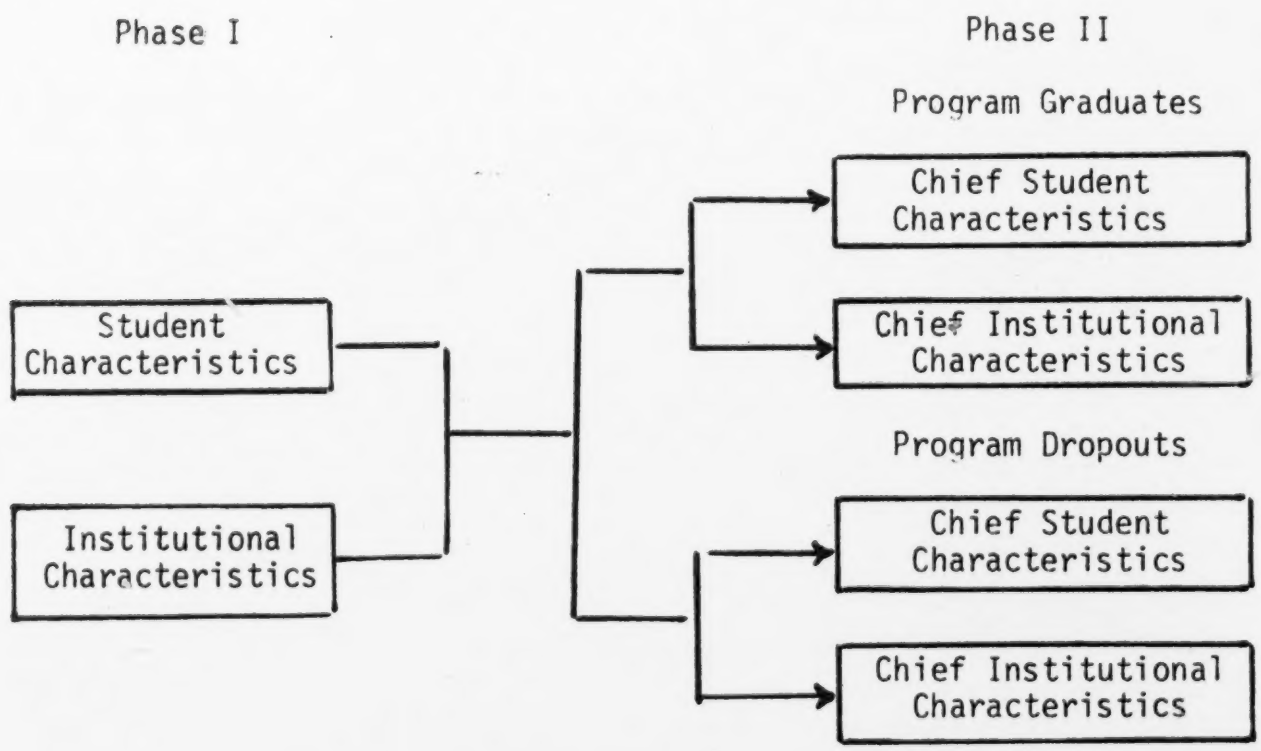
> Research is a high-hat word that scares a lot of people. It needn't ... It is nothing but a state of mind - a friendly, welcoming attitude toward change.... It is the problem-solving mind as contrasted with the let-well-enough-alone mind. ... It is the "tomorrow" mind instead of the "yesterday" mind.

Future occupational programs will be designed around the findings of intensive and extensive searches for those curricular topics that will most likely remain an integral part of the occupational cluster for as long as ten years ahead. Such studies will be conducted for each occupational cluster at frequent intervals, hopefully at least every five years. One such study has been conducted by this writer (3) and from it an overall approach to curriculum design has been suggested (4).

It is becoming more and more clear that occupational programs, if they are to succeed in their mission, must be designed around the needs of students first and around the needs of industry secondarily. Switching the goals of occupational education to meeting student needs means that we must learn much more about student characteristics, the school environment, and how students interact with the college environment.

Some earlier efforts in this direction that primarily dealt with the four-year college and university (5, 6, 7) serve as a partial guide for us. A study is presently being conducted, which deals

specifically with selected community college occupational program students (8) and may serve as a model for other investigations of this sort. In this study, a total of 900 students from four occupational curriculums in a technical institute and a community college were given a series of tests (socio-psychological) before they attended their first class sessions. The tests are to be administered to those students that graduate during the last month of their two-year program. The data obtained will provide a basis for identifying those elements between certain student characteristics and institutional characteristics that appear most often in those students that have completed their programs (see Figure 1). Studies of this type might begin to provide us with substantive data that will link certain student and institutional characteristics with successful completion of certain occupational programs. Also, those combinations of student and institutional characteristics that are prevalent among dropouts will be uncovered (see Figure 1). Ultimately, such investigations might put us further ahead in our attempts to successfully match students with programs and institutions. Research of this nature is a must if we are going to have "student-centered" programs instead of "work-centered" programs.



Model of Student-Institutional Characteristics Study (8)

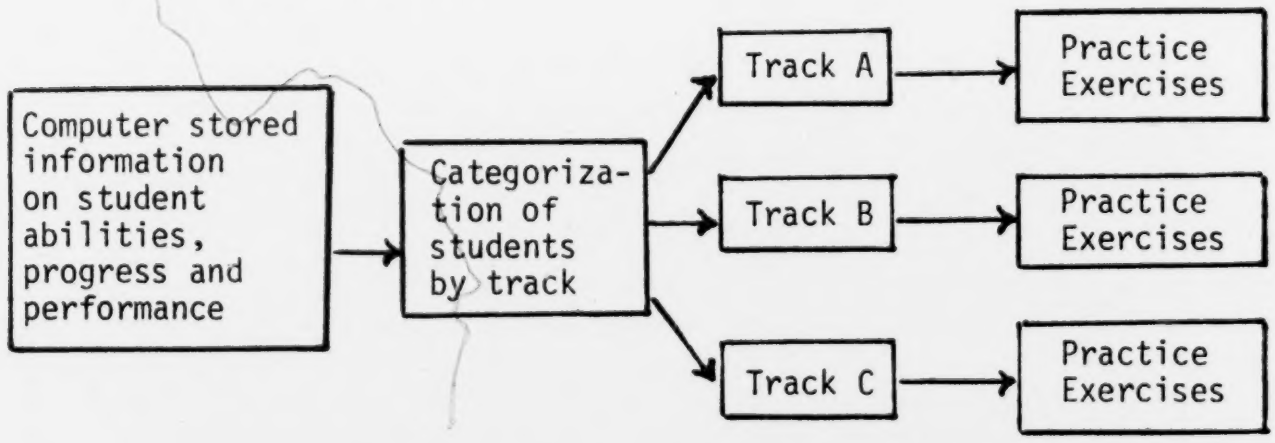
Figure 1

In addition to curricular research, there needs to be a great research effort made in the area of teaching and learning. High on the list of researchable activities in this area is the utilization of computers. Patrick Suppes of Stanford University cites two basic arguments for computer assisted instruction (9: 157-174). They may be briefly itemized as follows:

1. It permits educators to provide a greater amount of individualized instruction.

2. It permits the educators to have on hand, daily information on student progress and performance, thereby facilitating the process of making daily decisions and conducting evaluation.

The interaction between a computer program and the student can occur at three levels. The first level of interaction, most commonly known as the "drill and practice" systems, is not teaching in the true sense but a supplement to the curriculum taught by the instructor. This level of interaction can be wisely incorporated in those occupational courses where certain skills are best developed by practice. The utilization of computer programmed drill and practice systems makes it possible to offer multiple-track instruction for each occupational curriculum without requiring an unrealistically low student/instructor ratio. This approach requires the design of the occupational curriculum with a number of tracks (or levels) and then the development of the practice exercises needed for each track. Then, using the computer derived information relating to the students' abilities, past progress and performance, each student can be programmed into the appropriate track. Figure 2 depicts a generalized model of this approach.



Generalized Model of Computer Programming for Multiple-Track Occupational Program Practice Exercises

Figure 2

The second level of interaction between the student and the computer program consists of "tutorial" systems. The objective of tutorial systems is to assume the main task of teaching from the instructor. Tutorial systems, if they are to be successful, must be designed so that more simple presentations are offered to the students who fail to correctly respond during the first try. This is illustrated in the generalized model for tutorial instruction in Figure 3.

The use of well planned tutorial systems can accomplish two objectives:

1. It provides a high degree of individualized instruction.

2. It enables the instructor to individualize his instructional efforts, since he is freed from many of the classroom responsibilities.

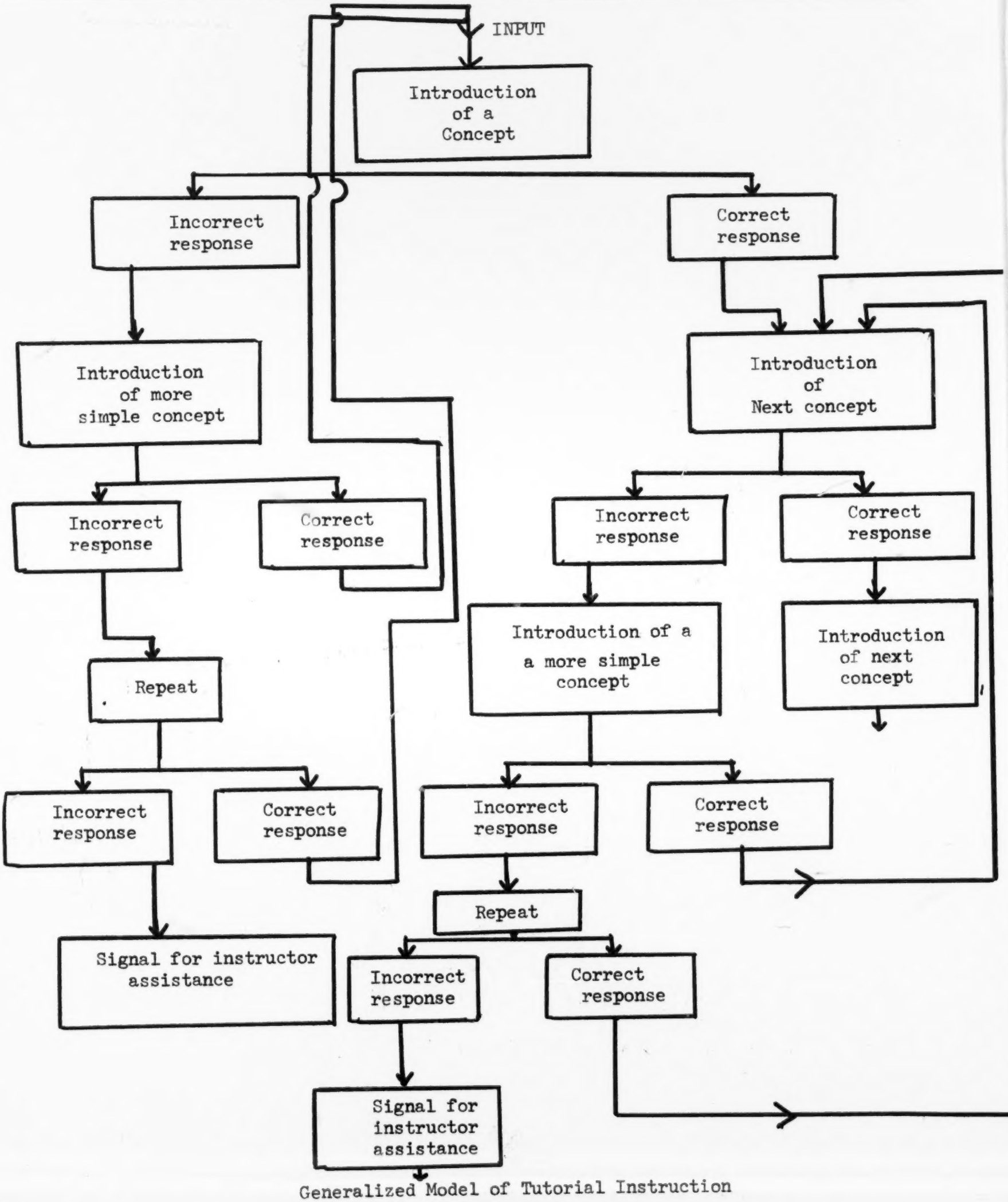
Of great interest is the fact that much of the material in occupational education, which requires at least some degree of actual performance, lends itself to this kind of instruction.

The third level of interaction between the student and the computer program involves "dialogue systems". At the present time, only a few very elementary prototypes of dialogue systems exist, but it is predicted that such systems will become a reality in the years ahead. Many very complex problems are involved. Programs will have to be written that will: (1) recognize and provide answers to questions that are relatively broad and complex, and (2) recognize the spoken word of the student.

Experts in the field of Computer science are predicting that these problems will be overcome in the next few years. Computer centers, designed to serve as information and program storage areas, will serve as the nucleus for computer based courses and curriculums.

Evaluation:

Evaluation is one of the least attractive words in the field of education, and occupational education is no exception; but as occupational education attempts to make its case to the public for more and more funds, it seems that such requests need to be based on tangible objectives. What we are really saying is: The objectives of occupational programs should be measurable. This becomes increasingly more necessary as education finds itself in competition with many agencies for tax derived funds. It seems reasonable to assume that those activities that can demonstrate the achievement of tangible results stand the best chance of surviving the battle of acquiring public funds.



Generalized Model of Tutorial Instruction

Figure 3

There appears to be a national trend toward increased accountability in the use of public monies, as indicated by the national attention being given to "Planning-Programming-Budgeting Systems" (commonly referred to as PPBS). Many states have already decided to adopt PPBS as a major approach to determining how to spend their funds in the wisest way. Therefore, we can see several very good reasons for looking to PPBS for suggestions in the evaluation of occupational education.

PPBS was first introduced by Secretary McNamara in the Department of Defense. It later received wider adoption in the Federal Government. In 1965, President Johnson initiated PPBS throughout the Executive Branch of the U. S. Government. Since that time, as indicated above, several states have adopted PPBS; and it is felt that other states will begin to utilize PPBS in the near future.

What is PPBS? It is an approach to planning, programming, and budgeting that attempts to insure the maximum benefit for the investment. The utilization of this approach (10:9) would impose several demands upon occupational program educators, including the following:

1. Objectives and goals of all programs must be precisely and carefully developed. This means they should be measurable. They may very likely be the outcome of a research activity.

2. Every occupational program should be evaluated to see to what extent it meets its objectives and goals. The benefits derived from the conduct of the programs should be weighed against their costs.

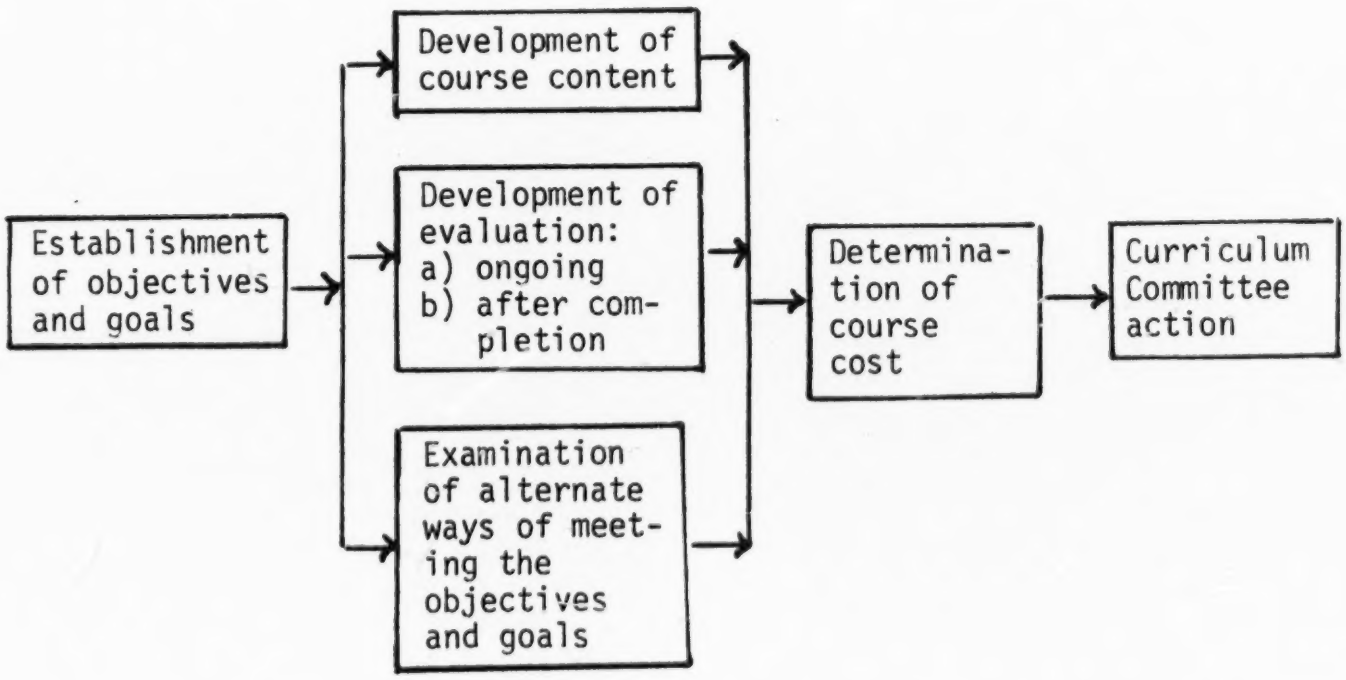
3. There should be a serious examination into alternative ways of achieving the objectives and goals set down in the first place. This can also be a research endeavor.

4. Based on the analysis developed in the procedure stated above, the budget for the programs is prepared. It is important that the budget request be justified within the context of the long-range program and financial plan of the college and the state or region.

It seems reasonably safe to predict that the utilization of the PPBS approach is going to be more widely adopted in the years ahead. This writer feels that it will become one of the most accepted methods for the evaluation and analysis of occupational education programs.

Many of us also believe that the PPBS approach has much to offer in the development of new courses and the redesign of existing courses such that an evaluation plan can be built into each course. Many educators have the habit of saying that many of the outcomes of

education are intangible and can't be measured. There certainly is some truth to the contention, but it doesn't preclude the fact that every course should have some objectives and goals that can be measured. The important thing is to start at the beginning, i.e., (1) establish the measurable objectives and goals, (2) seek out the ways in which the course can achieve them, and (3) develop measurements for the objectives. The course content should be designed only after the adoption of the objectives and must be aimed at meeting them (see Figure 4).

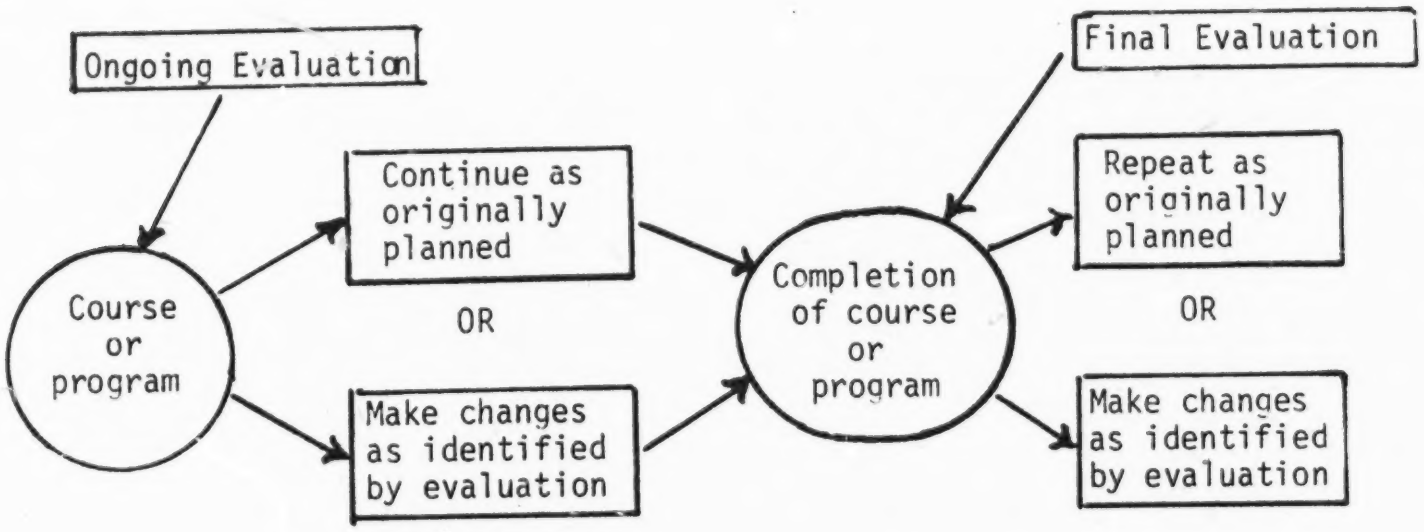


Course Development and Evaluation: PPBS Style

Figure 4

To accept this as the mode of course development can result in built-in evaluation devices and methods that will maintain an ongoing vigil over the effectiveness of any course in terms of its own objectives. One argument against such an approach is that it constitutes prying into the professional affairs of the instructor and his classroom. Such an argument falls flat when the instructor himself, perhaps in cooperation with other instructors with similar academic competencies, is the one who establishes the objectives, goals, and content of the course, and also is the one conducting the evaluation. Evaluation of this nature is of the most pragmatic kind, because it serves as the launching pad for continuous examination of course and student progress from which mistakes can be quickly identified and rectified before the damage done becomes too excessive. I feel it important to restate again that evaluation of courses in this manner (as shown in Figure 5) will find maximum success when

it becomes a tool in the hands of the faculty. Course outcome accountability is probably the most professional method of evaluation available to date.



Program-Course Evaluation: PPBS Style

Figure 5

Summary:

The prediction made in this paper is that occupational education will become more concerned with research and evaluation in the coming years. It has been pointed out here that some of the major areas in which great efforts in research will be made include curriculum design, refinement of identification of student characteristics, identification of relevant institutional characteristics, and computer assisted instruction. As more breakthroughs in computer assisted instruction are made, the role of the teacher may undergo radical changes.

Evaluation of occupational programs and courses will become an integral part of the curriculum in the years ahead. One of the primary incentives for moving in this direction is the increased demand for accountability of public funds. The great popularity of PPBS is evidence of this. Hopefully, educators can constructively respond to this demand by devising new approaches to program-course development that will utilize evaluation as the basis for ongoing improvement as well as program-course assessment.

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CRITIQUE OF QUESTION-ANSWER PERIOD

By David R. Lynn

The morning and afternoon sessions were structured to provide time for interaction between speakers and the panelist. One of the objectives of the conference was to stimulate appraisal of present concepts and to foster an exchange of ideas involving expertise from within and without. This took the form of question-answer periods, the results of which are summarized in the report of proceedings which follow.

COMMUNITY COLLEGE OCCUPATIONAL EDUCATION IN HAWAII: THE PRESENT

Speaker - Mr. Samson Shigetomi

Questions centered around the role of the community college in implementing certain phases of the "New Careers Program".*

Question:

Concern was raised as to whether or not "drop-outs" in the "New Careers Program" could undertake course work that would lead to a high school diploma.

Response:

An affirmative answer was given. With proper counseling into certain skill course areas, "drop-outs" could pursue course work that would lead to acquiring a high school diploma.

Question:

Participants probed for details regarding the philosophy and operational goals of the "New Careers Program".

Response:

"New Careers" was explained as a new, trial program which was attempting to motivate youth to new job standards. Concern was expressed regarding the shortage of manpower in the personal services job areas. One of the "key" persons in the "New Careers Program" was critical of recent trends of occupational training programs in schools placing increasing emphasis on technical and semi-technical training programs. This person felt that the need is in the personal service areas. She went on to say that the problem in Hawaii is to keep present pockets of poverty from deteriorating into Mainland-type ghettos.

* This is a federally sponsored project in which college age people from the disadvantaged areas are to be recruited into programs that lead to positions as human service aides. See Mr. Shigetomi's paper. (Editor's note.)

Teaching aides entering "New Careers Programs" in the community colleges were being screened by the use of the California Mental Maturity Test. Early results indicate that the majority entering the program will have at least a 10th grade ability level - many higher.

The "New Careers Program" will be programmed over as many State agencies as possible - the community colleges being only one.

In the opinion of one conference participant, every good professional field should have a supplementary para-professional field.

COMMUNITY COLLEGE OCCUPATIONAL EDUCATION: THE PRESENT

Speaker: Dr. Lewis R. Fibel

Participants raised questions regarding problems in implementing the "Vocational Amendments of 1968" as outlined in the presentation.

Question:

With the implications for community colleges to assume more responsibility for occupational education, what planning is being done in the State?

Response:

Planning to implement the Act has already been initiated in Hawaii. Initial planning is under way for a State-wide conference on the "Vocational Amendments of 1968" to be held in the Spring of 1969. The Community College System of the University of Hawaii is taking the leadership in this planning. Tentative expenditure plans are already in the development stage. Details regarding preliminary developments are soon to be released to all colleges and related agencies.

Attention was called to the requirement of evaluation as detailed in the "Amendments". This was cited as one of the critical problems facing educators in the State. It was said that cursory evaluations are no longer going to be acceptable. Programs must be evaluated as to their relevancy to the success and failure of the graduates.

COMMUNITY COLLEGE OCCUPATIONAL EDUCATION: THE FUTURE

Panel: Dr. Angelo C. Gillie and Dr. Lewis R. Fibel

Presentation by the two panel members stimulated considerable discussion and interaction between conference participants and panel members.

Question:

Is the "Antioch Program" applicable to occupational training programs in the State?

Response:

It is difficult to adapt the "Antioch Program" to occupational programs. Occupational programs, by nature, are too varied in length - the "Antioch Program" would be hard to schedule. Even a quarter system keeps the student out of school too long.

Suggested as a better system would be to establish measurable exit requirements for occupational programs; thus, enabling a student to progress at his own pace and conceivably enter the labor market in a shorter period of time.

Emphasis was placed on the need to accept the philosophy of "credit and knowledge gained" regardless of where attained. If we can find a valid way of measuring the achievement, we then can grant credit by examination.

Question:

Should occupational training programs be student oriented or industry oriented?

Response:

If programs are "work-centered", the student is the one who suffers. Traditionally occupational programs have been framed around job skills - students are bent to these. A better approach would be to start at the opposite end - determine the students' needs first. Training programs should be generalized and concerned only with the learning required to meet job needs for a few years.

It should be pointed out that several conferees questioned this philosophy. Several expressed the opinion that school occupational training programs should be industry oriented. This provoked further discussion.

Question:

Should student needs and industry needs always be congruent?

Response:

In determining whether occupational programs should be student oriented or industry oriented - the weight should be on the side of the student. Industry tends to vary demands in accordance with demands of outside forces. The above does not rule out the responsibility of the community college standing ready to establish short range programs at any time to meet immediate needs of industry.

Question:

If training programs are not industry oriented, what determines the job skills to be taught?

Response:

Occupational training programs must be acceptable to three groups:

1) the employers
2) the students
3) the faculty

Training programs must be a compromise in meeting the requirements of these three groups.

Question:

What is the conflict concerning "general education" and "vocational education" in the occupational training programs?

Response:

New York City was cited as an example of a system where vocational programs were taught by a dual faculty - a vocational education faculty and a general education faculty. There was little common ground on which they met.

It was noted that the above is not the trend in new occupational programs today. A program of vocational education, which includes both general and vocational aspects, can be taught in a total package. All teachers have both responsibilities. Faculty must accept broad goals.

VT 012 613
Macon, Charles R.
Four Corners Regional Project for Vocational Education in Arizona. Final Report.

Arizona State Dept. of Vocational Education, Phoenix.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Nov70 48p.

DESCRIPTORS - *REGIONAL PROGRAMS; *VOCATIONAL EDUCATION; STATE AID; *PROGRAM DESCRIPTIONS; CURRICULUM DEVELOPMENT; *ECONOMIC CLIMATE; POPULATION GROWTH; EMPLOYMENT TRENDS; *EDUCATIONAL NEEDS
IDENTIFIERS - ARIZONA

ABSTRACT - This 12-month project was undertaken to establish five area skill centers in the 9-county Four Corners Region of Arizona. These skill centers, which are basically extensions of the community colleges, can provide various types of vocational or basic education, including cooperative programs with local school districts or industry. This report describes the present educational and economic environment and summarizes the activities conducted under the project's two subdivisions, the organizational/promotional and systems development categories. (BH)

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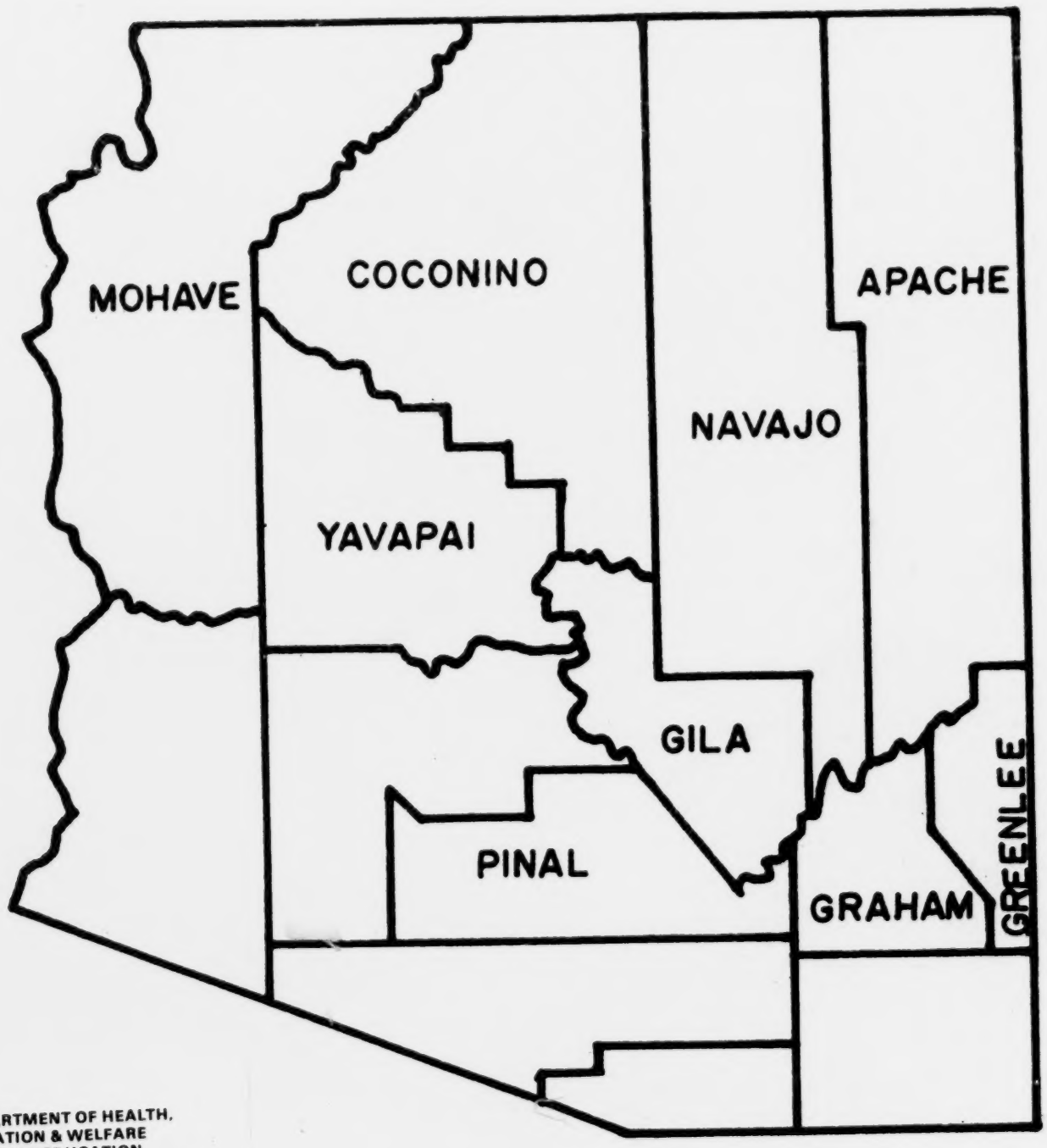
FOUR CORNERS REGIONAL PROJECT
FOR VOCATIONAL EDUCATION IN ARIZONA



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FINAL REPORT

TO

THE FOUR CORNERS REGIONAL COMMISSION

NOVEMBER 1970

VTC12613

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FINAL REPORT

FOUR CORNERS REGIONAL PROJECT FOR VOCATIONAL EDUCATION IN ARIZONA

NOVEMBER 1970

Technical Assistance Grant - - - FCRC Project No. 101-200-007

Document No. 10050011 State of Arizona

ARIZONA DEPARTMENT OF VOCATIONAL EDUCATION

Prepared By:

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Department of Vocational Education

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PREFACE

This project was financed by a Four Corners Regional Commission Technical Assistance Grant. The project was under the direction of the Associate Superintendent for Vocational-Technical Education in cooperation with the Arizona Research Coordinating Unit.

The primary mission of this twelve months project was to give guidance to the establishment of five area Skill Centers in Arizona in accordance with the recommendations of the Sterling Report.

The final report is presented in six parts:

Chapter	I	The Present Situation.
Chapter	II	Project Description.
Chapter	III	The Economic Environment For Vocational Education In The Nine County Area.
Chapter	IV	The Current Status Of Vocational Education In The Nine County Area.
Chapter	V	Narrative Summary Of The Project.
Chapter	VI	Conclusions And Recommendations.

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ACKNOWLEDGMENTS

We wish to express our appreciation to the following individuals for their assistance during the past year. This endeavor has truly been a cooperative effort on the part of many. Particular thanks are extended to Mr. J. R. Cullison, Associate Superintendent For Vocational-Technical Education; Dr. Arthur M. Lee, Director, Arizona Research Coordinating Unit; Mr. Eugene L. Dorr, Assistant Director Of Vocational-Technical Education; and to Mr. Bosko Krivokapich, Educational Resources Officer, Four Corners Regional Commission. In addition, this office received assistance from many members of other agencies in Arizona, to whom we wish to express our thanks.

Mr. Hawley Atkinson, Special Assistant to Governor Williams

Mr. Charles A. Boyle, Director, Arizona State Employment Service

Mr. Ken Conrath, County Coordinator Of Vocational Education-Mohave County

Mr. John Dutton, Assistant Director, M.D.T.A. Department Of Vocational Education

Dr. Loyd Hughes, Dean, Vocational-Technical Education, Yavapai Community College

Mr. Joe Jimenez, Director, Gila River Career Center, Pinal County

Mr. Ed Parmee, Community Development Office For Pinal and Gila Counties, Cooperative Extension Service, University of Arizona

Dr. A. M. Sanchez, Chairman, Gila County Skill Center Development Committee

Mr. W. J. Soltau, Manpower Branch, Arizona State Employment Service

Mr. Ed Sorensen, Dean, Vocational-Technical Education, Eastern Arizona College

Mr. Rex Waite, Director, Office Of Manpower Planning

Mr. Keith West, Superintendent, Mohave County Union High School District

Mr. Ted White, Superintendent, B.I.A., San Carlos, Arizona

Mr. Stan Womer, Alternate, Four Corners Regional Commission

I. THE PRESENT SITUATION*

Over 300,000 people live in the nine Arizona counties of the Four Corners Regional Area. Of these, 165,000 are adults 18 years of age and older; 86,000 are employed, 29 percent of the population. In the remaining five counties, containing 80 percent of the State's population, the employment rate is 47 percent of the population. The Four Corners Counties last year had a secondary school and community college enrollment of 22,953 or less than 9 percent of their population. The remaining counties had 11 percent of their population enrolled in these grades. The school dropout rate averaged 18.65 percent in the Four Corners Counties compared with 9.25 percent in the rest of the State.

There are 50 public high schools and three public community colleges in the Four Corners Regional Counties offering eight kinds of vocational training in 124 different programs. Forty percent of the programs are in agriculture and consumer home economics.

* A Proposed Supplement To The State Plan For Vocational-Technical Education, Sterling Institute, Washington, D.C.

II. PROJECT DESCRIPTION

The Technical Assistance Grant FCRC Project No. 101-200-007 between the Four Corners Regional Commission and the Arizona State Department of Vocational Education was authorized September 1, 1969.

Purpose

Provide technical assistance and professional consulting service to the nine county area of Arizona.

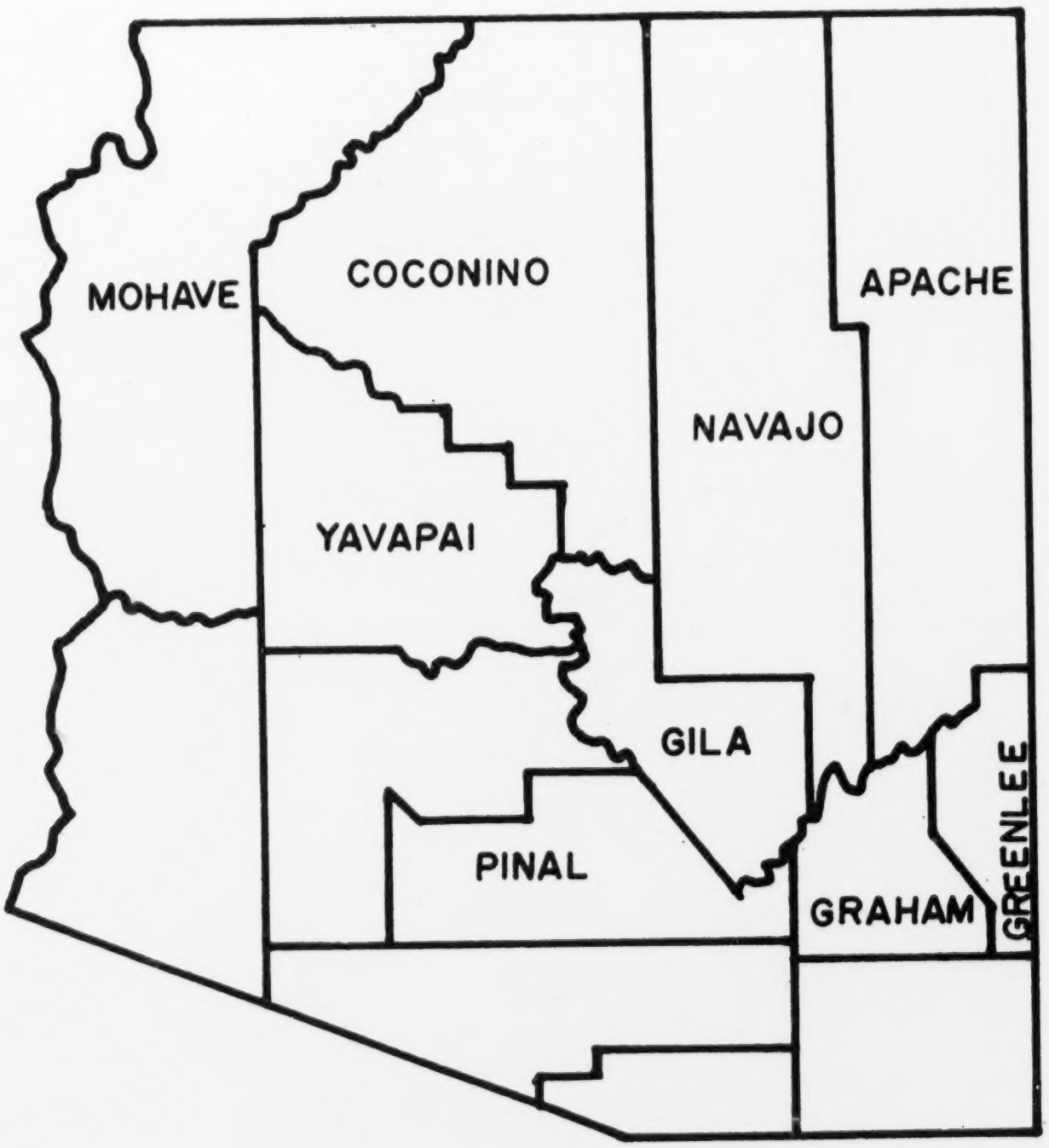
Background

One Planning and Development Specialist worked primarily with Central Arizona College in curriculum and systems development for the Gila River Career Center located at Sacaton, Arizona. The second Planning and Development Specialist divided his time among the communities of Kingman, Clarkdale, Winslow, and Globe-Miami, Arizona. His responsibilities were primarily to help develop organizational structure, facilities arrangements, employer relations, community participation, and other details at each location required to enable the local people to establish a Skill Center; and to work with the sponsoring institutions, State and Federal agencies in developing financial support for their operations.

Geographical Area

The nine counties in Arizona which are a part of the ninety-two county region are: Apache, Coconino, Gila, Graham, Greenlee, Mohave, Pinal, and Yavapai.

FIGURE I. FOUR CORNERS REGIONAL AREA OF ARIZONA



III. THE ECONOMIC ENVIRONMENT FOR VOCATIONAL EDUCATION IN THE NINE COUNTY AREA

The Economy - An Overview

Arizona's economy in these counties is significantly unbalanced when compared with the rest of the State and nation. This is no doubt due to the large areas of Federal and State lands within the counties. Mining and lumbering are the dominant industries within this region.

The Arizona Manpower Review had this to say about the rural areas of the state:[1]

> Federal policies designed to slow the inflationary spiral nationally have some effect on the rural counties. The effect of these economy-dampening efforts have a greater impact on the urban, industrialized areas than they do on rural economies. The result is that the economic slowdown is modified and delayed in reaching the rural communities. The influence of federal policies must be considered secondary in Arizona's rural areas (except for the Agricultural Act).
>
> Continued economic development activities by many smaller communities are beginning to improve the smaller rural community competitive position for industrial growth. Industrial growth and economic development tend to have a cumulative effect; each step forward in improving the economic mix of a labor area adds to previous gains, and influences favorably any future efforts toward economic growth.

[1] Arizona Manpower Review, Employment Security Commission of Arizona, Phoenix, p. 17, September 1970.

Industrial segments that can be expected to expand rural employment in the next decade are manufacturing, contract construction, trade, services and government.

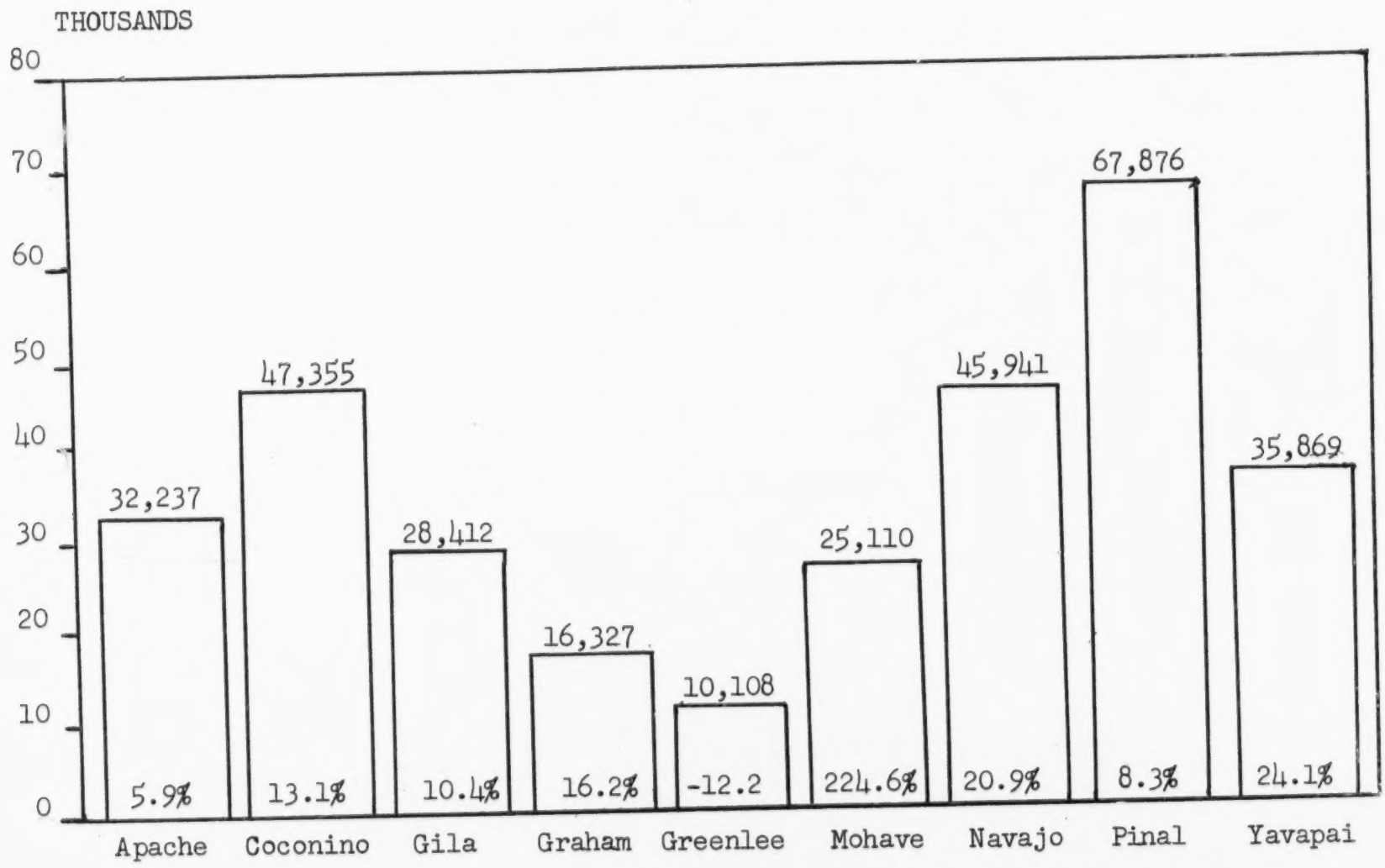
Population, Employment And The Workforce

Population from preliminary 1970 census data shows a statewide gain of 34.6% since 1960, ranking Arizona third in the nation in rate of gain. All counties but Greenlee (-12.2%) increased more than 5% in population since 1960. Mohave County had the highest rate of increase in the state - - 224.6%. The civilian labor force in the non-metropolitan counties increased 5.8% from 1969. Non-agricultural wage and salary employment is up 5.7% since a year ago. Mining employment increased 8.5% over a year ago; contract construction employment was down 8.8%. Agricultural employment decreased 6.0% from June a year ago. Total unemployment is expected to be greater in 1970 than any year during the 1960's. In June it was up 62.0% over June 1969 and 28.0% over January 1970.[2]

[2] Ibid. p. 5

TABLE I

POPULATION GROWTH IN THE FOUR CORNER AREA OF ARIZONA[3]



1/ 1970 Preliminary Census Data.

2/ Insert Figure Is Percentage Change From 1960 to 1970.

[3] Ibid. P-7.

IV. THE CURRENT STATUS OF VOCATIONAL EDUCATION IN THE NINE COUNTY AREA

Secondary School Vocational Education

Forty-four secondary schools within the nine county area offered vocational education in Agriculture, Gainful Home Economics, Trade & Industrial, Office Education and Distributive Education. There were 4,104 students who enrolled and completed a program in one of the above areas. See Table II page 12.

A concerted effort is being made by the Department of Vocational Education to expand vocational training in the secondary schools of the area. One means of expanding vocational training in the secondary schools is by a cooperative use of mobile training units. This project is in a planning status at this time.

An Exemplary Project, "Northern Arizona Hospitality Education Program" has been funded under Part C funds by the Department of Vocational Education. The program was launched last July with a Teacher-Education workshop. Grand Canyon High School will be the pilot school with approximately 20 students enrolled in the program. During the year eight other high schools will join the program. They are Fredonia, Page, Tuba City, Monument Valley, Many Farms, Chinle, Window Rock

and Ganado. Training will be conducted for students in all phases of the hospitality industry. The training may be multi-discipline or an in-depth training in one discipline and will be determined by the type of training station in which the student will be employed. When all schools become fully involved, there will be approximately 180 students receiving training. A full time Project Coordinator has been appointed to give overall supervision and assistance in carrying this project to a successful conclusion. If the project is as successful as anticipated, it will probably be continued.

Post Secondary And Adult Vocational-Technical Training

Post secondary schools (Community Colleges) enrolled and completed 2,489 persons in technical education programs. See Table III page 15. Within this nine-county area, 858 adults were trained in a vocational program by one of the secondary or post secondary institutions. See Table IV page 15.

The Gila River Career Center (Sacaton) enrolled 10 Papago Indians in a diesel mechanics program and 30 BIA employees in a pre-management program. These two programs

were the major contribution by this Skill Center in the specific area of Adult Vocational-Technical training.

At the time of this report, all Skill Centers are planning additional Adult Vocational-Technical training programs.

Skill Center Training Programs

The Yavapai Skill Center, located in the former Clarkdale High School enrolled and trained 64 women in the needletrades. A program is underway at this time training additional workers for the local garment factory which has expanded its production and thereby in need of additional help. This is the only program being offered at the Yavapai Skill Center at this time.

The San Carlos Skill Center, located in Gila County, was opened in August with an enrollment of 150 in Prevocational Orientation. This project was designed to enable trainees to develop general personal skills needed to successfully undertake vocational education training and/or entry into job situations. It was further designed to stimulate and motivate the disadvantaged and unmotivated. On November 30, 1970 the Center will begin training in a multioccupational project. This will consist of 40 trainees in Culinary, 40 trainees in Management and 40 trainees in Clerical.

The Gila River Career Center (Sacaton) located in Pinal County is forecasting the completion of the building program in February and opening in March. They will offer a multi-occupational project consisting of 40 trainees in Agriculture, 40 trainees in Automotive, 40 trainees in Clerical, 40 trainees in Cooperative, 30 trainees in Health Occupations, and 40 trainees in Preparatory Apprenticeship. This project is the manpower component supplementing a model cities Rural Area Program for the Gila River Indian Reservation. This multi-occupational project will provide job-skill training for disadvantaged and hard-core unemployed youth and adults, underemployed persons wanting advancement in an occupation, or changing career objectives.

The prime support for the projects at San Carlos and Sacaton is through the Department of Vocational Education M.D.T.A. and the Arizona State Employment Service. M.D.T.A. is providing funds for the training and the A.S.E.S. is providing training allowances.

TABLE II

VOCATIONAL EDUCATION PROGRAM COMPLETIONS FOR 1969-1970*
FOUR CORNERS REGION -- ARIZONA COUNTIES

SECONDARY

County	School	Vocational-Technical Programs	Completions
Apache	Chinle	Ag., O.E.	129
	Round Valley	O.E.	53
	Valley (Sanders)	O.E.	20
	St. Johns	O.E., T.&I.	43
	Window Rock	O.E., T.&I.	257
	TOTALS		502
Coconino	Coconino	D.E., Health, Occ.H.E., O.E., T.&I.	246
	Flagstaff	D.E., Health, O.E., T.&I.	213
	Fredonia	O.E.	20
	Grand Canyon	O.E.	10
	Page	O.E.	10
	Tuba City	O.E.	56
	Williams	O.E.	20
	TOTALS		575
Gila	Globe	D.E., O.E., T.&I.	127
	Hayden	O.E., T.&I.	51
	Miami	O.E., T.&I.	72
	TOTALS		250

* Consumer Homemaking Not Included

TABLE II (Cont.)

VOCATIONAL EDUCATION PROGRAM COMPLETIONS FOR 1969-1970*
FOUR CORNERS REGION -- ARIZONA COUNTIES

SECONDARY

County	School	Vocational-Technical Program	Completions
Graham	Ft. Thomas	Ag., T.&I.	73
	Pima	T.&I.	9
	Safford	Ag., D.E., O.E.	196
	Thatcher	T.&I.	7
	Industrial Sch.	Ag., T.&I.	134
	TOTALS		419
Greenlee	Duncan	Ag.	122
	TOTALS		122
Mohave	Havasu	O.E.	28
	Kingman	D.E., O.E., T.&I.	164
	Mohave	O.E.	30
	TOTALS		222
Navajo	Alchesay	Ag., O.E.	59
	Holbrook	D.E., O.E.	93
	Monument Valley	Ag., O.E.	87
	Blue Ridge	O.E.	16
	Snowflake	Ag., O.E., T.&I.	186
	Winslow	D.E., O.E., T.&I.	174
	TOTALS		615

* Consumer Homemaking Not Included

TABLE II (cont.)

VOCATIONAL EDUCATION PROGRAM COMPLETIONS FOR 1969-1970*
FOUR CORNERS REGION -- ARIZONA COUNTIES

SECONDARY

County	School	Vocational-Technical Program	Completions
Pinal	Apache Junction	O.E.	25
	Casa Grande	Ag., O.E.	177
	Coolidge	Ag., D.E., O.E., T.&I.	214
	Florence Union	Ag., Health, O.E.	163
	Maricopa	O.E., T.&I.	36
	Ray District	O.E., T.&I.	63
	San Manuel	O.E.	67
	Santa Cruz	Ag., O.E.	124
	State Prison	O.E., T.&I.	139
	TOTALS		1,008
Yavapai	Ashfork	O.E.	5
	Camp Verde	O.E.	16
	Mayer	Ag., O.E.	70
	Mingus Union	Ag., O.E.	83
	Prescott	Ag., D.E., O.E., T.&I.	217
	TOTALS		391

* Consumer Homemaking Not Included

TABLE III

VOCATIONAL EDUCATION PROGRAM COMPLETIONS FOR 1969-1970*
FOUR CORNERS REGION -- ARIZONA COUNTIES

JUNIOR COLLEGE

County	School	Vocational-Technical Program	Completions
Graham	Eastern Arizona	D.E., Health, O.E., T.E., T.&I.	1,084
Pinal	Central Arizona	Ag., D.E., O.E., T.E., T.&I.	779
Yavapai	Yavapai	D.E., O.E., T.E., T.&I.	626
	TOTALS		2,489

TABLE IV

VOCATIONAL EDUCATION PROGRAM COMPLETIONS FOR 1969-1970
FOUR CORNERS REGION -- ARIZONA COUNTIES

ADULT

Coconino	Coconion	D.E., O.E.	52
Gila	Miami	T.&I.	44
Graham	Eastern Arizona	Health, T.&I., O.E.	73
Navajo	Monument Valley	T.&I.	10
	Pinetop-Lakeside	O.E.	56
Pinal	Central Arizona	O.E., T.&I., O.E.	406
Yavapai	Yavapai	T.E., T.&I., O.E.	217
	TOTALS		858

V. NARRATIVE SUMMARY OF THE PROJECT

The Agreement for the Technical Assistance Grant for this project, as initially written, established a twelve month contract running from September 1, 1969 to September 1, 1970. Due mainly to difficulties in staffing, however, the initial contract was amended twice during its duration. The first Amendment occurred on December 1, 1969 and extended the project completion date to November 14, 1969. The second Amendment occurred on October 27, 1970 and extended the project to November 30, 1970.

Technical assistance activities carried out through the duration of the contract can be viewed within two general categories. These categories are titled organizational/promotional development and systems development. Each of the project's staff members concentrated his efforts in one of the categories through the duration of the project.

Activity within the organizational/promotional development category commenced with the hiring of the first staff member on November 15, 1969. Activity was concentrated in the geographic areas of Arizona served by the following schools: Winslow High School, Kingman High School, Yavapai Community College, Eastern Arizona Community College and Central Arizona College. Activity was initially concerned with the

establishment of liaison with the district school superintendents and vocational-technical education deans in the five schools. Liaison was established also with Federal and State agencies, universities and specific programs directly concerned with the problem in the area. News releases describing the project's goals were prepared for dissemination at the state and local levels.

Consultation and direct assistance activities were expanded in the five areas. These activities were aimed at aiding local directors in establishing local community action groups to secure specific information about the unemployed, underemployed and about job opportunities. These activities resulted in surveys of individuals and small businesses in Mohave, Gila, Yavapai and Pinal counties.

These surveys served as the vehicles for public relations and student recruitment in the communities. Public relations efforts were furthered through talks to local groups, news releases and radio appearances. Recruitment efforts were enhanced through the development of a brochure describing Skill Center programs. Data from the surveys were utilized in discussions with local school officials and the Arizona Research Coordinating Unit in developing innovative and

exemplary projects for later submission by respective Skill Centers. Data from the surveys were utilized in Gila and Mohave Counties in preparing proposals for development funds for Skill Centers to be located at Globe-Miami and Kingman. The Pinal County survey served further as a motivating agent in starting an Arizona State Employment Service Manpower Study in the County.

Consultive services and technical assistance in facility planning and proposal development was provided to the Gila County Skill Center, the Gila River Career Center (Pinal County) and to the Yavapai County Skill Center. Specifically, assistance was provided to the Gila River Center in the preparations of proposals for operational funds submitted to IDA and the BIA. These proposals resulted in programs in "pre-management", which started on October 15, 1970, and in food service. Assistance in proposal development, to the Gila County Skill Center, aided in the funding of training programs in Culinary, Management and Clerical occupations. Pre-vocational training started for these occupations on August 31, 1970. Assistance in facility planning aided in the remodeling of an abandoned high school at Clarkdale (Yavapai Co.) and the subsequent expansion of a needletrades program on October 1, 1970.

In summary the activities in the organizational/ promotional category can be said to have aided in the following concrete accomplishments: (1) establishment of $169,900.00 program at the Gila County Skill Center (2) establishment of programs in "pre-management" and "food service" at the Gila River Career Center (Sacaton, Pinal County) (3) expansion of a Needletrades program at Clarkdale (Yavapai County) (4) completion of a comprehensive study of the need for a Mohave County Skill Center (5) completion of a set of recommendations describing possibilities of Navajo employment in Apache County. Mohave County within the past two weeks has been designated an E.D.A. county. This office has arranged for a meeting next week to confer with all interested parties to explore how we may be of assistance in the preparation of the Overall Economic Development Plan for Mohave County, especially as it relates to the building of a Skill Center. With the assistance of this office, "An Education Survey Of Mohave County Arizona" was published in April 1970. This study should provide valuable information pertaining to the needs for a Skill Center in Mohave County.

Activities in the systems development category were concentrated at Central Arizona College. The concentration

of these activities at only one Skill Center site was due to the nature of the activities themselves. They were concerned with the design and planning of a total instructional system adaptable to any skill center in any location. Since the activity in this category was concerned with development of a total instructional system it involved work in curriculum development, scheduling, student performance data collection and analysis and cost/effectiveness analysis.

Curriculum development was oriented toward the cluster concept. It was felt that curricula developed for training in job clusters would find greater application in the different skill centers than would curricula for specific job categories. During the period April 1, 1970, the time that the second staff positions were filled, to the end of the contract the following curricula were prepared: (1) office occupations cluster (2) construction cluster (3) agriculture (4) automotive cluster (5) hospitality occupations, (6) building maintenance, (7) masonry, (8) child care, and (9) industrial electricity.

Other activities related to scheduling and operations analysis resulted in the preparation of a draft operations manual. This manual describes the step-by-step procedure which a skill center can follow in developing curricula,

scheduling, collecting and analyzing student performance data and in applying cost-effectiveness methodology to program evaluation.

The development of a cost-effectiveness methodology for Skill Center program evaluation received particular emphasis during the systems development activities. This emphasis was due to the persistent problem, encountered during the organizational/promotional activities, of relating the cost of Skill Center operation directly to benefits accruing to the individual, to the community and to the Four Corners Region. It was believed by the project staff that the best method of overcoming this problem would be the development of a procedure whereby the costs of an individual program could be broken down into categories and related to instructional objectives for that program. The instructional objectives would then be related to institutional objectives and hence to training objectives for the entire region. Such a procedure would serve two major purposes. Through the combination of costs with a set of increasingly generalized objectives, the problem of relating cost to individual, community and regional benefits would be overcome. Second, the procedure would enhance the planning ability at the Skill Center, state and

regional level by providing hard data on the cost of training different individuals to different degrees of efficiency in different occupations. The need for this type of information resulted in the preparation of a proposal to field test the instructional system, of which the cost-effectiveness procedure is a part. This need for cost-effectiveness was recognized during the systems development activity.

VI. CONCLUSIONS AND RECOMMENDATIONS

General

Basic general school curriculum revision is called for which will treat vocational-occupational education as an integral part of the common core of all education. Emphasis on "basic learning skills" is probably more important than mastery of a fixed amount of subject matter. Education for vocational competence should build in flexibility and adaptability to produce transferable knowledge and skills. Flexibility to accommodate local economic needs and the current achievement levels of the trainee is a necessity.

Vocational Education offers at least a partial solution to the problems of economic, cultural, and educational deprivation under its newly expanded concept. The 1968 amendments to the 1963 Vocational Act greatly expand the responsibility of vocational education to include training not only of the socio-economically deprived but also of the physically handicapped. The amendments re-emphasize the concept of the Area Vocational Schools. In Arizona the Area Vocational school functions are performed by the Community Colleges. The Skill Centers have been established as an extension of the Community College. These facilities (Skill Centers) can be used economically for adult basic education,

skills upgrading, and industrial training as well as cooperating with local secondary school districts to offer programs of vocational education that are not being offered in the secondary school. The facilities may also be used to offer Post-Secondary Technical Education if there is a need. The Skill Centers can provide an attractive training base for relocating industries, in addition to indicating to these industries the existence of a trained workforce and community interest in industrial planning. These are important factors in industrial plant site selection, and, therefore industrial growth.

Programs And Occupational Preparation

Flexibility in planning present and future program needs will continue to be a prime factor in the establishment and operation of Skill Centers within the nine-county region. This will be accomplished by continued close coordination with the Arizona State Employment Service and the Office Of Manpower Planning; both State agencies. As the need for trained personnel is met for a particular job cluster, then an immediate shift to another needed cluster must be accomplished without delay. This will be accomplished by an exchange of information between Skill Center Directors.

It is expected that when the instructional system, designed by this office, is fully operational the problems of initiating a new training cluster will be minimal. The operations manual prepared for this system describes the step-by-step procedure which a skill center director can follow in developing a new curricula, scheduling, collecting and analyzing student performance data and in applying cost-effectiveness methodology to program evaluation.

In summary, there will be training offered in only those skills and/or job clusters in which there will be gainful employment at the conclusion of the training period. Further, it is recommended that the proposal to field-test the aforementioned instructional and cost-effectiveness system be approved.

Facilities

With the establishment of Skill Centers is the concomitant need for the establishment of Child Day Care Centers. This office has already been approached for assistance in this matter and will offer consultative service to local area people and Skill Center directors in the preparation of proposals to the appropriate Federal and/or State agencies.

Assistance will be given to the Director of the San Carlos Center to utilize fully the facilities available to him. This will entail seeking additional programs such as NABS JOBS 70, OEO, Job Corps, etc., and in the preparation of proposals to the government agencies that have responsibilities for these programs.

Continued assistance will be given the director of the Gila River Career Center (Sacaton) especially in view of the proposed opening date of March 1, 1971 of the new facility.

Because of a change in the Office Of The Superintendent, in the Winslow Public Schools due to the retirement of the former superintendent, little progress was made in Navajo County in the establishment of a Skill Center. With the new superintendent in office, contact will be renewed and the feasibility of the establishment of a Skill Center in the Area will be discussed.

With the designation of Mohave County as an EDA area, this office is prepared to offer all assistance possible in the preparation of the Overall Economic Development Plan especially as it pertains to the establishment of a Skill Center.

Financing

With the Skill Centers being operated as an extension of the Community Colleges, which are the Area Vocational Schools in Arizona, there is a built in source of continued funding. This includes Adult Vocational Education as well as out-of-school youth. Also funding is available for socio-economically deprived and physically handicapped. The Federal Government will be requested to continue funding those programs for certain ethnic groups which are eligible under a particular Federal Act.

Role Of The Department Of Vocational Education

In continuing this project it may be well to consider that specific aspects of the role of vocational education may be considered from the viewpoint of the individual concerned, the community, and the society.

For an individual, one of the most important economic functions that vocational education could perform is to improve his performance as an economically productive person. An improvement in the wage rate and employment of the individual has direct and indirect implications for the community.

To a community, vocational education plays two important functions. One of these is to provide opportunities for those members of the community who wish to acquire a given type of training. The other is to provide trained personnel required by the local labor market.

To the society, vocational education has a part in its growth and stability. As technology advances and the economy grows, old industries decline and new industries are developed. Thus, some skills become obsolete while others are newly created or evolve from more traditional skills. An important function that vocational education plays is to provide personnel trained in the new types of skills required by industries affected by the advancing technology.

This office and this department will continue to assist the individual, the community, and society to achieve these goals.

APPENDIX

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FOUR CORNERS REGIONAL COMMISSION
SUITE 238 PETROLEUM PLAZA BUILDING
3535 EAST 30TH STREET
FARMINGTON, NEW MEXICO 87401
AREA CODE 505-327-9626

OFFICE OF THE EXECUTIVE DIRECTOR

TECHNICAL ASSISTANCE GRANT - FCRC PROJECT NO. 101-200-007
ARIZONA STATE DEPARTMENT OF VOCATIONAL EDUCATION
DOCUMENT NO. 10050011

THIS AGREEMENT, entered into as of this 1st day of September, 1969, by and between the Arizona State Department of Vocational Education (hereinafter called the "Contractor") and the Four Corners Regional Commission (hereinafter called the "Commission"), WITNESSETH THAT:

WHEREAS, the hardcore disadvantaged population in the northern and central counties of Arizona have the highest unemployment rate and greatest lack of employable skills in the State; and

WHEREAS, industries are discouraged from locating in these areas because of the lack of trained manpower; and

WHEREAS, existing vocational education programs are not serving people not in school; and

WHEREAS, the establishment of vocational skill centers throughout this area appears to be the most effective immediate solution to the problem;

NOW, THEREFORE, the parties hereto do mutually agree as follows:

ARTICLE I - SCOPE OF WORK

The Contractor shall provide all the necessary qualified personnel, materials and facilities to perform and carry out the following services:

1. Hire two full time Planning and Development Specialists who will serve on the Research Coordinating Unit staff of Northern Arizona University. The selected individuals shall be certified by the Arizona State Board of Vocational Education.

2. These specialists will provide technical assistance to the five schools, and the State of Arizona Department of Vocational Education in establishing vocational skill centers at the Winslow High School District, Kingman High School District, Yavapai Community College, Eastern Arizona College and Central Arizona College.

3. This technical assistance will include:

   a. Professional consulting services.

   b. Liaison between the schools, State agencies, the Commission, employers and other groups.

   c. Designing modular curriculum and flexible scheduling systems.

   d. Data collection and analysis.

   e. Curriculum, facilities, equipment and instructional services planning.

   f. Innovative and exemplary features design.

   g. Public relations including preparation of descriptive brochures.

   h. Student recruitment planning.

   i. Design and preparation of additional proposals for Federal, State or private funds.

4. One specialist will work primarily with Arizona Central College in curriculum and systems development at the Sacaton skill center. Curriculum materials, modular units, entrance and achievement tests, individualized computer assisted scheduling and counseling, and other elements developed for the Sacaton center will be designed for adaptation at the other centers the following year.

   The second specialist will work with the four centers at Kingman, Winslow, Clarkdale and Miami to develop the organizational structure, facilities arrangements, employer-relations, community participation, and other details at

each location required to establish the center. He will also work with the sponsoring institutions and State and Federal agencies in developing financial support for their operation.

5. The specialists will analyze socio-economic and educational needs using the resources of the Research Coordinating Unit.

ARTICLE II - PERSONNEL

A. All of the services required hereunder shall be performed by the Contractor or under his supervision.

B. None of the work or services required hereunder shall be subcontracted without the prior written approval of the Commission.

ARTICLE III - REPORTS

A. On December 1, 1969, and every three months thereafter, the Contractor shall prepare and submit to the Commission a progress report outlining the work done to date and describing the work to be done in the next reporting period. Each progress report shall contain sufficient information to enable the Commission to evaluate the work being done as required by this Contract.

B. On September 1, 1970, the Contractor shall prepare and submit to the Commission Twentyfive (25) copies of the final report.

ARTICLE IV - CONSIDERATION AND METHOD OF PAYMENT

In consideration of the Contractor's satisfactory completion of the work required to be performed under this contract, and in compliance with all other contract requirements, the Commission hereby pays to the Contractor a total fixed price of $45,500.00 which shall be expended in conformity with the Contractor's budget, a copy of which is attached as "Exhibit A" and hereby made a part of this contract.

ARTICLE V - MODIFICATION AND TERMINATION

A. The Commission, by written notice to the Contractor, shall have the right to terminate this Contract if at any

time the anticipated results appear not to be obtainable. In the event of such termination, an equitable settlement will be negotiated to compensate the Contractor for the costs and a reasonable profit for the services rendered.

B. The Commission also reserves the right to modify any and all of the terms and conditions of this Contract, direct such changes of purpose it may consider necessary, substitute another Contractor or Contractors and increase the number of Contractors when at any time, in its judgment, the purposes of the program so warrant. The decision of the Commission, interpreting the terms and conditions of this Contract, shall be final.

ARTICLE VI - COMPLIANCE WITH CIVIL RIGHTS ACT

A. The Contractor shall comply with the Civil Rights Act of 1964 and as a condition to the entitlement to any funds shall have executed an assurance of compliance as required by the Secretary of Commerce pursuant to Regulations issued by the Department of Commerce, in implementation of the Civil Rights Act of 1964, and designated as Part 8 of Subtitle A of Title 15of the Code of Federal Regulations.

ARTICLE VII - COPYRIGHT AND PATENTS

A. No reports, maps, or other documents produced in whole or in part under this Contract shall be the subject of an application for copyright or patents by or on behalf of the Contractor.

ARTICLE VIII - RETENTION OF RECORDS

A. The Contractor shall keep such records as will fully disclose the amount and disposition of the total funds from all sources budgeted for the Contract period, the purpose or undertaking for which such funds are used, the amount and nature of all contributions from other sources, and such other records as the Commission shall prescribe. Such records shall be preserved for a period of not less than three (3) years following disbursement.

ARTICLE IX - AUDIT

A. The Commission and the Comptroller General of the United States or their duly authorized representatives shall have access for the purpose of audit and examination to any books, documents, papers and records of the Contractor that will facilitate an effective audit, and that are pertinent to the Contract.

ARTICLE X - INTEREST OF CONTRACTOR

A. The Contractor covenants that he presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Contract. The Contractor further covenants that in the performance of this contract no person having any such interest shall be employed.

ARTICLE XI - OFFICIALS NOT TO BENEFIT

A. No members of or delegates to the Congress of the United States of America, and no Resident Commissioner, shall be admitted to any share or part thereof or to any benefit to arise herefrom.

ARTICLE XII - DISPUTES

A. Except as otherwise provided in this Contract, any dispute concerning a question of fact arising under this Contract which is not disposed of by agreement shall be decided by the Contracting Officer, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Contractor. The decision of the Contracting Officer shall be final and conclusive unless, within thirty (30) days from the date of receipt of such copy, the Contractor mails or otherwise furnishes to the Contracting Officer, a written appeal addressed to the Secretary. The decision of the Commission shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. In connection with any appeal proceeding under this clause, the Contractor shall be afforded an

opportunity to be heard and to offer evidence in support of its appeal. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of the Contract and in accordance with the Contracting Officer's decision.

B. This "Disputes" clause does not preclude consideration of law questions in connection with decisions provided for in Paragraph A above: PROVIDED, That nothing in this Contract shall be construed as making final the decision of any administrative official, representative, or board on a question of law.

IN WITNESS WHEREOF, The Commission and the Contractor have executed this Contract as of the date first above written.

Arizona State Department of
Vocational Education

Executive Director
Four Corners Regional Commission

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REVISED BUDGET:

	Local Funds	Technical Assistance Funds	Total
1. Personnel:			
Director	$ 1,700	$	$ 1,700
Two Planning & Development Specialists		25,000	25,000
Secretary		4,800	4,800
Coordinators (sponsoring institutions)	7,200		7,200
Technical Consultants		1,500	1,500
2. Benefits	900	3,000	3,900
3. Travel	2,500	2,400	4,900
4. Communications	1,200	1,200	2,400
5. Supplies	300	600	900
6. Services (duplicating & data processing)		7,000	7,000
7. Facilities & Equipment	3,000		3,000
TOTAL DIRECT	$16,800	$45,500	$62,300
8. Indirect Cost (overhead) University off-campus rate 4.29%	-	4,200	4,200
TOTAL	$16,800	$49,700	$66,500

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AREA CODE 505-327-9626

OFFICE OF THE EXECUTIVE DIRECTOR

AMENDMENT

TECHNICAL ASSISTANCE GRANT - FCRC PROJECT No. 101-200-007
ARIZONA STATE DEPARTMENT OF VOCATIONAL EDUCATION
DOCUMENT No. 10050011

AN AMENDMENT to this AGREEMENT is entered into this 31st day of December, 1969, by and between the ARIZONA STATE DEPARTMENT OF VOCATIONAL EDUCATION (hereinafter called the "Contractor") and the FOUR CORNERS REGIONAL COMMISSION (hereinafter called the "Commission"), WITNESSETH THAT:

The effective date of this contract is amended from September 1, 1969 to November 14, 1969.

The completion date is amended from September 1, 1970 to November 14, 1970.

Article III -A- is amended to read:
"On January 1, 1970, and every three months thereafter the Contractor shall prepare and submit to the Commission a progress report outlining the work done to date and describing the work to be done in the next reporting period. Each progress report shall contain sufficient information to enable the Commission to evaluate the work being done as required by this Contract."

Article III -B- is amended to read:
"On November 14, 1970, the Contractor shall prepare and submit to the Commission Twenty-five (25) copies of the final report."

J. R. Cullison
Arizona State Department
of Vocational Education

Allan T. Howe
Four Corners Regional Commission
Allan T. Howe, Executive Director

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AREA CODE 505-327-9626

OFFICE OF THE EXECUTIVE DIRECTOR

AMENDMENT NUMBER 2

AMENDMENT TO TECHNICAL ASSISTANCE GRANT PROJECT 101-200-007, DOCUMENT NO. 10050011, ARIZONA STATE DEPARTMENT OF VOCATIONAL EDUCATION

THIS AMENDMENT, entered into as of this 27th day of October, 1970, by and between the Arizona State Department of Vocational Education (hereinafter called the "Contractor") and the Four Corners Regional Commission (hereinafter called the "Commission"), WITNESSETH THAT:

WHEREAS, on the 1st day of September, 1969, the Contractor and the Commission entered into a contract for the performance of certain services;

WHEREAS, on the 31st day of December, 1969, the Contractor and the Commission amended this contract to extend the period of performance to November 14, 1970; and

WHEREAS, due to delays encountered in the completion of this project and the subsequent compilation of a final report;

NOW, THEREFORE, the parties do hereby mutually agree as follows:

1. The period of the performance of the contract is extended to November 30, 1970 and Article III-B of the contract dated September 1, 1969, and amended on December 31, 1969, is hereby further amended to read as follows:

> Article III-B - Reports
> "On November 30, 1970, the Contractor shall prepare and submit to the Commission twenty-five (25) copies of the final report."

2. "Exhibit A" which was attached to and made a part of the contract dated September 1, 1969, is hereby revoked and replaced by "Revised Exhibit A" which is attached to and made a part of this Amendment.

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IN WITNESS WHEREOF, the Commission and the Contractor have executed this Amendment as of the date first above written.

J. K. Cullison

Arizona State Department
of Vocational Education

Allan T. Howe

Four Corners Regional Commission

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"REVISED EXHIBIT A"

State of Arizona
Department of Vocational Education
1333 West Camelback Road
Phoenix, Arizona 85013

BUDGET: TECHNICAL ASSISTANCE GRANT-FCRC PROJECT NO. 101-200-007 ARIZONA STATE DEPARTMENT OF VOCATIONAL EDUCATION DOCUMENT NO. 10050011

(REVISED-OCTOBER 15, 1970)

1.	Personnel:	
	Two Planning and Development Specialists	$ 24,850
	Secretary	5,250
	Technical Consultants	5,050
2.	Benefits	3,140
3.	Travel	2,400
4.	Communications	1,350
5.	Supplies	810
6.	Services	2,650
		$ 45,500

5315

VT 012 622
Indigenous Manpower for Social Planning.
Report of a Work Conference (May 1, 1970).

Human Services Manpower Career Center,
Chicago, Ill.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 38p.

DESCRIPTORS - *SOCIAL PLANNING; *URBAN SLUMS;
*CITIZEN PARTICIPATION; *CAREER
OPPORTUNITIES; CONFERENCE REPORTS; COMMUNITY
INVOLVEMENT; CULTURALLY DISADVANTAGED;
MANPOWER UTILIAZTION; *OCCUPATIONAL MOBILITY
IDENTIFIERS - *CHICAGO MODEL CITIES PROGRAM

ABSTRACT - In response to a growing interest among Chicago social planning agencies, this conference was held to explore the manpower implications and potential of the Model Cities Program and its pilot project to train 16 indigenous social planners from the four target neighborhoods. Emerging from the conference were several general conclusions: (1) Total commitment is necessary for full citizen participation in social planning, (2) Flexibility and coordination between agencies are necessary in defining job functions and selection criteria, (3) Firm job commitments must be made for successful trainees, and (4) Graduates should be given certificates acknowledging program completion. (BH)

VT 012 622

ED0 57254

A special publication
of the
Human Services
Manpower Career Center,
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Chicago, Illinois 60604
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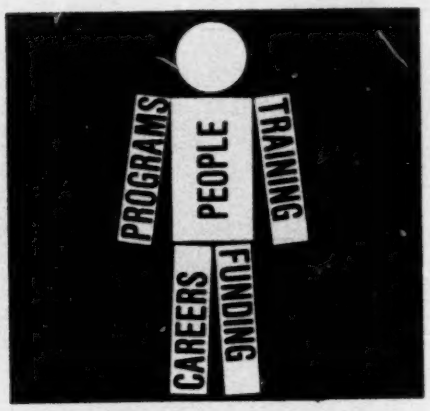

INDIGENOUS MANPOWER FOR SOCIAL PLANNING

Report of a Conference
Sponsored by
The Human Services
Manpower Career Center

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INDIGENOUS MANPOWER FOR SOCIAL PLANNING.

The Report of a Work Conference Sponsored by the
Human Services Manpower Career Center on May 1, 1970

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At one moment during the Conference, a participant took issue with the whole notion of the planning process in general. What we need, he said, is not so much to plan for a new society but to try to evoke one. His comment reminded us of something Warren G. Bennis, one of the nation's most extraordinary educators and organization specialists, recently said:

". . . People are more likely to be living toward the future as a conscious dream, a set of imaginative hypotheses groping toward whatever vivid utopias lie at the heart of our consciousness. . ."

And yet, . . . "the technocrats race heroically ahead, embracing the future in their robot arms, forgetting to turn around to see if any human is following or listening. They skim over waves of ideology like hydroplanes."*

*"Organic Populism—A Conversation with Warren G. Bennis and T. George Harris", *Psychology Today*, February, 1970.

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INTRODUCTION

This is a report of the Work Conference sponsored by the Human Services Manpower Career Center on May 1, 1970 on the subject of Indigenous Manpower for Social Planning.

For those who may not wish to read this report from cover to cover, we have stated in the very beginning our own responses to the issues posed by the Conference. Along with these comments, we have also offered some recommendations as to how the concerned agencies might follow up on the learnings which the Conference produced.

The body of the report describes what transpired in the informal afternoon session that preceded the meeting as well as during the Conference which took place on the following day. What we present here is only occasionally a verbatim transcript. More often it gives a summary of the sense of the discussion and the issues raised by the participants.

In the Appendices we include items relevant to both the substance of the meeting and the issues remaining to be explored.

We wish to thank Dr. Justine Cordwell and Mrs. Pat Shafer for helping us to prepare this document.

Myrna Bordelon Kassel, Ph.D., Director
Human Services Manpower Career Center
and Editor of the Report

SECTION I

SOME IMPRESSIONS OF THE CONFERENCE AND ITS UNFINISHED BUSINESS

These are nine of the many impressions we took away from this one-day meeting. They are personal in nature and do not necessarily express the views of the Planning Committee or the Conference participants. The body of the report which follows this Section, however, has been submitted to the members of the six-agency Planning Committee for review and comment in an effort to produce an accurate accounting of the work of the Conference as seen by those who helped put it together.

We are pleased to have had the opportunity to provide a forum for exploring these issues with our agency friends and colleagues.

Particularly because the Conference involved the examination of a pilot project, which, like all pilot projects, must learn as it goes along, we wish to commend the two City agencies directly involved, the Department of Development and Planning and the Model Cities Program, for encouraging us to sponsor an inter-agency meeting at this time. Any public discussion and critique of a new program must inevitably bring into focus some of its problems and deficits.

We at the Conference, however, were personally impressed and moved by the good will, candor and commitment which so rapidly surfaced in the dialogue. It is in this spirit that we submit our own comments on some of the tasks which lie ahead, if this program is to be a success and a model for the community.

During the past six years scores of New Careers programs have been undertaken throughout the country. Some of them have flourished. Others have languished or died off. Out of this effort have come some significant learnings which we need to pay attention to and

put to effective use. Having examined the now impressive body of literature on these programs, in which certain basic principles continue to be reiterated, we would point out:

1. The Model Cities First Year Action Project to train sixteen indigenous social planners represents a welcome beginning effort to build understanding and collaboration between the official planning structures of the City and residents of the target areas. All evidence, however, supports the conclusion that the introduction of new indigenous manpower into a program cannot be relied on to transform an established system, institution or service agency all by itself. The infusion of community-based people into the social planning process should be seen as only one component within the total commitment of any agency to design, develop and sustain the necessary organizational structures for full citizen participation in its planning operations.

2. We now see a strong surge of interest among many agencies operating within our public and private bureaucratic structures to use community-based staff. Yet what continues to be enormously unclear is precisely how these workers are to function, not only within their own agencies but in relation to other community workers who represent the outreach efforts of the increasing number of agencies seeking a neighborhood base.

Sooner or later, we will need to come to terms with this problem, if we are to make rational use of the growing cadre of community-based indigenous workers. Otherwise we will have merely replicated in our neighborhoods the bureaucratic chaos and inter-agency traffic jam which now characterizes the metropolitan scene.

3. The Model Cities Program, however, attempts to develop something more than the now rather widely accepted community worker model. It is investing its resources in an effort to generate a new source of supply for competent social planning manpower. Let us say right off that this will be an extraordinarily difficult undertaking. The social planning profession itself is only beginning to emerge, to define its role, to set its own standards for training and performance. There are not many precedents or resources to draw upon to help us.

Yet, on the positive side, the absence of a highly organized professional establishment may turn out to be an asset. Perhaps here, in this sector of the human services, we may be able to introduce new manpower more rapidly, because no strongly entrenched professional group has yet mobilized and armoured itself to resist the encroachment of so-called sub, non, pre, semi or para-professionals.

4. This leads us to recommend that a careful study be undertaken, using proven job analysis techniques, of the actual functions being performed by community-based workers currently engaged in social planning-related functions in the Chicago area. This will begin to provide us with more precise data than we now have for entry-level management, training and job definition purposes.

Such a study needs to be carried further into a comprehensive task analysis of the functions now being performed by planning staff at middle and upper levels in those public and private Chicago agencies which have already established some social planning operations. The purpose of this overall or systems-oriented study of manpower utilization patterns in the social planning field is to explore the possibilities for restructuring existing jobs, designing genuine upward mobility opportunities and improving the utilization of scarce professional skills.

5. With respect to the pilot project itself, we are fully aware of the good reasons we have for not attempting to over-specify in straight-jacketing language the functions to be performed by indigenous social planners during this or any other stage of program development. We believe, however, that it is essential to legitimize an entry level Civil Service classification for these workers as promptly as possible. A generalist approach to the description of job duties would be most appropriate, enabling the interns completing the present training program to be put to work in permanent Civil Service jobs by interested agencies in a variety of settings.

6. We believe it is essential that a firm job commitment be made available by either or both of the sponsoring agencies to those who successfully complete the training program

and who demonstrate their interest and capability to perform the work for which they have been trained.

7. With respect to the present training program, our view is that, even in its pilot stages, the program should provide the worker who has spent a full year in training some tangible certification that he has completed a recognized career preparation program. Although the present training program acknowledges the value of combining work or training tasks with opportunities for study, it is conceivable that the one-year internship may be an end point for some workers.

For them, as well as for all other interns, the completion of the training program should be accompanied by the granting of a certificate that has some value in the labor market. There are ample precedents for this in even shorter term certificate programs offered by the community colleges in Chicago.

8. This suggests the importance for those persons and agencies who are committed to the concept of developing indigenous planning capability in our community to begin to conceptualize a core curriculum in collaboration with interested educational institutions. What is most desirable is a training continuum which provides articulation between the community college, the four year college and the graduate school. We especially need in Chicago to engage at least one of the community colleges in developing an innovative cooperative education program which will provide social planning course content carefully dovetailed into planned work experiences.

9. Since only five of the present sixteen slots made available for the internships are presently filled, we suggest a reconsideration of present selection criteria. Despite the absence of a guaranteed job, a large number of applicants have presented themselves. This would suggest that the screening-out process may be far too rigorous and that, as a result, we may be losing high potential recruits who are already motivated to enter the field. It is not necessary, we suggest, that every entry level worker demonstrate the potential for college and graduate level achievement. We will always need a mix of Indians and Chiefs.

And there may be many cases in which a worker exercises his option not to move up the career ladder.

In the two months which have passed since this Conference took place, there is evidence that work is proceeding to strengthen the program in some of the several ways we have discussed here.

We look forward at the Center to playing an active part in this continuing effort.

Myrna Bordelon Kassel, Ph.D.

SECTION II

OUR PURPOSE AND PLAN

THE OBJECTIVE

We decided to stage this meeting in response to the interest and concern of the growing number of agencies engaged in aspects of social planning in the Chicago Metropolitan Area.

The two public agencies most directly involved in manpower development for social planning in Chicago this year were the City's Department of Development and Planning and the Chicago Model Cities Program. The First Action Year of the Model Cities Program had included a pilot project to recruit and train sixteen indigenous social planners from the four target neighborhoods. The contract for this project was held by the Department of Development and Planning.

Both agencies wanted to explore the implications of this program, its potentialities for the future and its realistic impact on human services programs, clients, trainees and the community as a whole. This interest was shared by other City agencies, some of whom are presently utilizing community-based workers in a variety of roles. Others are beginning now to explore how such manpower might contribute to the effectiveness of their developing service programs.

Because the Human Services Manpower Career Center itself provides a social planning function focused on the current and emerging manpower needs of the Chicago community, the Center took the initiative to sponsor a meeting which could bring agency leaders together to explore the manpower implications of this significant trend.

THE AGENDA

In order that this meeting might address itself directly to local needs and problems, a Planning Committee was formed by the Center representing six Chicago agencies sharing an active common interest in the social planning process.* These persons, occasionally augmented by others, participated in what was finally a group of twelve persons who helped to shape the Conference program.

In February the group came together in two meetings. Here they identified and formulated eight questions which they wished the Conference to address itself to. These questions became the substance of our agenda and were made available to the faculty team prior to the meeting.

THE FACULTY TEAM

A distinguished faculty team was invited to engage in this dialogue and to provide local participants with a broad overview of social planning experiences and directions throughout the country. Members of the faculty team included:

Harvey S. Perloff, Ph.D., Faculty Team Chairman, Dean of the School of Architecture and Urban Planning of the University of California, Los Angeles. Dr. Perloff is an economist and planner of world-wide eminence, whose work has ranged from the international to the neighborhood scene. He is now heading up a working group on the future of the U. S. Government for the Commission on the year 2000 of the American Academy of Arts and Sciences.

*See Appendix I for agencies and persons participating in the Planning Committee.

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Gerson M. Green, Director of Research and Development, University Research Corporation, Washington, D. C. His work has run a wide gamut from neighborhood development programs in Pittsburgh to graduate teaching in architecture and urban design at Carnegie Tech. As Director of Research and Demonstration for the Office of Economic Opportunity under Sargent Shriver, he was responsible for developing and administering three hundred experimental programs aimed at creating a base for national policy, programs and legislation in the human services field.

Robert N. Rhodes, Chicago political economist and member of the teaching staff of Malcolm X Community College. He presently serves as consultant to educational and social action groups throughout the country in the areas of urban planning, black studies and community organization.

THE COMMUNITY RESOURCE PANEL

To augment the material presented by the faculty and make it most relevant to our local needs, a Community Resource Panel of six agency leaders was invited to take an especially active role in posing questions and responding to issues which might emerge in the discussion. Unfortunately, the Conference conflicted with a special and unanticipated Chicago event, a parade and reception for the Astronauts, at which the presence of all Department heads was requested by the Mayor. Nevertheless, five agency executives joined the Conference for varying lengths of time. When they had to leave, they were replaced by staff concerned with social planning issues in their respective agencies. The five agency leaders who participated as members of the Panel were:

Mr. William E. Todhunter, Director, Division of Planning, Chicago Department of Human Resources

Mr. Edwin A. France, Administrative Assistant to the Mayor, Director, Chicago Model Cities Program

Mr. James A. Phillips, Director, Developmental Program for Comprehensive Health Planning

Mr. Charles Livermore, Deputy Director, Chicago Department of Development and Planning

Mrs. Murrell Syler, Director, Chicago Committee on Urban Opportunity

THE PARTICIPANTS

The Planning Group had made the decision to focus the meeting around the interests of the public agencies in the Chicago Metropolitan community. Their aim was to elicit the participation of executive level staff. They considered it desirable to limit the size of the group to around forty persons in order to encourage maximum participation and informal exchange.

The agencies invited to participate were those who had already begun to utilize indigenous workers in aspects of the social planning process or those who might be considering such a program. These were:

Chicago Board of Health
Chicago Civil Service Commission
Chicago Committee on Criminal Justice
Chicago Committee on Urban Opportunity
Chicago Department of Human Resources
Cook County Department of Public Aid
Developmental Program for Comprehensive Health Planning, Inc.
Chicago Model Cities Program
Chicago Police Department
Chicago Public Schools
Cook County Department of Planning and Development
Illinois Bureau of Employment Security
Mid-Southside Health Planning Organization

The Conference brought together forty persons from all fourteen agencies in response to the invitations.*

*A complete list of the names of persons who participated is contained in Appendix II.

SECTION III

THE PRE-CONFERENCE WARM-UP SESSION ON NEW TOWNS

In the late afternoon before the meeting, refreshments and conversation flowed around the subject of New Towns. The faculty had arrived that day to get acquainted and do some pre-Conference planning. About twenty-five Conference participants joined the session. What follows is the essence of the exchange.

The design of a New Town has long been a favorite exercise in architectural and planning schools. Today it is a hot political issue. The concept of the New Town symbolizes our pursuit of a better way of life for all our people. In this sense, it represents a positive trend in the United States, reflecting a growing social awareness that we can shape our own lives and the environments we live in.

On the negative side, however, excessive preoccupation with development of New Towns can become an escape from urban problems and realities. Here we see what are obviously two extremely different aspects of a single movement.

Trying to get Federal funds into rural areas and small cities is a perennial activity of many politicians who represent such areas. They postulate that people like to live in cities, but that cities in a rural setting would provide the optimum solution. Why not give people both amenities . . . the city and the rural life . . . in a new town or an old rural town renewed?

The National Growth Policy, promulgated by President Nixon, projects a population re-distribution and the substantial investment of Federal funds into such rural towns and country areas. Some of these funds would be allocated to creating totally New Towns, perhaps a hundred of them up to the year 2000. The result would be to diminish the present massive movement of people into existing cities.

The British policy is to "decant" a large city; that is, to build satellite towns to drain off a large urban center. But the New Towns contemplated in the current federal program would be wholly new towns, not satellites.

If a hundred New Towns are to be built, the government must, in effect, not only create them, but guarantee their future growth. A New Town must be built on its own strong economic base if it is to survive, whereas a satellite town already has its economic base in the larger metropolis. A kind of giant F.H.A. is now being conceptualized with the New Town model in mind. Safeguards must be built into this program so that these New Towns do not become another pork barrel for subsidizing irresponsible vested interests.

We will have many serious social and economic difficulties in using New Towns as a solution to our urban crisis, not the least of which is the growing resentment of the people who are being planned for.

To get a New Town built on fairly sound social principles, we will have to begin by developing broad citizen participation. The government will have to be willing to purchase a great deal of the land and then develop techniques for monitoring its use.

Federal policies will be required to make sure that social and racial segregation are not built into these New Towns. Every proposal for a New Town must be carefully examined to see what it really proposes to create.

The profit motive, for example, cannot be relied upon exclusively for New Town construction, because low-cost housing is generally not profitable. We will have to identify what is not working out under the private enterprise system and innovate alternative models.

Pulling the citizen into the planning process does not always guarantee an immediately desirable social outcome. Community participation is a two-edged knife. Sometimes strong parochial interests are mobilized and take over. Extreme bias exists in some middle-class black neighborhoods, just as it does in white neighborhoods. Both kinds of groups

may try to block the poor and less-educated black person from upward mobility. Citizens may also find themselves deeply resented by professional planners who feel that a local citizens group may be thwarting the implementation of over-all community planning objectives.

To be realistic, however, citizens, planners, local and Federal governments must recognize that the quality of participation varies with the economic level and organizational sophistication of the people involved. Back in the thirties, for example, the widespread recognition of unions began and has been developing ever since. We now have more mature forms of worker participation in management. In other areas, in the medical field, for example, there has been a notorious lag in developing citizen involvement. So far the professional planner has not really come to grips with this problem of finding effective ways to involve the community.

Dr. Perloff drew this session to an end, reminding the participants that they must learn to diagnose the real situation, to understand that there are many varieties of participation, some of which are merely symbolic. In smaller communities, for example, the citizenry can often participate to the hilt on matters such as zoning and code compliance, but yet not really be participating in basic planning at all. Fortunately, we are in a time when more people are coming to the realization that, if they don't take a genuine role in shaping their destinies, they get stepped on.

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SECTION IV

THE WORK OF THE CONFERENCE

INTRODUCTORY REMARKS

by Samuel C. Bernstein, Illinois Employment Security Administrator

I am pleased and honored to be your host today and the convenor, through our Human Services Manpower Career Center, of this Work Conference. Our main interest here today is in the development of new indigenous manpower for social planning in Chicago. The term social planning is a new one for some of us, including myself. But what it means to me is planning that is focused on the total human being, all his needs, his problems, his aspirations both as an individual and as a member of his community. Perhaps it seems a new term to some of us because so much of our planning in the past has emphasized bricks and mortar, streets and highways, more than it has people.

As I look around the room, I see many old friends who over the years have worked alongside me as partners in many different places and settings. Most of these partnerships represented our efforts to plan, develop and coordinate pieces of social planning in this community.

I believe we have now arrived at a point in Chicago, as in most American cities, when it is becoming clear to all of us that our problems are so complex, our budgetary resources so limited and our programs so diverse that the development of inter-agency machinery for comprehensive social planning is absolutely essential if our separate efforts are to make any significant contribution to the welfare of our citizens.

We also know . . . and it is made very clear by our experiences in Model Cities and CCUO . . . that effective planning must involve a broad base of citizen-participation in all our social programs. It is because we understand this so well, that the Model Cities Program has taken the initiative to sponsor the training and utilization of a new group of indigenous social planners.

Now, many of us have had experiences in our agencies during the past several years with recruiting and training community workers, community representatives and other kinds of new outreach workers. These men and women are doing an excellent and urgently needed job.

However, we would have to admit to some obvious problems. First of all, these workers are very few in number compared to the need. They are performing a wide variety of tasks which, in some cases do not get clearly defined. What this means to me is that just increasing the number of community-based workers throughout the City will not solve our problems, unless each agency has a clear idea of what these workers are supposed to do and how they relate to one another back in the neighborhood. Moreover, many of these men and women are in dead end positions because no career ladders or developmental training programs have yet been established for them. Obviously, a great deal of work needs to be done in this area.

Maybe it will take us a long time to figure out the answers to some of these problems. Maybe a certain amount of confusion is not only tolerable at this time but inevitable. Nevertheless, we ought to be asking the right questions and looking for the answers, together—in the way we are trying to do it at this meeting.

Today we are going to be talking about a new type of community-based worker—an indigenous social planner. In my judgment, all the questions that have been raised by the Committee that has planned this meeting with Dr. Kassel are right on target. We have an extraordinary select group of people here today. I expect much will be learned today from both our outside and inside experts. I hope your discussion will result in some recommendations that can help us work together in recruiting, training and putting to best use the human resources that are all around us and that we need so urgently to develop an effective social planning network in this community. And now, I'd like to introduce Dr. Myrna Kassel, the Director of our Human Services Manpower Career Center, who in taking the initiative to organize this meeting, has done it in the true spirit of inter-agency social planning.

THE OVERVIEW

"In 1937, the U. S. Housing Act was passed. The concept was a good one . . . the standards of the Federal Administration were high, but it never occurred to anybody that the people might make their own decisions about playgrounds, housing design, or management policies.

*"Our legislation is still not phrased in concepts which work today: that sometimes these people have awfully good ideas, better than ours. We're just beginning to learn. . ."**

What are the implications of the War on Poverty and the Model Cities Program for the future of social planning in this country?

Dr. Perloff was asked to respond to this question. What follows is a summary of his presentation augmented by contributions from other Conference participants. The Federal programs of the thirties opened the door to citizen participation in planning. These programs made historic strides in involving the Federal government in many new areas of social concern. Then, in keeping with the traditional rhythms of this country, what followed in the forties and fifties was a period of consolidation, a time for trying to integrate the innovations of the previous decade.

As we entered the sixties, a new Federal thrust into social problem areas was initiated. But, unlike the programs of the thirties which were focused on symptoms, the programs of the sixties attempted to solve some of the basic causes of our social ills.

The War on Poverty was conceived and openly described as a purely experimental program. This spirit of the sixties was something new in American history, . . . a consciously experimental approach to problem-solving as a basic mode of operation in a national program.

*Elizabeth Wood in "Public Servant" quoted in *Hard Times* by Studs Terkel, Random House or Pantheon 1969.

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Here we also have the failure of the sixties. Implicit in any concept of social experimentation is an awareness of various techniques for conducting experiments, learning from experiments and building onto successful experiments. This was missing from the political scene. For example, Model Cities, as it was originally conceived, had designated Detroit as a demonstration city. Great amounts of Federal money were to be poured into the City. Massive efforts were to be made toward solving problems and eliminating the causes of these problems. The practical knowledge and successful procedures to be learned in this one concentrated situation were to serve as a blueprint for later similar programs in other cities.

But certain political leaders destroyed this social experiment while it was still in the planning stage. When the program became enmeshed in political issues, Congress changed the whole frame of reference. Instead of a massive effort in a concentrated area, Model Cities became a spread out, diluted attack in seven demonstration cities.

Nevertheless, in spite of our faulty programming, these operations have been successful catalysts for citizen involvement in social planning and for breaking down rigidities between public and private sectors, as well as between Federal and local governments. They have created a framework within which citizens can influence social planning. They have enlarged the community's demand for a voice in social planning. As a result, new manpower, indigenous to the community, has been brought in to act as a bridge between the bureaucratic structures and the community.

Now it is absolutely necessary to salvage this newly trained manpower. We have much more to gain than trained workers, although this alone would be worth the effort. The more we use even these limited programs to develop a cadre of people who are sensitive to community needs and experienced in dealing with established bureaucracies, the greater chance our future programs will have for success.

Again, in keeping with this country's political rhythm, we are emerging from this innovative period of the sixties and entering now into the next phase, that of consolidating and implementing what we have learned from our most recent social experiments.

Now the task will be to incorporate our newly developed experimental practices into established procedures. This presents a challenge to rigidly structured bureaucracies. For nothing less than a transformation will be required of them. They must find ways to develop flexibility and a quickened pace responsive to the demands of the highly politicized citizens they serve. This new flexibility might range from rewriting old job classifications to encouraging coordinated spending of funds now controlled by separate departments.

The consolidation of efforts now dispersed among various agencies and organizations is a necessity. State and local legislators and administrators who control the purse-strings must come to see the relationship between flexible funding for successful experiments and the need for similar flexible funding for regular grant-in-aid programs. They must come to understand the relationship between a program's goals and its financial base.

The greatest thrust we need to make in this chaotic manpower and human resources area is to bring together all of the various groups who have to be involved. While quite a lot has been learned, we have to pin down what we do know and clearly identify what we don't know. All of this positive knowledge and corresponding awareness of our needs for resources must be communicated to the public.

One way to stimulate communication and collaboration is to bring the private sector in. We need a group to play the same kind of role the Committee For Economic Development played in the thirties. As progressive businessmen, they developed a technique for broadcasting the lessons being learned. This helped business, labor and other groups to see the need to join together and to push through the Full Employment Act of 1946.

This is the kind of coalition required today, one that can publicize the human resources development effort in such a way that it becomes a political imperative, an idea whose time has come and one that no politician would dare to be against.

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WHO, WHERE AND WHAT NOW?

Who is the "Indigenous social planner"?
Where did he come from in the first place?
What do we do now that we have him?

In the field of social planning, strong support is developing for the notion that members of the professional planning team should be indigenous to the community, that plans are not relevant unless there is some marriage between the planner and the aims of community residents.

Unfortunately, however, most of our technically proficient social planners do not or cannot always reside in the target community. This has caused problems. Because the planner is most often outside the community and inside the bureaucracy, he has operated from the position of the bureaucracy. He tends to define problems in relation to the results he is fairly sure of achieving; that is, he makes himself comfortable with the problem.

Early Model Cities canvasses of target areas in many cities produced evidence that this was not a unique source of tension. Community residents complained of unsatisfactory plans being "handed down" to them by outside planners. Since someone was needed to define problems from the community's point of view, the Model Cities leadership in several communities developed the concept of the indigenous or resident social planner. He has to act as the "marryin' preacher" in this union between the aims of the official planner and the aspirations and goals of the community.

At this Conference attempts to define the term indigenous social planner found the participants expressing two somewhat different concepts:

1) the worker seen as a skilled technician operating within, and representing the needs and objectives of, the official agency bureaucracy, and
2) the worker seen as a community advocate and a negotiator for the community in its transactions with the official agency bureaucracy.

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Those favoring the first more technically-oriented definition felt that a broad repertoire of physical and social planning skills is required if the indigenous worker is to win acceptance by professional planners. Those who preferred the second, or advocacy role, voiced concern that intensive technical training in physical planning skills might diminish the credibility of the worker in his own community. While the preponderant view leaned more toward the second definition, no one disagreed with the fact that well-designed training to prepare workers to function effectively in either role was essential.

The Conference participants seemed quite comfortable with the ambiguities that came out of their attempts at job definition. The general feeling was that any effort to pin down a precise and comprehensive definition at this early stage of development in the use of indigenous social planners would be premature.

THE TASK

What are the specific functions and tasks we should expect these social planners to perform in diverse agency settings? Are there common denominators in function and task?

The response to this question was simply that the tasks of an indigenous planner are essentially whatever those of a professional planner might be, if he has the competence and acceptance of the community. Social planning is a broad term embracing functions that range from proposal writer to technician to ombudsman. The overriding requirement is that the worker be indigenous and that he keep his viewpoint and sympathies close to the community.

As one Conference participant pointed out, the past ten years have seen tremendous growth and change in this new profession. People from very diverse backgrounds have moved in and have become active in the social planning process.

Because it is realistic to expect that the planning field will continue to change and grow in the next decade, the argument against over-delineating specific tasks was strongly stated. The exact spelling out of tasks was seen as too limiting, exposing us to the risk of becoming rigid at a time when job roles and functions must be kept in a more fluid state. Identifying tasks for these workers was said by many at the meeting to depend more upon the individual worker and his unique talents as they are applied to the specific needs and programs for which he has been hired.

THE WORKER

What kinds of people should we be seeking to recruit into this field? What should be their age, work experience, developmental potential and personal traits?

One of the objectives of the Model Cities trainee program for resident planners is to give people within the target areas opportunities for entry into what has previously been a field closed to persons lacking formal academic preparation. In the recruitment of trainees, however, an effort has been made to select persons with college potential, if not some actual college experience. The City Department of Development and Planning has, in interviewing applicants for the traineeships, discovered that a large majority of the persons who presented themselves did in fact have some college background. In addition, most of them had accumulated as much as five years of experience in some aspect of social planning in the target areas.

Age was not a strong factor in selection. The intelligence, the motivation and the degree to which an individual could empathize with the needs of others were considered more important.

In general, the Department reported that the level of sophistication of the applicants with respect to their skills, credentials and experience has been much higher than anticipated. Other Conference participants supported this general impression that a large untapped reservoir of local community people exists, many of whom are already engaged in the planning process. There is considerable capability among an increasing number of local residents to 1) define

their problems; 2) understand and evaluate the causes; 3) establish priorities; 4) set up alternative courses of action; and 4) implement programs of considerable complexity.

The general consensus on this question was that there is no perfect or ideal candidate for this field in terms of specific age, traits or personal characteristics. In fact, there is considerable feeling that the most effective training groups will be those that provide a rich mixture of persons with diverse backgrounds and varying potentials for further academic development.

HIS TRAINING

What are the components of an effective entry-level training program?

Al Baugher of the Chicago Department of Development and Planning presented a summary of the major features of the training program now being conducted for resident social planners under its Model Cities contract. The first year program is a pilot project designed for a total of sixteen interns. All of these slots, however, are not yet filled. The trainees are being recruited from each of the Model City Neighborhood target areas. They are being trained by, and work under the supervision of, professional planners in the Neighborhood Planning Section of the recently established Social Development Division of the Department of Development and Planning.

The one year training program designed for the interns includes the following activities:

1) Participation in on-going staff development programs sponsored or conducted by the Department;
2) Attendance at community and inter-agency meetings;
3) Preparation of written reports containing observations made by the intern on various aspects of the Model Cities Program and the meetings they attend;
4) Providing assistance to professional staff in the interpretation of programs to the residents of the Model Cities areas; and
5) Assessing community responses to Model Cities projects and other City programs and communicating this information back to the Department in weekly reports.

All duties are relevant to operating programs. Trainees are expected to become familiar with all aspects of various departments and sub-departments of the City in this way. By the end of the training period they have been introduced to the many areas involved in planning. They will not be specialists, but they will have developed skills in gathering and tabulating data, interviewing, project design, graphics, proposal writing, reporting and analyzing community feedback.

In addition, regular weekly sessions are held for the trainees during which a more academic approach to the theoretical aspects of social planning is provided.

At the time of the Conference, the Chicago Civil Service Commission was working on the development of new entry level job classifications for social planners in the City system. It was explained that the Department has no commitment to employ the trainees completing this internship program. There is a commitment, however, to "seek to locate new job opportunities for the interns with public and private agencies."

Efforts will be made to provide supportive services to the interns. A guidance counsellor will be employed to work with each individual and trainees will be encouraged to take courses at the Loop Junior College and other schools in keeping with the regular tuition reimbursement and release time policy for all City employees.

In the discussion which followed this report participants expressed concern with some of the aspects of the first year training program as it had been described. They stressed the critical importance of providing:

1) a firm job commitment to those successfully completing the training program;
2) a clearly defined entry level Civil Service classification;
3) a training program which would combine a planned academic curriculum* with an accredited on-the-job field experience; and

*See Appendix III for example of a two year curriculum currently offered by the Philadelphia Community College.

4) a well-articulated career ladder which could be available for persons with potential for upward mobility into professional planning positions and other related occupations.*

Staff of the Comprehensive Health Planning Agency reported that recent exploratory attempts to engage Malcolm X College and the University of Illinois in joint planning of a curriculum for the training of health planners had not been successful to date.

Dr. Kassel summarized a recent report published by the American Society of Planning Officials which listed four Illinois schools presently offering curricula in the planning field. All of these programs begin at the Bachelor's level. Although fifteen community colleges around the country have established two year programs in various planning specialties, none yet exist within this State designed to develop social planners.

This discussion illuminated the urgent need in Chicago for developing a planned training sequence combining all of the now well-established principles of the New Careers experience accumulated during the past six years throughout the country.

THE USERS OF INDIGENOUS SOCIAL PLANNERS

Who are the actual and potential users of social planning manpower in the metropolitan community? How do you sell the concept of the use of this new manpower to public agencies; such as, law enforcement, housing, health, etc.?

From this point on, the Conference had difficulty in focusing in depth on the remaining questions posed on the agenda. Part of the problem was that time was running out. But more important, perhaps, was the continuing preoccupation of the group with the complex questions that had already been raised. The participants who remained to the close of the afternoon session were for the most part those whose agencies were already committed to

*See Appendix IV for example of a four-level career ladder in planning.

the concept of using community-based workers in their own programs. What they were most concerned with at this point in the meeting were these two questions: 1) How do we involve those we have already employed as community workers in a developmental process which can ultimately provide our agencies with a competent cadre of social planners? and 2) How can we export these seasoned workers into other agencies who need to break out of their established patterns of operation to form new planning linkages with local citizens groups?

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SECTION V

SUMMARY

In staging this Conference we applied a basic premise of effective social planning; that is, that any group has the potential to go through the process of identifying its own needs and goals. In our judgment the Conference made good use of a one-day meeting. The dialogue was lively and few remained passive spectators to the interaction.

Out of this exchange came a reminder that many old problems are still with us and that many new ideas are ready to be tried and tested.

We did not intend to achieve closure on any of these basic questions. It was rather our purpose to set in motion a process of inter-agency communication which might not only continue and accelerate but produce in the coming months some tangible solutions to the issues we chose to examine.

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APPENDIX I

THE PLANNING COMMITTEE

Mr. Frank Bacon
Chicago Committee on Urban Opportunity

Mr. Sam Huffman
Chicago Model Cities Program

Mr. Edward Marciniak
Chicago Department of Development and Planning

Mr. Thomas Mitchell
Comprehensive Health Planning Agency, Inc.

Dr. Charles Pounian
Chicago Civil Service Commission

Mr. William Todhunter
Chicago Department of Human Resources

APPENDIX II

PARTICIPANTS IN THE PRE-CONFERENCE AND/OR CONFERENCE SESSIONS

Chicago Board of Health
- Eugene J. Ryder

Chicago Civil Service Commission
- Karen Schroeder, Senior Personnel Analyst
- Richard Shemetulskis, Senior Personnel Analyst

Chicago Committee on Criminal Justice
- Richard Devine, Director

Chicago Committee on Urban Opportunity
- Murrell Syler, Executive Director
- Frank Bacon, Director of Manpower
- Jessee Escalante, Director of Personnel
- Jack Fitzpatrick, Director of Planning
- Charles Johnson, Director of CEP
- Edward Lowe, Director of Work Training
- Walter Roberts, Director of Training
- Vernon Winstead, Model Cities Manpower

Chicago Department of Human Resources
- William Todhunter, Director, Division of Planning
- Richard Clewis, Manpower Coordinator
- Gail Deschner, Research Analyst
- Crispen Dipple, Urban Fellow
- Aviva Silberman, Senior Planning Analyst

Chicago Department of Planning and Development
- Lewis W. Hill, Commissioner
- Albert Baugher, Coordinating Planner
- Charles Livermore, Deputy Commissioner
- Edward A. Marciniak, Deputy Commissioner
- Austin Penny, City Planner

Chicago Model Cities Program
- Erwin France, Administrative Assistant to the Mayor and Director
- Samuel Huffman, Executive Assistant to the Director
- Richard Pollard, Program Planning and Development Specialist

Cook County Department of Planning and Development
- Thaddeus P. Brzyski, Assistant Director of Planning and Development

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Cook County Department of Public Aid
John W. Ballew, Director, Public Assistance Assistance Division
Lucius Meine, Supervisor, Contractual Education

Developmental Program for Comprehensive Health Planning, Inc.
James W. Phillips, Executive Director
M. Paul Gallagher, M.D., Associate Director
Thomas C. Mitchell, Planning Associate

Illinois Bureau of Employment Security
Samuel C. Bernstein, Administrator
Gertrude Gendel, Management Planning Specialist
Tom O'Bannon, Supervisor, Occupational Labor Market Studies

Human Services Manpower Career Center
Myrna Bordelon Kassel, Ph.D., Director and Coordinator for this Conference
Marjorie Blau, Research Analyst
Don Cass, Public Agency Services Coordinator
Ramon Hanson, Community Program Coordinator
Arlene Young, Job Analysis Coordinator

Mid-Southside Health Planning Organization
Paul Lewis, Director
Gwendolyn Robinson, Assistant Director

Guest

American Society of Planning Officials
Anthony Wilson, Recruitment Officer

APPENDIX III

AN EXAMPLE OF A TWO-YEAR ASSOCIATE OF ARTS CURRICULUM IN COMMUNITY PLANNING

Note: *The following curriculum in Urban Affairs Technology has been in operation since September 1969 at the Community College of Philadelphia. We are including this material merely to indicate what one of the fifteen community colleges around the country is presently offering. Inclusion of this material does not necessarily express the Center's view of what a two-year program should be.*

The material below is reproduced from the official College brochure:

URBAN AFFAIRS TECHNOLOGY CURRICULUM

The increasing concentration of population within cities in the United States makes the metropolis a vital subject for specialized study. Social, economic, political, cultural and environmental problems demand the attention of trained and educated people. The curriculum in Urban Affairs Technology, leading to the Associate in Applied Science (A.A.S.) degree, prepares its students for service in the agencies that deal with urban problems.

OPPORTUNITIES

For those already employed in existing urban agencies of various kinds, the program offers the opportunity for a broadening of horizons and a concentrated study of the backgrounds of problems with which they come into contact. Because the program is so flexible, with a great many educational options built into its format, the student will have not only a

sequence of courses related directly to urban conditions, but also will be able to select a course that will facilitate transfer to baccalaureate institutions after fulfilling the requirements for the A.A.S. degree.

PROGRAM

In addition to a background in such general subjects as mathematics, English, sociology and psychology, the curriculum in Urban Affairs Technology requires specialized work in courses dealing with urban agencies and problems. It also includes courses in management and computer work.

ACCREDITATION

Community College of Philadelphia is fully accredited for all its programs by the Middle States Association of Colleges and Secondary Schools. It is also approved by the Council of Higher Education and the Department of Public Instruction, Commonwealth of Pennsylvania.

REQUIREMENTS FOR GRADUATION

In order to qualify for the A.A.S. degree in Urban Affairs Technology, a student must complete 64 semester credits as prescribed below and obtain an overall grade point average of 2.0 (C average).

CURRICULUM

		Semesters	
		First	Second
First Year			
ENG. 101-102	– English Composition	3-0-3	3-0-3
S.S. 101-102	– Social Science	3-0-3	3-0-3
POLS. 111	– American Government	3-0-3	
BUS. 111	– Business Mathematics	3-0-3	
BUS. 141	– Business Management Principles	3-0-3	
POLS. 112	– Urban Agencies		3-0-3
BUS. 112	– Business Statistics I		3-0-3
BUS. 181	– Principles of Economics		3-0-3
Total First Year, 30 Semester Credits		15	15
Summer			
Internship in Government Agency		3	

		Semesters	
		First	Second
Second Year			
ENG. 112	– English Composition—Report Writing	3-0-3	
SOC. 231	– Social Problems	3-0-3	
POLS. 221	– Local & State Government	3-0-3	
BUS. 105	– Accounting for Management	3-0-3	
BUS. 284	– The Urban Economy	3-0-3	
ENG. 115	– Public Speaking		3-0-3
SOC. 243	– The Modern Urban Community		3-0-3
POLS. 212	– Public Administration		3-0-3
CSCI. 106	– Introduction to Data Processing I		3-2-4
POLS. 251	– Political Parties, Interest Groups, and the Electoral Process		3-0-3
Total Second Year, 31 Semester Credits		15	16

Total to Graduate, Including summer work, 64 Semester Credits

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APPENDIX IV

AN EXAMPLE OF FOUR LEVELS IN A CAREER LADDER FOR COMMUNITY PLANNERS

Note: *The following material was prepared by the Institute for Local Self Government of Berkeley, California and is reproduced here with their permission. We are including this merely to indicate how one agency has proceeded to look at tasks and skill levels. Inclusion of this material does not necessarily represent the Center's approval of the contents of this document.*

PLANNING AIDE TRAINEE

This position may require at least an 8th-12th grade level of education.

PLANNING AIDE

This position would require a certificate in Community Planning and one year experience in Planning or an equivalent combination of education and experience.

PLANNING TECHNICIAN

This position would be a high-level subprofessional position requiring an A.A. in Community Planning or an equivalent combination of education and experience.

JUNIOR PLANNER

This is the entry level professional position and generally requires a B.A. or M.A. in Planning or a related field.

PLANNING AIDE TRAINEE

What Gets Done (Duties and Tasks)	What Must be Learned (Knowledges and Skills)
Take measurement of specifically defined objects and locations.	Ability to follow specific directions and learn how to compute units of measure, such as feet, yards, etc.
Take photos of predetermined subjects.	Learn how to load, adjust and take pictures with camera.
Post legal notices.	Affix notices at predetermined locations.
Operate printing and reproduction equipment.	Learn how to operate various types of equipment.
Conduct physical counts of cars, houses, businesses, etc. by type of other predetermined criteria.	Follow specific directions and count and classify observations of physical things in the field.
Color and zip-a-tone maps and charts.	Understand colors, cut paper and affix materials to maps and charts.
Prepare signs.	Learn how to use lettering tools and do freehand lettering.
Set up and operate projectors.	Learn how to set up and operate projector.
Set up exhibits and displays.	Follow specific directions on setting up objects in specific locations.
Trace maps.	Learn what materials to use in tracing maps.
File maps.	Learn how to use simple alphabetic and numeric filing systems.
Conduct interviews such as information gathering interviews in various kinds of neighborhoods.	Ability to ask prescribed questions about social, physical and economic conditions and record information on forms.
Inspect specified physical conditions in field surveys such as simple zoning and land use standards.	Learn how to identify physical objects which do not conform to lists of prescribed standards.
Collate and bid reports.	Learn how to assemble and properly affix reports together in a prescribed sequence.

TRAINING AND EDUCATION CONTENT

1. Remedial education courses (if necessary).
2. Introduction to cities and community planning.
3. Oral and written communications.
4. Human relations.

PLANNING AIDE

What Gets Done (Duties and Tasks)	What Must be Learned (Knowledges and Skills)
Collect code and summarize specified data from records such as census and assessor's books.	Learn filing system and sources of data in other agencies. Ability to summarize data in a prescribed format.
Update maps, charts and visual aids.	Learn drafting and graphic methods.
Draw maps including those requiring change of scale.	Knowledge of fundamentals of drafting and graphics.
Compute measurements of areas.	Learn how to code, summarize and compare data.
Obtain names and prepare lists for notices of hearings.	Knowledge regarding planning hearing proceedings and legal requirements for obtaining and compiling lists of names and addresses.
Receive routine complaints and may do some research work in resolving complaints.	Understand basic planning and zoning concepts and regulations, knowledge of good communications skills and public relations.
Prepares reports and correspondence on simple planning matters.	Ability to write clear and concise reports and knowledge of planning and zoning concepts.
Surveys and investigates planning problems which may result in objective findings, such as a survey of setback requirements.	Learn various planning and zoning concepts, specified regulations. Ability to classify and code observations of planning data.
Prepares color separation or flip chart overlays.	Knowledge of planning graphics and drafting techniques and equipment.
Prepares charts, models and similar visual aids.	Knowledge of three dimensional model construction and planning graphics techniques.

TRAINING AND EDUCATION CONTENT

1. The role of planning in Government.
2. Current problems in urban communities.
3. Planning graphics.
4. Selected topics in community planning.
5. Urban renewal.

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PLANNING TECHNICIAN

What Gets Done (Duties and Tasks)	What Must be Learned (Knowledges and Skills)
Design and lay out charts, maps and visual aids.	Thorough knowledge of planning graphics, tools and equipment.
Checks routine building plans and business licenses for compliance to zoning and related codes.	Knowledge of code requirements and relationship to zoning and related planning codes.
Conducts field surveys and investigations along pre-determined guidelines and prepares recommendations for such matters as land uses, vacancy rates, quality of development, subdivision improvements.	Knowledge of various elements of general plan and relationship of planning parts to the whole. Thorough knowledge of planning concepts and urban planning problems.
Update questionnaires for re-use.	Knowledge of how to design and use structured questionnaires.
Maintain filing system for maps and records.	Knowledge of office filing system.
Answers questions and assists the public in planning and zoning matters by phone, in person and by correspondence.	Knowledge of zoning and related planning concepts and codes, ability to communicate effectively.
May meet with community groups and explain specific planning programs.	Knowledge of urban planning problems, ability to understand and guide group discussion on planning matters. Understanding of group dynamics and interpersonal relations.

TRAINING AND EDUCATION CONTENT

1. Contemporary environmental design.
2. Directed studies in planning.
3. Studio projects in design.
4. Residential design and drafting.

Note: *The Institute's descriptions of tasks, knowledges, skill and training do not include the Junior Planner.*

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Illinois Department of Labor,
Bureau of Employment Security,
John M. Linton
Administrator

Myrna Bordelon Kassel, Ph.D.
Director, Human Services Manpower Career Center

State of Illinois
Richard B. Ogilvie, Governor

The Center is established to stimulate and support the recruitment, training and utilization of new manpower for the human services in Metropolitan Chicago through inter-agency planning, research and program development in collaboration with the Illinois State Employment Service.

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VT 012 623
Mental Health Worker Career Series.

Illinois State Dept. of Mental Health, Springfield.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Apr70 30p.

DESCRIPTORS - *HEALTH OCCUPATIONS; *MENTAL HEALTH; *OCCUPATIONAL MOBILITY; SUBPROFESSIONALS; PROFESSIONAL PERSONNEL; *EDUCATIONAL PROGRAMS; JOB TRAINING; WORK

EXPERIENCE; PROMOTION (OCCUPATIONAL); ABILITY; OCCUPATIONAL INFORMATION
IDENTIFIERS - *CAREER LADDERS

ABSTRACT - The Illinois Department of Mental Health prepared this career series to provide a generalist approach to manpower and program organization and to provide a progressive path to top career positions through a system of training, work experience, and demonstrated ability. The series consists of nine mental health worker classes, each differing in the nature of the work and worker qualifications. Four entry level training sets have been established which allow the trainee, upon successful completion of the training program, to enter a specific mental health worker class. Trainees enter one of the 6-month training programs, which consist of clinical and didactic experiences, appropriate to their academic and inservice training background and relevant mental health work. The training program is described, and policy guidelines for the series are provided. A chart illustrating the pay grades and trainee qualifications for each class is appended. (SB)

VT 012 623

ED0 57254

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STATE OF ILLINOIS

Richard B. Ogilvie, Governor

DEPARTMENT OF MENTAL HEALTH

Albert J. Glass, M.D., Acting Director

VT012623

APRIL 1970

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State of Illinois

Richard B. Ogilvie, Governor

MENTAL HEALTH WORKER CAREER SERIES

Illinois Department of Mental Health
Albert J. Glass, M.D., Acting Director
Springfield, Illinois

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This Mental Health Worker Career Series is a pioneering and unprecedented effort to solve an array of problems related to the provision and organization of manpower for meeting the mental health needs of the citizenry in Illinois.

One of the primary objectives of this new Series is to provide a more flexible and manageable system for keeping pace with the rapid infusion of new knowledge, fast-changing practices in delivery of services, and the growing complexity of relationships in the utilization of other helping resources outside of the state mental health agency.

The Department of Mental Health fully intends to plan immediately for use of this Series in accordance with the requirements set forth in this document. The lead time for planning will permit approved programs or units to incorporate the new position classification titles of this Series in budgets for Fiscal Year 1972. Budget reviews, however, will begin in the fall of 1970. Facilities with programs or units approved for use of the new Series will be authorized to make the new position classification titles effective beginning July 1, 1971.

Wherever possible, the Department will give first priority to existing personnel who possess the qualifications and training appropriate to the position classifications of the new Series as authorized for the respective approved program or unit.

We believe that the foregoing policy will allow for an orderly transition to the Mental Health Worker Career Series and result in effective management. Furthermore, we believe that strict adherence to the foregoing policy and procedure, as well as those stipulated throughout this document, are essential to maintaining the integrity of this Series.

John F. Briggs
Deputy Director
Department of Mental Health

April 1, 1970

FOREWORD

The Mental Health Worker Career Series is an outgrowth of planning which began in 1965 in an effort to design a generalist approach to manpower and program organization.

As a first step in developing this Series, combined staff of the Department of Personnel and the Department of Mental Health conducted a feasibility study. As part of this study, the staff made field visits to the various facilities to determine how such a Series could be utilized. As a result of the field visits, the final draft of the specification was written and presented to the Civil Service Commission at their December 1969 meeting.

The major purpose in developing this Series was to provide a career ladder for employees of the Department of Mental Health who are involved in client services. The Series also incorporates the following features:

1. Provides a structure into which employees from a variety of backgrounds and academic preparations may be fitted, utilizing a minimum of class titles.

2. Provides for a progressive path into top career positions for employees who have demonstrated ability regardless of their credentials or education.

3. Rewards attainment of general education, but places more value on the achievement of educational goals relevant to the field of mental health.

4. Provides for a training continuum from the lowest entrance level in the ladder to the highest levels of employment and includes four entry level training sets spaced at intervals along with the progression.

Although this Series was designed to provide a generalist approach to manpower and program organization, the staff which developed the Series recognized a need to maintain the professional disciplinary classifications and in many cases strengthen these positions. The unique job functions performed by members of professional disciplines need further careful clarification in order to achieve maximum utilization of scarce professional skills. The Mental Health Worker Career Series was established to offer an alternate career ladder for the professional disciplines, but was not intended to discourage the utilization of professional disciplines in the programs, nor to discourage present staff from continuing in their given professional career.

While this document serves as the basic guide for explanation and planning in relation to the Mental Health Worker Career Series, the document may be supplemented at a later date by policy and procedure on specific areas as required for effective implementation and utilization of this Series.

The staff who contributed to the development of this Series are too great in number to individually credit. However, the Department expresses its gratitude for the work and effort of these individuals in making this new Series available.

April 1, 1970

State of Illinois

DEPARTMENT OF PERSONNEL

THE MENTAL HEALTH WORKER CAREER SERIES

Specification Document

April 1, 1970

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THE MENTAL HEALTH WORKER CAREER SERIES

A. Introduction and General Discussion

The Mental Health Worker Career Series is designed to accomplish two very broad and important missions. First, to enhance personnel management within the Department, the series provides a modern classification structure that is reflective of an increasingly large number of "generalist" positions involved in therapeutic functions in both facility-based and community mental health programs. Thus, the broad-scale activities performed by generalist personnel are legitimized and properly evaluated through the classification system.

In addition, the concept of career employment is firmly implanted in the series design. Arbitrary restrictions on upward progression through the series have been eliminated in full recognition that an employee's natural abilities and initiative may well qualify him for higher-level responsibilities. Promotion to any level may be achieved through the successful completion of both an approved inservice training curriculum for that level and an examination administered by the Department of Personnel. The series is, therefore, intended to assist in the recruitment, retention, utilization, and development of employees engaged in a wide range of therapeutic activities, trained on an interdisciplinary basis, and motivated to make the field of mental health a career.

Secondly, the series represents an important management device for overall departmental administration. Because it embodies the more progressive and desirable rehabilitative programming and organizational techniques, its availability will be a strong influence on facilities to adopt similar methods. But, since complete transition from the more custodial and discipline-oriented approaches to client rehabilitation is a lengthy and indefinite process requiring changes in basic attitudes and philosophies, the utilization of the new series will be strictly controlled and monitored by the Department's General Office. Facilities desirous of using the Career Series will have to meet definite programming and organizational standards as well as develop the appropriate training programs. So inextricably linked is the management process to this series, that the procedures and regulations governing its implementation and use are hereby made part of the specifications.

B. Governing Procedures and Regulations

1. Approval

The Department's General Office will publish and distribute to its facilities the policy guidelines that will govern the selection of programs or units within the institution approved for the use of the Mental Health Worker Career Series. Copies of these guidelines will be sent to the Department of Personnel and the Civil Service Commission for their records. Facilities desirous of using the series will submit their programs in the form prescribed by the policy guidelines to the Department's General Office for review and approval.

2. Implementation

The Director of Mental Health will certify in writing to the Director of Personnel that a facility or unit within a facility has met the programming and training standards and is approved for the use of the Mental Health Worker Career Series. The Director of Mental Health will then submit complete and detailed position and organizational information on standard classification request forms to support the establishment of Mental Health Worker positions for the approved program. Both the old and new classification structures will be permitted to exist simultaneously to allow for the qualification and transfer of employees to the new positions.

3. Monitoring

The Departments of Mental Health and Personnel will appoint representatives who will join in a cooperative effort to monitor the use and administration of the Mental Health Worker Career Series. Procedures will be established to compile, exchange, and evaluate information in order that the series can be administered properly and maintained on a current basis.

C. Training Programs and Trainee Classes

The Mental Health Worker Career Series is predicated on the utilization of a progressive inservice training program to provide qualified staff for each level of operation. An adequate facility-based training curriculum and staff are part of the requirements for use of the series and will be further defined in the policy guidelines.

Four levels of Mental Health Worker Trainee based on educational attainments are established as part of the series design to facilitate the recruitment and selection processes and provide a source of qualified employees for the Career Series.

Trainees who complete their training program will have access to the series at several levels depending on vacancies.

The approved training plan for these trainee classes and the specifications are combined and included as part of the Career Series at the end of this document.

D. Relationship to other Classifications

The Mental Health Worker Career Series will not supplant existing titles until such time as there is no further need for them. This is not foreseen on a departmental wide basis for several years. Nor will the series be used as a substitute for or replace titles where discipline identification or licensure is required in relation to specialists that are needed for support to the generalist Mental Health programs.

E. Certification

Applicants for original appointment to or promotion within the Career Series must be certified as having the requisite training and other qualifications or the equivalent needed for performance at the class level for which application is made as determined by the Director of the Department of Personnel with the advice of the Director of the Department of Mental Health. Education and experience requirements are stated on the class specifications only to denote level of performance and to serve as a guide in the preparation of examinations. The criteria used for granting certificates to applicants must be documented by the Department of Mental Health and submitted to the Department of Personnel for their records. All appointments to series will be made in full conformance with Rules of the Department of Personnel.

F. Class Specifications

MENTAL HEALTH WORKER I

SPEC. CODE: 7361
POSITION CODE: 26931

DISTINGUISHING FEATURES OF WORK

Under immediate supervision, applies previous training in the performance of beginning level basic therapeutic and related service tasks, as a member of a treatment team; acquires further training in various rehabilitative techniques through assisting experienced generalist and specialist personnel and through additional formal instruction; interacts with clients in daily living activities, preparing simple reports on behavior and problems encountered, and insuring a properly maintained physical, social, and clinical environment.

ILLUSTRATIVE EXAMPLES OF WORK

Interacts therapeutically with clients in all types of daily living activities including making beds, dressing, eating, conversing, and personal hygiene; observes client behavior and prepares simple treatment plan reports; assists medical personnel as needed in performing routine nursing and physical care tasks; participates in and learns the basic techniques of various behavioral modification programs; attempts to stimulate client involvement in ward government, ward maintenance, and various individual and group activities as part of the planned treatment programs; assists higher level staff in establishing and maintaining community contacts as part of an overall community plan; performs other duties as required.

DESIRABLE REQUIREMENTS

Certification

Requires certification by the Department of Mental Health that all training and other qualifications needed for performance at the class level have been met subject to the final approval of such a recommendation by the Department of Personnel.

Education

Requires knowledge, skill, and mental development equivalent to completion of high school, supplemented by successful completion of the approved training program for the class.

Experience

Requires completion of the traineeship as a Mental Health Worker Trainee I.

Significant Responsibilities

Requires ability to maintain a sympathetic and therapeutic attitude toward mental clients.

Requires ability to apply training experience to current situations.

Requires ability to understand and apply routine therapeutic and physical care techniques.

MENTAL HEALTH WORKER II

SPEC. CODE: 7362
POSITION CODE: 26932

DISTINGUISHING FEATURES OF WORK

Under general supervision, performs a variety of responsible therapeutic and related service tasks as a member of a treatment team; interacts knowledgeably with clients in assigned phases of prevention, control, intake, care, treatment, rehabilitation, or aftercare programs; provides assistance to generalist and specialist personnel, and participates actively in team conferences regarding client evaluations and programs; observes, summarizes, and reports on client behavior and progress; assists in the orientation and guidance of less experienced staff.

ILLUSTRATIVE EXAMPLES OF WORK

Utilizes multiple skills in interacting with clients and reacts in a rehabilitative manner to behavior patterns manifested; contributes significantly to the development and implementation of the client treatment plan; summarizes information gathered by Level I staff for presentation to the team and other program areas of the unit; provides orientation, guidance, and training on rehabilitative techniques and programs to less experienced staff; assists professional staff in individual and group therapy sessions and other activities; functions both independently and with other team members and unit personnel in the implementation of all mental health community services; performs follow-up services for clients including home visits and consultations with aftercare facilities; performs other duties as required.

DESIRABLE REQUIREMENTS

Certification

Requires certification by the Department of Mental Health that all training and other qualifications needed for performance at the class level have been met subject to the final approval of such a recommendation by the Department of Personnel.

Education

Requires knowledge, skill, and mental development equivalent to completion of high school, supplemented by successful completion of the approved training program for the class.

Experience

Requires one year of experience in the field of mental health.

Significant Responsibilities

Requires ability to relate therapeutically to mental clients.

Requires ability to recognize potential problems in mental clients requiring a modification in the treatment plan.

Requires ability to prepare reports on client behavior and progress.

MENTAL HEALTH WORKER III

SPEC. CODE: 7363
POSITION CODE: 26933

DISTINGUISHING FEATURES OF WORK

Under direction serves in an established organizational role of expertise and leadership in a functional area of programming within the unit; has responsibility for the delivery of specific services or activities calling for substantial amounts of staff direction, guidance, and training; works with clients on an experienced level to provide therapeutic activities which have been developed to meet their needs; assists higher level personnel in the development of social, group, and milieu programs; provides training for less experienced workers and may supervise a small staff.

ILLUSTRATIVE EXAMPLES OF WORK

Delivers advanced level services and provides leadership in an assigned functional area of the total unit program, such as training, treatment, research and evaluation and aftercare; evaluates information and data from assigned program and recommends modifications where indicated; acts as a consultant and assistant to higher level staff for program development and implementation; initiates various contacts within the community to explain programs and secure cooperation and acceptance of the goals of the unit; serves as instructor in specific inservice training for less experienced staff; develops original data collection forms and special report formats for use in research and evaluation; performs other duties as required.

DESIRABLE REQUIREMENTS

Certification

Requires certification by the Department of Mental Health that all training and other qualifications needed for performance at the class level have been met subject to the final approval of such a recommendation by the Department of Personnel.

Education

Requires knowledge, skill, and mental development equivalent to completion of high school, supplemented by successful completion of the approved training program for the class.

Experience

Requires two years of experience in the field of mental health, or, completion of the traineeship as a Mental Health Worker Trainee II.

Significant Responsibilities

Requires ability to provide training and leadership to less experienced staff.

Requires ability to evaluate and deal effectively with problem situations relating to client rehabilitation.

Requires ability to explain and interpret program to community groups.

MENTAL HEALTH WORKER IV

SPEC. CODE: 7364
POSITION CODE: 26934

DISTINGUISHING FEATURES OF WORK

Under general supervision, functions at a beginning professional level in a facility-based or community program featuring a team approach to mental health services; applies a variety of disciplinary methods to the analysis and diagnosis of client problems and implements an appropriate treatment approach; evaluates client responses and behavioral patterns, and makes adjustments where indicated; administers basic professional level therapeutic services in such areas as psychology, social service, rehabilitation counseling, activity therapy, etc.; furthers personal development in the mental health field through participation in inservice formal training programs and on-the-job work experience; teaches specialized skills to co-workers.

ILLUSTRATIVE EXAMPLES OF WORK

Applies basic professional techniques in the analysis and evaluation of mental clients and assists in the structuring of therapeutic activities designed to meet their needs; observes clients in their group relationships and records changes in attitudes and behavior which may indicate a need for modification of the treatment plan; works with other team members regarding specific problems of individual clients and makes recommendations for new approaches; works directly with clients in providing professional therapeutic services, such as activities, group therapy, vocational counselling, etc.; consults with family, friends, and members of the community to develop effective aftercare services for clients; assists in the development and implementation of a community mental health education program; assists in the overall development and training of other staff; attends classes, seminars, etc., to enhance professional development; performs other duties as required.

DESIRABLE REQUIREMENTS

Certification

Requires certification by the Department of Mental Health that all training and other qualifications needed for performance at the class level have been met subject to the final approval of such a recommendation by the Department of Personnel.

Education

Requires knowledge, skill, and mental development equivalent to four years college, supplemented by successful completion of the approved training program for the class.

Experience

Requires completion of the traineeship as a Mental Health Worker Trainee III, or, equivalent experience or education in the field of mental health to permit functioning at the class level.

Significant Responsibilities

Requires ability to comprehend and evaluate complex factors

relating to the cause and treatment of mental problems.

Requires ability to maintain and encourage a therapeutic approach to the rehabilitation of mental clients.

Requires ability to assist and work cooperatively with team members.

MENTAL HEALTH WORKER V

SPEC. CODE: 7365
POSITION CODE: 26935

DISTINGUISHING FEATURES OF WORK

Under direction, performs experienced professional staff level rehabilitative work in a facility-based or community program featuring a team approach to mental health services or assists in applying multiple skills in the development and implementation of therapeutic team plans to meet the needs of mental clients; provides training and assistance to less experienced staff in understanding behavioral problems and in developing their rehabilitative skills or assists in the management of the team by assuming various leadership and administrative duties; deals knowledgeably in the development and effectuation of community mental health programs; functions in a variety of capacities within the unit or team requiring a skilled and professionally oriented Mental Health Worker.

ILLUSTRATIVE EXAMPLES OF WORK

Develops, implements and directs comprehensive team treatment planning for mental clients or consults with and guides other team members in the evaluation and modification of services to insure that team objectives are met; delivers the more intensive therapeutic techniques calling for advanced skill when indicated for the more serious and difficult client problems or assumes major responsibility for both formal and on-the-job training of team members; directs other workers on their relationships with clients; assists in evaluating staff and in coordinating team activities with other unit programs; performs responsible promotional work within the community to gain support and cooperation for team and unit goals; performs other duties as required.

DESIRABLE REQUIREMENTS

Certification

Requires certification by the Department of Mental Health that all training and other qualifications needed for performance at the class level have been met subject to the final approval of such a recommendation by the Department of Personnel.

Education

Requires knowledge, skill, and mental development equivalent to four years college, supplemented by successful completion of the approved training program for the class.

Experience

Requires one year of experience at the Mental Health Worker IV level.

Significant Responsibilities

Requires ability to apply multiple skills and approaches to the rehabilitation of mental clients.

Requires ability to exercise leadership and direction to less experienced staff.

Requires ability to deal effectively with the more difficult client problems.

MENTAL HEALTH WORKER VI

SPEC. CODE: 7366
POSITION CODE: 26936

DISTINGUISHING FEATURES OF WORK

Under general direction, supervises a team of Mental Health Workers engaged in providing comprehensive rehabilitative services in both facility-based and community mental health programs; exercises major responsibility for the development and implementation of treatment and therapeutic plans for an assigned group of clients; directs the relationship of the team to the rest of the unit and facility organization and the community; evaluates the effectiveness of the total team services, as well as the contributions of the individual members; assists unit and program administrators in program evaluation and policy decisions; personally assumes charge of the more complex client problems; trains team members and arranges for further staff development activities.

ILLUSTRATIVE EXAMPLES OF WORK

Plans, assigns, and coordinates the activities of a team of Mental Health Workers engaged in the rehabilitation of mental clients; directs the development and implementation of treatment plans to meet client needs; schedules and leads team meetings to interview and evaluate clients, to discuss team management matters, and to evaluate overall effectiveness of services; assists in the planning of inservice training and participates as an instructor; consults with community groups to encourage the development of various preventive, control, and aftercare programs; confers with superiors on administrative matters; directs the compilation of information and data for research and evaluation; performs other duties as required.

DESIRABLE REQUIREMENTS

Certification

Requires certification by the Department of Mental Health that all training and other qualifications needed for performance at the class level have been met subject to the final approval of such a recommendation by the Department of Personnel.

Education

Requires knowledge, skill, and mental development equivalent to completion of a Master's degree in one of the behavioral sciences, supplemented by successful completion of the approved training program for the class.

Experience

Requires completion of the traineeship as a Mental Health Worker Trainee IV, or, equivalent experience or education in the field of mental health to permit functioning at the class level.

Significant Responsibilities

Requires ability to plan, direct, and coordinate team members in a variety of client care and rehabilitation activities.

Requires ability to evaluate team effectiveness and implement modifications to services when indicated.

Requires ability to integrate team activities with other services in the unit and facility.

Requires ability to prepare, review, and evaluate comprehensive reports, and communicate effectively with other staff at all levels in the facility and community.

MENTAL HEALTH WORKER VII

SPEC. CODE: 7367
POSITION CODE: 26937

DISTINGUISHING FEATURES OF WORK

Under administrative direction, (A) directs the total functioning of two or more teams engaged in rehabilitative services in facility based or community mental health programs; provides administrative direction and support to the teams; evaluates services and initiates changes in the organization and planning of services; or (B) functions in a staff relationship to all teams within a unit for a major program area such as care and treatment, community services, training or research and evaluation; formulates and develops the assigned program and directs its implementation throughout the unit; serves as a consultant and advisor to all team leaders and members in all aspects of the program; coordinates area of responsibility with other major programs and assists in the administration of the unit.

ILLUSTRATIVE EXAMPLES OF WORK

(A) Directs and coordinates two or more teams comprised of Mental Health Workers and performing rehabilitative services for mental clients; consults with team leaders on specific problems affecting team activities as well as the evaluation of total team services; assumes charge of new or problem areas of team functioning when necessary; oversees staff training and development activities; assists in the administrative processes within the total unit. (B) Drafts policy and procedural guidelines for assigned unit program; oversees the administration and evaluation of services; influences the acceptance of program goals and maintenance of performance standards throughout the unit organization; consults with team members on problem areas and continually evaluates service effectiveness; maintains important programmatic liaisons within the facility, the Department, and the community; performs other duties as required.

DESIRABLE REQUIREMENTS

Certification

Requires certification by the Department of Mental Health that all training and other qualifications needed for performance at the class level have been met subject to the final approval of such a recommendation by the Department of Personnel.

Education

Requires knowledge, skill, and mental development equivalent to completion of a Master's degree in one of the behavioral sciences, supplemented by successful completion of the approved training program for the class.

Experience

Requires two years experience at the Mental Health Worker VI level.

Significant Responsibilities

Requires ability to integrate administrative and rehabilitative policies into an effective therapeutic program for mental clients.

Requires ability to establish and maintain influencial relationships with facility staff and community representatives.

Requires ability to evaluate team services and effectiveness and initiate corrective measures as indicated.

Requires ability to plan and administer training programs to unit staff.

Requires ability to supervise and coordinate both professional and nonprofessional staff.

MENTAL HEALTH WORKER VIII

SPEC. CODE: 7368
POSITION CODE: 26938

DISTINGUISHING FEATURES OF WORK

Under administrative direction, performs highly responsible and varied administrative functions as the assistant director of a mental health unit comprising fully integrated rehabilitative and support services; shares the administrative direction of the unit by specializing in particular areas or by providing overall management assistance; coordinates and participates in staff development activities; assists in developing policy and strategy positions and represents the unit in executive meetings; serves on various facility-wide committees to plan and improve services; promotes and maintains important administrative liaisons within the facility, the Department, and the community.

ILLUSTRATIVE EXAMPLES OF WORK

Plans, organizes, and directs both program and support activities within the unit; provides policy and procedural guidance and general management decisions for daily unit operations; schedules and chairs unit administrative meetings to discuss plans, problem areas, and program effectiveness; recruits and hires staff and oversees the implementation and results of inservice training activities; assists unit director in long-range planning activities and makes recommendations regarding the extension or modifications of the unit's services; coordinates the activities undertaken by the unit to strengthen community contacts and acts as a high level consultant in the development of community programs; attends State and national conventions and otherwise keeps abreast of developments in the field of mental health; performs other duties as required.

DESIRABLE REQUIREMENTS

Certification

Requires certification by the Department of Mental Health that all training and other qualifications needed for performance at the class level have been met subject to the final approval of such a recommendation by the Department of Personnel.

Education

Requires knowledge, skill, and mental development equivalent to completion of a Master's degree in one of the behavioral sciences, supplemented by successful completion of the approved training program for the class.

Experience

Requires four years of experience at the Mental Health Worker VI level or above.

Significant Responsibilities

Requires ability to provide administrative leadership to both program and support areas of a fully integrated rehabilitation unit.

Requires ability to draft policy and strategy positions to help achieve unit goals.

Requires ability to integrate facility and departmental policy into unit programs and goals.

MENTAL HEALTH WORKER IX

SPEC. CODE: 7369
POSITION CODE: 26939

DISTINGUISHING FEATURES OF WORK

Subject to administrative approval, performs a full range of highly responsible administrative functions as the director of a mental health unit comprising fully integrated rehabilitative and support services; bears responsibility for the design, direction, and administration of programs of therapeutic services to mental clients in line with broad departmental philosophies; arranges for outside services as needed for the realization of unit goals; directs the unit's relationships with other units and services within the facility and in the community; serves on the executive management committee and assists in the administrative processes of the facility.

ILLUSTRATIVE EXAMPLES OF WORK

Administers an integrated rehabilitative unit featuring treatment teams and various support services; establishes goals for both facility-based and community programs and continually monitors program results; formulates administrative policy within the unit and coordinates with overall facility and departmental policy; consults and influences facility, departmental, and outside officials regarding needed support and cooperation for unit

activities; analyzes unit requirements for staff, facilities, and equipment and presents recommendations to superiors; participates in important facility-wide administrative functions such as program evaluation, budget review, and policy development; performs other duties as required.

DESIRABLE REQUIREMENTS

Certification

Requires certification by the Department of Mental Health that all training and other qualifications needed for performance at the class level have been met subject to the final approval of such a recommendation by the Department of Personnel.

Education

Requires knowledge, skill, and mental development equivalent to completion of a Master's degree in one of the behavioral sciences; supplemented by successful completion of the approved training program for the class.

Experience

Requires six years of experience at the Mental Health Worker VI level or above.

Significant Responsibilities

Requires ability to administer all phases of a major rehabilitative unit featuring both therapeutic and support programs.

Requires ability to interpret and integrate facility and departmental policies into unit programs and goals.

Requires ability to develop and implement effective programs of client rehabilitation and care.

Requires ability to provide for the training and career development of unit staff.

Requires ability to coordinate total unit programs with other facility and community services.

MENTAL HEALTH WORKER TRAINEE

DISTINGUISHING FEATURES OF WORK

Under immediate supervision, for a minimum of two months and a maximum of seven months, through formal classroom instruction and planned informal on-the-job learning situations, will receive training to function effectively at the level for which training is received.

A. Mental Health Worker Trainee I — SPEC. CODE: 7351 POSITION CODE: 26940

Receive instruction in beginning level therapeutic and ward maintenance activities as well as various rehabilitative techniques and how to apply training received to daily work situations.

B. Mental Health Worker Trainee II — SPEC. CODE: 7352 POSITION CODE: 26941

Receive training in elements of supervision and leadership and methods of instruction, as well as development and implementation of various types of rehabilitative programs designed for direct presentation to specific individual clients.

C. Mental Health Worker Trainee III — SPEC. CODE: 7353 POSITION CODE: 26942

Receive instruction in the application of various methods and techniques to the analysis and assessment of client problems as well as implementation of appropriate treatment approaches and subsequent evaluation of client responses and behavioral patterns manifested.

D. Mental Health Worker Trainee IV — SPEC. CODE: 7354 POSITION CODE: 26943

Receive instruction in appropriate methods of development and implementation of various types of Mental Health rehabilitative programs as well as evaluation of the effectiveness of the services presented by a rehabilitation team.

ILLUSTRATIVE EXAMPLES OF WORK

A. Mental Health Worker Trainee I

Participate in various ward maintenance activities necessary to the day-to-day functioning of a group of clients in their physical surroundings; perform routine nursing and physical care tasks as well as various types of individual and group activities used in planned treatment programs; observe and report various types of client behavior.

MENTAL HEALTH WORKER TRAINEE (Continued)

B. Mental Health Worker Trainee II

Evaluate and analyze information and data received from the program under observation (using various standard methods); assist in the development and implementation of a program for the area of assignment; contact various segments of the community to explain and promote program goals.

C. Mental Health Worker Trainee III

Analyze and evaluate problems of individual clients and assist in the formulation of various activities designed to meet the needs indicated; recommend new approaches to problems of clients in an attempt to improve the treatment plan in operation.

D. Mental Health Worker Trainee IV

Assist in the planning of activities for a mental health rehabilitation team, assigning activities to various members and coordinating the efforts of the members of the team; assist in the development and implementation of any of several types of treatment plans designed to meet individual client needs as indicated.

DESIRABLE REQUIREMENTS:

A. Mental Health Worker Trainee I

Education
Requires completion of eight years of elementary school.

Experience
No experience required.

B. Mental Health Worker Trainee II

Education
Requires completion of two years college.

Experience
No experience required.

C. Mental Health Worker Trainee III

Education
Requires completion of four years college with a Baccalaureate degree.

Experience
No experience required.

MENTAL HEALTH WORKER TRAINEE (Continued)

D. Mental Health Worker Trainee IV

Education

Requires completion of four years of college supplemented by a Master's degree.

Experience

No experience required.

Significant Responsibilities

Requires ability to maintain a sympathetic and therapeutic attitude toward mental clients.

Requires ability to apply training received to work situations.

Requires ability to observe and report reactions of clients in a given situation.

TRAINEE PROGRAM FOR MENTAL HEALTH WORKER CAREER SERIES

A. PURPOSE AND OBJECTIVES

This program is proposed to prepare persons for employment in the following classes of the Mental Health Worker Career Series: Mental Health Worker I, III, IV and VI. Each of the four trainee programs will provide the knowledge and skills needed for effective performance in the classes for which the training is provided.

B. DURATION AND SCHEDULE

Each of the four trainee programs when established by a facility shall be designed as a full six months training program and shall include both clinical and didactic experiences. Individual trainees, however, depending upon their prior academic education, inservice training, work experience, special skills or demonstrated learning capacity may be permitted to complete the training program in less than six months. In all cases in which the training period is less than the full six months, a supporting statement shall be provided to indicate that the trainee has successfully fulfilled the equivalent of all of the training requirements of the complete six month training program. In no case, however, shall the individual's training program be less than two nor more than seven months.

C. ELIGIBILITY AND SELECTION

Mental Health Worker Trainees at all four levels of training shall be selected from eligible registers or lists of applicants who have qualified in the Department of Personnel open competitive examination.

Trainees shall enter the level of training appropriate to their (1) academic and inservice training background and (2) relevant mental health work experience.

D. TRAINING DUTIES

1. Program-Integrated Training

Training experience shall be planned in close collaboration with the staff directly engaged in the clinical programs to which the graduates of the training program will be permanently assigned. The content of training and the training techniques used shall be integrated with the clinical program and shall involve direct planned experiences with clinical operations.

2. Basic Core Components of Training

All trainee programs irrespective of level shall include the following core components:

a) Orientation to the goals and programs of the Illinois Department of Mental Health and the local facility as well as an introduction to State employment;

b) Introduction to types of community mental health and mental retardation services, client populations and needs, treatment modalities, and available supportive services;

c) Training to enable employee to make maximum use of his full personal potential as a therapeutic agent and as a trainer of others and to enlarge his capacity to take on necessary program responsibilities;

d) Training to assist employee to improve his interpersonal skills, to become an effective team member and to perform his duties as they relate to families of clients and members of the community.

3. Generalist Training

It is the intent of this series to develop employees as generalists capable of performing a combination of the following roles in various program settings: treatment and rehabilitation, program administration, community organization and intervention, research, program evaluation and training. The training program at all levels, therefore, shall include opportunities for trainees to acquire the necessary knowledge and skill to function at appropriate levels in these roles.

Facilities working with specialized client populations or limited treatment modalities, or facilities who are either not equipped, or choose not to, provide the full range of training implicit in this generalist concept may submit a training plan which utilizes collaboration with academic or other external training resources to supplement their inservice trainee program.

4. Sequence of Training Experiences

While certain common elements shall be required in all training sets irrespective of level, each level of training shall be designed to reflect the level of skill, academic preparation and experience background of the trainee population. Thus, while certain subject matters and clinical experiences may be similar for the different levels of training, it is expected that each higher level of training shall provide an increasing level of proficiency, depth of technical knowledge, breadth and complexity of clinical experience.

5. Training Duties at Each Level

Guidelines for specific training at each level include the following:

Mental Health Worker Trainee I

Training shall prepare employee to perform all basic daily functions involved in direct client care in the clinical program to which he is assigned, including interaction with clients and families, physical care, observation and record-keeping, unit maintenance and team participation.

Mental Health Worker Trainee II

Training shall prepare employee to perform all functions related to planning and implementing direct client care programs in the clinical setting to which he is assigned. Duties shall be designed to develop skills needed to supervise and train others, to carry out administrative duties, to relate to families and community groups and to utilize techniques of program research and evaluation.

Mental Health Worker Trainee III

Training shall prepare employee to perform all functions related to planning, coordinating and administering a variety of direct client care programs. He shall be expected to become knowledgeable about the needs of various client populations and to acquire proficiency in the theory and utilization of various treatment modalities and supportive services. He shall be given the opportunity to acquire knowledge and skill in planning programs with community groups and in taking a leadership role in training and supervising others.

Mental Health Worker Trainee IV

Training shall prepare employee to perform all functions related to designing, planning, coordinating and evaluating the operations of a total client care unit. Clinical and didactic training shall be provided to familiarize the employee with the theory and application of new advances in technical and scientific information about mental health and mental retardation, new treatment modalities, innovative approaches to program planning and the delivery of services to clients. He shall be instructed in managerial duties related to the use of fiscal, physical and personnel resources. Experiences shall include training in team development and supervision, community consultation and community development.

E. STANDARDS OF PERFORMANCE

Mental Health Worker Trainees at all four levels will be expected to demonstrate evidence of acceptable performance appropriate to their training level such as:

1. Proficiency in mental health worker skills listed in Section D of this document.

2. Increased responsibility for the employee's own performance as indicated by a diminishing need for close supervision.

3. The ability to establish harmonious and productive interpersonal relationships with clients and other staff members.

4. The ability to communicate with individuals of varying socio-economic backgrounds both verbally and in writing.

5. The ability to meet satisfactorily the requirements of the training program in which they are participating.

6. The ability to profit from and apply the inservice training and to learn from the consequences of his work and training experience.

Upon successful completion of training program, the trainee shall be promoted to the level position for which he received training, as follows:

Mental Health Worker Trainee I	to	Mental Health Worker I
Mental Health Worker Trainee II	to	Mental Health Worker III
Mental Health Worker Trainee III	to	Mental Health Worker IV
Mental Health Worker Trainee IV	to	Mental Health Worker VI

Failure to satisfactorily complete the approved training program will be cause for termination.

F. RIGHTS AND BENEFITS

1. Mental Health Worker Trainees may accrue the following benefits if, at the successful completion of the training period, they enter the Career Series at the level for which they received training:

   a. Continuous service
   b. Vacation
   c. Sick leave
   d. Personal leave
   e. Educational leaves
   f. Special leaves without pay
   g. Maternity leaves
   h. Military leave

2. All Mental Health Worker Trainees shall receive:

   a. Holidays
   b. Leave for jury duty
   c. Annual military training

3. Mental Health Worker Trainees who upon completion of training, fail to accept promotion to the position in the Career Series for which they received training will receive only those rights or benefits stated in Section II.

DEPARTMENT OF MENTAL HEALTH POLICY GUIDELINES FOR THE MENTAL HEALTH WORKER CAREER SERIES

A. Supplemental Policy and Procedure

The guidelines for policy as herein described are intended to govern selection of programs or units approved for use of the Series by the Director of the Department of Mental Health. In addition, these policies are to be applied as a supplement to the principles and procedures set forth as an integral part of the Series.

B. Select Use of the Series

The Series will be approved for use at a facility only after a thorough and careful analysis has been made in each case of the program or unit to which it is applicable and the training to be provided for the respective staff. Thus, the Series will be implemented on a select program basis, rather than by the customary method of random position classification request.

For the purpose of this Series, a program shall mean an integrated unit of staff and resources organized for provision of direct services to a specific group of clients. Furthermore, the program must be directed toward clearly specified clinical objectives which are commonly related to the staff organization and it must include a described plan, method, and budget. In a few instances, a program might encompass an entire facility.

C. Letter of Application

Before planning for use of any position classification in the Series or its companion Trainee Program, each facility shall first submit a Letter of Application to the Director of the Department of Mental Health. This letter shall be forwarded through the appropriate Zone or Division Director for endorsement. The purpose of the Letter of Application is to secure approval to proceed with planning for use of the Series and requesting a team visit by staff of the General Office and the Department of Personnel. The letter should also clearly identify and briefly describe the program(s) for which approval is being sought and provide a justification for the request to use the Series in the respective program.

D. Team Visitation

A team visit will be scheduled by mutual arrangement of the Directors of the Department of Mental Health and the Department of Personnel wherever a request to use the Series appears to be in the best interest of the Department of Mental Health. The team will consist of persons from both State agencies who are knowledgeable in respect to the Series,

Department of Mental Health policy on program and staffing standards, training standards, and fiscal operation. The purpose of the visit is to provide an explanation of the Series, conduct a review of program qualification, and give direct assistance in planning for use of the Series.

E. Standards

In order to qualify for use of the Series a program or unit within a facility must possess the capability of meeting the budgetary, programming, staffing and training program requirements as set forth by written policy of the Department of Mental Health for this Series. However, the following criteria will serve as the guidelines for determining qualifications for approval to proceed with planning for use of the Series. For this purpose, the essential characteristics shall be as follows:

1. Program

   a. Congruous with the policies and goals of the Department of Mental Health in respect to care, treatment, and community relationships.

   b. Consistent with Zone administrative requirements.

   c. Organized to make the most effective and efficient use of personnel, budget, and other resources available to the program in and outside the facility.

   d. Objectives and functions are consistent with priority needs of clients served.

2. Manpower

   a. Structured in such a way as to develop each employee to his highest capabilities and initiative.

   b. Staff function in basic generalist roles with a high degree of versatility and flexibility in work assignment.

   c. Organizational plan provides for clear delineation in the use of position classification titles where discipline identification or licensure is required in relation to specialists that are needed for support to the generalist program.

3. Management

   a. Program description clearly stipulates the procedures and methods followed in administration of the care and treatment program and reflects team management concepts which also includes interdisciplinary collaboration.

4. Staff Training and Development

a. Adequate provision and opportunity is assured for appropriate training upon entry into the program and continued training during employment in the program.

F. Implementation

If a program or unit within a facility meets the programming and training standards, the implementation procedure for use of the Series shall be as follows:

1. The transactions required for obtaining approval to use the Series and authorization of specific position classifications of the Series shall be prepared and processed as a package through the Department of Mental Health and the Department of Personnel.

2. The documents required for obtaining approval of the Director of the Department of Mental Health and authorization of position classification by the Department of Personnel are as follows:

a. Narrative document which clearly presents the essential characteristics of the program, including the objectives, administrative and clinical procedures, budgetary provisions, and training provisions.

b. Staff organization chart of the proposed organization which incorporates both any existing classifications and new classifications of the Series, and indicating incumbents and vacancies.

c. Standard classification request forms as required for implementation of position classifications and personnel assignment or appointment.

APPENDIX A

MENTAL HEALTH WORKER TRAINEE QUALIFICATIONS AND RATES

(Pay Grade 3)
Mental Health Worker I
1. H.S. or equivalent
2. Completion of MHW Trainee I

(Pay Grade 4)
Mental Health Worker II
1. H.S. or equivalent
2. 1 yr. exp. in mental health

(Pay Grade 7)
Mental Health Worker III
1. H.S. or equivalent
2. 2 yrs. exp. or completion of MHW Trainee II

(Pay Grade 12)
Mental Health Worker IV
1. Bachelor's
2. Completion of MHW Trainee III or equivalent education or exp.

(Pay Grade 14)
Mental Health Worker V
1. Bachelor's
2. 1 yr. exp. as MHW IV or equivalent education or experience

(Pay Grade 16)
Mental Health Worker VI
1. Master's or equivalent
2. Completion of MHW Trainee IV or equivalent education or experience (2 years)

(Pay Grade 17)
Mental Health Worker VII
1. Master's or equivalent
2. 2 years at MHW VI level

(Pay Grade 19)
Mental Health Worker VIII
1. Master's or equivalent
2. 4 years at MHW VI

(Pay Grade 21)
Mental Health Worker IX
1. Master's or equivalent
2. 6 years at MHW VI or above

($350)
Mental Health Worker Trainee I (6 mos.)
1. Completion of eight years of elementary education
2. No experience

($435)
Mental Health Worker Trainee II (6 mos.)
1. Completion of two years college
2. No experience

($585)
Mental Health Worker Trainee III (6 mos.)
1. Completion of four years of college with a Baccalaureate degree
2. No experience

($755)
Mental Health Worker Trainee IV (6 mos.)
1. Requires completion of four years of college supplemented by a Master's degree
2. No experience

VT 012 628
Self Evaluation.

Clemson Univ., S.C. Vocational Education Media Center.
South Carolina State Dept. of Education, Columbia. Distributive Education Section.
MF AVAILABLE IN VT-ERIC SET.
Distributive Education Section, Office of Vocational Education, State Department of Education, Rutledge Building, Columbia, S.C. 29201 (limit: one per state).
PUB DATE - 70 27p.

DESCRIPTORS - *DISTRIBUTIVE EDUCATION; *PROGRAM EVALUATION; *INSTRUCTOR COORDINATORS; *MEASUREMENT INSTRUMENTS; *SELF EVALUATION; ORGANIZATION; FACILITIES; TEACHER EVALUATION; INSTRUCTIONAL MATERIALS

ABSTRACT - This evaluative instrument is to be used by the teacher-coordinator in making a self-evaluation of his school's distributive education program. The format of the instrument is a series of checklists on: (1) Organization, (2) Nature of Offerings, (3) Physical Facilities, (4) Direction of Learning, (5) Outcomes, and (6) Special Characteristics of Distributive Education. These checklists incorporate a four-point scale and include explanations to help the evaluator make a more valid analysis of the program. (Author/JS)

VT 012 628

ED0 57254

SELF EVALUATION

STATE DEPARTMENT OF EDUCATION
Office of Vocational Education
Distributive Education Section
Columbia, South Carolina

In Cooperation With

VOCATIONAL EDUCATION MEDIA CENTER
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VT012628

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Revised 1970

M E M O R A N D U M

TO: The ERIC Clearinghouse on Vocational and Technical Education
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DATE: January 1971

RE: (Author, Title, Publisher, Date) Self Evaluation, Vocational Education Media Center, Clemson University and Office of Vocational Education, State Department of Education, Revised 1970

Supplementary Information on Instructional Material

Provide information below which is not included in the publication. Mark N/A in each blank for which information is not available or not applicable. Mark P when information is included in the publication. See reverse side for further instructions.

(1) Source of Available Copies:
Agency Distributive Education Section, Office of Vocational Education
Address State Department of Education, Rutledge Bldg., Columbia, S. C. 29201
Limitation on Available Copies 1 per state Price/Unit
(quantity prices)

(2) Means Used to Develop Material:
Development Group Revision of teacher workshop materials
Level of Group
Method of Design, Testing, and Trial

(3) Utilization of Material:
Appropriate School Setting High school
Type of Program Distributive Education
Occupational Focus Distributive Education
Geographic Adaptability None
Uses of Material Self evaluation of Distributive Education programs
Users of Material Teacher coordinators

(4) Requirements for Using Material:
Teacher Competency Typical
Student Selection Criteria

Time Allotment

Supplemental Media --
Necessary ____ } (Check Which)
Desirable ____ }

Describe

Source (agency)
(address)

FOREWORD

This evaluative instrument is to be used by the teacher-coordinator in making a self-evaluation of his school's distributive education program. In addition, it is hoped that the local administration will review the findings with the teacher-coordinator; and, further, these findings may be used as a basis for assistance from the supervisory staff.

The format and content of the instrument follow closely that of Distributive Education Section 4-4 Evaluative Criteria, 1969, National Study of Secondary School Evaluation. The paragraphs following each checklist statement have been prepared to assist the evaluator in making more accurate analyses and interpretations.

This publication is a revision of a similar one developed in 1961 during a summer workshop at the University of South Carolina.

Etta M. Dorn

Etta M. Dorn, State Supervisor
Distributive Education Service
Office of Vocational Education

DISTRIBUTIVE EDUCATION

GUIDING PRINCIPLES

Distributive education provides instruction designed to prepare students for gainful employment and for advancement in marketing, merchandising and management careers. Distribution is the area of the economy which adds time, place, and possession utility to goods and services. Efficient marketing and merchandising activities enable the consumer to obtain readily the goods and services that are available.

The program in distributive education presents the place of distribution in the economy, the organization of marketing and merchandising activities, and the knowledge, skills, and attitudes needed by persons engaged in distribution, as they apply to beginning workers and focus toward becoming a career employee. The program utilizes both the facilities of the school and the marketing and merchandising resources of the community for the student to gain the necessary technical skills and knowledges in preparing for a continuing career in a distributive occupation. Instruction in the school classroom is supplemented by supervised occupational experiences provided by cooperating businesses and/or by occupationally oriented participating laboratory experiences necessary for the student to develop job competencies.

The Vocational Education Act of 1963, for the first time, authorized distributive training to be provided without being supplemented by on-the-job employment experiences. This variation is not intended as a substitute for the cooperative part time program but is provided for use by those schools which, due to special local conditions, do not find the cooperative program feasible for all or part of the students desirous of careers in distribution.

Added to classroom instruction and on-the-job instruction and application, the distributive education club completes the total instructional program. The club may be regarded as a useful supplement to the total instructional program. It affords the student leadership development in an environment which is student-dominated. The club program also serves to help interpret the instructional program to businessmen, faculty, parents, and other students.

The broad purposes of the club, as advanced by the Distributive Education Clubs of America, are vocational understanding, civic consciousness, social intelligence, and leadership development. A club program guided by these purposes is capable of servicing distributive education students in line with their career objectives.

INSTRUCTIONS FOR CHECKLISTS

The checklists consist of provisions, conditions, or characteristics found in good secondary schools. Some may not be necessary, or even applicable, in every school. If any important features or procedures are omitted in the printed materials, they should be added in the appropriate places. The checklists should accurately and completely portray the program, facilities, and practices of the school, thus providing the factual background for the evaluations.

The checklists and evaluations should be evaluated on the following 4 point scale:

4. Excellent - Provision or condition is made extensively.

3. Good - Provision or condition is made to a moderate extent.

2. Fair - Provision or condition is limited or missing <u>but needed</u>.

1. Poor - Provision or condition is missing but its need is questioned.

NA not applicable - Provision or condition does not apply to program.

Each checklist statement should be marked in the brackets indicated.

I. ORGANIZATION

The philosophy of the distributive education program should be clearly defined as it relates to the total philosophy of the school. The program is organized as a cooperative venture between the secondary school and the business community. The organizational pattern is designed to meet the basic purposes of the high school cooperative program and/or participating laboratory experiences, which are to (a) introduce the student to the field of distribution and marketing (b) provide educational experiences which will enable the student to achieve success in a distributive occupation, and (c) provide the student with information which will make him aware of the varied career opportunities in distribution.

The future of the high school cooperative program and/or the participating laboratory experiences, in a large measure, will be based on the development of a sound organizational pattern and the effectiveness with which teacher-coordinators are able to operate within it.

( ) 1. The program in Distributive Education is based upon the findings of surveys of employment opportunities in marketing and merchandising in the area served by the school.

To get an overall picture of employment needs and trends in the area served by the school, a collection of data can be compiled from local business census figures. After the general needs have been determined, local surveys are made to find training needs and employment opportunities in the community. The survey must be kept current with up-to-date information.

( ) 2. An advisory committee, including representatives of both the school and employing community, assists in the planning and development of the total program.

A representative committee made up of representatives of management, employees, and school meets whenever a need arises to assist in identifying attitudes, knowledges, skills, and understandings needed for success. It also assumes a leadership role in supporting and developing the program. The school cannot properly plan a program to serve the needs of the people in distribution without their advice.

( ) 3. Provision is made for correlation of classroom instruction with work on the job and/or in the project laboratory.

A written training plan is prepared for each student based on his career objective and modified as the need arises; training sponsor is designated, developed, and used; and a systematic plan of coordination is followed. Time within the school day should be provided for coordination by the teacher or to work in the project laboratory. The amount of time allowed should be determined by the number of students in the program.

( ) 4. Students receive credit toward graduation for both classroom instruction and supervised on-the-job experience.

Students should receive a full unit of credit for the in-school phase of instruction and at least one-half unit for on-the-job training.

( ) 5. The employment of students under the program complies with all state and federal laws pertaining to the employment of youth.

Under the South Carolina labor law, employers are not required to carry out strict regulations relating to permits for student learners. Our program must conform to the extent that:

a. Employment of minors is prohibited on Sundays.
b. Minimum age is 16 for general employment, 18 for all occupations which may be determined hazardous by the Chief of the Children's Bureau.

It is the employer's responsibility to know about the status of student learners, but teachers must be aware of the laws. Since the passage of the minimum wage law, an exemption certificate has been made available for student learners. This is required to be filed by businesses covered by the law. A student learner in these establishments is not allowed to exceed a total of forty hours per week in school and on the job, but the employer is authorized to pay him three-fourths of the required minimum wage.

( ) 6. Students are enrolled in distributive education on the basis of interest, ability, and the analysis of test information coordinated with accepted guidance procedures.

Students are screened by the principal, guidance counselor, and coordinator. Past records, test results, and faculty rating reports are used to determine whether the student can profit from the program. Personal counseling with parents and student should be done to enable the student to select a career objective in distribution in keeping with his interests and abilities.

( ) 7. Provision is made for distributive education students to participate in the program of activities of the Distributive Education Clubs of America to aid the student in further developing competencies needed in employment.

Students participate in local, state, and national activities of the youth program designed for distributive education students. The program includes opportunities for educational, social, and leadership development. Students also participate in other phases of the student activity program along with other students in the school. This participation would include such activities as student government, assembly programs, and other special interest clubs that the school and student's schedule will permit.

( ) 8. Class schedules provide an opportunity for students to do some of their school work with other students having different vocational interests.

Students enrolled in the cooperative program are provided an opportunity to schedule all classes except distributive education with students not enrolled in the cooperative program. In most schools, students take three courses in addition to distributive education, earning a total of 4½ units of credit. Students following this schedule can very easily be dismissed at mid-day. This is the only way that a student can effectively get in the required portion of working hours on his job during school hours.

( ) 9. Each student's present program of study has a significant relationship to his expected development of skills and knowledges needed to achieve his occupational objectives.

Each student selects a definite career objective in the field of distribution which becomes the focal point of individualized instruction and on-the-job training. The job the student holds while he is in the cooperative program is a part of his career objectives. He must perform satisfactorily on this level of a beginning position before he advances to subsequent positions of greater responsibility. To some students the objective may have a limited scope. If the student's interest and capabilities deny him a long-range goal, then it must be recognized that perhaps the job held as a cooperative student may become his ultimate career objective. Through participation in the program, certain students will awaken to opportunities not before seen or considered and will change their original objectives. Career development is a goal of the cooperative program.

( ) 10. Services of guidance personnel and other teachers are used in counseling only those students into distributive education who can and sincerely wish to profit from the instruction.

Full advantage of the past experiences and knowledges of the teaching faculty, guidance personnel, and community leaders are used in assisting students to select an occupational choice. Faculty opinions of the students potential and permanent record material are assembled for use as a basis for counseling.

( ) 11. Specific preparatory courses are offered so that students will gain appreciation of changes taking place in distribution and marketing practices and procedures as caused by societal, economic, technical, and educational developments.

Preparatory courses should provide an explanation of changes in distribution and marketing practices and procedures, so that the students have facilities to cope with them in an actual situation.

( ) 12. Provision is made for a correlation of distributive education with other vocational services in planning instruction to enable students to gain additional knowledges and competencies important to their occupational objective.

Curriculum plans should permit the student in distributive education to gain knowledges and competencies from other vocational services.

( ) 13. The teacher schedule and student-teacher ratio makes possible the correlation of classroom instruction with each student's occupational experience on the job or in the project laboratory.

Each teacher coordinator should assume responsibility only for the number of students which he can coordinate effectively. This is the only way to correlate classroom instruction with occupational experience on the job or in the project laboratory.

( ) 14. The amount of time which distributive student spends on the job or in participating laboratory experiences is realistically appraised so that the student will have time and energy to master the other subjects in which he is currently enrolled.

The teacher coordinator is responsible for planning a schedule which gives consideration to a student's other subjects as well as to his distributive education program. In this way he will not spend an excessive amount of time in one area at the expense of another area.

Evaluations:

a. To what extent is instruction in distributive education available to any student who wants such training, can profit from the instruction, and whose occupational objective and age make him eligible for enrollment in the program?

b. To what extent does class size, class schedule, teacher load, and length of teacher contact allow for effective instruction, coordination, organization and administration of the program?

c. How well is the classroom instruction correlated to the occupational objectives of the students?

d. To what extent has an advisory committee been utilized in the planning, implementation, promotion, and development of the program?

Comments: (Describe determination of credits given for students in Distributive Education.)

II. NATURE OF OFFERINGS

Classroom instruction should be given to satisfy the training needs and career objectives of the students in the distributive education program for their vocational careers.

Instruction includes the study of:

( ) 1. Marketing including such areas as selling, sales promotion, buying, operation, marketing research, and management.

( ) 2. Distribution in a free and competitive enterprise economy.

( ) 3. The product and/or service technology needed by the student to progress toward his career objective.

( ) 4. Financial aspects of distribution including such areas as capital structure, credit and records.

The Distributive Education program of studies provides for:

( ) 1. Preparatory instruction in the areas such as: marketing; personal development including human relations and occupational requirements; application of skills in mathematics and communications to distribution; and basic understanding and appreciation of the American Private Enterprise System.

( ) 2. An individual training plan and training record for each student.

( ) 3. A project laboratory class in which activities and projects are utilized to aid the student in developing competencies needed to realize his career objectives.

( ) 4. A cooperative class in which the student attends school part-time coupled with supervised part-time employment in a distributive occupation to aid the student in developing competencies needed to realize his career objective.

( ) 5. Instruction for youth with special needs who are capable of a career in distribution.

( ) 6. A correlation with other subject areas, both general and vocational, to gain knowledge and competencies advantageous to the student in his selected occupational field.

The curriculum aids the student in the development of competencies to include:

( ) 1. Determining an intelligent course of action for achieving a career goal and in evaluating progress.

( ) 2. An appreciation of the proper business ethics used in applying for a job and in terminating employment.

( ) 3. Experiences that demand a conscientious effort to improve his occupational adjustment and growth including the development of good work habits and acceptable and positive attitudes.

( ) 4. The opportunity to learn new tasks requiring supervision from which the student will profit.

( ) 5. An appreciation of the need to abide by laws concerning business practices.

Evaluations:

a. To what extent do the offerings aid the student in making a realistic self-appraisal in terms of selecting an appropriate career objective?

b. To what extent do the offerings provide for the development of competencies and attitudes needed for gainful employment and for advancement in a distributive occupation?

c. To what extent is the high school curriculum articulated to post-secondary programs preparing for occupations in marketing and distribution?

Comments: (Describe how the curriculum has been changed during the past three years to enable the instruction to better meet the needs of the present students.)

III. PHYSICAL FACILITIES

The distributive education classroom should be flexible, adjustable, and usable, providing a suitable environment for the learning of all phases of distribution. The classroom should be available, not only for cooperative part-time students but for actual business situations. Besides bridging the gap between theory and practice, the distributive education laboratory is also promoting the distributive education program. Facilities need not be elaborate but they should be usable. The classroom should be available not only for cooperative part-time students and students in programs of participating laboratory experiences, but for adult students as well.

( ) 1. Sufficient study and activity areas are provided to meet curricular and enrollment needs.

The distributive education classroom should accommodate thirty students plus additional length for practical laboratory experiences. This calls for approximately 1,000 square feet of space. A folding partition closing off 300 square feet at the end of the room makes possible continuous use by several groups.

( ) 2. A teacher area, equipped with desk and files, and suitable for counseling with students, is provided.

Office should contain:
____Teacher's desk
____Cabinets containing confidential teacher's and student's files
____Typewriter
____Bookcase for personally owned professional books

( ) 3. Movable tables and chairs are provided for flexibility of room arrangement and to facilitate use of reference materials.

Movable tables and chairs allow for maximum student participation in individual, group, and class projects. Advertising problems and projects plus individual study call for table and elbow space. Sharing of ideas seems easier with a U-shape table arrangement.

( ) 4. Adequate and conveniently arranged storage space is provided for materials and equipment that are not in frequent use.

Ample storage space is necessary in the classroom for many of the materials, supplies, laboratory equipment used in display work, and individual portable storage drawers.

( ) 5. The classroom is conveniently located for ease in transporting display materials and for use by adult classes.

It is also desirable that the room be located near the business education department.

( ) 6. A teacher's resource center is available where instructional materials are at his convenience.

A resource center should be located so that the teacher-coordinator can utilize its resources without difficulty.

( ) 7. The following equipment is available:

____ Bookcase or bookshelf
____ Bulletin board; tackboard, flannel, or magnetic
____ Cash register
____ Chalkboard
____ Display equipment and materials
____ Display facilities
____ Duplicating equipment
____ Individual study carrels (equipped)
____ Magazine Rack
____ Paper cutter
____ Recording units; audio visual
____ Sign printing equipment and materials
____ Telephone
____ Typewriter
____ Visual aid projection equipment
____ Other

Evaluations:

a. How adequate are the space provisions and physical facilities in terms of meeting the total needs of the program?

b. How adequate is the amount of equipment in the classroom?

c. How adequate is the variety of equipment in the classroom?

d. How accessible is other instructional equipment as needed for use in the classroom?

e. How adequate is the annual budget to purchase added equipment, supplies and instructional materials as needed in the classroom?

Comments:

IV. DIRECTION OF LEARNING

A. INSTRUCTIONAL STAFF

Minimum requirements for a teacher-coordinator's certification have been established by the State Board of Education, and it is inconceivable to think of a distributive education program functioning successfully unless the teacher-coordinator can meet these minimum standards. As the requirements are met or exceeded, the program will improve and become a more effective training medium for students, cooperating merchants, and teacher-coordinators.

Each member of the distributive education staff:

( ) 1. Has a bachelor's degree with 18 hours professional education.

This is required by South Carolina Certification Department.

( ) 2. Has 18 hours in such fields as economics, marketing, management, finance, retailing, advertising, salesmanship, credit, insurance, accounting and personnel management. Nine of these 18 hours shall be in the field of distribution.

This is required by South Carolina Certification Department.

( ) 3. Has at least six hours preparation in applied techniques of distributive education; organization and administration, coordination techniques, and methods of teaching distributive education.

This is required by South Carolina Certification Department.

( ) 4. Has had two years or 4,000 hours successful wage earning experiences in the field of marketing and distribution.

Work experience acquired through an organized plan of directed work experience conducted as part of a teacher-training program will be evaluated on the basis of two (2) clock hours of such experience to one (1) clock hour of work experience acquired in a conventional manner.

( ) 5. Has preparation in related areas such as: philosophy of education, psychology and evaluation of learning, vocational guidance, job analysis, occupational information, government regulations, safety, and social psychology.

A working knowledge of vocational guidance is a "must" for coordination. This should be acquired through formal study and practical experience.

( ) 6. Has an understanding of the general as well as the vocational education needs of the youth and businessmen of his community.

The coordinator must have a good working relationship with the business community. There must be an understanding of problems, a feeling of mutual trust and interest, and a sincere desire for education and business to aid each other for the betterment of the program and the community.

( ) 7. Has developed good school and community professional relations.

This may be measured by the number of organizations in which membership is held and by the amount of active participation in functions of the organizations. Membership and active participation or a close working relationship should be established with at least one active local business organization.

( ) 8. Maintains an active interest in professional advancement, including participation in appropriate professional associations.

Membership should be held and participation pursued in professional organizations on local, state, and national levels, with a sincere desire to improve and upgrade one's ability as an instructor. This professional interest should include both general and vocational education activities and organizations.

( ) 9. Maintains active participation in in-service education through formal study and other professional activities.

The teacher-coordinator should further his knowledge about distributive education through formal study.

( ) 10. Keeps abreast of occupational trends through employment and study of current literature.

The teacher-coordinator cannot plan training programs for students if he is not aware of current occupational trends.

Evaluations:

a. How adequate is the professional preparation of the staff?

b. How adequate is the occupational experience of the staff?

c. In what ways does the instructional staff involve themselves in developing and maintaining good personal, business, and professional relations?

Comments:

B. INSTRUCTIONAL ACTIVITIES

The strength of a distributive education program depends largely upon the quality of classroom activities. The nature of the activity will vary greatly depending on classroom equipment and facilities, instructional materials available and the teaching ability of the coordinator.

( ) 1. Instruction in distributive education contributes to the school's philosophy and objectives.

Distributive education should provide a flexible program that functions as part of the total education plan.

( ) 2. Instruction is directed toward comprehensive career objectives.

Early training primarily opens up new avenues to many fields for future advancement to realization of career plans. The student should be given the opportunity of investigating the field of careers in distribution.

( ) 3. There is evidence of careful planning and preparation for classroom instruction and learning activities.

With full knowledge of the broad field covered by the distributive education program, the teacher-coordinator develops a study course with great care so that the subject matter may be presented in proper order.

( ) 4. Business resources of the community are used in the instructional program.

The classroom will have a more useful purpose and will be more effective in the community when the teacher-coordinator uses the business resources of the community. Businessmen can explain the operation of business more completely than anyone else. Field trips may be used to illustrate to the class the operations of the businesses of the local community.

( ) 5. Students assist in planning the instructional activities.

The students can be very helpful in the planning of the class work. The teacher should always maintain enough control over the class to keep the students' participation on a level that will insure learning as an objective.

( ) 6. A record of each student's training plan and training record is on file.

A training plan and training record are necessary if the teacher-coordinator is to provide each student with the best possible program.

( ) 7. The experiences on the job and/or in the project laboratory are used to develop understandings of theoretical instruction presented in the classroom.

All on-the-job or project laboratory experiences should be correlated with classroom instruction.

( ) 8. Instruction includes basic concepts for all students in addition to specific instruction related to the student's occupational objective.

Basic concepts such as good grooming, meeting the public, getting along with people, honesty on the job, and loyalty are taught to the class as a group. In addition to this basic group instruction, each student receives specialized instruction in line with his particular field and his special problems.

( ) 9. The teacher is acquainted with each student's home environment and parents.

It is essential that the coordinator strengthen his understanding of the student by obtaining and recording pertinent information about his background--social, economic, and scholastic. This might be accomplished through home visits, telephone calls, open house, school socials, questionnaires, and school records.

( ) 10. The teacher frequently visits the student's place of employment.

The number of coordination visits will vary according to the needs of each student and the feeling of the management toward visitation. It is suggested that in some cases definite appointments should be made in advance by the coordinator with the employers and that the purpose of the visit should be stated early in the conference.

( ) 11. Job assignment is correlated with the student's aptitudes, interests, and abilities.

A student's application should contain the following information: name, age, address, parent's occupation, number of children in family, telephone number, work experience (if any), work preferences, first impression of student by coordinator, and a quick analysis by homeroom teacher of previous year. Other information that might prove helpful includes school grades, test results, and school records. Test data might include Iowa test, National Merit, a diagnostic arithmetic test, personality chart made from Thurstone Temperament Schedule, and Thurstone Mental Alertness tests.

( ) 12. Attention is given to the development of positive attitudes and a sense of personal responsibility toward the job assignment and/or occupational objective of each student.

Personal guidance in the molding of a mature, responsible individual is a major responsibility of the school. A sense of the dignity of work appreciation for his job, and loyalty toward his employer and place of employment should be instilled in the student.

( ) 13. A variety of activities and projects are used to help students work toward career objectives.

The teacher coordinator must select activities and projects which will help students work toward career objectives.

( ) 14. Activities of the DECA Chapter are used to supplement teaching and learning. These activities include:

_____ Professional chapter meetings with adequate records available.

_____ Publicity and public appearances.

_____ Employer-employee appreciation activity - banquet, breakfast, et cetera.

_____ Use of competitive events as an instructional technique.

( ) 15. Students with an aptitude for distributive education have counseling available on possibilities of continuing post-secondary distributive education study.

Evaluations:

a. How adequately are time, materials, facilities, and other available resources used in the planning and preparation for instruction?

b. How does the staff determine if instruction is coordinated to individual student needs particularly in relation to career objectives?

c. To what extent are community resources used to strengthen the instructional program?

d. How does the staff assure that effective teaching takes place in the program?

Comments:

C. INSTRUCTIONAL MATERIALS

This evaluation should include a careful examination of the nature of the distributive education curriculum and the diversity of the representative vocational activities included in the program. Both of these factors influence the selection of usable materials.

( ) 1. Basic instructional materials are up-to-date and readily accessible.

Instructional pamphlets and textbooks are subject to becoming obsolete and relatively worthless as they increase in age. The coordinator should, at least once annually, review and discard such materials. Once discarded, additional space will be available for new materials. Membership in professional organizations and mailing lists of various companies will provide the coordinator with many free, valuable materials.

( ) 2. A teacher's file of supplementary materials, including product information, is maintained.

Supplementary materials are defined as those materials used for individual study. All students should learn basic information regardless of their job placement; however, supplementary materials should deal with specific occupations, such as retail food sales, petroleum, marketing, restaurant operation.

Idealistically, the salesperson can do his best work when armed with as much information and knowledge as possible about the product that he sells. This information is best obtained from the various manufacturers and public relations associations. The student may write for his information in business correspondence and/or merchandise manual preparation.

( ) 3. Course outlines, training plans and training records are used and kept current.

Course outlines, such as the Texas Course of Study, are valuable and can be used to great advantage by the coordinator. Study guides should be furnished to each student at the beginning of each teaching unit if possible.

( ) 4. Appropriate reference materials are provided and readily accessible.

Certain textbooks, dictionaries, and encyclopedias represent reference materials. These should be kept in the classroom for ready use by students especially during the periods of individual instruction.

( ) 5. Appropriate materials are available for use in implementing the individual instruction program.

Much valuable material may be obtained from employers. Students should be encouraged to utilize this material to supplement their instructional program.

( ) 6. Appropriate audio-visual aids including tapes, filmstrips, etc., are available.

Audio-visual materials should be thoroughly planned and correlated with the unit of instruction being taught.

( ) 7. Such materials as business forms, handbooks, training guides, posters, and display materials are available.

The teacher coordinator should strive to obtain and maintain current educational materials.

( ) 8. The teacher prepares and uses a teaching plan including assignment of students for individual learning activities.

A teaching plan permits the teacher coordinator to determine at a glance the major activities that need to take place within a given period of time.

( ) 9. Appropriate and adequate consumable supplies are available for instructional purposes.

The teacher coordinator must have appropriate supplies if he is to perform his function properly.

Evaluations:

a. How appropriate and adequate are the instructional materials for use of cooperative program students in relation to the jobs held and their occupational objectives in the field of distribution?

b. How appropriate and adequate are the instructional materials for the use of students studying distributive education under other than the cooperative plan?

Comments:

D. METHODS OF EVALUATION

Evaluation is a three-step process: determining objectives, developing measuring instruments in terms of these objectives, and using these instruments in appraising the outcomes.

( ) 1. Information received through evaluation activities become an integral part of the instructional program.

Both essay and objective type tests, including a combination of multiple choice, completion, and true-false, should be used. Evaluation should determine the progress of the student as well as the effectiveness of the teaching and not merely determine the grade or mark given a student. Results of findings must be used to modify objectives, improve the training program, and strengthen weaknesses if evaluation activities are to be an integral part of instruction.

( ) 2. Individual student progress is recorded and effectively used for guidance and instructional purposes.

In addition to diagnostic and remedial tests there should be other kinds of data available for purposes of guidance and improvement of instruction. These include cumulative records, test results of general scholastic ability, aptitude, and personality, anecdotal records, autobiographies, and interview records.

( ) 3. Development of occupational competencies and classroom proficiency are used as a basis of student evaluation.

In distributive education the total program of instruction must include classroom instruction, preparatory laboratory experiences, and on-the-job training. Evaluation of both should be used to determine the student's grade. A schedule of experiences to be learned should be provided and should serve as a basis for evaluating the progress of the student on his job. When a record is kept of a student's progress in various job activities, classroom instruction can be planned to improve deficiencies. A general rating scale to measure job progress rates such general characteristics as appearance, promptness, initiative, courtesy, as well as general performance such as customer approach or suggestion selling.

( ) 4. On-the-job progress of each student is evaluated jointly by the employer and school representative.

The progress of the student in a cooperative program is one of mutual responsibility including the student, teacher, and employer. Observation of the student should be made periodically by the coordinator and employer using a rating sheet to be kept in a permanent file. These records may be used in student conferences and for planning classroom instruction.

( ) 5. A study of the student's progress on-the-job or in the project laboratory experiences, is used to determine desired educational outcomes.

This evaluation is made with consideration of two points of view: the students performance on the job and in terms of long-range development. Long-range development considers the student's potential and interest for continued employment and promotion in the organization.

( ) 6. Follow-up studies of graduates are conducted on a systematic basis and used to evaluate the effectiveness of the program of instruction.

The evaluation of the distributive education program is a complex task and requires many follow-jp studies using various devices. A survey of former students should include data regarding type of employment, length of employment, promotion, transfers, and stability. School records regarding dropouts and graduates might prove helpful in determining whether needs are being met. Evaluation of outcomes at the end of the school term by students in distributive education programs is effective in evaluating instruction.

( ) 7. In the project plan, program evaluation is made in terms of desired learning outcomes and development of job competencies.

It is necessary that the coordinator develop basic guides in terms of desired learning outcomes and desired job competencies.

( ) 8. The advisory committee assists in the program of evaluation and interpretation of information regarding recommended program changes.

The members of the committee should be asked to contribute their knowledge and experience to the growth of Distributive Education.

Evaluations:

a. To what extent do teachers use evaluation results in analyzing the effectiveness of their teaching?

b. How is the evaluation of on-the-job progress of each student used effectively?

c. How extensively is evaluation information used in developing project laboratory activities?

d. How extensively is the business community used in the evaluation of the program?

e. To what extent is the progress of the student on the job or in the project laboratory a part of his total evaluation?

Comments:

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V. OUTCOMES

The evaluation of outcomes of the distributive education program should be based on the reactions of training sponsors, conferences with sponsors and students, observation during supervision, attitudes of administrators, follow-up studies of former distributive education students, community surveys, and tests.

( ) 1. To what extent do students demonstrate appropriate skills and attitudes necessary for continuous employment in distributive occupations?

The evaluation of the skills exhibited should be based on whether a one-year or two-year program is provided and upon the length of time devoted to classroom instruction. In a one-year program, the student should develop skills preparing him for jobs such as selling, stock work, and cash register operation. In a two-year program, students should develop skills preparing them for higher positions in the distributive field--display, advertising, pre-managerial, and supervisory positions.

In every program, students should develop wholesome attitudes. They should appreciate the dignity of the work and have proper attitudes toward employers, co-workers, and customers; and possess the traits, specific habits, and attitudes of a good citizen-worker. They should have developed an understanding of human relations and the communication skills needed for distributive occupations.

( ) 2. To what degree are students developing knowledges and understanding necessary for continuous employment in distributive occupations?

Students should develop, according to individual abilities, a thorough knowledge and understanding of all phases of the field of distribution, from the simple jobs necessary to perform daily tasks to the more complicated activities. An understanding and appreciation of our economic system is a part of the discipline which is learned.

( ) 3. To what extent are students developing moral and ethical standards acceptable to continuous employment in distributive occupations?

Classroom discussion, instruction, and practices should be geared toward high moral and ethical standards. The coordinator should set an example for the students. The students' job training should be with a reputable training station that practices high ethical and moral standards. Each individual

should be able to discern right from wrong in all matters, including money, merchandise, and time. He should become a respected and responsible member of his home community, business community, and school community.

( ) 4. How adequately are students informed of career opportunities in the field of distribution?

All distributive education students should be well informed about all career opportunities in the broad field of distribution, the local opportunities in distributive jobs, and the avenues of advancement in all phases of distributive occupations. The coordinator should supply information concerning careers in the field of distribution and the distributive education program to counselors, teachers, and students.

( ) 5. How well is the program accepted by school administration, faculty, parents, and the business community?

The effectiveness of the public relations program can be measured by how well school administrators, faculty, parents, and the business community understand and appreciate distributive education and its place in the total school program. Media such as radio, television, exhibits and displays, newspapers, booklets, contests, open house, and appearances before school, business, and civic groups should be used to impart information, develop interest, receive cooperation of the business and school community, and build a favorable reputation for the distributive education program.

( ) 6. To what extent do follow-up studies of graduates reveal successful employment in jobs for which students are prepared?

Studies should be conducted to determine the effectiveness of the present program. It should be determined whether employment is available in jobs for which students are prepared.

( ) 7. To what extent are follow-up studies of graduates used in determining recommended changes in the program?

The information obtained from follow-up studies of graduates should be utilized in developing programs in distributive education. This is the only way that the needs of the students and the needs of the community can be matched.

VI. SPECIAL CHARACTERISTICS OF DISTRIBUTIVE EDUCATION

After a thorough examination of the distributive education program has been made, each coordinator should list under "Special Characteristics" the strong and weak points of his program.

1. What are the strengths or distinguishing features of your program?
   a.
   b.
   c.
   d.

2. What are the weaknesses or areas needing improvement that are important to program development?
   a.
   b.
   c.
   d.

3. What procedures are planned to overcome existing weaknesses?

VII. GENERAL EVALUATION OF INSTRUCTION IN DISTRIBUTIVE EDUCATION

The evaluation of this section is a summary impression of the program in light of the school's philosophy, the needs of the students, and the aims of distributive education.

Evaluation:

a. To what extent is instruction in distributive education consistent with the philosophy and objectives given in Part IV, Section B.

b. To what extent does instruction in distributive education meet the needs of students as set forth in Part IV, Section C?

c. To what extent is the school identifying problems in distributive education instruction and seeking their solutions?

VT 012 640
Potts, Frank
Jobs in the Plastics Industry. Series 1100-6-70.

Wisconsin State Employment Service, Madison. Occupational Analysis Field Center.
MF AVAILABLE IN VT-ERIC SET.
WSES 3169
PUB DATE - 70 42p.

DESCRIPTORS - *PLASTICS; *OCCUPATIONAL INFORMATION; *MANPOWER NEEDS; EMPLOYMENT PROJECTIONS; *EMPLOYMENT QUALIFICATIONS; TECHNOLOGICAL ADVANCEMENT; EMPLOYMENT OPPORTUNITIES

ABSTRACT - To provide job information useful in career selection, this publication describes the processes used in the plastics industry and the occupations and job skills required for these operations. Increasing manpower shortages are projected for the next 5 years, based on estimations of rapidly growing production. (BH)

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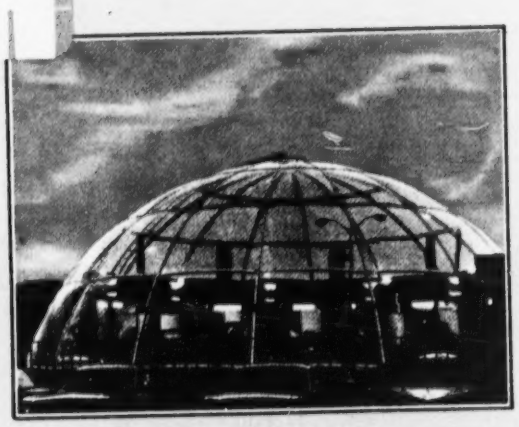

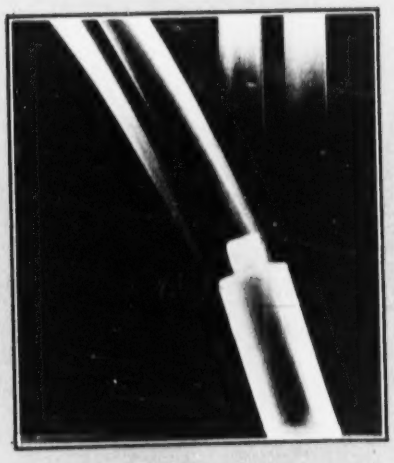

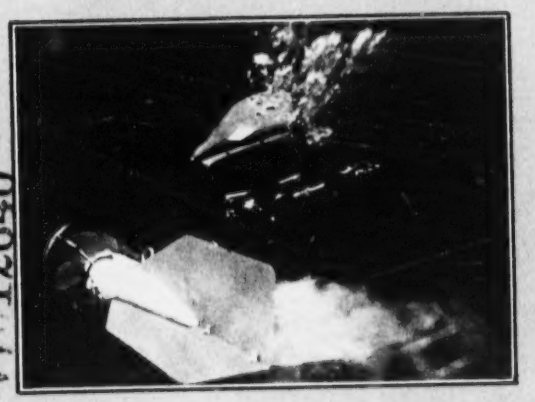

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Jobs..

in the

Plastics

industry

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WORLD OF WORK
OCCUPATIONAL ANALYSIS FIELD CENTER

5416

SERIES 1100-6-70
WSES 3169

ABOUT THE COVER. . . .

The photographs reproduced on the cover obviously do not show jobs in plastics plants, but they do reflect the products being manufactured by employees in the industry. To some extent each photo illustrates the manner in which plastics permit the most flexible product use ever achieved.

Our manned trips to the moon are dependent upon plastics from liftoff to the fiery meeting with the earths atmosphere on the return trip. Plastics are also found in the depths of our oceans protecting cables from the environment of the deep. Construction represents a rapidly expanding plastics market and the use of plastics in packaging is an almost unbelievable revolution. The plastic bottle shown is filled with water and has been dropped from 20 feet with no damage.

This report will examine some of the jobs which must be filled in order to manufacture the ever increasing list of plastics products.

COVER PHOTOGRAPHS COURTESY OF:

- NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
- SOCIETY OF THE PLASTICS INDUSTRY, INC.
- U.S. DEPARTMENT OF LABOR
- THE BENDIX CORPORATION

SPECIAL NOTICE

This publication has been developed to aid the selection and placement techniques required to obtain maximum utilization of human resources. The material presented has been collected through research, observation, and interview. Every effort has been made to typify the information so as to provide maximum usage; however, conditions differ to such an extent that certain areas of information may not precisely describe a given location or process. Caution must therefore be exercised in the use of such material.

Additional details relative to jobs in this industry are available through local State Employment Service offices throughout the nation.

Wisconsin State Employment Service
A Division of the Department of
INDUSTRY, LABOR AND HUMAN RELATIONS

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ACKNOWLEDGEMENTS

The information contained in this publication was collected and reported by Frank Potts, Research Analyst, under the supervision of William Miller, Chief of the Occupational Analysis Field Center of the Wisconsin State Employment Service.

We gratefully acknowledge the splendid cooperation and assistance given us by the many plastics plants visited. Without such cooperation, the collection of occupational data would be impossible and booklets such as this could not be prepared.

We thank the Plastics Education Foundation and the Public Relations Committee of the Society of the Plastics Industry, Inc., for permission to reproduce graphic materials and for assisting in the preparation of this brochure.

We also wish to give special thanks to the many individuals who gave so generously of their time. Our particular appreciation is extended to management personnel for permitting production workers to freely cooperate in explaining their many job functions. It is our sincere wish that this publication will be of value to current industry employees as well as to better equip potential workers for the Plastics Industry.

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FOREWORD- - -

There is more than ample evidence to support the statement that Plastics is the nation's most spectacular growth industry. A recent estimate shows that since World War II, it has been growing at a rate double that of all manufacturing. It has also been estimated that by 1983 the volume of plastics used for all purposes will be in excess of the volume of metals used.

Plastics has truly become a way of life. From the inexpensive ball point pen to the life-saving pacemaker device, plastics has invaded every area of our economy. It is indeed difficult to imagine a single consumer purchase in which plastic is not a part of the product or package.

Technology and research expand this exciting industry on almost a daily basis. These dramatic advances certainly improve the products we use, but they also place certain demands on the industry which are becoming difficult to fulfill. Job requirements and skill qualifications are changing so rapidly that a recent national survey shows that a critical shortage of trained personnel now exists at all levels. This booklet has been prepared to enable those wishing to enter this most rapidly growing industry to understand better the world of work in plastics - its requirements and its opportunities.

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CHAPTER ONE

BACKGROUND

WHAT IS PLASTIC? Chemically, plastic requires a long and complicated definition. In much simpler terms, plastic is our ball point pen, our transistor radio, our desk top, automobile dashboard and in fact may be found in almost every wandering of the imagination. The beginning of the plastics industry is generally credited to the year 1868, when a printer named John Wesley Hyatt combined camphor with a nitrocellulose (gun cotton) solution. His curiosity resulted in a product which gave plastic its only commercial use for the next forty years. Celluloid, as it was called, was used in a variety of products - such as pipe stems, photographic film, jewelry, shirt collars and cuffs, and false teeth.

It is also interesting to note that the reason John Wesley Hyatt created the first commercial plastic in this country was because of the shortage of ivory from which billiard balls were made.

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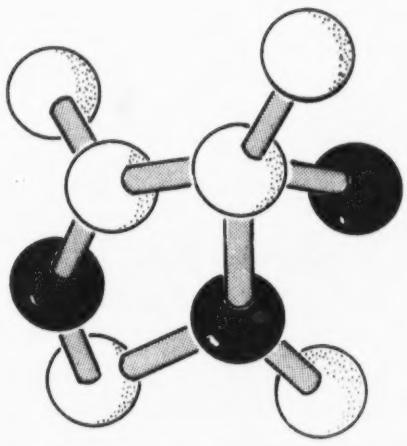
Many people, including chemists and inventors, worked very hard to expand the uses for this new found material. Few were successful until the science of chemistry underwent rather dramatic changes around the turn of the century. Chemists began to concentrate heavily on the molecular structure of matter rather than just the chemical composition. The importance of this concept is more readily appreciated when one realizes, for example, that flour and cotton have the same chemical composition. The difference between the two that we all know and recognize is a molecular structure difference.



The importance of this significant breakthrough has permitted plastics processing with properties to suit almost any purpose. This is best observed through the research and development efforts of almost every industry to best utilize plastics. Medical technology, for example, has barely scratched the surface even though thousands of people are again leading normal lives thanks to implantable plastic devices. This is perhaps the most unique aspect of this industry - the ability to create products, markets, and applications that have never before been possible. Plastics have been an essential part of our manned moon flights, for the astronauts as well as the space ships they use. Its value to our future space programs would defy calculation. Similar conditions also exist with our undersea exploration activities. It is the knowledge of the properties of plastics which permit the unique and sometimes exotic uses of this material.

As rapidly as completely new uses are found, plastics continue to displace the established materials such as wood, glass, and metal used in many products. From almost any location, one needs both hands to count the number of times he can point to an object and state, "Now they make it out of plastic." A few years ago, this same statement was intended as a note of caution. After all, plastic had not proven itself reliable and, as with all materials, it was not necessarily properly used. In those early days of the industry, the substitute use of plastic was usually quite apparent. Today, from the finest furniture lines to entire automobile bodies, plastic is being used to definite advantage. Its surface appearance is limited only by personal preference ranging from a weathered knotty grain to a mirror smooth gloss. And all in the color of your choice.

Plastic as a material has come a long way; but as an industry it has barely started. One of its most serious problems which must be overcome in order to permit its continued growth is an able work force. Other portions of this publication will describe the jobs found in plants which produce plastic products. Employment conditions such as entry qualifications, promotional opportunities, and other relevant data also will be described.

see next page...

Kralastic ABS plastic body is still intact after car went through brick wall at 30 mph. Doors and hood were not sprung.

Photographs Courtesy Of

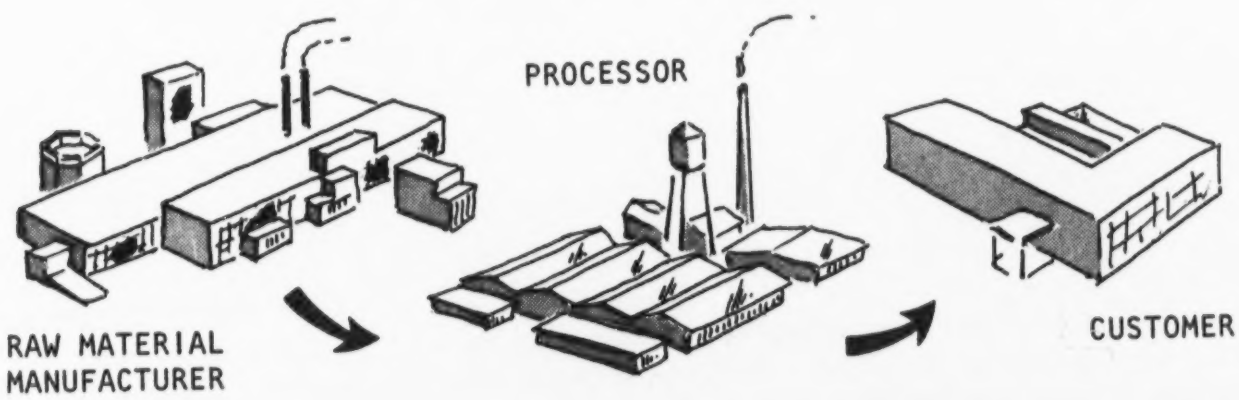
UNIROYAL CHEMICAL
Division of UNIROYAL, Inc.

CHAPTER TWO

PROCESSING

A description covering all facets of plastic processing would not be of particular value in this publication. Therefore, only the basics will be discussed and even this will primarily be in occupational terms.

Plants which produce plastic products are called convertors or processors. They take raw materials, called resins, and through various methods produce finished moldings. A molding can be the final product. In any case, resins are converted into another form through machine or hand processing. A sketch is included to better illustrate this material flow.

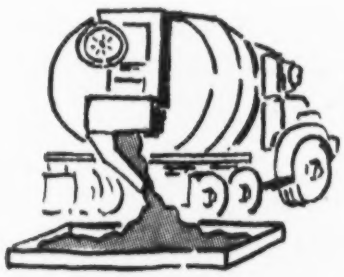


Essentially, there are two divisions of the raw material. Thermoset is a term used to denote plastic which is permanently fixed after the resins are molded. It undergoes a chemical change which eliminates any further change short of destroying the molding. Thermoplastic, on the other hand, is entirely different because it only undergoes a physical change and, generally speaking, can be remolded numerous times into any desired shape. This means that thermoplastic moldings can be ground up and run through the molding machines multiple times. Once molded, thermoset castings may not be reused.

HEATING → **INJECTING** → MOLDING

THE TWO GENERAL CLASSES OF PLASTICS MATERIALS USED IN THE INJECTION MOLDING PROCESS ARE THERMOPLASTIC AND THERMOSET.

Thermoplastics materials may be likened to wax which can be melted and shaped while it is soft.



Thermosetting materials may be likened to concrete. Once mixed, poured and set, its form cannot be changed.

Regardless of which resin is used, certain economic factors must be recognized by all plant employees. First, in any plastic plant, the most important production ingredient is speed. Cost estimates, which include wages, are based on machine capability speeds and the cost of raw materials. The fact that an imperfect product may be remolded does not in itself mean money saved. The time and labor costs of remolding are far greater than the resin costs. Salvageable materials, which can be reused, only represent a saving when an appreciable volume is on hand for a new run. This would ideally consist of normal scrap which cannot be avoided during a production run.

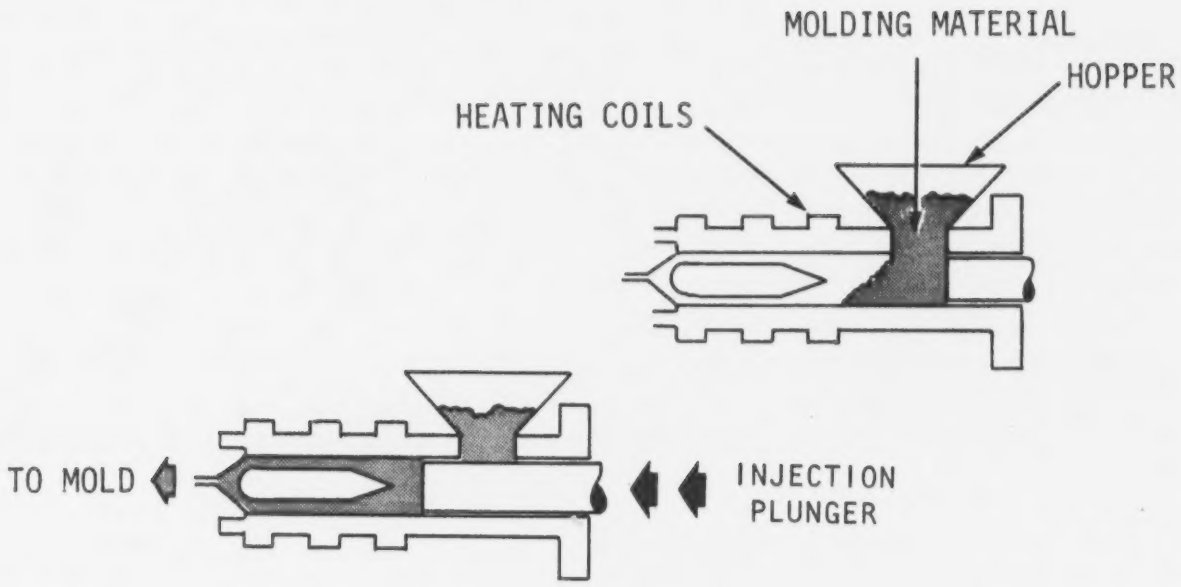
Another factor, perhaps one of the most important functions of *every* job in the plant, is to insure molding a clean casting. This means that the resins must be completely free of foreign matter. When the resins become liquid during molding, any dirt particles may be dissolved through many moldings and can in addition to discoloring the product, stain or damage the molds being used. Such "dirty" moldings cannot be remolded because there is no method to remove the unwanted stain color. Moreover, the machine will have to be shut down and thoroughly cleaned and purged. It is therefore essential that all plant employees are alert to prevent such waste.

Molding Compounds are not good mixers

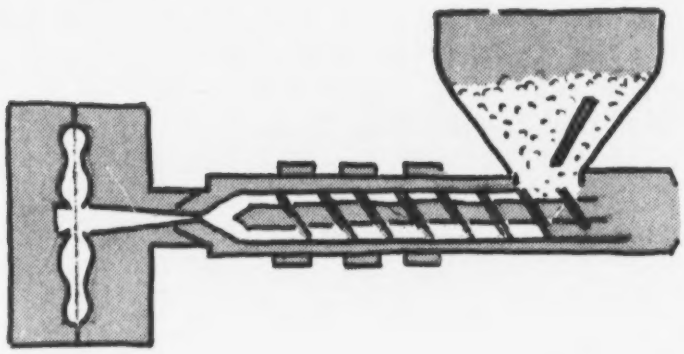
An additional matter of concern for plastic processors is the amount of finishing which will be required to bring the casting to specification. Again, time is the enemy. The best engineered job, using the finest molds, may still result in a molding which will require cutting, drilling, or other finishing techniques. On other jobs the castings need only be visually inspected and are ready for packaging at the machine location.

A wide variety of machines exist in plastic processing plants. One of the most common, however, dates back to 1871, when John Hyatt and Charles Burroughs, the founder of the Burroughs Company, designed and built a plastic molding machine. Although other manufacturers have made numerous improvements, several of the original machines are still in operation after nearly one hundred years. Although the basic principles of this machine appear relatively simple, the actual operation must be rather precise.

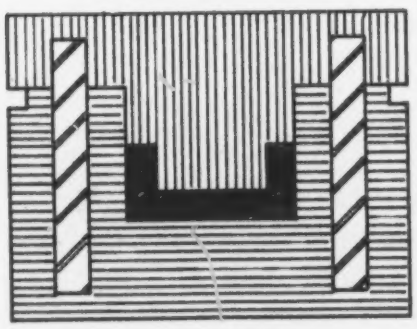
A drawing is included to show the basic functions of injection molding. There are endless variables in its operation, depending upon such factors as the size of the molding, the purpose of the molding or the intended use of the final product. These are the same factors that determine the type of resin to be used. Drawings shown on the following page illustrate several molding methods.



PLUNGER TYPE INJECTION MOLDING



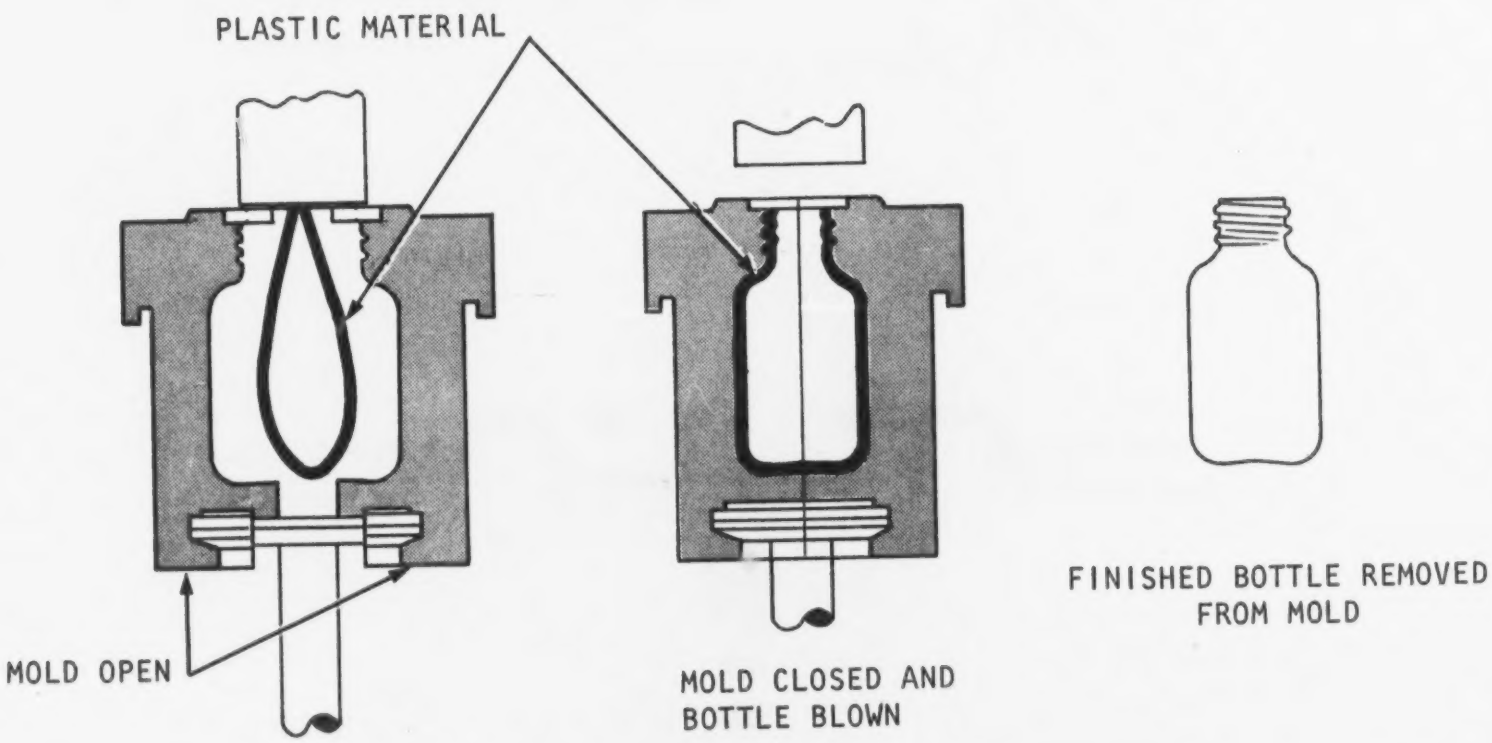
SCREW TYPE INJECTION MOLDING



COMPRESSION MOLDING

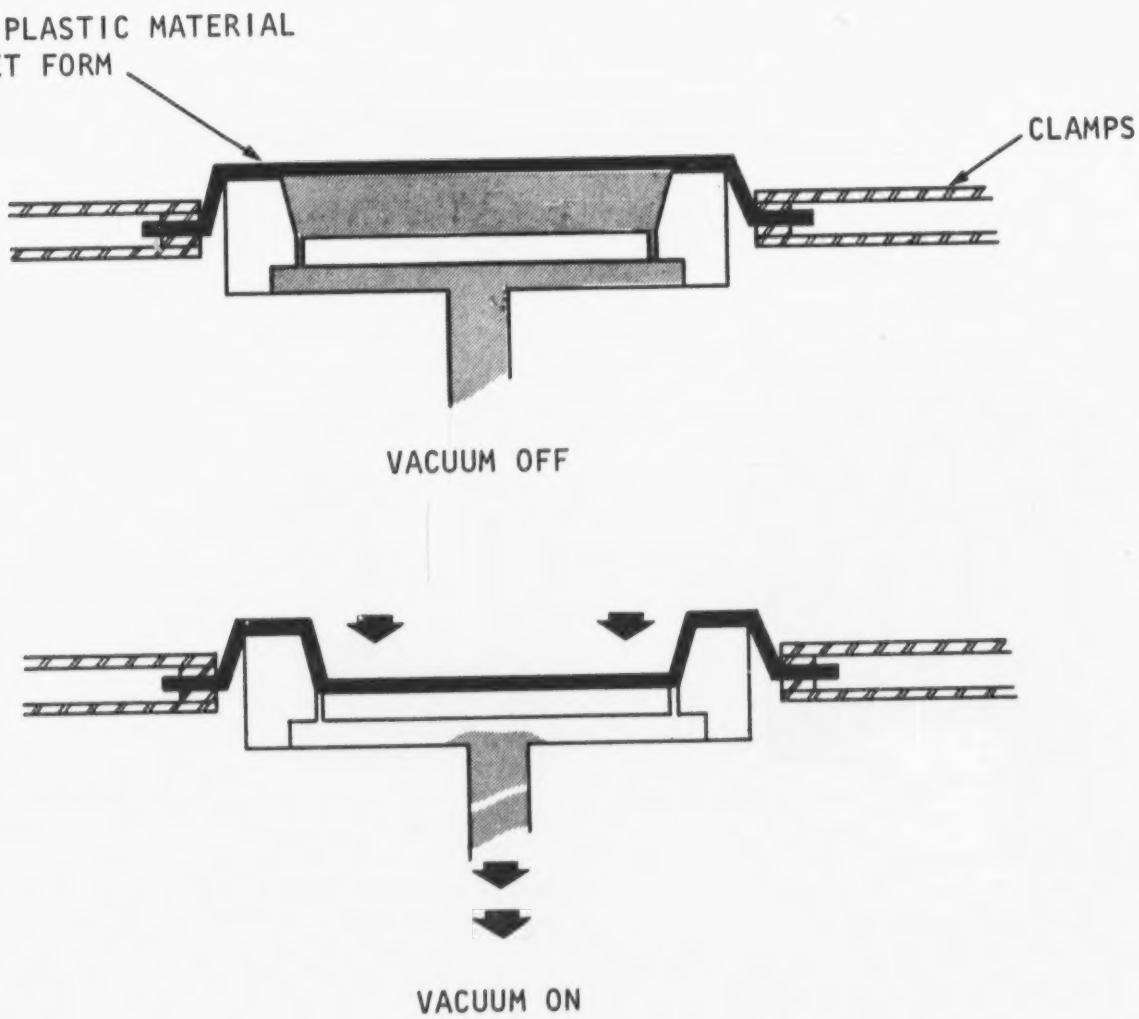
Examples of products typically injection molded include: tableware, toys, small parts such as gears and bearings, handles, suitcase shells, writing instruments, automotive accessories, jewelry, and many other product variations which, basically, may be removed from a two-part mold as a single piece.

Blow molding is used for products such as large containers or tanks which cannot be injection molded in one piece. An example of a blow molded product would be a five gallon container. Blow molding permits this container to be made in one piece even though a seam may show. In blow molding, the resin is heated to a liquid state and blown with air, or another gas, into the shape of the mold which closes around it. The mold is cold enough to harden the plastic to shape. In other words, a plastic bubble is blown which is forced to conform to the shape of the mold.

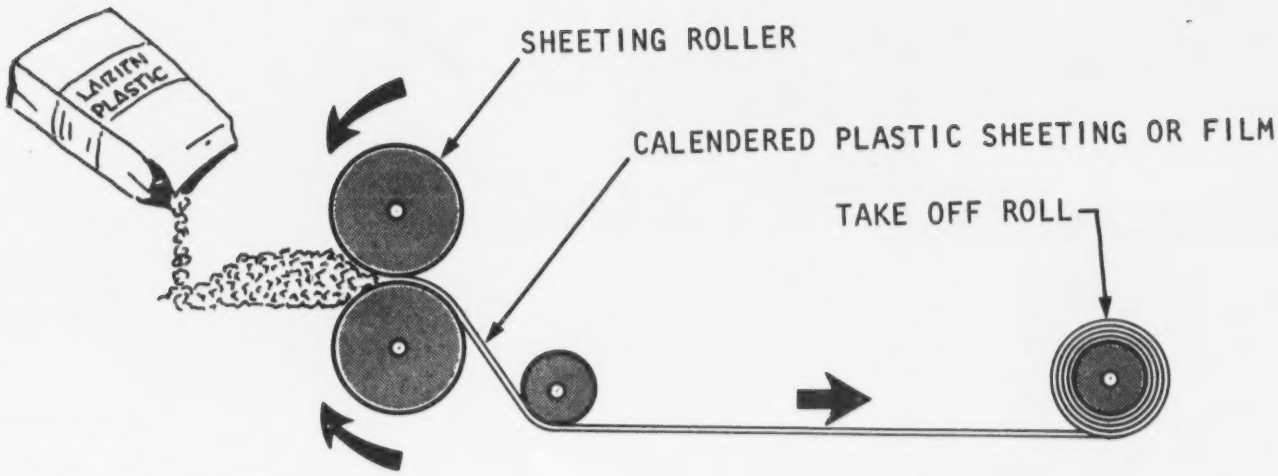


BLOW MOLDING

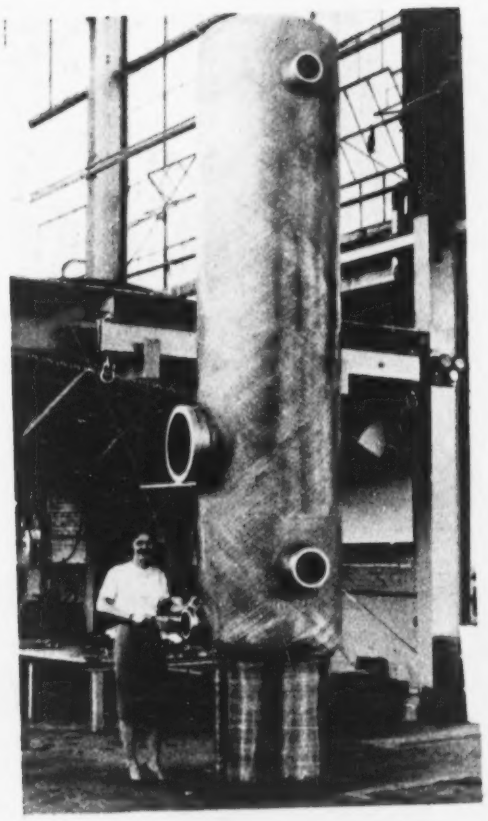
Another processing method in wide use is known as thermoforming. This is one of the oldest methods for shaping plastics and consists of heating a thermoplastic sheet until it is soft, and then forcing it against the mold contours by either mechanical means or a vacuum pressure. A variety of casting shapes may be obtained using this method which is generally considered economical because only one mold is required. Small items such as disposable cups and lids are formed in this manner as well as large pieces such as boxes, boats, campers, and refrigerator door liners.



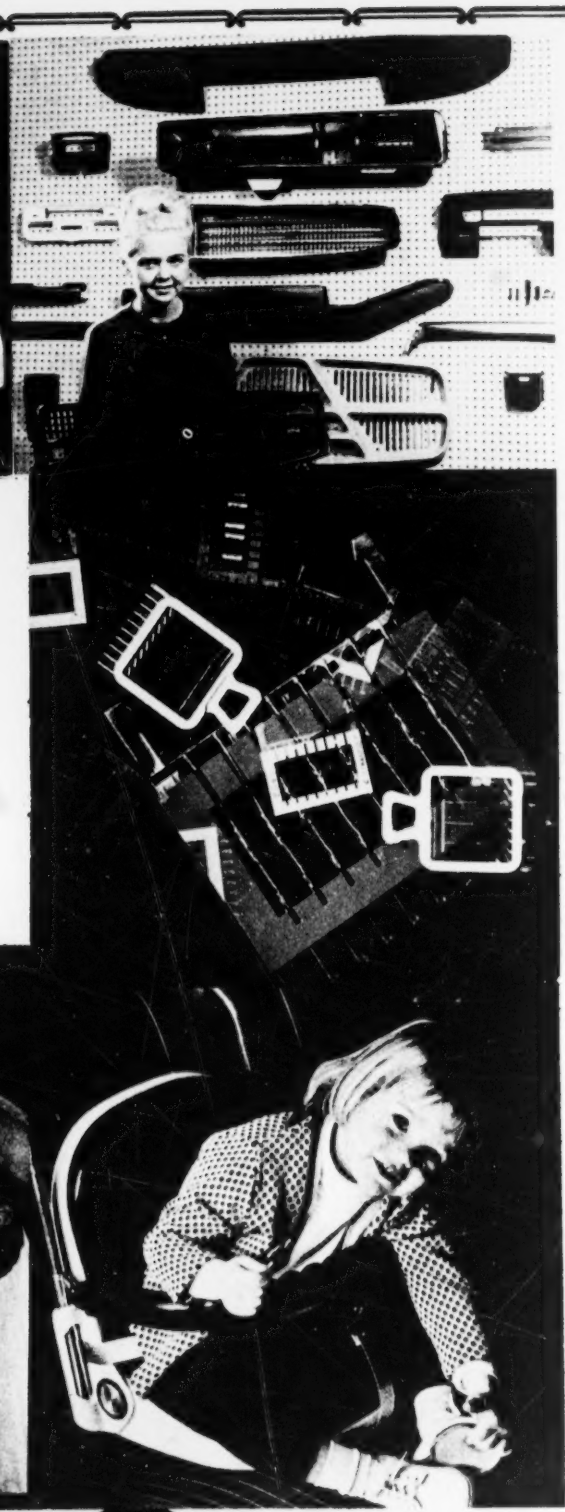
VACUUM FORMING



CALENDERING



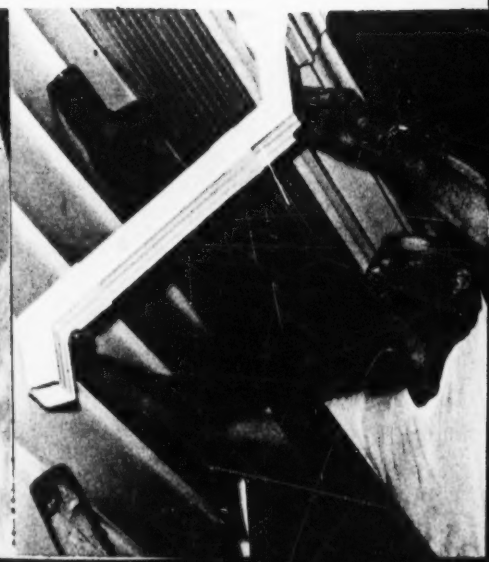
There are numerous other processing methods which, for the most part, have been designed to produce specific casting shapes. In general, resins are converted into shapes using heat, pressure, and temperature differences to accomplish the physical or chemical change. A wide range of hobby kits are available which utilize do-it-yourself molding methods. Usually such methods use a liquid resin and liquid catalyst to effect the room temperature cure. Molds may be made of various materials or purchased commercially at low cost.

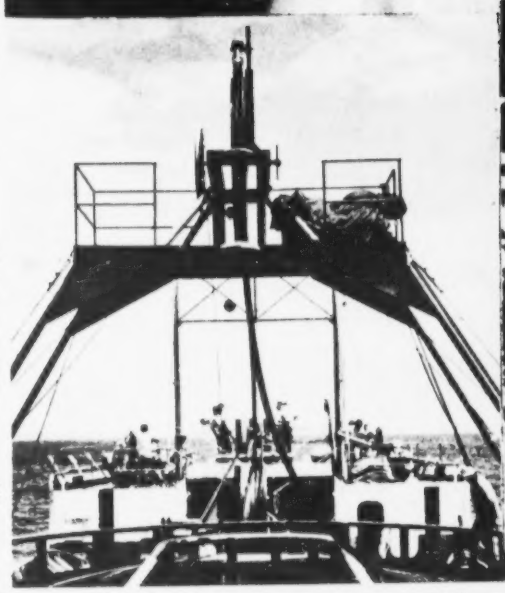


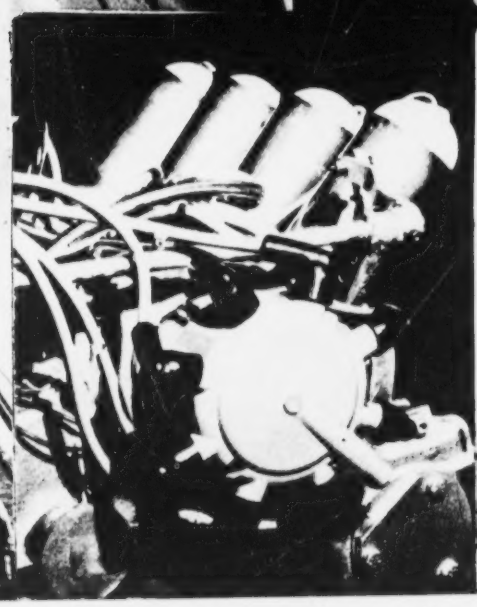
...and the

list

goes on...







CHAPTER
THREE

OCCUPATIONS

A. INJECTION AND BLOW MOLDING. By far, the most common machine found in plastic plants is the injection molding machine. Although blow molding is an entirely different type machine, the worker relationships are practically identical and for this reason alone the two are grouped together. Products of these machines were discussed in a previous chapter, but little was said of what was necessary by the work force. To include as many occupations as possible, we will examine a hypothetical large plant which employs 400 workers. A chart has been prepared to show typical job titles and relationships. Managerial positions are not shown because these positions are usually typical to any industrial establishment and the need of the plastics industry is for persons knowledgeable about plastics processing.

In many large plants, machines run 24 hours a day because production orders are large and time becomes an important cost factor. Therefore, a new plant employee is usually assigned a machine already in operation. His title will be MOLDING MACHINE OPERATOR, MACHINE OPERATOR, or just OPERATOR. Since each production run requires different finishing or tending duties, he will not learn the entire range of job responsibilities at one time. Rather, he will learn them as the runs on his machine are changed. For purposes of this report, all duties will be grouped. Photographs are included to show actual machines in operation. Primarily, the machine operator is responsible for the quality of his molding machine product. Usually this requires only a visual examination accompanied by feeling for rough edges or other surface defects.

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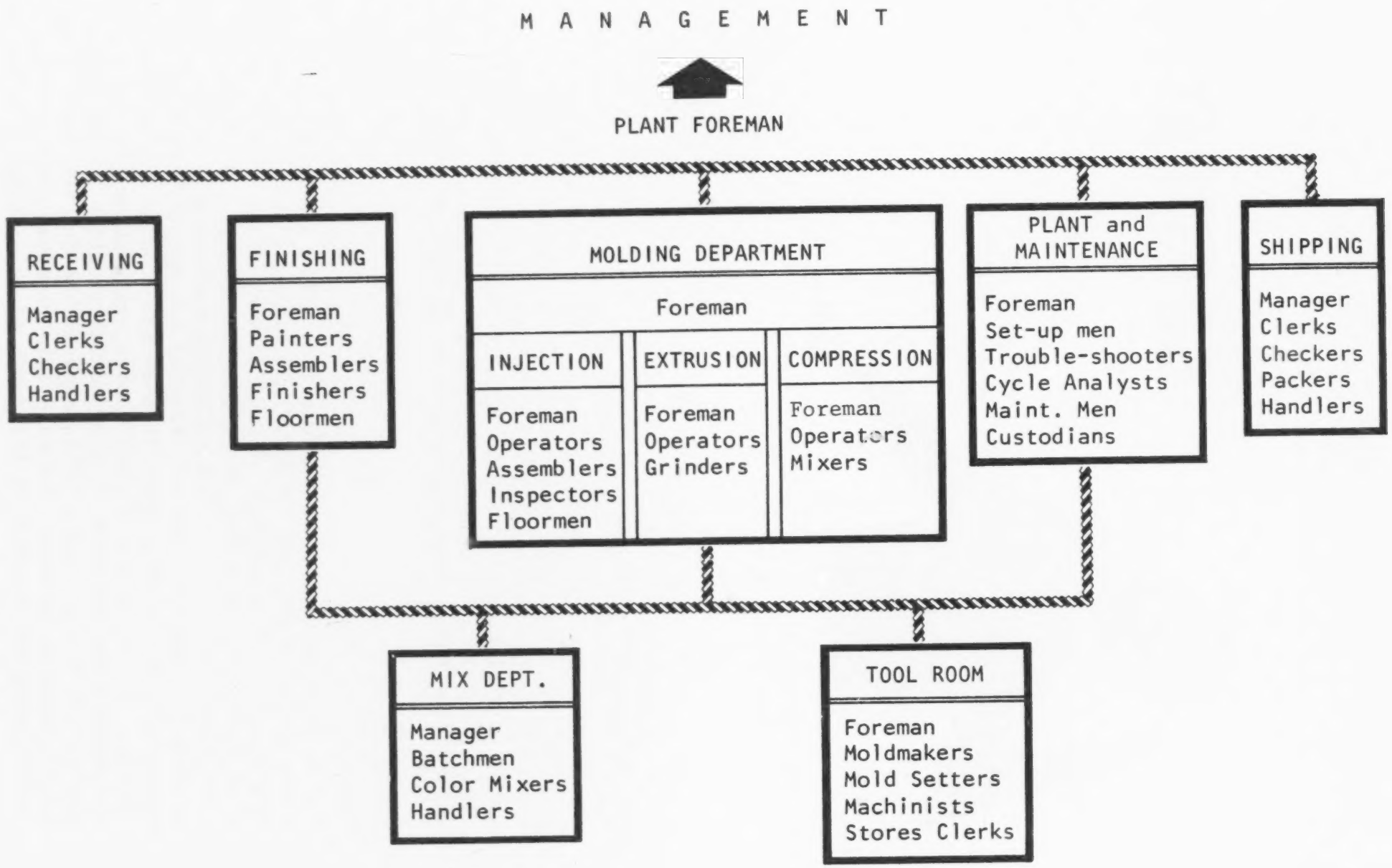
TYPICAL ORGANIZATION CHART



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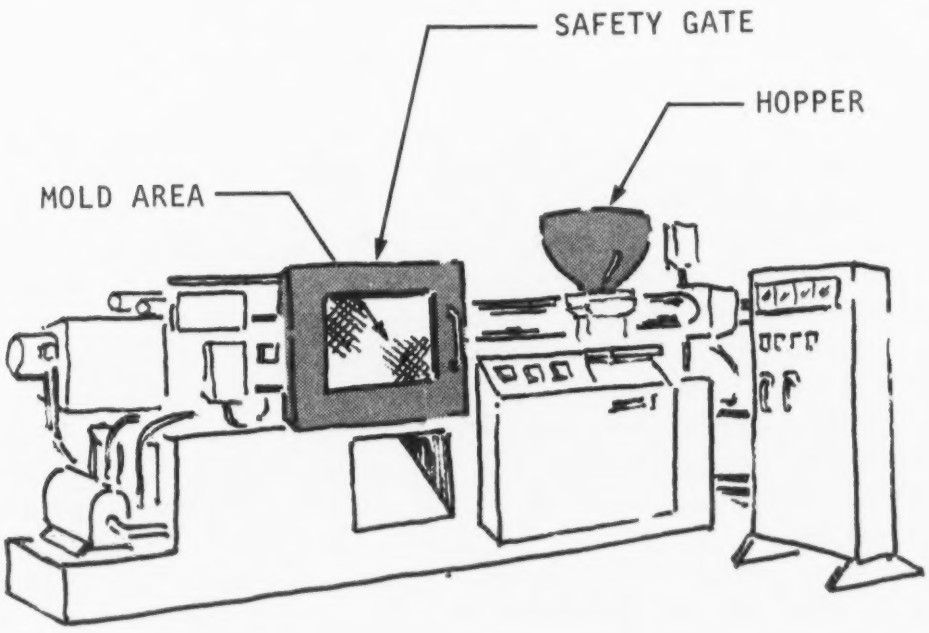
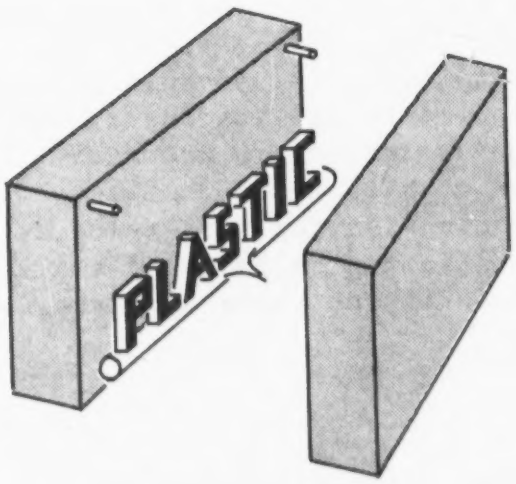
The completion of each molded piece represents a cycle of the machine. The operator follows several steps in removing the molding from the machine. As shown on the drawing, there is a safety gate which must be slid back to expose the mold. This gate, in reality, is a switch which prevents the molds from closing until the gate is closed. For good casting, molds are closed under heavy pressure and close automatically regardless of hands which may not be removed in time. Hence, the safety gate eliminates this possibility.



TYPICAL INJECTION MOLDING MACHINE



MOLD OPEN WITH
FINISHED CASTING

When the molding is complete, the operator slides open the safety gate to expose the opened mold. He may remove the molding by hand or with handtools depending upon its shape. The part is not hot, since cooling is a function of the mold, but it is still warm. After the molding is removed, the operator closes the gate and the machine automatically recycles. It is during this recycle time that finishing tasks are performed. Excess plastic is easily trimmed or cut because it is still warm. At this time the examination is made and if the piece is imperfect, it is rejected for scrap or may be inserted into

a grinder for reuse, if possible. Following the molding examination, the operator may perform any of numerous finishing tasks. There may be excess plastic around the edge of the casting which is trimmed off by using a knife, hand cutter, or even power tools. Finishing operations may also include drilling holes in the molding, or placing castings in clamp forms to prevent warpage. If the finishing steps are too numerous there may be several operators to a single machine, or, parts may be sent to the finishing department where FINISHERS or ASSEMBLERS will complete the operation.

Like anything else, molding machines do not run perfectly for extended periods of time without adjustments or repairs. When a machine malfunctions, the operator will notify his foreman, who, after examination may call a repairman to investigate and correct the problem. Rarely does the operator make any machine adjustments under these conditions. An additional duty of the operator may be to insure that the storage hopper has sufficient resin to continue molding. In some cases the operator may fill the hopper, but usually other people are assigned to maintain all hoppers with the proper resins. Most hoppers have a window for visual capacity checks. There is one additional situation the machine operator may encounter; that is, tending an automatic machine. In this case the operator does not operate the safety gate to remove the part because the casting is ejected automatically. He continues to make an examination of the part and performs finishing as required.

Generally, the machine operator has little relationship to the molding machine. In most plants, the operator does not control the machine beyond operating the safety gate to remove the machine product. He may, however, operate a variety of machines such as drill presses and sanders, to finish the plastic casting. Actual conditions vary somewhat from plant to plant, but the operator is usually able to stand or sit to suit his convenience. Except for the largest molding machines, a plastic molding rarely weighs more than a pound or two. Even the larger moldings are not heavy, but may be somewhat awkward to handle because of size - such as light diffusers or T.V. cabinets. Many plants distinguish the difference by using "LIGHT" or "HEAVY" within the job title and by paying a small premium. By far, women constitute the majority of those employed as operators or finishers.

A large plant will also have an assembly department where actual molded parts are put together or where finishing touches such as brand names or metal foil finishes are applied. Typical ASSEMBLER duties would be reflected by the person who completes thermal products such as an ice-bucket. Handles and

knobs are applied using hand or power tools. Inner and outer shells are joined together using a spin-welding machine. The two parts are placed into jigs and one is spun rapidly by the machine while contacting the other. This forces the air from between the parts while melting them together. The ASSEMBLER would also operate the small hot stamping machines which imprint names, designs, or metal finishes on plastic parts. Again, the part is placed in a jig, the machine handle is pulled down and the imprint is accomplished. Still another example of assembly found in a large plant might include molded suitcases. The assemblers start with the molded shells and by cementing, drilling, and riveting, install the linings and hardware to form the completed luggage. Machines are pre-set for the particular operation and most are foot-controlled. Liners are all pre-cut and ready for insertion.

In general, the same comments relative to job conditions for the MOLDING MACHINE OPERATOR job apply to the ASSEMBLER. Most assemblers are female.

A large plant may have 75 to 100 molding machines which, as much as possible, run continuously. This requires three shifts of workers. Another job which is vital to maximum production involves those people responsible for the bulk movement of resins to the machines, as well as the removal of those castings ready for assembly, packaging, or direct movements into stock. Typically, the jobs are titled as "MATERIAL HANDLER" or "FLOORMAN." Because of the lifting and carrying necessity, these jobs are almost always filled by males. Job duties vary slightly from plant to plant, but in many cases these people are a part of the incoming stock work force. They receive the barrels of resins from the manufacturer and, using hand carts and fork-lift trucks, stock the supplies according to type and color. They are also responsible for maintaining an adequate supply of the proper resin to each molding machine in the plant. This is usually accomplished by routing all production orders through this department which in turn prepares a delivery schedule showing which machines require what resins.

Another activity usually found in this department is that of coloring the resins according to the production order specifications. Colors are obtained by mixing pigment powders with the plastic resin materials. Specific amounts of each must be used to obtain desired uniformity of colors, an important factor in large or repeat orders. A large motor driven drum is used to mix the colors and resins together until the color is uniformly spread. The drum is emptied and the resins are either stocked or delivered directly to the molding machines. In any case, some plants have specified job titles, such as MIXER, for persons responsible for coloring resins.

5438

Finishing tasks are often performed
during the machine cycle time.

PHOTOS COURTESY OF:
KEOLYN PLASTICS, INC.

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ELGIN MOLDED PLASTICS CO., INC.

It is also important to note that some plants employ a person full time to reprocess scrap or rejected materials. Usually these jobs consist of operating several machines which will grind, extrude, and cut the salvaged material into uniform pellet size for remolding. It is also possible to combine different colors through this technique and achieve a specified color tone. In other cases the finished salvage must be made black and stored for appropriate production orders.

Although a variety of production jobs have been described, the qualifications and working conditions are practically identical for each. In general, a person should be prepared to perform the same job task over and over. For example, the examination and finishing of a molding will be the same throughout each shift worked. Where possible, the work of the OPERATOR will be scheduled to the requirements of the machine cycle time. It is essential that maximum production be obtained from the machine and this may require several operators if the finishing tasks are too time consuming.

Persons interested in production jobs, such as those described, will need no previous experience and, almost without exception, there were no educational requirements necessary at plants visited during this study. Generally speaking, the larger plants are able to employ persons who are even unable to read or write. In most cases, smaller plants will require a person to read and write, but this is usually because of the wider range of work activities required. In other words, in a small plant it is necessary to learn more about the entire operation since less specialization (in occupations) is possible.

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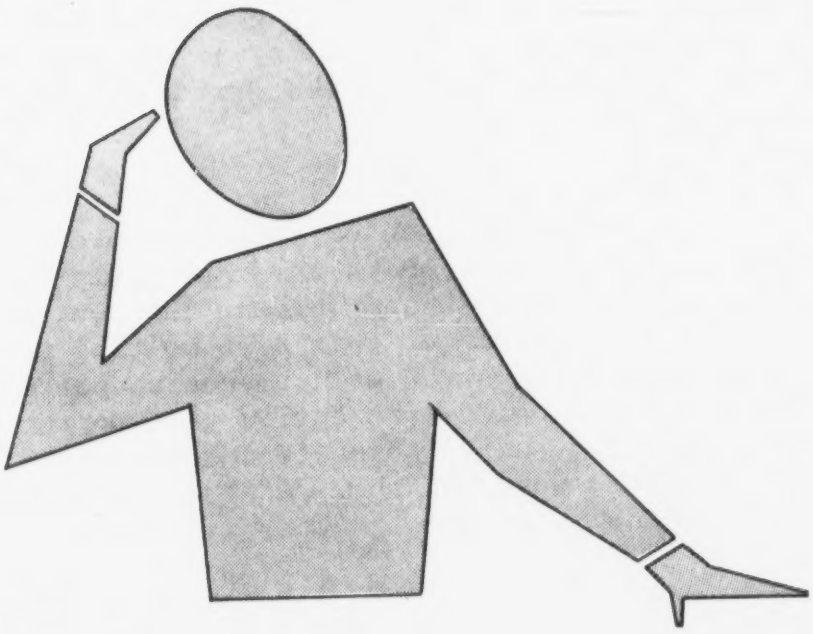

B. OTHER MOLDING JOBS.

Other types of molding require somewhat different job duties for the MACHINE OPERATOR. For example, in vacuum forming, a piece of sheet plastic must be placed with a frame and clamped in place. The sheets are not heavy, but may be awkwardly large. When the molding is complete, the sheet is removed and a variety of finishing steps may be necessary. Because of size, the finishing may be somewhat more difficult than that required from other molding processes.

Vacuum forming may also require more operator association with the machine than injection molding does. Some machines are similar to a revolving disc which makes four stops. The operator must monitor the machine action and stop the process in the event of a malfunction. Usually the machine will operate almost automatically and provide ample time for the plastic sheet to be applied and removed, all on a recurring time cycle.

Rotational molding is not in widespread use, but the worker duties are quite similar except that resins are used instead of sheet plastic. In rotational molding the mold is opened and closed by the operator using hand or power tools. The advantage to rotational molding is in the relatively large size of the finished casting.

Plastics may be premixed and used on compression molding machines to form a variety of finished products. These machines require an operator and in addition to placing a pre-measured amount of pre-mix into the mold cavity, he may adjust various controls on the machine. This usually depends on the production run and the complexity of the mold.

Another area of plastics molding involves the use of fiberglas and spray guns which chop and apply the fibers. Hand labor is usually used to smooth and compact the coating which is sprayed on to the mold. An example of this type molding would be bathtub-shower units which include the three wall pieces as part of the single molding. The HAND FINISHER builds the entire unit up to about a one inch thickness by spraying and brushing to a smooth finish. The side that is sprayed and smoothed does not show after installation and only the interior portion, which does show, is the pure white or decorator color.

Many specialty shops provide molding for custom uses. Like the large animal figures used as amusement park features, these are hand made and built up from the mold by spraying and smoothing. These items are almost always one-of-a-kind and are quite expensive. Most people working in these specialty shops must possess certain artistically oriented skills since the end product is hand shaped, not machine molded.

Generally speaking, the jobs included in this section will vary a great deal in the demands made on the worker. In some cases, he must learn the entire range of machine controls and make appropriate adjustments based on his knowledge of the machine. In probably the minority of cases, machines are operating automatically and finishing is the most difficult work for the operator. This would be true most often in the largest plants where large quantity orders make feasible the lengthy set-up work required for automatic operation.

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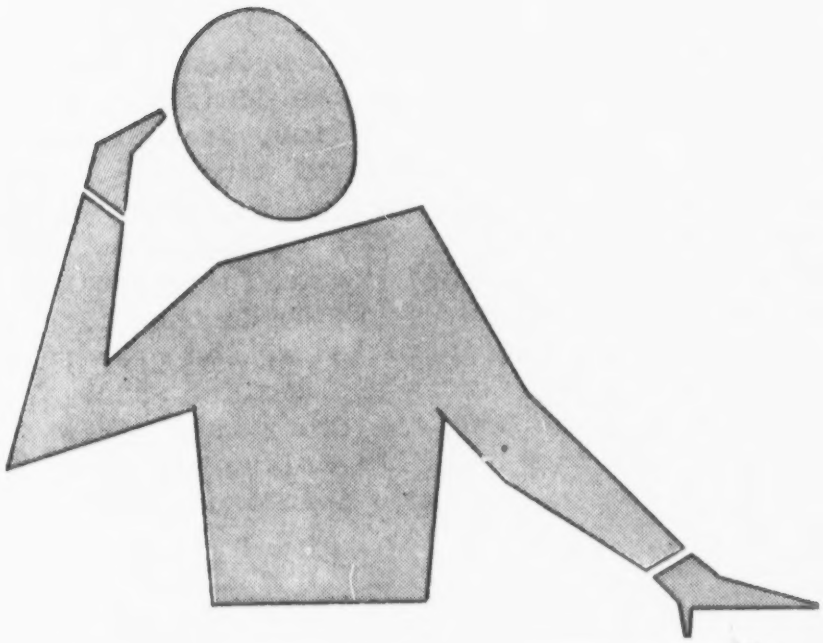


REPAIR AND MAINTENANCE

Every plant must maintain a sufficient number of people who are able to diagnose and repair machine malfunctions. As noted previously, the machine operator rarely adjusts or controls the machine. He will usually signal a repairman, who may have a title such as: SET-UP MAN, CYCLE ANALYST, MAINTENANCE MAN, or TROUBLE-SHOOTER. Sometimes these job titles reflect only certain work functions; like the set-up man may never be a trouble-shooter because there is a person who trouble shoots but never sets up a machine. For ease of illustration these activities will be combined in this report. Before describing these jobs, however, an additional job necessary to any molding operation must also be discussed.

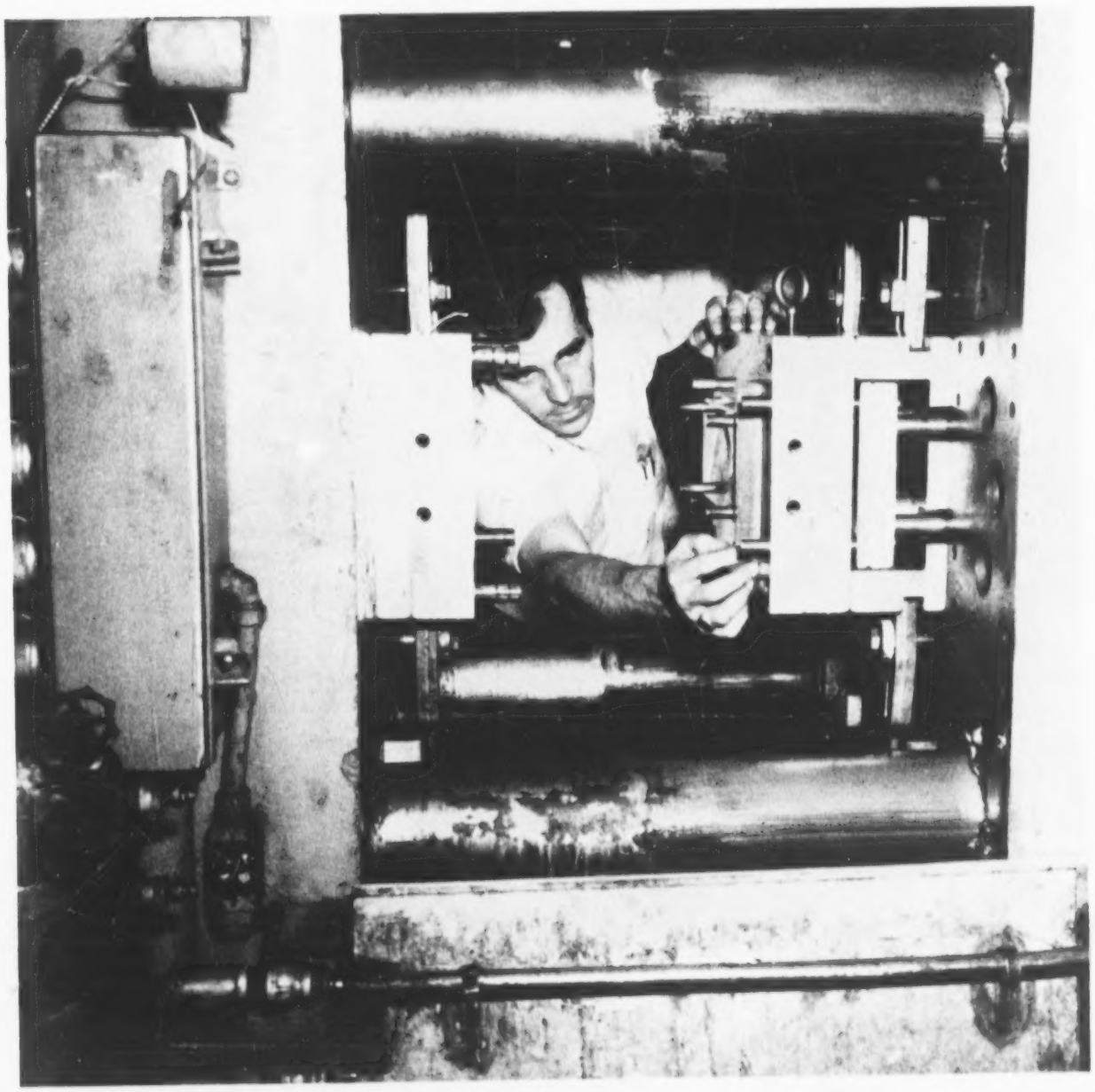
The very term "molding" implies that molds are used. Some plastics plants employ MOLD-MAKERS who in many cases must be accomplished machinists with a specialized knowledge of plastics. Because a finished molding is to be a particular size, the mold maker must account for material shrinkage when making the mold or the finished piece will not be purchased. He therefore must become familiar with such factors as material shrinkage and warpage. Although the MOLD-MAKER is an occupation found in some plastics plants, most plants purchase molds from machine shops. This report will therefore describe plant jobs which deal with molds already made, but it should be noted that molds are very costly. There is, therefore, usually a person assigned with the responsibility of maintaining the molds in good condition. This includes cleaning and storing and can also include setting and removing the mold from the molding machine.

The jobs involved in repairing, maintaining, and responding to "Help" calls on the machines require a worker to use a variety of tools, both hand and power driven. Most plants are willing to train people in the jobs where the desirable aptitudes are apparent. Molding machines use heat, cooling, pressure and a variety of linkages and valves to properly process raw materials. Our typical repairman must therefore be a jack-of-all-trades including plumber and electrician. Based on the product desired and the resins to be used, the machine must be set up to cycle in the fastest time. This requires among other things, that the pressure which closes and holds the molds must be just right. The temperature must be controlled at the proper degree for the material, both hot and cold. It is the cooling which causes the plastic to retain the mold shape. On the other hand it is heat which causes the resin to melt and flow into the molds. In addition to heat, the resins are forced under pressure into the molds and this must also be regulated.

The duties of the person responsible for setting up the molding machine include the use of a variety of tools and equipment. Molds and platens are quite heavy and would usually be moved to the machine and positioned in place by using chain hoists and hand trucks. Impact wrenches are often necessary to secure these parts into place after insuring their proper alinement. Air lines, water lines, and electrical connections are made using handtools. The production order will contain the necessary specifications for making the adjustments to the machine which will produce the desired casting. The first castings are made by operating the machine manually, which means pressing a series of buttons which control the various machine phases. The sample product is examined closely for conformity to specifications and to insure that surface flaws are not being molded into the part. Several pieces may be molded while making final adjustments to the timers which control the machine cycle. When the machine is operating satisfactorily, a control is set which puts the machine on automatic cycle. The machine is then turned over to the operator who will visually inspect the castings and perform required finishing steps.

In some plants several people are used to set the machine up for operation. For example, DIE-SETTERS may be responsible only for putting the molds into place within the machine. There are other plants which employ a CYCLE ANALYST, who would do nothing more than make the machine adjustments to insure the most efficient production time out of the machine. Regardless of how the machines may be set up, every plant must provide for maintenance and repair to keep the machines running. As noted earlier, many plants are open through two or three shifts. This is primarily because of the time and expense required to shut down and start up a molding machine. Likewise, when a machine malfunctions it must be repaired promptly to avoid waste. The TROUBLE-

SHOOTER, MAINTENANCE MAN, OR REPAIRMAN, must be able to rapidly diagnose the problem and make the needed repairs. It may include using soldering equipment or simple handtools. It often includes having to clean parts of the machine where plastic has hardened and would prevent proper molding flow.



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ELGIN MOLDED PLASTICS CO., INC.

CAREER LADDER

PRODUCTION ENGINEER

MOLD MAKER

QUALITY CONTROL TECHNICIAN

SET-UP MAN | REPAIRMAN | TROUBLE-SHOOTER

CYCLE ANALYST

INSPECTOR

MIXER

MACHINE OPERATOR

FLOORMAN | MATERIAL HANDLER

ASSEMBLER

FINISHER

Note: Titles based in order of typical earnings.

CHAPTER FOUR

entry qualifications and jobs

Plastics plants offer excellent employment opportunities for those people who have limited educational and experience backgrounds. In many plants the most important condition of employment is that the applicant be dependable and willing. The type of entry level positions is dependent upon the size of the plant, but generally speaking the first job will be as Finisher, Assembler, or Machine Operator. As explained elsewhere in the text, the duties are usually quite simple, but must be performed to the machine cycle time.

There are no particular educational requirements and in some plants the ability to read or speak English is not necessary. In any case, all plants would require at least that a person be able to understand simple instructions and be able to recognize when a malfunction occurs affecting the molded pieces. Previous work experience is not important in obtaining these entry jobs, but of course previous experience may enable a person to advance more rapidly.

For the most part, a person must be able and, more importantly, willing to perform the same work tasks over and over again. Plastics plants survive because products are mass produced and this means that each piece must be finished the same way. A requirement for employment would be the ability of the person to feel

and see defects. This is not to say a person must have exceptionally good eyesight, but he must be able to see the flaw which could cause a product to not be sold. Blemishes and discolorations would be examples of imperfections the operator should see. In addition, the worker must feel the molded pieces for unnecessary roughness which could be the sign that damage has occurred to the mold. This inspection is very important because in many cases the product is packed into shipping containers as the operator removes them from the machine. They will be seen next by the customer and he too will make an examination for those items he should not accept.

Plastics plants offer promotional opportunities for those willing to learn the duties of jobs requiring additional responsibilities. There is no guaranteed promotional policy, nor is there any policy which says a person must attempt to advance. An individual may remain in the job he enjoys and not become more involved with additional duties. For those interested in advancement, most plants are willing to provide ample training at company expense. In addition to the in-plant training offered by molders, equipment manufacturers, and raw material suppliers, there are numerous vocational school courses offered which will help to qualify persons for advancement. There are even a limited number of correspondence courses available as training in the plastics industry. For those who wish college level courses, there are various degree and non-degree programs available.

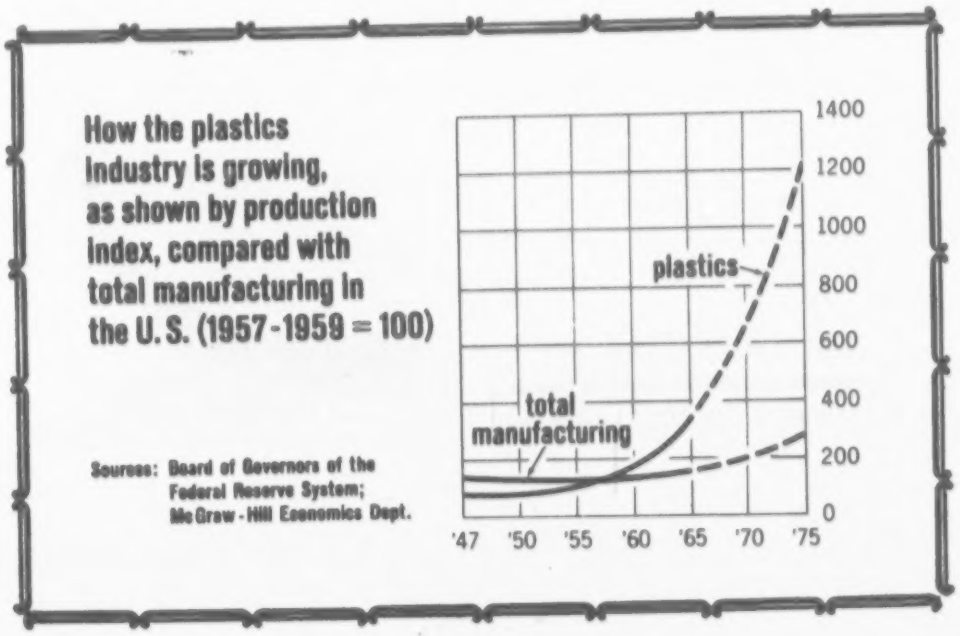
Industry representatives have stated that a serious shortage of trained personnel exists in plants of all sizes and in all parts of the nation. This shortage will grow more acute as the industry expands and will require more schools to institute training classes to provide the industry with pre-trained personnel. At the present time, if an individual is willing to accept the help and training that is available, he will find almost unlimited advancement is possible. It should also be noted that there are many jobs in plastics plants which are within the promotional reach of employees, but which have not been discussed in this booklet. Training, or previous experience, is a necessity for entry purposes in such jobs as production engineer or quality control technician. Many of the higher skilled occupations found in plastics plants are jobs which are found in any manufacturing activity and are therefore not unique to plastics plants.

TRENDS

CHAPTER FIVE

Fifteen years ago a dozen leading designers were asked to predict the plastics future. Responding to the request they predicted an all-weather stadium completely enclosed in plastic, as well as other innovations such as a one-piece bathroom, all-plastic telephone booths, modular furniture, and even a super-sized cross-country commuter train relying heavily on plastics. Every prediction made has become reality, but perhaps more important are the many technological advances plastics has contributed to that were not forecast those fifteen years ago. Or, indeed, the entirely new products that plastics alone made possible.

The plastics industry has reached a critical age today. It has changed from a small industry to a big industry and is rapidly becoming one of the largest in the world. Planning has never been as important to any industry as it is now to plastics. A critical element in such planning includes having an adequately trained work force to maintain the growth rate that plastics has established for itself. Other industries are requiring this growth rate of plastics in order to make maximum use of plastics capabilities in all production applications. As shown in the chart reproduced below, plastics is expected to far outpace U.S. averages over the next five years.

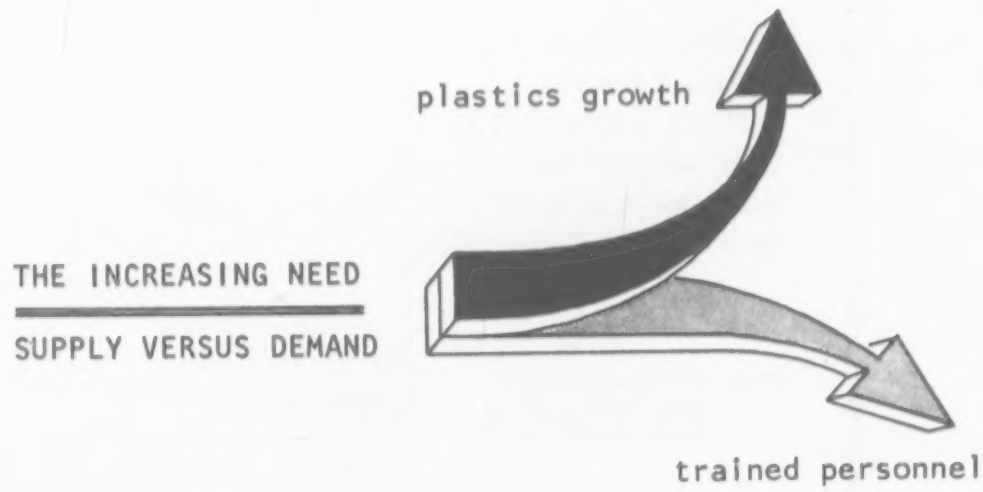


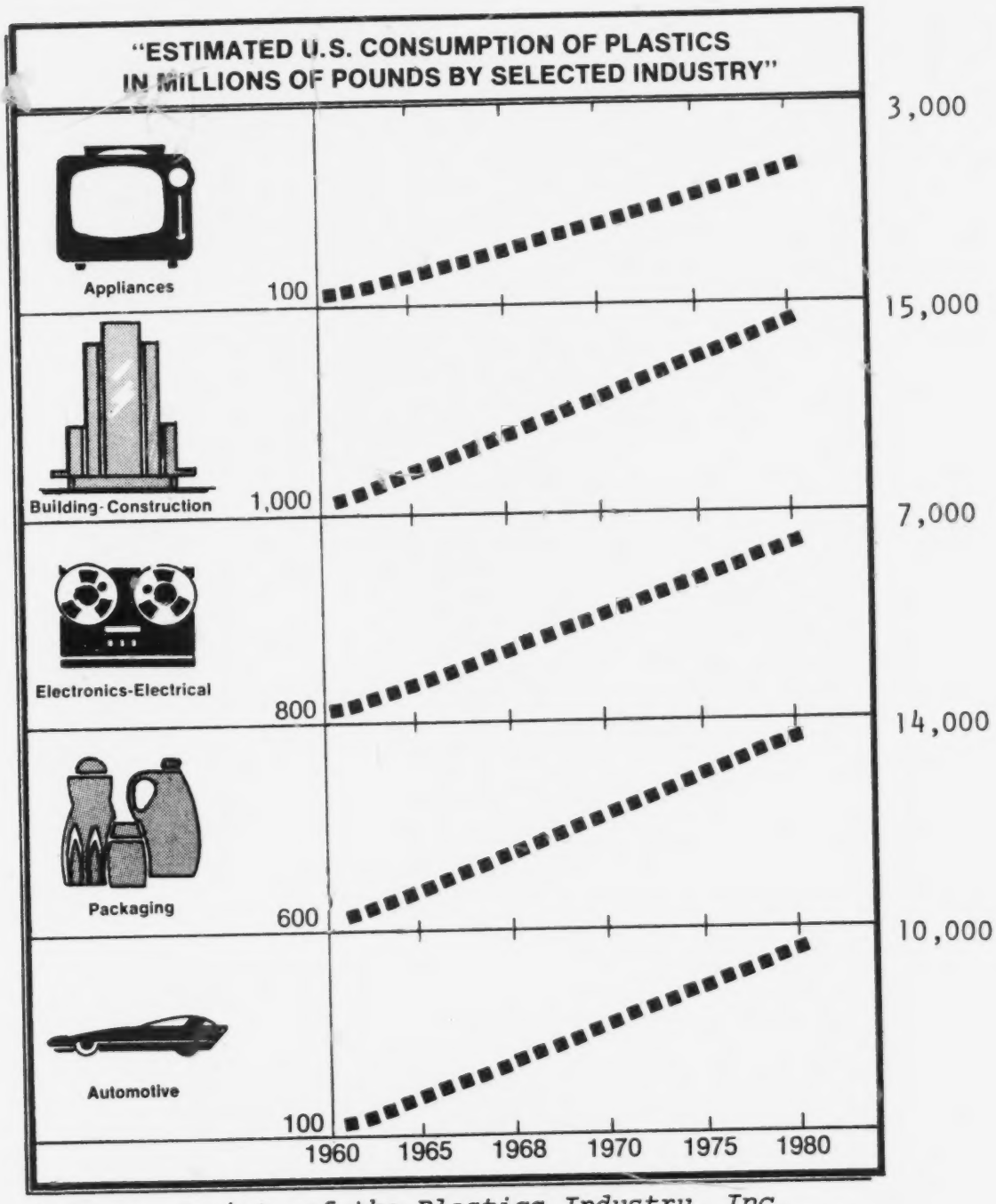
By mid 1980, world-wide production of plastics may reach 273 million tons, and increase over six times again by the year 2000. This means that plastics materials may dominate nearly three-quarters of the total materials market by that time. The U.S. production estimate includes over 40 billion pounds of plastics annually as we enter the 1980's.

Recent statistics report that the plastics industry has been growing at an annual rate of between 12 and 14%, three times that of all U.S. manufacturing. A chart is included to show plastics consumption by selected industries. It is interesting to take one industry, such as automotive and examine specific uses. In the 1967 model year, figures show that an average of 57 pounds of plastic were used in each car. We have now reached to over 200 pounds of plastic per car and if breakthroughs such as plastic cold-stamping occur, this figure could quadruple.

Basically, there will be three big plastics markets - construction, transportation, and packaging. It is entirely possible,of course, that the total of all the other "smaller" markets may equal or even surpass the larger ones. Such smaller markets include, for example, toys, furniture, housewares, and medical markets. For comparison purposes, one should realize that 500 million pounds of plastics were used in 1967.

The projections and comparisons could fill a book, an interesting book to those concerned with the market aspects of this industry. These comments have been included to form the relationship to the occupational outlook. Industry officials are very much concerned because the labor supply is not keeping pace with the growth rate at the present time - much less for 10 years hence.

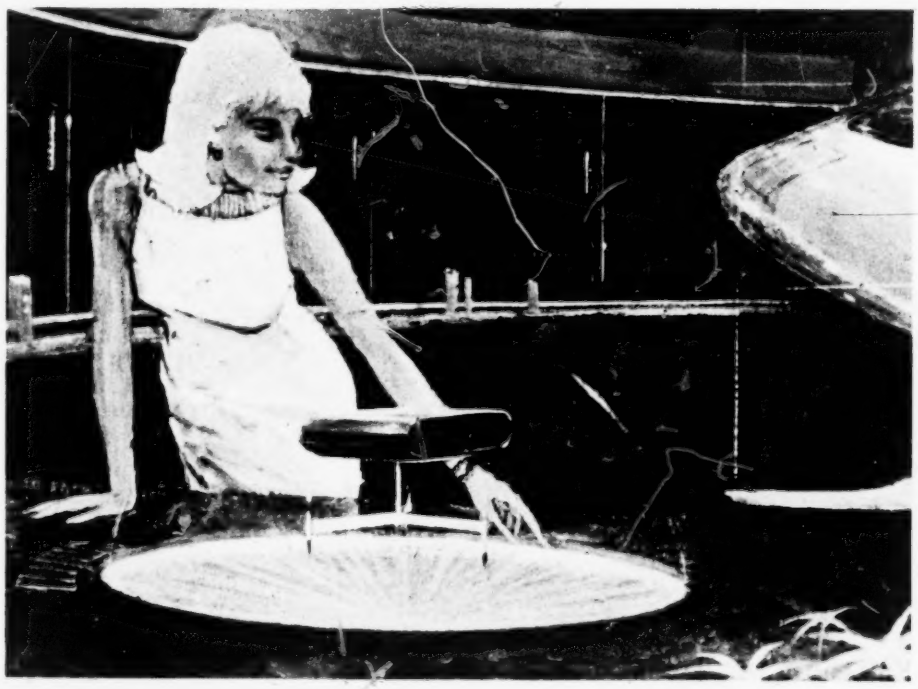




Source: Society of the Plastics Industry, Inc.

An important factor in the growth of the plastics industry is that plastics have not only replaced materials traditionally used, but have actually created entirely new markets and product applications never before possible.

Designers have made their predictions today just as they did fifteen years ago. They claim there will be computerized housework systems and more unit construction; more plastics in car bodies, and appliance revolutions.



...computerized housework...
Source: "MODERN PLASTICS"

These predictions can become reality only if sufficient labor is available to research, design, build equipment, and if the necessary work force is present to manufacture the products. Industry spokesmen are predicting that the work force will <u>not</u> be available unless action is taken now to interest and train potential employees. This industry today contains "ground floor" opportunities for those interested in a secure future in an expanding industry.

In the future more equipment will be automated to help fill the expected labor shortage, but the shortage will remain critical. In late 1968, a national survey was made of plastics plants to help define the shortages, then and for the future. A chart from that survey has been reproduced.

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5 YEAR LABOR SUPPLY FORECAST			
Replies By Company Size (No. of Employees)	There Will Be A Surplus	Just Enough to Cover Our Needs	Labor Will Be In Short Supply
Over 250	2%	19%	79%
101-250	1%	19%	74%
1-100	3%	23%	74%

Source: Society of the Plastics Industry, Inc.

The figures shown represent responses from the east coast to the west coast, which indicate the supply need will be uniform throughout the nation. Particular reference was made in this survey to the need for skilled employees. This includes mold-makers, set-up people, and quality control technicians. To help in filling these shortage occupations, the industry as a whole has provided equipment and raw materials for educational purposes to a variety of training centers, such as schools. All plants responding to the survey have listed skilled occupations as the most difficult to fill. In second and third place are the semi-skilled and technician positions.

An interesting fact from the survey shows that 71% of the plants would pay new *trained* employees higher salaries than non-trained. Over half claimed a willingness to pay from 10 to 19% extra for such new employees. The student who is interested in this industry should take as many plastics related school courses as possible.

There is no reliable figure to indicate how many thousands of additional employees will be necessary at a given point in time. However, it is safe to state that the majority of companies will be hiring more new people each year than they did the year before.

Additional information concerning educational data relative to the plastics industry may be obtained by writing to The Society of The Plastics Industry, Inc. at the address shown on the inside of the back cover.

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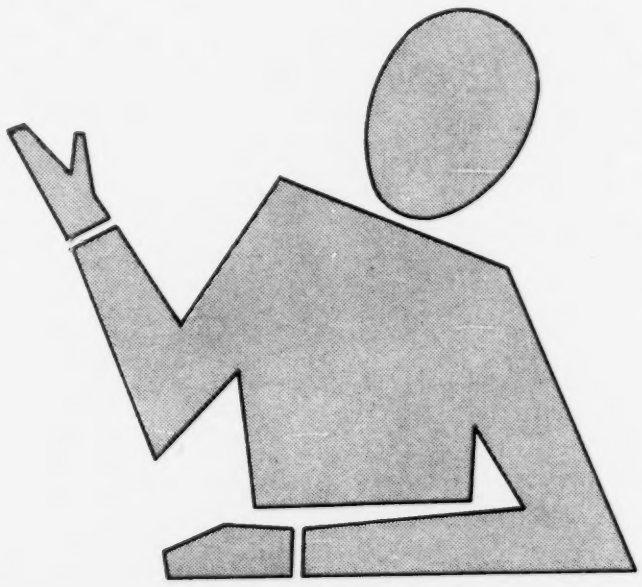
JOB LOCATOR

PLANT TITLE	*PAGE*	*D.O.T. TITLE*	*D.O.T. CODE* 1/
MOLDING MACHINE OPERATOR	13	INJECTION-MOLDING MACHINE TENDER	556.885
MACHINE OPERATOR	13		
OPERATOR	13		
FINISHER	16	FINISHER, HAND	754.884
ASSEMBLER	17	ASSEMBLER	754.884
MATERIAL HANDLER	17	LABORER, STORES	922.887
FLOORMAN	17	MATERIAL HANDLER	929.887
MIXER	17	MIXING-MACHINE OPR.	550.885
HAND FINISHER	20	LAMINATOR, PREFORMS	754.884
SET-UP MAN	21	MOLD SETTER	556.780
CYCLE ANALYST	21		
MAINTENANCE MAN	21	MAINT. MECHANIC II	638.281
TROUBLE-SHOOTER	21		
MOLD MAKERS	21	TOOL-AND-DIE MAKER	601.280



1/ *U.S. Department of Labor, Dictionary of Occupational Titles, Third Edition, Volume I. Washington: U.S. Government Printing Office, 1965.*

ADDITIONAL INFORMATION CONCERNING
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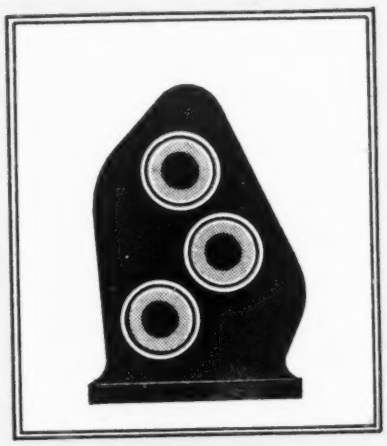

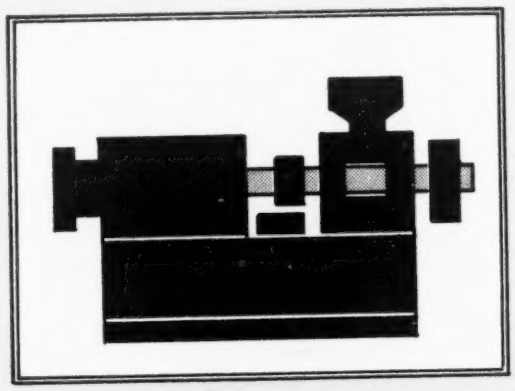

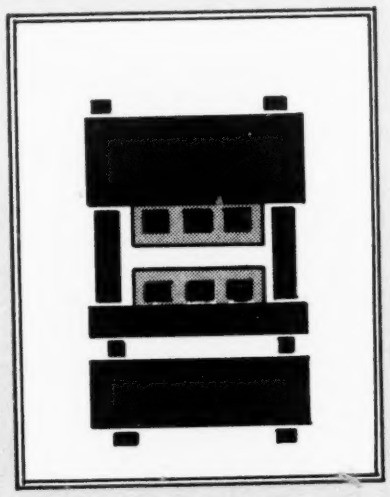

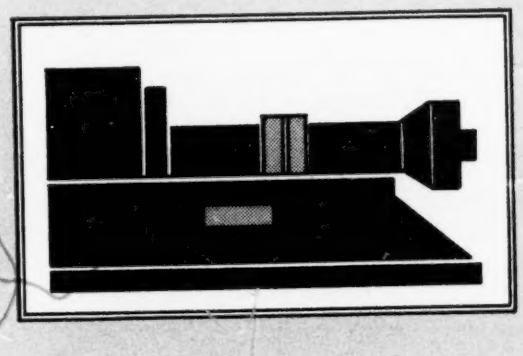

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VT 012 641
Collected Papers Prepared Under Work Unit
REPAIR: Training of Electronics Maintenance
Personnel. Professional Paper 27-70.

Human Resources Research Organization,
Alexandria, Va.
Department of the Army, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Mar70 41p.

DESCRIPTORS - *MILITARY PERSONNEL; TRADE AND
INDUSTRIAL EDUCATION; *EQUIPMENT MAINTENANCE;
TELEVISION REPAIRMEN; *COMMUNICATIONS;
VOCATIONAL DEVELOPMENT; EXPERIMENTAL
PROGRAMS; COURSE EVALUATION; MILITARY
TRAINING; FOLLOWUP STUDIES; ELECTRONIC
TECHNICIANS

ABSTRACT - During the years 1957-1960,
research was conducted at Alexandria,
Virginia by the Human Resources Research
Organization regarding the individual
maintenance jobs for Army Field Radio
Repairmen. The purpose was to collect data
that would be valuable in constructing
evaluations of the men, and in designing
experimental training courses. The articles
presented in this document include two
presentations at professional meetings and
two briefings concerning the development and
evaluation of training courses. The articles
are: (1) The Implementation of Functional
Context Training in a Radio Repairman Course,
(2) A Follow-Up Study of Experimentally
Trained and Conventionally Trained Field
Radio Repairmen, (3) The Development and
Evaluation of the Experimental Field Radio
Repairman Course, and (4) Comparison of
Experimental and Standard Course Graduates
after Field Experience. (GEB)

VT 012 641

ED0 572254

Professional Paper 27-70
November 1970

Collected Papers Prepared Under Work Unit REPAIR:

Training of Electronics Maintenance Personnel

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The Human Resources Research Organization (HumRRO) is a nonprofit corporation established in 1969 to conduct research in the field of training and education. It is a continuation of The George Washington University Human Resources Research Office. HumRRO's general purpose is to improve human performance, particularly in organizational settings, through behavioral and social science research, development, and consultation. HumRRO's mission in work performed under contract with the Department of the Army is to conduct research in the fields of training, motivation and leadership.

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Published
November 1970
by
HUMAN RESOURCES RESEARCH ORGANIZATION
300 North Washington Street
Alexandria, Virginia 22314

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Prefatory Note

In Work Unit REPAIR, Training of Electronics Maintenance Personnel, the Human Resources Research Organization collected comprehensive information about individual maintenance jobs for Army Field Radio Repairmen (MOS 296). Characteristics of equipment referrals and repairman procedures in troubleshooting and repair were obtained and used in constructing evaluations of the men, tests, and experimental training courses. The research took place during the years 1957-1960, and was conducted at Alexandria, Virginia, by HumRRO Division No. 1 (System Operations).

The papers in this collection include two presentations at professional meetings and two briefings describing the development and evaluation of training courses.

Because of the continuing relevance of the subject matter of these papers, they are being issued in a group as part of the HumRRO Professional Paper series. This series was initiated in order to provide permanent record of specialized aspects of HumRRO work, and deposit in the scientific and technical information storage and retrieval systems of the Department of Defense and the Federal Clearinghouse.

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THE IMPLEMENTATION OF FUNCTIONAL CONTEXT TRAINING IN A RADIO REPAIRMAN COURSE

George H. Brown

INTRODUCTION

Functional Context Training is an instructional method that developed from joint efforts of HumRRO and U.S. Army Signal School personnel. The essence of the method is that instruction generally proceeds in an analytic rather than a synthetic sequence. Instead of starting with basic principles or elements that are gradually combined into progressively more inclusive syntheses, instruction begins with the inclusive syntheses and proceeds analytically through progressively less inclusive syntheses. Basic principles are thus presented only after the contexts that make them meaningful to the student have been established.

In any training course designed to produce maintenance men, the broad functional context (or synthesis) that transcends all the instructional material is the maintenance job for which the student is being trained. Therefore, all instructional material should be explicitly related to the maintenance job. Any material that cannot be so related is judged to be superfluous to developing maintenance skill and should be excluded from the course. It should be noted that this principle requires the elimination of all instruction on the inner workings of replaceable components.

In conventional electronics maintenance courses, a considerable amount of time is devoted to (a) theory of electronics, and (b) generalized descriptions and explanations of circuit components. It is then explained how circuit components can be combined to produce circuits, how circuits can be combined to produce stages, and how stages can be combined to produce functional units such as radio receivers or transmitters. This might be called a synthetic or "build-up" approach. The relevance of much of this material to the repairman's job in the field is often not apparent to the beginning student.

In Functional Context Training, the approach might be described as analytic or "whole-to-part." Instruction begins with a consideration of an intact radio set and proceeds to consider in turn the set's progressively smaller subsections. In other words, the various subsections of the equipment are taken up in the sequence in which they would be encountered by a repairman in troubleshooting the equipment. Electronic fundamentals are presented only in the context of the maintenance job; they are introduced only after their relevance to the maintenance job has been established.

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FIELD RADIO REPAIR COURSE

The experimental Field Radio Repair course that was developed by HumRRO and the U.S. Army Signal School will be described in some detail in order to give a clearer understanding of the manner in which the Functional Context method may be employed in electronics maintenance training.

The complete course is 20 weeks in length. The first five weeks are devoted to "Fundamentals of Radio Repair" and the remaining 15 to instruction on a variety of specific Army radio sets. In the very beginning of the course, the student is given a general introduction to the fundamentals of radio communication. It is explained that a complete communication system consists of these elements: a source of energy, a transmitting device, a modulating device, a receiving device, a detecting device, and a reproducing device. With reference to Radio Set AN/PRC-6 (the Handie Talkie) each of these elements is pointed out and its function briefly explained. A simple block diagram is used to clarify the relations among the elements. No attempt is made at this point to explain how these elements perform their functions. The student is then given instruction and practice in the operation of the Handie Talkie.

Next, the student is introduced to a training device (a small transmitter and receiver with their associated power supply) which is used extensively throughout the first five weeks of the course. In accordance with the analytical or whole-to-part approach, the training device is first presented as an intact, complete, communication system. Progressively smaller subsections of this equipment are described in turn with emphasis always being placed on the relation of each subsection to the system as a whole.

After the student has been taught how to establish communication between the transmitter and the receiver of his training device, he is given instruction and practical exercises in sectionalizing troubles to each of these major components. At this point in the course, the student has achieved a general understanding of radio communication and has also learned to perform a basic step in troubleshooting, namely, sectionalization of trouble to major component. To continue the whole-to-part sequence of course organization, instruction is then devoted successively to each of the two major components, the receiver and the transmitter.

As the first step in the instruction on the receiver, the block diagram for that receiver is presented and explained. In order that the student may gain a fuller understanding of the block diagram and at the same time acquire certain troubleshooting and test equipment skills, he is then taught to use a signal generator in tracing signals through the receiver of the training device. Here he learns where the signal enters each stage, whether or not it is amplified by that stage, and where it leaves that stage. He learns that when he is unable to get a signal through a stage, that particular stage contains a fault. He also receives some instruction at this time in the interpretation of tube base diagrams. This is a first step towards learning to use schematic diagrams.

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The relevance of this instruction on signal flow and signal tracing to the repairman's job is then made explicit by appropriate practical exercises. The student is required to locate faulty stages in the receiver by means of signal substitution. The point is emphasized that troubleshooting is nothing more than the systematic elimination of those parts of a set which are functioning properly until the faulty part is found.

The next topic of instruction corresponds with the next step in troubleshooting, namely, checking the tubes within a faulty stage. The student is taught to check tubes both by simple substitution of good tubes and by means of the tube checker. He is then given extensive practice in locating and checking suspect tubes and in replacing them when necessary. This practice serves the following purposes:

(1) It enables the student to develop proficiency in this activity.

(2) It leads him rightfully to suspect that most troubles in electronic equipment are caused by bad tubes (this fact is, of course, confirmed by the instructor).

(3) It probably gives the student a measure of self-confidence concerning his ability to do repair work.

The student is next presented with a troubleshooting problem that does not involve a faulty tube. He thus finds that the knowledge and skills he has acquired to date are not sufficient for the solution of this problem. His need for additional knowledge and skill is thus brought forcibly to his attention. This is an excellent example of an important feature of Functional Context Training, namely, the establishment of a "need-to-know" certain instructional material before presenting that material.

Once a stage has been identified as faulty and the tube or tubes within that stage have been found to be satisfactory, the trouble must lie elsewhere within one of the circuits that comprise that stage. After learning this, the student is taught to check tube voltages by means of the volt meter to verify the identification of the faulty stage and to determine which circuit is faulty.

Next, the purpose or function of each stage in the receiver is explained, followed by a description of the troubles that are most common in that type of stage. Then, without going into great technical detail, an explanation is given of the manner in which that stage performs its function. Attention is also given to the effects that various component parts of that stage have upon its overall operation. Interspersed throughout this instruction are practical exercises in which the student performs troubleshooting down to faulty parts and/or alinement. This practice serves the following ends:

(1) It increases the student's proficiency in troubleshooting and alinement.

(2) It deepens his understanding of circuit operation.

(3) It increases his familiarity with the most common troubles that occur in that type of circuit.

These steps complete the instruction on the receiver of the training device, the transmitter is dealt with in a similar manner. The overall operation of the transmitter is explained prior to a consideration of the various stages, circuits, and parts of which it is composed. As with the receiver, important points are emphasized by appropriate troubleshooting exercises.

The last of the five weeks devoted to "Fundamentals of Radio Repair" is spent in reviewing and consolidating the information and skills taught up to that point. The value of periodic review is a well-established principle of educational psychology.

Experienced teachers of electronics maintenance courses may feel that many subjects which are essential for even a rudimentary understanding of circuit operation have been omitted in the preceding outline. Although the outline presented covers the bulk of the instruction given during the "Fundamentals" phase of the course, certain auxiliary topics were presented from time to time when this seemed necessary to support the main line of course development. Among the auxiliary topics were the following: simple electron theory; concepts of voltage, current and resistance; purpose and function of capacitors, resistors, and so forth; and the use of hand tools.

Instruction in the auxiliary topics also conformed to a maintenance orientation. For example: (a) Ohm's Law training de-emphasized arithmetical exercises and instead concentrated on giving the student a qualitative understanding of circuit relations such as the fact that voltage drops are larger across larger resistance values when current value is constant; (2) soldering practice was performed on chassis typical of those found in military radio equipment. These auxiliary topics were designed to parallel and supplement the main line of course development. For example, lessons on schematic symbols and schematic tracing were inserted immediately prior to the time that circuit tracing would be required in the main part of the course.

The final 15 weeks of the course consist of instruction on a variety of specific Army radio sets. Instruction on each set follows the whole-to-part sequence as described above.

In order to insure that the Functional Context method was adhered to in the construction of lesson plans, a set of guidelines was developed for use by the lesson plan writers and by the HumRRO staff in critically reviewing and revising the lesson plans. Since these guidelines may offer fuller understanding of Functional Context Training, they are presented here in their entirety.

PRINCIPLES FOR THE DEVELOPMENT OF LESSON PLANS FOR THE EXPERIMENTAL RADIO REPAIR COURSE

In the development of lesson plans, the following principles should be incorporated so as to meet the requirements set forth in the research plans.

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I. No material should be presented except that which is functionally related to

A. The preceding material on that equipment or the same subject area being taught (whole-to-part method).

B. The function of the equipment or part of the equipment being taught (functional context of the equipment).

C. The skills needed by the repairman to be able to operate effectively in the field situation (functional relation to the job).

This implies that

A. Only that theory which is necessary to do the repair job should be taught.

B. The lesson plans and practical exercises concerning each equipment item taught should incorporate the field study findings regarding the most common troubles repaired in the equipment.

C. Nice-to-know topics should be avoided.

II. As a means of determining whether the principles outlined in I above have been effectively utilized, it is suggested that the lesson plan writers ask the following questions with respect to each topic in their lesson plan:

A. Must the repairman know this material in order to be able to

1. localize the trouble.

2. repair the equipment.

3. replace defective parts.

B. Is this job

1. frequently performed on this equipment?

2. usually performed in this way?

3. an important part of the repairman's duties?

C. Is this material

1. easily understood at this time?

2. related to the preceding material?

3. related to the function of the equipment (or knowledge) being taught?

III. Lesson plans on the auxiliary subjects should include only that material necessary for the main line of course development and for the repairman to be able to function in the field. They should follow the same principles outlined in I above. In addition, where possible, they should be related to the main line of development so that they immediately precede the time

that such knowledge will be needed in the main line of development. (This is an ideal situation that will not always be possible to achieve if the continuity of the auxiliary subjects is to be maintained. Where it is not possible to do so, the auxiliary subjects should be presented so as to minimize the time between their presentation and their incorporation into the main line of development.)

IV. Materials in the lesson plans should always provide sufficient direction and guidance to the instructor so that he will be able to present what is intended for that lesson. The instructor should have all of the necessary information in outline form on the lesson plan so that he will never need to go beyond what is outlined.

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A FOLLOW-UP STUDY OF EXPERIMENTALLY TRAINED AND CONVENTIONALLY TRAINED FIELD RADIO REPAIRMEN

Robert Vineberg and George H. Brown

INTRODUCTION

The development and effectiveness of an improved Radio Repair Course for Signal Corps Repairmen, designed by HumRRO along the lines of an instructional principle called "Functional Context Training," proved to be superior in most respects to the standard course when the proficiency of the respective trainees was compared at graduation. We use the term "Functional Context Training" to refer to training in which every effort is made to provide a meaningful context for each item of information before it is presented to the student. The practical application of this principle meant that:

(1) In learning about any item of equipment, the various components were taken up in the same sequence in which they would be encountered by a repairman in troubleshooting the set, that is, a whole-to-part or analytic sequence was followed instead of the conventional part-to-whole or synthetic sequence.

(2) The trainee was presented with a succession of job-related tasks of increasing difficulty with each task requiring, for successful completion, that new knowledges or skills be acquired.

(3) Electronic fundamentals were taught within a maintenance context and were introduced only after their relevance to the maintenance job had been established.

(4) The only theoretical material taught was that which could be shown to have explicit implications for maintenance work.

THE EXPERIMENT

In a follow-up study, 83% of the graduates of both the standard and the experimental courses were tested, after approximately nine months on the job, with the same battery of proficiency tests that they had taken at the time of graduation. Most of the tests in the battery were individually administered performance tests which required the subject to work on actual electronic equipment. About half of the original trainees had not done enough repair work to make their test scores worth considering. Only men with a minimum of one month of full-time experience repairing field radios were included in the analysis. Forty-seven standard and 46 experimentally trained men met this criterion.

RESULTS

At the time of graduation, the experimental trainees had been dramatically superior to the standard trainees on the most important tests in the battery. After an average of nine months in the field, this superiority was no longer evident. The experimental trainees showed, on the average, some deterioration while the standard trainees showed, on the average, some improvement. Whereas the experimental trainees had been significantly superior to the standard trainees on a troubleshooting test, a test-equipment test, a hand-tools test, a schematics test, and a paper-and-pencil test of maintenance information, in the follow-up study they maintained their superiority on only the schematics and the paper-and-pencil achievement test. On all of the remaining tests of the battery, the two groups achieved substantially equivalent scores.

Further analyses suggested that the experimental trainees with less than six months of full-time experience in the field had not had enough realistic experience to keep their skills from deteriorating. Men with more than six months of full-time field experience had been able to practice their skills sufficiently so that at testing their scores were substantially the same as they had been at graduation. It was, then, experimental trainees with less than six months of full-time field experience who were responsible for the performance decrement observed in the group of experimental trainees as a whole.

Even though the standard training was oriented around electronic theory, the standard trainees were not superior to the experimental trainees on those tests most concerned with theoretical material, either at graduation or after an average of nine months of field experience. It seems reasonable to assume, therefore, that during this time they were doing little more than catching up with the experimental graduates.

CONCLUSION

While Functional Context Training produced radio repairmen who were superior at the time of graduation, their superiority had largely disappeared after an average of nine months in the field. We suspect that there are, in general, two reasons why differences induced by training tend to blur over time: (a) because men may not have sufficient practice on the job for which they have been trained; and (b) because, regardless of the type of training they may have had, men do have a chance to learn the job after they have been assigned to it.

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REPAIR III: THE DEVELOPMENT AND EVALUATION OF THE EXPERIMENTAL FIELD RADIO REPAIRMAN COURSE

George H. Brown

INTRODUCTION

This paper on Work Unit REPAIR has as its main purpose a description of a new course of instruction, developed jointly by the Signal School and HumRRO, for the Field Radio Repairman. On the basis of an experimental evaluation of the new course, HumRRO has recommended that the Signal Corps adopt the new course in place of the present one.

WORK UNIT REPAIR RESEARCH PROGRAM

The development and evaluation of the new course constitutes the third phase of Work Unit REPAIR, a long-range research program, sponsored by the Office of the Chief Signal Officer, and directed at improving the training of Signal Corps electronics maintenance specialties. REPAIR I consisted of a field survey of the activity of the field radio repairman and was designed to obtain information to aid in the construction of a new training program where school training would be related as closely as possible to actual job requirements. In REPAIR II an objective field performance test battery was developed to be used as a criterion in evaluating the experimental course. The development and evaluation of the experimental course itself, or REPAIR III, is the subject of this paper.

DESCRIPTION OF EXPERIMENTAL AND STANDARD COURSES

The broad objective of both the standard and the experimental (new) course is to train personnel to perform field and depot maintenance and repair of field radio equipment. The general features of the new course and the ways in which it differs from the standard course may be characterized as follows:

(1) Primary emphasis is given to the recognition and correction of the most common troubles in the most frequently repaired items of equipment. This emphasis is based on the assumption that mobilization needs make essential the training of repairmen who will be able to perform at an acceptable level of proficiency immediately upon completion of training. This assumption is at variance with the view of training as the development of long-range potential realizable only after considerable on-the-job training.

(2) A more maintenance-oriented frame of reference has been adopted for teaching course subject matter. This includes such features as a replication of shop maintenance flow and the use of realistic malfunctions for practical exercise instruction.

(3) Emphasis is placed upon providing the repairmen with a systematic troubleshooting procedure. Such a procedure stresses the optimal use of technical publications, particularly the troubleshooting check charts and alinement procedures which they contain.

(4) The principles of a training method known as Functional Context Training are incorporated. The essential features of this method are:

   (a) A functional, maintenance oriented context is clearly established for, and prior to, each block of instruction concerned with theoretical material. No theoretical material is presented except that which can be shown to have explicit implications for maintenance work.

   (b) The trainee is presented with a progressive series of job-related tasks—each of which requires, for successful performance, that the trainee increase his knowledge of certain theoretical principles or that he acquire new skills.

   (c) In teaching any equipment item, the various components are taken up in the same sequence in which they would be encountered by a repairman troubleshooting an item of equipment—that is, a whole-to-part sequence is followed.

Summary descriptions of the experimental and standard courses in terms of the number of hours which each devotes to various major topics is shown in Table 1.

The total number of hours of instruction for both the experimental and the standard course was 736 academic hours, or approximately 20 weeks. Ordinarily, training for the Field Radio Repairman lasts 25 weeks. However, during the period this research was being conducted, the Signal School was authorized to switch to a 20-week standard course in order to fill an urgent requirement for more repairmen in the field. To compare the effectiveness of the contents of the experimental and standard courses, an experimental course of 20 weeks' duration had to be constructed.

Table 1 shows that there are two major blocks of instruction, Fundamentals of Radio Repair, and Military Communication Equipment Instruction. In the first major block of instruction it can be seen that the experimental course devoted only 32 hours to Basic Electronics while the standard course devoted three times as much to that topic. Basic Electronics refers to instruction of a fairly abstract nature on such topics as concepts of voltage, current, resistance, and vacuum tube action.

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Table 1

Comparison of Experimental and Standard Courses

Topic	Hours of Instruction	
	Experimental Course	Standard Course
Orientation to The Signal School	6	6
Fundamentals of Radio Repair		
Basic Electronics	32	90
Test Equipment	13	16
Characteristics, Preventive Maintenance, Operation and Alinement of Trainer Equipment	29	14
Troubleshooting and Schematic Diagram Training	78	33
Parts Replacement Training	15	7
Examination Time	5	12
Military Communication Equipment Instruction		
Advanced Electronic Theory	16	10
Characteristics, Operation, and Preventive Maintenance Training	68	71
Purpose and Function of Major Stages and Schematic Diagram Analysis	157	187
Alinement and Equipment Troubleshooting	168	177
Parts Replacement Training	13	0
Examination Time	52	51
Depot	97	62
Total Academic Hours	736	736
Total Weeks	20	20

On Characteristics, Preventive Maintenance, Operation, and Alinement of Trainer Equipment, the experimental course spent much more time than the standard (29 hours vs. 14 hours). As trainer equipment the experimental course utilized a small transmitter and a receiver which together constituted a miniature communication system.

On Troubleshooting and Schematic Diagram Training, the experimental course spent 78 hours and the standard course only 33. Under this topic, the experimental subjects had almost daily practice in elementary troubleshooting problems and in circuit tracing within the training equipment. (It is of interest to note, in this connection, that the experimental subjects had their first experience in elementary troubleshooting on the first day of the course. After having been instructed on the techniques of testing batteries, they were sent out of the classroom and told to communicate with each other using a Handie-Talkie with which they were provided. Some of the sets would not function because they contained dead batteries. It was up to the student to diagnose and replace the defective battery, which indeed some of them did.)

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This early experience was designed to give the students a troubleshooting orientation at the very outset of the course and to create a feeling of self-confidence about maintenance work. In contrast, the standard course subjects had their first troubleshooting experience in the fourth week.

On Repair and Parts Replacement Training, the experimental course spent 15 hours and the standard course 7 hours. These figures represent time spent in closely supervised instruction in the use of hand tools, particularly the soldering iron, in removing resistors, capacitors, leads, and so forth.

Throughout the "Fundamentals" section of the experimental course, stress was placed upon fundamentals of radio repair rather than on fundamentals of radio. A repair sequence was followed in which the operation of a single communication system was taught first, then procedures for sectionalizing defects to a transmitting or receiving unit, and finally procedures for isolating defective parts. The experimental students thus *learned* their fundamentals in the same sequence in which they would *apply* them in the repair situation.

In the second major block, Military Communication Equipment Instruction, men were instructed on particular radio sets that they might later encounter in the field. There were no major differences in time allotments with the exception of Parts Replacement Training to which the experimental course devoted 13 hours and the standard course none.

Table 2 provides a more meaningful comparison of the Military Communication Equipment portions of the two courses. It shows the particular equipments taught in each course and the number of hours devoted to each.

Table 2

Coverage of the Various Equipments in the Two Courses

Equipment	Number of Hours	
	Experimental Course	Standard Course
AN/GRR-5	4	38
AN/GRC-9	4	38
AN/TRC-1	114	38
PRC-6 & 10	54	38
AN/GRC-3-8	114	114
AN/GRC-10	4	38
AN/TRC-24	114	76
AN/GRC-26	76	76
AN/GRC-19	4	38
Total Hours	488	494

It is evident that the same equipments were taught in both courses. However, the two courses differed considerably in the relative emphasis

given to each set. The standard course attempted fairly complete, intensive coverage of all nine sets listed while the experimental course gave intensive instruction on only five sets. These five particular sets were selected because (a) they had been found in the REPAIR I field study to have a high incidence of repair, and (b) they were judged by Signal Corps training authorities to be either representative of many other pieces of radio equipment, or excellent (AN/TRC-1) training vehicles. The experimental course gave only four hours familiarization training on the four remaining sets.

Finally, the equipment instruction given in the two courses differed in three other ways:

(1) The experimental course emphasized the most common troubles and trouble symptoms of each set; this information had been provided by the REPAIR I Field Study.

(2) The orientation of Functional Context Training was maintained throughout this section of the course. Each set was taught in a whole-to-part sequence in which the student was first familiarized with the operating characteristics of the set as a whole before being instructed on its major components, circuits, and parts. The students received almost daily practice in troubleshooting each set, first in sectionalizing to major components, then in localizing to stages and, finally, in isolating faulty parts.

In contrast, the standard course used just the opposite procedure. The traditional approach was pursued of teaching first the electronic characteristics of particular circuits and stages, then the various chassis, and finally the set as a whole.

(3) The experimental course students received daily practice in Repair and Parts Replacement Training with reference to each set under study. The standard course students, on the other hand, received no training of this kind in this section of the course.

RESEARCH DESIGN

In order to determine the effectiveness of the new course, men who had been directed through ordinary Army assignment procedures to begin training in Field Radio Repair during the period 6 November 1957 - 22 January 1958 were divided into two groups matched with respect to (a) EL score, (b) civilian education, (c) pre-Army electronics experience, and (d) interest in taking the course. One group of trainees received the experimental course and one group received the standard course.

Since normally one class would begin training each week, it was not practicable to hold up all of the classes in order to have available the entire pool of subjects who would participate in the study. As a compromise with this ideal arrangement, alternate weeks' classes were held up for one week so that a two-week supply of students could be divided into a pair of matched classes.

Upon graduation, both groups (consisting of 86 men each) were compared on the Repair Proficiency Battery. The battery consists of seven tests, each of which measures a different aspect of the job. Most of the tests are individually administered and require the subject to work on actual electronic equipment. To administer the entire battery required approximately 10 hours. Table 3 describes each test.

Table 3

The Field Radio Repair Proficiency Test Battery

Test	Ability Measured	Sample Item
Troubleshooting	To locate troubles in field radio equipment	This set is faulty. You have 10 minutes to tell whether the trouble is in the receiver or the transmitter.
Test Equipment	To use electronic test equipment.	Measure the cathode voltage of V102 using the TS-352.
Repair Skills	To use small hand tools in repair jobs	Remove and replace the capacitor from the middle pins of the lower deck of the terminal board.
Alinement	To aline radio sets following standard procedures	Completely aline this AM-FM receiver on Band 1.
Manuals	To locate and understand information contained in technical manuals	What is the voltage between pin 1 of V5 and ground?
Schematics	To locate and understand information contained in schematic diagrams	What are the AC and DC voltages between point A and ground on L20 when no signal is applied to the antenna?
Achievement	Knowledge of correct troubleshooting and repair procedures	Which voltmeter range should you use in measuring a voltage that is indicated to be 29 volts DC under normal conditions?

TEST RESULTS

The experimental course graduates were found to be significantly superior to the standard course graduates in the following tests: Troubleshooting Test, Test Equipment Test, Repair Skills Test, and the Achievement Test (Table 4). Neither group was significantly superior in the Manuals Test, Schematics Test, and Alinement Test.

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Table 4

Experimental Results

Students	Performance Tests	Paper-and-Pencil Tests
Experimental Students Superior on:	Troubleshooting Test Equipment Repair Skills	Achievement
No Significant Difference Between Standard and Experimental Students on:	Alinement	Manuals Schematics

Each of the various tests which comprise the Repair Proficiency Battery were designed to measure a different aspect of field proficiency, and the intercorrelations among the tests are relatively low. Therefore, no composite index of proficiency is appropriate. The experimental and standard course graduates must be compared separately on each of the seven tests.

Troubleshooting Test

The troubleshooting test is designed to measure the repairman's ability to locate trouble in field radio equipment. Figure 1 makes evident the marked superiority (i.e., higher scores) of the experimental subjects. For example, in the top half of the score range (56-96) there

Troubleshooting Test *(Performance of Experimental and Standard Course Graduates)*

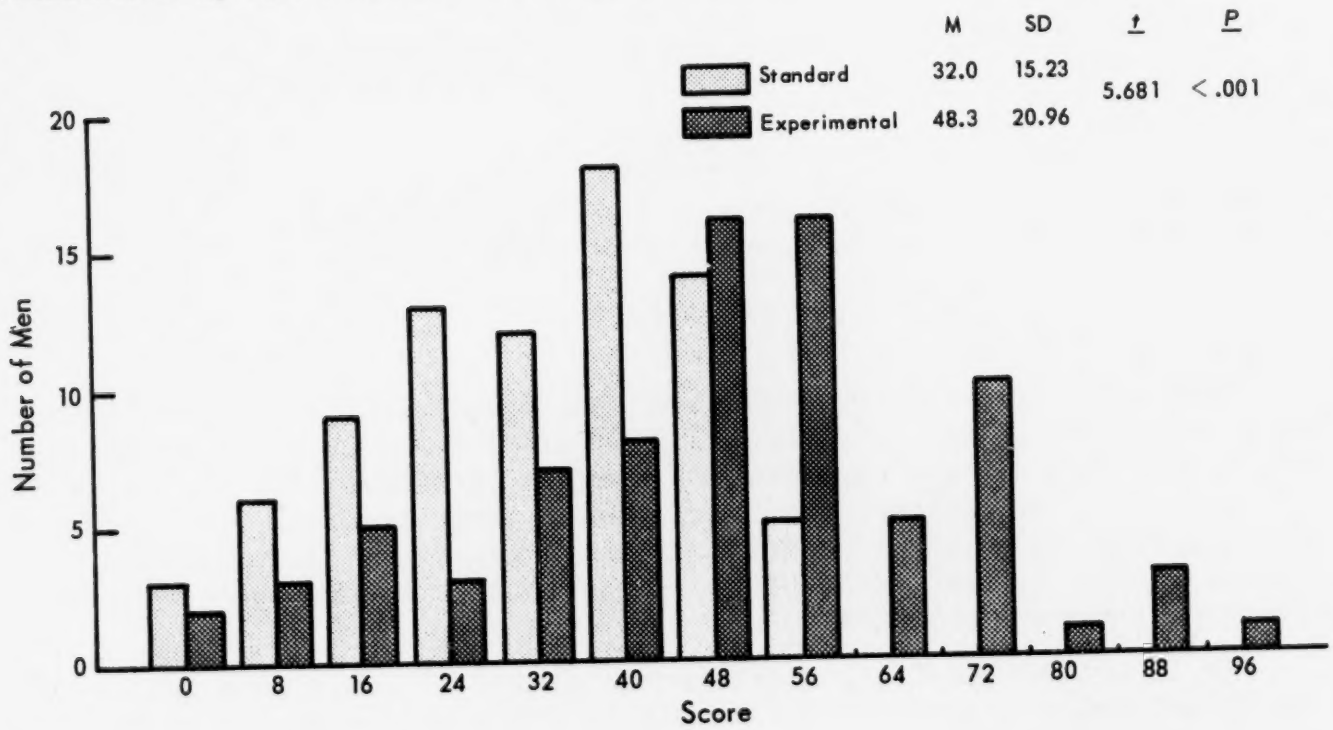

Figure 1

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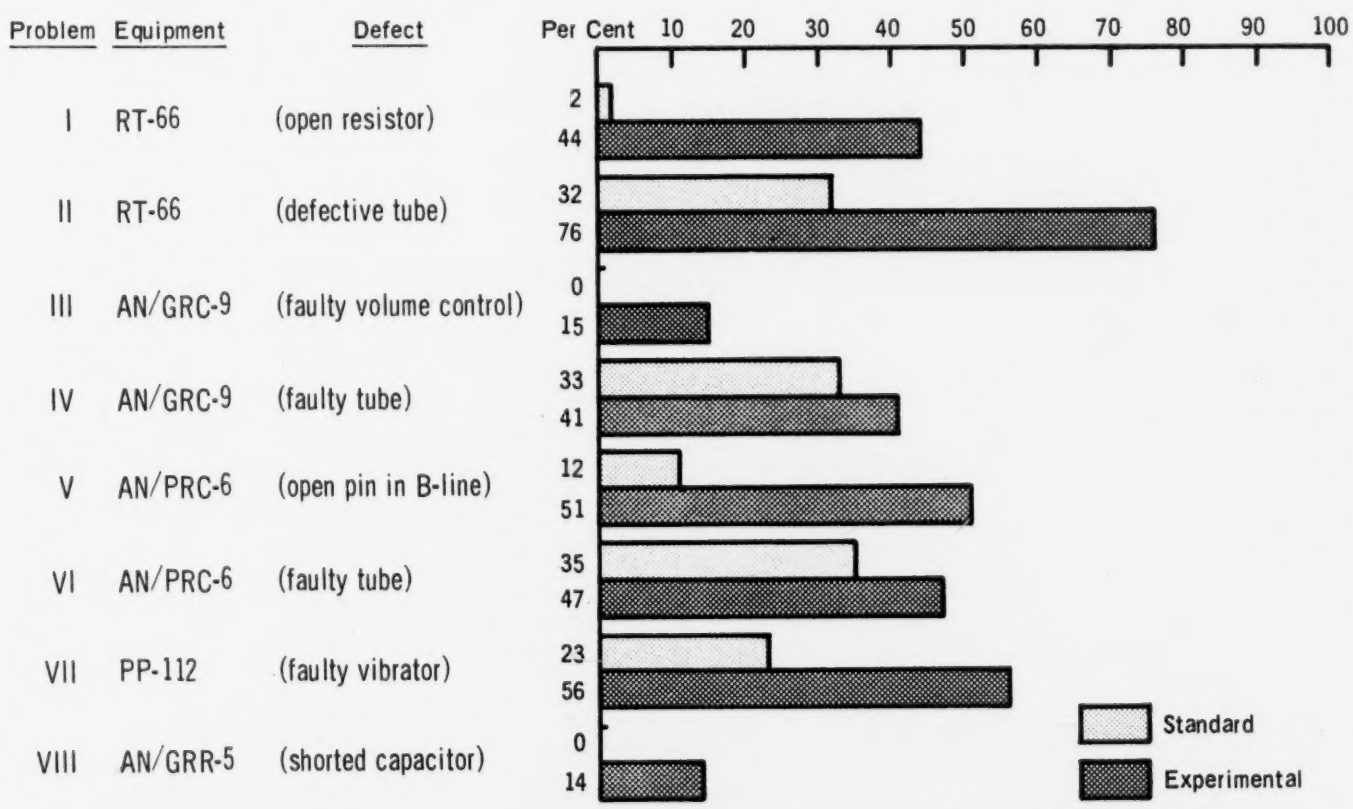
are 37 experimental subjects and only five standard course subjects. Statistical analysis showed that a difference of the size obtained here is highly reliable.

Because of the importance of troubleshooting in repair work, let us look at another analysis. Figure 2 compares the performance of the two groups on each of the eight problems that comprise the Troubleshooting Test. These bars represent the percentage of men in each group who solved correctly all phases of each problem.

Troubleshooting Test *(Percentage* of Each Group Who Solved Each Problem)*



* The number of subjects in each group who received each problem ranged between 37 and 43. Each individual problem, however, was administered to the same number of men in each group.

Figure 2

With every problem, regardless of the equipment involved, there were more experimental than standard course subjects who obtained solutions. The superiority of the experimental group on problems III, IV, and VIII is especially impressive, for these students received only four hours of familiarization training on the equipments involved. The standard course students received 38 hours of instruction on each of the sets involved in these problems.

It is evident that the experimental course students were better able to troubleshoot these particular sets in spite of the fact that they were relatively unfamiliar with them. This, in turn, suggests that they were able to transfer their general troubleshooting skills, acquired on other equipments, to the problems of troubleshooting these relatively unfamiliar sets—a very desirable training outcome.

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Test Equipment Test

The Test Equipment Test is designed to measure the repairman's ability to use electronic test equipment. Again, as is evident from Figure 3, the experimental group was superior to the standard group. Statistical analysis confirmed this.

Test Equipment Test *(Performance of Experimental and Standard Course Graduates)*

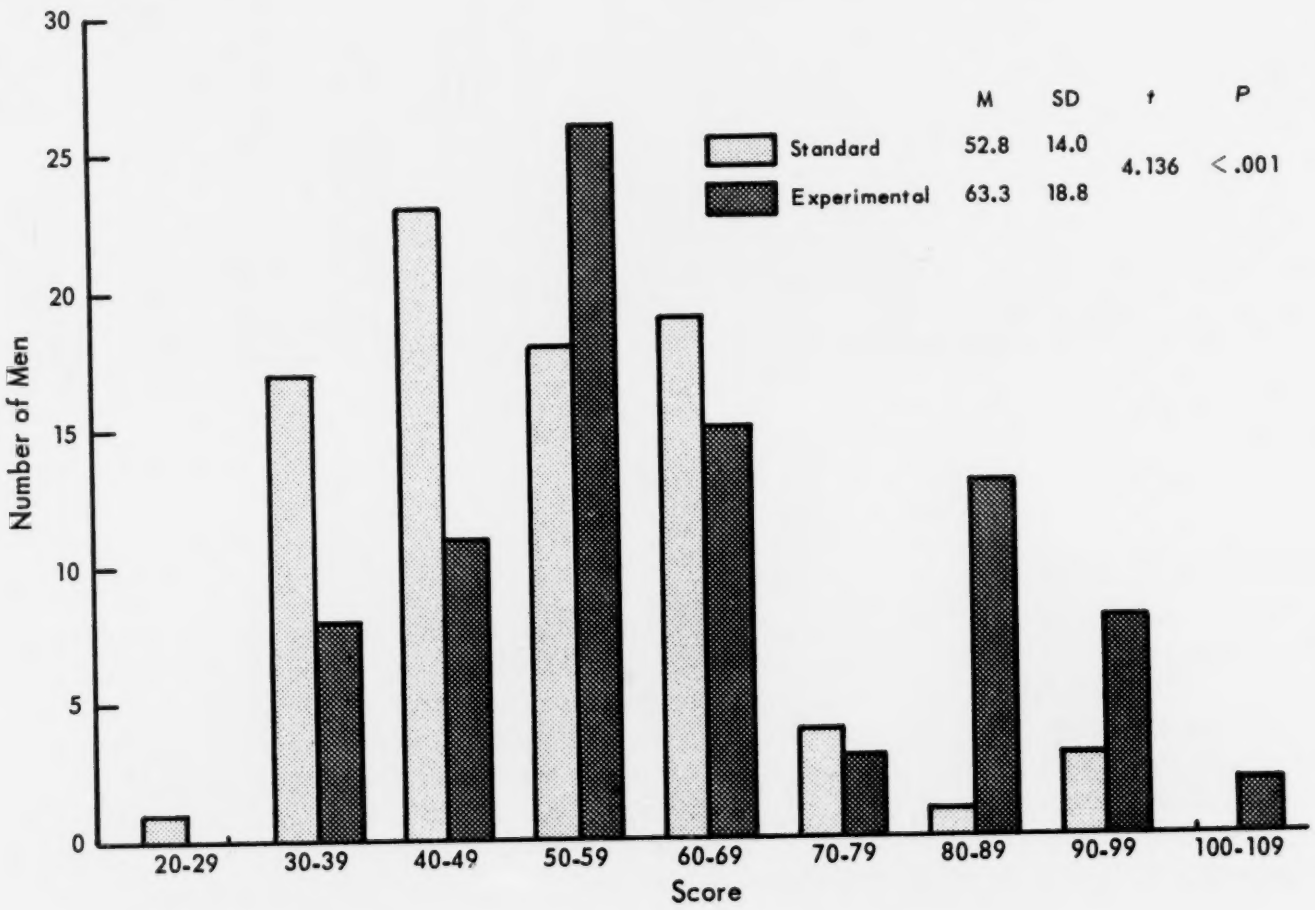

Figure 3

Repair Skills Test

The Repair Skills Test is designed to measure the repairman's ability in the manipulative or mechanical aspects of repair work, particularly in the use of the soldering iron. It is obvious from Figure 4 that both groups score high—in an absolute sense. That is, the vast majority of both groups obtained scores in the upper half of the distribution. However, a perfect score (96) was obtained by seven experimental subjects but by *none* of the standard subjects. And, overall, the experimental students obtained reliably higher scores.

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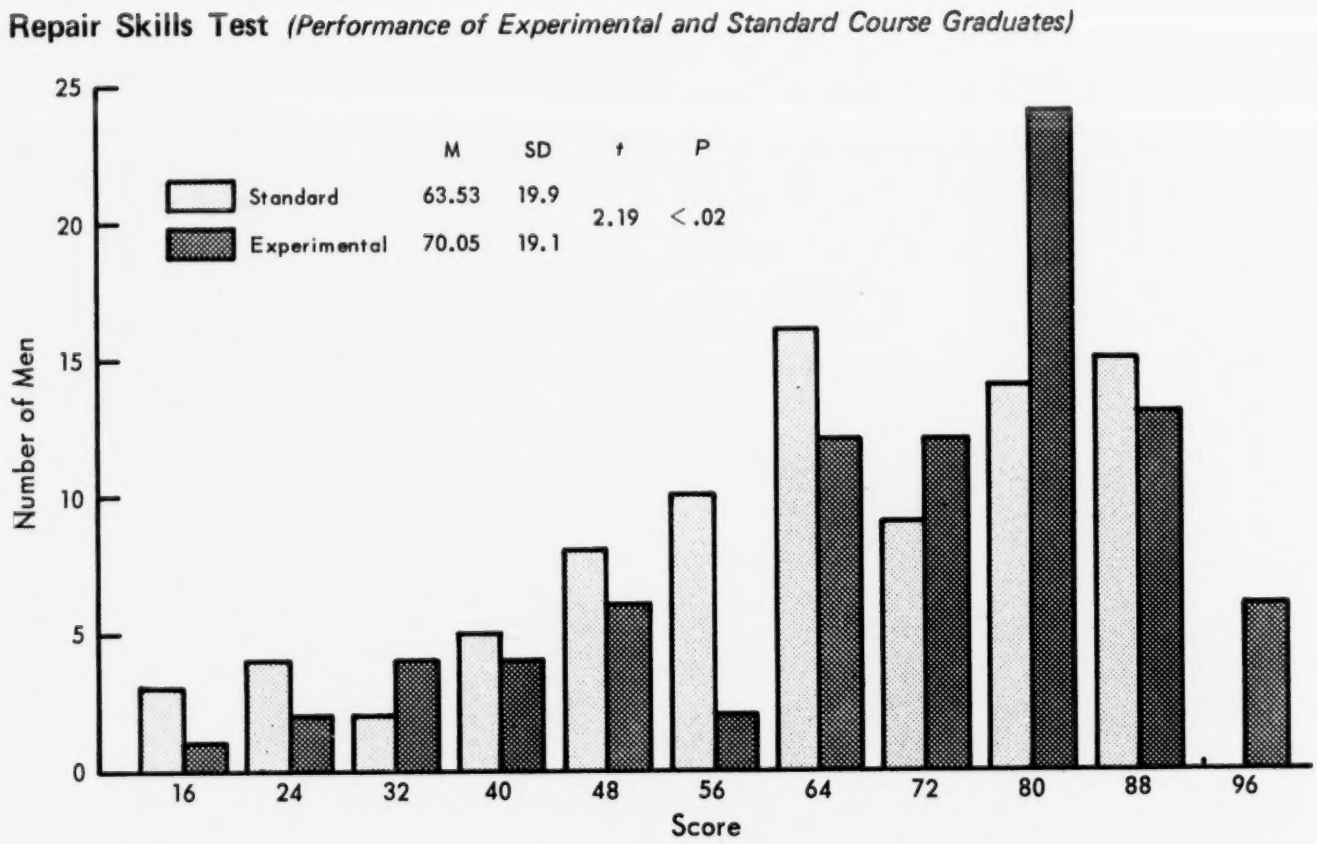

Figure 4

Achievement Test

The Achievement Test is a paper-and-pencil test designed to measure the repairman's knowledge of correct troubleshooting and repair procedures. It consists of 77 questions distributed among these topics: troubleshooting, use of schematics, electronic theory, use of test equipment, operational checks, alinement, and miscellaneous topics. Statistical analysis of the distributions in Figure 5 shows that the mean Achievement Test score of the experimental subjects is significantly superior to that of the standard subjects.

Alinement Test

As the name implies, the Alinement Test is designed to measure the repairman's skill in alining or adjusting radio sets. The student is directed to completely aline a band of an AM-FM superheterodyne receiver. As shown in Figure 6, the experimental group did slightly better than the standard group. This difference, however, was *not* statistically reliable.

Manuals and Schematics Tests

These two tests should be discussed together since they are highly similar and yielded similar results. They are both paper-and-pencil tests which measure the repairman's ability to locate and understand information in technical manuals and schematic diagrams, respectively.

Achievement Test *(Performance of Experimental and Standard Course Graduates)*

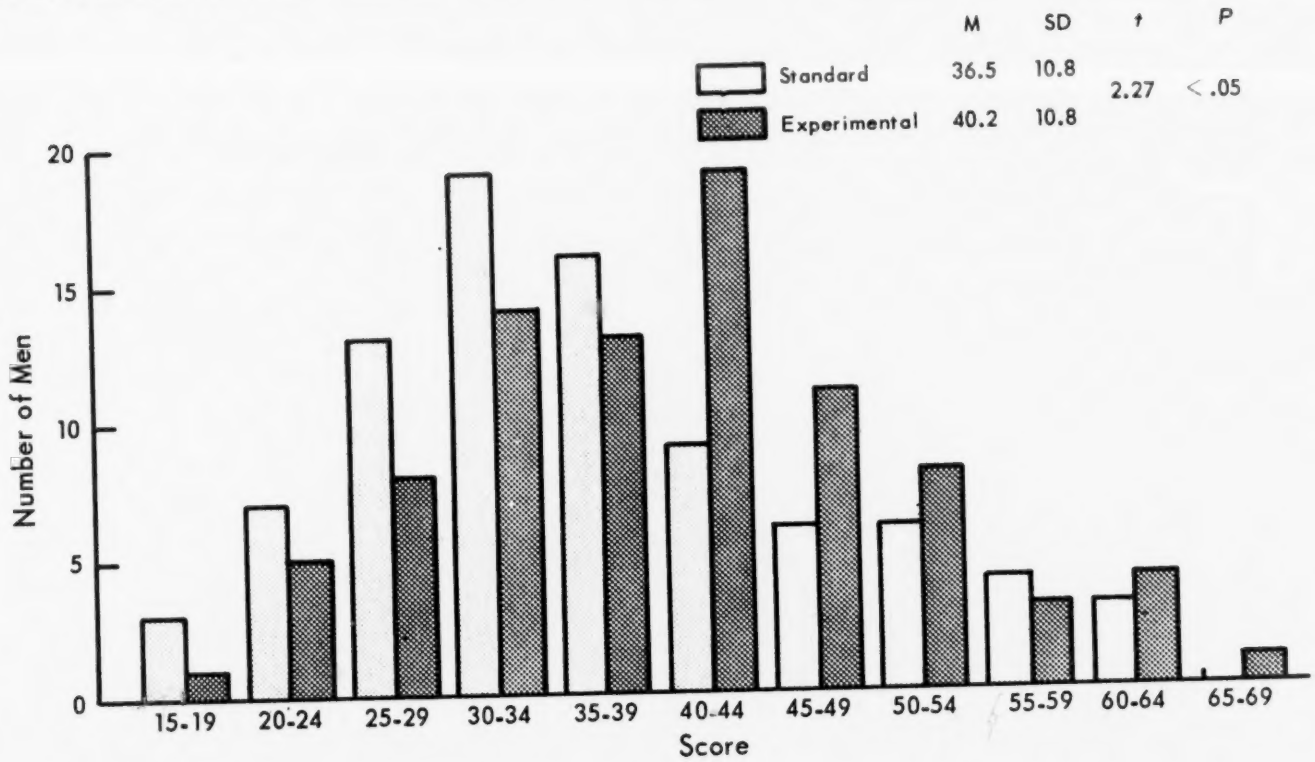

Figure 5

Alinement Test *(Performance of Experimental and Standard Course Graduates)*

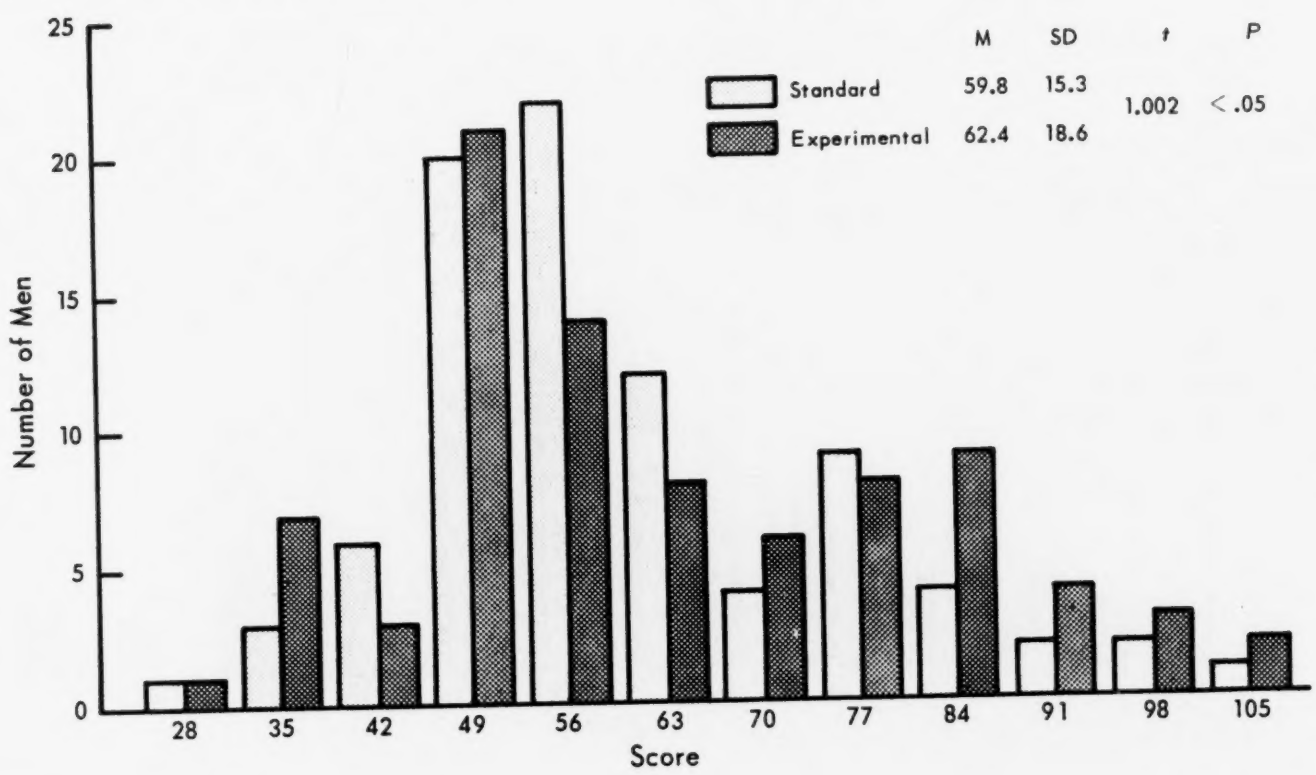

Figure 6

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Figures 7 and 8 show the performance of the two groups on these tests. It is evident that the groups are highly similar on both tests.

Manuals Test *(Performance of Experimental and Standard Course Graduates)*

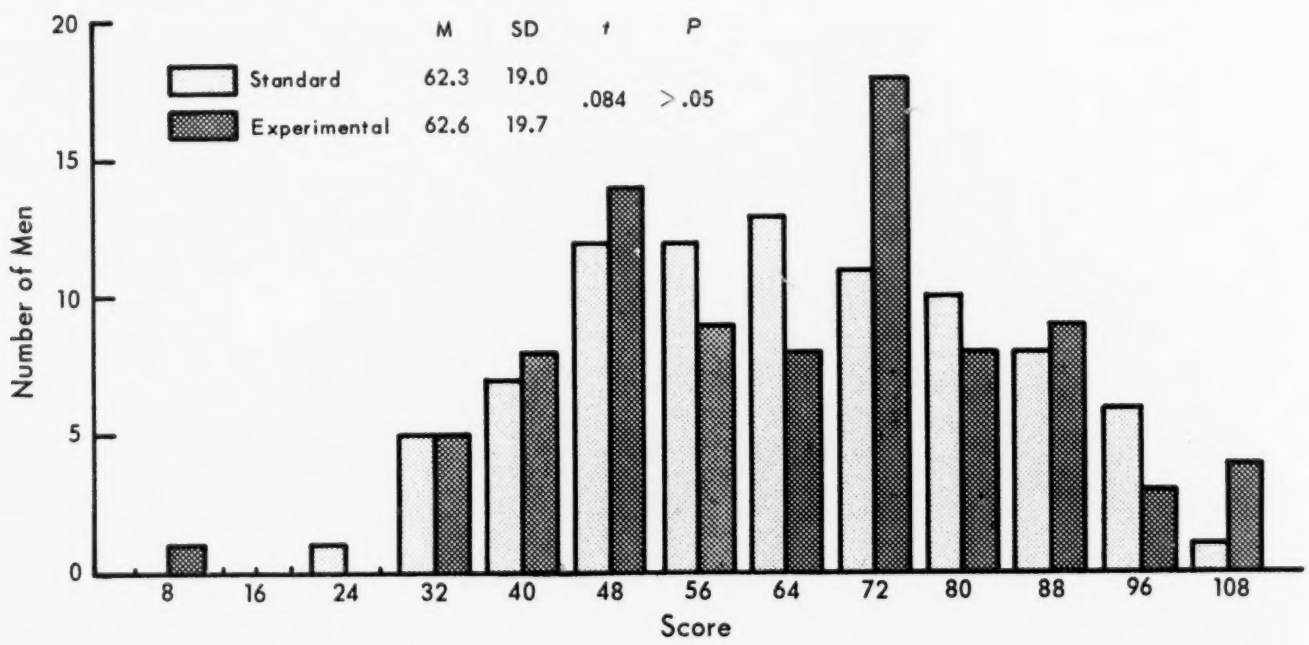

Figure 7

Schematics Test *(Performance of Experimental and Standard Course Graduates)*

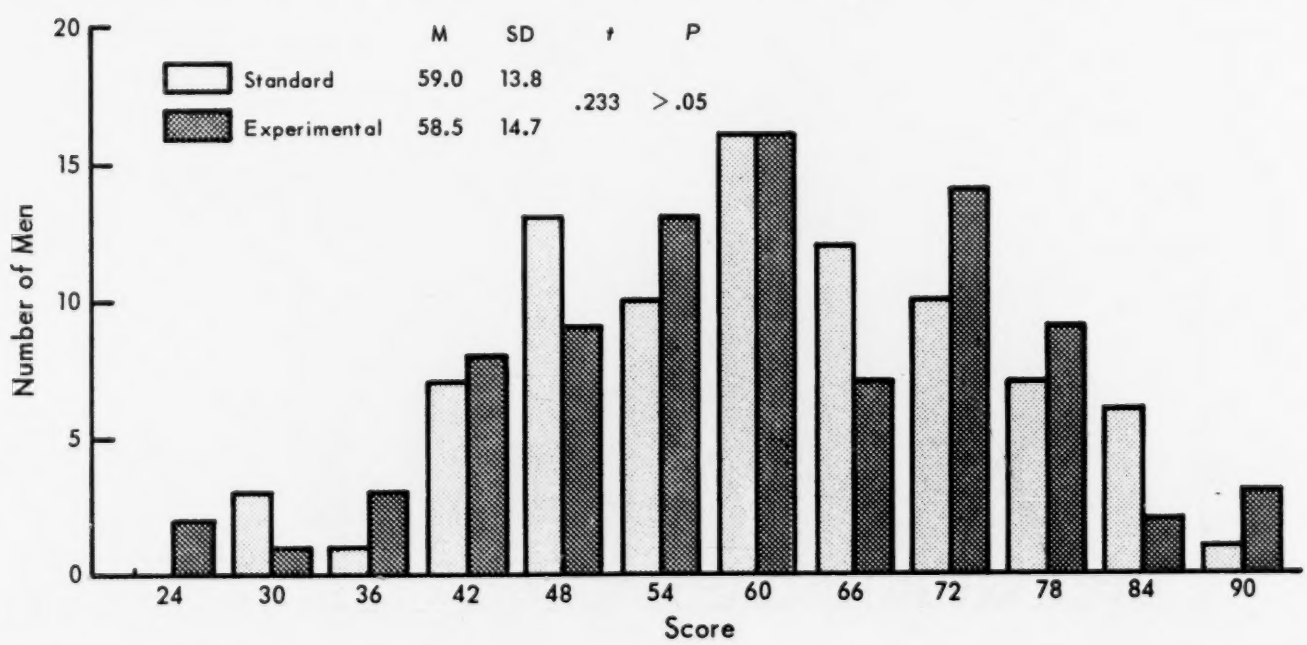

Figure 8

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There is no tendency whatsoever for either group to be superior to the other. In view of the content of the two courses, this is not surprising. Although in the experimental course the students were urged to regard technical information sources as indispensable aids in the troubleshooting of unfamiliar equipment items, they were not given more practice than the standard course subjects in using TMs and schematics.

SUMMARY

The U.S. Army Signal School and HumRRO have jointly developed a revised training course for the Field Radio Repairman (MOS 296). The new course differs from the standard course in two principal ways:

(1) It incorporates field study data indicating the relative emphasis which different equipments and maintenance activities should receive.

(2) It embodies an instructional orientation termed Functional Context Training.

In order to evaluate the new course, 86 men were each trained in the experimental and the standard courses and compared on the Repair Proficiency Test Battery immediately upon graduation.

The experimental course graduates were found to be distinctly and reliably superior to the standard course graduates on the Troubleshooting Test; Test Equipment Test; Repair Skills Test, and the Achievement Test. The first three of these tests are strictly job-oriented performance tests whose validity it is difficult to question since they are job-sample tests. That is, they require the subject to perform exactly the same kinds of activities that are required by the job in the field. On the remaining tests (Alinement, Manuals, and Schematics) the experimental subjects are at least equal in performance to the standard subjects.

REPAIR IV: COMPARISON OF EXPERIMENTAL AND STANDARD COURSE GRADUATES AFTER FIELD EXPERIENCE

George H. Brown

The Field Radio Repairman Research Program

This follow-up study of experimentally trained and conventionally trained Field Radio Repairmen constitutes the fourth and final phase of Work Unit REPAIR, a long-range research program directed at improving the training of Signal Corps electronics maintenance personnel. Work Unit REPAIR was initiated in 1954 by HumRRO at the request of the Office of the Chief Signal Officer. The first three phases of the research program have been completed.

REPAIR I consisted of a field survey of the activities of field radio repairmen (MOS 296), and was designed to obtain information to aid in the construction of a revised training course where school training would be related as closely as possible to actual job requirements. In REPAIR II, an objective field-oriented proficiency test battery was developed for use as a criterion in evaluating the revised training course.

REPAIR III consisted of the development and experimental evaluation of a revised training course for Field Radio Repairmen at Fort Monmouth. The new course differed from the conventional course in two principal ways: (a) It emphasized various equipments and repair activities which had been found in the field study to be most important to the job in the field, and (b) It embodied an instructional philosophy termed Functional Context Training.

Reasons for Conducting REPAIR IV

Considerable interest was expressed by the Signal Schools in following up the experimental and standard course graduates in the field. It was felt that such a field testing would provide a more definite evaluation of the experimental course. More specifically, it would provide answers to the following questions:

(1) Do differences in performance between the experimental course graduates and standard course graduates at the time of graduation persist following 8-10 months of experience in the field?

(2) Does the experimental course, which teaches electronic fundamentals using the Functional Context Method instead of with the conventional abstract approach, provide repairmen with an adequate basis for subsequent growth with experience?

(3) Are the various job skills (as measured separately by the subtests of the proficiency battery) influenced differentially by field experience?

Design of the Study

The general plan of the study was as follows:

(1) All experimental and standard course graduates who could be contacted would be re-administered the Repair Proficiency Test after 8-10 months of field experience. Comparisons would be made of their test scores at that time. In addition, the performance of each group on each test would be compared with its earlier performance on the same test at the time of graduation from the training course.

(2) In order to have some indication of how the experimental and standard course graduates compared during their first 30 days on the job, supervisors would be asked to rate the repair proficiency of the men with respect to that time frame.

(3) In order to be able to eliminate differential field experience as a factor responsible for group differences in proficiency test scores, the equivalence of the two groups in field experience would be assessed by means of an Experience Questionnaire.

Arrangements were made with appropriate Army authorities to ensure that a substantial majority of the students under study would be assigned to units in USAREUR. This was necessary for two reasons: (a) Only by thus restricting the geographical dispersion of the research subjects, would it be economically feasible to re-contact them for follow-up testing, (b) It was felt that the field experience these men would obtain in Europe would be the most realistic and operational obtainable under peacetime conditions.

The selection of the particular units within USAREUR to which these men would be assigned was made by USAREUR assignment authorities. No effort was made to insure that experimental and standard course graduates would receive comparable assignments. However, since the assignment authorities had no way of differentiating between experimental and standard subjects, they necessarily made their assignments independently of this consideration.

The Commander-in-Chief, U.S. Army, Europe, was requested to take appropriate action to ensure proper utilization of the REPAIR III graduates. A directive to this effect was subsequently fowarded by the Adjutant General, USAREUR to the Commanding Officer of each gaining unit.

Collection of the Data

Testing Center and Equipment. A single testing center was established at HQ 97th Signal Battalion, Boblingen, Germany. Virtually all of the equipment items needed for administering the test battery were supplied by Signal units in USAREUR.

Test Administrators. Ten enlisted men were provided by Signal units in USAREUR to serve as test administrators. These particular men were selected by the Work Unit REPAIR staff on the basis of their EL score,

interest in electronics and test performance on the REPAIR Proficiency Battery. (These men had been subjects in the initial or buffer classes of REPAIR III whose test data were not used in analyzing the experimental results.)

In addition, one First Lieutenant was provided by USAREUR HQ to serve as Project Officer.

One Sergeant, the NCO who had supervised the Fort Monmouth test administrators in REPAIR III, was transferred to USAREUR for similar duties with respect to REPAIR IV.

Subjects. A roster had been maintained by HQ, USAREUR identifying the particular unit to which each REPAIR III graduate had been assigned. The original REPAIR groups consisted of 86 experimental subjects and 86 standard subjects; of these, 84 experimentals and 75 standards were actually assigned to USAREUR. Of these, 73 experimentals and 70 standards were actually contacted in REPAIR IV and readministered the Proficiency Battery. They constitute the REPAIR IV sample.

Administration of the Proficiency Battery. During the period of 19 January - 24 March 1959, the 143 subjects were sent into the testing center at the rate of approximately 18 per week. All tests, except the Troubleshooting Test, were administered and scored exactly as had been done in REPAIR III. The Troubleshooting Test was administered exactly as before, but the scoring system was modified somewhat in order to statistically equate the number of times each problem was administered to each group. Of course, the REPAIR III performance of the repairmen on this test was reanalyzed using the modified scoring system. Differences in mean test scores of the comparison groups were evaluated by means of the t test.

Administration of the Experience Questionnaire. In order to obtain data for assessing the equivalence of the experimental and standard group with respect to field experience, each subject in REPAIR IV completed an "Experience Questionnaire" during his stay at the testing center. This questionnaire was designed to obtain information concerning: (a) the repairman's level of activity in Field Radio Repair work; (b) the echelons of maintenance at which he had worked, and (c) the specific equipment items on which he had worked.

Administration of the Supervisor Rating Form. The Supervisor Rating Form was designed to assess various aspects of the men's repair proficiency as judged by the supervisors best acquainted with their work. Arrangements were made with HQ, USAREUR and HQ, Seventh U.S. Army to distribute copies of the Supervisor Rating Form to the Commanding Officer of each unit containing research subjects. The unit commander was instructed to have one form for each subject filled out by the supervisory person best acquainted with that man's work. The supervisor then mailed the completed form directly to HumRRO in the self-addressed envelope which was provided.

Methods of Data Analysis

If the experimental and standard groups should be found to differ in proficiency test performance on the REPAIR IV testing, such differences

could be attributed to differential effectiveness of the training courses only if the groups under comparison were known to be equivalent on (a) background and aptitude factors, and (b) relevant field experience.

It was anticipated that the REPAIR IV groups would be substantially equivalent on Electronics Aptitude (EL) score, on civilian education, and on pre-Army electronics experience since the original REPAIR III groups had been equated on these variables. The information in Table 1 shows this to be the case. It was also anticipated that the distribution of assignments by type of unit and the amount of relevant field experience received would be substantially equivalent for the two groups.

Table 1

Comparison of Experimental and Standard Groups on EL Score and Other Background Characteristics

Characteristic	Experimental Group ($N=73$)	Standard Group ($N=70$)
Mean Electronics Aptitude Score	112	110
Percentage who had:		
Graduated from High School	78	78
High School training in electricity or electronics	7	11
College training in basic sciences	14	11
College training in electricity or electronics	1	3
Trade school training in electrical theory or repair	3	13
Pre-Army jobs in radio, TV, or electrical repair	12	11

Table 2 shows that the experimental and standard groups were, in fact, equivalent in the kinds of unit assignments they received and in the proportions of their men who had performed higher echelon repair work. However, it is surprising to note that with respect to both groups, the number of men who had had experience in higher echelon repair work is so small. Only about one-third of each group (30 experimental subjects and 27 standard subjects) had had such experience. (Possible explanations for this relatively low activity level will be considered later.)

It would therefore seem inappropriate to compare the proficiency test scores of the total experimental and standard groups as such. Mean scores of these total groups would reflect the composite and unanalyzed effects of (a) original training, (b) relevant experience, and (c) lack of relevant experience.

A more sensitive method for detecting any long-range superiority of the experimental training course would consist of analyzing the test

Table 2

Comparison of Experimental and Standard Groups in Type of Assignment, Work Experience, and EL Score

Type of Unit	Number assigned to each type of unit		Number who had performed some higher echelon maintenance		Number reporting 1 month or more of full-time FRR experience	
	Experimental	Standard	Experimental	Standard	Experimental	Standard
General Depot	11	11	11	10	11	10
Liaison Group	0	2	0	0	0	2
Garrison	1	1	1	0	1	1
Service & Maintenance Company	0	2	0	2	0	2
Miscellaneous Signal Units	29	28	12	9	17	17
Miscellaneous Artillery Units	20	19	3	2	8	9
Miscellaneous Ordnance Units	10	4	2	3	8	3
Miscellaneous Other Unit	2	3	1	1	1	3
Total Number Men	73	70	30	27	46	47
Mean EL Score	112.4	110.3	116.6	108.8	114.6	110.2
% of EL Score	15.0	16.8	12.5	14.8	16.3	15.6
	.781 (not significant)		2.033 (significant at .05 level)		1.307 (not significant)	

data of just those subjects who did have experience in higher echelon maintenance. However, as shown in the middle pair of columns in Table 2, the *N*s for such a comparison would be quite small (30 for the experimental group and 27 for the control group). Furthermore, the mean EL scores for such subgroups would not be equivalent. It was necessary to search for some other basis of formulating subgroups that could be meaningfully compared.

Another possible criterion for establishing comparison groups is whether a man has, by his own report, had at least one month's experience in full-time Field Radio Repair work. Such a criterion would yield larger comparison groups than would be afforded by the two criteria just considered. This is so because numerous men (18 in the experimental group and 20 in the standard group), who reported no experience in higher echelon repair work nevertheless indicated, in their answer to another question, that they had had one or more months of full-time Field Radio Repair experience. Examination of TO&E's confirmed the fact that there are many kinds of units (for example, Corps Signal Battalions and Signal Operation Battalions) whose missions do not include field or depot maintenance, but who are nevertheless authorized sizable numbers of MOS 296 personnel. Many such men do perform second echelon maintenance of radio equipment. It appears that the widespread conception of MOS 296 personnel as primarily higher echelon repairmen is incorrect. In actuality, many men holding this MOS are legitimately assigned to units where the

likelihood of performing higher echelon maintenance is quite remote. It should also be noted that no sharp delineation is possible between organizational maintenance (2nd echelon) and field maintenance (3rd and 4th); that higher echelon repairmen often perform maintenance activities which are technically classifiable as organizational maintenance.

It was concluded that experimental and standard subjects who had had a minimum of one month's experience in full-time Field Radio Repair work would constitute meaningful comparison groups provided that such groups were of sufficient size and provided that they did not differ significantly in EL score. The right-hand pair of columns in Table 2 provide information relevant to these considerations. It can be seen that the two "experienced" subgroups (experimental and standard) are of adequate size and are also reasonably well matched on EL score. They will therefore be regarded as the primary reference groups in making comparisons between the proficiency test scores of experimental and standard course graduates. They will henceforth be referred to as the *experienced* groups.

Let us return to the question of why so few of the repairmen studied in this research project obtained experience in higher echelon repair work. As explained above, one reason is simply that many were assigned, and legitimately so, to Signal units whose missions do not include field or depot maintenance of radio equipment. (This accounts for 25% of the repairmen, or 38 of the 143 subjects.)

Another reason is that many men, another 25% of the total group, were assigned to units which have no TO&E authorization for MOS 296 personnel. Although it is difficult to determine precisely how many men were unable to perform higher echelon repair work for this reason, it was ascertained that most of the 39 men who were assigned to Artillery units were technically malassigned, that is, they were in units which have no TO&E authorization for MOS 296 personnel. Most of these men were occupying positions calling for MOS 313 personnel, the Artillery trained second echelon radio mechanics. Subsequent inquiries of The Adjutant General's Office disclosed that at the time the REPAIR III graduates were being sent to the field (April-June 1958) there existed a world-wide surplus of MOS 296 personnel. It was, therefore, inevitable that some men would be malassigned. Evidently the system for computing training requirements on the basis of anticipated needs of the field commands is not sufficiently efficient to preclude occasional surpluses of this kind. Assigning Field Radio Repairmen to organizational mechanic slots is, of course, far less objectionable then assigning them to completely irrelevant units. (One of the research subjects was assigned to a Quartermaster unit.)

RESULTS AND DISCUSSION

The primary focus of interest in this research is upon the relative proficiency levels of experimental and standard course graduates after field experience. The experienced groups identified earlier will constitute the primary reference groups for this comparison. First,

let us examine these groups from the standpoint of their background and experience.

Educational Background of the Experienced Groups

Table 3 presents information concerning the educational background of the experienced groups. The experimental group seems to be slightly superior on three of the characteristics: percentage with High School training in the basic sciences, percentage with college training in the basic sciences, and percentage with pre-Army jobs in Radio-TV. However, the standard group appears to be slightly superior on three other characteristics: percentage who graduated from high school, percentage with high school training in electricity or electronics, and percentage with trade school training in electrical theory or repair. On the whole, the two groups are probably equivalent in their educational qualifications.

Table 3

Educational Background of the Experienced Groups

(percent)

Characteristic	Experimental (N=46)	Standard (*N*=47)
Graduated from high school	74	81
High school training in basic sciences	54	38
High school training in electricity or electronics	0	17
College training in basic sciences	13	9
College training in electricity or electronics	0	0
Trade school training in electrical theory or repair	4	11
Pre-Army jobs in Radio, TV, or electrical repair or service	7	0

Work History of the Experienced Groups

Table 4 presents information concerning the work history of the experienced groups. Marked similarity of the two groups is evident. Thus, any differences which may appear in proficiency test scores cannot be attributed to differential amounts of field experience.

One of the questions in the Experience Questionnaire asked what Army job the man was actually performing, and whether this agreed with the TO&E slot he was officially occupying. Table 5 shows the kinds of Army jobs these men were holding at the time of the REPAIR IV testing. It will be noted that 32 and 31 men, respectively, of the experimental and standard experienced groups reported that they were performing Field Radio Repair work. However, most of the other men were working in the general area of electronics. (All, of course, had spent at least

Table 4

Work History of the Experienced Groups

Background	Experimental ($N=46$)	Standard ($N=47$)
Median rank attained	E-3	E-3
Mean number of months in Europe	9.2	8.8
Number of men holding Field Radio Repair jobs at time of testing	32	31
Mean number of months these men had held Field Radio Repair jobs	7.2	7.6
Number of men who had held only Field Radio Repair jobs since coming to Europe	22	23
Mean number of months for which men reported any activity in Field Radio Repair work	8.1	8.3
Mean percentage of duty time spent on higher echelon Field Radio Repair work, men's estimates	32	36
Number of men who had performed at least some higher echelon Field Radio Repair work	28	27
Mean number of different equipment items repaired since coming to Europe	7.5	8.0

one month doing full-time Field Radio Repair work since coming to Europe or else they would not have been included in the experienced groups.)

Proficiency Test Scores of the Experienced Groups

Before presenting the proficiency test scores of the experienced groups, certain explanatory remarks are in order.

Table 5

Army Jobs Held by Men of the Experienced Groups at Time of Repair IV Testing

Job	Number of Men	
	Experimental ($N=46$)	Standard ($N=47$)
Field Radio Repair work	32	31
Radio Inspector	1	0
Radio Relay Team Chief, and so forth	4	2
Radio Operator	4	10
Microwave Repair	1	0
Teletypewriter Repair	1	0
Telephone Repair	0	1
Miscellaneous jobs unrelated to electronics	3	3

The principal point of interest in analyzing the REPAIR IV test results is in determining whether the experimental group will retain the superiority over the standard group which it enjoyed at the REPAIR III testing, that is, immediately after graduation but prior to field experience. The experienced groups upon which this REPAIR IV analysis is based are, of course, not identical with the original REPAIR III groups for two reasons: (a) Not all of the REPAIR III subjects were contacted in REPAIR IV, and (b) Among those who were contacted, only those who reported a minimum of one month's experience in Field Radio Repair work were included in the groups now to be compared.

In order to be able to compare the REPAIR IV results with the REPAIR III results, it was first necessary to recompute the REPAIR III results using only those subjects who constitute the experienced groups of REPAIR IV. When reference is made to the performance of the REPAIR III groups, it is the recomputed results of the attenuated REPAIR III groups that is meant. As will be seen, the recomputed results are substantially the same as the original. In both computations, the experimental subjects were significantly superior to the standard subjects on the Troubleshooting Test, the Test Equipment Test, the Repair Skills Test, and the Achievement Test. On the recomputed results, the experimental subjects were also superior on the Schematics Test; this had not been the case in the original computation based on the total REPAIR III groups.

Table 6 shows the mean proficiency test scores of the experienced groups of REPAIR IV. For comparison purposes, the REPAIR III performance of the same groups is also shown.

With respect to the REPAIR IV data, it is evident that the experimental subjects are significantly superior on the Achievement Test, the Manuals Test, and the Schematics Test. On two of these tests (Achievement and Schematics) the experimental group was also superior at the time of graduation.

Table 6

Proficiency Test Scores of the Experienced Groups

Test	Repair III		Repair IV	
	Experimental (N=46)	Standard (N=47)	Experimental (N=46)	Standard (N=47)
Troubleshooting	52.4*	32.9	46.0	42.3
Test Equipment	63.4*	53.1	59.3	58.8
Repair Skills	69.7*	61.1	53.0	56.2
Achievement	43.5*	36.0	42.2*	37.4
Alinement	58.2	60.4	58.6	54.2
Manuals	64.5	59.7	67.6*	60.7
Schematics	62.0*	57.2	62.3*	54.2

*Experimental group is significantly superior to standard at the .05 level, one tail test.

On the Achievement Test the mean scores of both the experimental and the standard groups remained essentially unchanged from the REPAIR III to the REPAIR IV testing.

On the Manuals Test, both groups obtained higher mean scores on the follow-up testing, but the increase of the experimental group was greater with the result that this group was superior in the REPAIR IV testing.

On the Schematics Test, the experimental group's mean score remained substantially unchanged, while the mean score of the standard group declined somewhat. The experimental group was significantly superior in REPAIR IV.

The two comparison groups do not differ significantly on the remaining tests in the battery. The Troubleshooting Test and the Test Equipment Test, on which the experimental group had been vastly superior in the REPAIR III testing, no longer differentiate between the groups. This came about because of the fact that the experimental group showed a decline in mean score from REPAIR III to REPAIR IV while the standard group showed a gain.

On the Repair Skills Test, the experimental group had been significantly superior in the REPAIR III testing. In the REPAIR IV testing, the *standard* group has the higher mean score although this difference is not reliable. The mean score of the experimental group had declined markedly (16 points) from test to re-test while that of the standard group had declined only five points.

On the Alinement Test, neither group was significantly superior in either the REPAIR III or the REPAIR IV testing. The mean score of the experimental group remained virtually unchanged, while that of the standard group dropped six points. Table 7 shows the mean proficiency test scores of the non-experienced groups of REPAIR IV. For comparison purposes, this table also shows the REPAIR III performance of the same groups.

Table 7

Proficiency Test Scores of the Non-Experienced Groups

Test	Repair III		Repair IV	
	Experimental (N=27)	Standard (N=23)	Experimental (N=27)	Standard (N=23)
Troubleshooting	41.6*	32.2	31.3	31.7
Test Equipment	63.8*	50.3	48.7	56.0
Repair Skills	72.0	65.0	44.7	38.6
Achievement	36.2	35.5	33.1	34.0
Alinement	65.8	59.0	46.1	53.5
Manuals	61.3	64.7	56.9	58.1
Schematics	55.8	61.4	46.8	51.7

*Experimental group is significantly superior to standard at .05 level, one tail test.

It is evident that the REPAIR IV scores are, in general, lower than the REPAIR III scores. This, of course, is what one would expect. Approximately nine months in the field performing duties unrelated to electronic equipment maintenance would naturally lead to lowered proficiency in that area. However, two exceptions to this general statement should be noted. The non-experienced standard group shows virtually no change from REPAIR III to REPAIR IV in its Troubleshooting score (32.2 vs. 31.7) and shows a six-point increase (which is not significant) in its Test Equipment score. The non-experienced *experimental* group, on the other hand, shows significant declines on these two tests.

How can we account for the fact that the experimental and standard groups differed in their retention of these skills over periods of inactivity? Two alternative explanations may be considered. One possibility is that the method of instruction employed in the standard course produced skills that were more resistant to decay than was the case in the experimental course. Another possibility is that since the standard subjects had lower scores than the experimentals at the time of graduation, they simply had less to forget. It is not really necessary that a choice be made between the two possible explanations. The important point is that the experimental group was significantly superior to the standard at the time of graduation, and was at least equivalent to the standard at the time of retesting.

Supervisors' Ratings of Repairmen's Proficiency

One of the objectives of the experimental Field Radio Repair course was the production of men who would be assets to their units almost immediately upon assignment, that is, prior to any extensive break-in period. To this end, instruction was concentrated on those particular equipments and repair activities which the REPAIR I field study had shown to be most prominent in the repairmen's job.

In an effort to evaluate the success with which this objective was achieved, it was arranged for each research subject to be rated by the supervisor best acquainted with his work as to his repair proficiency during the first 30 days he was on the job. It should be noted that the supervisors filled out these rating forms at approximately the same time that the repairmen being rated were being administered the REPAIR Proficiency Battery, that is, some nine months after graduation. Thus the supervisors' ratings are based on their recollections of the quality of the men's repair work during the earlier period.

Unfortunately, it so happened that very few of the supervisors who supplied these ratings had actually supervised the repairman in question during the latter's first 30 days on the job. Among the experienced groups, only 14 experimental subjects and 23 standard subjects were rated by supervisors who had also supervised their work during the earlier period. In other words, transfers--at least within units--were fairly common with the result that most men had new supervisors only nine months after being assigned to a unit in Europe.

With samples so small, it was not considered worthwhile to analyze the ratings obtained. They could not be representative of the larger

experimental and standard groups about which generalizations would need to be made.

Even in the absence of supervisor rating data, however, there is no reason to doubt that the experimental graduates were more proficient during their early days on the job because of the fact that, at the time of graduation, they were far superior on the most important tests that make up the REPAIR Proficiency Battery, namely the Troubleshooting Test, the Test Equipment Test, and the Repair Skills Test. Moreover, they had demonstrated at the REPAIR III testing a greater capacity for successfully troubleshooting relatively unfamiliar equipment items. They received much more training and practice than did the standard subjects in the use of small hand tools, particularly, the soldering iron. In numerous ways their training was more closely tailored to the requirements of the job in the field.

In view of these superiorities in training and in demonstrated proficiency at the time of graduation, it seems virtually certain that the experimental subjects would have performed at a higher level of proficiency during their early weeks on the job. Eventually, of course, the differences in proficiency level between the experimental and standard subjects disappeared as the standard subjects acquired, through on-the-job experience, much of the skill and knowledge which the experimental subjects had acquired in school training.

SUMMARY AND CONCLUSIONS

Seventy graduates of the standard and 73 graduates of an experimental Field Radio Repair course were recontacted approximately nine months after graduation and administered the Field Radio Repair Proficiency Battery and an Experience Questionnaire. This follow-up study was undertaken to obtain answers to the following questions:

(1) Would the superiority which the experimental group enjoyed at the time of graduation persist after field experience?

(2) Would the experimental course graduates who were taught their electronic fundamentals with the Functional Context Method instead of with the conventional abstract approach possess an adequate basis for subsequent growth with experience?

(3) Would the various job skills be affected differentially by field experience?

The principal findings, based on just those subjects (46 experimentals and 47 standards) with a minimum of one month's full time Field Radio Repair experience, were as follows:

(1) The experimental group was no longer significantly superior on the most important tests which make up the battery, namely: the Troubleshooting Test, the Test Equipment Test, and the Repair Skills Test. It was still significantly superior on the less important tests in the battery--the Achievement Test, the Manuals Test, and the Schematics Test.

(2) No definitive statements can be made concerning the relative growth potential of the experimental and standard groups. Although the standard group showed gains and the experimental group showed losses on the two most important tests in the battery (Troubleshooting and Test Equipment), the initial superiority of the experimental group on these tests was so great that its mean scores at retesting were still numerically higher than those of the standard group. It should also be noted that, at the time of the retesting, the experimental group was numerically higher than the standard group on six of the seven tests.

(3) Both experimental and standard groups showed losses on the Repair Skills Test, which measures the ability to use small hand tools. Both groups showed either a slight gain or no change in their performance on the Manuals Test, the Schematics Test, and the Achievement Test. Each of these is a paper-and-pencil test which measures primarily theoretical knowledge. On the Troubleshooting Test and the Test Equipment Test, the experimental group showed losses while the standard group showed gains.

Other incidental findings based on the entire experimental and control groups were: (a) only about one-third of each group had performed any field or depot maintenance of radio equipment since graduation, and (b) about 60 percent of each group reported that they had spent at least one month performing full-time Field Radio Repair duties.

Conclusions:

(1) It is concluded that the marked superiority of the experimental over the standard group which had existed at the time of graduation was largely eliminated after an average of nine months of field experience.

(2) Since the REPAIR III data showed the experimental subjects to be markedly superior to the standard subjects at the time of graduation, it seems highly probable that the experimental subjects performed at a higher level of proficiency during their early weeks on the job. The fact that they were no longer appreciably superior nine months later does not nullify this advantage of the experimental course.

(3) Since the experimental graduates were at least equal to the standard nine months after graduation, and since they were markedly superior at the time of graduation, there is no reason to change our recommendation made at the conclusion of REPAIR III, that the experimental course be adopted in place of the standard course for the training of Field Radio Repair personnel.

PUBLICATIONS UNDER WORK UNIT REPAIR

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A Follow-Up Study of Experimentally and Conventionally Trained Field Radio Repairmen, HumRRO Technical Report 65, by George H. Brown and Robert Vineberg, September 1960. PB-152788 AD-245 468

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY *(Corporate author)* Human Resources Research Organization (HumRRO) 300 North Washington Street Alexandria, Virginia 22314	2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP
3. REPORT TITLE COLLECTED PAPERS PREPARED UNDER WORK UNIT REPAIR: TRAINING OF ELECTRONIC MAINTENANCE PERSONNEL	
4. DESCRIPTIVE NOTES *(Type of report and inclusive dates)* Professional Paper	
5. AUTHOR(S) *(First name, middle initial, last name)* Staff members of Work Unit REPAIR	
6. REPORT DATE November 1970	7a. TOTAL NO. OF PAGES 39 — 7b. NO. OF REFS 0
8a. CONTRACT OR GRANT NO. DAHC 19-70-C-0012 b. PROJECT NO. 2Q062107A712 c. d.	9a. ORIGINATOR'S REPORT NUMBER(S) Professional Paper 27-70 9b. OTHER REPORT NO.(S) *(Any other numbers that may be assigned this report)*
10. DISTRIBUTION STATEMENT This document has been approved for public release and sale; its distribution is unlimited	
11. SUPPLEMENTARY NOTES Presentations at Professional Meetings and Military Briefings	12. SPONSORING MILITARY ACTIVITY Office, Chief of Research and Development Department of the Army Washington, D.C. 20310

13. ABSTRACT

Papers in this collection report research in procedures in troubleshooting and repair of Army field radios that resulted in the construction of evaluations of the men and in experimental training courses. The papers are: "The Implementation of Functional Context Training in a Radio Repairman Course," by George H. Brown; "A Follow-Up Study of Experimentally Trained and Conventionally Trained Field Radio Repairmen," by Robert Vineberg and George H. Brown; "REPAIR III: The Development and Evaluation of the Experimental Field Radio Repairman Course," by George H. Brown; "REPAIR IV: Comparison of Experimental and Standard Course Graduates After Field Experience," by George H. Brown.

DD FORM 1 NOV 65 1473

Unclassified
Security Classification

5498

Unclassified
Security Classification

14. KEY WORDS	LINK A ROLE	LINK A WT	LINK B ROLE	LINK B WT	LINK C ROLE	LINK C WT
Electronics Maintenance						
Electronics Training						
Functional Context Training						
Radio Repair						
Troubleshooting						

Unclassified
Security Classification

VT 012 650
Carpenter, M.B.
Maintaining Efficient Training Programs for Air Force Technical Specialties.

Rand Corp., Santa Monica, Calif.
Department of the Air Force, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
R-527-PR
The Rand Corporation, 1700 Main Street, Santa Monica, California 90406 ($3.00).
PUB DATE - Sep70 79p.

DESCRIPTORS - *MILITARY TRAINING; *ENLISTED MEN; EDUCATIONAL NEEDS; *RESEARCH NEEDS; EDUCATIONAL CHANGE; *COST EFFECTIVENESS; EDUCATIONAL IMPROVEMENT; *TASK ANALYSIS; OCCUPATIONAL INFORMATION

ABSTRACT - This report identifies problems and shortcomings in Air Force training of technical specialists and suggests improvements. Suggestions include: (1) Translate the Job Inventory into training programs, (2) Use maintenance personnel data to determine what tasks are really done by whom, (3) Monitor courses for needed deletions and additions, (4) Pretest to prevent unneeded training, (5) Make courses practical rather than theoretical, (6) Teach the practical rules difficult to find in books, (7) Interview new instructors fresh from the field to find out what they actually did and what training is needed, (8) Use cost-effectiveness to determine training modes rationally, (9) Modify upgrading policies to allow some specialists to advance without supervising others, and (10) Have 3-level men master some tasks. Sample documents of pneudraulics training are appended. (Author/BH)

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R-527-PR
September 1970

MAINTAINING EFFICIENT TRAINING PROGRAMS FOR AIR FORCE TECHNICAL SPECIALTIES

M. B. Carpenter

A Report prepared for
UNITED STATES AIR FORCE PROJECT RAND

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This research is supported by the United States Air Force under Project Rand —Contract No. F44620-67-C-0045—monitored by the Directorate of Operational Requirements and Development Plans, Deputy Chief of Staff, Research and Development, Hq USAF. Views or conclusions contained in this study should not to be interpreted as representing the official opinion or policy of Rand or of the United States Air Force.

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Published by The RAND Corporation

PREFACE

The work presented in this Report is part of a Rand study of Air Force systems for education and training. The intent of this Report, the first of several that will describe principles and techniques for Air Force technical training, is to indicate some of the problems and shortcomings of present systems and to suggest some promising lines of research that might be conducted within the Air Force itself. The conclusions and suggestions presented here are based heavily on firsthand observations of technical training in the classroom and in the laboratory.

The Report focuses on problems of maintaining the efficiency of training for technical specialties that have been in existence for some time. This choice was made for two reasons: First, because much of Rand's work in this area is focused on the *instructional process*, stability of subject matter over a relatively extended period (say, a year or more) is needed to ensure that early study results will not have to be drastically revised as a result of changes in hardware or operating and maintenance procedures. Second, the Training Research Division of the AFSC Human Resources Laboratory is working to change training requirements by changing the nature of the jobs themselves, thereby making more efficient use of manpower. For example, they are developing techniques for integrating the design of the personnel subsystem with the early design phases of new Air Force systems or for lessening training requirements through the use of job performance aids. It is probable that such approaches could result in large savings in requirements for highly trained personnel. Rand's work on Air Force technical training does not include the study of new job definitions, however, because such efforts would be largely redundant.

SUMMARY

This Report sets forth suggestions for research on ways to better maintain the efficiency of Air Force training programs, based on a study of Air Force policy and practice in this area. The study addresses the problem from two points of view: What should be the steps in the initial selection of subject matter and in the design of a training program, given that the job to be trained for already exists in a fairly stable form? and, How can the subject matter be kept current?

The Air Force has particularly severe problems in these areas (as compared, for example, with a manufacturer who trains employees in the plant) because of barriers introduced by geographical, temporal, and organizational separation of the trainers from the users of trained manpower. To cope with these problems, the Air Force has introduced a number of sophisticated techniques such as the Job Inventory and the use of field survey teams from the Training Centers. Even so, problems remain in a number of areas, particularly those that interface between one organizational unit and another. For example, the Job Inventory, administered by the Job Specialty Survey Division at Hq. Air Training Command, is primarily job-oriented and provides only rough guidance for its use in the design of a training program. Also, the Specialty Training Standard, which defines the skills and knowledges that the trainee is to master as he moves from one skill level to the next, tends to reflect the skill-level structure of the Air Force personnel system rather than to set forth the specific objectives of the training. Other problem areas include the determination of the trainee's initial skills and the diagnosis of his deficiencies by the use of "pretests" (specialized testing prior to training), the structure of the Air Force personnel system itself, the role of on-the-job training, the proper training emphasis in formal courses, and the determination of when major revisions to a training program are needed.

A program of research is described that could be conducted through the joint efforts of several Air Force organizations such as the Air Training Command, the Human Resources Laboratory, and the Directorate

of Personnel Planning, Hq. USAF. This program could result in the development of more systematic methods for designing efficient training programs and for maintaining their efficiency. These suggestions fall into two groups: those that could result in improved procedures within the existing organizational structure of the Air Force, and those that would effect changes to that structure that might enhance the relevance of training.

The first group includes the following:

- o Define quantifiable criteria for translating the Job Inventories into training programs
- o Identify a set of indicators that would alert management to the possibility that a training program might need revision
- o Develop techniques to determine whether such revision would be worth its cost
- o Use samples of augmented maintenance data to supplement or supplant the Job Inventories
- o Devise tests for a wider spectrum of human capabilities, such as psychomotor skills and human-relations skills, both for initial assignment and upgrading and for permitting a greater use of diagnostic-prescriptive techniques in training
- o Make greater use of experimentation, with independent evaluation, to determine the best mix of knowledge and performance activities in formal training
- o Make better use of instructors with field experience

We believe that the only way in which the question of the best mix of training "modes" (such as formal training, on-the-job training, and the like) can be answered is through the use of cost-effectiveness analysis. An appendix describes the characteristics of a cost-effectiveness analysis that would provide the information needed for training-program design.

The second group of research suggestions, concerning organizational changes that might enhance relevance, includes the following:

- o Determine, on the basis of cost-effectiveness, whether an

increase in the amount of on-the-job training (perhaps conducted by the Air Training Command) would be desirable

- Determine whether the blanket policies for personnel upgrading applied to all technical specialties by the Air Force should be modified for particular specialties, for example, to encourage training for full mastery of some skills at an introductory level
- Determine whether the formal training for some specialties could be conducted in schools maintained within operating commands that are the major or only users of the graduates.

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ACKNOWLEDGMENTS

The author wishes to acknowledge the assistance of Rand colleagues Leland Attaway, Rudy Bretz, Arnold Chalfant, Sue Haggart, Marjorie Rapp, and William Stewart in the preparation of this Report. Additionally, Lt. Col. P. Kennedy and Lt. Col. J. L. Phipps provided much valuable insight into the complexities of Air Force personnel and training systems, and Lt. Col. Robert Gerry made a number of substantive contributions.

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I. INTRODUCTION

It is fairly generally acknowledged within the Air Force that formal training programs are not always as relevant as they might be to the needs of the operating commands; additionally, the emphasis placed on various elements of course content may not always reflect the importance of these elements to job performance. This comes about primarily because there are barriers between the training and using organizations--barriers that are both geographic and organizational. These barriers impede the flows of communications in both directions between the producer of trained manpower (the Air Training Command (ATC)) and the users of trained manpower (the operating commands). The user does not understand the constraints within which the ATC operates; the ATC, like institutions in general, and educational institutions in particular, tends to be at least as concerned with maintaining and expanding its established operation as it is with being responsive to the needs of the users of its trainees.

Even so, the match between what is taught and what is needed is superior to that in most civilian vocational training. In particular, because the graduate of an Air Force training program goes immediately to his place of duty and because training programs are short,* it is easier to define precisely the skills that the trainee must have to do his job, with the expectation that those requirements will have changed little between his entrance into training and his assumption of duty.

Because it is an elite enlisted service, the Air Force attracts high-quality recruits who, partly because of their quality, perceive many alternatives to continued service when their first enlistment is over. This results in low reenlistment rates (around 15 percent in many specialties), which necessitates high student loads in initial training activities. (Currently, some 95,000 men receive formal training annually in basic courses.) Thus, improved training efficiency, particularly in formal basic courses or on-the-job training (OJT), can

*The average is 15 to 20 weeks for Airman Basic courses at the Chanute Technical Training Center; the average for all courses at Chanute is lower--between 10 and 15 weeks.

result in significant savings in money and airman time, and can also result in improved job performance.

This Report reviews Air Force procedures for determining technical-training course content and maintaining its relevance, noting some of the shortcomings and the advantages of these procedures. The work is based on a review of the relevant literature, discussions with designers of formal technical courses, and classroom observations. In particular, the bulk of the course to train aircraft pneudraulic* repairmen (3ABR 42132) at Chanute AFB was observed over a two-week period.

A program of research is described that would have two objectives: establishing mechanisms to improve the efficiency of training programs, and changing training and personnel systems to minimize the effects of organizational barriers between the producers and the users of trained manpower.

Pneudraulic is a combination of *pneumatic* and *hydraulic* and is used to designate the Air Force Specialty (AFS) that encompasses the maintenance of both types of systems; the combination is natural, since both systems are operated by fluid flow.

II. STEPS TO BE TAKEN IN DESIGNING AND UPDATING A TRAINING PROGRAM

A technical specialty in the Air Force has a loosely defined structure comprising 5 skill levels,* with specified tasks at each level. To qualify for a higher skill-level rating, a man usually must satisfy a set of requirements including recommendation for upgrading by his supervisor and the completion of OJT or formal training (or both). Generally speaking, as a man's level of skill increases, he takes on more tasks and more diverse tasks. The further he rises, the more supervisory tasks he performs--planning and administering the work of those below him and conducting OJT programs himself. At the same time, some of the tasks he performed at the lower skill levels may drop from his repertoire.

The interaction of a job with its supporting training program is illustrated in highly simplified form in Fig. 1. (For brevity, many categories of training, such as contractor-conducted training and lateral training, have been omitted.) The career ladder, indicated on the left, begins with the 3-level airman performing relatively few tasks while he undergoes OJT. As he progresses up the ladder, he generally takes on additional tasks, although he may drop some of those he performed initially. The training program, indicated on the right, may be composed of a variety of training modes, including formal resident courses given at a Technical Center (the program indicated on the figure begins with a mandatory (Category A) course that trains the man for the 3-level grade), OJT given by the operating command, possibly supplemental or special courses that are usually given in the field by Field Training Detachments (FTD) operated by ATC, etc.

Both the career ladder and the training program are highly complex and vary in their structure according to the needs and policies of different operating commands, of different operational units, and of different trainees, and at different points in time. Because of this,

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*The skill-level structure is also linked to the personnel system, that is, to the rank a man possesses. We shall not be concerned with this linkage here.

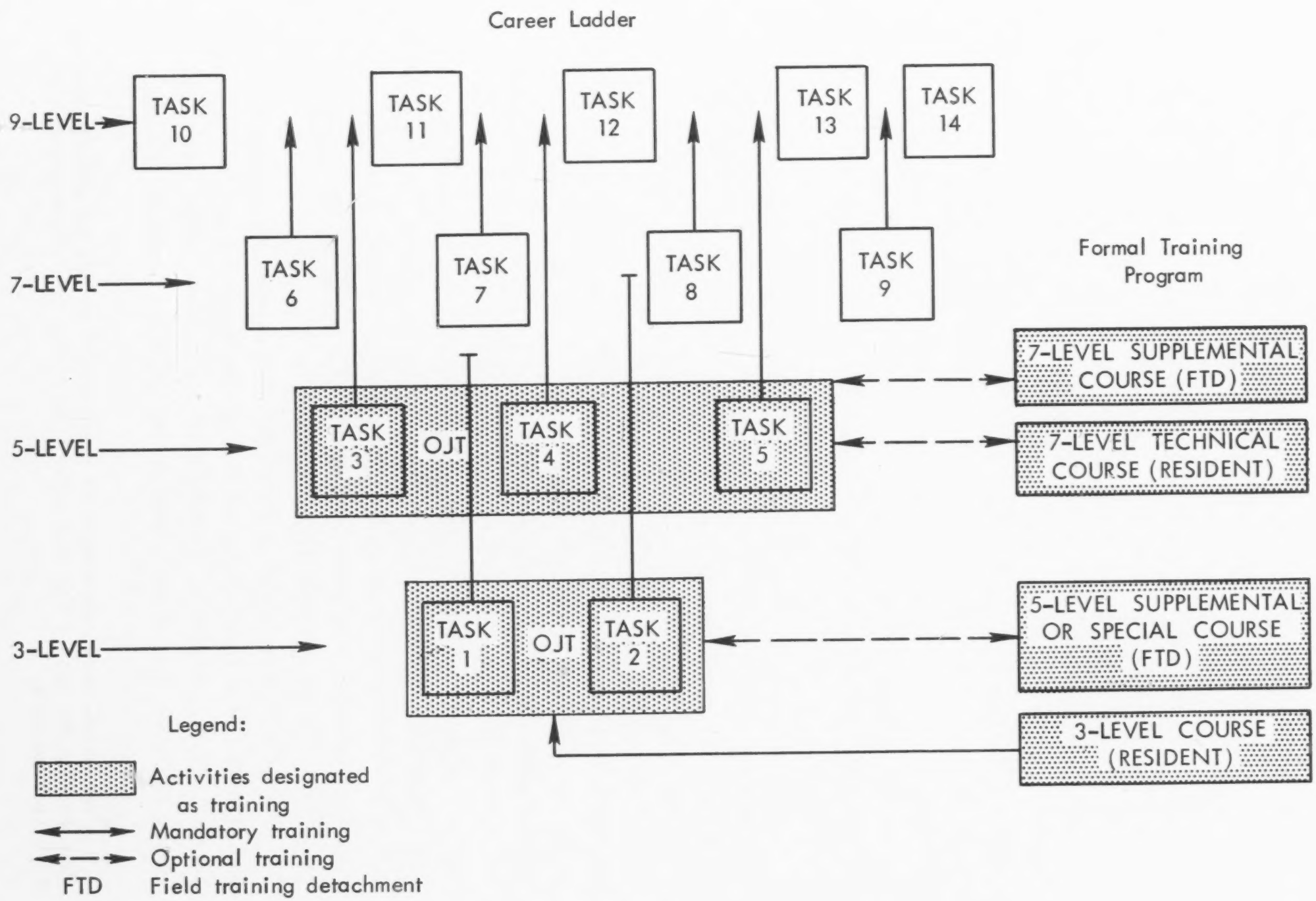

Fig. 1—Interrelations between a training program and a career ladder (highly simplified)

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there is really no way to design a centralized training program that will precisely and continuously fit the requirements of each operating base.

To determine what should be taught and how it should be taught in a training program for, say, a new weapon system, several steps must be taken. Logically, the first step would be to include as part of the system design the tasks that people must perform to keep the system operating, much as human psychomotor capabilities and limitations are integrated with the design of the cockpit of an aircraft. For economy of analysis, however, this study assumes that the specialty already exists and is relatively stable.

One question we shall address, then, is how to establish an efficient match between the training program and the specialty, that is, how to assure that the airman receives by the most efficient means the training he needs when he needs it. The other question is how to maintain this efficient match.

The determination of the structure of a training program should begin with a description of the tasks that the entrant into each skill level of the specialty will be expected to be able to perform. Tasks that are performed frequently by most job incumbents at a given skill level are prime candidates for inclusion in the training.

In addition, the neophyte must be able to match his general comportment sufficiently well with that of the current job incumbents and supervisors that they do not ostracize him. This socialization is currently accomplished by Basic Training, and, for those who go into formal training, by the military atmosphere of the Technical Centers and by the examples provided by instructors who have had field experience.

The initial capabilities of trainees with regard to the requirements of the skill level also need to be known. For the new entrant, reading level, ability to use tools, familiarity with machinery or electronic gear, or other skills particular to the given specialty need to be assessed. For the man who has already been in the field, a detailed account of his past job experience, along with some spot checking by means of performance testing and paper-and-pencil testing, could be used.

Next, the requirements for task performance at each skill level need to be compared to the capabilities of trainees about to enter that level to determine what aspects of what tasks will require training for mastery. Clues may be provided to assist in this process by seeking out tasks that are performed poorly or that are rated as difficult to learn by present job incumbents.

Finally, a decision must be made as to what aspects of the tasks that require training are to be taught in formal schools and what are to be taught by other means. (Other means include OJT, FTDs, Mobile Training Units, contractor training, and learning by performing under supervision (apprenticeship).)

Once a training program has been designed, it will have to be revised periodically because the job will change and because training inefficiencies will be discovered. Job changes are occasioned by

1. The introduction of new equipment
2. The aging of existing equipment (causing changes in the types and rates of failure)
3. Changes in maintenance procedures
4. Changes in the skills and attitudes of the men in the specialty
5. Changes in combat status caused by changes in the political-military situations in which the Air Force operates

No matter how well a training program is designed, there will always be points at which it can be improved, because no proven techniques exist for designing an *optimum* system for learning and because of inability to predict precisely the requirements of a job and the functioning of the training program with respect to that job.

III. CURRENT AIR FORCE TECHNIQUES FOR DESIGNING AND UPDATING A TRAINING PROGRAM

JOB DESCRIPTION

In AFM 39-1 the Air Force provides a job description for every Air Force Specialty (AFS). This document is primarily concerned with occupational codes for use in the classification of airman positions and personnel, and thus lists only general qualifications for the specialty. As an example, the job description for the AFS of Jet Engine Mechanic (Air Force Specialty Code 432X0) is attached as Appendix A.

The Air Force bases these job descriptions, in part, on Job Inventories, surveys of large samples of men in specific AFSs, that determine (among other things) what tasks are actually performed in the field, how many men perform them, and how much time is spent on each. The list of tasks is initially drawn up from the task-oriented objectives listed in such sources as the Specialty Training Standard (STS),* the Plan of Instruction (POI), and the Career Development Courses for the AFS at the relevant levels (AFM 35-2). Thus, in a sense, the Job Inventory tests the applicability of the formal course to job performance.

Originally a research project of the Personnel Research Laboratory (PRL) at Lackland AFB, the Job Inventories are now administered by the Job Specialty Survey Division (JSSD), still at Lackland but formally under ATC. The Personnel Research Division (PRD, formerly the PRL) of AFSC's Human Resources Laboratory serves primarily in a consultative capacity to JSSD, and the Job Inventories are processed on PRD's computer.

The surveys are administered in a base testing room to groups of job incumbents under the supervision of a test control officer and proctors assigned by the Consolidated Base Personnel Office. The list of tasks to be checked is limited to 400 or less so that the respondents can complete the inventory within 2 or 3 hours. If a longer time than this is required, the reliability of the responses falls off.

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*The STS is discussed later, on pp. 14 - 17.

These procedures probably alleviate many of the problems attendant on surveys of this type by assuring that respondents will understand clearly what they are to do and that they will have (and take) the time required to respond carefully.

Each man reports the time he spends on each task in the job, compared to the time he spends on all other tasks, rated from very much below average to very much above average on a five-point, seven-point, or nine-point scale, depending on the requirements of the survey. He may be asked to rate tasks on one other rating factor such as special training necessary to perform the task. Some interesting data on the respondents themselves, such as satisfaction with current assignment and reenlistment intentions, are also gathered.

That jobs can be described in detail has been demonstrated by the Job Inventories that have been administered to date. For example, the inventory for the Jet Engine Mechanic Specialty listed 354 tasks (Traweek and Marsh, 1968). For men with less than four years of service, about 100 of these tasks accounted for 75 percent of the workload; 39 accounted for 50 percent.

The ATC requires the Technical Training Center conducting the training for an inventoried specialty to match the relevant STS and POI with the results of the Job Inventory to determine how well the courses align with the inventory. Notable misalignments require that the STS and POI either be amended or justified, but no specific guidelines are provided for identifying mismatches or for devising amendments or justifications. Thus, the Technical Centers have considerable latitude in the way they make use of the Job Inventories. Personnel in the curriculum units are responsible for carrying out the matching.

It will be instructive for us to consider the results of carrying out a similar process in abbreviated form (a comparison of the STS for the Jet Engine Mechanic Specialty (Appendix B) with a summary of the Job Inventory). First, 53 of the seventy-odd tasks listed in the STS for all skill levels are directly comparable to tasks listed in the Job Inventory. (Comparable tasks in the Job Inventory are identified in the left margin of Appendix B by duty letter and task number. Skills and knowledge that are of the nature of general background information

and would not be expected to match with items in the Job Inventory are noted with a question mark.) Of these 53 tasks, 21 are given as performance objectives in the basic course. Nineteen of these can be matched to tasks in Duties G and H of the Job Inventory, i.e., removing and installing engines, and repairing and maintaining jet engines. Together, these two duties consumed an average of 54 percent of the work time of men at the 3- and 5-levels who responded to the inventory. All other duties each consumed less than 10 percent at these levels. Thus, it would seem that the course content preparatory for these levels emphasizes the skills that are most needed,* and it is not surprising that no changes in the course resulted from the Jet Engine Mechanic survey. (Major changes have, however, resulted from some of the other surveys.)

Although some tasks are clearly good candidates for formal training, it is more difficult to come to decisions about borderline cases. For example, in the Jet Engine Mechanic Job Inventory, respondents rated all of the 112 tasks in Duties J through O as requiring at least a medium amount of training.** However, only 12 of these 112 tasks are listed in the STS--only 5 of them as 3-level skills and none as basic course objectives. Since Duties J through L account for 13 and 16 percent of the work time at the 3- and 5-levels, respectively, it might be worthwhile to add some of the more frequently performed and difficult tasks in these duties to the basic course.

Thus, the "time spent" data of the Job Inventories, while crucial, fail to indicate much information that would be useful for planning a

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*Before this statement might be made without qualification, the lesson plans would have to be matched carefully with the complete accounting of the Job Inventory, especially since 86 tasks are included by Duties G and H. Such a matching may be sooner said than done by the personnel in the curriculum units because the detailed Job Inventories in their present form are coded computer printouts. Steps are being taken to remedy this problem (Christal, 1969).

**These duties are, in order: performing engine conditioning on the flight line, performing balance-shop functions, performing test-stand functions, repairing and maintaining turboprop or turbofan engines, repairing and maintaining small gas-turbine engines, and maintaining repair or test equipment.

training program. On occasion, the Air Force gathers some of what is needed by using an approach similar to HumRRO's Project SAMOFF. In that study, a Job Analysis Questionnaire was used that requested nine statistics for each of the 452 tasks in the job of a Nike Hercules Fire Control Platoon Leader (Ammerman, 1968):

1. Actual frequency of performance
2. Desired frequency of performance
3. Activity importance
4. Learning location
5. Time to qualify
6. Possibility of improving procedures
7. Poorly performed activity
8. Time to first performance
9. Training emphasis*

The results of this survey provided data that enabled its designers to reduce the number of tasks to be taught to 101 out of the 452. About half of the tasks rejected were those that were performed infrequently or were rated of low importance. The other half were rejected because training could be provided by means other than formal schooling. This was an effective way to eliminate tasks from formal training and to define the training program.

According to the reports of the respondents, this questionnaire would have required an average of nearly three working days (20 hours) to complete. This is clearly expensive and would be out of the question for the large numbers of men (between 1000 and 2000) surveyed by the Air Force's Job Inventories. The experimenters handled this problem by requiring each respondent to answer only about one-third of the total questions.

The Air Force now uses a similar approach. Respondents are usually required to supply one additional item of information besides the "time spent" rating. Items may include

1. Difficulty of task performance

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*Described on pp. 13 and 14.

2. Frequency of task performance
3. Complexity of the task
4. Importance of the task
5. On-the-job experience needed to perform the task
6. Supervision required in task performance
7. Special training necessary to perform the task
8. Training emphasis the task should have

Although a given incumbent provides information on only one additional item, data may be collected on three or four items by allocating them among the total sample of respondents.

There is evident correspondence between the HumRRO and Air Force lists, although HumRRO also asked for judgments on possible improvements (items 2, 6, 7).

ASSESSING CAPABILITIES OF MEN PREPARING TO ENTER A GIVEN SKILL LEVEL

The capabilities of new entrants to a technical specialty are assessed, to a degree, by means of the Armed Forces Qualifying Test (AFQT) and the Airman's Qualifying Examination (AQE) when the airman first enters service. Both are paper-and-pencil tests; neither tests physical skills or provides complete information specific to given specialties.

Airmen with lower scores on the AQE may be assigned directly to duty in a field unit instead of to a technical school. Their capabilities to perform assigned tasks are not necessarily comparatively poorer, however, because the AQE is primarily a verbal test, not a test of job performance. Therefore, the Air Force has only sketchy indications of what training these men would need to do a particular job. Airmen with higher scores, being better able to profit from academic instruction, may be sent to a technical school unless there is an urgent demand for men in the field in some specialty for which training is not mandatory.

The low elimination and washback rates in much technical training* suggest that Basic Training and the other elements of the selection

*They are 3 percent and 7 percent, respectively, for the pneudraulics course, for example.

process, such as the AQE, are quite effective in ensuring that entering students have the ability to master course materials and to adjust to the military environment at the Technical Centers. The pneudraulics specialty requires that the entrant score in the 40th percentile or above in mechanical aptitude on the AQE; this is considered to be one of the lowest requirements for entrance into a highly technical field. However, between October 1967 and October 1968, more than 60 percent of these men scored above the 60th percentile. About 15 percent met the highest prerequisite for skills in one of the *electronics*, *administrative*, or *general* fields by scoring above 80 in that field.

Thus, the selection procedures probably tend to place some men who are overqualified in terms of abilities and entering knowledge into certain fields. For example, about 25 percent of the men in the pneudraulics course qualified for proficiency advancement* in 1968. Actual proficiency advances ran around 10 percent. Although proficiency advancement may be used to some extent as an administrative device to adjust student loads, this high rate of *qualification* for proficiency advancement indicates a relatively high student aptitude for mastery of course materials. Overqualification may result in psychological or social difficulties that have deleterious effects over the long run, as well as during training. An airman's aspirations, job expectation, and job satisfaction are also interrelated with his qualifications and his performance in training and on the job.

For students with lower qualifications, however, mastery may be bought at the price of additional instruction. For example, in the pneudraulics course, 12 percent of the students received from 15 to 45 hours of remedial instruction in addition to the normal 360-hour course.

In some instances, pretesting for a given specialty might be rewarding, particularly for students who already have Air Force backgrounds, such as those from the Air National Guard. For example, on

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*Proficiency advancement permits a man to graduate early by completing portions of the course in less than the scheduled time or by skipping portions altogether. To qualify for proficiency advancement, a man should receive a score of 90 or above in at least one end-of-block test.

the average, about one-third of the students with prior experience in the Air Force are allowed to proficiency-advance by skipping two or more weeks of the 12-week course in pneudraulics. The number of proficiency advancements for this category of student can be as high as 75 percent at some times of the year. A performance-oriented pretest might allow most of these students to skip the course altogether. (At present, these men are required to pass a formal course in order to qualify for upgrading.) If, in addition, the pretest were designed to diagnose the students' strengths and weaknesses, instructors would be given a powerful tool for improving the efficiency of instruction by concentrating on those areas where each student needs the most help.

As the airman advances up the skill ladder, his proficiency is evaluated, generally, only by paper-and-pencil tests or judgmental ranking. Also, almost without exception, these tests are given upon completion of a course of study, not before the study is undertaken. Thus there is little pretesting to assure that men do not undergo training in what they have already mastered.

DETERMINING TRAINING REQUIREMENTS

To this point, we have not considered methods for determining what aspects of a task require training. The ideal may be stated simply: "Select those aspects which the trainees have not already mastered"; but it is difficult to put into practice. First it is necessary to identify the needed skills. A number of researchers have described tasks in terms of aspects that are relevant to training (Pieper et al., 1968; Miller, 1956; Chenzoff, 1964). Generally speaking, these descriptions tend to be applicable to a relatively small set of tasks. When narrowly behavioral task descriptions are used, they may leave out much that is assumed to be needed for incorporation of the entrant into the field--for example, general comportment and background knowledge. Just how much of this general behavior and knowledge is really needed has been a matter of debate for years (Smith, 1966).

One of the more useful categorizations of training emphasis was given by Ammerman for junior officer jobs in the Project SAMOFF report

(Ammerman, 1968). He lists such aspects as

1. Ability to perform specific steps, without special time or accuracy requirements
2. Ability to perform with a high degree of accuracy or speed
3. Ability to perform under unique or unusual circumstances
4. Knowledge of when to perform a particular task
5. Knowledge of standards and acceptable tolerance limits, and ability to detect discrepancies
6. Knowledge of the effects performance of the activity will have on equipment or other people

Ammerman added a category for background knowledge, which he characterized as knowledge of the location and nomenclature of items related to the activity and knowledge of reference sources pertaining to the activity. Knowledge of acceptable comportment for job incumbents should probably also be included in this category.

Items 4 and 6 could be more closely related to maintenance training by adding a seventh item: knowledge of how a system or component operates, and knowledge of the purposes a system or component serves. This addition is necessary because Ammerman's categorization is slanted toward the performance expected of junior officers, rather than technicians.

Once the needed skills have been identified, whether or not entrants into the field possess them can be determined by appropriate testing or, in many cases, common sense. The Air Force has followed such an approach in isolated cases (Pieper, et al., 1968), but training "requirements" in long-established jobs are generally not reexamined in such a fashion. Rather, they tend to become records of what was considered to be needed in the past, being revised sporadically to accommodate changes in equipment or maintenance policy.

These requirements are documented in the STS for each AFS by the Technical Training Centers and are provided to Hq. USAF.* A careful study of an STS reveals much about the attitudes of the Technical

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*See Appendix B, p. 46, for a typical STS.

Centers toward appropriate subjects for formal training and about the role of formal training within the skill-level structure of the Air Force.

The STS specifies the level of mastery required for each task in the specialty at each skill level. The definition of *level of mastery*, found on p. 47 of Appendix B, depends on whether the training objective is task performance, task knowledge, or subject knowledge. The terms *task performance* and *task knowledge* are obviously keyed to a specific task or set of tasks. Parallel descriptors for such objectives in educational parlance would be *psychomotor*, *specific cognitive*, and *general cognitive*. Purely cognitive objectives related to specific tasks are frequently set forth in the STS, but psychomotor objectives are always accompanied by the cognitive objectives presumably needed to support task performance.

Assumptions about the extent of cognition needed are debatable. Obviously, it is not necessary to know how an engine works to drive a car. The degree of cognitive support required for acceptable task performance at a given level of task complexity is a matter for analysis, not intuition. The STS implies that most of the tasks to be taught in the Jet Engine Mechanic Specialty are at least complex enough to require some knowledge of the principles of operation of jet engines.

The term *subject knowledge* largely refers to knowledge that is related to more than one task in the specialty or that concerns the why and the how of equipment operation. For example, knowledge of the general principles of fluid pressure and flow would be applicable to many (but not all) of the tasks performed by a pneudraulic repairman. But though such general knowledge is applicable, it is not obvious how much of it is really necessary for a set of tasks in a given specialty. It hardly seems necessary, for example, for a pneudraulic repairman to know how to manipulate the mathematical formula that expresses the general principle of fluid pressure (lesson 4). Such knowledge is more appropriate for the designer than for the repairman.

Technical courses may tend to accumulate *subject knowledge* objectives as they age. This could come about for several reasons. The relative ease of writing and scoring objective tests of the attainment

of knowledge objectives compared to obtaining objective evaluation of the attainment of performance objectives (via observation), and the relative ease of controlling the teaching situation in a classroom setting compared to controlling the teaching situation in a shop are probably the most important.

Additionally, as the job changes in the field, new requirements may be added to the course without a resultant lengthening of the course or without deletion of old materials. The result is insufficient time to permit each student to practice the tasks he will be expected to carry out. Because of the heavy emphasis on paper-and-pencil tests, the performance experiences will be the first items to be omitted. Finally, a desire to respond to the natural curiosity of both instructors and students or even creeping intellectual snobbery may contribute to the proliferation of *subject knowledge* objectives.

In the STS, complete or nearly complete mastery of a task (task performance levels 3 and 4) is rarely* called for at the 3-level. Significantly, mastery of task performance is expressed in terms of the amount of supervision the technician will require (see Appendix B, p. 47). Thus the proficiency schedule displayed in the STS is more a translation of the supervisory aspects of the skill-level structure of the AFS than it is of the proficiency that it is desirable for the graduate to have. In a review of procedures for determining the content of technical training courses, researchers at HumRRO (Hunter, et al., 1969) had the following to say about the STS:

> The limitation of the JTS** as a job model derives from its orientation and methods for its maintenance. ATCR 52-5, Job Training Standards, states that "The general tasks and knowledges listed in JTSs are Air Force Specialty-oriented to reflect the consensus of major air command requirements. They are not job-oriented...." (para 2a). That is, JTSs are normally

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*Safety practices, the use of hand tools, and the use of aircraft hardware (nuts and bolts) are the exceptions.

**The term *Job Training Standard* has been changed to *Specialty Training Standard* since the HumRRO study was completed. The general tenor of the remarks quoted is still applicable to much of the Air Force system.

> prepared to encompass the 3, 5, and 7 levels in an AFSC career ladder and must remain general on that account in order to avoid becoming long and ineffective. JTSs are oriented toward career progressions and not specific jobs. Further, no requirement was found for JTSs to be periodically reviewed on the basis of information detailed to the level of a task inventory, although provision and procedures for collecting this information are contained in AFM 35-2.

Thus, built into the STS and the formal training program is the assumption that underlies all of the skill-level structure in the Air Force, namely, that men with technical expertise may progress in their career field only by taking on more and more supervisory duties. This assumption, which also permeates some highly technical fields in civilian industry, is certainly open to challenge.

Comparisons of the formal basic technical courses, the Career Development Courses (CDCs) required for upgrading and promotion, and the STS suggest that some of the content of basic courses may be justified primarily by requirements for passing the CDCs. If true, since the CDC packages are written, in effect, in the curriculum units of the Technical Centers, the Technical Centers have developed an effective means of ensuring that what they are teaching will be needed, whether it is relevant to the job or not.

At any rate, much work needs to be done to transform the results of a Job Inventory which is primarily job-oriented into a training program.

CHOOSING THE TRAINING MODE

The Air Force conducts training at various locations and by various means in addition to formal training at the Technical Centers. The bulk of this other training is conducted at the site of the job itself by FTDs, Mobile Training Units, formal OJT programs, and apprenticeship training. (This last activity may account for a large amount of performance training; its extent, efficacy, and cost have never been assessed.)

Headquarters USAF provides some guidelines for choosing which aspects of a task are to be taught in formal courses in AFM 50-23,

Guide for Planning and Conducting On-the-Job Training. The following remarks appear on pp. 1-5 and 1-6:

> For some complex AFSs, primary consideration must be given to the knowledge requirements. Since knowledge is most readily acquired in the classroom, it follows that most airmen who are selected for training into such jobs receive their initial training in formal technical schools.
>
> .....
>
> In other similar jobs where the requirements for skill and knowledge are nearly equal, some persons are trained in technical schools and others receive their training on the job*.... After an airman has received the appropriate initial job knowledge training, either in a formal school or on the job, he still has to become thoroughly proficient in a duty position of the specialty for which he has trained. A formal school situation obviously does not lend itself to proficiency training. For the individual to become thoroughly skilled in the duty position, he must have experience on the job.

These remarks reflect and reinforce the tendency for formal training to gravitate toward a concentration on teaching for cognitive objectives as opposed to psychomotor objectives, and it is not surprising to find a heavy emphasis on discussion-demonstration in the classroom in Technical Centers.

The OJT policies cited are part of the Air Force system for classifying and grading technical personnel. This system tends to reduce the job-performance expertise required of the graduate from a basic technical course and is at least partly the result of efforts to provide the Air Force with productive technical personnel as efficiently as possible--in particular, to shorten the time required for initial training so that the Air Force can make maximum use of personnel on their first enlistment.

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*Author's underlining added. Clearly the "balance" between skill and knowledge requirements may be only peripherally relevant to the choice of training mode. For example, skills and techniques of fire fighting are better taught at a training center where conditions can be carefully controlled.

The Air Force defines all 3-level men as *apprentices* (ATC Pamphlet 52-1). The STS implies that these men should be supervised when performing any work in their specialty, although it is likely that supervision of the performance of simple tasks is minimal in many field units. Certainly, such restrictions are reasonable in many instances--where safety is at stake or where the task is more efficiently taught in a job setting, for example. But a logical justification seems lacking for a blanket policy that a graduate of a formal technical course should be unable to perform *any* part of his job without supervision. This policy in effect relieves ATC of the responsibility for providing fully competent personnel to the operating commands and thereby robs the operating commands of the opportunity to judge the quality of ATC graduates by their job performance. Thus, a potentially powerful feedback mechanism for maintaining the relevance of training is lost.

For several other reasons, it may be undesirable to relegate a great deal of job-performance training to the field as a matter of policy. First, there is cost; it may simply be cheaper to teach job performance in formal training. The Air Force is at a serious disadvantage in approaching this question because the costs of OJT and other training in a job setting are not known. In fact, it may well be that the bulk of training costs are hidden in the operating budgets of the major commands, with the result that the greatest effort to achieve training efficiency is focused on ATC merely because its cost is identifiable as training cost.

Dollar cost should not be the sole determinant of training mode, however. Some tasks cannot be taught in a fully realistic job setting because of hazards to the men performing them or because full realism would endanger the lives or property of others. In these cases, the question of dollar cost becomes that of determining how to simulate the amount of realism needed for the minimum dollar cost.

The effectiveness of the alternative methods should also be considered. Safety considerations aside, it might seem that performance training in a job setting would be more effective than in a school setting because the trainee would be learning the precise skills he needs to perform in the environment in which he will work. This is

not necessarily true, because although men at the 7- and 9-levels report that they spend a considerable amount of their time (about 12 percent for the Jet Engine Mechanic Specialty) in training those below them, it is likely that they are not rated or rewarded for their performance *as instructors*; on most bases, their administrative duties take precedence over their training responsibilities. Whether their lack of formal training as instructors decreases their effectiveness as teachers is an open question.

Some might argue that even if performance training in a job setting were more effective in teaching the trainee that particular job, such training may be less effective than formal training in teaching the trainee to perform jobs in his specialty in a variety of settings. The Air Force policy of transferring each man periodically to another job location requires that job incumbents be able to generalize their skills, to a degree. This argument can cut both ways, however. Because of a tendency to assume that what worked in one situation will work in another, when, in fact, it will not, probably as many men have a tendency to overgeneralize job experiences as have an inability to generalize enough. Perhaps the best way to develop the trainee's ability to generalize without overgeneralizing would be to give him opportunities to perform the same task under widely varying conditions, and this can be accomplished most readily in formal training. For example, different commands may have different requirements for documentation, different amounts of time may be allotted to the task, or different mixes of skills may be used in carrying it out.

A good case can be made for the assertion that if any formal training is given at all the bulk of it should be geared from the outset to performance training rather than to the transmission of verbal knowledge of general theory. Others have maintained that, in general, formal training would be more efficient and effective if it were *task oriented* (Smith, 1966), that is, if the content of each lesson were presented in the context of the task(s) that the lesson prepares the student to carry out. To be sure, verbal discussion and directions must accompany each task in order to motivate the student, direct his attention to key points, and summarize general principles for getting

the job done. The trainee also needs to learn the jargon, both verbal and symbolic, of his trade. But many technical courses still include much material that is more useful for the design of systems than for their operation or maintenance.

The most obvious reason for using a task-performance orientation is that such an orientation will provide the greatest assurance possible that the graduate will know how to do his job because it will promote maximum transfer of learning from the training situation to the job. A task orientation also enables the student to practice many times the procedures with which he will be expected to be familiar in the field. In addition to those activities specific to particular tasks, several procedures such as the observation of safety practices, the use of technical orders, and the use of maintenance reporting forms are common to all tasks. Practice in these procedures, particularly the use of technical orders, would go far toward assuring a high-quality graduate.

Another reason for using a task orientation is that it provides the student with greater reinforcement than do hours spent in the classroom. For example, in the pneudraulics course the students do very little "hands-on" work with either aircraft or components of hydraulic systems until the tenth week (Block IV) of the 12-week course. Of the first two weeks of the Jet Engine Mechanic Course, only 8 hours are designated as performance. Students are chosen for these courses on the basis of their scores on the mechanical aptitude section of the AQE, which indicates that they already have some interest in working with machinery. They are eager to begin working on aircraft and are bored and frustrated by having to sit through weeks of lecture-demonstrations. The most telling evidence of high motivation during actual job performance is that when the students are permitted to work on aircraft in Block IV of the pneudraulics course they resent having to take the scheduled hourly break that they so looked forward to during the preceding classroom sessions.* Thus, for these reasons, we believe that a task orientation should be provided from the first day of the course and throughout.

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*Author's observation and discussions with instructors.

Very few educators support the notion, however, that training should be totally task oriented. The most common reason given for this is that task orientation does not provide the trainee with the fundamental knowledge needed to generalize his skills beyond those he was specifically trained for. This may be quite true if general principles of job performance are not learned during the training process. By *general principles of job performance* is meant the "rules of thumb" that are used by people skilled in a given trade. These are often quite unrelated to the theory of mechanics and other subjects that pass as "fundamentals" in much of formal training. The fact of the matter may simply be that curricular materials are more readily available for such fundamentals as the theory of mechanics than are curricular materials on principles of job performance. In other words, most of the people doing the work don't write about it.

MAINTAINING THE RELEVANCE OF A TRAINING PROGRAM

Although ATC requires that training materials be revised at regular intervals, most substantive revisions are occasioned by the introduction of new equipment into the Air Force inventory or the introduction of new equipment into the training centers. The ATC is highly responsive to equipment changes and has set up step-by-step procedures for accommodating such changes in its training structure. This does not mean, however, that the training structure itself is reexamined. For instance, a new aircraft may have a particular electronic system that is far more reliable than similar systems in older aircraft; yet airmen entering the 3-level of this specialty may be taught to service the new system, even though the system doesn't need it, simply because the older systems were maintained by 3-level airmen. The result may be that the new trainees have little opportunity to use what they have been trained to do. Thus, new systems are often literally "fitted into" old training structures. It may not be possible to foresee what will be required to operate and maintain a new system before it has been in the field for a while. Once the initial shakedown phase has passed, however, it should be possible to design an efficient training program by following the steps discussed in Section II.

As we have noted, a principal tool for describing the tasks that an airman at a given skill level will have to be able to perform (the first step in designing the training program) is the Job Inventory. But the Job Inventory, as its name implies, is primarily job-oriented and only peripherally concerned with training. Additionally, as the Job Inventories are now administered, a full year elapses between the initial listing of tasks in the job and the publication of final results; however, several fields can be inventoried in parallel. At the present rate of production, the people who conduct the inventories estimate that 6 to 7 years will be required to go through the entire career field structure. (Something over 200 career fields are involved.) The limitations are imposed primarily by computer facilities. Both a 3-year and 5-year plan have been submitted for approval, with the 5-year plan (requiring the purchase of an additional computer) the most likely to be accepted. It seems likely that even a 5-year cycle will be too lengthy to keep course content as current as would be desirable, although the problem might be partly solved by resurveying only those jobs that appear to be undergoing the greatest changes. At present, an official channel for initiating surveys or resurveys seems to be lacking.

It appears that the four other causes of changes in jobs (listed on p. 6) are not routinely examined for their possible effects on training programs, although sometimes (as with Project 100,000) considerable preplanning is done to adjust the programs to foreseeable changes. Usually, however, until the mismatches become too severe, individual training programs slowly drift toward less-and-less-efficient matches with the job requirements.

IV. SUGGESTIONS FOR RESEARCH

All educational institutions are plagued with problems of maintaining the relevance of what they teach. Because of the obvious, direct impacts of the relevance of training on the efficiency of their own operations, the Military Services and industry have made the most progress toward finding ways to make sure that their training institutions teach what will be needed. Even here, however, the traditional responsibility of education to "transmit the culture" has hindered the development of what is really needed--effective procedures for regular and systematic review of the needs for trained manpower and for translation of these needs into efficient training programs.

This section describes a program of research that could result in the development of more systematic methods for designing efficient training programs and for maintaining their efficiency. Such a program must encompass work in each of the areas illustrated in Fig. 2. In each area, two questions will be addressed: What is required to establish an efficient training program? and, What is required to maintain efficiency?

JOB DESCRIPTION

Making the Job Inventories More Useful

As currently designed, the Job Inventory is more oriented to job analysis than to the needs of designers of training programs. Few guidelines are provided to assist program designers in understanding the implications for training of the results of the Job Inventories, so that, except in the event of glaring discrepancies, the Technical Centers can use the Job Inventories pretty much as they choose. This points to two needs. First, a set of standards needs to be constructed so that the data provided by the Job Inventories may systematically be translated into an entire training program, including formal training at the Technical Centers, OJT, supervised learning-by-doing, and so forth. These

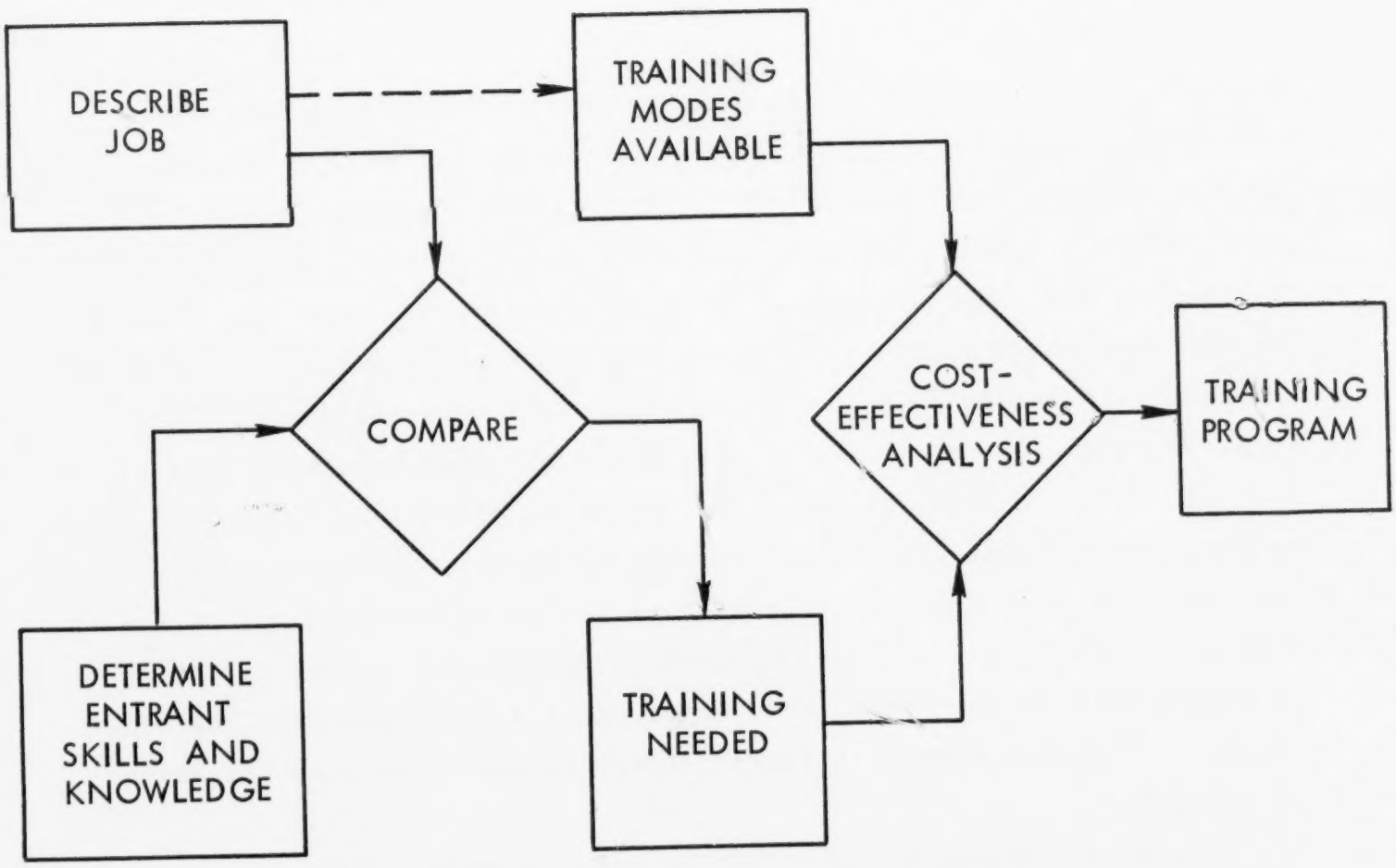

Fig. 2—Designing a training program

standards would consider, at the least:

1. The percent of job incumbents performing the task at each skill level
2. The hazards of the task
3. The complexity of the task
4. The comparative cost to train in the various modes
5. The criticality of the task to mission performance
6. The degree of diversity of task performance in various settings

Chamberlain (1964) attempted to assign measures to several of these criteria by using informed judgment. Obviously, Criteria 1 and 4 are quantifiable, and recent work by Christal (1969) suggests a method for quantifying 3. (Criterion 4 is discussed on pp. 34 and 35 and at length in Appendix C.) Theoretically, reliability analyses or the use of maintenance simulation models could shed some light on Criterion 5, although the human element in complex systems often confounds theoretical findings. A rough idea of Criterion 6 might be obtained by simply listing the number of commands, systems, and differing situations (combat, maintenance of readiness for combat, support of combat, etc.) in which the task is performed. Realistic quantification of Criterion 2 may be the most difficult of all, because historical records may not be available to supply data on what would have happened if safety standards had been relaxed. Clearly, a major research effort is needed on quantification of criteria.

The establishment of quantitative criteria will not be sufficient, however, unless the Headquarters of the organization within which the training institution operates requires that the training system comply with the given standards and sees that this requirement is met. Only then will it be possible to make the best use of Job Inventory (or other job-relevant) data.

Follow-Up Questionnaires

Until the needed standards have been devised, an interim measure could be to follow each full-scale Job Inventory with an in-depth survey

(either by questionnaire or interview) aimed at better determining the need for training for borderline tasks (those performed by, say, less than half of the job incumbents or that take, say, less than 10 percent of the working time). These surveys could be administered to small samples of respondents to keep costs down.

This approach will not be entirely satisfactory, not only because of the usual difficulties with interviews and questionnaires but also because the judgment of job incumbents as to what is required for training is undoubtedly biased by their own experiences in training and on the job. For example, on the Jet Engine Mechanic Job Inventory, none of the tasks in Duties G and H (removing and installing jet engines, repairing jet engines) was rated as requiring more than average training, probably because these are the duties stressed in the basic course. On the other hand, when asked whether knowing about such items as the "theory of electricity" is of value, men in the field will usually respond positively, even though they can't identify the ways in which they have used this knowledge. (When asked about specific items in basic electronics, they will often agree that this material is not useful in maintenance work.)

Maintaining the Relevance of Job Descriptions

The other difficulty with the Job Inventories is that at present they are not conducted often enough to assure relevance for all specialties. It might be possible to schedule surveys in some "optimum" fashion by identifying a set of indicators which suggest that a Job Inventory is needed. If one or more of these indicators is present, the need for a Job Inventory might be determined by considering the time since the last survey and by using the cost of training for the given ladder as a surrogate for the "value" of a survey of that ladder.

One indicator, which we have already discussed, would be the introduction and shakedown of radically different equipment. After a suitable shakedown period, it might be well to survey the entire career ladder to determine not only whether the new equipment was being operated and maintained as anticipated but also whether there were concomitant effects on the distribution of tasks already encompassed by the ladder.

As equipment ages, the distribution and frequency of failures of various components may change. Historical data for similar equipment should probably not be used (even if they are available) to suggest an appropriate time for resurvey of a career ladder that includes work on aging equipment, because component reliability of newer equipment may be quite different from that of similar older equipment. The only solution for this problem may be routine use of maintenance data. This will be discussed in greater detail below.

Major changes in maintenance procedures should certainly be reflected in all areas of training that deal with maintenance; major changes may cause changes in the job structure as well. For example, the large decrease in *periodic maintenance* for jet aircraft could at the least result in the deletion of this subject from many career ladders. (It was still being taught in pneudraulics, for example, when this Report was written.)

In the past, the recruitment and selection processes have fed relatively homogeneous groups of men into given career ladders. The first break in this tradition was the institution of Project 100,000, a program whose aim was to enlist men who would not normally qualify for military service because of failure to pass the AFQT or because of minor physical disabilities. Although the Air Force's quota of such men is low, the formal training programs in several career ladders (such as Environmental Systems Repairman) have been revised to accommodate them, with special attention given to developing basic reading and arithmetic skills, additional remedial instruction, and the like. A question of equal importance is whether these men have had an effect on the distribution of tasks among men at the various skill levels in the career ladders that they enter. Similar questions may be raised if an all-volunteer Army is adopted, as it is expected that such a policy will force the Air Force to accept men of lower "quality" (as measured by the AFQT) than heretofore. The growing disaffection of middle-class youth with the military may reinforce this trend.

A change in the combat status of a unit utilizing men in a given career ladder may effect major and rapid changes in the tasks performed by that unit. The number of units involved and the apparent length of

time for which the changed status will be in effect should be considered in making a decision to resurvey the job. Often changed operating and maintenance procedures are best accommodated by on-site training rather than by overhauling the entire training program.

The scheme proposed above--the use of indicators warning of a possible need for revision and a rough measure of the "value" of revision (the cost of training)--is not really the answer to the problem of assuring that a job description is current. Ideally, data on job performance would be collected routinely and could be analyzed as often as necessary. Under the regulations of AFM 66-1, which describes the Air Force Maintenance Management System, data on frequency of task performance are reported by AFS at the base level. Unfortunately, only the skill level of the man *supervising* the job is recorded, and even this link between the tasks and the people is broken when the raw data are summarized in the reports used at the base level and above. Presumably, in the Maintenance Management Information and Control System (MMICS) this link would be accessible from the data stored in the computer, but there appear to be no plans to make use of such information at present (MMICS System Description, August 1969). Thus, even the association with a particular work order of the number of people performing a task and the skill level of the supervisor will not be reported routinely.

Since the Air Force Logistics Command is necessarily resistant to any additional demands levied on their data system (and since MMICS is probably several years from implementation, at best), it seems unlikely that ATC would be able to use this channel to obtain basic data on task performance by skill level and AFS unless action is taken at Hq. USAF. For maximum effectiveness, MMICS would need to be revised so that the skill levels of all of the men performing a given task are reported. It would probably be unnecessary to report all data for all bases continuously; rather, a sampling schedule could be set up that would take account of the effects of the using command, base location, time of year, etc. The cost to use MMICS for this purpose relative to the cost of conducting and updating the Job Inventories would be a significant determinant as to which system would be preferred.

DETERMINING ENTRANT SKILLS AND KNOWLEDGES

Revising the Testing Program

An airman's final scores in a formal, basic course are significantly correlated with his scores on the AQE; for example, the coefficient of correlation runs between 0.40 and 0.53 for a sample of 371 men in the pneudraulics course. Thus, the AQE has some predictive power with regard to success in formal training, which emphasizes paper-and-pencil performance.

Whether paper-and-pencil tests are valid indicators of a man's potential job skills is another matter. Correlations between job task-performance tests and most types of paper-and-pencil tests are somewhat lower, running between 0.14 and 0.40 for job-knowledge tests and between 0.06 and 0.36 for theory tests (Foley, 1967). The job task-performance test, which tests a man's ability actually to carry out an assigned task, would appear to have more validity as a measure of skill than would a paper-and-pencil test of the man's knowledge of theory or of the job. Therefore, we may seriously question whether the AQE and other paper-and-pencil tests are the right tools for initial assignment of airmen.

Moreover, so much besides narrow job-performance skills enters into a man's usefulness on the job (he should be fairly satisfied with his work, he may have to be able to work with others as part of a team, or he may have to fill out complicated forms) that a comprehensive test of his potential job performance should sample many more kinds of behavior than does the AQE. The cost of such testing has deterred its widespread use in the past. In addition, the Air Force has been able to tolerate misassignment of personnel because it has been able to rely on a steady inflow of above-average men who were generally adaptable enough to adjust to misassignments. Whatever waste has been incurred has been absorbed by the Air Force's policy of overmanning most duties in order to assure that sufficient personnel will be available in times of emergency.

Currently all of the Services are being required to cut back on manpower, which implies either a reduction in overall capability or more efficient use of personnel. If the supply of men of above-average

capability also dwindles, the Air Force may find it worthwhile to overhaul its current methods for assigning airmen to career ladders. For example, once a man had been found capable of performing in some generalized family of jobs (all of which have a large number of basic skills in common), more specialized testing (such as of manipulative capability or spoken communication skills) could be used to assign him within the job family. An expanded counseling program during Basic Training would also be needed to acquaint the entrant with the kinds of jobs available to him within his capabilities. In addition to testing a wider variety of relevant basic skills, it has been suggested that *ceilings* (as well as floors) for test scores be established so that overqualified men will not be assigned to duties that will soon become boring to them.

The diagnosis supplied by specialized testing could be used by instructors or supervisors to tailor training to each airman's particular needs, with a resultant maximum efficiency in training. Such individualization would seem especially useful for men who have had prior experience in the Air Force but must fulfill particular training requirements for upgrading (such as the men from the Air National Guard or Reserve who took the basic course in pneudraulics).

It is even possible that pretesting should be used before a man undertakes training for upgrading to *any* skill level. Even if the gross number of men requiring training is not reduced by pretesting, the test results can, in themselves, be valuable instructional tools.

The difficulty with this suggestion is that currently almost all technical training is conducted far too rigidly to permit such flexibility. This rigidity may have been introduced to compensate for large variations in instructor quality induced by a high replacement rate for military instructors (about 25 percent yearly) and significantly fluctuating demands for instructors brought about by large variations in student loads. Within such a system it may be impossible to maintain the quality of instructor needed to individualize instruction.

By shifting more of the responsibility for progress to the individual student, self-paced learning, such as is being used in the Environmental Systems Repairman Course at Chanute AFB (3ABR 42231), can

individualize instruction to some extent, although the slow, unmotivated student remains a problem for his instructors. Techniques of reinforcement being developed in a number of schools and the use of motivational units can alleviate this difficulty.

Maintaining the Relevance of the Testing Program

It should be clear that the changing needs for skills on the job, coupled with changing characteristics of airmen (such as a gradually rising level of formal education completed), will make periodic revisions in the testing program desirable. If the tests sampled a more representative set of behaviors needed on the job and if some job-performance testing were carried out in the field (at least for a sample of men), then a sign of the need for revisions would be a falling correlation between pretests and job-performance tests.

DETERMINING TRAINING NEEDED

The determination of which specific tasks in a job require training for a given skill level can be accomplished by applying Criteria 1, 2, 3, and 5 (p. 26) to the Job Inventory or, alternatively, by using a follow-up questionnaire for marginal cases. This does not settle the question of what the emphasis should be in training for that task.

Matching the results of "sufficiently detailed" pretesting with "sufficiently detailed" task descriptions ideally should pinpoint areas where training is needed. Several recent studies have been directed toward the future development of a methodology for task description that will supply the tools needed for this kind of analysis. Until such a methodology is available, interim steps can be taken. For example, questionnaires or interviews could be used to determine the appropriate emphasis of the training.

Choosing Training Emphasis Experimentally

At present, perhaps the best way to determine the desirable mix of student activities among learning background information, being shown how to do a job, practicing skills, and other forms of instruction is

by experimentation. The experiment in training men to maintain the fire-control system for the F-111 (Valverde, 1968) is an excellent example of the kinds of questions that can be investigated in this way.

Evaluation of the experiment requires the use of performance-oriented tests, which are costly to administer and often subjective in nature. Unfortunately, although experiments of this kind (Brown, 1960) seem to have supported a job-performance orientation in training, the evaluators have often been the same people who proposed the experiments in the first place. This makes it too easy to discredit their findings. In the future, as more such experiments are done, they should be evaluated by independent testers.

Using Returnees from Line Duty to Update Courses

It should certainly be possible in any specialty to make use of the experience of new instructors who have just arrived at the Technical Center and have been working in the Specialty that they are going to teach. Their observations on what they actually did on the job, what aspects of their former training they found most useful, what additional training they felt would have been helpful, and what tasks were the most difficult should be invaluable. The first objective of the Technical Center should not be to fit such men into the existing routine, but to make as much use of their experience in the revision of training programs as possible *before* they are exposed to the existing routine. To protect new instructors from the vested interests of incumbent instructors, interviews would probably have to be carried out by people on the same organizational level in the Technical Schools as the Instructional System Design Teams. An experimental program of this type might be carried out by the Experimental Studies Branch (TSOX) at Chanute AFB, for example. The TSOX staff could work out the appropriate form for a structured interview (or, of less efficacy, a questionnaire) and test its usefulness by applying it to new instructors in a sampling of technical courses.

DETERMINING TRAINING MODE

A final step in the general design of a training program is the selection of the appropriate training mode for each phase of training. *Training mode* refers to the location at which the training is to be given and the organization that is to be responsible for the training. It is a major thesis of this Report that cost-effectiveness analysis should play a central role in making these choices. Some considerations in the application of cost-effectiveness analysis to the selection of the training mode are discussed in Appendix C. Here, we shall treat only the major points of that discussion.

First, the Air Force, like almost all other organizations, does not now have the tools needed to determine either the cost or the effectiveness of many of its activities, particularly those in the support areas, of which training is one. Only the cost of training conducted by ATC is known, and this is not known precisely enough to be used in analysis.*

Techniques are needed for relating the cost of a particular training activity to the resources it would require so that the cost of a change in the activity or that of an entirely new activity may be estimated. To assure that resource and cost data are reported consistently and to enable the analyst to consider a wide variety of alternatives, it is convenient to construct a "resource and cost model," a simulation of the training activity that relates variable inputs (primarily the number of trainees) to the resources that the training will require (such as instructors, facilities, and equipment) and to their cost. Models of this kind have been constructed for Air Force pilot training (Allison, 1969) and for resident technical training. They are needed for other modes of technical training as well.

A parallel problem is that there are now few measures of the effectiveness of training in various modes. Unlike the problems of estimating the effectiveness of military systems such as ICBMs, where

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*The cost of a student-week in a given course is computed from the total cost of operating a branch within a department. The branch may conduct many courses, some of which use considerably different mixes of resources than others. The cost of OJT or other training activities conducted outside of ATC is not known.

real-world data are unobtainable, however, it is possible to measure many aspects of the effectiveness of training. Job-performance tests, ratings by trained observers of the social aspects of behavior, and other techniques may be used in addition to paper-and-pencil tests. Although the outcomes, in terms of these measures, of training in a particular mode cannot be predicted beforehand (because there is, as yet, no input-output model for the learning process), they can be determined experimentally. This should be done so that judgments concerning the relative effectiveness of different training modes will have a much more objective basis than they do at present. Continued work along these lines will be needed if the potential benefits of cost-effectiveness analysis are to be realized.

ORGANIZATIONAL CHANGES FOR ENHANCING THE RELEVANCE OF TRAINING PROGRAMS

To this point we have been concerned largely with developing mechanisms for designing training programs and maintaining their relevance within the existing Air Force organizational structure. But it is this structure that introduces some of the barriers to communication that inhibit the maintenance of relevance. Therefore, it seems reasonable to contemplate what changes in organizational structure might be feasible and might promote relevance at the same time.

Changes in Amount of Training in a Job Setting

One solution that many people propose when first considering this problem would be to conduct almost *all* training in a job setting. Several objections to this approach have been noted earlier (pp. 19 and 20). The major difficulty is that there is no guarantee that the training activity will consistently be taken seriously, when the trainer's primary duties are not training. It has been suggested (Seamans, 1955) that ATC conduct *all* OJT, to solve this problem, but probably the apparent expense of this tactic has defeated the suggestion. If the true cost of OJT, as it is now conducted, were known, this issue could be resolved.

Changes in the Personnel Grading System

The Air Force's personnel policies are tightly interwoven with the career-ladder structures. But the technical skills required by the Air Force are so diverse and the relationships among skills and Air Force needs (and the civilian economy) are so complex that it would seem difficult to formulate a few overall policies that would most efficiently manage all technical personnel. Thus it is not surprising that the apparent rationale behind the current personnel grading system seems to break down on close inspection of specific cases. In particular, ATC should train technicians as fully as possible wherever cost and safety considerations show this to be desirable. This might even make it possible for a man to advance to 5-level status through formal training alone. It would also improve communications between the producer and the user of trained personnel, since the user would have a right to expect a new man to be almost fully trained for some tasks; this would encourage training organizations to maintain the relevance of training.

There should also be channels for advancement up the career ladder other than the supervisory route. Top-notch technicians might prefer to (or often might better) remain technicians than attempt to take on supervisory jobs such as planning and training. The attempt to apply a single policy to all men in career ladder must frequently result in mismatches between the man and his job and consequent irrelevance of training. At the least, a branch point might be provided for men whose primary interest is in improving their technical expertise. This may be especially desirable in highly technical areas where the really good technician is especially attuned to the intricacies of his trade and may encourage a heavier emphasis on "hands-on" performance in training at the basic level and at more advanced levels for men not taking the supervisory route. Of course, any changes of these kinds will result in changes in the job description and will require corresponding changes in the training program.

Setting Up Organizations for Formal Training Within the Operating Commands

The operating commands regularly conduct extensive programs for mission-oriented training. This suggests that certain of the operating commands could be assigned the responsibility for establishing and maintaining formal schools for training some of their own maintenance personnel, especially for career ladders that feed into only one command. This might go part of the way toward solving problems of relevance without running the risk of losing the training organization needed to supply continuity and meet sudden demands. Although there are clearly cost-oriented arguments against this suggestion, they may not be as strong as it might appear at first, and effectiveness arguments might outweigh them in most cases. (There will be instances in which this is not true; thus, some training will always have to be conducted outside of the operating commands.) Additionally, the cost penalties may not be serious for many courses with low student flows that feed only into one command. At any rate, this looks like an area that would be worth further investigation from the cost standpoint.

The entire technical training program would need to be reviewed in order to determine

- Which operating commands should establish formal technical schools (for example, considerations would be different for U.S.-based commands, such as SAC, and overseas commands, such as USAFE)
- Which courses feed into only one operating command
- Which courses feed into more than one command, how demands levied by each command are translated into student loads, and at what point a single school to supply all using commands would be desirable

Criteria should be set up for deciding whether existing Technical Centers should supply the needs of particular commands, and the impacts in terms of resource requirements should be estimated. For example, expensive, fixed training facilities (such as the Minuteman silo at Chanute AFB) might dictate that part of a given Center operate within the command making greatest use of these facilities.

Appendix A

JOB DESCRIPTIONS: JET ENGINE MECHANIC AND JET ENGINE TECHNICIAN

AIRMAN AIR FORCE SPECIALTY

JET ENGINE MECHANIC

1. SPECIALTY SUMMARY

Removes, installs, disassembles, inspects, repairs, assembles, services, tests, and modifies turbojet, turboprop, and turbofan aircraft engines, turbojet missile engines, and small gas turbine engines.

2. DUTIES AND RESPONSIBILITIES

a. *Performs inspections and preventive maintenance on jet engines including small gas turbine engines and turbojet missile engines:* Performs engine periodic and special inspections by checking engine components for cracks, dents, security of attachment, servicing, leakage, foreign matter, clearances, deformation, and proper safeties. Removes from and installs engine in aircraft, including disconnecting and connecting fuel, oil, air, and hydraulic lines, aligning of engine, and inspecting controls for freedom of movement and mounting pads for condition. Analyzes and evaluates an operating engine and makes engine performance adjustments such as maximum and minimum rpm, exhaust gas temperature (EGT), and oil pressure. Recognizes troubles through evaluation of engine and/or engine systems operational checks. Analyzes trouble indication and determines possible cause using technical order diagrams. Isolates troubles by using such test equipment as fuel and oil pressure gages, exhaust gas temperature test instruments, Spectrometric Oil Analyzer, and engine pressure ratio gage. Takes appropriate action to insure correction of defect. Operates and performs operator maintenance on jet engine ground support equipment, such as maintenance stands, auxiliary power units, Spectrometric Oil Analyzer, and air compressors. Selects, uses, and cares for common hand and special tools. Observes and practices safety procedures.

b. *Accomplishes field maintenance repair and engine build-up:* Disassembles engine to the extent necessary to repair and/or replace engine parts, to include removing and or disassembling engine components such as exhaust cone or afterburner, turbine rotor(s), combustion chamber(s), compressor(s), engine plumbing, electrical leads and units, bearings, seals, oil metering jets, and filters. Cleans and inspects engine components using visual, magnetic particles, fluorescent penetrant, and dye penetrant inspection methods. Analyzes engine inspection findings to determine need for repairs. Repairs engine by replacing parts and removing such defects as nicks, dents, scratches, and burrs. Assembles engine adhering to prescribed procedures, torque values, safetying methods, and clearances on such items as compressor rotor, turbine rotor, and afterburner nozzle. Modifies engines in accordance with technical directives. Removes and installs quick-engine change kit. Prepares engine for installation in aircraft. Accomplishes corrosion control.

c. *Performs special and field maintenance tests of jet engines including small gas turbine engines and turbojet missile engines:*

Installs engines in test stand. Installs test equipment and makes necessary connections. Performs preoperational and postoperational inspections. Operates the engine and performs engine tests, in accordance with applicable directives, to include checking for leaks, making engine trip checks and/or idle and maximum rpm adjustments, checking vibration, and completing test log sheet. Removes engine from test stand. Accomplishes operator maintenance on test stand. Follows established control procedures to eliminate the possibility of foreign object damage to engines.

d. *Supervises jet engine repair personnel:* Assigns maintenance functions to subordinates and observes performance to insure compliance with applicable directives. Instructs subordinates in maintenance of turboprop and jet engines and associated equipment.

3. SPECIALTY QUALIFICATIONS

a. *Knowledge:*

(1) Knowledge of mechanical principles as applied to turboprop and jet engines; and the use of technical publications is *mandatory*. Possession of mandatory knowledge will be determined in accordance with AFM 35–1.

(2) Knowledge of electrical theory is desirable.

b. *Education:* Completion of high school is desirable.

c. *Experience:* (1) Experience in functions such as installation, repair, or maintenance of jet engines is *mandatory*.

(2) Experience in testing of jet engines is desirable.

d. *Training:* Completion of a basic jet engine repair course is desirable.

e. *Other:*

(1) Normal color vision as defined in AFM 160–1 is *mandatory*.

(2) A minimum aptitude level of Mechanical 40 is *mandatory*.

4. SPECIALTY DATA

a. *General Spread:*

Sergeant and staff sergeant	43250
Airman first class	43230

b. *Related D.O.T. Jobs:*

Aircraft-and-Engine Mechanic (Aircraft Mfg.; Air Trans.)	621.281
Assembler, Aircraft Power Plant	621.381

c. *Related DOD Occupational Subgroup:* 601

AIRMAN AIR FORCE SPECIALTY

JET ENGINE TECHNICIAN

1. SPECIALTY SUMMARY

Removes, installs, inspects, repairs, maintains, tests, and modifies aircraft jet engines, small gas turbine engines, turboprop engines, and turbojet missile engines; maintains associated equipment; and supervises jet engine repair activities.

2. DUTIES AND RESPONSIBILITIES

a. *Advises on technical problems of repair and maintenance of turboprop and jet engines:* Solves unusual maintenance problems by studying layout drawings, diagrams, blueprints, and wiring and schematic diagrams, and analyzing construction and operating characteristics of turboprop and jet engines including small gas turbine engines and turbojet missile engines. Devises alignment and calibration procedures to insure maximum operating efficiency. Determines repair procedures necessary to correct defective equipment. Interprets installation and maintenance policies and procedures related to turboprop and jet engine repair. Diagnoses recurring malfunctions and recommends corrective action by initiation of unsatisfactory reports, proposed modifications, or other appropriate means. Devises new maintenance and operating procedures and recommends revised policy to facilitate full utilization of personnel and equipment.

b. *Removes, installs, inspects, repairs, and modifies jet engines including small gas turbine engines:* Diagnoses unusual malfunctions, using diagrams, schematic diagrams, and other technical publications and performs difficult repair. Determines extent of disassembly necessary to repair or replace engine parts. Inspects engine components using visual, magnetic, fluorescent, and dye penetrant inspection methods. Analyzes inspection findings to determine extent of repair. Repairs engine by replacing parts and removing such defects as nicks, dents, scratches, and burrs. Assembles engine, adhering to prescribed procedures, torque values, safety methods, and clearances. Modifies engine in accordance with technical directives. Removes and installs quick engine change kit. Prepares engine for installation and installs engines in aircraft. Makes repairs to internal turbines. Conducts tests of repaired components, using bench mockups and related test equipment. Adjusts, aligns, and calibrates jet engines and their components to insure maximum operating efficiency consistent with design characteristics.

c. *Performs and supervises test stand functions on aircraft and missile jet engines:* Performs complicated and unusual test functions by placing engine on test stand and installing test equipment and necessary connections. Performs preoperational and postoperational checks. Operates engine and performs engine tests in accordance with applicable directives and records test data on log sheet. Determines engine performance by computing engine thrust, specific fuel consumption, engine rpm, and exhaust gas temperature. Evaluates engine performance and accepts or rejects engine. Removes engine from test stand and prepares it for installation or storage. Accomplishes operator maintenance on test stand.

Observes and insures compliance with established safety procedures.

d. *Inspects jet engines and related equipment:* Inspects jet engines to determine operational status. Interprets inspection findings and determines adequacy of corrective action. Inspects installed and repaired jet engines and components to insure compliance with technical publications. Studies technical orders and other information with regard to jet engines. Evaluates justification for unsatisfactory reports and practicability of proposed modifications.

e. *Supervises jet engine repair personnel:* Plans and schedules assignments. Establishes work methods, production controls, and performance standards. Insures the availability of required maintenance equipment, tools, and spare parts. Assigns repair and maintenance functions to subordinates and establishes priorities for work accomplishment. Evaluates performance of jet engine mechanics in terms of compliance with operation policies, maintenance procedures, and technical orders. Conducts on-the-job training programs. Rotates assignment of jet engine mechanics on various trainer components to insure opportunity for full qualification and to improve utility of assigned airmen. Reviews training status to determine level of qualification achieved by individuals and units.

3. SPECIALTY QUALIFICATIONS

a. *Knowledge:* Knowledge of mechanical principles as applied to jet and turboprop engines; and use and interpretation of wiring diagrams, blueprints, and technical directives is *mandatory*. Possession of mandatory knowledge will be determined in accordance with AFM 35–1.

b. *Education:* Completion of high school is desirable.

c. *Experience:*

(1) Qualification as a Jet Engine Mechanic is *mandatory*. In addition, experience in performing or supervising functions such as repair, modification, or testing of turboprop and jet engines is *mandatory*.

(2) Experience in maintenance of airframes is desirable.

d. *Training:*

(1) Completion of an advanced jet engine repair course is desirable.

(2) Completion of appropriate base level management course is desirable.

(3) Completion of a course in Propulsion Shop Management is desirable.

e. *Other:* Normal color vision as defined in AFM 160–1 is *mandatory*.

4. SPECIALTY DATA

a. *Grade Spread:* Technical sergeant and master sergeant.

b. *Related D.O.T. Jobs:*

Aircraft-and-Engine Mechanic (Aircraft Mfg.; Air Trans.) 621.281

Assembler, Aircraft Power Plant 621.381

c. *Related DOD Occupational Subgroup:* 601

Appendix B

SPECIALTY TRAINING STANDARD: JET ENGINE MECHANIC AND JET ENGINE TECHNICIAN

SPECIALTY TRAINING STANDARD
No. 43230/50/70

DEPARTMENT OF THE AIR FORCE
WASHINGTON, 22 August 1968

JET ENGINE MECHANIC AND JET ENGINE TECHNICIAN

1. Purpose of this STS. As prescribed in AFR 50-34, this STS:

a. States in column A of attachment 1 the tasks, knowledges, and general study references (GSR) necessary for airmen to perform duties in the Jet Engine ladder of the Airman Aircraft Maintenance Career Field. These are based on Specialty Descriptions effective 1 January 1967 in Change L for AFSC 43230/50 and 31 March 1966 in Change I for AFSC 43270, AFM 39-1.

b. Shows in columns B and E the proficiency attained in Courses 3ABR43230 (PDS Code AM5) and 3AAR43270-1 (PDS Code CAZ) described in AFM 50-5.

c. Indicates in columns C, D and F of attachment 1 the minimum proficiency recommended for each task or knowledge for qualification at the 3, 5 and 7 level AFSCs. AFM 50-23 is the authority to change the proficiency level during JPG development when the local requirement is different from the level shown in this STS.

d. Provides basis for supervisors to plan and conduct individual OJT programs.

e. Provides a convenient record of on-the-job training completed when inserted in AF Form 623, "Consolidated Training Record", and maintained in accordance with AFM 50-23.

2. Proficiency Code Key. Attachment 1 contains the Proficiency Code Key used to show proficiency level.

3. Recommendations. Report to ATC (ATTDC) unsatisfactory performance of individual graduates, or inadequacies of this STS. Refer to specific items of this STS. See AFR 50-10.

4. Index and Distribution. See AFR 0-8.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

J. P. McCONNELL, General, USAF
Chief of Staff

JOHN F. RASH, Colonel, USAF
Director of Administrative Services

1 Attachment
Qualitative Requirements

This Standard supersedes JTS 43230/50/70, 2 March 1966 and Change A, 24 April 1967.

STS 43230/50/70

THIS BLOCK IS FOR IDENTIFICATION PURPOSES ONLY		
TRAINEE		
NAME	INITIALS (IN WRITING)	GRADE
ORGANIZATION		
TRAINER'S NAMES AND INITIALS (In Writing)		
N/I	N/I	
N/I	N/I	

QUALITATIVE REQUIREMENTS

PROFICIENCY CODE KEY		
	SCALE VALUE	DEFINITION: The Individual
TASK PERFORMANCE LEVELS	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (EXTREMELY LIMITED)
	2	Can do most parts of the task. Needs help only on hardest parts. May not meet local demands for speed or accuracy. (PARTIALLY PROFICIENT)
	3	Can do all parts of the task. Needs only a spot check of completed work. Meets minimum local demands for speed and accuracy. (COMPETENT)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (HIGHLY PROFICIENT)
* TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can name the steps in doing the task and tell how each is done. (PROCEDURES)
	c	Can explain why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, identify, and resolve problems about the task. (COMPLETE THEORY)
** SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can explain relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

– EXPLANATIONS –

- * A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Examples: b and 1b)
- ** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task, or for a subject common to several tasks.
- \- This mark is used alone instead of a scale value to show that the individual needs no training in task performance, task knowledge, or subject knowledge at this skill level.
- X This mark is used alone in ATC course columns to show that training is not given due to limitations in ATC resources.

STS 43230/50/70

(A) TASKS, KNOWLEDGES AND GENERAL STUDY REFERENCES	PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION (B) Crs (3) Lvl	(C) AFSC (3) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(D) AFSC (5) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(E) Crs (7) Lvl	(F) AFSC (7) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials
NOTE: Users may annotate lists of GSRs to identify current publications pending STS revision.											
1. AIR FORCE MISSION AND ORGANIZATION											
GSR: AFMs 1-1, 35-1, 39-1; AFR 55-43; AFVA 39-1.											
a. Overall mission of the Air Force	A	A			B			-	B		
b. Air Force organizational structure	A	A			B			-	B		
c. Organization and mission of the unit to which assigned	-	-			C			-	C		
d. Airman classification system	B	B			B			-	B		
2. SECURITY											
a. General Security											
GSR: AFP 50-15-3; AFR 205 Series.											
(1) Purpose of the Air Force Security Program	B	B			C			C	D		
(2) Security publications	B	B			C			C	D		
? (3) Characterize information as classified, sensitive or unclassified	1b	1b			2b			2b	3c		
? (4) Categorize information as Top Secret, Secret, Confidential, or For Official Use Only	1b	1b			2b			2b	3c		
? (5) Safeguard classified/ sensitive information	b	b			2b			2b	3c		
b. Communications Security (TRANSEC)											
GSR: AFPs 50-46 (Publication date is pending), 50-47; AFR 205-7.											
? (1) Select and recommend mode of transmission dictated by security and expediency required	1b	1b			2b			2b	3c		
? (2) Observe security precautions involved in voice communication	b	b			2b			2b	3c		

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(A) TASKS, KNOWLEDGES AND GENERAL STUDY REFERENCES	PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION (B) Crs (3) Lvl	(C) AFSC (3) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(D) AFSC (5) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(E) Crs (7) Lvl	(F) AFSC (7) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials
3. SAFETY											
a. Principles and objectives of ground safety	B	B			C			-	C		
GSR: AFMs 92-1, 127-101											
? b. Apply safety procedures during jet engine maintenance	2b	2b			4c			-	4d		
GSR: AFM 127-101; TOs 00-25-172, 00-25-212, 1-1-3.											
c. Procedures for ground accident reporting	-	-			C			-	C		
GSR: AFMs 127-2, 127-101											
d. First aid procedures for emergencies	B	B			C			-	D		
GSR: AFM 127-101.											
? e. Practice proper care and use when maintaining tools and test equipment	2b	2b			3c			-	4d		
? 4. PUBLICATIONS											
GSR: AFMs 7-1, 66-1; TOs 00-5-1, 00-5-2.											
a. Use Index Type Technical Orders	2b	2b			3c			4c	4c		
b. Use Technical Manuals	2b	2b			3c			4c	4c		
c. Interpret Time Compliance Technical Orders	b	b			3c			3d	4d		
d. Use Abbreviated Technical Orders	2b	2b			3c			4c	4c		
e. Use Methods and Procedure Type Technical Orders	2b	2b			3c			4c	4c		
f. Interpret Technical Publications and Directives	-	-			2b			3d	3d		
g. Use Standard Publications	-	-			2b			3c	4c		
5. AIR FORCE SUPPLY DISCIPLINE											
GSR: AFMs 66-1 (Chap 3), 67-1 (Part I, Vol 1); AFR 67-10											
a. Function of USAF supply system	A	A			B			-	B		
E. 7, 15, 17, 23 b. Use tags, issue slips, and turn-in slips	-	-			2b			-	3c		

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(A) TASKS, KNOWLEDGES AND GENERAL STUDY REFERENCES	PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION (B) Crs (3) Lvl	(C) AFSC (3) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(D) AFSC (5) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(E) Crs (7) Lvl	(F) AFSC (7) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials
5 c. Property accountability and responsibility	A	A			B			-	B		
6. SUPERVISION AND TRAINING											
GSR: AFMs 25-1, 39-62, 50-20.											
a. Supervision											
? (1) Coordinate work with maintenance specialists and other personnel	-	-			3c			3d	4d		
GSR: AFM 50-8.											
A. 16 (2) Plan and schedule work assignment and priorities	-	-			2b			3c	4c		
A. 2 (3) Assign maintenance and repair work	-	-			2b			3c	3c		
A. 1 (4) Assign personnel to positions	-	-			2b			3c	4d		
? (5) Supervise mechanics when accomplishing maintenance and inspections	-	-			2b			3c	3d		
C. 1 (6) Analyze and prepare reports and charts when performing maintenance and inspections	-	-			2b			3c	4c		
GSR: AFM 10-4.											
? (7) Establish work methods, controls and performance standards	-	-			2a			3c	4d		
C. 12 (8) Evaluate subordinates	-	-			2a			2c	3c		
(sic!) (9) Justify personnel and equipment	-	-			1a			2b	3c		
GSR: AFM 10-4.											
A. 23 (10) Prepare organizational charts	-	-			1a			3c	3c		
? (11) Apply principles of organization and management	-	-			1a			2b	3c		
? (12) Interpret maintenance policies and procedures	-	-			1b			2b	3c		
? (13) Enforce maintenance procedures	-	-			1b			2b	3c		
A. 27 (14) Recommend policy changes on utilization of personnel and equipment	-	-			1a			3c	4c		
b. Training											

	(A) TASKS, KNOWLEDGES AND GENERAL STUDY REFERENCES	PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION (B) Crs (3) Lvl	(C) AFSC (3) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(D) AFSC (5) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(E) Crs (7) Lvl	(F) AFSC (7) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials
6 b (1) D. 11	Indoctrinate newly assigned personnel	-	-			2a			3c	3c		
	GSR: AFM 50-20.											
D. 4, 17 (2)	Schedule and conduct OJT programs	-	-			3b			3c	4c		
	GSR: AFMs 50-9, 50-23.											
D. 12 (3)	Maintain OJT records	-	-			2b			3c	4c		
	GSR: AFM 50-23.											
7.	MAINTENANCE MANAGEMENT											
	GSR: AFM 66-1 and TO 00-20 Series.											
	a. Functions and responsibilities of the Chief of Maintenance	A	A			B			-	B		
	b. Basic functions of management units that make up the Chief of Maintenance staff	A	A			B			-	B		
	c. Man-hour reporting system	A	A			B			-	C		
	d. Work order number (prefix/suffix)	A	A			B			-	C		
	e. Job control number	-	A			B			-	C		
	f. Maintenance data collection	A	A			C			-	C		
	g. Processing and controlling of materiel	A	A			B			-	C		
8.	MAINTENANCE AND INSPECTION SYSTEM AND FORMS											
	GSR: AFM 66-1 and TO 00-20 Series.											
	a. Inspection and maintenance systems	B	B			B			-	C		
B. 8	b. Use man-hour reporting forms	2b	2b			3c			-	3c		
E. 3(?), 4	c. Use maintenance data collection forms	2b	2b			3c			-	3c		
	d. Materiel deficiency reporting system	A	A			B			-	B		
	GSR: TO 00-35D-54.											
F. 11	e. Check reports to determine methods for improving procedures at local activity	-	-			2b			-	3c		

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	(A) TASKS, KNOWLEDGES AND GENERAL STUDY REFERENCES	PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION (B) Crs (3) Lvl	(C) AFSC (3) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(D) AFSC (5) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(E) Crs (7) Lvl	(F) AFSC (7) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials
9.	HAND AND SPECIAL TOOLS											
	GSR: AFM 127-101; TOs 32-1-101, 32B-14-3-1-101.											
?	a. Select, use, and care for handtools	2b	2b			3c			3c	4c		
?	b. Select, use, and care for special tools	2b	2b			3c			3c	4c		
10.	GENERAL											
	a. Career field progression of the jet engine mechanic	B	B			C			C	C		
	GSR: AFMs 35-1, 35-8, 39-1, 50-23.											
Already listed - 9a	b. Select, care for, and use handtools	3b	3b			3c			-	4c		
	GSR: TO 32-1-101.											
G. 6, 5c.	Identify and use (1) Aircraft hardware	3b	3b			3c			-	4c		
	GSR: TO 1-1A-8.											
	(2) Hoses, tubing and fittings	2b	2b			3c			-	4c		
	GSR: TOs 00-20K-1, 1-1A-8.											
	(3) Simplified wiring diagram	1b	1b			2b			-	3c		
H. 4	d. Use safetying devices	2b	3b			3c			-	4c		
	GSR: TO 1-1A-8.											
?	e. Select, care for and use measuring and torquing devices	2b	2b			3c			3c	4c		
	GSR: TO 32B14-3-1-101.											
Already listed - 3b	f. Practice ground safety	3b	3b			3c			3c	4c		
	GSR: AFM 127-101.											
?	g. Apply corrosion control procedures	1b	1b			3c			-	4c		
	GSR: TOs 2-1-11, 2J-1-18.											
	h. Furnish data for:											

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(A) TASKS, KNOWLEDGES AND GENERAL STUDY REFERENCES	PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION (B) Crs (3) Lvl	(C) AFSC (3) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(D) AFSC (5) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(E) Crs (7) Lvl	(F) AFSC (7) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials
10 h (1) Historical record for aeronautical equipment (E. 19)	a	a			3c			3c	4c		
GSR: TO 00-20 Series.											
Already listed - 5b (2) Condition and status tags and labels	a	a			3b			3c	4c		
GSR: AFM 67-1 (vol I).											
E. 24 (3) Turbine wheel historical record	a	a			3b			3c	4c		
GSR: TO 00-20 Series.											
E. 9 (4) Engine status change report	-	-			3b			3c	4c		
GSR: AFM 400-1.											
11. JET ENGINE AND RELATED SYSTEMS INCLUDING SMALL GAS TURBINE ENGINES											
GSR: Applicable Engine Technical Orders.											
a. Constructional features and operating principles of jet engines	B	B			C			C	C		
b. Purpose, operation and general arrangement of the following systems:											
(1) Starter	B	B			C			C	C		
(2) Ignition	B	B			C			C	C		
(3) Engine oil	B	B			C			C	C		
(4) Engine fuel	B	B			C			C	C		
(5) Thrust augmentation	B	B			C			-	C		
(6) Compressor airflow control	B	B			C			C	C		
(7) Anti-icing	B	B			C			-	C		
(8) EGT indicating	B	B			C			C	C		
(9) Fire warning	B	B			C			C	C		
(10) RPM and/or torque indicating	B	B			C			C	C		
(11) Engine pressure ratio	B	B			C			C	C		

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(A) TASKS, KNOWLEDGES AND GENERAL STUDY REFERENCES	PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION (B) Crs (3) Lvl	(C) AFSC (3) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(D) AFSC (5) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(E) Crs (7) Lvl	(F) AFSC (7) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials
11 b (12) Constant speed drive	B	B			C			-	C		
c. Purpose, operation and general arrangement of the thrust reverser	A	A			B			-	C		
12. JET ENGINE INSPECTION AND PREVENTIVE MAINTENANCE INCLUDING SMALL GAS TURBINE ENGINES											
GSR: TOs 00-20 Series, 00-35A-15 and Applicable Technical Orders.											
? a. Perform inspections in accordance with applicable Technical Order publications and directives	2b	2b			3c			4c	4c		
? b. Perform special modifications inspections as required	-	-			3b			-	4c		
H. 30 c. Accomplish Time Compliance Technical Order directives	-	-			2b			-	4c		
13. REPAIR AND MAINTENANCE OF JET ENGINES INCLUDING SMALL GAS TURBINE ENGINES											
GSR: TOs 00-35F-1, 00-110A-5, 00-110N-4 and Applicable Engine Technical Orders.											
a. Purpose and procedures for disassembly, cleaning, inspection and reassembly of engines	B	B			C			C	C		
GSR: TOs 00-20K-1, 1-1A-8, 2J-1-13, 2J-1-26.											
? b. Use Applicable Technical Orders and directives during disassembly, inspection and reassembly of engines	2b	2b			3c			4c	4c		
? c. Use appropriate special tools and maintenance stands	2b	2b			3b			3c	4c		
d. Remove, inspect and install:											
GSR: TOs 00-20K-1, 1-1A-8, 2J-1-13.											
H. 43 (1) Engine plumbing	2b	2b			3b			3c	4c		
H. 41 (2) Electrical components	2b	2b			3b			3c	4c		
H. 45 (3) Exhaust cone and/or afterburner	2b	2b			3b			-	4c		
H. 39 (4) Combustion chamber(s)	2b	2b			3b			3c	4c		
H. 48 (5) Turbine rotor(s) and turbine nozzle(s)	2b	2b			3b			3c	4c		

(A) TASKS, KNOWLEDGES AND GENERAL STUDY REFERENCES	(B) Crs (3) Lvl	(C) AFSC (3) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(D) AFSC (5) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(E) Crs (7) Lvl	(F) AFSC (7) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials
	PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION										
H. 40 13 d (6) Compressor(s)	1b	1b			3b			3c	4c		
H. 49 (7) Engine accessories	2b	2b			3b			3c	4c		
GSR: TO 2J-1-24.											
H. 42 (8) Engine bearings	2b	2b			3b			3c	4c		
H. 44 (9) Engine oil seals	2b	2b			3b			3c	4c		
H. 47 (10) Oil metering jets	2b	2b			3b			3c	4c		
H. 46 (11) Fuel manifolds and fuel nozzles	2b	2b			3b			3c	4c		
? e. Repair engine components in accordance with applicable publications	1a	1a			2b			-	4c		
GSR: TO 00-25-200.											
H. 17 f. Identify, recover and dispose of critical alloys	-	1b			2c			-	3c		
GSR: TO 00-25-113.											
14. JET ENGINE REMOVAL AND INSTALLATION INCLUDING SMALL GAS TURBINE ENGINES											
GSR: TOs 00-35A-15, 00-35F-1, 1-1A-8, 2-1-18, 2J-1-13, 2J-1-19, 2J-1-24, 2J-1-28 and Applicable Aircraft Technical Orders.											
G. 24, 16 a. Remove and install engine in airframe	2b	2b			3c			-	4c		
H. 21 b. Remove and install engine build up kits	2b	2b			3c			-	4c		
G. 26 c. Rig and adjust engine control linkages	2b	2b			3c			-	4c		
15. ENGINE PRESERVATION AND STORAGE											
GSR: TO 2J-1-18.											
I. 14 a. Remove and install engine in shipping containers	b	1b			3c			-	4c		
I. 1 b. Preserve and depreserve engines	b	1b			3c			-	4c		

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	(A) TASKS, KNOWLEDGES AND GENERAL STUDY REFERENCES	PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION (B) Crs (3) Lvl	(C) AFSC (3) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(D) AFSC (5) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(E) Crs (7) Lvl	(F) AFSC (7) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials
	16. BLOCK TESTING INCLUDING SMALL GAS TURBINE ENGINES											
	GSR: AFM 127-101; TOs 00-20-1, 2J-J1-10, 2J-1-29 and Applicable Engine Technical Orders.											
	a. Purpose and procedure for block testing	-	A			B			C	C		
L. 21 & 19	b. Remove and install engine in test stand and associated equipment	-	-			b			c	4c		
L. 25	c. Operate and perform operational checks of engines in test stand	-	-			2c			3c	4c		
L. 20	d. Record instrument readings	-	-			2c			3c	4c		
L. 20	e. Use applicable test log	-	-			2b			3c	4c		
L. 13	f. Use jet engine analyzer	-	-			2b			-	4c		
L. 1	g. Adjust engine system units	-	-			3b			3c	4c		
	GSR: TO 2J-1-15.											
?	h. Perform preoperational and postoperational checks in the test stand	-	-			3b			3c	4c		
	GSR: AFM 66-3.											
L. 4	i. Prepare required computation for engine thrust, fuel consumption, EGT and RPM	-	-			2b			3c	4c		
?	j. Evaluate engine with respect to performance specifications	-	-			2b			3c	4c		
O. 9	k. Accomplish operator maintenance of the test stand	-	-			2b			2c	4c		
?	l. Use ground powered equipment	-	-			3b			3c	4c		
	17. JET ENGINE OPERATION INCLUDING SMALL GAS TURBINE ENGINES											
	GSR: TO 2J-1-28.											
N. 4 J. 20	a. Operate and perform operational checks	-	1b			3b			-	4c		
?	b. Record instrument readings	-	1b			3b			-	4c		

	(A) TASKS, KNOWLEDGES AND GENERAL STUDY REFERENCES	PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION (B) Crs (3) Lvl	(C) AFSC (3) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(D) AFSC (5) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials	(E) Crs (7) Lvl	(F) AFSC (7) Lvl	Date OJT Started	Date Completed & Trainer's, Trainee's Initials
J. 13 17	c. Adjust engine systems units	-	1b			3b			-	4c		
	GSR: TO 2J-1-15.											
J. 20	d. Perform preoperational and postoperational checks	-	1b			3b			-	4c		
J. 16	e. Troubleshoot engine systems	-	1b			3b			-	4c		
H. 3218.	PERFORMS SPECTROMETRIC OIL ANALYSIS USING BASE LEVEL ANALYZER											
	GSR: TO 42B2-1-9.											
	a. Perform operator maintenance	a	a			1b			1b	1b		
	b. Operate base level analyzer	a	a			1b			1b	3c		
	c. Interpret digital readouts	1a	1a			1b			1b	4c		

Appendix C

COST-EFFECTIVENESS ANALYSIS FOR DESIGNING A TRAINING PROGRAM

Cost-effectiveness is both a powerful and an often misused technique of analysis. Its misuse stems from its very power, for it can be used to give superficially simple, quantitative "answers" to highly complex problems. The remainder of this section (much of which has been adapted from Carpenter and Haggart, 1970), will discuss how to structure, conduct, and interpret a cost-effectiveness analysis so that its results may be used most wisely. The goal of the analysis is not to select the program that "maximizes" or "minimizes" specific characteristics; the goal is to provide information which, together with the judgment of the designer, permits a compromise among the characteristics of the alternatives within the existing environmental constraints (e.g., budget level or organizational pressures).

The term *cost-effectiveness* should be broadened to *resource-effectiveness* for reasons which will be made clear shortly. *Resource* will be used in the common way to mean *a source of supply*. The way in which the resource requirements of a program are analyzed is inseparable from the purpose of the analysis, that is, to relate the resources used by the program to program effectiveness. Ideally, program cost should include only those resources that can be directly related to program effectiveness.

The design of a training program is ultimately concerned with achieving an efficient use of training resources to meet training needs. If an ongoing program is being redesigned, the first step is to determine what resources are currently being used directly to produce specific job skills. Then estimates may be made of the resources required to make changes in various aspects of the training program, such as changes in the structure of the career ladder, changes in the training mode, or changes in instructional methods. This requires an informational framework about the current training system that is as complete as possible and a methodology for estimating the future consequences of proposed changes. If an entirely new training program is being set up, useful data may be drawn from ongoing programs that are similar to the one being planned.

Some Points on Resource Analysis

In order to choose among alternative training-program designs, the training-system designer must be able to compare and evaluate estimates of the resources required by each, in terms of personnel, facilities, equipment, training activities, dollars, and the like, not only at present but throughout the foreseeable life of the program. The Air Force currently cannot do this. A set of variables describing the resource requirements of alternative training modes is needed that is sufficiently broad to encompass the major variables in each mode and, at the same time, sufficiently compact to be manageable. These variables must be identified at the outset if resource-effectiveness analysis is to be carried out.

There is a more subtle problem, however, whose solution may not be so easily reached. This is the problem of defining the "real" resources in training, that is, the resources that actually are the *source of supply* of learning. Many attempts are now being made to identify such resources, and some small progress has been made, viz., in public schools, teacher verbal ability appears to have a positive effect on student verbal learning. The amount of time a student participates actively in some training process may well be another resource, which could be determined relatively easily in some training environments but with more difficulty in others. Much work in this area will be necessary before it is possible to identify the real resources in training.

Resource analysis has a seductive quality engendered by the availability of a single measure, the dollar, by which most resources can be measured. Given this, it is a natural step to add all of the dollars to obtain a single indicator of resource requirements--the "cost of the program." Although in some cases such a number might be quite sufficient for resource-effectiveness analysis, in most instances the single measure buries many characteristics of the program of which the planner should be aware in making his choice.

One significant aspect concerns the timing of the expenditures: Are they required in a lump sum? Can they be spread over several years or will they recur as long as the program is in existence? Thus,

projections of expenditures over the expected life of the program are required to provide a true picture of dollar needs. A display of the expenditures required over several years contrasts with the usual practice of assessing the cost of a program solely in terms of the cost per student-week or cost per graduate.

Another significant aspect is that in general the resources required are of very different kinds, and dollar measures may not reflect these differences adequately for decisionmaking. For example, formal training requires that senior men be withdrawn from the field to be employed as instructors after additional formal training of their own. Even though these men are a scarce resource, with respect to their counterparts in the field, they all receive the same pay.

Thus, the analysis should always display the major resources required for each year of program life, along with their associated dollar costs, and should particularly note items which may be difficult to obtain (but whose scarcity may not be reflected adequately in their dollar costs). The problem is to identify and estimate the major, crucial, or scarce resources that will be required for full implementation of the programs.

Much of the methodology of resource analysis can be developed in a rather straightforward fashion simply by using techniques that have been developed elsewhere to identify and cost those resources that contribute directly to a given program. However, several pitfalls exist of which the analyst should be wary. Because the objective of resource-effectiveness analysis is to facilitate choice among alternative programs, costs which actually will remain fixed regardless of which programs are implemented (within limits) should not be "allocated" to particular programs. For example, a Technical Center with enrollment in a particular size range will require a relatively fixed administrative staff to run it, with concomitant facilities to house and supply the administrative function. If all of the cost of administration were to be allocated to each training program conducted by the Center, largely arbitrary rules would have to be used (except in some special cases where curriculum experts work in specific subject areas, for example); worse, if such allocations are made, changes in the direct cost of a program will appear

to generate corresponding changes in the indirect, or allocated, cost, when in fact such changes would not actually follow. The key to realistic cost analysis in these instances is to identify those resources that will not change in response to program changes and to set them aside under *unallocated* functional categories such as *administration*. The question of which costs to allocate to which programs is of very real importance and will have to be resolved for cost-effectiveness analysis to be carried out.

These problems of resource allocation are most easily and consistently handled if a resource and cost model has been developed for each training mode. The development of such a model is also an essential step in achieving a workable methodology of analysis for training-program design. The model would comprise a set of mathematical expressions that relate variables describing training given in the different modes to estimates of resource requirements and cost, thereby enabling the analyst to simulate the results of conducting training using alternative training-program designs.

The model must be broad enough that each of the alternatives can be fully described by the basic variables and relationships that make up the model. For example, requirements for instructors in formal courses are usually directly related to projected student loads, but if a course is largely self-paced, the number of instructors required may be more sensitive to the number of points in the learning sequence at which an instructor's attention is needed than it is to student load.

Some Points on the Analysis of Effectiveness

The effectiveness of a training program is expressed by a set of measures or indicators that describes the behavioral changes that the program has brought about. The impact of the program on such groups as supervisors or instructors may suggest peripheral benefits and can be used to choose among programs of apparently equal teaching effectiveness, but these benefits are not central to the problems surrounding effectiveness.

The problems of defining and measuring the effectiveness of training programs must be dealt with before the resource-effectiveness of

alternatives can be analyzed. A central problem is the selection of instruments that measure attainment of program goals validly and reliably. The probability that paper-and-pencil tests are poor predictors for many aspects of job performance has already been discussed (pp. 30 and 31). Such tests should be augmented by job task-performance tests and other instruments that gauge a man's skill at supervision, training, or whatever tasks he will be called upon to perform.

Within a given aspect of job performance, such as ability to carry out job-related tasks, it may be possible to devise a single, valid measure of effectiveness. This measure would be a combination of the trainee's scores for the performance of each task (or a representative sample of tasks), with each score weighted in proportion to the importance of the task. The importance of the task would be determined on the basis of the percentage of trainees who will perform the task and the criticality of the task (Criteria 1 and 5 from p. 26). This would be quite a different approach from the current practice of simply averaging a man's performance scores throughout a training course. Other aspects of job performance, such as the trainee's ability to take (or give) verbal orders cannot be treated in such a precise fashion. Currently, such aspects are rated subjectively, on the job, by the man's supervisor in the Airman's Performance Rating. Valid and reliable instruments for measuring these aspects may be devised, but often they require expensive techniques such as individual observation or interviews by people trained specifically for such purposes.

In an experimental situation, even if acceptable measuring instruments are available, care must be taken to assure that they are administered in a consistent fashion if they are used to compare the effectiveness of one training mode with that of another. Otherwise, the comparability of scores may be in question. This may require, for example, that a single team of testers administer all tests that are to be used as measures of effectiveness.

Because there are many aspects of successful job performance, a full analysis of training effectiveness should produce a *set* of measures and indicators, rather than a single measure. This is especially important when resources are devoted specifically to developing attitudes and skills other than task performance *per se*.

For example, a subtle point involves the inculcation of those attitudes and behaviors--the *job-set*--that mark a man as a particular breed of technical specialist. The Technical Centers foster this process by having instructors be men who have had field experience, as much as possible. The "pipeline airman," the instructor who teaches a course immediately after he has taken it and completed instructor training, is considered to be less desirable for giving students the proper job-set, even though his students seem to perform as well on formal examinations as do the students of instructors with field experience. Since the examinations are not deliberately devised to test an airman's job-set, this is not surprising. On the other hand, instructors with field experience are more costly than are pipeline airmen. A fully developed resource-effectiveness analysis of the Technical Centers would require, therefore, that instruments be devised to measure the airman's job-set, since inculcating job-set is one of the objectives of the training.

In a related vein, each airman at the Technical Centers is expected to devote some time to duties associated with the student squadron to which he is assigned. These duties, along with some share of the administration and support of the student squadron, consume resources that are directed toward inculcating attitudes and standards of behavior that should improve the airman's military effectiveness, as distinct from his technical skills. Thus it would not seem legitimate to charge all of the costs associated with the student squadrons to the cost of technical training. In addition, some measure or indicator of the effectiveness of the student squadrons in turning civilians into military men should be devised so that the Air Force will have some notion of what it is buying with this program. Perhaps more importantly, the effects of this program on airman performance in the technical training program (and vice versa) should be tested experimentally. There is no way to tell, at this point, whether the two programs reinforce or detract from each other (Billingsley, 1969). This is an excellent example of the possible interdependence of effectiveness among various aspects of training programs.

If it is accepted that a single number for the dollar cost of a particular training-program design conceals most of the information needed for decisionmaking, it should be even clearer that no single measure of

program effectiveness will tell the whole story about the worth of the program, because any program promotes several different kinds of change in the student. Because these changes are different in kind, no unit exists by which the changes attributable to a particular program design can be made commensurate. Thus, the effectiveness of a program design can only be presented as a *set* of measures and indicators. In order to choose among alternative program designs, the planner must then judge the relative importance of the various aspects of program effectiveness as they apply to the particular career ladder. A man's ability to pass paper-and-pencil tests may be of great importance in some career ladders (such as those that are clerically oriented); his scores on job task-performance tests may carry more weight in others (such as maintenance of machinery); and changing a man's attitude--making it more favorable toward the Air Force--may have very high payoff in still others (such as those requiring long and expensive training). One of the major tasks is to decide how to rank measures and indicators of effectiveness vis-à-vis career fields.

Many aspects of the effectiveness of past and ongoing programs can be measured by pre- and post-testing or observations of various kinds of student behavior. The *relationships* among test results and training resources of various kinds are, however, not known. For example, no one knows to what degree realism is *required* in a simulator or trainer that is to be an effective training device. Only careful experimental work can establish such relationships, assuming that they exist. Hopefully, such work will contribute to the future development of models of training effectiveness that can be used in the same way that resource and cost models are today. Ultimately, a training-program design might be "optimized" on the basis of a particular measure of effectiveness, such as job task performance, although it should be borne in mind that such an exercise would have to slight many significant and incommensurable aspects of job performance. Estimates of the effects of the program design on these aspects would also have to be included for a full analysis.

In the interim, lacking reliable models that relate training-program resources to program effectiveness, it is necessary not only to weight the relative importance of measures and indicators of different aspects

of effectiveness but also to judge what levels of effectiveness are acceptable. This brings us to a discussion of the structure of Air Force career ladders, currently described by the Job Inventories. Presumably the data from the Job Inventories provide guidelines for setting criteria of effectiveness of task performance at each skill level. On the other hand, the Job Inventories are affected by existing and past training programs as well as by Air Force personnel policies, neither of which is necessarily an "optimum" system. Hence, using Job Inventory data to set criteria of effectiveness is, in a sense, begging the issue. Only when more rigorous analysis and experimentation has been done can this problem be resolved.

Resource-Effectiveness Analysis for Training-Program Design

From the foregoing, it should be clear that a single number purporting to be a cost-effectiveness ratio must hide more than it reveals about the overall value of a training program, since the requirements of a program for resources are multidimensional and time-variant. The same may be said for indicators of program effectiveness. The system designer, whether he is aiming at a modest change in the current way of doing business or a major redesign of a training program, must have adequate information--information about the change and about its impact on resource requirements and on the effectiveness of each training mode used. In some training modes, training equipment will already be at hand, while in others, trainers will have to be designed and built, introducing time delays. Some training modes are more successful in inculcating job-set than others, and some may be the only way to provide an intensive training experience. In some instances, the only way to acquire the skills needed in the time available may be to use very costly training modes.

The best way to compare training-program designs by means of resource-effectiveness analysis is to construct *equal-cost alternatives*, that is, to adjust the dimensions of each training-program design (such as the student load) so that each program will incur approximately the same total cost over some appropriate period of time. In this way, the designer is freed from having to consider cost when choosing among

alternatives and can concentrate on the more difficult aspects of effectiveness, the phasing of dollar requirements versus the production of trained personnel, and the requirements for scarce resources. Because the use of a single measure of effectiveness is less defensible than is the use of dollar cost (since any training program brings about changes in student behavior of several kinds that are not commensurable), the reverse of this procedure--to construct *equal-effectiveness alternatives*--is a dubious approach. Moreover, the estimated cost of a program can be predicted with a great deal more confidence than can its effectiveness.

There are many instances in which the future resource requirements of a training program are quite uncertain. This may arise because of uncertainties in student load, for example. In such situations, it is important to know whether the choice among alternative program designs would change if the future were different from some "most likely" case. If one program appears desirable under a wide range of future possibilities, it is obviously a good choice. If not, it is possible that the designer will want to choose a program that hedges against future change rather than the one that seems best in the most likely case.

The results of the work suggested here will be measures or indicators of estimated resource requirements and cost, and ranked aspects of effectiveness projected over the time period of interest for each program and for alternative futures. The display of these items, along with supporting explanatory text, will provide planners with the information they need on the resource requirements and effectiveness of alternative training-program designs. Thus, a carefully designed display and textual presentation is a significant part of the resource-effectiveness analysis. Only with a comprehensive presentation can the designer guard against the indiscriminate use of a single cost-effectiveness "number" so far removed from its limitations that it is not only useless but dangerous.

A methodology for resource-effectiveness analysis could be developed by the Human Resources Laboratory. The applicability of this approach might be tested by studying an AFS (such as AFSC 47131, Automotive Repairman) in which many men go directly to duty after Basic Training, while others receive formal training at a Technical Center. The analysis

could then be extended to tasks within more highly technical areas, using field experiments to test hypotheses so generated. This would be an appropriate task for the Technical Training Division of the HRL at Lowry AFB.

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VT 012 653
Summary 1969-1970.

Northern California Industry-Education Council, San Francisco.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 19p.

DESCRIPTORS - *SCHOOL INDUSTRY RELATIONSHIP; *EDUCATIONAL IMPROVEMENT; DEVELOPMENTAL PROGRAMS; PROGRAM DESCRIPTIONS; *VOLUNTARY AGENCIES; *INDUSTRY
IDENTIFIERS - *CALIFORNIA

ABSTRACT - The Northern California Industry-Education Council is a non-profit organization which provides a meeting ground for educators, businessmen, and private citizens to discuss their common problems regarding the educational system. This pamphlet describes the Council's activities and lists the supporting businesses and school systems and the office and directors for 1969-70. (BH)

VT 012 653

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SUMMARY
1969-1970

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Northern California **INDUSTRY-EDUCATION** Council

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Northern California **INDUSTRY-EDUCATION** Council
235 Montgomery Street, San Francisco, California 94104 · Telephone: 781-3282

SAN FRANCISCO
Fall 1970

TO: Members NCI-EC and Friends:

Many persons have expressed a concern that industry and education have been two separate islands in one community. They are not. Business and education are inseparable. Their activities are interrelated. They are all part of the same community.

Over the years misunderstandings have developed. Many businessmen and educators have misunderstood the motives and observations of each other and what has been worse, many have not endeavored to find out the real facts. During the past few years we have observed what we believe is a constructive trend. Both educators and businessmen have begun to have a greater appreciation of the vital role each of them plays in our society and, furthermore, are beginning to realize that their own future well-being largely depends on their solving their mutual problems.

In this complex society of ours we need to interchange ideas, we need to face reality and we need to discuss our problems together. The NCI-EC was created for this very purpose and, I believe, it is daily demonstrating that it is performing a real service on behalf of the community by bringing educators and members of the community at large together. Through its conferences and seminars attention is being focused on major issues of concern to all of us. On the local level it is encouraging groups to join together as affiliates and as such is providing a vehicle for bringing together concerned citizens to tackle mutual problems.

Yes, a start has been made, but I want to emphasize it is only a start. The foundations exist upon which solid structures can be built designed to bring about a fuller utilization of the communities' resources for the benefit of society.

The optimum results, however, will only be obtained when verbal commitments are translated into realistic action between the representatives of education and industry. This will require the active involvement of both educators and representatives of the community at all levels supported by adequate funds to insure a profitable investment.

Many symptoms are evident which indicate that educators and members of the world of work are ready to meet the challenge. I urge all you to join forces to commit your time and your money. We must actively become involved and jointly review our problems, establish programs to solve them and move forward together. By so doing we shall work towards creating a better society for all, one in which everyone may be pround that he is a member and one in which he will have pride in himself.

Emmett G. Solomon
Chairman, Advisory Board

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REPORT OF THE PRESIDENT

The need for and the value of the services provided by the Northern California Industry-Education Council and its affiliates has been more vividly demonstrated during the past twelve months than at any time since the Council was established in 1962. At the same time, the necessity to broaden out and provide greater services has become more evident as individuals in both education and the world of work have come to realize that the two segments of our community are part of the same community, and the future welfare of the entire community depends upon a constructive and healthy educational system.

UNIQUENESS

As these developments have taken place, the Council has reappraised its organizational set-up and re-evaluated its objectives. It has continued its uniqueness in that it:

1. obtains its leadership at both the regional and local level, from representatives of the educational field, as well as from the community at large;

2. directs its efforts to all disciplines and to all levels of education;

3. acts in a non-partisan fashion; and

4. obtains its financial support from both educational organizations and business groups.

The Council is fully aware that education is big business. Education does not start nor stop within the walls of the classroom. It is a continuing process which goes on throughout life.

The major difficulties facing the public schools, as pointed out by Sidney P. Marland, Jr., President, Institute for Educational Development, in the Case Study on "Journey for Relevance," are being viewed more and more as symptoms of social and economic conditions--conditions which reach beyond the capacity of the schools. Both formal education and the world of work contain tremendous resources. They are inter-dependent, and if our society is to grow and effectively utilize its assets for the benefit of the entire community, all segments must work together.

OBJECTIVES

The Northern California Industry-Education Council provides a meeting ground for members of the educational profession, including students, parents, teachers and administrators, to discuss with concerned citizens, including representatives from business, industry, labor, government, agriculture, and the professions, matters of mutual interest regarding the education of our youth.

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The object of this relationship is to develop and implement projects and programs designed to:

- bring about better understandings, respect, and a realization of mutual values to be received in developing a closer alliance of interests and participation, as between members of the business community and educators;

- enrich the educational resources of our public and private schools;

- encourage educators to develop and maintain educational programs which are viable and relevant to the social and economic tenor of our changing society;

- enable educators to more easily keep in touch with modern practices in the world of work;

- encourage youth to move into socially meaningful and economically productive employment; and

- provide a means of coordinating the efforts of industry-education related organizations in an attempt to avoid needless duplication of services and to strengthen the effectiveness of desirable ones.

IMPLEMENTATION

The Council endeavors to implement these objectives by:

- assisting in establishing and maintaining industry-education councils at the local, regional and state levels;

- stimulating and coordinating the activities of local councils toward the development of programs and projects of mutual interest and value to both the business community as well as to the local schools;

- encouraging the development of effective liason relationships between off-campus educational resources of local communities, and local school personnel, including concerned citizens, parents, and students;

- collecting and exchanging information, conducting research, publishing materials, and developing programs and projects within the framework of the Council's activities; and

- holding conferences and/or participating in projects jointly with affiliated groups or organizations.

JOURNEY FOR RELEVANCE

In the fall of 1969, the Council and the California Association of Secondary School Administrators sponsored an airborne transcontinental tour to inspect interesting and unusual schools. This pilot venture was

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named "Journey for Relevance." The "Journey" has already attracted national attention and has been referred to as one of the most innovative educational projects undertaken by a group of concerned citizens. Its purpose was to expose California educators and school-minded members of the community to advanced educational techniques demonstrated by innovative education centers in five separate locations.

Cooperating in this project were the California Association of School Administrators, the California School Boards Association, the California State Board of Education, the California Teachers Association, the California Elementary School Administrators Association, the Center for Technological Education, and the Southern California Industry-Education Council.

In sponsoring this program, the Council believed that Californians would be interested in seeing how other cities and school districts are confronting some of the major educational problems and opportunities for the 1970s. In this way, the observers could personally evaluate these programs and their relevance to public education in California.

Some eighty businessmen, members of the state, county, and district boards of education, county and district superintendents, principals and teachers, made this jet-propelled journey, observed first-hand the programs, facilities, and operations of five educational centers, and talked with administrators, faculty members, and the students directly engaged in new approaches to education on a day-to-day basis.

The schools visited and the innovations observed were: the Nova School Complex in Fort Lauderdale, Florida (continuous progress instruction); Quakertown Elementary School and Abington High School in Quakertown, Pennsylvania (individual prescribed instruction); an elementary, intermediate, and high school in Niskayuna, New York (change via long-term participative planning); Evanston Township High School in Evanston, Illinois (dial access retrieval); and the Clark County School Complex and Vocational Technical Center in Las Vegas, Nevada (media center and interaction analysis).

Many of those who participated brought back ideas which they have either adopted or adapted into their own program.

A Case Study on the "Journey for Relevance," financed and published by the Institute for Education Development, has been distributed widely throughout the United States.

CONFERENCES

In the Council's continuing effort to focus attention on major issues of concern to both educators and representatives of the community, the Council sponsored two conferences.

The first, in October, was entitled "The Search for Relevance in Education Continued -- Individualized Instruction?" This program was designed to supplement the Council's challenging conference held in the Spring of 1969 on "The Search for Relevance in Education" and to pave the way for "The Journey for Relevance" and to lay the foundation for the second conference, held in the Spring of 1970, entitled "The Journey for Relevance -- A Report and Challenge." On this second program, the busi-

ness and community leaders together with their educational counterparts who made the "Journey for Relevance" and various individuals who were on the airborne tour reported on their findings and their reactions. Both conferences were summarized in special NCI-EC Newsletters.

LOCAL COUNCILS -- WHERE THE ACTION IS

While the conferences and the "Journey for Relevance" played a major role in the Council's activities, the most important work was carried on at the local level through local councils where the implementation takes place. There are currently ten such local councils or equivalent organizations.

Local council developments are under way which contemplate the creation in the near future of two additional councils, namely, Inyo County and the Central California Industry-Education Councils. All of these organizations have the strong leadership of the county superintendent and his staff, which has proven essential to the operation of effective local councils and programs.

These local councils, by establishing communications between the various segments of the community, have brought about a better understanding upon the part of the community at large of the vital stake every member of the community has in assuring that the school programs are relevant, are efficiently operated, and adequately financed.

As the NCI-EC has matured, the interest in learning more about how industry and education are related has increased in almost geometric proportions. Requests for assistance in providing keynote speakers, panelists, or industry specialists for meetings, conferences, or even in the development of local programs, have multiplied. Knowledgeable persons have willingly accepted assignments and offered their expertise. Some have come from the local area, while others have travelled across the nation to share their experiences with those here in Northern California, working with and through the Northern California Industry-Education Council.

Techniques and ideas developed at the regional level, if they are to be effective, must be translated into action at the local council level. While the individual programs carried out by local councils have varied from area to area, they, in general, encompass: community resource surveys; curriculum development; economic education; in-service training; manpower needs and job requirements; motivation and recognition of occupational guidance and counseling; science fairs and related projects; utilization of industry; and management procedures to increase operating efficiency and work experience.

FINANCES

The Council is a non-profit organization. Its affiliates operate under the tax regulations which affect the Council. The Council's actual activities and their effectiveness have been restricted from the very beginning by the limited funds available. Steps are being taken, however, which, it is hoped, will enable the Council to increase its staff and thus provide increased individual services not only on the regional but, more importantly, on the local level.

The Council is indebted to Price Waterhouse & Co. who, as a public service, has audited its financial records. The official statement for the twelve month period ending June 30, 1970, with comparative figures for the previous twelve months is presented on page

The increased interest, participation and financial support from educational groups undoubtedly reflects the strong moral support which the Council's activities are currently receiving from the California State Board of Education and the Board of Governors of the Community Colleges.

Looking ahead, the Council plans to seek additional funding in order to expand its staff and services so that it can meet the increased demands and thus provide the leadership in coordinating the world of work and education so that two segments effectively utilize their tremendous resources.

Provided the funds are obtained during the coming year, the Council's program involves:

1. Assisting the formation of additional local councils in response to requests received from local groups;

2. Aiding local councils in a more rapid development of local projects;

3. Developing and sponsoring additional conferences and seminars at regional and local levels;

4. Implementing a Merit Awards program;

5. Increasing the frequency of issuance of Newsletters; and

6. Issuing individual summaries of conferences, seminars, and Journeys, instead of combining reports.

CHALLENGE

The greatest challenge confronting the Council today is that the results obtained and the demands for services have far outreached that originally anticipated. This creates a challenge which we must strive to attain. With the continued cooperation of members of the Advisory Board, the Board of Directors, and the many others concerned at the regional and local level, I am confident that the overall objectives of the Council will be attained and that the community -- education and industry as one community -- will go forward and bring about realistic industry-education cooperation.

I am deeply indebted to all those individuals who contributed so much time and effort in energetically forwarding the objectives and program of NCI-EC during this year. I hope that you will continue to provide this same support to my successor, Dr. Virgil S. Hollis, Marin County Superintendent of Schools, as he assumes his responsibilities as President of the Northern California Industry-Education Council.

Donald P. Krotz

Donald P. Krotz
President

PRICE WATERHOUSE & CO.

555 CALIFORNIA STREET

SAN FRANCISCO 94104

August 7, 1970

To the Officers and Directors of

Northern California Industry-Education Council

In our opinion, the accompanying statement of cash receipts and disbursements presents fairly the recorded cash transactions of Northern California Industry-Education Council for the year ended June 30, 1970 and is presented on a basis consistent with that of the preceding year. Our examination of this statement was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. It was impracticable for us to extend our examination of membership fees and other contributions from the general public beyond accounting for amounts so recorded.

Price Waterhouse & Co.

NORTHERN CALIFORNIA INDUSTRY-EDUCATION COUNCIL

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

	Year ended June 30	
	1970	1969
Receipts:		
Membership fees and donations:		
Business organizations	$30,970	$22,525
Educational organizations	6,410	5,420
Individuals	139	2,354
	37,519	30,299
Conferences	46,204	10,501
Grants and miscellaneous	1,304	5,000
Total receipts	85,027	45,800
Disbursements:		
Conferences, workshops, meetings, etc.	42,506	9,593
Coordination and development	21,897	21,027
Publications, printing, reproduction	6,708	5,722
Stenographic and clerical services	5,978	3,622
Travel	2,758	2,323
Rent	1,300	1,080
Mailing list	1,217	374
Telephone, telegraph, messenger	998	705
Postage	895	403
Consultants fees and services	700	
Special projects		558
Miscellaneous	970	432
Total disbursements	85,927	45,839
Excess of disbursements over receipts	(900)	(39)
Cash in bank, beginning of year	2,468	2,507
Cash in bank, end of year	$ 1,568	$ 2,468

PARTICIPATIN

NORTHERN CALIFORNIA IND

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BUSINESS ORGANIZATIONS AND ASSOCIATIONS

Allstate Foundation (The)
American Airlines, Inc.
American Forest Products Corporation
Arthur Andersen & Company
Argonaut Insurance Company
Guy F. Atkinson Company

Bank of America
Bank of California N.A. (The)
Berven Carpet Corporation
Better Business Bureau of San Francisco
Blyth & Company, Inc.
Bohannon Foundation (The)
Brush, Slocumb & Company, Inc.
E. D. Bullard Company

California Association of
School Administrators
California Association of
Secondary School Administrators
California Business Education
Association
California Canadian Bank
California Canners and Growers
California Industrial Education
Association
California Society of Certified
Public Accountants (The)
California Teachers Association
S. A. Camp Ginning Company
Carl R. Carlsen, Inc.
Caterpillar Tractor Company
Citizens Federal Savings and
Loan Association
City Transfer & Storage Company
Clifton & Company
Coldwell, Banker & Company
Consolidated Freightways Foundation
Cravens, Dargan and Company
Crocker-Citizens National Bank
H. S. Crocker Company, Inc.
Crown Zellerbach Foundation
Cutter Foundation

Del Monte Corporation
Diamond National Corporation

Educational Testing Service
Ernst & Ernst

FMC Corporation
Fairmont Hotel Company

Fireman's Fund American
Insurance Companies
First National Bank of San Jose (The)
First Western Bank and
Trust Company
Fluor Utah Engineers and
Constructors, Inc.
John F. Forbes & Company
Fromm & Sichel, Inc.

General Dynamics/Pomona
General Electric Company
General Foods Corporation,
Maxwell House Division
Gerber Baby Foods Fund

Hale Brothers Associates, Inc.
Haskins & Sells
Hearst Foundation, Inc. (The)
Henderson-Boston Company, Inc.
Hewlett-Packard Company
Honolulu Distributors, Inc.
E. F. Hutton & Company, Inc.

IBM Corporation
Independent Insurance Agents
Association of California
Industrial Indemnity Foundation
Invest-in-America
Northern California Council

Johnson Gear & Manufacturing
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Kaiser Industries Corporation
Kennedy-Ten Bosch

Lawrence Warehouse Company
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Lockheed Missiles & Space Company
Lucky Stores, Inc.

Macy's California
Marsh & McLennan, Inc.
McCutchen, Doyle, Brown & Enersen
McKinsey & Company, Inc.
Merrill Lynch, Pierce, Fenner
& Smith, Inc.
Metropolitan Life Insurance
Company

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ISTRY-EDUCATION COUNCIL

DE

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Pillsbury, Madison & Sutro
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Shell Oil Company
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Stauffer Chemical Company
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Union Oil Company of California
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Western Title Insurance Company
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Alameda County Schools
Alameda Unified School District
Albany Unified School District
Amador Valley Joint Union High
School District
Armstrong College

Berkeley Unified School District
Butte County Schools

College of the Sequoias
Contra Costa County Schools
Contra Costa Junior College District
Cutler-Orosi Union High School

Dinuba Joint Union High School
District

El Dorado County Schools
El Dorado Union High School District
Emery Unified High School District
Exeter Union High School District

Fresno County Schools
Fresno State College

Gilroy Unified School District

Hartnell Joint Junior College District
Hayward Unified School District

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COUNTY SCHOOLS OFFICES AND SCHOOL DISTRICTS (Continued)

LaHonda - Pescadero Unified School District
Liberty Union High School District
Lodi Unified School District

Marin County Schools
Martinez Unified School District
Mendocino County Schools
Merced County Schools
Merced Junior College
Modesto City Schools
Monterey County Schools
Monterey Peninsula Unified School District
Morgan Hill Unified School District
Mountain View - Los Altos Union High School District
Mt. Diablo Unified School District

Napa County Schools
Napa Valley Unified School District
Newark Unified School District
New Haven Unified School District

Oakland Unified School District
Ohlone College

Pacific Grove Unified School District
Palo Alto Unified School District
Peralta Junior College District
Petaluma High School District
Piedmont Unified School District
Pittsburg Unified School District
Placer County Schools
Placer Joint Union High School
Porterville Union High School District

Richmond Unified School District

Sacramento City Unified School District
Sacramento County Schools
St. Helena Unified School District
Salinas Union High School District
San Francisco State College
San Francisco Unified School District
San Joaquin County Schools
San Jose Junior College District
San Jose Unified School District
San Juan Unified School District
San Leandro Unified School District
San Lorenzo Unified School District
San Lorenzo Valley Unified School District
San Mateo County Schools
San Mateo Junior College District
San Mateo Union High School District
San Rafael High School District
San Ramon Valley Unified School District
Santa Clara County Schools
Santa Clara Unified School District
Santa Cruz County Schools
Sequoia Union High School District
Shasta Joint Junior College District
Sonoma County Junior College District
Sonoma State College
South County Joint Junior College District
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VT 012 663
Rules and Regulations Governing Ambulance Service. Minimum Standards of Safety, Sanitation, Equipment, and Training.

North Carolina State Board of Health, Raleigh. Div. of Epidemiolo gy.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 67 13p.

DESCRIPTORS - *STATE STANDARDS; SANITATION; SAFETY; TRAINING; EQUIPMENT; *STATE LAWS; *EMERGENCY SQUAD PERSONNEL; EQUIPMENT UTILIZATION
IDENTIFIERS - NORTH CAROLINA STATE BOARD OF HEALTH; AMBULANCE SERVICE

ABSTRACT - Ambulance services in the state of North Carolina must comply with the minimum standards set forth by the general statutes. The sections cover: (1) Definitions, (2) Permits, both operation and ambulance, (3) Standards for Ambulance Permits, (4) Ambulance Equipment, (5) Sanitation Standards for Ambulances, (6) Requirements for Ambulance Attendants, and (7) Effective Date. (GEB)

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RULES AND REGULATIONS GOVERNING AMBULANCE SERVICE

Minimum Standards

of

Safety, Sanitation, Equipment, and Training

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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Prepared by
NORTH CAROLINA STATE BOARD OF HEALTH
Division of Epidemiology

VT012663

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RULES AND REGULATIONS
GOVERNING
AMBULANCE SERVICE

Prepared by

NORTH CAROLINA STATE BOARD OF HEALTH

Division of Epidemiology

5600

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ARTICLE 26 OF CHAPTER 130 OF THE GENERAL STATUTES OF NORTH CAROLINA

Regulation of Ambulance Services.

130-230. Permit required to operate ambulance.—(a) No person, firm corporation, or association, either as owner, agent, or otherwise, shall hereafter furnish, operate, conduct, maintain, advertise, or otherwise engage in or profess to be engaged in the business or service of transporting patients upon the streets or highways in North Carolina unless he holds a currently valid permit for each ambulance used in such business or service, issued by the State Board of Health or a duly authorized representative thereof.

(b) Before a permit may be issued for a vehicle to be operated as an ambulance, its registered owner must apply to the Board for an ambulance permit. Application shall be made upon forms and according to procedures established by the Board. Prior to issuing an original or renewal permit for an ambulance, the Board shall determine that the vehicle for which the permit is issued meets all requirements as to medical equipment and supplies and sanitation as set forth in this article and in the regulations of the Board. Permits issued for ambulances shall be valid for a period specified by the Board, not to exceed one year.

(c) Duly authorized representatives of the Board may issue temporary permits for vehicles not meeting required standards valid for a period not to exceed 60 days, when it determines the public interest will be served thereby.

(d) When a permit has been issued for an ambulance as specified herein, the vehicle for which issued, and records relating to maintenance and operation of such vehicle shall be open to inspection by duly authorized representatives of the Board at all reasonable times.

(e) The issuance of a permit hereunder shall not be construed so as to authorize any person, firm, corporation, or association to provide ambulance services or to operate any ambulances without a franchise in any county or municipality which has enacted an ordinance pursuant to G.S. 153-9 (58) making it unlawful to do so. (1967, c. 343, s. 3.)

130-231. Advisory Committee on Ambulance Service created.—For the purpose of assisting the State Board of Health in developing standards for use in the administration of this article, there is hereby created the Advisory Committee on Ambulance Service. Such Committee shall be composed of nine members, one each designated by the North Carolina Funeral Directors Association, Inc., the Funeral Directors and Morticians Association of North Carolina, Inc., the North Carolina Am-

bulance Association, Inc., the Medical Society of the State of North Carolina, the North Carolina Hospital Association, the American National Red Cross, the North Carolina State Association of Rescue Squads, Inc., the North Carolina Association of County Commissioners, and the North Carolina League of Municipalities. Each member shall serve at the pleasure of the organization which designated him, and his successor shall be designated in the same manner. The Committee shall choose its own chairman, and shall meet at the call of the chairman or at the call of the State Health Director. (1967, c. 343, s. 3.)

130-232. State Board of Health to adopt standards for equipment; inspection of medical equipment and supplies required for ambulances.—(a) The Board shall adopt regulations specifying sanitation standards for ambulances. Regulations so adopted shall also require that the interior of the ambulance and the equipment within the ambulance be sanitary and maintained in good working order at all times.

(b) Every ambulance shall be equipped with the medical equipment and supplies specified by the "Minimal Equipment List for Ambulances and Dual Purpose Vehicles Serving as Ambulances" as approved by the Committee on Trauma of the American College of Surgeons on January 14, 1961; provided, however, the State Board of Health, with the approval of the Advisory Committee on Ambulance Service, may require additional equipment or supplies to be aboard ambulances or may delete items of medical equipment or supplies from the required Minimal Equipment List adopted herein by reference.

(c) The Board shall inspect medical equipment and supplies required of ambulances when it deems such inspection is necessary and maintain a record thereof. Upon a determination, based upon an inspection, that required medical supplies or equipment fail to meet the requirements of this article or regulations adopted pursuant hereto, the Board shall suspend the permit for the ambulance concerned, until such requirements are met. (1967, c. 343, s. 3.)

130-233. Certified ambulance attendant required.—(a) Every ambulance, except those specifically excluded from the operation of this article, when operated on an emergency mission in this State shall be occupied by at least one person who possesses a valid ambulance attendant's certificate from the Board. This section shall not be construed to require a person other than the driver to be aboard if the driver is properly certified by the Board as an ambulance attendant.

(b) The Board shall adopt regulations setting forth the qualifications required for certification of ambulance attendants. Such regulations shall be effective when approved by the Advisory Committee on Ambulance Service.

(c) Persons desiring certification as ambulance attendants shall apply to the Board using forms prescribed by that agency. Upon receipt of such application the Board shall examine the applicant and if it determines the applicant meets the requirements of its regulations duly adopted pursuant to this article, it shall issue a certificate to the applicant. Ambulance attendant's certificates so issued shall be valid for a period not to exceed two years and may be renewed after re-examination if the holder meets the requirements set forth in the regulations of the Board. The Board is authorized to cancel a certificate so issued at any time it determines that the holder no longer meets the qualifications prescribed for ambulance attendants.

(d) Duly authorized representatives of the Board may issue temporary certificates with or without examination when it finds that such will be in the public interest. Temporary certificates shall be valid for a period not exceeding 90 days. (1967, c. 343, s. 3.)

130-234. Exemptions.—The following are exempted from the operation of the provisions of this article:

(1) Privately owned vehicles not ordinarily used in the business of transporting persons who are sick, injured, wounded or otherwise incapacitated or helpless;

(2) A vehicle rendering service as an ambulance in case of a major catastrophe or emergency when the ambulances with permits and based in the locality of the catastrophe or emergency are insufficient to render the services required;

(3) Ambulances based outside this State, except that any such ambulance receiving a patient within this State for transportation to a location within this State shall comply with the provisions of this article;

(4) Ambulances owned and operated by an agency of the United States government;

(5) Vehicles owned and operated by rescue squads chartered by the State of North Carolina as nonprofit corporations or associations or by rescue squads authorized by G.S. 160-191.11 which are not regularly used to transport sick, injured, wounded or otherwise incapacitated or helpless persons except as a part of rescue operations are excluded. (1967, c. 343, s. 3; c. 1257, s. 2.)

Editor's Note.—The 1967 amendment added subdivision (5).

130-235. Violation declared misdemeanor.— It shall be the duty of the registered owner of the vehicle concerned to see that the provisions of this article and all regulations adopted hereunder are complied with. Upon the violation of any regula-

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tion adopted under authority of this article, the State Board of Health shall have power to revoke or suspend the permits of all vehicles owned or operated by the violator. The operation of an ambulance without a valid permit therefor, or the operation thereof after any permit has been suspended or revoked, or the operation thereof without having a certified attendant aboard as required by G.S. 130-233, shall constitute a misdemeanor punishable by a fine or imprisonment or both in the discretion of the court. (1967, c. 343, s. 3.)

RULES AND REGULATIONS PROVIDING MINIMUM STANDARDS OF SAFETY, SANITATION, AND TRAINING FOR THE PROVIDERS OF AMBULANCE SERVICE

For the purpose of preserving, protecting, and promoting the public health, the North Carolina State Board of Health hereby adopts the following rules and regulations governing the safety and sanitation of ambulances and training of ambulance attendants.

Section 1. Definitions.

The following definitions shall apply in the interpretation and enforcement of these rules and regulations:

a. Ambulance—the term "ambulance" shall mean any privately or publicly owned motor vehicle that is specially designed or constructed, and equipped, and is intended to be used for and is maintained or operated for the transportation upon the streets or highways in this State of persons who are sick, injured, wounded, or otherwise incapacitated or helpless.

b. Attendant—the term "attendant" shall mean a trained and/or qualified individual responsible for the operation of an ambulance and the care of the patient whether or not the attendant also serves as driver.

c. Attendant-Driver—the term "attendant-driver" shall mean an individual who is qualified as an attendant and a driver.

d. Driver—the term "driver" shall mean an individual who drives an ambulance.

e. Health Authority—the term "health authority" shall mean the State Health Director, local health directors, and sanitarians authorized to represent the State Health Director in carrying out rules and regulations of the State Board of Health.

f. Local Health Director—the term "local health director" shall mean local health officer, county health officer,

district health officer, city health officer, city-county health officer, county health director, or any other title by which the administrative head of a local health department is designated, or his authorized representative.

g. Sanitarian—the term "sanitarian" shall mean an individual employed by the State or local health department to carry out public health sanitation programs, and specifically authorized to represent the State Health Director in carrying out regulations of the State Board of Health.

h. Approved—the term "approved" shall mean approved by the State Health Director.

i. Patient—the term "patient" shall mean an individual who is sick, injured, wounded, or otherwise incapacitated or helpless.

j. Person—the term "person" shall mean any individual, firm, partnership, association, corporation, company, group or individuals acting together for a common purpose, or organization of any kind, including any governmental agency other than the United States.

k. Board—the term "Board" shall mean the administrative agency known as the North Carolina State Board of Health.

Section 2. Permits.

a. **Operation Permit.** No person, firm, corporation, or association, either as owner, agent, or otherwise, shall furnish, operate, conduct, maintain, advertise, or otherwise engage in or profess to be engaged in the business or service of transporting patients upon the streets or highways in North Carolina unless he holds a currently valid Operation Permit issued by the North Carolina State Board of Health or a duly authorized representative thereof. The Operation Permit shall be issued to the ambulance owner or operator when all rules and regulations have been complied with and shall be valid for a period of one year unless revoked or suspended by the North Carolina State Board of Health or a duly authorized representative thereof.

b. **Ambulance Permit.** Prior to issuing a permit for a vehicle to operate as an ambulance, the North Carolina State Board of Health or its duly authorized agent shall determine that the vehicle for which the permit is issued meets all requirements as set forth in the rules and regulations promulgated by the North Carolina State Board of Health. The ambulance permit shall be kept in the vehicle for which the permit was issued at

all times. Ambulance permits are not transferrable and shall remain valid for a period of one year unless revoked or suspended by the North Carolina State Board of Health or its authorized agent.

Section 3. Standards for Ambulance Permits

a. Each ambulance, at all times when in use as such, shall conform with the standards, rules and regulations provided by the North Carolina State Board of Health for the transportation of patients, from the standpoint of health, sanitation, and safety, and the nature of the premises in which it is maintained.

b. Each ambulance shall contain equipment conforming with the standards, rules and regulations provided for herein, which equipment shall be in good condition for such use.

c. Any change of ambulance ownership shall terminate the permit and shall require a new application and a new permit and conformance with all the requirements of these rules and regulations.

d. The equipment on each ambulance, premises designated in the application, and all records relating to its maintenance and operation as such shall be open to inspection by a duly authorized agent of the North Carolina State Board of Health.

Section 4. Ambulance Equipment.

Each ambulance shall be provided with the following items of equipment or their equivalent.

1. Hinged half ring splint (for fracture of the thigh) with web strap for ankle hitch (1)

2. Two padded boards, 4½′ x 3″)
   Two padded boards, 3′ x 3″) —4 ply
   Two padded boards, 15″ x 3″)

3. Short and long spine boards with accessories

4. Oxygen cylinder with regulator and appropriate inhalation equipment. At least one hour's supply (624 liters or E cylinder) of oxygen shall be stored on each ambulance. (Additional storage capacity will be needed for mechanical resuscitator.)

5. Hand operated bag-mask resuscitation unit with adult, child, and infant size masks, a unit which can be attached to oxygen supply required

6. Portable aspirator (hand, foot, or motor powered) with catheters, small and regular sizes

7. Mouth-to-mouth, two-way resuscitation airways — adult, child, and infant sizes
8. Oropharyngeal airways, small and regular
9. Tongue blades, three taped together and padded for mouth gag (2)
10. Sterile gauze pads, 4″ x 4″ (12)
11. Adhesive tape (cylinder cut 1″, 2″, and 3″)
12. Triangular bandages (6)
13. Safety pins, large size
14. Six-inch by five-yard soft roller-type bandages (3)
15. Bandage shears (1)
16. Pillows (2)
17. Large made dressings, 8″ x 12″ (6)
18. Three-inch gauze or muslin bandages (3)
19. Three-inch cotton elastic bandages (3)
20. Two sandbags about 4″ in width, 2″ in thickness, and 12″ in length
21. Two blankets
22. One rubber sheet, or acceptable substitute
23. Four hand towels
24. Two plastic umbilical cord clamps
25. One clean burn sheet
26. One folding stretcher
27. One emesis basin
28. Cot linen (2 extra sets)
29. One-half dozen tongue blades
30. Light installed in patient compartment
31. "No Smoking" sign posted in patient compartment of the vehicle. Smoking shall not be permitted while the vehicle is in service.
32. One 5 lb. dry chemical BC fire extinguisher
33. One battery-operated hand flashlight with the power source to be at least 6 volts.

Section 5. Sanitation Standards for Ambulances.

1. The interior of the ambulance and the equipment with-

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in the ambulance shall be sanitary and maintained in good working order at all times.

2. Equipment shall be of smooth and easily cleanable construction.
3. Freshly laundered linen on cots used to transport patients. Linen shall be changed after each patient transported.
4. Adequate and clean linen storage shall be provided on each ambulance.
5. Closed compartments shall be provided within the ambulance for first aid supplies, kept free from dust, insects, and rodents.
6. Pillows and mattresses shall be kept clean and in good repair. Protective covers shall be provided.
7. Covered containers or compartments shall be provided for soiled supplies.
8. Ambulance interior shall be cleaned after each use and disinfectant applied to all contact surfaces.
9. Exterior surfaces of the ambulance shall be cleaned routinely.
10. Blankets used in any ambulance shall be washed at reasonable intervals.
11. Implements inserted into the patient's nose or mouth shall be single-service, wrapped, and properly stored and handled. When multiple-use items are used, the local health authority shall be consulted for instructions in sanitization and handling of such items.
12. When an ambulance has been utilized to transport a patient known to the owner of the ambulance service or his agents to have a communicable disease other than a common cold, the vehicle shall be cleansed and all contact surfaces shall be washed with soap and water and disinfected. The mattresses and pillows should be placed in the sunlight for several hours. The ambulance should be placed "out of service" for a period of 24 hours.
13. All storage spaces used for storage of linens, equipment, first aid, and other supplies at base stations shall be kept clean and free from unnecessary articles. The contents shall be at least 15 inches above the floor or otherwise arranged so as to permit thorough cleaning.
14. Adequate and convenient lavatory facilities, conforming with the North Carolina Plumbing Code, including hot and cold running water and a combination supply

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faucet, soap, and sanitary towels shall be provided for ambulance attendants and drivers at all base stations.

Section 6. Requirements for Ambulance Attendants.

a. Be at least 18 years of age and certified in writing by a medical doctor that the person is physically fit to be a driver or attendant. Such certification shall be renewed at the time of application for ambulance attendant's re-certification and filed with employer. (Note: forms for physicians to be provided by State Board of Health)

b. Have a currently valid certificate evidencing successful completion of a course in advanced first aid given by the American Red Cross and additional training as may be certified by the North Carolina State Board of Health. Advanced Red Cross Certificates issued to attendants by their employers will not be accepted unless countersigned by a duly authorized representative of the American National Red Cross.

c. Be clean in dress and well groomed and in clean outer garment or uniform.

d. Be not addicted to the use of drugs or intoxicating liquors.

e. Have not been convicted of a crime involving moral turpitude within three (3) years.

Section 7. Effective Date.

These rules and regulations shall be in full force and effect ninety (90) days from and after October 12, 1967.

The foregoing rules and regulations were adopted at a meeting of the State Board of Health on October 12, 1967, at Raleigh, North Carolina.

Certified as a True Copy

Jacob Koomen

STATE HEALTH DIRECTOR

Supplement to the State Board of Health Bulletin

5610

NCSBH, EMS-6 10/67

North Carolina State Board of Health
Inspection Form for Ambulance Services

County or City Health Department	*Ambulance Registration Number*	*Permit*
Name of Ambulance Firm	*Manager or Owner*	*Address*

VEHICLE AND EQUIPMENT

1. Is the ambulance equipped with the items listed in Section 4. Ambulance Equipment? _____
2. Interior and equipment within the ambulance sanitary and maintained in good working order? _____
3. All equipment smooth and easily cleanable? _____
4. Clean linens on cots used to transport patients? _____
5. Adequate and clean storage spaces provided in ambulance? _____
6. Closed compartments provided within the ambulance for first aid supplies kept clean, free of insects and rodents? _____
7. Pillows and mattresses clean and in good repair and provided with protective covers? _____
8. Ambulance interior cleaned after each use by approved method? _____
9. Covered containers or compartments provided for soiled supplies? _____
10. Ambulance exterior cleaned routinely? _____
11. Blankets washed at reasonable intervals? _____
12. Implements inserted into patient's nose or mouth are single service, wrapped and properly stored and handled? _____
13. Multiple use items are sanitized by methods approved by the local health director? _____
14. When the ambulance has been utilized to transport a patient having a communicable disease, the vehicle is cleaned and all contact surfaces washed with soap and water and disinfected? _____

AMBULANCE LOCATION

15. All storage space used for storing of linens, equipment, first aid, and other supplies at location kept clean and free of unnecessary articles? _____. Shelves provided at least 15 inches above the floor or otherwise arranged to permit thorough cleaning? _____
16. Adequate and convenient lavatory facilities conforming with the N. C. Plumbing Code, including hot and cold running water and a combination supply faucet, soap, and sanitary towels provided? _____

AMBULANCE ATTENDANT(S) AND DRIVERS

17. Does ambulance attendant(s) have a currently valid certificate evidencing required training? (Certificates issued by N. C. State Board of Health) _____
18. Are attendant(s) clean in dress, well groomed and in clean outer garments or uniforms? _____
19. Is report of medical certification for each ambulance attendant and driver on file with the management? _____
20. Are reports of medical certification renewed annually? _____

Remarks: _____

_____

_____

_____

Date _____ Signed _____, Agent
North Carolina State Board of Health

VT 012 675
Training and Technology: Annual Summary. Experimentation and Demonstration Program Activities January 1, 1970 through December 31, 1970.

Oak Ridge Associated Universities, Tenn.
Union Carbide Corp., Oak Ridge, Tenn. Nuclear Div.
Tennessee Univ., Knoxville.
Atomic Energy Commission, Oak Ridge, Tenn.
Department of Labor, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Jan71 28p.

DESCRIPTORS - *ADULT VOCATIONAL EDUCATION; SKILL CENTERS; *CULTURALLY DISADVANTAGED; *FEDERAL PROGRAMS; *INTERAGENCY COOPERATION; ANNUAL REPORTS; *UNEMPLOYED; SCHOOL INDUSTRY RELATIONSHIP; PROGRAM DESCRIPTIONS; DEMONSTRATION PROJECTS; MANPOWER NEEDS
IDENTIFIERS - *MANPOWER DEVELOPMENT AND TRAINING ACT PROGRAMS; MDTA PROGRAMS; TRAINING AND TECHNOLOGY; TAT

ABSTRACT - Training and Technology (TAT) is designed to explore the potential for cooperation between industry and education in training the disadvantaged as a way to meet national shortages of skilled manpower. This annual report summarizes the demonstration projects active during 1970. Objectives, status, and accomplishments are reviewed for the experimentation and demonstration projects, which are organized in the report by priority rankings. (BH)

VT 012 675

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Annual Summary

TAT EXPERIMENTATION AND DEMONSTRATION PROGRAM ACTIVITIES
JANUARY 1 – DECEMBER 31, 1970
OAK RIDGE ASSOCIATED UNIVERSITIES, OAK RIDGE, TENNESSEE

Contract Number: 82-45-69-09
Interagency Agreement Number: AEC-40-157-68

U.S. DEPARTMENT OF HEALTH, EDUCATION, & WELFARE
OFFICE OF EDUCATION
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TRAINING AND TECHNOLOGY

Operated by Oak Ridge Associated Universities and the Nuclear Division, Union Carbide Corporation, in cooperation with the University of Tennessee at the U. S. Atomic Energy Commission's Y-12 Plant, Oak Ridge, Tennessee.

VT012675

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PREFACE

This *Annual Summary* of Experimentation and Demonstration activities for 1970 has added fourth quarter activities, October 1 - December 31, 1970 to the previous nine-month *Summary Report* issued in September 1970. Therefore this complete summary for the year 1970 along with the highlights below is the quarterly report of the Training and Technology, E & D, project to the Department of Labor, contract number 82-45-69-09.

TAT HIGHLIGHT ACTIVITIES (October 1 - December 31, 1970)

Government Contractors

Continued development of the proposed U. S. Department of Labor—U. S. Atomic Energy Commission training centers for AEC government contractor employees resulted in plans for an Oak Ridge meeting of AEC Eastern contractors in February 1971.

Industrial Contractors

Resulting from contacts with Standard Oil of Indiana, plans were developed to train 12-15 chemical lab technicians beginning in the April Worker Training Cycle.

Upgrading

Discussions on upgrading training were held with Union Carbide, TVA, and Argonne National Laboratory personnel; preliminary identification was made of target groups, numbers involved, and training requirements.

Regional Manpower

As part of TAT's multi-state experience with the Appalachian Regional Commission, the first in a series of individual state meetings was held in December with Kentucky representation in Oak Ridge. Ways to develop manpower training programs in Kentucky that would utilize the TAT approach of combining industrial and educational resources were explored.

Development of Allied Health Manpower Programs

Additional funding sources for preparatory and experimental aspects of the TAT-MED program were investigated as a means of separating these costs from institutional training costs normally funded by DOL/DHEW. The proposed TAT-MED program would train disadvantaged persons as laboratory assistants.

Worker Training

There were 330 graduates from the 1969-70 Worker Training year, all but 22 of whom have been placed. Eighteen of those not placed are from the October graduating class.

Oak Ridge
Associated
Universities

Training
and
Technology

ANNUAL SUMMARY.

Experimentation and Demonstration Program Activities

January 1, 1970 through December 31, 1970

Oak Ridge, Tennessee

January 1971

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INTRODUCTION

This *Annual Summary* to the United States Department of Labor describes Experimentation and Demonstration activities during 1970 and generally follows the main topic outlines of the TAT proposal, *Building Manpower Programs*, November 1969, in describing this year's activities. Program work has been designed to make possible improved training programs for disadvantaged persons; increase corporate participation in manpower training through the mechanism of the government contractor system; coordinate regional cooperation in manpower development; refine utilization of university resources in the manpower training process; and to increase publication of interpretive guidelines for manpower development.

The Training and Technology Program has the mission of finding effective ways to utilize a combination of industrial and educational resources for training the disadvantaged as a way of meeting the national need for skilled manpower. TAT Worker Training is conducted jointly by Oak Ridge Associated Universities and Nuclear Division, Union Carbide Corporation in skilled and technical industrial occupations. The TAT Experimentation and Demonstration program is staffed by Oak Ridge Associated Universities. This provides a small flexible staff that functions as an innovative, analytical, dissemination, and utilization unit for manpower programs.

The combined operation of the TAT Worker Training program and Experimentation and Demonstration unit plus the availability of significant industrial, educational, and governmental resources to TAT in Oak Ridge provides an opportunity to make significant progress toward the solution of manpower development and training problems.

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ABBREVIATIONS CODE

AEC	U. S. Atomic Energy Commission
ANL	Argonne National Laboratory
ARC	Appalachian Regional Commission
BIA	Bureau of Indian Affairs, U. S. Department of the Interior
CAMPS	Cooperative Area Manpower Planning System
CAP	Community Action Program
CEP	Concentrated Employment Program
DHEW	U. S. Department of Health, Education and Welfare
DOD	U. S. Department of Defense
DOL	U. S. Department of Labor
E&D	Experimentation and Demonstration
EEO	Equal Employment Opportunity
EOA	Economic Opportunity Act
ES	Employment Service
IAPES	International Association of Personnel in Employment Security
MDTA	Manpower Development and Training Act
NAL	National Accelerator Laboratory
NASA	National Aeronautics & Space Administration
OEO	U. S. Office of Economic Opportunity
ORAU	Oak Ridge Associated Universities
PSC	Public Service Careers
TAT	Training and Technology Project
TVA	Tennessee Valley Authority
ND,UCC	Nuclear Division, Union Carbide Corporation
UI	Unemployment Insurance
UT	University of Tennessee

Activity Area	Work Accomplished and Status January through December 1970
1. GOVERNMENT INDUSTRIAL CONTRACTORS Estimated 20% of Effort	JOINT AEC/DOL TRAINING CENTERS Objective Provide for application of TAT demonstrated methods for training disadvantaged for skilled jobs with up to 60 companies in nationwide AEC contractor system; initially two training centers, one for eastern and one for western United States. Chronology Presentation of training center concept to AEC contractors meeting in January; AEC-TAT work group formed, met in January and February; AEC officials discuss concept with Arnold Weber, Manpower Administrator, in March. Exchange of letters between Manpower Administration and AEC General Manager; create joint AEC/DOL/TAT study group; three study group meetings and five preparatory sessions held in May and June; ten briefing sessions conducted by TAT with AEC and DOL staff July to September. Four meetings in October and discussions during November involving TAT, AEC, and DOL staff attempted unsuccessfully to reach agreement on the changes that would be required to develop and operate the Eastern Training Center based on the TAT Worker Training Program under the JOBS program umbrella. Major obstacle proved to be inability to develop satisfactory options for "hire first" principle of JOBS program. December brought strong endorsement of TAT and re-orientation of planning in the direction of operation as a national institutional type program at a policy level meeting of DOL and AEC officials. Plans crystallized for a meeting of AEC Eastern contractors in February 1971. Draft letter of understanding on program direction prepared for transmittal to AEC Headquarters Management by DOL Manpower Administration after December 16 meeting of DOL, AEC, and TAT staff. Analysis and Supporting Documents Analysis of TAT experiment in training urban blacks for AEC Chicago contractors provides a model for training center operation, *TAT Satellite Training Project with the National Accelerator Laboratory*; background paper developed on 100,000 employee AEC contractor system; cost tabulation of training center operation made and compared with JOBS contract allowances and regulations; charts constructed on sequence of events for participating contractor, training center, and trainees; memo prepared on policy questions relating to training centers; preliminary plan for initiation of training center operation outlined in *Manpower Training for U. S. Atomic Energy Commission Contractor System* (revised discussion draft, *Industrial Plant Job Training for U. S. Atomic Energy Commission Contractor System*, issued in November), which summarizes study group consensus that AEC/DOL training centers concept does not fit within guidelines for JOBS or PSC programs; however, good jobs for disadvantaged are involved, the potential for expansion with other government contractor systems is attractive, and there is an opportunity for the development of an important new program to be funded and managed at national level.

Activity Area	Work Accomplished and Status January through December 1970
1. GOVERNMENT INDUSTRIAL CONTRACTORS (continued)	WORK RELATED TO TRAINING CENTER PLANNING Objective Coordinate all utilization by industry of TAT findings and resources with establishment of AEC/DOL training centers. AEC Contractor Training at TAT Negotiations with AEC contractors located outside Oak Ridge during first quarter resulted in providing technical training in Oak Ridge for 20 disadvantaged minorities from three different companies, two in Illinois and one in Idaho; training jointly funded by AEC for training costs and Employment Service of states involved for allowances; provides additional experience for training center operation. Sixteen minority disadvantaged from two AEC contractors, one in Illinois and one in Idaho, began training in October. TAT Replication Training project based on TAT model for worker training began in May by AEC contractor, Union Carbide Corporation at Paducah, Kentucky; TAT technical assistance provided in many aspects of development; negotiations and operation of resulting program; demonstration of transferability of TAT training concept and methods. AEC Contractor Visits Regular biweekly visits to TAT made by contractors with employees in training and six visits made by TAT to same contractors. Special visits - ITT Federal Support Services, Inc., Richland, Washington, visited Oak Ridge, TAT provided information and assisted in their training project proposal *Hanford Industrial Training*; Goodyear Atomic Corporation, Piketon, Ohio, visited TAT on training center operation; Executive Director of Associated Western Universities visited TAT to review worker training operation and consider possible use in Western training center; communication maintained with major AEC contractors through regular mailings of project publications, telephone conversation, and correspondence.

Activity Area	Work Accomplished and Status January through December 1970
1. GOVERNMENT INDUSTRIAL CONTRACTORS (continued)	ADDITIONAL INDUSTRIAL RELATIONSHIPS Objective Develop support for applying the possibilities inherent in the government contractor mechanism for opening large numbers of skilled jobs for the disadvantaged and extension of TAT findings and resources to industry generally. Other Government Contractors Communication maintained with AEC office responsible for EEO compliance and affirmative action program for Department of Defense operating contractors in chemical industry is fruitful area for future investigation and action as time becomes available; TAT visit to Lockheed-Georgia Co. indicates potential for both government contractor situation and private industry extension. TAT visit to Huntsville, Alabama/NASA worker training and distributive education programs indicated availability of experience and resources for training, conditional upon obtaining funds. Discussions on upgrading training were held with Union Carbide, TVA, and Argonne National Laboratory personnel; preliminary identification was made of target groups, numbers involved, and training requirements. Private Industry Union Carbide Corporation officials in New York headquarters and at West Virginia plant informed about TAT extension possibilities; West Virginia Employment Service interested, vocational education tie-in is known. Meeting planned for principals involved in West Virginia location. Plans to train 12-15 chemical lab technicians beginning April 5, 1971 for Standard Oil of Indiana were developed as a result of Standard Oil visit to TAT in October. Training program at TAT to be first step in developing worker training capability in Naperville, Illinois research complex. Funding arrangements are in early negotiation between Standard Oil, AEC, and Illinois State Employment Service. Human Interaction Research Institute at Los Angeles, California, has visited TAT and has copies of TAT publications for this project to promote training of the disadvantaged by private industry which should open up industrial prospect for utilization efforts; TAT participated in Human Interaction Research Institute seminar in New York City in October. Working relationships maintained with East Tennessee Development District manpower development activities in 16 counties surrounding Oak Ridge which provide linkage to area industry; Worker Training placement activities relate TAT to over 30 large private industries throughout the United States, and this captive audience is available for further exploration; identification of industrial complexes with training capabilities and/or vocational education resources discussed with states participating in ARC experimental project.

Activity Area	Work Accomplished and Status January through December 1970
2. REGIONAL MANPOWER DEVELOPMENT Estimated 25% of Effort	TAT-ARC REGIONAL MANPOWER TRAINING PROJECT Objectives Determine whether (1) disadvantaged residents of "hard core" Appalachian counties are trainable in six months for entry-level jobs in modern industry, (2) TAT's combination of industry, government and education in a regional MDTA center is a practical vocational training model for Appalachia, and (3) MDTA procedures can be utilized to cross state, regional, and agency lines. Single-State Experiment TAT interagency model was used to define and effect ARC/DOL/AEC plans. Forty Appalachian Tennesseans were trained and placed in jobs (10/69-3/70); the findings are reported in a document entitled *Characteristics of the Worker Training Graduate from Appalachia.* Multi-State Experiment - Phase I (1/70-4/70) Planning Highlights. At TAT-ARC Planning Conference of February 2-3 agreement was reached on division of training positions; location of target recruitment areas; identification of private and public referral resources; and procedural goals. Compact target areas were chosen for greatest economic impact and for followup in experimental evaluation. Planners included representatives of three federal agencies (DOL, DHEW, AEC), two regional agencies (ARC and TVA), four Appalachian states (Kentucky, Virginia, West Virginia, and Tennessee), universities and educational cooperatives, private development organizations, and organized labor's Appalachian Council. Project establishment included preparation of state MDTA papers and interagency clearances for projects. TAT staff were required to coordinate and follow through on project development with the several agencies involved. Implementation. TAT technical assistance included orientation of local employment service officers in three states, provision and testing of interview materials, preselection procedures, and coordination of outreach efforts. For the joint selection project, ORAU, Union Carbide, and local ES teams conducted interviews in seven towns in Kentucky, Virginia, and West Virginia. Experimental enrollment of advanced students from Wise Area Vocational School, Wise, Virginia, to test the value and possible need of specialized industrial training in developing areas. Employment Service completed interstate referrals to TAT. Through its coordination of trainee services, TAT assisted states in securing funding notices and provided experimental supportive services to assist trainees in transition. Documentation included: A TAT quarterly report; *A Preliminary Report: TAT-ARC; Tour-Test-and Interview.* Multi-State Experiment - Phase II (5/70-10/70) Planning Highlights. A tour and trainee-staff seminar was conducted June 17 for ARC Executive Survey Team. A program design prospectus: *TAT-ARC Multi-State Training Project and Manpower Development* was prepared June 26. The TAT-Appalachian States Workshop (July 9-10) included: group meetings of state and ARC officials with interstate trainees; planning for placement of current trainees and recruitment of new group; agreement with four states, DOL and ARC on establishment of TAT Master Multi-Occupational Project and

Activity Area	Work Accomplished and Status January through December 1970
2. REGIONAL MANPOWER DEVELOPMENT (continued)	three ARC state subprojects; DOL waiver sought to allow experimental interstate handling of all trainee allowances by Tennessee Employment Service. A follow-up meeting in Kentucky (July 16-17) covered: planning of Kentucky subprojects with Governor's Program Development Office and MDTA agencies; agreement on training goals and desirability for replication of TAT program experience in Eastern Kentucky. Feasibility meeting was held with the president of the University of Kentucky. Implementation. In interagency development, state subprojects were established; experimental use of individual referrals of trainees was decided upon for flexibility among states; the DOL waiver request was denied at the UI regional level; interagency funding was obtained. For the Joint Selection Project, Phase I, procedures for team effort were found successful and were repeated for Phase II interstate recruitment. A new target recruitment area was added in Richlands, Virginia. Placement of ARC-sponsored trainees was basically completed in November: 97 percent were placed in entry-level jobs averaging $3.00 per hour, and 38 percent accepted employment in their home states. Multi-State Experiment - Phase III (10/70-10/71) Recruitment and enrollment of Kentucky, Virginia, and West Virginia trainees was completed in October. Use of individual referral subprojects provided effective flexibility in recruitment and assignment of trainees to TAT's Industrial Technician Aide training areas. Planned individual state meetings began in December with Kentucky officials representing the Governor's Office, Department of Vocational Education, and the Employment Service. Discussions dealt with key industries and the regional research and development programs of Kentucky's universities and vocational education system, particularly in the Morehead area of Eastern Kentucky. Other concerns were: a six-state ARC-sponsored mining demonstration project, of which Appalachian Eastern Kentucky is to serve as the center, and placement plans for the 40 Appalachian trainees most of whom are scheduled to graduate in April 1971. Discussions continued with representatives of West Virginia's Federal-State Relations, Employment Service, and Vocational-Technical Education offices and the Union Carbide operations in Charleston, in planning for a TAT replication workshop. Separate contacts were established with the economic development center of Concord College, located in West Virginia's central Appalachian area, for future discussions of TAT replication in both the industrial and TAT-MED training areas. Also, agreement was reached in December for regular West Virginia individual referrals to TAT training, to begin in January. Related Regional Organizational Contacts TAT interest in contributing to the growth of manpower development programs in the Appalachian South, through a regional approach, led to increased contacts with regional development and educational agencies. Tennessee Valley Authority. At the request of TVA's newly established manpower development office and its related area agencies, TAT staff made an exploratory visit in May to the LENOWISCO Development Authority of Southwest

Activity Area	Work Accomplished and Status January through December 1970
2. REGIONAL MANPOWER DEVELOPMENT (continued)	Virginia, to evaluate replication possibilities and technical assistance requirements for industrial development. TVA officials participated in planning discussions for prevocational programs in the South. Discussions were initiated by TVA and TAT with the Tennessee Appalachia Educational Cooperative for development of "World of Work" curriculum and a proposed educational TV (closed-circuit) network. Other regular consultations were held, including exchanges of visits with the Southern Regional Education Board, the Southern Interstate Nuclear Board, and the Council on Religion in Appalachia. A meeting was held in November with TVA's Education and Manpower Development Office and health demonstration programs staff. Three major areas of possible joint participation emerged: TAT-MED Allied Health Occupations training; upgrading of underutilized personnel and possible creation of a job-diagnostic experimentation center; and regional manpower training in Industrial Technician Aide occupations. Coastal Plains. TAT participated in Coastal Plains Regional Development Commission's October conference on manpower; followup visits continued with Commission officials in Washington headquarters and field offices.

Activity Area	Work Accomplished and Status January through December 1970
3. STATE AND LOCAL MANPOWER AGENCIES Estimated 15% of Effort	ASSISTANCE IN MANPOWER PLANNING Objective Assess TAT experience and develop guides for state and local agencies in comprehensive planning for manpower development; develop technical assistance techniques to facilitate use of guidelines. Comprehensive Area Manpower Planning System (CAMPS) TAT representatives on Knoxville-Knox County CAMPS Committee strongly supported creation of East Tennessee Area Manpower Coordinating Committee on 16-county basis, co-terminus with East Tennessee Development District (ETDD). TAT was instrumental in creation of East Tennessee CAMPS Steering Committee chaired by the Director of ETDD; TAT maintained representation on both East Tennessee CAMPS Committee and Knoxville-Knox County CAMPS Subcommittee and worked for joint meetings and eventual integration. Representatives of TAT prepared a definitive statement of CAMPS function and submitted a proposed "Organization for Action" plan, which was endorsed by State CAMPS Coordinator, and East Tennessee CAMPS Steering Committee, then approved by joint committee action and implemented in early November. The TAT proposal *Building Allied Health Manpower Programs*, which grew out of discussions of the TAT-supported CAMPS Health Occupations Subcommittee, received whole-hearted endorsement from the joint committees. Concentrated Employment Programs (CEP) Reviewed Chattanooga CEP prevocational plans; developed 11-week prevocational curriculum of technical instruction in machining, welding, small-engine repair, and metal fabrication, with related instruction in blueprint reading and mathematics. Conducted seminars in recruitment, testing, and technical instruction for Chattanooga and Tennessee Rural CEP recruiters, counselors, and instructors. Provided technical assistance in recruitment, selection, prevocational instruction, and "World of Work" exploration. Developed 20-minute slide-tape presentation *What is TAT?* to assist in recruitment in areas too distant to include a tour of the Y-12 Plant. Conducted seminars for both TAT and Chattanooga CEP training supervisors and counselors on "Training the Black" and "Problems in Proficiency Evaluation"; analyzed experience in placement of blacks in machining occupations to improve job development strategy and recruitment-selection criteria; developed joint counseling plan with Chattanooga CEP to improve progress in industrial behavior and to reduce disciplinary problems. Assisted Chattanooga CEP in development of contacts with Chattanooga industries. Contracts with Chattanooga CEP were revised so that purchase could be made of training time equivalent to a specified number of training slots with the number of trainees enrolled and the period of enrollment modified to use up available training slots. Negotiations begun with Nashville CEP for possible enrollment of trainees in TAT. Community Action Programs (CAP) Met in February with 11 East Tennessee CAP directors, who represented EOA programs in 24 counties, to improve recruitment in rural areas. At their request, in May a TAT-CAP seminar and tour was conducted in Oak Ridge to discuss possible joint development of prevocational programs, using local adult basic education and manpower resources. Spin-off from the discussions

Activity Area	Work Accomplished and Status January through December 1970
3. STATE AND LOCAL MANPOWER AGENCIES (continued)	included: increased referrals by CAP agencies and inclusion of CAP recruitment assistance in the TAT-MED proposal for health occupational training. TAT and the Anderson County CAP sponsored action by the East Tennessee CAMPS to meet on emergency situation created by the layoff (summer 1970) of several hundred coal miners in the New River area; referrals for training and jobs resulted for younger miners. Discussions held in December with Upper East Tennessee Economic Opportunities Authority and Kingsport district office of Tennessee Employment Service for sponsorship of approximately 10 trainees by local agencies in April - October 1971 training cycle and development of prevocational program.

Activity Area	Work Accomplished and Status January through December 1970
EXPERIMENTATION 4. WORKER TRAINING PROGRAM Estimated 30% of Effort	ANALYSIS AND ASSESSMENT Objectives Determine minimum intellectual achievement required to successfully complete six-month concentrated skilled and technical training and get high skill entry-level job above $6,000 per year; identify training elements essential to success for variety of trainee populations. Identify and work toward establishment of necessary and sufficient conditions to facilitate use of worker training operations as manpower laboratory for industry, universities, and other manpower orientated organizations. Organization and Management Analyzed and defined assessment function for Worker Training program; examined TAT capabilities to involve manpower development agencies and educational institutions in industrial training programs; established separate documentation element under program assessment; established data requirements and collection procedures, and assigned publication priorities. Directed staff to maintain priority importance of assessment and documentation functions and utilization activities. Began review and evaluation of dissemination techniques and channels for optimum ways of achieving application of findings to manpower development; examined research and experimentation element to increase practical application of findings. Administration Third year operation of TAT Worker Training Program demonstrated that disadvantaged trainees with sixth grade achievement in mathematics and reading could be trained in six months, on the average, and placed in entry level high skill jobs in industry at wages of over $6,000 per year. Findings distributed in *Development of Human Potential*, May 1970. Refined performance evaluation systems with improved performance criteria for each occupational area. Studied use of automatic data processing capability for remote research and experimentation studies. Began application of findings from welding training, machining training, and trainee attitude studies to Worker Training operations. Initiated action whereby TAT Advisory Committee established TAT-Community Council to increase and improve the channels of communication between the Oak Ridge community and TAT and to develop resources for recreation, volunteer tutorial and remedial services. Development and Negotiation of 1970-71 Worker Training Program Conducted TAT Worker Training Proposal and MDTA Project Development, *TAT Proposal 1970-71 Operational Plan* (draft and final) and attempted to establish a simplified Master Multi-Occupational project for regional manpower training to consolidate training for four states and four separate funding organizations, reduced extensive duplication of paperwork required, and promoted need for flexibility in training of Industrial Technicians; tried for reporting of each trainee by his industrial DOT code under a single project number and through a single series of channels (local-state-region-headquarters). Development of project took place over eight-month period and required coordi-

Activity Area	Work Accomplished and Status January through December 1970
4. WORKER TRAINING PROGRAM (continued) EXPERIMENTATION	nation with Basic Sponsor Group (AEC, ARC in four states, Chattanooga CEP); several Add-on Group sponsors in Tennessee, Illinois and Idaho; the national offices of the federal MDTA agencies and their respective regional offices in Atlanta and Philadelphia. At each level (local, state, regional, and federal) the DOL and DHEW agency was contacted and involved. Master regional project concept was approved and established, but six occupational training sub-projects were required for reporting purposes. Plus three other sub-projects as part of master regional project for the states of Kentucky, Virginia, and West Virginia. These sub-projects were first processed through their own state and regional channels and then integrated with total TAT package in Atlanta. Unanimous agreement obtained from Employment Service officials at national, regional, and state levels that change of Secretary's regulations regarding handling of trainee allowances would be desirable so as to enable Atlanta Regional Office and Tennessee to handle allowances on a centralized basis. Began chronology and assessment of program development experience with recommendations for changes in the process. Recruitment-Selection Critically examined recruitment-selection process, experimented with team interviewing, completed preliminary reliability and validity study on achievement and aptitude testing for selection purposes. Completed initial phase of experiment in selection through observation of inter-personal relationships in small group situations; evaluated new interviewing techniques and hands-on aptitude testing introduced in selection for October 1970 trainees. Documented findings in *Testing Procedures for the Disadvantaged*; *An Evaluation of the Appropriateness of Standardized Tests Presently Administered to TAT Worker Trainees*; and *Tour, Test and Interview* (A Model for Recruitment of Disadvantaged Persons into a Manpower Training Program). Instruction Analyzed worker training curriculum of trade related, technical and shop instruction; prepared a "Description and Listing of Trade-Related and Technical Courses" identifying courses, course content, average hours per week, and basic texts; published *Machining and Production Machine Operating Curriculum*; conducted investigation on scheduling of instruction in a 26-week welding program and reported findings in *Time to Completion as a Criterion for Training*; collection of data to support a proposed "Trade-Related Instruction Planning Study" proceeded in response to continued interest from OEO. General Education Development Examined General Education Development (GED) Program, arranged set hours in schedule for GED instruction. Published report of findings *The General Education Development (GED) Program at Training and Technology*. Guidance and Counseling Assessed guidance and counseling program, related activities to other supportive services in accordance with findings of *A Study of Trainee Attitudes in a Manpower Training Program*, developed a new series of Industrial Behavior

Activity Area	Work Accomplished and Status January through December 1970
EXPERIMENTATION 4. WORKER TRAINING PROGRAM (continued)	Seminars, revised the Trainee Orientation Program to an intensive three-day period, established an evening hours and dormitory counseling service, prepared two reports, *Job Development Counseling and the Black Trainee* and *TAT Guidance and Counseling Services*. Initiated study of effectiveness of group counseling to inter-personal and group relationships, studied techniques and results of newly initiated off-training site counseling. Began development of TAT-Work-Sample-Selection Method with eventual comparative study of this method with present Application-Test-Interview Method, structured longitudinal follow-up of TAT graduates. Established a "focused approach" in counseling through development of (1) teams of counselors and supportive service personnel assigned to specific groups of trainees, (2) a visiting counselor program for sponsor organization counselors to allow trainees regular access to "their" counselors, and (3) a staff-documented trainee performance evaluation session with counselors every 45 days. Interns from The University of Tennessee School of Social Work work in Counseling and Supportive Services areas to aid in development of group counseling program. <u>Remedial Instruction</u> Refined remedial instruction programs in reading and mathematics; devised diagnostic tests to identify poor readers; initiated reports on identifying the slow math learner and identifying the disabled reader; completed study on effectiveness of various methods of communication; documented findings. Began critical examination of transfer effect of improved reading capability to improvement in trade-related class work. <u>Placement</u> Studied job development, placement, and followup process; prepared employer oriented brochure *Training and Technology Information for Employers*; developed advanced standing placement for steel industry apprentice program; conducted on-site followup visits; and studied effect of job interviews conducted at TAT and at employers' plant. Redesigned placement followup process to match data input to automatic data processing program plans and to improve response rates.

Activity Area	Work Accomplished and Status January through December 1970
DISSEMINATION 4. WORKER TRAINING PROGRAM	DOCUMENTATION AND DISSEMINATION Objectives Production of reports, research studies, articles, and news releases useful to the Worker Training program and other manpower programs generally. Dissemination of manpower information to professionals and the public by mail, conduct of institutes and workshops, tours and staff presentations elsewhere at conferences. Staff Publications Twenty-nine publications were issued in 1970 that document project experience for dissemination and utilization of project findings: *TAT Satellite Training Program with the National Accelerator Laboratory* documented the employment-training experience of trainees recruited from the Chicago ghetto. (February 1970) *Project Contracts and Agreements* listed agreements negotiated for the Worker Training program. (February 1970) *Testing Procedures for the Disadvantaged*, procedures to test disadvantaged persons. (March 1970) *Orientation Program for Y-12 Supervisors*, a program for Union Carbide supervisors acquainting them with TAT training for the disadvantaged. (March 1970) *Machining and Production Machine Operating Curriculum*, one of a series of curriculum publications. (June 1970) *Listing of Documents and Reports (1966-June 1970)*, publications 1966-May 1970. (June 1970) *Continuance of an Institutional MDTA Program Throughout a Prolonged Strike*, how relationships with labor organizations helped keep Worker Training program operating during long strike. (July 1970) *Tour, Test and Interview*, recruitment process developed at Worker Training program. (July 1970) The *General Education Development (GED) Program at TAT*, program for high school dropouts. (August 1970) *Characteristics of the Worker Training Graduate from Appalachia*, recruitment, training, placement experiences of trainees from central Appalachian counties. (August 1970) *Developing Technical Skills for Black Trainees in a Worker Training Program* focuses on 160 black trainees who graduated from TAT in 1969. (October 1970)

Activity Area	Work Accomplished and Status January through December 1970
4. WORKER TRAINING PROGRAM (continued) DISSEMINATION	*Listing of Documents and Reports (1966-November 1970)*, publications 1966-November 1970. (November 1970) *Job Development Counseling and the Black Trainee*, socio-cultural and verbal characteristics of black trainees that affect counseling. (December 1970) <u>University Research Studies by Graduate Students</u> *Existing and Forecasted Employment in Selected Service Occupations (East Tennessee)* (June 1970) *Identification of Potential Training Resources for Service Occupations (East Tennessee)* (June 1970) *A Study of Trainee Attitudes in a Manpower Training Program*, a critical look at Worker Training by trainees. (July 1970) *The Effects of a Manpower Training Program on the Personal Lives of its Graduates* compares graduates of TAT to TAT applicants matched in age, education, and intelligence in areas of income and amounts and kinds of social, political, and religious activities. (November 1970) *A Method of Grading Machined Parts Made by Trainees Using the Criteria of Difficulty, Accuracy, and Finish* provides an objective system for evaluation of the work of machining trainees. (December 1970) *Relative Effectiveness of Different Methods of Formal Communication* examines different combinations of oral and written communication methods for their relative effectiveness. (December 1970) <u>Regular Project Reports</u> Quarterly Reports to U. S. Department of Labor - January-March 31, 1970 April-June 30, 1970 July-September 30, 1970 Project Highlight Reports (monthly) *Summary Report, Experimentation and Demonstration Activities/January 1, 1970 Through September 30, 1970* (September 1970) *Development of Human Potential*, Worker Training and E&D activities in the 15 months prior to 1970. (May 1970) Statistical Supplement (July 1970) <u>Proposals</u> Training and Technology Proposal, *1970-71 Operational Plan*, [first draft] (March 1970) [final draft] (June 1970) *Building Allied Health Manpower Programs* (June 1970)

Activity Area	Work Accomplished and Status January through December 1970
DISSEMINATION 4. WORKER TRAINING PROGRAM (continued)	*Establishment of Training Programs for Manpower Personnel by Colleges and Universities* (May 1970) *Industrial Plant Job Training for U. S. Atomic Energy Commission Contractor System*, [Discussion draft] (September 1970) [Revised discussion draft] (November 1970) Training and Technology Proposal, *1971 Manpower Experimentation and Utilization*, [first draft] (November 1970) [final draft] (November 1970) Information Dissemination Approximately 900 copies of the TAT Phase I (1967-68) final report were mailed to program graduates during January 1970. Over 8,500 project reports mailed January - December 1970. The regular project mailing list contains over 300 industries, training, educational and governmental agencies. In addition, reports are submitted to ERIC for further dissemination. Manpower publications such as the *Manpower Information Services (MIS)* receive reports and have published four articles on the project. A project slide-tape presentation was completed in January for use in recruitment and orientations and conferences. Major magazines and newspapers have seen TAT as a model manpower program for assisting disadvantaged persons into well-paying industrial jobs. Articles on the Worker Training program in 1970 have appeared in the Sunday newspaper supplement *Parade* magazine (ciculation 16 million), *Manpower* and *Appalachia* magazines, The Christian Science Monitor, New York Times, and all major newspapers in East Tennessee. Workshops, Conferences, Meetings, Visits, Visitors Over 600 persons, from Israeli government manpower officials to the Chancellor of The University of Tennessee, Knoxville campus, visited the Worker Training site and conferred with staff members during 1970. Industries from many states have sent personnel to obtain data for developing manpower programs and to recruit graduates. Included are such corporations as International Telephone and Telegraph, Lockheed, U. S. Steel, AVCO, Chicago Bridge and Iron, and Pittsburgh-Des Moines Steel. Project publications are also distributed at workshops, conferences and meetings attended by staff members. Principal visitors, major E&D visits by project staff, workshops, conferences and meetings are listed by month from January through December 1970: JANUARY Visit to Lockheed-Georgia Company to explore development of programs for unemployed, discuss possible programs between Vocational Education and Industry. Presentation at Second Annual Affirmative Action Conference of AEC National Laboratories in Chicago. Discuss opportunities for manpower assistance to AEC contractors. Forty-five contractors present.

Activity Area	Work Accomplished and Status January through December 1970
DISSEMINATION 4. WORKER TRAINING PROGRAM (continued)	Workshop for Chattanooga Concentrated Employment Program. Recruitment, testing, and pre-vocational activities in joint training-employment program with the CEP. In-Service Conference for Supervisory Personnel. Discuss problems and progress of Worker Training year. Thirty participants. Twenty-five recommendations for action. Meeting - East Tennessee CAMPS in Knoxville. Meeting - Work Group on Government Contractors (DOL/AEC training program) Visitors - Tennessee Valley Authority. Explore prospects for joint action in human resource development. AVCO and Chicago Bridge and Iron on recruitment of graduates. FEBRUARY Workshop and Conference with the Appalachian Regional Commission to plan experimental regional manpower program. Recruitment of ARC-sponsored trainees from Kentucky, Virginia, West Virginia. Thirty-five visitors from local, state, federal manpower agencies. In-Service Conference for Instructional staff to improve coordination of instruction, guidance, and supportive service areas. Meeting - Washington, D. C. Discuss with DOL and AEC officials various methods that could be applied to comprehensive training program for AEC. Meeting - Work Group on Education and Training of Manpower Development Personnel. Discuss two proposals for establishing an educational program for manpower personnel. Meeting - Committee on Experimentation. Review experimental research studies of University of Tennessee graduate students. Visits to Employment Service centers and area vocational schools in Kentucky, Virginia, West Virginia; technical assistance for ARC Worker Training and program development. MARCH Meeting - Project Advisory Committee. Review program progress during past quarter. Meeting - Service Learning Conference in Atlanta. Visits - Washington, D. C., to meet with DOL and AEC officials to prepare proposal to establish joint AEC/DOL study group. - TVA offices on cooperative human resource development activities. - Chattanooga, Virginia, Kentucky, West Virginia and Chicago on recruitment. - Nashville, Tennessee, to meet with State Health Manpower Planning Coordinator on ways to use Oak Ridge medical facilities for training disadvantaged persons in allied medical health occupations. - Cookeville and other TRCEP centers, assist rural CEP pre-voc centers. Visitors - U. S. Steel for recruitment of graduates.

Activity Area	Work Accomplished and Status January through December 1970
4. WORKER TRAINING PROGRAM (continued) DISSEMINATION	APRIL Visits - Washington to help plan national MDTA Contractors Conference - Cookeville, Tennessee, coordinate joint program with Tennessee Rural Concentrated Employment program. - Paducah, Kentucky, to assist Functional Industrial Training Program planning. Visitors - Delegation of 10 high-level Israeli education and labor officials - discussion of training operations. - Staff personnel from Chattanooga CEP, Argonne National Laboratory, the National Accelerator Laboratory. MAY First Replication of Worker Training at Paducah, Kentucky, operation of Functional Industrial Training program begins, representing the first replication of the TAT project. Meeting - AEC/DOL joint study group in Washington. Discussion of how AEC contractors can form consortia to conduct training programs for the disadvantaged. Meeting and tour - Host East Tennessee Area CAMPS Committee. Meeting - Host Tennessee Community Action Program directors, seminar and pre-vocational. Visits - Big Stone Gap, Virginia, LENOWISCO development authority to explore cooperative manpower arrangements. - Five project staff members to Chattanooga. Assist in development of pre-vocational program conducted by Chattanooga CEP. - Washington - MDTA National Contractors Conference. Visitors - Dr. William Bishop, AMA assistant director, Medical Laboratory Programs. Discuss development of proposal for TAT-MED. JUNE Four meetings, two in Washington, of AEC/DOL Joint Study Group. Discuss program support in the development of training programs for AEC contractors. Meeting - Project Advisory Committee with work group sessions. Two staff members participated in Traditionally Negro Institute Workshop in Oak Ridge. Participated in Knoxville Urban League Job Festival. Operated festival booth for a week to inform visitors about the Worker Training program. Visits - Tennessee Voc-Ed Regional Officer. Review cost information and proposal (Worker Training) development. - Nashville and Atlanta. Consult with state and regional manpower officials on 1970-71 Worker Training. - Chattanooga for annual IAPES convention of Tennessee Department of Employment Security. Visitors - Appalachian Regional Commission evaluation team visit of 35 persons including representatives of congressional committees and Bureau of the Budget.

Activity Area	Work Accomplished and Status January through December 1970
DISSEMINATION 4. WORKER TRAINING PROGRAM (continued)	JULY Workshop, Joint TAT-Appalachian States Manpower personnel of three states discuss placement of ARC-sponsored graduates and plan next year's program. Meeting - Tuskegee Institute Human Resource Development Center Personnel. Explore feasibility of conducting manpower development programs for disadvantaged residents in Alabama. Meeting - East Tennessee CAMPS Committee. Meeting - Work Group on the Education and Training of Manpower Development Personnel. Discuss implementation of work group proposals. Visits - TVA personnel in Knoxville. - Frankfort and Lexington, Kentucky. Discussion with state government and educational officials on developing manpower programs and on coordination for ARC project. AUGUST Meeting with Oak Ridge city officials. Review trainee living conditions, recreational activities, and need for additional programs. Attend meeting, Tennessee Appalachia Educational Cooperative. Visits - Nashville and Atlanta. State and regional interagency 1970-71 Worker Training approvals. - National Reactor Testing Site, Idaho Falls, Idaho, and Fort Hall Indian Reservation, Idaho. Discuss prospects for training additional number of Indians. - Gary, Indiana, U. S. Steel. Followup on graduates. Visitors - Representative of ITT Federal Support Services, Richland, Washington. Provide information to assist in developing industrial training program at Hanford site. - Representative of Human Interaction Research Institute. Provide information for developing a body of manpower information for industrial training programs. - Representative of Goodyear Atomic Corporation. Discuss training center operation. - University of Tennessee Chancellor to review Teacher Institute operations. SEPTEMBER Meetings - Project Advisory Committee - Organization of Community Council - Six meetings, AEC/DOL Joint Study Group, three in Washington - Southern Interstate Nuclear Board. Assist in study on need for technical personnel in nuclear industry. Visits - OEO in Washington on status of Trade-Related Instruction proposal. - Recruitment visits to Chattanooga, Virginia, West Virginia, and Kentucky. - DOL and ARC in Washington. Secure final approval of 1970-71 Worker Training program.

Activity Area	Work Accomplished and Status January through December 1970
DISSEMINATION 4. WORKER TRAINING PROGRAM (continued)	Visitors - Project Officer, Richard McAllister. Discussion of E&D efforts. - Job Corps personnel from Atlanta. Discuss possibility for pre-vocational program at TAT supported by Job Corps. - Director of Associated Western Universities. Discuss AEC/DOL program in West. OCTOBER Meetings - TAT Community Council - DOL/AEC Joint Study Group - Human Interaction Research Institute, New York - Coastal Plains Commission on Manpower, Athens, Georgia Visit - Chattanooga, Tennessee, for job development with nine industries in that city. Visitors - Standard Oil (Indiana) representatives on possible sponsorship of trainees. - AEC Washington representatives. NOVEMBER Meetings - TAT Community Council - DOL/AEC Joint Study Group - TVA on training for allied medical health occupations and job upgrading. - Nashville CEP on trainee sponsorship. - Argonne National Laboratory on job upgrading. Visits - Regional Commissioner's Environmental Manpower Administrative Teach-In, Atlanta. - Rockefeller Foundation on TAT-MED in New York. - NASA Headquarters in Huntsville, Alabama, on project replication prospects in that city. Visitors - Representatives of South Carolina Technical Education Center. - Representative of the Systems Development Corporation. DECEMBER Meetings - TAT Community Council - Program Development with Kentucky manpower officials. - Program Development with DOL and DHEW officials in Atlanta. - DOL/AEC Joint Study Group in Washington. - Office of Education officials to discuss further university involvement.

Activity Area	Work Accomplished and Status January through December 1970
SECOND PRIORITY PROJECTS (Total time or emphasis determined by potential or demand during year) Estimated 10% of Effort	

DEVELOPMENT OF INCREASED UNIVERSITY INVOLVEMENT

Objective

Build up the research and institution-development capability of allied universities for technique measurement and analysis, documentation, and exchange of findings.

Activities

University of Tennessee faculty served on the Project Experimentation Committee, which supervises the research work of UT graduate students; ten University of Tennessee graduate students utilized project data for research and experimental studies of benefit to manpower development programs and university degree requirements; students of other nearby institutions were assisted by the project in conducting research on area training and employment resources; students from predominantly black Knoxville College continued to be employed as staff members by the Worker Training program. An agenda has been developed and tentative participants identified for the Symposium on University Participation in TAT's experimentation and related research activities.

Negotiations are underway with the University of Tennessee to incorporate the Teacher Institute into the Extension Division of the University of Tennessee. In this way, vocational and technical teachers could attend courses at the Y-12 Plant and receive resident credit at the University of Tennessee.

A draft report was prepared on the findings of the Work Group on the Education and Training of Manpower Development Personnel. The manpower staff of the Tuskegee Institute - Human Resources Development Center is exploring with TAT the feasibility of conducting manpower programs for disadvantaged residents of Alabama.

EDUCATION AND TRAINING OF MANPOWER DEVELOPMENT PERSONNEL

Objective

Establish training programs in universities and elsewhere within the emerging discipline of manpower at the technical (2 year), bachelor's and master's degree level for the in-service and pre-service professionals.

Work Group Activity

Fourth meeting held at TAT in February where proposal strategy agreed upon; fifth meeting in Washington, D.C. for presentation of proposals from ORAU and University of South Florida to DOL and DHEW; sixth meeting held in South Carolina in July to review recommendations for implementation of a master's degree curriculum in manpower. Continued exploration of university involvement in manpower curriculum. Published report summarizing findings of work group.

Activity Area	Work Accomplished and Status January through December 1970
SECOND PRIORITY PROJECTS (continued)	MINORITY GROUP RESOURCES Objective Create new approaches and combinations of resources to handle special problems that hinder the training and employment of minority groups. Development of Black Manpower Resources Conducted review and provided constructive comment on draft proposals for the "Training of Vocational-Technical Teachers" by Prairie View College and for "Prevocational Training of the Disadvantaged for Technical Training in the Shipbuilding Industry" by Tuskegee Institute; addressed the ORAU sponsored Traditionally Negro Institutions Workshop on "Technical Training for the Disadvantaged"; participated in the Knoxville Urban League sponsored Job Fair providing applications and information regarding the Worker Training Program; analyzed and assessed the Chicago Satellite program and the characteristics of black trainees from all sources and documented findings in *Developing Technical Skills for Black Trainees* and *TAT Satellite Training Project with the National Accelerator Laboratory*. Completed staff report *Job Development Counseling and the Black Trainee*. Worked with Tuskegee Institute to develop discussion draft proposal for TAT replication in shipbuilding industry. Increased Participation of American Indians Building on early experience in training Cherokee Indians, TAT initiated a number of contacts to increase participation of American Indians in Worker Training Program. Argonne National Laboratory recruited two Shoshone trainees from Fort Hall Reservation, Idaho, for training and employment at the National Reactor Testing Site (NRTS) in Idaho. National Accelerator Laboratory recruited two Sioux, one Alaskan, and one Navaho from the Chicago Indian ghetto for training and employment at their accelerator site in Batavia, Illinois. Meetings were held with the U. S. Bureau of Indian Affairs officials in Chicago and followup visits to TAT were arranged. A visit to the Fort Hall Reservation and the NRTS to discuss increased Indian participation with AEC and NRTS contractors resulted in Argonne recruiting six additional Shoshones for training in October Worker Training group. Early discussions with BIA, DHEW, OEO, and AEC Equal Employment Opportunity officials concerning possible add-on group sponsorship were conducted with recruitment of a group of 10-20 Indians for April entry as a possibility. WORK WITH ORGANIZED LABOR Objective Stimulate greater direct participation and support by organized labor in the training process and develop realistic understanding between union members and disadvantaged groups. Participation and Support Representatives of organized labor continue their involvement in the Worker Training Program. Seminars, led by labor representatives, were conducted for each new group of trainees to explain role of unions in an

Activity Area	Work Accomplished and Status January through December 1970
SECOND PRIORITY PROJECTS (continued)	industrial society. Union members continued active participation in TAT Advisory Committee. The supportive role of organized labor was demonstrated during the March strike of skilled craftsmen at the Y-12 Plant. Council representatives supported the continuance of TAT training without interference. Vote of Council membership approved a plan whereby skilled craftsmen were allowed to continue to provide shop instruction and trainees passed through the picket lines without interference. Strike lasted 69 days and unions effectively encouraged trainees to continue training. The experience is documented in a report entitled *Continuance of an Institutional MDTA Program Throughout a Prolonged Strike*. RURAL SCHOOL TO WORK TRANSITION Objective Build programs in cooperation with educational cooperatives to facilitate entry of rural youth into employment compatible with their potential. Preliminary Activities Information has been collected on vocational education, educational cooperatives, and flow of high school age youth into the pool of the disadvantaged; discussions have been held with directors of educational cooperatives in Tennessee and Virginia; ideas have been exchanged with Tennessee Valley Authority staff working on rural educational problems; Project experience in counseling has been shared with high school guidance personnel; five presentations have been made to local audiences in school to work transition problems; ideals have been explored with state vocational education officials and others. TAT participated in Conference for Women Students and Community Leaders in October. MANPOWER DEVELOPMENT SERVICES Objective Effect wider utilization by government agencies, industry, and education of TAT-tested training techniques and supportive services, through technical assistance and manpower internships. Residency Internships Development work in the area of residency internships involved feasibility discussions with training and manpower officials of the Lockheed-Georgia Corporation, Argonne National Laboratory, and National Accelerator Laboratory and with Appalachian Regional Commission officials in Tennessee, Kentucky, Virginia, and West Virginia. The effectiveness of various internship approaches was examined in conjunction with the conduct of the Orientation Program for 80 Y-12 supervisors and the extended visit of the administrative staff of Functional Industrial Training Program, a TAT replication effort conducted at ND-UCC Gaseous Diffusion Plant in Paducah, Kentucky. Plans for further development of internship approaches are in process with The University of Tennessee's School of Social Work, with two candidates selected for fall and

Activity Area	Work Accomplished and Status January through December 1970
SECOND PRIORITY PROJECT (continued)	winter quarter participation. Interns work full time, four days per week for a six-month period. Major assignment will be development of complete "package" for a residency for manpower professionals in guidance and counseling and supportive services. Development of Allied Health and Environmental Manpower Programs TAT in cooperation with East Tennessee CAMPS Subcommittee on Health Occupations began study of health manpower needs in 16-county East Tennessee area. Objective of study was to match manpower needs with available resources. Strong need in area for medical laboratory personnel was matched with special facilities, equipment, and expertise of Special Training and Medical Divisions of Oak Ridge Associated Universities. These resources were joined with those of area hospitals and TAT Project in proposal to train disadvantaged for employment as Certified Laboratory Assistants. Training program was designed to eliminate compartmentalized block instruction and the inefficiencies of on-the-job training, thereby reducing program length to nine months. Proposal received enthusiastic support from American Medical Association, National Committee on Careers in Medical Technology, Tennessee State CAMPS Committee, East Tennessee Development District and area Community Action Programs. Proposal given provisional approval by AMA Council on Medical Education and Tennessee Department of Public Health. Proposal entitled *Building Allied Health Manpower Programs* is under consideration for funding by the Department of Labor. Additional funding sources for preparatory and experimental aspects of TAT-MED were investigated as a means of separating these costs from institutional training costs normally funded by DOL/DHEW. Revisions in the target recruitment and placement areas to include other Southeastern states are under consideration as a result of these investigations. Attended Office of Education-sponsored Environmental Teach-In in Atlanta in November. Explored federal funding priorities and potential development of training for environmental technicians possibly utilizing TAT and other ORAU and area resources. NATIONAL CONTRACTOR CONFERENCE Objective Provide leadership for planning and conduct of conference for MDTA national contractors as a member of conference steering committee. Conference Activity Attended three planning meetings; planned and chaired two conference discussions and served as workshop discussion chairman; supplied material for conference proceedings; distributed 300 copies of TAT publications at conference. Supplied comments on draft of conference proceedings. Participated in decision to cancel additional conferences of national MDTA contractors at regional level.

VT 012 676
Rehabilitation Counseling Leadership: Present and Potential. Working Paper No. 5. Career Contingencies of the Rehabilitation Counselor.

Case Western Reserve Univ., Cleveland, Ohio. Dept. of Sociology and Anthropology.
Rehabilitation Services Administration (DHEW), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Nov67 42p.

DESCRIPTORS - *REHABILITATION COUNSELING; *EDUCATIONAL SOCIOLOGY; DEMOGRAPHY; *ADMINISTRATIVE PERSONNEL; *GRADUATE STUDENTS; ADMINISTRATOR QUALIFICATIONS; PROFESSIONAL RECOGNITION; EDUCATIONAL STATUS COMPARISON; LEADERSHIP; PROFILE EVALUATION; SCHOOL SURVEYS; OCCUPATIONAL INFORMATION; *CHANGING ATTITUDES; JOB SATISFACTION

ABSTRACT - To analyze the changing nature and growing professionalism of rehabilitation counseling, this report compares the beliefs, attitudes, and experiences of supervisors, educators, and recent graduates in the field. A survey was conducted of all 1965 graduates, graduate program directors, and a stratified random sample of state, district, and area supervisors and counselors-in-charge. The responses were used to determine demography, education, experience, professionalism, and job attributes and attitudes. Comparison between students and educators show similarities, such as a reluctance to grant rehabilitation counseling full status as a profession. Further longitudinal research will determine if these attitudes are maintained through the fourth year after graduation. (BH)

VT 012 676

ED0 57254

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REHABILITATION COUNSELING LEADERSHIP: PRESENT AND POTENTIAL.

Working Paper #5

CAREER CONTINGENCIES OF THE REHABILITATION COUNSELOR

Professions Project
A Program of Research on Occupations and Professions
in the Field of Rehabilitation

Supported in part by
The Vocational Rehabilitation Administration
Project Number RD-1726-P-67-C3

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November, 1967

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PREFACE

The Department of Sociology of Case Western Reserve University, in cooperation with the Rehabilitation Services Administration, is currently conducting a study of the career contingencies of the rehabilitation counselor and the process of professionalization of this occupation.

Career contingencies are those circumstances and events which produce patterns of stability and change in typical occupational histories. Professionalism is a set of attributes acquired by some occupations, basically a unique body of scientific knowledge and a social service outlook, from which follow independence in task performance, prestige, and other desirable conditions of work.

Among the groups being studied are potential and present leaders in the field. These include a cohort of students who were scheduled to complete their rehabilitation counselor training in the spring of 1965 and whose careers are being followed over a four year period, the directors of the graduate programs involved, and a sample of rehabilitation counseling supervisors in public agencies.

The capabilities of leadership of a social movement, work system, or any other type of social organization are directly related to the survival of the collectivity and the amount of power, prestige, income and rewards it obtains for itself in competition with other groups in society. Elites formulate substantive goals or intellectual concerns, nourish the talents of participants, inspire adherence to norms, create or modify existing values, effect sanctions on recalcitrants, and develop adequate procedures for handling intra- and inter-system relationships. Success of the elites in these various activities sets the course of the enterprise. Rehabilitation counseling is a work system with leaders and followers and this paper is concerned with its present and potential leaders.

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INTRODUCTION

"Rehabilitation counseling" is an occupation concerned with assisting physically and emotionally disabled individuals find satisfactory social and work roles in society. Originally an off-shoot of the vocational guidance field and limited to employment counseling for the handicapped, rehabilitation counseling has gradually encompassed broader goals and an expanded clientele. In the main this growth has occurred under government sponsorship; the occupation was in effect created with the passage of rehabilitation legislation after World War I, is today practiced very largely in government settings, and has added new objectives and new categories of clients as a result of wider legislative definitions over the years. Rehabilitation now involves self-management in daily living as well as job-finding. Eligible clients include not only the physically damaged but also the victims of emotional disorders and the socially disadvantaged such as ghetto dwellers or ex-prisoners. Lessened emphasis on employability has opened the door to the aged, and the more severely disabled.[1]

Members of this occupation, following a trend common in the post-war period,[2] have engaged in a concerted effort to upgrade their work to professional status. The methods used have been familiar: establishment of professional training programs at a post-graduate university level, and the formation of a professional association to be open, after a brief initial "take-all" period, only to those with such advanced training. In this model of professionalism, acquisition of knowledge and building an association to promulgate, institute and enforce higher standards of entry and performance based on such knowledge are the critical elements. Other criteria of professionalism, such as a social-service outlook, become part of the rhetoric of the newly-born association, while autonomy in job performance, power, and heightened pay, prestige and self-esteem are expected concomitants.

The professionalization process, with its ethos of small numbers and high quality, has been overtaken by the rapid expansion of the rehabilitation counseling field. The demand for counselors over the past several years has consistently outstripped the supply. It has been estimated that from 800 to 1200 additional counselors will be needed annually in the next few decades to fulfill the obligations set by new legislation with its broader standards of eligibility;[3] yet fewer than 600 are graduating from the training programs and about a third of these leave the rehabilitation counseling field.[4]

As a result of this disparity between insistent demand and quality supply, the formal system of advanced training is undergoing rapid expansion: the number of colleges and universities offering such graduate programs increased from 41 to 61 in the one year between the fall of 1965 and the fall of 1966, and is still on the rise. However, many are still entering counseling with a minimum of specialized training, and picking up skills on the job. Often their only qualifications are a bachelor's degree in social science and success on a civil service examination. In addition, capable and intelligent but not highly educated individuals are being hired in some parts of the country to take over routine, non-professional tasks formerly performed by counselors. These "counselor-aides" are the response of the rehabilitation field to a movement advocating sub-professional assistants in numerous social service occupations, such as nursing, teaching, and social work.[5]

Rapid expansion based on the hiring of the minimally qualified has opened new channels of upward mobility. Those previously in the work are finding opportunities for advancement, as supervisors are needed to handle the influx of neophyte staff. New entrants with specialized training, being a rare breed, can expect to move rapidly up the occupational ladder, ahead of others with fewer academic attainments.

These conditions and developments are unevenly distributed in the rehabilitation counseling work system because of the varying histories and goals of the three types of work setting, the Veterans Administration (VA), the private agencies, and the state federal offices (DVRs) of HEW's Rehabilitation Services Administration.[6] Broadened definitions and rapid expansion apply directly only to the DVRs, since the VA is financed through other government appropriations, and private agencies are supported by community campaigns. Furthermore, in the VA the push toward professionalism occurred early, shortly after World War II, when the Ph.D. or equivalent was made a condition of employment. Rather than establish separate post-graduate training programs, leaders in the VA tailored their higher requirements to the pattern of existing departments of psychology. Practitioners secured doctorates in counseling psychology, joined the American Psychological Association as their professional organization, and gradually grew away from their less highly trained rehabilitation counseling colleagues.[7]

Meanwhile the private agencies, traditionally the professionalizing leaders in other helping occupations, were apparently overshadowed by the greater numbers in the government settings. Seventy-five per cent of rehabilitation counseling personnel were employed in state-federal DVRs in 1965[8] and the ratio is doubtless higher today, since these agencies are the immediate beneficiaries of legislatively-induced growth. Witness to the dominance of the public sector is the fact that seven of the eight candidates for 1968 office in the largest professional organization (the National Rehabilitation Counseling Association) were employed by state DVRs.[9] Also two-thirds of the heads of university training programs once worked as rehabilitation counselors for government agencies, chiefly in DVRs. The evidence suggests that private agencies have expended their energies for the most part in establishing the priorities of social work. Although recent changes in administration on the federal level may result in a second look by private agencies at their role in the rehabilitation process, they have not as yet given leadership in the growth and professionalization of the rehabilitation counseling field. The task of providing leadership to the rehabilitation movement, especially in the counseling area, has fallen to a significant extent upon the various levels, federal, state, and local, of the former Vocational Rehabilitation Administration, now the Rehabilitation Services Administration.

In any occupational system, supervisory personnel play a dominant role in enforcing standards of performance and entry requirements and in general control the stance and behavior of practitioners. As a consequence they are critical in the professionalization process, determining whether or not the inadequately trained will indeed be barred at the gate, or the old fashioned practitioners kicked out or upstairs. Thus, to the extent that rehabilitation counseling is at present preponderately performed in the DVR, the supervisory personnel of these state agencies are in a position to make or break the professionalizing efforts of the academically-oriented newcomers and their mentors in the universities. In

this sense DVR supervisors are old-time leaders of the field who may or may not advance the goals and definitions of the Young Turks.

Directors of the university-based training programs are professionalizing leaders in a more direct way. They are defining work roles and setting up occupational performance standards through the quality of their faculties and the nature of their curricula. Indeed, as the molders and shapers of whole cohorts of new job incumbents, these educators could be considered the chief determiners of the direction in which rehabilitation counseling is likely to go as an emerging profession. The graduates of the training programs, on the other hand, can be viewed as prime contestants in the race for leadership, if they enter the field. These newcomers, because they have educational advantages and because supervisors are desperately needed to guide and manage bachelor's level counselors, can be expected to move up rapidly in the occupational hierarchy. This embryonic professionalizing leadership should have its impact in the immediate future, not merely in some long-distant projection, and this impact should be irrespective of the particular rehabilitation work setting in which the novitiate is employed.

Comparing the characteristic beliefs, attitudes, and experiences of DVR supervisors, educators who head university-based training programs, and recent trainees currently in rehabilitation work is the major purpose of this paper. Although findings are largely descriptive at this stage, they can offer clues to professionalization in rehabilitation counseling in the past, present and future. It is expected that supervisors, educators, and trainees constitute different social types, with consequences for the direction and speed of the professionalization process.

GATHERING DATA

A number of procedures were used to gather data for this study. A roster of supervisory personnel was compiled from the Directory of State Divisions of Vocational Rehabilitation and State Agencies for the Blind, issued in January 1964 by the Vocational Rehabilitation Administration. State directors and supervisors, district supervisors, area supervisors and counselors-in-charge were included for a final count of 780 DVR staff at these administrative levels. This population was stratified by membership in professional associations and geographic region into eight sampling cells, and random sets of 40 drawn from each cell. The resulting sample totalled 320 cases, of whom 282 responded during the fall of 1965 to a mailed questionnaire, a return rate of 88 per cent. Since sampling fractions differed widely, from .16 for supervisor members in the south to .68 for non-members in the west, it was necessary to weight the findings from each cell by the inverse of its sampling fraction to compensate for these variations.

The entire population of training program directors was surveyed in late 1965, then consisting of 39 heads of counselor graduate degree curricula in colleges or universities receiving VRA traineeship grants. Thirty-seven of these educators replied to a mailed questionnaire, for a response rate of 95 per cent. The entire population of students scheduled to graduate from such training programs in the spring of 1965 was also surveyed, first in

1965, and again one year later in the spring of 1966. Ninety-nine per cent, 324 out of a population of 326, responded in the first survey, and 300, or 92 per cent, replied in the following year. Of these, only 199 were working in the rehabilitation field, and are analyzed in this paper. Data on those in other activities will be reported in a later publication.

REHABILITATION LEADERSHIP - A DEMOGRAPHIC PROFILE

Some changes in the face of rehabilitation are forecast by the differences in characteristics of present and future leadership groups (see Table 1).

Nine out of ten supervisors and educators are male, compared to less than three-fourths of the recent students, indicating that women, who have been underrepresented in the past, may become a significant sector of future leadership. There are no real differences, however, in racial composition: 95 per cent of supervisors and students are white, as are 97 per cent of educators. As might be expected, there are marked age variations, with two-thirds of the supervisors over 45, as compared to less than half the educators and only about five per cent of the students in this older category. Doubtless as a reflection of the younger age of the students, only about half are married, compared to 90 per cent of the supervisors and educators.

Educator and student groups are more heterogenous than the state-federal supervisors, as measured by religious affiliation and childhood background. Seventy-five per cent of the DVR segment are Protestant, and nearly two-thirds grew up in small towns or rural areas. By contrast only about half the educators and students are Protestants, with the balance distributed among Catholics, Jews and those of other or no faith. Less than half the educators and about a third of the students have a small town or rural childhood background, and about a quarter come from major metropolitan areas of one million or more population.

Differences in the social class of parental families are also evident. Using the Hollingshead two-factor index, which combines weighted values for occupation and education,[10] about a third of both supervisors and educators are found to have originated in Class III families, representing middle-class white collar groups, and about half in working-class families in Classes IV and V. However, the bulk of the supervisors come from the stable, skilled manual Class IV backgrounds, while the educators' parents were preponderately in the less stable, unskilled manual Class V. Student family backgrounds are more uniformly distributed across the five class scale, with about thirty per cent in Classes I and II, the managerial and professional categories. Part of this variation is due to differences in age levels between the groups. The students, being younger, have parents who grew up in recent times when more persons were able to complete educations, and thus according to the Hollingshead scale would have a higher social class position than parents in an earlier age cohort. Not all the variation, however, can be attributed to intergenerational educational differences; although the educators are generally younger than the supervisors, their social class backgrounds are lower. It appears that the field of rehabilitation provides

TABLE 1

DEMOGRAPHIC PROFILE OF REHABILITATION COUNSELOR LEADERSHIP

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
SEX			
Male	90.8	89.2	70.9
Female	9.2	10.8	29.1
RACE			
White	95.3	97.3	94.0
Negro	2.9	2.7	3.5
Other or unknown	1.9	.0	2.5
RELIGION			
Roman Catholic	17.8	16.2	20.6
Jewish	1.3	13.5	8.0
Protestant	75.1	51.4	49.7
Other or none	5.2	16.2	21.1
Unknown	.7	2.7	.5
AGE			
Under 25	.0	.0	26.3
25 to 34	5.6	13.5	48.0
35 to 44	26.1	37.8	21.2
45 to 54	32.2	43.2	4.0
55 or over	36.1	5.4	.5
MARITAL STATUS			
Single	7.7	2.7	37.7
Married	88.8	91.9	53.3
Separated, divorced	2.3	2.7	7.5
Widowed	.7	2.7	1.5

[a] Weighted by Sampling Fraction.

TABLE 1 (Continued)

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
CHILDHOOD BACKGROUND[b]			
Metropolitan	11.6	24.3	21.6
Urban	14.7	8.1	22.6
Suburban	10.2	16.2	19.1
Small-town, rural	59.4	48.6	36.2
Foreign, unknown	4.1	2.7	.5
FAMILY SOCIAL CLASS			
Class I	5.0	2.7	11.1
Class II	9.1	8.1	20.1
Class III	29.4	32.4	24.1
Class IV	36.0	21.6	26.1
Class V	18.4	35.1	16.1
Unknown	2.1	.0	2.5
PRESENT MONTHLY EARNINGS			
Trainees & less than $450	.9	.0	8.5
$450 to $599	6.7	.0	40.7
$600 to $749	37.6	2.7	40.2
$750 to $899	23.7	.0	6.0
$900 to $1049	20.0	35.1	2.0
$1050 or more	6.8	59.4	1.0
Unknown	4.4	2.7	1.5
CLOSE EXPERIENCE WITH DISABILITY[c]			
None	55.3	51.4	48.2
Own family	27.4	48.6	40.7
Self	19.6	5.4	21.6

[a] Weighted by Sampling Fraction.

[b] Metropolitan areas are those with populations of one million or more; urban areas have populations of fifty thousand to less than one million.

[c] Percentages exceed 100 per cent because some both had disability in the family and were themselves disabled.

a path of upward mobility for many who originated in blue collar or lower white collar families, while increasingly attracting the children of professionals and businessmen as well.

The three leadership groups differ also in their current financial status. The recent students, being the newest incumbents, have the lowest monthly earnings; about half earn less than $600 per month and another 40 per cent receive between $600 and $750. The educators are the best paid. Nearly all are in the $900 or more per month bracket, an income level reached by only a quarter of the supervisors. The considerable disparity between pay for top level practitioners and teachers of practitioners is due to the remarkable rise in salaries of academicians in colleges and universities since 1960.

Experience with disability characterized about half of each group. It is apparent that many in rehabilitation leadership are acquainted with disablement outside of their work situations, but the pattern of relationship varies. About 20 per cent of the supervisors and recent students are themselves impaired, a rate considerably above estimated national averages of three to nine per cent,[11] and about four times the rate of personal disability among the educators. Nearly half the latter, however, report experience with impairment in their immediate families, including spouses, children, parents or siblings. One interpretation of this variation is that the educators may have been influenced by the impact of illness on someone near to them to enter a subspecialty of their own social science field, whereas for the supervisors and former students with a handicap, rehabilitation counseling afforded a best utilization of their talents, considering their limiting conditions. Such an explanation can be explored further when the backgrounds and occupational choice processes of the three leadership segments are examined below. Finally, it is worth noting that the student group, the newest in the field, exhibits the highest rate of combined personal and family experiences with disablement. A note of caution is necessary against erroneous conclusions regarding association or correlation of these variables, knowledge of disability and work in a particular occupation. Association does not mean causation. There are a variety of push and pull factors which enter into one's choice of an occupation. Single factors or combinations of them are causative agents. The push and pull strength of any one factor such as disability is a likely subject for research.[12]

The demographic differences between the leadership levels, over and above those expected because of variations in age, suggest, but do not predict, the outlines of future change in the field. It is almost certain, for example, that supervisory groups will become urban-oriented as villages and small towns disappear under big city sprawl. Further, it is possible that these groups will be more heterogeneous in religious belief and childhood background in the years ahead, judging from the present characteristics of the students. On the other hand, the higher proportions of women among the recent graduates may not carry over into future DVR supervisory positions, if women will be passed over for promotion.

PAST TRAINING AND EXPERIENCE

Variations in academic training and prior practical experience reveal changes in developmental patterns between present and potential leadership types (Table 2).

TABLE 2

TRAINING AND EXPERIENCE OF REHABILITATION COUNSELOR LEADERSHIP

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
EDUCATIONAL LEVEL			
No college	.4	.0	.0
B.A. only	25.0	.0	.0
Graduate study, no degree	22.7	.0	14.6
M.A. level	26.8	5.4	75.4
M.A. plus additional study	20.9	.0	7.5
Ph.D. level	3.1	94.6	2.5
Unknown	1.1	.0	.0
FIELDS OF GRADUATE STUDY[b]			
No graduate study	25.4	.0	.0
Sociology, social work	12.8	10.8	3.0
Educational guidance, spec. educ., counseling	18.9	40.5	12.7
Psychology	12.8	64.8	12.6
Rehab. counseling	12.7	26.3	77.6
Other social science or general educ.	31.8	16.2	10.6
Other	8.6	2.7	1.5
Unknown	3.9	.0	.0
UNDERGRADUATE GRADE AVERAGE			
A, A-	9.2	16.2	7.0
B+	21.7	27.0	14.1
B	26.6	27.0	17.1
B-	21.8	10.8	32.7
C+, C	16.8	16.2	28.1
No college or unknown	3.8	2.7	1.0
RATING OF UNDERGRADUATE COLLEGE			
Highest I	26.0	43.2	28.1
High II	25.1	27.0	31.7
Medium III	30.5	13.5	24.6
Low IV, V	12.6	8.1	11.5
No college or unknown	5.9	8.1	4.0

[a] Weighted by Sampling Fraction.

[b] Percentages total more than 100 because some respondents studied in more than one field.

As might be expected, all but two of the educators have their Ph.D.'s and 85 per cent of the student group have an M.A. degree or above, a level attained by only half the present supervisors. Marked differences in the subjects of such graduate study among the three groups were not expected. Three-quarters of the students took degrees specifically in rehabilitation counseling, but most of the directors of the schools they attended did not. Although heading rehabilitation training programs, only a quarter of the educators are themselves schooled in this field; two-thirds did graduate work in psychology, and 40 per cent in educational guidance and counseling. The implication is that rehabilitation counseling is viewed not as a separate field but as a sub-specialty of counseling and psychology, thus permitting persons with expertise in the parent discipline to supervise the training of the would-be specialists. The focus on psychology is not reflected in the academic background of the present leadership. Incumbent supervisors are more likely to have been trained in a social science other than psychology, or in general education; only about one in eight took graduate study either in psychology or rehabilitation counseling. A shift from a general social service or educational ethos to a psychological one is strongly indicated by these findings, and to the extent that psychological training continues to characterize the potential leadership emerging from the rehabilitation counseling graduate programs, this tendency is likely to be reinforced. Whether the fact of such a development is recognized by the present leadership, or considered desirable, remains to be determined.

Undergraduate grade averages, as self-reported by the respondents, vary considerably between the groups. The educators produce the largest proportion in the B+ or over range, more than 40 per cent, the supervisors come next with over 30 per cent at this level, and the present students trail with only 21 per cent graded B+ to A. Conversely, only about 16 per cent of either educators or present leadership report C grade averages during college, compared to 28 per cent of the students.

Various interpretations of these findings are possible. They can be discounted on the grounds that the grade averages, being self-reported, are unreliable, particularly after the passage of considerable time, as in the case of the supervisors. Or they can be discounted because the meanings of grades vary according to the quality of the school attended, or even that high grades are harder to achieve today because rapid increases in knowledge mean there is more for the hapless student to acquire if he is to pull an A. The first interpretation is not subject to check, since no independent data on grades were collected, and the last is a matter of opinion. As for the quality of the schools, the educators, who reported the highest grades, also attended the "better" colleges, judging by the rating system developed at the National Opinion Research Center and based on the number of seniors going on to the Ph.D.[13] Over 40 per cent did their undergraduate work at these "Class I" colleges, which include Ivy League schools and the most outstanding state universities, as compared to about a quarter of the supervisors and recent students.[14]

The marked differences in scholastic abilities between the groups may, indeed, be real and signal a change in future leadership characteristics. Whereas the present supervisory group represents a fairly normal range of college achievement, the students tend to cluster at the lower grade averages. If all or most of this student group, under the pressure of the swiftly expanding field, are able to translate their master's degrees into promotion to

supervisory positions, the new leadership would consist of somewhat less able or achieving individuals than before. This development would not occur if selectivity rather than mere possession of an advanced degree governs advancement in the field.

Academic honors, it can be argued, are by no means an essential for successful rehabilitation counseling leadership: field experience is at least equally valuable (Table 3). Here the students, almost by the nature of the case, are also disadvantaged. Nearly 70 per cent of them moved rapidly from college to graduate school, leaving little time for experience in the world of full-time work. About 85 per cent have less than two year's seniority in the rehabilitation counseling field; in fact almost 60 per cent had no jobs of any kind in rehabilitation prior to their present employment.

The educators, on the other hand, most of whom also moved rapidly from college to advanced study, have had a considerable work background: three-quarters engaged in rehabilitation counseling in the past, and nearly 85 per cent spent five years or more in rehabilitation. The supervisors, the majority of whom came up through counseling positions, are also well-experienced: over 90 per cent have been in the field for more than five years, and half for more than 15 years. Furthermore, a third waited four years or more after their bachelor's degree before continuing on to graduate schooling. In the eyes of some, this is beneficial, permitting integration of advanced knowledge with prior practical experience.

A work history in rehabilitation, moreover, is not the only desideratum. Employment in other fields may be considered an enriching experience, adding depth and dimension to rehabilitation tasks. On this basis, also, some newcomers have a built-in handicap. Because they selected rehabilitation counseling as their first full-time work, a quarter of the recent students never had a previous permanent job, as compared to only eight per cent of the supervisors and none of the educators. Most supervisors and educators had employment in professional social service jobs, such as teaching, school guidance, and social work prior to entering rehabilitation; most students did not. Two-thirds of the supervisors and over 40 per cent of the educators had been in the work force for five years or more before entering the rehabilitation counseling field, unlike the former students only 30 per cent of whom had such an extensive background. In fact for two-thirds of the supervisors and nearly half the educators, their prior work was of sufficient duration and presumed commitment as to constitute a prior career, chiefly in the previously mentioned professional social service occupations. Only a third of the students were evaluated as having prior careers, and these were in scattered occupations. Many of these differences, as will be discussed below, are a product of evolving patterns of occupational choice in the field.

The leadership, it appears, is changing. The supervisors, "old-timers" in rehabilitation, are typically college graduates, many of whom have added to their knowledge by taking advanced level courses in guidance, counseling, education and the like, but who have had little formal training in psychology or rehabilitation counseling as such. Their leadership would seem to be based on years of actual rehabilitation practice, as well as on broad experience in the work world in various social service professions. The academicians share with the supervisors the long experience in the field and the diverse prior occupational

TABLE 3

PRIOR WORK EXPERIENCE OF REHABILITATION COUNSELOR LEADERSHIP

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
GAP BETWEEN BA AND GRADUATE STUDY			
3 years or less	36.2	70.3	69.8
4 years to 13 years	27.0	24.3	22.6
14 years or more	5.5	5.4	6.5
No graduate study or unknown	31.3	.0	1.0
WORK TIME IN REHAB. COUNSELING FIELD[b]			
Less than 2 years	1.5	2.7	84.4
2 years, less than 5 years	7.0	13.5	8.0
5 years, less than 10 years	28.3	24.3	5.5
10 years, less than 15 years	9.9	18.9	1.5
15 years or more	50.4	24.3	.5
Unknown	3.0	16.2	.0
JOBS IN REHAB. PRIOR TO PRESENT POSITION[b]			
Counseling	67.6	73.0	24.6
Non-counseling	7.9	32.4	17.1
Supervision	27.6	29.7	7.2
None	23.3	8.1	63.2
PRIOR JOB HELD OUTSIDE REHABILITATION[c]			
None	8.4	.0	24.6
Medical or paramedical	4.5	5.4	10.5
Professional social service	74.7	65.7	27.0
Other professional	10.3	13.5	9.0
Business and administration	21.6	10.8	9.0
White collar	15.5	5.4	29.1
Blue collar	15.8	10.8	13.6
Unknown	1.4	2.7	1.0

[a] Weighted by Sampling Fraction.

[b] As of 1965 for supervisors and educators; as of 1966 for recent students in rehabilitation.

[c] Percentages total more than 100 because some respondents mentioned more than one item.

TABLE 3 (Continued)

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
WORK TIME PRIOR TO FIRST REHAB. COUNSELING JOB			
None	8.4	18.9	24.1
Up to 1 year	2.9	5.4	12.6
1 year, less than 3 years	8.5	5.4	19.1
3 years, less than 5 years	8.8	18.9	12.5
5 years, less than 10 years	23.1	32.4	16.1
10 years, or more	43.8	10.8	14.1
Unknown	4.5	8.1	1.5
PRIOR CAREERS			
None	34.6	56.7	64.8
Homemaker	.6	.0	2.0
Rehab. non-counseling	2.8	5.4	7.5
Medical, paramedical	1.7	.0	4.5
Professional social service	47.1	29.7	8.0
Business	7.1	5.4	5.0
White collar	2.6	2.7	3.5
Other or unknown	3.5	.0	4.5

[a] Weighted by Sampling Fraction.

background, and have the added advantage of advanced degrees, particularly in psychology. Their leadership appears based on scholarship, and on their powerful role in shaping the new crop, potential leaders of the future. These, on the other hand, have relatively little practical experience as yet, and their training has been specifically in rehabilitation counseling, under the aegis of psychology in the main. As a group, they show fewer signs of academic excellence than either of the present leadership sectors. Their narrower range of experience, training and ability may signal a more specialized, less worldly-wise leadership in the future, for whom the label of professionalism will be both more possible and more precious.

PATHWAYS TO REHABILITATION WORK - THE CHOICE PROCESS

The notion that changes are under way in the character of rehabilitation counseling leadership is reinforced by an examination of the separate pathways to the field followed by the supervisors, educators and recent trainees (Table 4).

TABLE 4

PATHWAYS TO REHABILITATION WORK OF REHABILITATION COUNSELOR LEADERSHIP

THE CHOICE PROCESS

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
AGE AT FIRST KNOWLEDGE OF REHABILITATION COUNSELING			
Pre-college (under 19)	2.1	2.7	3.5
During college (19 to 22)	8.3	10.8	53.8
After college (over 22)	88.2	86.5	45.7
Unknown	1.4	.0	.5
HOW HEARD OF REHABILITATION COUNSELING			
Teacher, school or voc. couns.	12.4	35.1	28.6
Literature	9.0	13.5	15.6
Agency contact not as client	57.5	32.4	27.6
As rehab. client	8.1	2.7	4.0
Friends, relatives	8.9	8.1	23.6
Military service	.6	2.7	.0
Other or unknown	3.5	5.4	.5
TIME BETWEEN FIRST KNOWLEDGE AND DECISION TO ENTER FIELD			
6 months or less	45.2	21.6	50.3
Within 1 year	11.0	21.6	18.1
Within 5 years	23.5	21.6	23.7
More than 5 years later	16.3	29.7	6.5
Other or unknown	4.0	5.4	1.5

[a] Weighted by Sampling Fraction.

TABLE 4 (Continued)

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
OTHER CAREERS CONSIDERED[b]			
Psychology	6.2	21.6	35.2
Social work	8.5	8.1	14.5
Medical or paramedical	21.5	19.7	39.1
Business, law, military	59.5	67.7	42.8
Teaching, guidance	73.4	54.0	70.8
Physical science	9.6	18.9	17.5
Arts	12.5	13.5	11.5
Clergy	4.8	8.1	5.0
Other, or unknown	4.0	.0	.5
REASONS FOR DROPPING EARLIER CAREER CHOICES[b]			
Financial needs	18.8	8.1	7.5
Physical handicap	2.7	.0	5.0
Lack of opportunity or satisfaction	26.5	16.2	46.7
Opportunities for work in rehabilitation	21.7	32.4	24.6
Interest in rehab. field	24.6	21.6	39.2
War experiences	5.8	2.7	.0
Other	19.1	13.5	8.5
Unknown	6.4	5.4	3.0

[a] Weighted by Sampling Fraction.

[b] Percentages total more than 100 because some respondents mentioned more than one item.

TABLE 4 (Continued)

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
REASONS FOR DECISION TO ENTER REHABILITATION COUNSELING[b]			
Never decided-claims not a rehab. counselor	1.0	2.7	.5
Service to humanity	22.6	2.7	22.6
Interest in counseling	12.9	5.4	23.1
Interest in rehabilitation	50.6	51.4	49.3
Work in line with occupational goals	17.3	32.4	5.0
Expediency: money available for study or substitute for major interest	4.1	2.7	27.1
Job available	12.5	16.2	.0
Chance for advancement	11.1	10.8	11.0
Other or unknown	10.6	5.4	2.5

[a] Weighted by Sampling Fraction.

[b] Percentages total more than 100 because some respondents mentioned more than one item.

In previous papers we have noted the complexity of the choice process in selecting a career or a permanent occupation.[15] Typically, various options are considered during adolescence, including a number of purely fantasy choices.[16] Later, the young person often enters the work world by taking the first job that is available. He may shift about, trying a number of occupations before he decides on one for his life's work or stays on indefinitely in one because it is too costly to change.

Gaining knowledge of a potential career is a critical element in the choice process, since it determines the recognition of alternatives available. Some established professions and occupations, such as doctor, nurse, teacher, fireman or policeman, are so well known that they figure in children's play. Others, such as psychiatrist, social worker, mayor, are likely to become familiar during adolescence. Knowledge of specialties and subspecialties, on the other hand, is usually acquired much later, perhaps in connection with college training in a major discipline, or work experience in a related field. In view of the proliferation of specialties and increasing division of labor, many occupations now have low public visibility and are known chiefly to those with need for their services or organizational contact in the work-place. Rehabilitation counseling, as a specialized form of personal and vocational counseling, undoubtedly fits these latter categories, as is made

evident by the time and circumstances of the leadership groups' initial contact with the occupation.

More than three-quarters of the supervisors and educators, but less than half of the students, first became aware of rehabilitation counseling as a career after college. Nearly 60 per cent of the supervisors, furthermore, heard about the occupation through non-client contact with a rehabilitation agency, often in the course of other work. About a third of the educators and students also learned of rehabilitation counseling in this way, while approximately an equal proportion became acquainted through academic contacts. Part of the differences between the leadership groups is attributable to age variations. For example, most of the students over 35 heard of the work after college, and this older segment also was more likely to have gained knowledge in a non-academic setting. The implication is that the channels of entry into the profession have been shifting over time. When the field was relatively new, its builders poached on neighboring territory, bringing into practice and leadership persons from other related or similar disciplines, such as teaching, social work and vocational guidance counseling. In more recent years, recruitment hus moved to college campuses. Young persons hear of opportunities and openings from texts, recruiters, teachers or classmates, and have an earlier option for career selection.

Data on the time between first knowledge and the actual decision to enter the field reveal some additional vagaries of the choice process. Not all leadership came rapidly to the conclusion that this new specialty was suitable for them. Almost a third of the educators waited five years or more, the largest proportion of any group with this much postponement. Half the students, and nearly half the supervisors, made their occupational choice within six months of learning of the work, but 30 per cent of the former and 40 per cent of the latter waited more than a year.

Delay in actually deciding to enter the occupation after exposure to its attractions indicates that some potential entrants, because the field had not been "institutionalized" and was in a state of fluidity and uneven change, undoubtedly took a "wait-and-see" approach. Would it have the ingredients for job satisfaction and payoff sufficient to warrant a major lifetime career commitment? At the same time, many in the present and potential leadership doubtless had other obligations and commitments which complicated the choice process.

Among such hindrances to a quick decision are a prior interest in some other career, or even a job in another field. As indicated in the previous section, many in the leadership groups had employment histories outside of rehabilitation, and everyone had at least daydreamed of some other career. In an effort to eliminate purely fantasy earlier choices from the data, respondents were asked to list careers other than rehabilitation counseling which they had seriously considered during their high school or college years. Seventy-three per cent of the supervisors, 71 per cent of the recent students, but only 54 per cent of the educators, mentioned teaching or school guidance. The favorite prior interest of the educators was in the administrative or organizational area, including business, the law or military, a possible career type which also at one time attracted 60 per cent of the supervisors and 43 per cent of the students. Another prior area of interest was medical or paramedical: 40 per cent of the students and about 20 per cent of the other groups had considered such careers.

Since leadership in the field of rehabilitation counseling involves using administrative skills in a medically-oriented guidance situation, leaders who were once drawn to careers in business, medicine or teaching have found work which combines elements of their prior vocational choices.

Within this common framework, however, there are some differences; the potential leadership, for example, shows a changed pattern from the old. Fewer students than supervisors or educators had previously considered administrative-organizational lines of work. This reinforces the notion that not all the students will be able or willing to move up to supervisory or leadership positions, despite their educational advantage in the mobility race. Larger proportions of students than supervisors or educators were once interested in careers in medicine, social work or psychology. This could mean that disproportionate numbers of students are frustrated doctors, case workers and psychologists, or alternately that many students view rehabilitation counseling as a sub-specialty of their former more general vocational concerns. The reasons given for dropping earlier career choices and deciding on rehabilitation counseling suggest that both types of explanation are valid.

Elements of both negative and positive selection enter into abandoning one career path and turning to another. Among the present supervisors, no one rationale for dropping their earlier work choice predominates. Although lack of opportunity or satisfaction in a previous interest is mentioned most frequently, it still appears in only a quarter of the responses, and the impact of money problems, as well as the opportunities for work and interest in the rehabilitation field, are referred to almost as often. The most common view expressed by the educators is that they dropped a previous interest because of the opportunities of rehabilitation work, with a third giving this positive response. The students, on the other hand, show evidence of negative processes: nearly half explain their career change by lack of opportunity or satisfaction in their first area of interest.

Reasons for the decision to enter rehabilitation counseling repeat this "mixed-positive-negative" pattern. About half of each group, it is true, give a "standard" reason - an interest in the field, but thereafter the responses diverge. "Service to humanity" is mentioned by nearly a quarter of the supervisors, whose other explanations scatter among an interest in counseling, an available job, and the like. The educators, who fail to refer to the service ethos as a career selector, place greatest emphasis on having found work in line with their occupational goals, suggesting again that they view rehabilitation counseling as a special case under the general psychological rubric. The students refer to humanitarian service and an interest in the counseling process, but more than 25 per cent admit that they went into rehabilitation counseling only because there was money available for graduate study, or because it was the closest substitute at hand for a different but unobtainable goal.

Differences in the pathways to rehabilitation work evidenced between present and future leaders are in many ways a consequence of the maturity of the field. Persons who moved up the leadership ladder in the past learned about rehabilitation counseling relatively late, often in connection with other work experience after college, because the occupation was in the process of emerging and was known chiefly in the very narrow circles of those dealing with the handicapped. As the professionalization process began, and academic training programs were instituted, recruitment was initiated at the undergraduate level in order to

assure the success of the post graduate programs. People drawn to psychology or medicine or guidance are now more likely to learn of the opportunities in the rehabilitation specialty early, and be persuaded to take advantage of the training grants and job openings available. These variations in the choice process, even though induced by historical developments, are matched by differences in attitudes toward and conceptions of the field.

JOB ATTRIBUTES AND ATTITUDES

The leadership segments do not concur on their image of the occupation, and their level of satisfaction varies also, but the differentiation appears to be based less on disparity in age cohorts than on disparity in work setting (Table 5).

Although the majority of both present and potential leaders are satisfied with their work, the educators, in their places away from the firing line, have the most enthusiasm. Two-thirds place themselves in the "very satisfied" class, compared to half the supervisors and less than a third of the recent students. These newcomers also express the most distaste for their jobs, with almost a quarter dissatisfied to some extent, in contrast to only eight per cent of the other leadership groups. This is not entirely attributable to the rebellion of youth: while a third of the students under 35 do place themselves in one of the dissatisfied categories, over 13 per cent of those over 35 express similar views, a higher rate than occurs in either of the other two older groups.

Meanings are given to these attitudes by responses to questions about the best liked and least liked work aspects. Large majorities of both supervisors and educators specified, as best liked work aspects, preferences for administrative, planning and supervisory duties, with only an occasional allusion to counseling. Half the recent students, on the other hand, liked counseling best, with only a minority referring to administration. Despite this it is the supervisors who mention the humanitarian satisfactions of helping others more frequently, and the students who do so least. It is as if those whose position in the rehabilitation system provides least client contact need most to express the rhetoric of service. In part this is a requirement of their occupational role. Can one imagine a supervisor not imparting to his staff the oft-repeated cliche of "service to the client?" Autonomy and professional responsibility as sources of satisfaction are of little concern to the supervisors, but are referred to by a quarter of the recent students and a third of the educators. The implication here is that academia makes more of these matters than practitioners long in the field.

The classic complaint of too much paper work is dominant among the least-liked job aspects of all three groups. However only about 40 per cent of the students and supervisors allude to it, as against more than half the educators. This difference is probably not explainable by real variations in the amount of paper work, since the academic setting should, if anything, require the least. One possibility is that paper work has become symbolic of bureaucratic red tape, so that some respondents complain directly about the system rather than the symbol, for in fact the combined totals of dislike for bureaucratic rules and paper work are about equal across groups. Another explanation is based on the theory that groans about paper work are chiefly rhetorical, since complaining is really a safety valve. Time

TABLE 5

JOB ATTRIBUTES AND ATTITUDES OF REHABILITATION COUNSELOR LEADERSHIP

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
JOB SATISFACTION			
Very satisfied	49.0	67.6	29.6
Satisfied	49.3	24.3	44.9
Somewhat dissatisfied	6.2	2.7	19.1
Dissatisfied	1.5	5.4	5.0
Unknown	3.0	.0	1.5
BEST LIKED WORK ASPECT[b]			
Counseling	18.3	5.4	48.7
Helping others	19.6	10.8	6.5
Autonomy, professional responsibility	9.8	32.4	24.6
Administration, staff relations	60.9	83.8	17.0
Other & unknown	11.7	2.7	26.0
LEAST LIKED WORK ASPECT[b]			
None	5.4	2.7	2.0
Paper work	43.8	51.4	38.2
Bureaucratic rules	17.6	10.8	21.1
Lack of resources, rehabilitation failures	14.6	13.5	30.6
Administration	3.8	18.9	7.5
Other	14.3	13.5	10.5
Unknown	8.1	.0	3.0

[a] Weighted by Sampling Fraction.

[b] Percentages total more than 100 because some respondents mentioned more than one item.

TABLE 5 (Continued)

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
IMAGES OF THE OCCUPATION: AGREEMENT THAT			
Closure quotas affect client rehabilitation plans	41.0	67.6	55.8
Rehabilitation counselor controls own work plans	72.8	64.8	67.8
Gov't. employment interferes with professionalism	15.4	27.0	33.7
Physician, psychologist often overrule rehab. counselor	17.6	35.1	26.1
Rehabilitation counselor is jack-of-all-trades	51.7	32.4	64.3
Rehab. couns. coordinator of other specialties	76.1	40.5	63.8
Rehab. couns. must deal with physically unpleasant people	21.8	21.6	21.6
Most rehab. couns. tasks are plesant and interesting	66.5	67.6	63.8
Work as a rehab. counselor is often emotionally exhausting	61.4	70.3	72.4
Nearly all rehab. clients come from poor families	26.2	32.4	31.7

[a] Weighted by Sampling Fraction.

TABLE 5 (Continued)

Characteristics		DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
IDEAL SELF IMAGE				
Positive	1	3.6	.0	.5
	2	19.2	24.3	23.1
	3	55.9	45.9	57.8
to	4	21.1	29.7	17.6
	5	.2	.0	1.0
	6	.0	.0	.0
Negative	7	.0	.0	.0

[a] Weighted by Sampling Fraction.

spent on desk tasks is after all an interlude from the stresses of decision making or face-to-face dealings with clients. On these grounds perhaps the students complain least because many of them, neophytes to practice, are not too unhappy about having some more mechanical and less demanding duties. Another least liked aspect appears chiefly among the students: one-third mention the lack of resources for rehabilitation on their jobs. This may be an example of "reality shock." The students, fresh from the ideal models of the university setting, are not yet reconciled to the uglier truths of the work place.

The tasks of the present and potential leaders are manifestly not the same. The supervisors administer and supervise: they are no longer rehabilitation counselors, although a few counselors-in-charge still carry case loads. The educators teach and administer an educational program: although many of them have actual rehabilitation counseling experience, none are still in practice. The recent students, on the other hand, are in the field. A few are already on the upper rungs of the mobility ladder, but most are still practicing counselors. In view of these disparate locations in the system of rehabilitation, the variations found in images of the occupation and its roles are to be expected. Data on these images were secured by having the respondents indicate whether or not they agreed, on a five point scale, with a series of statements possibly descriptive of the actual work of the counselor.

"Closure quotas," the regulations which require a certain number of cases to be catalogued annually as "closed-rehabilitated," produce some differences of opinion. Two-thirds of the educators, who do not labor under the pressure of these quotas, believe that they affect client rehabilitation plans, a view shared by only 40 per cent of the supervisors,

who may administer such pressure to their staff and receive it from their superiors. The recent students, most of whom work under the quotas, are divided about half and half on the issue.

Bureaucratic rules, such as quotas for closed cases, are a feature of government work, and at the same time obstruct staff autonomy, one of the hallmarks of professionalism. Logically, therefore, persons who think closure quotas affect planning for the client should also believe that government employment interferes with carrying out tasks in a professional manner. But only a small minority of supervisors and educators are critical in this way. The largest proportion denigrating government employment occurs among the recent students, with 33 per cent holding this negative opinion. Furthermore, evaluating two statements more directly relevant to autonomy, two-thirds of each group agree that rehabilitation counselors control their own work plans, and reject the notion that physicians or psychologists often overrule the counselors' decisions, thus in effect claiming that counselors are autonomous on both counts. One explanation of this apparent inconsistency is that closure quotas are put in a different category from other restraints, real or potential. Like production quotas, they are perhaps viewed as a necessary bureaucratic evil, common to all large scale organizations, and irrelevant to the issue of whether allocation of time and authority over professional decisions is in the hands of the practitioner-employee. Only the educators, not involved in everyday practice, are likely to project an image of restrictions resulting from production goals, perhaps because out-put standards are an anathema in the leisurely pace of academia.

Another possibility is that the educators, with their background and focus on psychological processes, are particularly incensed that outside considerations like quotas should affect the client-practitioner relationship in any way. Indeed, the educators appear to support the counseling aspect of the rehabilitation counselor's duties in their rejection of such roles as jack-of-all-trades or coordinator of other specialties. The majority of the supervisors and recent students, groups which are in field situations, see the rehabilitation counselor in these broker activities, coordinating many services and performing a number of tasks, instead of concentrating on individual counseling.

The concept of "dirty work" as a component of many duties in the helping professions, discussed in detail elsewhere,[17] suggests that in our society certain occupations are allocated the unpleasant but necessary tasks of dealing with social rejects or physical deviants who must somehow be patched, repaired or cared for. Although rehabilitation counseling might be considered such "dirty work," the majority in all leadership groups reject this notion. Only a fifth agree that rehabilitation counselors must deal with physically unpleasant people, and less than a third concur that clients come chiefly from the poor.

These attitudes could reflect the fact that client characteristics are variable. Although studies have shown disability incidence among poverty groups about triple that of the general population,[18] some clients do appear among the more prosperous. Furthermore, for every single deformed client there are a number of "normals" with whom the counselor interacts in the total rehabilitation sequence - school teachers, relatives, prospective employers, and the staff of various community agencies; most of the individuals seen in connection with

a particular case are not impaired. On the other hand, the responses could represent a denial mechanism, a refusal to recognize "dirty work" as a component of the rehabilitation enterprise. Evidence of denial appears in the two-thirds of each group who agree that the rehabilitation counselor's work is often emotionally exhausting, a response not really explained by the acknowledged strain of intense interaction with others in the counseling situation, and thus suggesting symbolic acceptance of a "dirty work" reality. Yet two-thirds also claim that the work is pleasant and interesting. These conflicting cross currents of opinion imply that there is considerable ambivalence in the images of the occupation, and that this ambivalence characterizes present as well as potential leadership groups.

On one measure, however, there is consensus. A series of six characteristics of the ideal counselor and six characteristics of the inadequate counselor, validated in a recent California study,[19] were presented as a simple personality scale. The self-images of the leadership groups which were generated are remarkably similar. On a scoring system ranging from one for all positive to seven for all negative, most supervisors, educators and students placed themselves in categories three, two, or one - from good to ideal counselors - with very little variation between the groups. It is apparent that the leadership considers itself quite capable of leading, guiding, and counseling others.

This examination of the job attributes and attitudes of the three groups offers little to presage changes in leadership styles when the recent students begin to move up in the rehabilitation hierarchy. Those presently dissatisfied, it is true, may seek reforms, particularly in the areas of lack of resources and bureaucratic rules, their present complaints. But it is also likely that as they rise in the system they will become reconciled, or alternately that their dissatisfaction will spur them to leave the system. In addition, among the considerable number who enjoy counseling most among their various duties, there may be some recent students who will prefer to remain as counselors rather than move up to supervisory roles. Despite the fact that their mentors in graduate school largely reject the jack-of-all-trades and coordinator definitions of rehabilitation counselor tasks, the students have apparently recognized that these are the facts of the field, concurring already with the views of the supervisory echelon in this regard.

THE PROFESSIONALISM OF REHABILITATION COUNSELING

Interest in the histories, opinions and attitudes of present and future leadership is largely a prelude to a major concern of this paper, the prospects for professionalization of the occupation of rehabilitation counseling, and the possible participation of present and potential leadership in the process. Views on professionalism in general and rehabilitation counseling in particular indicate some differences between the groups (Table 6). In reviewing these data, one may consider the recent students as being in transition between two poles. On the one hand is the academic ideal, as embodied by the educators, and on the other is the practical reality, as represented by the supervisors. The students, in moving from the university, carry with them a model inculcated by their training and in entering the field are subjected to socialization into the established ways of doing things, which may differ considerably from the model. This occurs whether they enter the field as interns, or as full-fledged practitioners.

TABLE 6

PROFESSIONALISM ATTITUDES OF REHABILITATION COUNSELING LEADERSHIP

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
CHARACTERISTICS OF A PROFESSION[b, c]			
Body of knowledge	56.0	73.0	58.8
Service orientation	28.5	21.6	18.1
Autonomy in job performance	10.9	24.3	5.0
Professional associations	6.3	13.5	4.0
High quality of job performance	62.9	62.1	50.7
Status attributes	8.3	.0	7.5
Other and unknown	23.6	32.4	25.0
BENEFITS OF PROFESSIONALIZATION[c]			
Better service to public	65.6	72.9	Not measured
Better conditions for staff	61.9	67.5	
Better relations with other disciplines	20.1	16.2	
Other and unknown	5.2	5.4	
CHARACTERISTICS OF REHABILITATION COUNSELING[d]		(mean value of responses)	
High responsibility for client welfare	1.5	1.5	1.7
Confidential client relationship	1.5	1.7	1.5
Service to humanity	1.7	1.3	1.6
Code of ethics	1.9	2.1	2.1
Highly specialized skills	2.0	2.0	2.1
Standards of performance	2.0	2.3	2.2

[a] Weighted by Sampling Fraction.

[b] Recent students' attitudes measured prior to entry into field.

[c] Percentages total more than 100 because some respondents mentioned more than one item.

[d] Score of 1 indicates item is very characteristic or rehabilitation counseling, while score of 5 indicates item is definitely not characteristic.

TABLE 6 (Continued)

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
CHARACTERISTICS OF REHABILITATION COUNSELING[d] (Continued)			
Unique body of scientific knowledge	2.2	2.6	2.7
Years of training required	2.6	2.5	2.5
Self-sacrificing concern for others	2.6	2.3	2.8
High public prestige	2.8	3.1	3.2
Powerful professional association	3.0	3.2	3.2
EVALUATION OF PROFESSIONALISM OF REHABILITATION COUNSELING			
Very low	3.6	16.2	4.0
Low	27.7	43.2	46.7
Medium	35.1	29.7	30.2
High	21.0	8.1	11.6
Very high	8.9	2.7	3.5
Unknown	3.7	.0	4.0
MEAN PROFESSIONALISM RANK OF REHABILITATION JOBS	Mean Rank	Mean Rank	Mean Rank
Physician	1.5	1.5	1.7
Psychiatrist	1.9	2.1	1.6
Clinical psychologist	3.3	2.8	3.0
Rehabilitation counselor	4.0	4.1	4.6
Psychiatric social worker	5.0	5.1	4.7
Nurse	5.7	5.4	6.1
Occupational therapist	6.4	5.8	6.7
Welfare social worker	6.9	7.2	7.4

[a] Weighted by Sampling Fraction.

[b] Recent students' attitudes measured prior to entry into field.

[c] Percentages total more than 100 because some respondents mentioned more than one item.

[d] Score of 1 indicates item is very characteristic or rehabilitation counseling, while score of 5 indicates item is definitely not characteristic.

Whether the prior model or current socialization will triumph in fashioning the potential leadership is one of the issues to which attention is now turned. First, however, it will be useful to review the images of what professionalism is, as held by the three leadership groups, including the students just before they entered the labor market.

In response to the open-ended question, "What do you think makes a job professional," each group referred predominantly to two sets of characteristics: knowledge requirements and performance excellence. Educators were more likely than either group to mention mastery of a body of knowledge or extensive training. Both educators and supervisors referred more frequently to high quality of job performance or high standards than did the students. Other responses were more idiosyncratic. It occurred to only a few in each group to allude to a service orientation, and here the supervisors produce the highest response rate, with 28 per cent indicating that humanitarianism is a factor. On the other hand, autonomy was mentioned by a quarter of the educators, more frequently than by the supervisors, who being presently in the field should presumably be experiencing the pleasures of professional freedom. Only small proportions noted the role of a professional association, or made reference to status attributes such as high pay and prestige.

The students are more like their mentors in the university training programs in omitting allusions to a service orientation, but resemble their future supervisors in the practice situation by giving little attention to autonomy or a professional association as elements in professionalism. This may partly be the result of socialization during internship, since all these variations in professed attributes are consequences of differential experience, orientation, and work system ideology.

The educators and supervisors were queried on the benefits of professionalization, an issue which was not explored with the students. It has been suggested that attempts to upgrade an occupation to professional status may be motivated chiefly by venal concerns,[20] such as the benefits of more pay and a loftier prestige level, whereas the goal of better service to the client should theoretically be of even greater salience. On an open-ended question, two-thirds or more of both types of present leadership spontaneously voiced the opinion that better service to the public would result from professionalization, and almost as frequently referred to better conditions for the staff as also forthcoming. A third benefit, not previously considered, but mentioned by almost a fifth of the respondents, was an improvement of relationships with other disciplines through the definition of the field which professionalization was expected to produce. Not quite the same as status, this benefit seemed analogous if not equivalent to autonomy in the formulations of the respondents.

To determine the extent to which various standard characteristics of a profession apply to rehabilitation counseling, the three leadership groups were asked to indicate on a scale ranging from one, "strongly agree," to five, "strongly disagree," whether eleven statements were descriptive of the occupation. With very little variation, the groups agree that rehabilitation counseling involves high responsibility for client welfare, and a confidential relationship with the client. Although the consensus is that the work provides a service to humanity, the supervisors and students are in this instance not quite as sure as the educators. With somewhat less strong opinions, all tend to agree that the occupation has a code of

ethics, a set of highly specialized skills, and self-imposed standards of performance. On the issue of a unique body of scientific knowledge, however, agreement is not so definite; educators and students tend to be ambivalent about the claim to a body of knowledge, while the supervisors affirm the claim. All the groups are somewhat unsure whether or not many years of training are really required to become a rehabilitation counselor, and are unwilling or unable to state whether or not the occupation has high public prestige and the backing of a powerful professional association. Although supervisors and students are not sure that rehabilitation counseling is marked by self-sacrificing concern for the welfare of others, the academicians tend to hold this belief.

On the whole the students are somewhat more skeptical of their trade than either of the other groups, but are, at one year after completion of their studies, still more like their university teachers than their current colleagues. This is seen not only in the above evaluation of the separate characteristics of rehabilitation counseling, but also in a global evaluation of the professionalism of the occupation. Using a professionalism scale which was presented to the respondents as ranging from a low of welfare social worker to a high of physician, the supervisors place rehabilitation counseling chiefly in the middle, and the educators or students place it predominantly towards the lower end. In this instance the educators, secure in their university vantage-point, can survey the entire field and assess its weaknesses: only ten per cent consider the professionalism of rehabilitation counseling to be high or very high. This compares with almost a third of the supervisors with as sanguine an opinion, and 15 per cent of the students.

One surprising finding is the range of opinion among the supervisors: while 30 per cent rate their profession high, another 30 per cent rate it low. One interpretation of this spread of opinion is that some individuals in supervision do not perceive rehabilitation counseling as a profession or on the way to becoming one. They may view it as an art or skilled craft. These respondents in rating their work role high on this scale, may not be acknowledging its professionalism but may be evaluating it from a technical-vocational orientation. Later analysis will determine whether such differences also relate to varying levels of supervision in the occupational structure, and varying seniority in the field.

The intermediate opinion of the students on this measure can be explained if those most like their teachers in being severely critical of the field did not in the end actually enter it and are thus not included in the present findings. Further analysis is also required to pursue this notion.

As a final estimate of the relative position of the rehabilitation counselor in the work system of rehabilitation, respondents were asked to rank a series of eight occupations customarily found in the system. Although the mean rankings vary somewhat between groups, their ordering is almost identical. Physician and psychiatrist take first and second place respectively, except among the students, who reverse the sequence. The clinical psychologist follows, with the rehabilitation counselor next, in fourth place. Trailing behind are the psychiatric social worker, the nurse, the occupational therapist, and the welfare social worker, in that order. The rehabilitation counselor, it appears, is ranked first among those who qualify for their jobs with a master's degree or less, just below the three professions which require a doctorate for practice.

Another dimension of the professionalism of an occupation is the extent to which incumbents meet the norms of professional behavior. Measurements of the degree of autonomy available or exercised in work performance, and of the level of humanitarian orientation, were not attempted in this phase of the study. Attention was given, however, to the extent to which incumbents fulfilled the obligation to develop and maintain a body of knowledge. This requires keeping current on new developments in the field through membership in professional associations and attendance at professional meetings where knowledge is exchanged, and through reading of professional journals. Also called for is the dissemination of new knowledge by way of publication of articles or books which expand theoretical horizons or provide innovative techniques. Differences in these characteristics between leadership groups are more marked than variations in professionalism attitudes (Table 7).

As described in more detail elsewhere,[21] there are several organizations in the field which lay claim to being the appropriate professional association for rehabilitation counseling. The American Psychological Association is for the psychologists with a Ph.D. degree, and thus open only to a few of the supervisors and recent students. Four out of five educators belong, however, a fact which incidentally reinforces the prior impression of the psychological emphasis of the training programs. The American Rehabilitation Counseling Association is an offshoot of the American Personnel and Guidance Association, and seems to attract members whose primary focus is on the counseling process. Nine out of ten educators are ARCA members, but only a quarter of the students and less than ten per cent of the supervisors. The National Rehabilitation Counseling Association is the group to which most of the state-federal employees belong; originally a division of the National Rehabilitation Association, it continues to be most attractive to those whose major interest is rehabilitation. Nearly two-thirds of supervisors and educators are members, but less than half the students. Furthermore, somewhat less than half of each leadership group belongs to the parent organizations only, such as APGA or NRA, or to special associations such as those for social workers, workers with the blind, and the like.

The great majority of members of these associations actually attended meetings of the groups during the year prior to the study. This is partly explained by the fact that many meetings are regional or on a state-wide basis, and attendance is not only relatively easy but encouraged in the various agencies. The pattern of attendance mirrors the membership patterns. Thus the educators are the most active joiners and attenders, followed by the supervisors, with the students bringing up the rear. Further, the educators are chiefly in and attend meetings of the APA and the ARCA, while the NRCA and the more general organizations are the main attractions for both supervisors and students.

Variations in readership preferences have a slightly different configuration. Basic theoretical journals, such as the Journal of Counseling Psychology, the Personnel and Guidance Journal, or Social Casework are read by nearly 90 per cent of the educators, 40 per cent of the students, but less than 25 per cent of the supervisors. More of the latter, on the other hand, read rehabilitation publications, such as the Journal of Rehabilitation, or Rehabilitation Literature, than do either educators or students, though the majority of all three groups claim readership. Students, accordingly, are still closer to the academic reading pattern, one year after graduation.

TABLE 7

PROFESSIONALISM LEVEL OF REHABILITATION COUNSELOR LEADERSHIP

Characteristics	DVR Supervisors N=282 %[a]	Educators N=37 %	Recent Students in Rehabilitation N=199 %
PROFESSIONAL MEMBERSHIPS HELD[b]			
None	1.1	.0	13.1
APA	4.3	81.0	5.0
ARCA	7.5	89.1	24.7
NRCA	62.3	62.1	46.3
NRA, APGA, NASW, etc.	48.4	48.6	41.6
Other or unknown	2.2	.0	8.0
PROFESSIONAL MEETINGS ATTENDED IN PREVIOUS YEAR[b]			
None	13.0	5.4	24.6
APA	3.4	48.6	5.0
ARCA	4.0	70.2	10.5
NRCA	38.4	43.2	24.1
NRA, APGA, NASW, etc.	48.6	27.0	43.7
Other or unknown	5.1	.0	9.0
TYPE OF PROFESSIONAL JOURNAL READ[b]			
None	2.1	.0	9.0
Basic theoretical	21.8	86.5	41.7
General rehabilitation	89.5	78.4	79.4
Specialized conditions	20.0	8.1	10.0
Other or unknown	5.7	5.4	2.0
PUBLICATION OF BOOKS OR ARTICLES			
None	81.6	10.8	Not measured
One	7.0	13.5	
Two or more	5.2	64.8	
Unknown	6.2	10.8	

[a] Weighted by Sampling Fraction.

[b] Percentages total more than 100 because some respondents mentioned more than one item.

Publication of books or articles is one way to measure the extent to which a field is engaged in research and the expansion and dissemination of new knowledge. The educators appear to be active in this regard. Only ten per cent have never published, while two-thirds have produced two or more publications, and, as the raw data show, a few have more than 100 books and articles to their credit. However, the educators, being located in a university setting, have certain advantages in resources and staff for conducting and reporting on research, not to mention the "publish or perish" pressures, which are their "closure quotas." In addition, the evidence indicates that many of the educators' publications are in psychology, psychosomatic medicine, or other areas only ancillary to rehabilitation counseling. If the ferment of new ideas in the field and the proliferation of fresh knowledge derived from practice is evaluated on the basis of supervisor productivity, the conclusion must be negative. Over 80 per cent of these present leaders have never published, and only five per cent are known to have two or more publications. Data on this variable have not yet been gathered from the recent students, on the grounds that it would be meaningless so early in their careers.

The overall picture which emerges from these findings is that educators do not yet see rehabilitation counseling as being a full profession, and have inculcated the students with this point of view. One of the shortcomings, it appears, is the lack of a body of scientific knowledge unique to the field, a particularly telling criticism, because a knowledge base is seen by so many as the touchstone of professionalism. While the absence of a powerful professional association and the failure to win high public prestige are also weaknesses of the occupation, they are less pivotal because so few believe these attributes make a job professional. In their affiliations the educators underscore their loyalty to psychology as a discipline and counseling/guidance as an area of practice. However, they have not been able to cast the field into this mold, at least judging by the affiliations, activities and attitudes of the supervisors.[22] The students, the emerging leadership, still retain many of the orientations acquired during training. But this is the case only one year after the end of their schooling. What the situation will be several years later, when self-selection has dropped off those least able to reconcile to field realities, and when the socialization process under supervisors with a different definition of problems and solutions has taken hold, remains to be determined through the longitudinal research phases of this study.

LEADERSHIP - WHERE?

Present leadership in the rehabilitation counseling field is located in the supervisory echelons of the state-federal agencies and among the educators in the university-setting training programs. These "old-timers" are alike in having worked their way up from lowly social positions, in having extensive backgrounds in other people-serving occupations plus long seniority in the rehabilitation field, and in being satisfied with their work, particularly its administrative and leadership aspects. They differ in educational achievements, although apparently not in ability, in their present level of earnings, and in the nature of their personal experiences with disablement. Potential leadership, in the person of recent graduates from rehabilitation counseling training programs, armed in the mobility competition with their M.A. degrees, both differ from and resemble their field supervisors

and former teachers. They are of course younger, with less experience both in the world of work and in the rehabilitation counseling field; while some have come up in the social class scale, many have risen little if at all. Despite above average academic attainment as testified by their master's diplomas, their scholastic record is not outstanding. They are less satisfied with their work, although they enjoy actual counseling, and their pathways to the job are different as well, with interest first spurred in the academic setting, and rehabilitation counseling frequently selected as an expediency. Like the present leadership however, many have had intimate family and personal contact with disability, and nearly all see themselves as having the qualities of a good counselor.

What are the consequences of these characteristics and attitudes for the professionalization of the occupation? The question is difficult to answer in the absence of clear cut, agreed-upon criteria for the appropriate professionalization process. If one accepts the definition of a profession as an occupation with a unique body of knowledge base and a humanitarian orientation, from which autonomy in job performance follows, then the task of professionalization is to create, carve out, or expand a body of knowledge, and to foster a service ethos among incumbents. The mechanism for accomplishing these goals, as suggested many years ago by Carr-Saunders,[23] is to form a professional association which can pursue them and institutionalize their continual re-attainment, while harvesting rich side-benefits of prestige, esteem, awards and power in the market place.

It can be argued that the humanitarian ethos has largely been achieved, in view of the consensus in each leadership group concerning high responsibility for client welfare, the confidential client relationship and the service aspects of the rehabilitation counseling role, even though the importance of this element is overlooked by many in describing a profession. There is doubt, on the other hand, as to whether the unique knowledge goal has been attained, along with majority agreement in each group that it is a critical characteristic of professionalism. Furthermore, with some variations in level, all three groups largely concur in the view that rehabilitation counseling has not reached the peak of professionalism.

Under these conditions it might be assumed that there would be a movement for the development of a scientific discipline to undergird the rehabilitation counseling enterprise, and that this push would come chiefly from the academic scene, both educators and students. But this does not appear to be the case. In fact when these groups were asked to list the major current problems of the field, less than ten per cent mentioned the lack of a body of knowledge, although more than a quarter referred to the need for a better definition of the field or improved relations with other professions, a search for identity which could reflect the desire to isolate a definite area of knowledge to which they could lay claim (Table 8).

An apparent reason for this minimal concern is the academic concept of rehabilitation counseling as a discipline. A large majority of the educators and a plurality of the students view it as a sub-specialty, with counseling as the generic field; less than 20 per cent consider it a separate discipline. Accordingly, it is not surprising to find more concern about problems of manpower shortages and maintaining standards than about delineating a unique science.

Fewer students than educators have these opinions. Nearly 40 per cent see rehabilitation counseling as a distinct field, and an equivalent proportion view acceptance by other pro-

TABLE 8

MOST URGENT PROBLEMS	Educators N=37 %	Recent Students in Rehabilitation N=199 %
Maintaining standards	51.4	34.2
Lack of a body of knowledge	8.1	5.5
Acceptance by professions, definition of field	27.0	36.1
Manpower shortages	27.0	15.6
Better leadership	8.1	9.5
Other	21.6	17.0
Unknown	0.0	4.5
REHABILITATION COUNSELING AS A DISCIPLINE		
Separate field	18.9	37.7
Specialty within counseling	70.3	43.7
Specialty within psychology	5.4	.5
Unknown	5.4	18.1

fessions and a better definition of their area of competence as among the most urgent problems faced by the emerging profession. Whether these divergencies from the attitudes of their teachers are a result of practical experience cannot be determined. Supervisors' views were not solicited in these areas, and no comparisons are possible.

If, however, the supervisors consider rehabilitation counseling to be a separate field, and there is some evidence to support this contention in their spontaneous comments on their questionnaires,[24] then certain organizational differences between supervisors and educators may be explained. As noted above, the pattern of professional association affiliation of the academicians departs markedly from that of the practitioners. Nine out of ten of the university-based leaders belong to the ARCA, which is ideologically akin to the American Personnel and Guidance Association, and wedded to the notion that counseling is the critical element in rehabilitation counseling. Small wonder that so many of the educators also believe that rehabilitation counseling is best considered a counseling specialty. Two-thirds of the field-based leaders are in the NRCA, the offspring of the National Rehabilitation Association, and are committed to the idea that rehabilitation is the key element in rehabilitation counseling. It follows that many supervisors, as do many students, would be likely to consider rehabilitation counseling a unique and independent discipline.[25]

Disparate conceptions of the place of rehabilitation counseling in the range of disciplines and hierarchy of scientific knowledge also account for the failure to achieve a unified professional association. Lacking one organizational structure to collect, codify, and dissemi-

nate the results of research findings and theoretical insights, and to specify and enforce ethical definitions of practice, rehabilitation counseling is without an essential tool in the professionalization process. This gap is not likely to be filled unless and until some consensus is achieved on just what rehabilitation counseling is.

Based on the knowledge at hand concerning the old and new leadership groups, there are no assurances that this is the direction in which they will lead. The experienced supervisors, nestled into the organizational structure of the state-federal offices, are not likely to abandon the concentration on rehabilitation which is both the rhetoric and the rationale of their occupational situation. The equally knowledgeable educators, secure in their academic chairs, are not apt to detach themselves from the psychological and counseling base which justifies their claim to scholarship and their departmental perquisites. The new leaders, largely inexperienced but newly educated, could serve to proselytize the field in the academic ideology, defining the rehabilitation counseling role less as broker/coordinator and more as counselor/guide. But will they?

Nothing in their characteristics or attitudes suggests it. These younger people, whom in another context one might expect to find in the forefront of development and change, may in this case be more preoccupied with the label of professionalism than its substance. As noted earlier in this paper, their relatively more limited experiences and ability, when coupled with their specialized training, could mean a narrower, less worldly-wise outlook than that of the old-timer supervisors and educators. Under these circumstances, the title of professional is a precious right, based on the "master's license" alone, and not to be placed in jeopardy by any tinkering with definitions or identities.

The student group, moreover, is very nearly split on a definition of the field. If the demands of rapid expansion push virtually the entire group into leadership on the strength of the possession of advanced degrees, they will carry into the hierarchy divided views on their occupation with no concerted impact. It is more likely, however, that differential abilities, experiences, and interests in counseling will tend to select out only certain of the recent students for upward mobility.

One attempt to identify these future climbers is a career success Index (III), combining elements of educational experiences and career knowledge conducive to advancement. Among the students most likely to succeed, however, not all are committed to rehabilitation counseling. The role commitment Index (VII), consisting of relevant background and career choice variables, indicates such investment in the field.[26] Students who are high both in their chances for promotion and in their commitment are as divided as their colleagues on the issue of the appropriate definition of their occupation in relation to other disciplines and professions.[27]

If one critical step in the professionalization process is the achievement of a common agreement on identity, then neither old leadership nor new is presently pointing the direction for rehabilitation counseling.

A final note of caution is required. The processes of professionalization and the leadership characteristics described and evaluated in this paper may already be out of date. The

pace of expansion of the rehabilitation field has recently accelerated to the point where a qualitative change appears to have occurred. A new period was introduced with the creation of the Social and Rehabilitation Service of the Department of Health, Education, and Welfare in the summer of 1967. The remodeled administrative structure reflects a complete revision of the scope and philosophy of rehabilitation as an individual right, a social movement, and a societal institution geared to remaking human lives on a scale never before attempted.[28]

The complexity of the field is such that academic training for one facet alone, that involving the rehabilitation counselor's duties, is no longer sufficient. The psychological cast of most present programs is too narrow a spectrum for the future. Furthermore, co-opting recent rehabilitation counseling graduates into leadership solely because of their academic level is increasingly a risky business. A master's degree alone is an inadequate basis for advancement, because it is no evidence of the skills required for general supervisory or administrative excellence in a broad social welfare field. Needed now are leaders with an ability to grasp the differing occupational systems which make up the rehabilitation movement--counselors, placement specialists, facilities experts, special teachers, and the like--and give guidance to the whole. The present rare training programs in rehabilitation administration must be greatly expanded and if necessary reorganized to meet the realities of broadened current concepts of the field. New methods of preparing leadership must be found, such as extended internships, apprenticeships, or the establishment of innovative training programs attached to no specific discipline but to the multifaceted problems of social welfare leadership in totality. The contributions to the training of professionals for multiple roles in the welfare field emanating from social work should be examined.

In short, large scale changes in rehabilitation now call for large scale, unstereotyped rethinking of the problems of professionalization and leadership in the field. The data in this paper are a preliminary contribution to this task.

NOTES

1. A realignment of federal welfare, rehabilitation, and social service programs, effected August 15, 1967, combined the Welfare Administration, the Vocational Rehabilitation Administration, the Administration on Aging, and the Mental Retardation Division into one agency--the Social and Rehabilitation Service (SRS). Within the new structure the Rehabilitation Services Administration (RSA) is responsible for programs aiding the handicapped, disabled Social Security applicants, crippled children, and the mentally retarded and for services for the blind and the permanently and totally disabled. Both recent legislation and reorganization have greatly enlarged the scope and mandate of rehabilitation. Changes in the federal title will undoubtedly soon be reflected in state designations. Meanwhile, references in this paper to the former structure, e.g., VRA or DVR, are made to coincide with the organization as it existed at the time of this study.

2. Witness the progress of professionalization as evidenced, for example, in baccalaureate programs for nurses, and rising educational requirements for librarians, teachers, and school counselors. Specifically, see Dan C. Lortie, "Administrator, Advocate, or Therapist? Alternatives for Professionalization in School Counseling," Harvard Educational Review, 35 (Winter, 1965), pp. 3-17; and for more general discussion of professionalism, Harold L. Wilensky, "The Professionalization of Everyone?" American Journal of Sociology, 70 (September, 1964), pp. 137-158; and Everett C. Hughes, "Professions," Daedalus, 92 (Fall, 1963), pp. 655-668.

3. Occupational Outlook Handbook, Bulletin No. 1450, Washington, D.C.: United States Department of Labor, 1966-1967 edition, p. 66.

4. Stanley J. Smits, Rehabilitation Counselor Recruitment Study: Final Report, Washington, D.C.: Vocational Rehabilitation Administration, January, 1965, p. 90, reported about 400 graduates per year. A more recent training memorandum from the Vocational Rehabilitation Administration, dated December 22, 1966, indicated 559 completed training in fiscal year 1966.

5. See Arthur Pearl and Frank Riessman, New Careers for the Poor, New York: The Free Press, 1965. Note also that the identity of these new subprofessionals is in question; it is not known whether they will associate themselves with the professions or with labor.

6. See Marvin B. Sussman and Marie R. Haug, "The Practitioners: Rehabilitation Counselors in Three Work Settings," Working Paper No. 4, Cleveland, Ohio: Western Reserve University, 1967.

7. Sussman and Haug, op. cit., pp. 28-29.

8. Marvin B. Sussman, Marie R. Haug, and Gloria A. Krupnick, "Professional Associations and Memberships in Rehabilitation Counseling," Working Paper No. 2, Cleveland, Ohio: Western Reserve University, 1965, pp. 8-9. Data compiled by the Professions Project show 3,610 counselors in the BVR out of a total of 4,559 in three settings.

9. NRCA News, Vol. IX, No. 4 (August, 1967), p. 1.

10. Based on a modification of the Hollingshead Two Factor Index, with weighted components of occupation and education for both parents. See August B. Hollingshead, Two Factor Index of Social Position, New Haven, Conn.: mimeographed, 1957.

11. As part of analysis of the public image of rehabilitation counseling, a questionnaire was distributed to a 1500 random sample of the United States population through an agreement with the National Opinion Research Center; in testing the respondents' degree of exposure to disability it was found that three per cent were themselves disabled. Another survey by the National Center for Health Statistics reported in Vital and Health Statistics, Series 10, No. 32 (June, 1966), p. 15, that approximately nine per cent of the population had chronic conditions which either prevented participation in the major age-sex specific activity or limited the amount or kind of major activity.

12. For an explanation of factors in career choice see Marie R. Haug and Marvin B. Sussman, "The Second Career--Variant of a Sociological Concept," Journal of Gerontology, Vol. 22, No. 4 (October, 1967), pp. 439-444.

13. James A. Davis, Undergraduate Career Decisions, Chicago: Aldine Publishing Company, 1965, p. 271.

14. Furthermore, separate analysis of the student group shows no systematic relationship between high grade averages and less outstanding colleges.

15. See, for example, Sussman and Haug, Working Paper No. 4, p. 16; and P.M. Blau, et. al., "Occupational Choice: A Conceptual Framework," Industrial and Labor Relations Review, Vol. 9, No. 4 (July, 1950), pp. 513-543.

16. Eli Ginsberg, et. al., Occupational Choice: An Approach to a General Theory, New York: Columbia University Press, 1951.

17. Marvin B. Sussman, "Occupational Sociology and Rehabilitation," in Sociology and Rehabilitation, edited by Marvin B. Sussman, Washington, D.C.: American Sociological Association, 1966, pp. 179-222.

18. Martin Dishart, The Incidence of Disability in Maryland, College Park, Maryland: University of Maryland, 1967, p. 35.

19. Shepard A. Insel and Donald J. Strong, Changes in Self Concept and Perceptions of the Counselor Role Among Vocational Rehabilitation Counseling Trainees as a Result of Supervised, On-the-Job Training: A Pilot Study, San Francisco: San Francisco State College, unpublished final report, 1961.

20. For discussion of the conflict between individual security and advancement of the profession, see C. Gilbert Wrenn, "The Professions and Professional Membership," Occupations, 30 (October, 1951), pp. 24-29.

21. Sussman, Haug, and Krupnick, Working Paper No. 2.

22. Although the supervisors are generally not eligible for APA membership because of their educational background, they could express their attachment to psychological counseling by membership or activities in the ARCA, whose admission requirements are no more stringent than those of the rehabilitation-oriented NRCA.

23. A. M. Carr-Saunders and P. A. Wilson, "Professions," Encyclopedia of the Social Sciences, Vol. 12, New York: The Macmillan Company, 1944, pp. 476-480.

24. For example, general comments inserted on the questionnaires by the supervisor respondents included: "this is great work," "rehabilitation is a good field," and "rehabilitation counseling should eventually come into its own." Also expressed was the need for "professional identity." Such concerns demonstrate how rehabilitation is conceived of as a field not yet fully blossomed, but having potential and being a distinct base upon which to build one's professional image.

25. The relationship between view of the field and professional affiliation appears in analysis of the total student follow-up data. Most association members who believe rehabilitation counseling is a specialty of counseling are in ARCA, and most of those voting for a unique field are NRCA adherents.

26. For construction of these indices, see Marvin B. Sussman, Marie R. Haug, and James E. Trela, "Profile of the 1965 Student Rehabilitation Counselor," Working Paper No. 3, Cleveland, Ohio: Western Reserve University, 1966, Appendix B.

27. Among the 103 students high on both indices, 41 per cent see rehabilitation counseling as a separate field, and 44 per cent as a sub-specialty of counseling.

28. Remarks of The Honorable John R. Gardner, Secretary of Health, Education and Welfare, in the opening address, 1967 Annual Conference of the National Rehabilitation Association, Cleveland, Ohio, October 2, 1967.

VT 012 678
New Mexico Farm Labor and Rural Manpower Program 1969. Annual Report.

New Mexico State Employment Security Commission, Albuquerque. State Employment Service.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 69 45p.

DESCRIPTORS - *AGRICULTURAL LABORERS; *UNEMPLOYMENT; *AUTOMATION; ECONOMIC CLIMATE; EMPLOYMENT TRENDS; *MANPOWER UTILIZATION; ANNUAL REPORTS; EMPLOYMENT PROGRAMS; *JOB PLACEMENT
IDENTIFIERS - *NEW MEXICO

ABSTRACT - Falling agricultural employment in New Mexico, resulting from greater mechanization, has resulted in the recent expansion of this job placement program to serve more fully the workers and employers of New Mexico. After describing the economic climate and employment trends resulting from mechanization, this annual report explains the services provided to counteract the negative employment trends. Although recruiting, rural development, public relations, and rural manpower services proved to be effective, the program suffered from inadequate funding. Questionnaires, letters, bulletins, and promotional materials are appended. (BH)

VT 012 678

ED0 57254

NEW MEXICO

FARM LABOR
RURAL MANPOWER SERVICE
REPORT

1969

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COVER PAGE

HOME-HOME ON THE RANGE—Though this cook doesn't have a range to cook on, he puts out some mighty good chow which hungry cowhands make quick work of when they come in off the range. Paul Pacheco, Clabber Hill ranch cook is from Trementina, New Mexico and whips up some pretty good chow. These cowboys are not the least bit bashful about helping themselves.

(Photo by Charlene Reid, Tucumcari Daily News).

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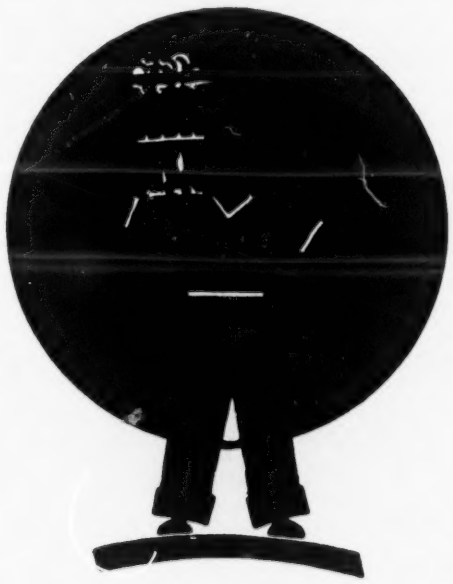

NEW MEXICO
FARM LABOR AND RURAL MANPOWER PROGRAM
1969

HONORABLE DAVID F. CARGO
GOVERNOR — NEW MEXICO

ANNUAL REPORT

EMPLOYMENT SECURITY COMMISSION
NEW MEXICO STATE EMPLOYMENT SERVICE

AFFILIATED WITH

U. S. EMPLOYMENT SERVICE

5687

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EMPLOYMENT SECURITY COMMISSION
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This report records significant developments in the farm labor program during 1969, which was the 22nd continuous year the New Mexico State Employment Service operated it. In this period the level of agricultural employment has dropped substantially, due primarily to technological advances and mechanization.

On the surface the changes would appear to diminish the importance of service to the rural segment of the economy. Actually the reverse is true. The reduction in agricultural employment has left unemployed many rural residents who do not wish to relocate.

To bridge this gap the Farm Labor Service was renamed Farm Labor and Rural Manpower Service and was given the added responsibility of helping rural residents and nonagricultural businesses that had not previously been adequately served.

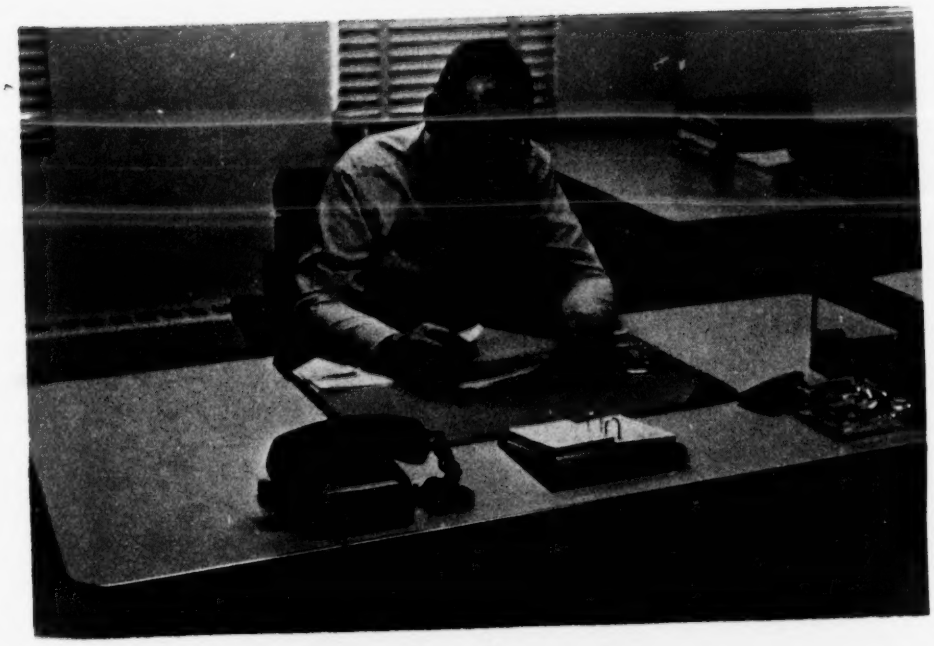
Progress in this undertaking is reflected in applicable sections of the report. A limiting factor has been inadequate resources to cover the vast areas involved. In recognition of this handicap, a recommendation is included for sufficient financing to meet demonstrated needs.

Sincerely yours,

PAUL J. CRUZ
Chairman-Executive Director

568826

505 MARQUETTE, NW P. O. BOX 1928 ALBUQUERQUE, NEW MEXICO 87103



Shown above is Mr. Roy O. Plumlee, life-long New Mexican, who was appointed the new Chief of Farm Labor and Rural Manpower Service on April 1, 1969, following the retirement of Mr. George N. Trible.

Mr. Plumlee entered employment service work as an interviewer in the Roswell office in 1942. After service in the U. S. Army during World War II, he returned to the Roswell local office as Manager. In 1948 he was named Assistant Chief of Farm Placement Service in the State Office of the Employment Security Commission.

He is assisted by Mr. Doyle G. Hayes who is also a long-time employee of the Agency and knowledgeable in the problems of serving rural areas. They solicit the aid and cooperation of all individuals and organizations concerned with the rural labor market.

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EMPLOYMENT SECURITY COMMISSION OF NEW MEXICO

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FARM LABOR and RURAL MANPOWER SERVICE

Roy O. Plumlee, Chief

Telephone 842-3275

Doyle G. Hayes, Assistant

LOCAL OFFICE PERSONNEL

OFFICE	MANAGER	FARM LABOR REPRESENTATIVE
Alamogordo	R. C. Morgan	R. C. Morgan
Albuquerque Farm & Labor	C. W. Hasson	Cleofas Otero
Artesia	Leroy Williams	Vaughn Robinson
Carlsbad	Hazel Hayes	Fred West
Clovis	Bruce Jackson	Bruce Jackson
Espanola	Manuel Garcia	Manuel Garcia
Farmington	C. Kenneth Maze	George Watchman Roy Martinez William Dixon
Gallup	Homer Green	Harvey Jim Harold Jones Leslie Bitsie
Grants	Ernest Hart	Ernest Hart
Hobbs	Milton Fox	William Jordan
Las Cruces	Donald Queen	Dan Paredes Eddie Flores
Las Vegas	Eloy E. Ludi	Joe Valdez
Lovington	Robert Bolin	William Jordan
Portales	Robert Dunn	Charles Marks
Raton	Sam Ortiz	Sam Ortiz
Roswell	Henry Pruet	Ross Hansard
Santa Fe	Severo Martinez	Severo Martinez
Silver City	Mary Lou Leonard	Norma Silva
Taos	Edwin S. Martinez	Edwin S. Martinez
Tucumcari	Joe Geibel	Joe Geibel

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PLANNING

A. Changes in Administrative Organization

The Chief of Farm Labor who had served in that position for 20 years retired effective March 31, 1969. He was replaced by the Assistant Chief of Farm Placement who was in turn replaced by a district supervisor. The district supervisor, taking the Assistant Chief of Farm Placement's position, had served in areas of substantial farm activity and is knowledgeable on the problems of farm workers and employers.

For a number of years the State was organized into four (4) districts with a district supervisor providing line supervision in each district. During 1969, it was reorganized into three (3) districts.

Near the close of the year the responsibility for the Smaller Communities Program was assigned the FL&RMS Section. This program carries employment services to applicants in remote areas on a county-by-county basis. The team establishes headquarters in the county to be served and remains until each potential applicant has been registered and, if needed, has been provided counseling, testing, selection and referral to training or other employability services. The mobility of workers interviewed will be determined so that those interested in working elsewhere can be informed of out-of-area job opportunities. Information is compiled on manpower resources for industrial development and technical assistance is made available to Chambers of Commerce, County Economic Development Associations, and other interested groups. When work is completed in a county, records are turned over to the local employment service office responsible for that area to provide all possible additional assistance. Counties in which Smaller Community Team surveys have been completed include Taos, Rio Arriba, San Miguel, Mora, Guadalupe, Torrance, Valencia, Sandoval, and Socorro.

For some time there had been increasing evidence of need for expanding manpower services to rural residents. This was particularly evident in the case of farm workers displaced by mechanization and other technological advances. After

due deliberation it was determined the Farm Labor Service offered the best available vehicle for this purpose and operation of a rural manpower program began in August. Accomplishments of this program are discussed in detail later in this report.

The Albuquerque Farm & Labor Office, which has been a division of the Albuquerque Employability Center, was given status as a local office and moved into separate quarters in December. The new location is nearer the areas where most of the applicants served by this facility live.

Claims taking in the Albuquerque area was converted to a mail operation by the first of the year. Since that time, claims taking in much of the remainder of the State has also been converted to mail. It is planned that, as soon as possible, all claims will be processed by mail. Generally, handling claims by mail is being well received. This conversion is a convenience for claimants and saves staff time. It will benefit the FL&RMS Program since in periods of peak claims activity it has usually been necessary to utilize local Farm Labor staff to meet the workload.

B. Pre-season and In-season Meetings

Effective planning, control and coordination of the FL&RMS Program requires numerous meetings both internally and with cooperating agencies. As usual, the earliest Farm Labor meeting which Agency personnel participated in was the National Farm Labor meeting held in early January. This meeting provided an opportunity for Agency representatives to learn firsthand of program emphasis for the coming year and to share with other states methods for handling common problems.

One training conference was held with local office managers and local FL&RMS representatives. This conference was devoted mainly to the initiation of the Rural Manpower Program. There were representatives of the National and Regional Offices as well as the Chief of Local Office Operations of Oklahoma to assist in introducing this program. A representative of the Wisconsin State Employment Service was present to discuss job opportunities in food processing in that State.

Other meetings participated in at the state and/or local office levels included those with employer groups, cooperating

agencies such as CAP, TAP, farm bureaus, Chambers of Commerce, growers and grower associations, Indian Tribes, Department of Health & Social Services and other State Employment Security Agencies.

C. Special Arrangements for Recruitment

For a number of years the Agency has had special arrangements to guide the handling of recruitment in specified instances. These arrangements were continued in 1969. They include provisions for recruiting seasonal and year-round sheepherders, broomcorn and sugar beet workers and potato harvest hands. The agreement to improve Manpower Services to the Navajo Tribes also continued unchanged.

In 1969, an operating arrangement was developed to provide feed roguers on a day-haul basis to farmers in the Western Panhandle of Oklahoma. The arrangement for obtaining day-haul workers from El Paso, Texas, was extended to include employers in Luna and Hidalgo Counties of New Mexico.

ECONOMIC TRENDS

Changes in the agricultural economy of the State having an impact on employment include the continuing decline in the number of farms. According to the New Mexico Crop and Livestock Reporting Service, the number of farms in New Mexico declined from 14,000 in 1968 to 13,800 in 1969. The decline was at the rate of 1.4%. This is about half the rate of decline in the nation for the same period which is estimated at 3%. The decline of land in farms was at a lesser rate and is estimated to have been .6% in New Mexico. Again the decline in this State was smaller than for the nation as a whole.

The disappearance of farms is due to the merging of small marginal farms into larger units, urbanization and in some areas highway construction.

According to the New Mexico Crop and Livestock Reporting Service, the highest annual gross agricultural income in State history was reported in 1969. This was offset by expenses higher than most people could have foreseen just a few years ago. Total gross income almost reached 400 million dollars. Offsetting factors were stiff hikes in interest rates, labor costs, taxes, machinery and supply prices.

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Beef cattle, the chief income producing source in agriculture, accounted for 1/2 the agricultural income. Total value of all field crops was estimated at 107 million dollars, down 5 million from 1968. While average prices received from most crops equaled or exceeded those in 1968, generally smaller production resulted in lower total value. Of the major crops the value of wheat declined 2.9 million dollars while cotton was down nearly 1/2 million dollars. An exception was grain sorghum which was up 3.9 million dollars. Other crops were generally lower in value. Vegetables continued to play an important part as an income producer. Lettuce and onions for fresh market and cucumbers and tomatoes for processing accounted for 14.1 million dollars of the total.

Cotton was hurt by late rains which caused the plants to put out more foliage rather than maturing the top crop. Limited water in some areas also created a problem. In a portion of the Pecos Valley irrigation water is metered and growers are limited to 15 acre-feet over a 5 year period. Bankers take a long look at the amount of water left in each individual case before extending or making new loans.

In recent years, there has been a tremendous expansion in the operation of feedlots. This no doubt contributes to the excellent income reported above from beef cattle. The feedlots are being located in areas with high rates of production of alfalfa and small grains. This provides an excellent channel for disposing of these crops. A new sales arena was constructed in Lea County during the year, bringing a market closer to the livestock production in that area. There has also been some increase in feeding hogs.

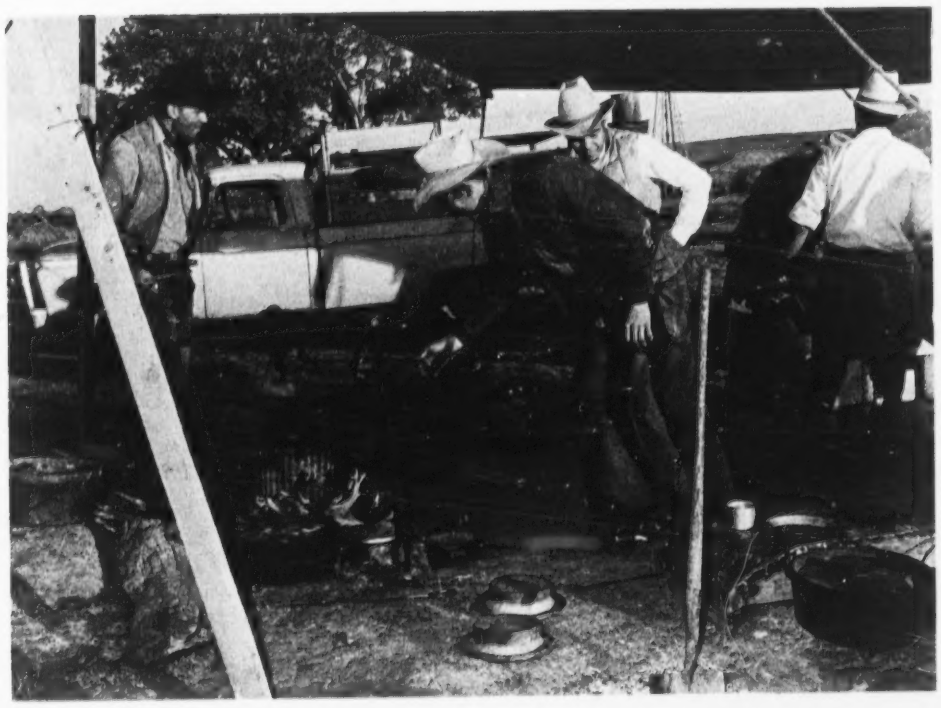
A new co-op was being organized in the Espanola Valley at the end of the year to grade and market fruit produced there. This is expected to substantially increase the income of participants. Another chile processing plant and a chile dehydrator were constructed in the Mesilla Valley, making possible the processing of additional chile.

EMPLOYMENT TRENDS

A. Seasonal Hired Farm Workers

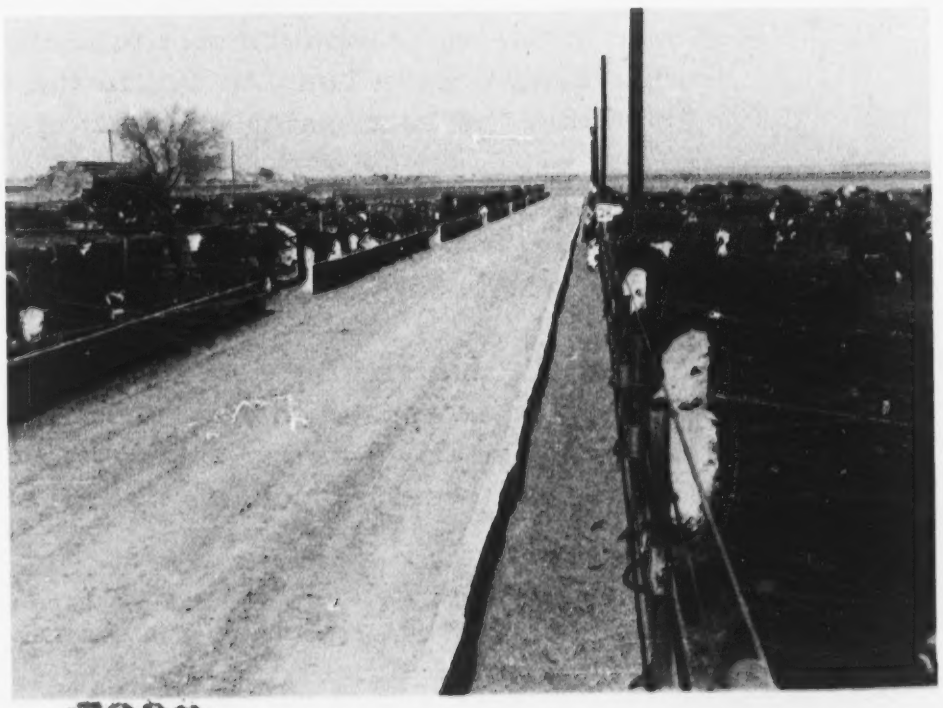
Generally the employment of seasonal hired farm workers remained at approximately the same level as in 1968. For the most part, such variations as occurred were due to changes in weather conditions rather than crop practices or

Watching the herd so the cattle won't stray, this cowboy looks mighty lonely. He isn't alone as it appears as there are ten cowboys working the cattle along with Mr. and Mrs. H. O. Murrell who operate the Clabber Hill Ranch. (Photo by Charlene Reid, Tucumcari Daily News)



A cup of hot coffee cowboy style (nice and strong) will just hit the spot for this cowhand who has just come in off the range on a cool evening. (Photo by Charlene Reid, Tucumcari Daily News)

A rapid expanding industry in New Mexico is that of stock feeding pens. Throughout the feedgrowing areas of the state the number of feeding pens are increasing each year. This stock feeding operation is located in the Roswell area.



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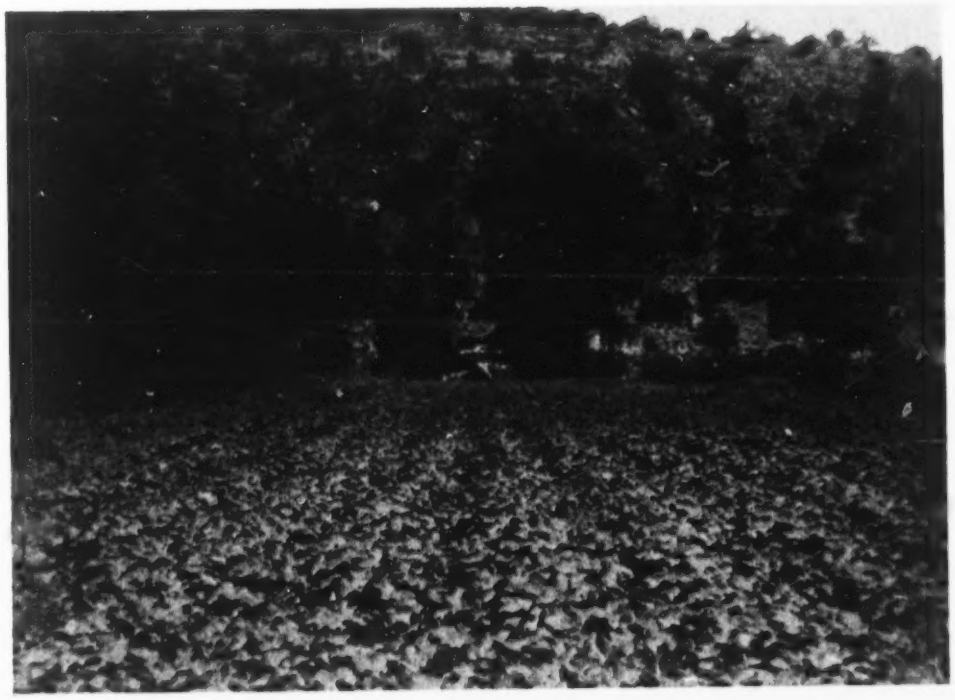
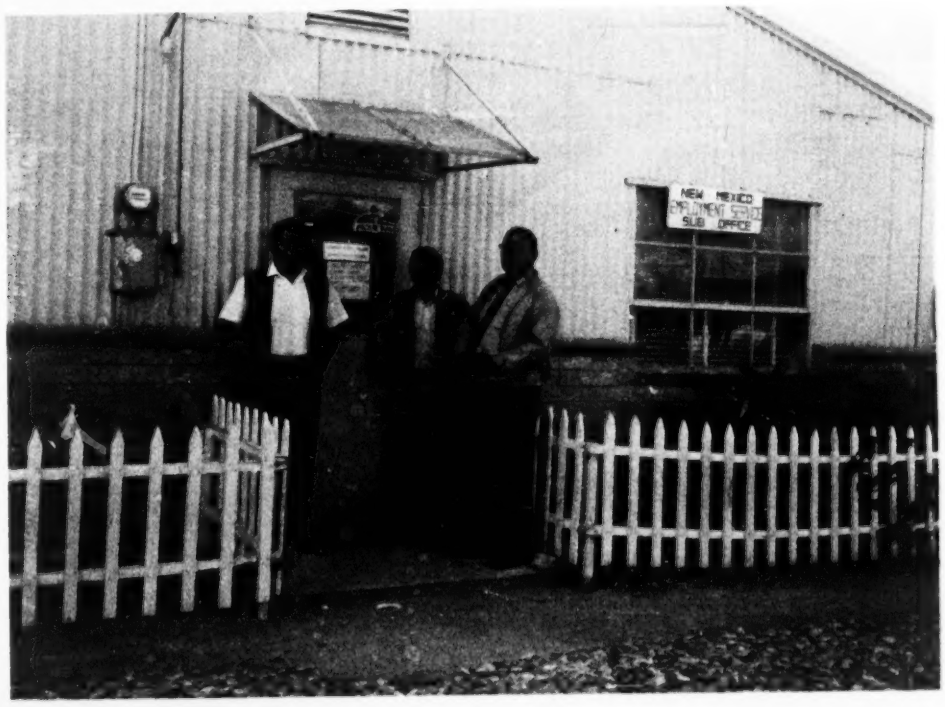


Pickling cucumbers being grown under contract near Sena, New Mexico, Upper Pecos Valley in the Las Vegas Area. Cucumbers are grown under intensive cultivation with family labor doing the cultivating and harvesting operations. (Picture courtesy Joe Herrera, County Agent at Large NMSU).

A cucumber salting station which has 20 barrels with a total capacity of 10,000 bushels. The station has been in operation since 1968. An average of 5000 bushels of pickling cucumbers were harvested and marketed from 70 contracted acres in San Miguel and Guadalupe Counties.

Representatives of the New Mexico State Employment Service attend a Farm Labor and Rural Manpower Service conference in the Yucca Room of the First National Bank Building in Las Cruces on August 6-7, 1969.

l to r, Larry Largo, George Watchman and William Dixon, Interpreter-Interviewers of Farmington Local Office at the Sub-Office at Shiprock located on the Navajo Indian Reservation. They work an area of some 500 square miles recruiting Navajo workers for seasonal employment.



Processing of wool pelts at the Las Vegas Wool Company, Las Vegas, New Mexico. These workers in the plant are on-the-job (OJT) trainees sponsored by the Service Employment Redevelopment Program.

Eloy Ludi (l) Manager of the Las Vegas Local Office and Pat Lujan (r), then FL&RMS representative discuss labor needs with Abe Liberman (center) owner of the Las Vegas Wool Company, a new industry in the Las Vegas area.

(L. to R.) Recruiters from the Farmington Local Office, William Dixon, George Watchman and Larry Largo are shown with one of the mobile farm offices used on the Navajo Reservation during recruitment of seasonal farm labor. The pickup trucks are equipped with two-way radios to permit maintaining contact with the local office from distant points on the reservation.

Navajo Indians working in the broomcorn harvest in eastern New Mexico at San Jon. Both men and women are recruited from the Navajo Indian Reservation in northwestern New Mexico are used in the harvesting of the crop.

Dan Paredes, Farm Labor and Rural Manpower Representative of the Las Cruces Local Office manning the annual Farm Labor booth at the 1969 Southern New Mexico State Fair in Las Cruces.

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technology. Sugar beet growers in Hidalgo County started to weed their crop with hand labor; however, this was found to be too expensive and was discontinued. Sugar beets were planted in the Clayton area for the first time, providing employment for an additional 70 or 75 workers. The acreage in this crop is expected to increase to about 1,000 in the coming year, offering the possibility of some additional employment.

A substantial portion of seasonal workers employed are in crews. This is true of both the interstate and intrastate groups. Males account for some 75% to 80% of the total. The predominant age group is in the 16 to 50 range. Many ethnic groups are represented in the seasonal labor force, however, the majority of workers are of Spanish or Indian ancestry. It is noted that vegetable packers tend to buy crops in the field and are using specialized harvesting crews. At least two of the large crews brought into New Mexico by packers were made up largely of Filipinos. These crews specialize in one crop activity such as lettuce-packing or onion-topping.

A great many more seasonal workers would be employed picking cotton if they were available at terms considered acceptable by the growers. A number of growers have expressed concern about the problem of selling machine-picked cotton to the mills and have indicated they would prefer handpicking if it were feasible.

Temporary labor shortages were experienced in harvesting vegetables, apples, and cotton, although none were reported to have reached the critical stage. Labor shortages in the Mesilla Valley were relieved by the availability of workers from a large day-haul pool in El Paso, Texas.

B. Regular Hired Farm Workers

As the size of farms increases, there is an increase in the number of regular farm hands employed. The increase is relatively small. A high percentage of the regular farm hands are employed on irrigated farms producing grain, cotton, fruit or vegetables. Employment is also increasing in feedlots. No large labor shortages were reported during the past year, but most areas had openings for this type of worker throughout the year. Farm employers are increasingly expecting regular farm hands to be able to operate a

wide variety of farm machinery. They are expected to do all necessary in-the-field maintenance and to be able to make some heavier repairs when circumstances require. Those employed by enterprises feeding cattle need to know how to handle cattle and how to treat minor illnesses. They must also be familiar with feed mixing and able to read instructions both with regard to mixing operations and administering medicines.

IMPACT OF MECHANIZATION AND OTHER CHANGES IN PRODUCTION METHODS

A. Mechanization had reached a high level prior to the beginning of 1969 and no advances were made during the year that significantly affected labor requirements. As indicated earlier, substantial expansion is taking place in the livestock feeding industry. More feeding pens are being constructed to make maximum use of available mechanical equipment. This is not replacing employed workers, but is holding to the minimum the number of new workers required in the activity.

1. Machines in current use include mechanical cotton pickers, mechanical hoes, traveling irrigation systems, flame cultivators, onion harvesters, potato harvesters, hay cubers, rood harvesting machines, etc. With the exception of the onion harvester, all of these machines have proven their efficiency and have reached a high degree of use. A number of long established pieces of equipment, such as the cultivator, sugar beet digger, planter, land leveler, and fertilizing implements are now made in up to 6-row size, requiring larger tractors but reducing somewhat the time required to cover a field. The hay cuber which was first used in the State in 1966 and which was pictured in the printed annual report for that year is receiving increasing use. Due to the cost of the machine, about 30,000 dollars, most are owned by custom operators. The need for bale buckers is entirely eliminated by the cuber.

2. Machine operators must be able to operate and do routine maintenance work on their equipment. Operation will require working to fairly close tolerances in some cases and making necessary adjustments in the field to secure maximum efficiency. It is feasible to retrain displaced workers for jobs as machine operators. There has been one problem in this connection and that is the wage of a trained operator is not sufficiently high to permit establishment of an MDTA training program. One local office

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initiated a training proposal for farm machinery operators in their CAMPS plan. No training has resulted from this proposal to date.

3. Most local offices report little apparent change in labor requirements resulting from mechanization in 1969 as compared to the previous year. The same is true as regards shortening or lengthening the term of seasonal employment in affected crop activities.

4. No machine is presently in sight that can be expected to change employment requirements to the extent the adoption of the mechanical cotton picker has. Work has been in progress several years on developing lettuce, chile and onion harvesting machines. Successful development of these three machines would probably reduce present seasonal labor requirements by 50% or more. Some work has also been done on developing the mechanical broomcorn harvester. Success in this undertaking would reduce seasonal labor requirements by another 25%. It is noted in item #1 that as the use of the hay cuber becomes general, the need for bale buckers is being eliminated. The hay harvest is an intermittent activity in New Mexico and buckers have usually been hired from the casual labor pool. These workers are employed mainly in nonagricultural activities.

B. During the past year no new producing methods or modifications of existing production methods have been reported that have significantly affected labor requirements.

RECRUITMENT AND UTILIZATION OF FARM WORKERS

A. Special recruiting efforts have generally proven very effective. One example is the day-haul program established in the Clayton area. This program was set up to meet the need for feed roguers in Oklahoma. Contacts were made with the school prior to the close of the spring term and the need was met entirely by high school students. A total of 536 placements were reported while the program was in operation.

Wide use has been made of radio spot announcements, weekly programs, news releases, posters, flyers and other handouts in disseminating information regarding job opportunities. (See Exhibits A, B and C.)

Two local offices surveyed their workers by use of mail questionnaires (See Exhibit D) to determine their availability,

preference for work areas and transportation needs. The results of the surveys are quite helpful in planning recruitment and scheduling employer contacts.

Four (4) trailers (See photo in center section) are used as mobile offices on the Navajo Reservation to facilitate recruitment there. The trailers also have sleeping accommodations which save the time and travel required for recruiters to get back to their official station each evening. In addition, during times of peak needs, an IHRD trailer is available for use in recruitment in the Farmington area. The Navajo recruiters are furnished radio-equipped pickups enabling them to keep in close contact with their respective local offices. This provides current information about job openings, shipping arrangements, and other information necessary in carrying out an efficient recruitment program.

Fair booths were operated during the Eastern New Mexico and the Southern New Mexico Fairs (See photo in center section) to publicize job opportunities. Local Offices operating these fair booths reported a good response from the workers and employers.

B. Participation in the annual worker plan has continued to decrease. To a considerable extent the reduction is due to the secretary's housing standards which must be met for interstate recruitment. Order-holding states inform us they are not able to clear orders for many employers for whom there has been recruitment in the past because they do not have housing meeting the standards. Since the workers are acquainted with the employers, their working conditions, and housing and find all to be acceptable, they continue to go to these jobs on their own.

The most effective interarea recruitment program carried on by this agency has been that conducted on the Navajo Reservation. While slightly fewer workers were referred in 1969 (2953) than in 1968 (3126), the reduction was believed due to growing conditions and adverse weather in demand areas rather than loss of effectiveness in the recruitment program. A new class of jobs became available to this group during the year through the cooperation of this agency, the Texas Employment Commission and the Dallas Regional Office of the Manpower Administration. These jobs are working in West Texas cotton gins. The employment pays substantially more than the general run of farm jobs. Approximately 100 were placed in 1969 and it is estimated that this figure may rise to 300 or 400 in 1970.

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C. Housing of farm workers, particularly migrant farm workers has long been a problem to those concerned in any way with the farm labor program. The Secretary of Labor several years ago issued regulations governing the interstate recruitment of farm workers through the state employment services.

The regulations among other things specify standards that housing furnished by employers must meet before an order for interstate recruitment is accepted. The local state employment service office is delegated the responsibility for determining whether the housing to be furnished meets the required standards. This calls for an inspection.

Since no orders were received in 1969 from growers requesting interstate recruitment of workers to be housed at the job site, no housing inspections were made for this purpose.

The Employment Security Commission, feeling an equal concern for workers migrating on an intrastate basis, has adopted a policy (See Exhibit G) requiring employers using agency facilities to recruit farm workers on an intrastate basis to furnish housing and facilities which are hygienic, adequate to the climatic conditions of the area of employment, reasonably calculated to accommodate the workers who are to be housed therein and which will not endanger the lives, health or safety of the workers.

As in the case of interstate workers, the responsibility for determining that prescribed standards are met falls on the local employment offices serving the area where the workers are to be housed. Fortunately, approximately 95% of the workers recruited for intrastate agricultural work are employed in Curry, Quay, and Roosevelt Counties. These counties are in District X of the New Mexico Department of Health and Social Services. District X has a special grant for working with migrant agricultural workers and, among the other services provided these workers, inspects and certifies housing. The Employment Service does not recruit out-of-area workers to be employed in these three counties unless the employer's name is on the H. S. S. list of those having certified housing.

RURAL DEVELOPMENT AND OTHER COMMUNITY PROGRAM ACTIVITIES

Local office managers and FL&RMS representatives continued to take an active part in all community organizations concerned with rural affairs. They served on Technical Action Panels

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and Community Action Program Committees. At the close of the year many Technical Action Panels were being disbanded. Some were being reorganized under new names while action was pending in other cases. E. S. representatives were also active in CAMPS, the Southwestern New Mexico Rural Conservation and Development Program, the Eastern Plains Community Action Corporation, the San Miguel Community Action Executive Board, Rural Development Committees, the Bi-State Livestock Association, and the Farm and Ranch Improvement Association. Commission personnel cooperated with Department of Agriculture agencies such as the Forest Service, ASCS, SCS and Farmers Home Administration. In most areas the local office is represented on the Agricultural Committee of the local or county Chamber of Commerce.

In Chaves County the Chamber of Commerce Farm and Livestock Committee had two projects in the development stage at the close of the year. One was for a "Show Me" day during which townspeople will be invited to join the tour of farm and livestock operations in the county. The other was a livestock feeding symposium to be conducted on the Roswell campus of Eastern New Mexico University.

The local office staffs work with the Home Education Livelihood Programs which are directed toward migrant agricultural workers. In this connection, the Espanola local office referred 89 heads of migrant family households for enrollment in HELP Programs.

The FL&RMS representative in the Roswell local office assisted in the formulation of a questionnaire to be used by the New Mexico State University in surveying high school vocational farming training needs in the Pecos Valley. (See Exhibit H for copy of letter transmitting survey form and tabulation of the answers received.)

PUBLIC RELATIONS ACTIVITIES

Many of the activities described in the section above and the section on Recruitment and Utilization of Farm Workers actually involve public relations activities and should be considered in that light also.

Extensive use was made of news media including radio, television and newspaper publicity. (See Exhibit A for examples of publicity used.) Direct mail is also used as

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circumstances warrant. (See Exhibit I) Agency employees are members of County Farm and Livestock Bureaus, service clubs such as Lions and Rotary, American Legion, Disabled American Veterans and Veterans of Foreign Wars. The Assistant Chief of FL&RMS serves on the Curriculum Advisory Committee of the Albuquerque Public Schools and the Technical-Vocational Institute, assisting in developing curricula for agricultural occupations. Staff have worked closely with the Home Education Livelihood Program staff and the various Indian tribes and pueblos. Close contact is maintained with agricultural employers, employer associations, crew leaders and action groups interested in farm worker problems.

RURAL MANPOWER SERVICE

The responsibilities of the Farm Labor Section were expanded in August to include operation of a rural manpower service. This service is being provided by local office farm labor representatives and time utilized is that which is not essential to operation of the Farm Labor Program. Applicants and employers to be served are those located outside a city in which an Employment Service office is located and who were not receiving adequate service at the time the Rural Manpower Service Program was initiated. Suitable reporting forms were developed and a monthly report of accomplishments is furnished the Regional Manpower Administrator. In the period beginning with August and ending December 31, local offices identified 481 employers employing 6,374 workers for inclusion in the program. The proportion of Rural Manpower Service employers identified varied by local office area depending on the time available to devote to this program. The highest proportion estimated to have been identified by a local office is 80%. The ratio ranged down to 3%. During that time 912 openings were developed; 1,251 referrals were made to these openings resulting in 626 placements. Promotional telephone contacts totaled 122 and there were 11 interarea placements. Main problems encountered to date in operating a Rural Manpower Service are:

1. Lack of public transportation facilities.
2. Lack of suitable housing in vicinity of jobs.
3. Insufficient applications from rural residents.
4. Generally longer working hours for rural employees.
5. Lower wages paid on rural jobs.

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Steps are being taken to resolve these problems wherever possible. For example, outreach is being extended to develop additional applicants. Two local offices reported developing JOBS 70 OJT openings with employers in rural areas and placing rural youth in some of the openings.

SERVICES TO RURAL YOUTH

Rural Manpower Service personnel contacted rural school officials and counselors suggesting that they encourage students needing employment to make use of Employment Service facilities. They worked with school officials developing job opportunities for rural school youth.

One instance of job placement for rural youth is described in the section on Recruitment and Utilization of Farm Workers. This was the day-haul program established in the Clayton area to recruit feed roguers. A number of other local offices had programs for placing rural youths in various types of jobs. Several local offices worked with rural schools in developing counseling and testing programs for rural students. Priority was given graduating seniors. Occupational information on agricultural careers was distributed to local offices serving rural areas.

There were two pilot projects in which youths were employed to generate employment for other youth. The most successful of these was operated by the Las Vegas local office. Following is a summary of results reported by that office:

256 applicants
71 employer contacts
76 openings obtained
62 openings filled

EVALUATIONS AND RECOMMENDATIONS

When all factors are considered, it is felt that the Farm Labor Service operated an effective program in 1969. Both employers and workers indicated they were pleased with the addition of a Rural Manpower Service. Reports show that crop loss due to lack of labor was held to a minimum during the year. Local placements were up from 18,200 in 1968 to approximately 30,000 in 1969. Interarea placements, on the other hand, were down from 3,600 to about 3,300. Employer visits were approximately the same, a little over 3,000 for each year.

3707

Recommendations to the Manpower Administration for further strengthening of the FL&RMS program include:

1. Increase personnel allocation to the Farm Labor Program in order to provide an expansion of Rural Manpower Service.

2. Interstate employer order-holding offices should provide detailed information concerning the job openings when requesting workers from a supply area. Particularly important in the recruitment of workers is detailed information on: (1) job specifications or description of work to be performed, (2) wages and earnings - amount of wages, hours of work per day, days per week, (3) housing and perquisites and (4) arrangements for transportation and/or advances.

3. Guidelines for Manpower Training Programs for upgrading farm worker skills should be revised to allow states to develop such programs in line with prevailing wages and economic conditions.

5708

APPENDIX

5709

Exhibit A

RADIO SPOT ANNOUNCEMENTS

Spanish Program - KOBE

Se necesitan urgentamente trabajadores para cortar cebolla segun la oficina de Empleos Estatal.

Hay bastante cebolla grande--muy favorable para ganarse buenos centavitos antes de comenzarse la escuela.

Se les pide a todas aquellas personas que se interesan en este asunto que se congreguen por la calle mesquite y principalmente al parque Klein por las seis (6) de la manana comenzando manana lunos, 26 de Mayo. Se les propecionara transito altrabajo.

KGRT and KOBE

Onion toppers urgently needed, all persons interested in this type of work, please report to the New Mexico State Employment Office for referral cards, or meet along Mesquite Street, or Klein Park at 6:00 a.m. starting Monday, May 27, 1969. Transportation to and from job furnished.

Cotton pickers are urgently needed by the New Mexico State Employment Service, 226 South Alameda, Las Cruces, New Mexico.

Se nesecitan piscadores de algodon. Por favor de reportar a la oficina de empleos que esta situada, 226 South Alameda, Las Cruces, New Mexico.

KOBE and KGRT

The New Mexico State Employment Service needs about 30 to 35 male and female hoe-hands (long handle) to work in the lettuce fields, at $1.00/hr. per 9 hr. day. Transportation will be furnished to and from job site. If interested in this type of work, report to the Local Office which is located at 226 South Alameda. Workers who have not done this type of work can be trained; also workers can be trained in cutting of lettuce.

The New Mexico State Employment Service needs experienced farm tractor operators--contact the Local Office at 226 South Alameda.

Exhibit B

2 ROSWELL (N.M.) DAILY RECORD SUN., MAR. 23, 1969

Area Farms Are Short Of Workers

The farming season is just beginning, and farm workers are already in short supply, according to Ross Hansard, farm placement representative with the New Mexico State Employment Service in Roswell.

The worker supply is particularly short in the more skilled category such as the experienced all-around farm hand, Hansard states.

Farm workers have diminished in numbers annually for several years. Farm employers have met this condition through more mechanization, which required fewer workers. This trend, however, has brought about a situation which makes it necessary for the present day worker to be higher skilled in order to do an efficient job with the sophisticated machinery now in use on most farms.

As a result of the need for these skilled workers, farm employers are offering considerably higher wages than a few years ago. Most employers offer such extras as housing and utilities and in some cases such things as milk, produce, insurance and annual bonuses.

Hansard further states that anyone interested in the opportunities available in farm employment in the Chaves County area is invited to contact the Roswell office of the New Mexico State Employment Service. The office is located at 1300 W. Alameda St.

EXHIBIT C

Ashiih LaKanii YinIdallnishigii

Colorado-Utah

DiLa Nidzin

SHIPPING DATE

FOR FURTHER INFORMATION

Contact Roy Martinez, Recruiter at Gallup or the New Mexico State Employment Service at 814 So. State Road No. 32, and Harvey Jim, Recruiter at Crownpoint, New Mexico.

HOLLY SUGAR CORP.

DELTA, COLORADO

5712

EXHIBIT C

Beet Workers
WANTED

To go to UTAH and IDAHO
BUS TRANSPORTATION

SHIPPING DATE

FOR FURTHER INFORMATION

Contact Harold Jones, Recruiter at Gallup or the New Mexico State Employment Service at 814 S. State Road, and Harvey Jim at Crownpoint, New Mexico.

The Utah & Idaho Sugar Co.

8713

EXHIBIT C

BROOMCORN HARVEST WORKERS AT TUCUMCARI, NEW MEXICO

BE'AZHOO' YINIDALLNISHIGII TUCUMCARI, DI LA' NIDZIN

HOUSING FURNISHED

BII' DAHOOGHANIGII T'AA'IILDIIN HO LO

EMPLOYMENT OFFICE—

FARMINGTON-
NAGEEZI
LITTLEWATER

5714

EXHIBIT C

Shooh Dine!
Cotton Gin Workers
NEEDED
In West Texas

SHIPPING DATE

FOR MORE INFORMATION:

New Mexico State Employment Service

5715

Exhibit D

STATE OFFICE
505 MARQUETTE AVE., N.W.
P. O. BOX 1928
ALBUQUERQUE, NEW MEXICO
87103

EMPLOYMENT SECURITY COMMISSION

NEW MEXICO STATE EMPLOYMENT SERVICE

AFFILIATED WITH UNITED STATES EMPLOYMENT SERVICE

LABOR AND FARM OFFICE
313 Broadway, N. E.
Albuquerque, New Mexico

Dear Mr.

It has come to our attention that during the past season your farm area experienced a shortage of farm labor. The New Mexico State Employment Service being the largest source of farm labor in the state is attempting to determine the extent of this problem and to assist in devising a program to help alleviate a shortage situation.

As a farmer you have probably either experienced a worker shortage or know of a neighbor who has. For this reason we wish to ask your assistance in helping us with this undertaking. Your filling out the attached questionnaire will not only help us understand your particular problem but when combined with questionnaires from other farmers in the area should give us a better idea as to the problem in your area as a whole.

Thank you for your cooperation in this matter.

Sincerely yours,

C.W. Hasson

C.W. Hasson, Mgr.
Albuquerque Labor & Farm Office

Exhibit D

EMPLOYMENT SECURITY COMMISSION
NEW MEXICO STATE EMPLOYMENT SERVICE
Affiliated with United States Employment Service

226 South Alameda Blvd. - P. O. Drawer 428
Las Cruces, New Mexico 88001 Phone No. 526-5513

Dear Sir:

The Las Cruces Local Employment Office is again requesting important and vitally needed information in order that early preparation can be made to insure sufficient workers and equipment will be available at the right time and place to harvest the crops.

Due to an increase in the acreage of vegetables, more labor will be required. The law requiring crew leaders to register with the U. S. Department of Labor and provide insurance if workers are to be transported across State lines affects the availability of such workers. There is an agreement under which the El Paso Office of the Texas Employment Commission recruits workers for farm jobs in the Mesilla Valley if employers place their orders with this office. Since many farmers depend on these crews and workers, placing of master orders for the year is of the utmost importance.

The labor supply and demand is computed on the basis of the requested figures. We, therefore, will appreciate your cooperation and urgently request the information outlined below be returned as soon as possible. Information is strictly confidential. Enclosed is an addressed envelope (no stamp needed) to return this form.

NUMBER OF ACRES IN CULTIVATION

Cotton: Short Staple _____
Long Staple _____
Alfalfa _____
Barley Sorghums _____
Orchards (specify) _____
Other Crops (specify) _____

Vegetables: Onions Grano ____ Sweet Spanish _____
Lettuce: Spring _____ Fall _____
Tomatoes _____ Chile _____
Asparagus _____ Cucumbers _____
Cabbage _____ Beans (specify) _____
Melons (specify) _____

Number of year-round domestic workers _____

Housing _____

Do you own a cotton-picking machine? Yes____ No____
Make _____
Type _____

Period of Work	Type of Work & Crop	Total No. Workers Needed
3/1 to 4/1		
4/1 to 5/1		
5/1 to 6/1		
6/1 to 7/1		
7/1 to 8/1		
8/1 to 9/1		
9/1 to 10/1		
10/1 to 11/1		
11/1 to 12/1		

Thank you for your cooperation.

Sincerely,

NAME _____

ADDRESS _____

_____

Doyle G. Hayes, Acting Manager
Las Cruces Local Office

5717

FARM LABOR QUESTIONNAIRE Exhibit D

Date_____

Name_____

Mailing Address_____

Directions to farm_____

_____

What method have you used in the past to obtain farm workers?_____

_____

Are you a member of the local farm bureau? Yes_____ No_____

What is the total number of acres you expect to plant this year?_____

What crops do you plan to plant and the number of acres of each?

(1)_____(2)_____(3)_____

Do you use year-round farm labor? Yes_____ No_____

For what type of activity?_____

How many did you use last year?_____How many will you use this year?_____

Do you expect a shortage of year-round labor this year?_____How many?_____

When do you expect to be in need of farm labor (approx. date)?_____

What wage do you pay year-round farm labor?_____

Do you furnish housing?_____Board?_____Utilities for housing?_____

Do you furnish any other benefits to workers?_____What?_____

Do you use seasonal farm labor? Yes_____ No_____

For what type of activities? (1)_____(2)_____(3)_____

How many for each activity did you use last year? (1)_____(2)_____(3)_____

Do you expect a shortage of seasonal labor this year? Yes_____ No_____

In what activity? (1)_____(2)_____(3)_____

State number of the shortage expected for each activity. (1)_____(2)_____

(3)_____

When do you expect to need labor for these activities (approx. date)? (1)_____

(2)_____(3)_____

What do you pay for each activity? (1)_____ (2)_____ (3)_____

Exhibit D

FARM LABOR QUESTIONNAIRE - Page 2

Do you pay a bonus if worker stays until work is completed?_____

Do you furnish Housing?_____ Board?_____ Transportation to work?_____

_____

_____

YOUR COMMENTS ON THE FARM LABOR SITUATION IN YOUR AREA

_____

_____

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Please mail to:

New Mexico State Employment Service
Labor and Farm Office
Post Office Box 654
Albuquerque, New Mexico

Use enclosed envelope. No postage is required.

Thank you for your cooperation.

Exhibit E

INTERSTATE SEASONAL AGRICULTURAL CLEARANCE ACTIVITIES
1969

ITEM	ORDERS		OPENINGS	
	Extended (Sec. A) Received (Sec. B)	Filled	Extended (Sec. A) Received (Sec. B)	Filled
I	II	III	IV	V
SECTION A. REPORTING STATE AS ORDER-HOLDING STATE				
1. Reporting State, TOTAL	49	43	36685	20610
2. Applicant-holding States involved:		43	36685	20610
Texas	49			
SECTION B. REPORTING STATE AS APPLICANT-HOLDING STATE				
3. Reporting State, TOTAL	406	294	5709	2393
4. Order-holding States involved:				
Arizona	4	4	165	91
Colorado	21	13	1034	514
Idaho	117	108	1248	853
Illinois	4	0	656	0
Michigan	1	0	1	0
Minnesota	1	1	538	36
Montana	2	2	238	50
Nevada	1	1	1	1
Oregon	2	2	190	187
Texas	179	106	661	254
Utah	29	24	508	248
Wisconsin	4	3	149	111
Wyoming	41	30	320	48

Exhibit F

EMPLOYMENT SECURITY COMMISSION
NEW MEXICO STATE EMPLOYMENT SERVICE
Affiliated with United States Employment Service

P. O. Drawer E 204 W. Park
Hobbs, New Mexico

Dear Mr. Employer:

You will be pleased to know that we have scheduled your firm for additional service that was not previously provided. In the very near future, it is planned that all claims for unemployment insurance will be processed through the mails. We expect this to save us about one-half of an employee position. Our intent is to use this time in recruitment, selection and placement of manpower in what we call the "rural" area. To make identification easier, we consider all firms, both agriculture and non-agriculture, which are outside of the incorporated city limits of Lovington and Hobbs as "rural."

As a rural employer, this will mean that you will get individual attention when you call us to assist you in locating replacement and expansion personnel.

Further, because we are aware of a general shortage of skilled technicians, we plan to conduct itinerant service in Tatum, Eunice, and Jal to register rural workers that have not visited the Hobbs and Lovington offices of the New Mexico State Employment Service. As our knowledge of the manpower requirements of the rural sector increases, we will also be a better advisor in education and training proposals that prepare the workmen you will be needing in future years.

Employers who have more than 4 employees pay a Federal Unemployment Tax. This is our salary, and we invite you to call us often. We are pleased that we can alter our unemployment claims procedures in order that we may spend more time in helping you.

Sincerely,

Milton B. Fox
Manager III

Exhibit G

April 16, 1969

POLICY GOVERNING HOUSING FOR AGRICULTURAL WORKERS TO BE OBTAINED THROUGH INTERAREA RECRUITMENT

The responsibility of the Commission to safeguard the living conditions provided agricultural workers recruited through the facilities of the New Mexico State Employment Service is of paramount importance. In conformance with this principle, the following rules will be observed:

1. An employer requesting the use of interstate recruitment facilities will be required to meet the standards promulgated by the Secretary of Labor before acceptance of his order for clearance.

2. Employers requesting interarea recruitment of agricultural workers within the State of New Mexico through Commission offices will be required to provide housing and facilities which are hygienic, adequate to the climatic conditions of the area of employment, reasonably calculated to accommodate the workers who are to be housed therein, and which will not endanger the lives, health or safety of the workers. A local office representative is to ascertain by personal observation that the housing offered the workers to be recruited does conform to these criteria. Where it is not possible to observe the housing and facilities offered prior to clearance of an order, the local office representative must do so as soon thereafter as possible and no order is to be allowed to remain in clearance unless these standards are met. If the housing is not ready at the time the order is cleared, the local office may accept signed assurance from the employer that the housing will meet these standards prior to occupancy. That the housing standards are met is to be confirmed by a local representative before workers depart their home area.

3. In Curry, Roosevelt and Quay Counties a special arrangement has been entered into with the District X Department of Health and Social Services whereby housing to be provided agricultural workers will be inspected and certified by a representative of that agency. The HSS representative will provide the local office a list of prospective employers whose housing has been certified. No out-of-area agricultural workers will be recruited for employers who are not on the list of those having certified housing.

Exhibit H

COOPERATIVE EXTENSION SERVICE

NEW MEXICO STATE UNIVERSITY

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

COUNTY EXTENSION OFFICE

P. O. Box 1353

Roswell, New Mexico 88201

April 30, 1969

Dear Sir:

The Vocational Agriculture Department at New Mexico State University in cooperation with the high schools in the Pecos Valley area are contemplating establishing a vocational training program for potential farm and ranch workers.

This program will be directed toward boys who are not interested in going to college and may not even be interested in graduating from high school. The idea is two fold: One, to upgrade the farm worker so that the farmer and rancher will have a more dependable person to hire and two, the hopes that with training these young men will qualify then for a better position with a farmer than just an ordinary farm or ranch employee.

We are asking that you fill out the enclosed questionnaire and return it in the envelope provided at your earliest convenience.

We particularly ask you to pay attention to the part where we want you to recommend the type training such people would need: That is, are they to be trained in tractor operation, irrigation systems, handling livestock, etc. We would point out also that the training is specifically not designed to make mechanics of these boys. The only area of mechanics would be in preventive maintenance. The course would consist of four and one-half months of daily classroom training under the supervision of a vocational agricultural instructor. The plans at present are to establish this training program in the second semester of the 1969-1970 school year in the high schools if the farmers and ranchers indicate they could use this type of trained individual.

I would like to encourage you to return the questionnaire as soon as possible so that we could compile them and get the information back to the vocational education department at New Mexico State University. Your cooperation will certainly be appreciated.

Very truly yours,

/s/ John J. Chappell
County Extension Agent

Enclosures: questionnaire
envelope

Exhibit H

Pecos Valley Resources Development District

QUESTIONNAIRE TO DETERMINE THE NEED OF ESTABLISHING A VOCATIONAL TRAINING SCHOOL FOR POTENTIAL FARM AND RANCH EMPLOYEES.

(Tabulation of Answers Obtained)

1. Would you hire such a trained person? 83 Yes 11 No

   a.) If yes, how many would you hire? 151

2. Would a trained employee be more valuable to your operation? 82

3. Number of acres in your farm or ranch unit.

   Acres farmed 42,658 Acres grazed 1,403,211

4. How many regular people do you hire that work at least 6 months or more? 621

5. What do you think they need training in? Please check any subject that would be valuable to you:

65	Handling Livestock	
	38	Moving and loading
	25	Shearing
	51	Branding
	41	Dehorning
	51	Livestock diseases
	9	Swine operations
	*	Others, please specify *
69	Tractor operation	
43	Reading equipment manuals	
	41	Plows
	40	Planter
	31	Cultivator
	44	Sprayers (calibrations etc.)
61	Equipment adjustment	
65	Preventive maintenance	
22	Air cooled engines	
46	Harvest equipment	
	56	Balers
	54	Mower and Swather
	23	Combines
	61	Cotton Pickers
	26	Cubers
63	Welding	
55	Farm safety	
55	Irrigation systems	
58	Fence building	
	Other: please list below	

Care of animals
Servicing windmills
Dairy operators
Animal rations
Feed truck operators

Exhibit J

NEW MEXICO STATE EMPLOYMENT SERVICE

NEW MEXICO

FARM LABOR BULLETIN

P. O. Box 1928 ALBUQUERQUE NEW MEXICO Telephone 842-3275

David F. Cargo, Governor | Paul J. Cruz, Chairman-Executive Director | M. R. Salazar, Deputy Director

Bulletin No. 24 October 27, 1969

STATE SUMMARY - Labor shortages were reported in Alamogordo, Albuquerque, Carlsbad, Clovis, Las Cruces, Lovington, Portales, Roswell and Tucumcari. The types of workers needed and wages and perquisites offered are described in the applicable local office summaries. Farm work was at a minimum last week with rains ranging from 1½ to 6 inches occurring in all reporting local office areas. Although the moisture will be generally beneficial, there will be damage to crops not harvested. Work expected to resume when weather permits includes cutting and baling grain sorghum stalks, broomcorn stacking and threshing, grain threshing, fence and windmill repair and harvesting apples, red chili, alfalfa, lettuce, mixed vegetables, potatoes, cotton and hay.

CONGRATULATIONS TO DARREL McCAULEY OF DEMING WHO HAS BEEN SELECTED AS THE STATE'S OUTSTANDING YOUNG FARMER BY THE BOARD OF DIRECTORS OF THE NEW MEXICO FARM AND LIVESTOCK BUREAU. McCAULEY, 24, A NATIVE BORN NEW MEXICAN, OPERATES A FARM ABOUT 13 MILES SOUTHWEST OF DEMING. HE IS THE SON OF MR. AND MRS. HALPIN McCAULEY OF CLIFF, NEW MEXICO.

ALAMOGORDO LOCAL OFFICE - 901 Alaska Ave. - Telephone 437-9210. Current unfilled job openings are for an experienced general farm hand and an experienced nursery worker at $1.30 p/h and 3 cotton pickers at $2.50 per cwt. The general farm hand opening provides housing and utilities at no cost to the worker. No perquisites offered on other openings. Rain received in the Alamogordo area last week totaled 2.10 inches bringing the total for the year to 12.78 inches as compared to 10.32 on the same date last year. Light frosts have been received in the Hondo Valley and nearby mountains. No other frost to date. Apple harvesting has been completed by most growers and the remainder is near completion. There was little activity last week due to the weather.

ALBUQUERQUE LABOR & FARM OFFICE - 1014 Central SW - Telephone 842-3261. Short 2 milking machine operators for employment in the Albuquerque area. The jobs pay $350 p/m. Workers must provide own housing and commute. Rain 3 days last week curtailed agricultural activities in all areas. The apple and potato harvests are nearing completion. The chili harvest will continue for some time. The cotton harvest was among activities delayed by the rain.

ARTESIA LOCAL OFFICE - 704 W. Main - Telephone 746-4803. No labor shortage reported. Rainfall last week ranging from 2.32 inches to 3.62 inches stopped all activities in the area. Main work remaining to be done is harvesting alfalfa and cotton.

CARLSBAD LOCAL OFFICE - 323 S. Halagueno - Telephone 887-1174. Short 20 cotton pickers at $2.75 per cwt. Workers must provide own housing and commute. Rains ranging from 3 to 5 inches were received over the area last week stopping all farm work. The extent of damage to the cotton crop was not known at the time of this report. It is expected the grade of cotton will be lower and some cotton has been knocked out of the bolls.

NOTE — Crop Conditions Change Rapidly - Contact the Nearest Local State Employment Office Before Leaving Area.

CLOVIS LOCAL OFFICE - 909 N. Main - Telephone 762-4571. Short 1 year-round farm hand to work on an irrigated grain sorghum and alfalfa farm. The wage offered is $400 p/m and a 2-bedroom trailer house and utilities are provided by the employer at no cost to the worker. Rains last week brought 3½ inches of moisture to the area and stopped all farm activities. Work remaining to be done includes harvesting grain sorghums, sugar beets and potatoes and baling grain sorghum stalks. Sugar beet harvesting was proceeding rapidly when the rains began. Production of this crop looks very favorable although the sugar content has been disappointing to date.

LAS CRUCES LOCAL OFFICE - 226 S. Alameda St. - Telephone 526-5513. Short 1 tractor operator at $1.40 p/h with no perquisites offered. Heavy rains were received throughout the Mesilla Valley last week slowing lettuce harvest. This activity is expected to last another week to 10 days. Harvesting of cotton and red chili continue and will well into December.

LOVINGTON SUBOFFICE - 201 W. Jefferson - Telephone 396-3656. Short 1 general farm hand at $1.25 p/h with housing furnished and 1 ranch hand with wage depending on experience. Housing would be arranged on this opening. Also short 4 cotton pulling crews at $2 per cwt. with no perquisites. County wide rains reported since October 20 have stopped most work. Moisture received ranged from 6 inches at Lovington to more than 4 inches over the entire county. Rural nonagricultural job openings include: Lovington - Salesman-driver, truck driver, pipeline foreman. Hobbs - electrician helper, roustabout, truck driver, oil well serviceman, gas appliance repairman.

PORTALES LOCAL OFFICE - 300 South Avenue B - Telephone 356-6981. Short 6 year-round farm hands, 1 dairy hand and 1 equipment operator. Wage offered will range from $1 to $1.50 p/h with housing and utilities furnished on all but one of these openings. Outside activities virtually ceased October 21 with receipt of heavy rains ranging from 2 to 4 inches. It is believed that very little additional broomcorn will be pulled. Work remaining to be done includes harvesting sweet potatoes, peanuts, cotton and grain and shocking and stacking feed.

ROSWELL LOCAL OFFICE - 1300 W. Alameda - Telephone 622-3912. Short 1 general farm hand experienced in the operation of a mechanical cotton picker. Wage offered is $1.25 p/h and a 4-room modern house and utilities will be provided. Also short 20 hand cotton pickers. Housing not provided but a crew leader will furnish transportation from Roswell to the job site and return daily. Rains ranging from 3 to 4 inches were received over the area October 21 and 22. It is expected to be the middle of this week before field activities can be resumed. Cotton and hay harvesting will be the main work then.

SILVER CITY LOCAL OFFICE - 410 W. Broadway - Telephone 538-3701. No labor shortage reported. General rains October 18 to 21 stopped crop activities. Moisture received ranged from 1½ to 2½ inches and there was also hail in some areas. Damage to crops is not presently known but may be extensive. The delay in harvesting activities may be as much as two weeks. Remaining work is picking cotton, threshing grain and harvesting miscellaneous vegetables.

TUCUMCARI LOCAL OFFICE - 221 East Gaynell - Telephone 461-2734. There has been a shortage of hay haulers with wages ranging from $1.25 to $1.75 p/h. Most Navajos have returned home although a few remain to haul, thrash and bale broomcorn. Two days of intermittent rain slowed all farm activities during the week.

Exhibit I

EMPLOYMENT SECURITY COMMISSION
NEW MEXICO STATE EMPLOYMENT SERVICE
AFFILIATED WITH UNITED STATES EMPLOYMENT SERVICE
ALBUQUERQUE LABOR & FARM OFFICE
1014 Central Ave. S. W.
P. O. Box 654
Albuquerque, New Mexico 87103

April 11, 1969

Dear Sir:

As we enter another farming season this office desires to be of every possible assistance to you in supplying your farm labor needs.

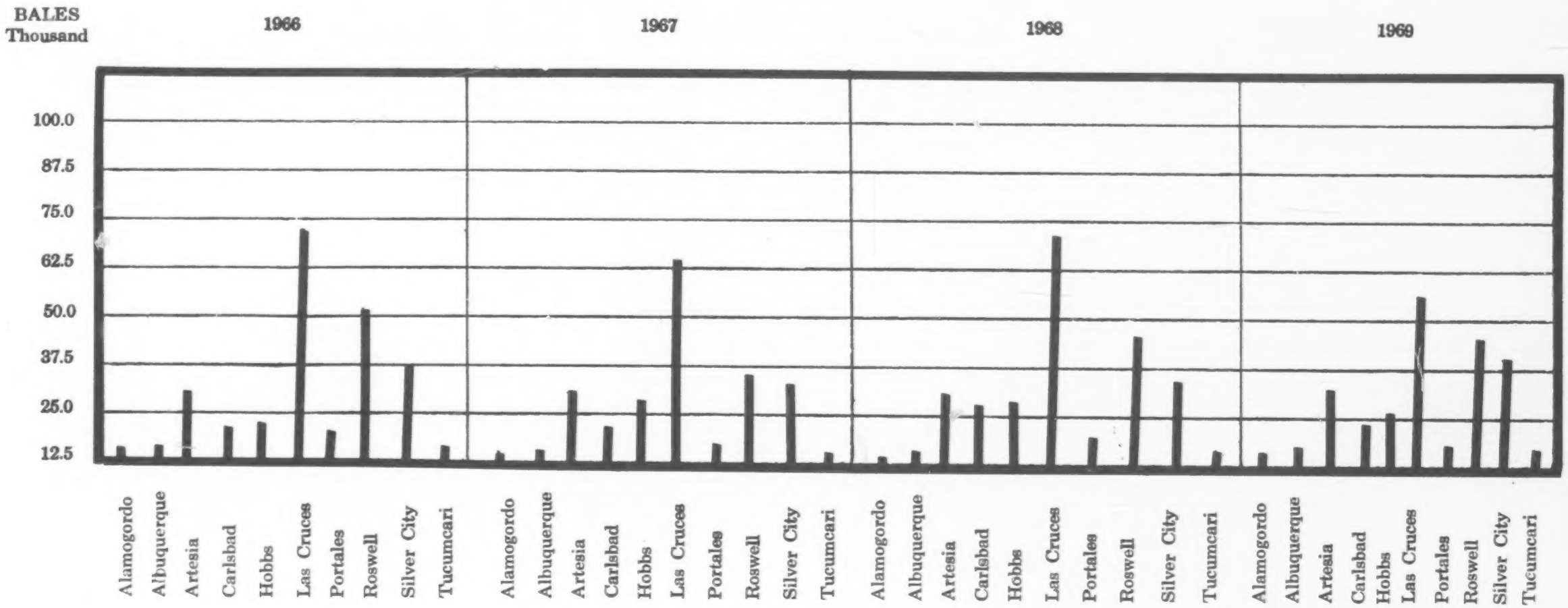
We realize that many times growers in this area need farm hands for only short periods of time. We have been assisting many growers with short-time irrigators, tractor drivers, and general farm hands. If you cannot or do not wish to house your workers, these farm hands can be sent to you on a daily basis.

The Albuquerque Labor and Farm Office wishes to take this opportunity to offer our services which are available at no charge to either the worker or the employer. Feel free to call on us for any information or assistance you may need. Our office hours are from 7:00 a.m. to 5:00 p.m., Monday through Friday. Our telephone number is 842-3261.

Sincerely yours,

C. A. OTERO
Farm Representative

EXHIBIT K



5728

TOTAL BALES GINNED BY AREAS

December 1966		December 1967		December 1968		December 1969	
BALES	173,106	BALES	149,587	BALES	172,978	BALES	159,65
Alamogordo	1,187	Alamogordo	819	Alamogordo	738	Alamogordo	1,04
Albuquerque	1,572	Albuquerque	1,364	Albuquerque	1,007	Albuquerque	1,54
Artesia	16,491	Artesia	16,125	Artesia	16,644	Artesia	18,19
Carlsbad	8,862	Carlsbad	11,513	Carlsbad	14,108	Carlsbad	12,47
Hobbs	12,055	Hobbs	15,470	Hobbs	15,136	Hobbs	13,89
Las Cruces	59,219	Las Cruces	52,466	Las Cruces	59,174	Las Cruces	43,41
Portales	8,180	Portales	5,472	Portales	7,220	Portales	4,58
Roswell	38,084	Roswell	24,254	Roswell	33,445	Roswell	34,564
Silver City	25,062	Silver City	20,843	Silver City	23,151	Silver City	28,528
Tucumcari	1,360	Tucumcari	814	Tucumcari	1,636	Tucumcari	1,113

EXHIBIT L

FARM LABOR AND RURAL MANPOWER SERVICE

Local Office	Farm Activities Jan.-Dec. 1969				Rural Manpower Service Aug.-Dec. 1969					
	Refs.	Local Plcmts.	Appl. Accpts.	Emp. Visits	Refs.	Local Plcmts.	Appl. Accpts.	Emp. Visits	Prom. Tel. Contacts	Openings Received
Alamogordo	74	41	0	9	4	1	0	3	0	1
Albuq. F&L	466	374	75	345	0	0	0	10	0	0
Artesia	746	662	17	359	5	0	0	52	3	4
Carlsbad	524	473	0	486	8	4	4	26	1	8
Clovis	495	288	0	98	0	0	0	6	0	0
Espanola	140	92	42	34	127	81	7	32	10	148
Farmington	1842	178	1703	17	235	128	0	42	2	139
Gallup	1387	0	1331	0	0	0	0	0	0	0
Grants	4	0	0	0	0	0	0	0	0	0
Hobbs	632	325	0	124	337	111	0	26	8	164
Las Cruces	1155	22115	0	453	166	113	0	8	3	127
Las Vegas	125	20	97	21	160	115	0	89	66	204
Lovington	319	148	0	302	114	31	0	45	14	61
Portales	4333	2882	0	112	0	0	0	8	0	0
Raton	636	634	0	36	7	6	0	60	6	8
Roswell	491	216	0	346	3	1	0	7	0	1
Santa Fe	11	10	4	4	4	0	0	6	4	1
Silver City	27	764	0	197	62	22	0	39	0	31
Taos	7	0	6	0	16	11	0	11	0	11
Tucumcari	320	776	2	114	3	2	0	2	5	4
TOTAL	13734	29998	3277	3057	1251	626	11	472	122	912

VT 012 693
Work Oriented Curriculum Project.

Montgomery County Public Schools, Rockville, Md.
Vocational Rehabilitation Administration (DHEW), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
6903
PUB DATE - Sep69 5p.

DESCRIPTORS - *HANDICAPPED STUDENTS; *WORK EXPERIENCE PROGRAMS; *SECONDARY SCHOOL STUDENTS; PROGRAM EVALUATION; EMPLOYMENT PATTERNS; *VOCATIONAL FOLLOWUP; *EDUCATIONAL INNOVATION
IDENTIFIERS - WORK ORIENTED CURRICULUM PROJECT

ABSTRACT - This work experience program demonstrated the effects of extending vocational support for handicapped students from a 2-year program into all four years of high school. The 131 enrollees were matched against a comparison group of students from regular school programs beginning in Grade 10. Enrollees were found to have lower dropout rates, higher employment rates, and comparable social adjustment. (BH)

VT 012 693

ED0 57254

MONTGOMERY COUNTY PUBLIC SCHOOLS
Rockville, Maryland

Homer O Elseroad
Superintendent of Schools

Samuel M. Goodman
Director of Research

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

Number 6903

September, 1969

WORK ORIENTED CURRICULUM PROJECT*
(WOC)

Early initiation of on-the-job experience plus a work-oriented, in-school program to benefit handicapped students were the major ingredients of the WOC project. It was a study designed and conducted by the Department of Research to demonstrate the effect of an innovative curriculum aimed at introducing students to and immersing them in the "world of work" beginning in the 9th grade. Vocational support has often been provided for handicapped students in the last two years of high school but WOC increased and extended such support into the 9th and 10th grades. After participating in the WOC program from the 9th through the 12th grades, most of the handicapped students had had a successful work experience when they were interviewed six months after graduating from high school.

WOC WAS INNOVATIVE IN CURRICULUM

The center of interest in the WOC curriculum was the "world of work" and the relationship of the WOC student to it. The WOC curriculum was unlike any of the special vocational programs already in existence. It stressed a pervasive work-oriented educational experience during all four high school years which extended out of the classroom into work assignments and field experience. They were combined with in-school activities to create a unique, total work environment in an educational setting. The ultimate goal of the project was to give the student confidence in his ability to achieve, a means to earn his own living and a chance to gain satisfaction from his work.

The curriculum was designed to lead students through a series of experiences which would give them an understanding of the "world of work" and their place in it. Each year of the program had a specific orientation and emphasis. These were:

9th Grade – Employee Oriented Curriculum Topics
10th Grade – Industry Oriented Curriculum Topics
11th Grade – Skill Oriented Curriculum Topics
12th Grade – Curriculum Topics Oriented Toward Work in the Total Life Pattern

*WOC was conducted under a five year grant from the Vocational Rehabilitation Administration of the Department of Health, Education and Welfare.

VT012693

WOC WAS INNOVATIVE IN EXPERIENCE PROVIDED

The work experiences for each year of the program were planned around the curriculum topics for that grade. The experiences were sequenced so that student participation and responsibility would increase as the program progressed. This was the sequence of experiences.

9th Grade – Employee-oriented field observations on two half days per week. Jobs were changed every six weeks. (Unpaid)

10th Grade – Industry-oriented field observations on three half days per week. Jobs were changed periodically. (Unpaid)

11th Grade – Skill-oriented paid job assignments five half days per week. Students changed jobs periodically.

12th Grade – Work-in-total-life-pattern paid job assignments five half days per week. Students were placed in jobs of a more responsible nature than they were in 11th grade.

WHO PARTICIPATED IN WOC?

All students enrolled in this demonstration project were technically classified as either physically, emotionally or mentally handicapped as defined by the Division of Vocational Rehabilitation of the Maryland State Board of Education. The participating students were drawn from among all handicapped students in Montgomery County and represented proportionally all types of handicaps in the system.

Since only 150 students were to be included in WOC, classes were held in five schools located near large employment centers in the county. Students were transported by school bus to the schools and to and from their job assignments.

WOC teachers were carefully selected for participation in the project and had these special qualifications:

- A student-oriented outlook.
- Belief that a vocational curriculum is as worthwhile as an academic curriculum.
- Ability to work effectively with students having negative attitudes.
- Ability to translate student-oriented outlook into classroom practices.

Students began the WOC program in 9th grade. For research purposes, in the 10th grade, WOC students were matched with students from regular school programs on sex, age, school attended, and measured IQ. The matching group of students were used as a standard against which the WOC students were measured and will be called the non-WOC comparison group.

WHAT HAPPENED AFTER PARTICIPATION?

Since WOC was a program for students with handicaps, the enrollees were usually characterized by negative attitudes toward school, poor interpersonal skills, low levels of aspiration and were specifically handicapped. In other words, they had little motivation to succeed and were potential dropouts with little hope for successful occupational experiences. The WOC and non-WOC students were not matched by specific disability or personality problem because the non-WOC comparison students were drawn from among normal students who were low achievers but did not have handicaps or personality problems. Therefore, the non-WOC students had an advantage over the WOC students in these respects.

Here's how the WOC students and the non-WOC students compared in the 10th grade when the program had been underway for only a year.

10th Grade Group Characteristics

	WOC Group (N=131)	Non-WOC Comparison Group (N=130)
Males	95	94
Females	36	36
Mean IQ Scores	83.56	84.91

Students in the non-WOC group were not given any special help or training in high school other than that common to the program in which they were already enrolled. WOC students were given intensive aid through:

A special curriculum stressing knowledge and skills needed to adjust to people, situations and procedures in the business world.

Work experience ranging from observations of business procedures to paid work assignments under supervision of their teachers.

Placement in jobs located by research staff on an individual basis, where it was judged each student would be successful.

Social and medical services to provide help in job adjustment, solution of problems, prevent school withdrawal and evaluation of physical condition.

After the WOC program was completed a follow-up survey was made to see how the handicapped WOC students compared with the comparison group of non-WOC students.

Group Graduation Characteristics

	WOC Group (N=131)	Non-WOC Comparison Group (N=130)
Graduated	102*	93
Still in school	1	5
School dropouts	27	27
Other	1	5

*89 students graduated from high school in the WOC program. 13 students graduated in other types of programs.

Attempts were made to interview all of the WOC and non-WOC comparison students who could be located. A total of 159 students was interviewed of which 105 were WOC students in the 10th grade and 54 were non-WOC. Seventy-eight WOC graduates and 39 non-WOC comparison group graduates were interviewed. Interviews were not conducted with the remaining 102 students because 38 were in the armed forces, 34 were not located, 26 were full-time students and 4 refused to cooperate. The interviews focused on three areas of adjustment.*

Education and Training – Twelve of the 89 WOC graduates were enrolled in a part-time formal training program six months after leaving high school. Of the non-WOC group graduates, 29 were involved in a formal training program with 25 going to school full-time. Most of these were in a junior or four-year college program and a large number were having academic difficulties. Future enrollment in a formal training program was planned by 46 per cent of the WOC graduates and 57 per cent of the non-WOC group. Both groups of students felt that a high school diploma was important in getting a job. WOC graduates felt that what they had learned on jobs while in school was of more help in their present jobs than what they had learned in classes. Comparison group graduates felt the opposite – that classroom learning was more helpful than job learning.

*All percentages reported are based on responses by the 78 WOC graduates and the 39 non-WOC comparison group graduates who were interviewed.

Social – WOC graduates and comparison graduates were 53 per cent and 54 per cent self-supporting, respectively. Very few – ten per cent of the WOC interviewees and seven per cent of the non-WOCs – reported conflict with legal authorities involving moving traffic violations.

Vocational – Of the graduates, 85.9 per cent of the WOC group and 77.5 per cent of the comparison group were employed. Hourly wages averaged $1.79 for the WOC group and $1.85 for the non-WOCs. Most of the WOC graduates (67 per cent) and the non-WOCs (93.5 per cent) had jobs in the semi-skilled area which includes such jobs as clerk, stock clerk, and helper.

These results indicate that WOC students despite their handicaps were as successful as the non-WOCs in terms of financial independence, job adjustment and general social adjustment.

HOW DID EMPLOYERS FEEL ABOUT WOC GRADUATES?

Employers of the interviewed WOC and non-WOC comparison group graduates were interviewed to obtain another view of vocational success and job satisfaction. Employers evaluated the graduates on Work Attitudes and Social Characteristics. WOC and non-WOC graduates were rated equally positive in their attitudes towards work and in their ability to get along with supervisors and co-workers. The WOC graduates were somewhat less successful than the non–WOCs in their interpersonal relations.

SUMMARY OF FINDINGS

Out of a group of 131 WOC students, 102 graduated from high school while only 93 of 131 non-WOC comparison students graduated. Since students were selected for WOC because they had either a single handicap or multiple handicaps which foreshadowed failure in academic work and difficulty in adjusting to the adult world of work, the WOC program can be considered to be a success. The increasing number of success experiences which the WOC students encountered during this participation in the program apparently diminished the effects of their handicaps so that they were able to become self-sufficient and useful members of the community.

The WOC project illustrates the role of research in promoting and evaluating innovation. The program has earned a place in the curriculum as an integral feature of the secondary school program and is currently operational in a number of Montgomery County schools.

VT 012 710
Powell, Phillip E.
Attitude Testing for an Experimental Junior High School Course in Economic Education and Manpower Development. Technical Paper #1.

Ohio Univ., Athens. Center for Economic Education.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Feb67 23p.

DESCRIPTORS - *ATTITUD TESTS; *JUNIOR HIGH SCHOOL STUDENTS; *LABO. ECONOMICS; TEST VALIDITY; EDUCATIONAL INNOVATION; CHANGING ATTITUDES; *TEST CONSTRUCTION; TESTING PROBLEMS

ABSTRACT - This 165-item attitude test covering occupational opportunities and labor market processes was developed to measure attitude changes among junior high school students enrolled in an experimental course on labor economics. The five types of attitude test questions used in the test, including scaled choice, ranking, checking, and limited and unlimited multiple choice, were evaluated in terms of their accuracy and ease of administration, with the scaled choice type of question receiving the most favorable evaluation. A summary table of the test question evaluation, a sample questionnaire, answer sheet, and bibliography are appended. (BH)

VT 012 710

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CENTER FOR ECONOMIC EDUCATION

COLLEGE OF BUSINESS ADMINISTRATION - OHIO UNIVERSITY

Technical Paper #1 "Attitude Testing for an Experimental Junior High School Course in Economic Education and Manpower Development"

(Phillip E. Powell, Oct. 1966, rev. Feb. 1967)

I. INTRODUCTION

Rationale. Identification of student attitudes, and measurement of attitude changes that are associated with participation in the experimental course, are important aspects of the overall evaluation of the Project. Since no suitable instrument is known to exist for measuring student attitudes relative to the world of work, it will be necessary for our staff to develop appropriate instruments. To provide background information and understanding for this task, a review of the literature was made, problems of test validity and procedure were identified, and some possible approaches were suggested.

Scope. This report is a tentative survey of some of the problems involved in preparing attitude testing instruments for the Project. Suggestions on how these problems could be solved are also presented. The report contains the following:

-- Discussion of the purpose of the attitude questionnaire;

-- Analysis on how genuine responses can be obtained from the students;

-- Survey of commercially produced instruments for measuring vocational interests and attitudes, psychological or personality factors, and value orientations;

-- Evaluation of the different types of questions that could be used for measuring attitudes;

-- Sample attitude questionnaire containing different types of questions and suggesting some of the attitudes the Project is interested in measuring;

-- Sample answer sheet for the attitude questionnaire;

-- Selected bibliography of sources consulted by the writer in preparing this paper.

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Terminology. Four terms or phrases are used in this paper that require explanation in order to achieve clarity in exposition. The terms are:

-- "Attitude Testing." Attitude testing is different from achievement testing; attitude questions are not fact questions. They are questions that do not have right and wrong answers. Attitude testing involves the measurement of a person's feelings or opinions toward a given object. These views or opinions are tendencies toward approval or disapproval and may or may not be based on facts.

-- "Questionnaire." The term "questionnaire" will be used instead of test when referring to the actual attitude measuring instrument. The reason for this particular use of the term is threefold. First, this measurement device is a written instrument the purpose of which is to elicit genuine attitude responses. ("Genuine response" is defined below.) It is not designed to measure the presence or retention of information. To many people, the term "test" implies a measuring of knowledge. Thus, the use of the term questionnaire was chosen to help clarify the scope of the measuring instrument. Second, the use of the term questionnaire should also help in eliminating the idea that there are right and wrong answers. The term "test" frequently implies that there are predetermined standards of correctness for the responses that will be given. Third, the use of the word questionnaire rather than "test" is also preferred in that it should help to reduce anxiety and make it possible for the students to give more accurate answers.

-- "Evaluation." Evaluation in this report will refer to end results of the assessment or appraisal process in establishing the worth or value of an undertaking. The process which leads to evaluation involves establishing the validity (usually in statistical terms) and the relevance or usefulness. The term evaluation will not be used as a synonym for measurement. Measurement is viewed as the means and evaluation is seen as the end of the appraisal process.

-- "Measurement." Measurement refers to the instruments and procedures used to achieve an evaluation. It makes use of written instruments--objective and subjective and personal and impersonal--and observations and interviews.

II. PROBLEMS AND SOLUTIONS

1. What is the purpose of the attitude questionnaire?

The first problem that an attitude questionnaire writer faces is the need to define clearly the purpose of the instrument he is preparing. The function of the questionnaire is the decisive factor in determining the nature and construction of the measurement instrument. The function of the attitude questionnaire being prepared for the Project is threefold: First, to determine as accurately and completely as time will allow the attitudes

of the students involved toward the value questions that the Project is concerned with. Second, to make possible a correlation analysis between the attitude evaluation and content of the instruction evaluation. Thirdly, to be able to accomplish the first two objectives of both a before- and after- instruction basis.

2. How do you get genuine responses from the students?

Another basic problem in developing attitude measurement instruments is how to elicit genuine responses from the students who will answer the questionnaire. "Genuine reponse" means responses that are honest, accurate, and thoughtful. Factors such as types of question, time allotted for test, teacher and test instructions, and student's honesty with himself and those who will evaluate the questionnaire affect the validity of the attitude questionnaire.

A. Honest and accurate responses. If valid results are going to be achieved from the Project's attitude testing program, it is absolutely essential that the student give honest and accurate answers to the questionnaire and that these answers be arrived at quickly. The attitude questionnaire may fail to evoke honest and accurate responses because of the following situations or circumstances:

1) Confusion in the student about what it is that the question is asking;

2) An unwillingness or inability on the part of the student to disclose his true attitudes;

3) Lack of knowledge by the student of what his attitude is toward a given area covered by the questionnaire;

4) Student's fluctuating or wavering attitude orientation;

5) Inability of student to identify the answer on the questionnaire that is the right one for his particular belief.

There are a number of common-sense procedures which can be implemented to encourage and ensure relative, if not completely, honest and accurate answers by the students. The steps which would improve the credibility of student responses are:

1) The questionnaire can be constructed so that the same attitude is measured several times by changing the terminology, phraseology, or form of the question. These measures will help in solving any confusion that may exist about any one question by offering the student one or more alternative opportunities to express his point of view. This arrangement should also make it possible to measure the consistency of any student's responses.

2) A careful choosing of the words with which the attitude is expressed on the questionnaire, with appropriate vocabulary for the students and avoiding sophisticated technical terms, will help to avoid confusion over the questions. Logical question construction and the pre-testing of the questionnaire items will also assist in clarifying the nature of the questions.

3) The creation of a classroom atmosphere that stimulates active discussion and debate will encourage students to disclose their personal attitudes.

4) If the teacher emphasizes the need for self-analysis, and the lack of right and wrong answers on the questionnaire, this will also assist in the obtaining of accurate attitude measurement.

5) The answers of the student who doesn't know exactly how he feels toward a given circumstance or situation described in the questionnaire and/or who has an attitude which changes from time to time, can be more accurately evaluated by adopting the following techniques and procedures:

a) discuss the types of questions that will be used and in a general fashion the subjects that will be covered on the questionnaire;
b) encourage a reflective atmosphere in the classroom;
c) allow adequate time for answering the questionnaire;
d) provide for an uncertain type of answer on the questionnaire and allow a graded response instead of a mere yes-or-no or true-or-false answer; and
e) include written instructions on the questionnaire explaining that the student should respond in a way that describes how he feels "most of the time."

B. Thoughtful responses. To achieve valid results it is necessary to conduct the testing program in a situation which will encourage reflective participation. Thoughtful responses by the students to the attitude questionnaire will not occur automatically, but must be carefully planned. However, only a limited amount of time can be devoted to attitude testing because of the need to maintain student interest and the fairly rigid scheduling of classes found in junior high schools. These students find it difficult to concentrate on a single activity for a long period of time. Thus a two-hour attitude test, in one sitting, would not bring as valid results as two tests, each one hour long.

Ideally, the Project's attitude questionnaire should be constructed so that it could be completed in a 30-35 minute span of time. Student interest in the attitude questionnaire can be encouraged by clever construction of the measurement instrument and creation of a proper testing atmosphere, perhaps with a member of the Project's staff present in the classroom. Partitipcation of one of the staff members in explaining the purpose of the Project before administering the questionnaire might help create interest in the questionnaire. The orientation that the Project staff members gives the

student before passing out the questionnaire would stress that the questionnaire is not a "test" in the usual sense of the term and thus there are no right and wrong answers. The Project representative will also tell the students that their answers will be kept completely confidential. These instructions should help create more interest in the questionnaire and reduce the anxiety that is normally part of the testing situation.

III. AVAILABLE MEASUREMENT INSTRUMENTS

A survey of the commercially produced instruments for measuring vocational interests and attitudes, psychological or personality factors, and value orientation suggests that these inventories will be of limited value for this Project. There appear to be no significant differences among the various vocational interest inventories even though their form and format may differ somewhat. These inventories primarily are oriented toward helping the student identify a number of different occupations that are appropriate for the interests he has indicated. Two of the more widely used inventories of this type are the vocational form of the Kuder Preference Record and the Lee-Thorpe Occupational Interest Inventory. Inventories of this type measure only a few of the attitudes the Project is interested in, and the use of these inventories in essence would duplicate the work traditionally performed by school guidance personnel.

The commercially produced psychological or personality inventories which were examined would not be of value in the Project. While there are greater differences among these personality inventories than among those measuring vocational interests, no instrument seems to be directly concerned with the attitudes of chief concern in the Project. The only value inventory that the author's search in the files of the College of Education discovered was A Study of Values by G. W. Allport and Associates. This particular measurement device is not designed for junior high school students, is not basically concerned with attitudes of interest to the Project, and therefore would prove to be of no use in our evaluation.

Economic education surveys of junior and senior high school students, conducted by Opinion Research Corporation, contain some attitude items; but they are not useful for measuring the attitudes and values that interest the Project. Science Research Associates' Tests for Economic Understanding, the best known of several economic knowledge tests, is an instrument for assessing the understanding of economic concepts and practices and is not designed to measure attitudes.

IV. SAMPLE QUESTIONNAIRE ITEMS AND PROCEDURES

Types of questions and responses. Appendix A is a summary table that represents the writer's evaluation of the effectiveness or desirability of using certain types of items on the attitude questionnaire. Five possible types of items were considered for inclusion in the questionnaire. These are found on the left hand side of the summary table (lines A, B, C, D, E).

Each type of question was rated in terms of ten characteristics which the writer thought to be desirable in terms of the stated objectives of the attitude testing. These characteristics are the items at the top of the table (designated by Roman numerals, I through X).

The rating method consisted of giving the type of question that had the greatest degree of each of the ten characteristics a rating of 1 (best) and so forth to 5 (worst) for the type of question with the least amount of the characteristic being measured. Column XI is the overall evaluation of the types of questions. The lower the number rating of the type of question, the better its overall evaluation. The actual number is an arithmetic mean average. In all but two cases -- the limited multiple choice and scaled choice -- the overall rating represents an evaluation of the type of question in nine of the characteristics. The characteristic of column II ("Single response for easy correlation analysis") was applicable only to two types of questions and thus was not figured in the averaging of the other three types of questions.

The results of this evaluation lead the writer to favor making use of the <u>scaled choice</u> type of question. This type of question might have from three to five answers. The answers could be stated in the following terms:

1. Agree, undecided, disagree.
2. Strongly agree, tend to agree, tend to disagree, strongly disagree.
3. Strongly agree, tend to agree, undecided, tend to disagree, strongly disagree.

The writer favors alternative 2 (the fourfold answer) if it is decided that a basically "either-or" type of response is preferred. If this type of response is not mandatory, then the writer would prefer the fivefold type of answer, which gives the student the option of marking "undecided."

<u>Instructions and sample questions</u>. Appendix B provides sample instructions and representative items that could be used for constructing the attitude questionnaire. The sample questionnaire also gives an idea of some of the attitudes and values that the Project is interested in measuring. Representative items are listed for each of the five types of questions examined in Appendix A. The sample questionnaire is organized so that many of the same values are presented by different types of questions. The scaled-choice items are numerous enough that some values are presented in more than one question. Those questions (e.g., #158) designed to measure attitudes toward something in a field of inquiry such as the occupational structure of the U. S. economy, were written to include a good sample of representative items. An attempt was also made to present items with which students would be familiar. The terminology used in the instructions and questions was chosen so as to be as simple and self-explanatory as possible.

<u>Type of answer sheet</u>. An answer sheet separate from the question booklet is recommended for the attitude questionnaire. One possible type of answer sheet which could be used is the 150-item answer sheet IBM 1230

Document No. 505. This answer sheet (see Appendix C) has space for five possible answers to each question and could be used for the type of questions found in Parts I through III of Appendix B. It can be scored by the IBM 1230 Optical Mark Scoring Reader and data cards can be punched automatically from an adjoining programmed IBM 534 Card Punch machine. These data cards can be used for item analysis.

A Selected Bibliography of sources used in the preparation of this report is attached at the end of this document.

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APPENDIX A

AN ANALYSIS OF TYPES OF ATTITUDE QUESTIONS AND THEIR CHARACTERISTICS*

TYPES OF QUESTIONS:	CHARACTERISTICS: Easily machine graded (I)	Single response for easy correlation analysis (II)	Easy for test writer to prepare (III)	Makes it possible for student to make graded distinctions (IV)	Students can answer quickly (V)	Encourage student thinking (VI)	Students will easily understand questions (VII)	Easy to correlate between attitude & content questions (VIII)	Answers will make possible significant statement by experimenters (IX)	Degree to which students' own opinions will be measured (X)	Overall Rating (XI)
A. Limited Multiple Choice	2	1	5	5	1	5	1	1	5	5	3.1
B. Unlimited Multiple Choice	4	-	4	2	4	2	4	4	3	3	3.3
C. Checking	3	-	3	4	3	4	3	3	4	4	3.4
D. Ranking	5	-	2	1	5	1	5	5	1	1	2.9
E. Scaled Choice	1	1	1	3	2	3	2	2	2	2	1.9

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* This appendix represents the writer's evaluation of certain types of items on the attitude questionnaire. The types of items considered for inclusion in the questionnaire are found on the left hand side of the summary table (lines A, B, C, D, E). The ten characteristics which the writer thought to be desirable in terms of the stated objectives of the attitude testing, are identified by the Roman numeral items I through X at the top of the table. Column XI is the overall rating (arithmetic mean average) based on the system of giving a 1 ("best" rating) to that type of question which has the greatest degree of each characteristic and so forth down to 5 ("worst" rating) for the least desirable type.

APPENDIX B

SAMPLE INSTRUCTIONS AND QUESTIONS FOR AN ATTITUDE QUESTIONNAIRE*

"Occupational Opportunities and Labor Market Processes"

GENERAL DIRECTIONS: The statements that follow are about a wide variety of topics. As you read each statement you should indicate on the separate answer sheet you have been provided the response that best represents your attitude. If possible, please respond to every statement unless you are unable to understand it. People have different reactions to the statements included in this survey. This is not a "test" and there are no right or wrong answers. What is wanted is your own personal reactions to the statements that are in the survey.

PART I: SCALED-CHOICE

DIRECTIONS: For each of the following items you will indicate the degree to which you agree or disagree with the statement. Since it is desired that you indicate a preference one way or another, no opportunity is provided for choosing a neutral position even though you may prefer to remain undecided. You will mark your answer sheet as follows:

A. If you strongly agree or accept the statement.

B. If you tend to agree or accept the statement.

C. If you tend to disagree or reject the statement.

D. If you strongly disagree or reject the statement.

1. The greater the amount of formal education you receive, the higher your income should be.
2. A married couple who have no children should not be forced to pay taxes which support public education.
3. All work which is legal is of equal value in the contribution it makes to the community's welfare.
4. Luck plays an important role in determining whether one gets a good job.
5. Most people are hired for a job because they have "pull."
6. Honest labor in any legal occupation should receive the praise of society.
7. The qualifications needed to be hired for a job differ from job to job.
8. Some jobs contribute more to the community's welfare than others.
9. It will be more difficult for me to get a good job than it was for my dad.
10. All jobs should be open to qualified applicants regardless of race, creed, religion, or national origin.
11. The federal government should guarantee everyone a minimum standard of living.
12. Higher wages or salary for workers are beneficial for the economy whether or not the workers actually produced more goods and services to earn the additional income.
13. The federal government should guarantee everyone a job that provides them with a minimum standard of living.
14. Workers with more education deserve higher incomes than those with less education.

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* This appendix provides sample instructions and representative items that could be used on the questionnaire. The sample questionnaire also illustrates some of the particular attitudes and values that the Project is interested in measuring.

15. All income received by Americans should be earned through making some type of contribution to the production or distribution of goods or services.
16. In the American economy, there is a direct relationship between the income the worker receives and the amount of physical and/or mental energy he puts into his job.
17. Our economic system should permit people to obtain income by any legal means.
18. Labor unions provide their members with a higher standard of living than they would be able to achieve if there were no unions.
19. In our economy, workers are paid according to their contribution to producing or distributing a good or service.
20. The wages and salaries received by American workers have little to do with how much profit the business they work for earns.
21. It is wrong for business firms to layoff employees.
22. Once a worker has been with a firm for several years, he should not be subject to being fired.
23. An employee should be expected to constantly be improving his knowledge about his job.
24. An employer is right in expecting that his employees will move to a new community if he asks them.
25. When one worker in a factory or office gets a pay raise, all the other workers should get identical raises.
26. A worker should be able to quit his job at any time without giving his employer any prior notice of his intention to quit.
27. Not working as hard as you can on the job is alright, if you don't get caught by your supervisor or employer.
28. Employers should not expect their employees to work at their maximum level of efficiency all the time because they will soon get tired.
29. When a business moves to another town the employees should also be willing to move.
30. Employers should expect their employees to constantly try to improve their performance on the job.
31. Skilled workers should be paid more than unskilled workers.
32. Most American workers are not paid as much as they deserve.
33. Promotions in American business often depend on who you know, not what you know.
34. The fairest method of paying a worker is to pay him in terms of what he contributes to the output or production of the firm.
35. All workers should receive the same pay for doing the same type of work.
36. Spending money for education is like spending money for any consumer items such as clothes, cars, radios, and food.
37. Those people who really want a job can always find one.
38. "Ye have the poor always with you." New Testament: Matthew XXVI, II
39. "When you're through changing, you're through." Bruce Barton
40. "There is no place in civilization for the idler. None of us has any right to ease." Henry Ford
41. "Work consists of whatever a body is obliged to do, and play consists of whatever a body is not obliged to do." Mark Twain in The Adventures of Tom Sawyer, Ch. II.
42. "A wise man will make more opportunities than he finds." Francis Bacon
43. "A man who qualifies himself well for his calling never fails of employment." Thomas Jefferson
44. "No one knows what he can do till he tries." Publilius Syrus
45. "Everything comes to him who hustles while he waits." Thomas Alva Edison in Golden Book
46. "No business which depends for existence on paying less than living wages to its workers has any right to continue in this country." Franklin D. Roosevelt

47. Automation is good for America and ought to be encouraged.
48. The physical and mental effort and extra expenditure of money required to go to college do not make it a worthwhile activity.
49. College graduates get the good jobs in our society.
50. Changes such as technological, in our economy, that cause people to lose their jobs are bad.
51. Only those students who go on to the colleges or the universities will get the good jobs that will be available in the future.
52. What is good for the American worker is good for the American economy.
53. A married worker with a family should be paid more than a single worker.
54. In a large company, with many employees, whether an individual works to his capacity or not is not very important.
55. If everyone doing the same job gets paid the same, whether you work harder is not important.
56. A student should be allowed to drop out of school if he wants to.
57. All students should have the opportunity to go to college or get technical training whether or not their parents have the money to send them.
58. To be a leader in our social, political, or economic life, one should go to a college or university.
59. Additional training beyond high school, whether it be college, technical school, business school, armed forces service school or something else, should qualify one for one of the good jobs in our economy.
60. The leaders of tomorrow will be trained in the colleges and universities.
61. Professional workers such as doctors and lawyers are entitled to more prestige than skilled blue collar workers such as brick masons and tool and die makers.
62. The work of skilled workers such as carpenters is just as important to society as that of a doctor.
63. The taxpayers in our community get their money's worth out of our school system. or The taxpayers in our community get a fair rate of return on the money they have invested in education.
64. More, rather than less, schooling and/or training than now, will be required to get the higher paying jobs that will be available when our class graduates from high school.
65. Much of the taxpayer's money that is spent on supporting public education is wasted.
66. It is better to spend tax money on paving streets or clearning up the parks since all the people, not just the students, benefit from these types of expenditures.
67. The employer is entitled to receive from his employees a honest day's labor.
68. The standard of living that a family enjoys should not be dependent on the amount of income received by the workers in the family.
69. Each family ought to be able to enjoy a standard of living that is based on their needs and not one based exclusively on their income.

PART II: LIMITED MULTIPLE CHOICE

IIa

DIRECTIONS: Pick the one statement or word which best expresses your attitude and put the corresponding letter on your answer sheet.

70. When there are a large number of American workers unemployed, the United States government should

    a. do nothing, as government intervention is wrong.
    b. intervene indirectly in the situation by adopting those fiscal and/or monetary policies which will tend to bring about the needed corrective action.
    c. do nothing because the unemployment problem will solve itself in the long-run.
    d. intervene directly by putting the unemployed to work on government operated projects.

71. Which of the following most closely fits your idea of what constitutes earned income?

    a. Any income obtained as the result of personal effort.
    b. Any income obtained as the result of personal effort exerted in accordance with the existing laws and customs.
    c. Any income obtained in accordance with the existing laws and customs whether personal effort is exerted or not.
    d. Any income obtained in accordance with existing laws and customs provided these laws and customs are in keeping with the general welfare.

72. Which of the following represents the best expenditure of tax money?

    a. Build apartments for low-income families in an urban renewal area
    b. Build parks
    c. Build roads and public parking lots
    d. Build schools

73. Who makes the greatest contribution to the community's welfare?

    a. Factory worker
    b. Teacher
    c. Policeman
    d. Businessman

IIb

DIRECTIONS: Identify those occupations below in terms of whether you think they will be characterized in the future (10 years or more) by no change, some change, or great change, in the nature of their duties. Use "A" to represent no change, "B" some change, "C" great change in the occupations in the future. Mark your answer sheet by putting "A", "B" or "C" by each of the numbered items.

74. Architects
75. Policemen
76. Lawyers
77. Teachers
78. Bankers
79. Accountants

80. Economists
81. Clerks
82. Ministers
83. Soldiers
84. Musicians
85. Cab drivers
86. Farmers
87. Waiters & waitresses
88. Janitors
89. Mechanics
90. Welders
91. Librarians
92. Beauticians

IIc

DIRECTIONS: Identify those industries below in terms of whether you think they will be characterized in the future (10 years or more) by no change, some change, or great change, in their organization and operations. Use "A" to represent no change, "B" some change, and "C" great change in the industries in the future. Mark your answer sheet by putting "A", "B", or "C" by each of the numbered items.

93. Aircraft, missile, & spacecraft industry
94. Garment industry
95. Electric power industry
96. Iron & steel industry
97. Automobile industry
98. Furniture industry
99. Rubber industry
100. Aluminum industry
101. Glass industry
102. Plastic industry
103. Copper industry
104. Construction industry
105. Food processing industry
106. Oil industry
107. Mining industry

PART III: UNLIMITED MULTIPLE CHOICE

IIIa

DIRECTIONS: Below is a list of economic activities or situations which will effect you in one or more of the economic roles you play as a producer, consumer, and citizen. Identify which one or ones of these roles corresponds to each activity or situation by responding "A" for Producer, "B" for Consumer, and "C" for Citizen on your answer sheet. You may have more than one answer.

108. Higher prices of certain food items
109. A reduction in spending by the national government
110. Demand of migratory farm workers that they be guaranteed a minimum wage
111. An announcement by General Motors that new car prices will be about $200 greater next year than this year
112. An announcement that the United Steel Workers will strike unless the steel companies meet their demands for higher pay
113. The discovery of a new type of fertilizer which it is said will increase the yield of wheat crops by fifty per cent.

IIIb

DIRECTIONS: Suppose you are the personnel manager of a large industrial firm like General Motors, which of the following character and personality traits would you consider absolutely essential for a young man or woman who was applying for one of the following jobs: machinist, secretary, accountant? Answer "A" for machanist, "B" for secretary and "C" for accountant on your answer sheet. You may have more than one answer.

114. Just or fair
115. Honest
116. Dependable
117. Energetic
118. Sensitive
119. Cheerful
120. Imaginative
121. Orderly
122. Responsive
123. Friendly
124. Careful of property
125. Patriotic
126. Religious
127. Fearless
128. Punctual
129. Courteous
130. Patient
131. Rational

IIIc

DIRECTIONS: The following are a list of personality and character traits. Identify those traits that you believe are most likely to be found among either employed or unemployed workers. Use "A" to identify employed workers and "B" to identify unemployed workers. If you believe that a personality or character trait is found among both employed and unemployed workers, you may answer "A" and "B" on your answer sheets.

132. Just or fair
133. Honest
134. Undependable
135. Argumentative
136. Energetic
137. Absent-minded
138. Sensitive
139. Cheerful
140. Reckless
141. Unimaginative
142. Disorderly
143. Responsive
144. Friendly
145. Careless of property
146. Unpatriotic
147. Religious
148. Fearful
149. Punctual
150. Discourteous
151. Impatient
152. Rational

PART IV: CHECKING*

153. DIRECTIONS: Check the following reasons why you believe some jobs should pay better than others. Check an item by marking (✓) next to the corresponding letter on your answer sheet if you think it represents a good reason for a job to provide higher pay. You will probably have more than one answer. [This remark is included so that there will be no confusion between this type of question and the limited multiple choice type.]

__ a. Having more education
__ b. Work harder in that the job requires more expenditure of physical and/or mental energy
__ c. Willingness to move to another community
__ d. Good personal appearance
__ e. Has a personality that allows him to get along with fellow workers
__ f. Supervision of other workers
__ g. Bargaining strength of employees through unions
__ h. Works for more profitable business firm

154. DIRECTIONS: Which ones of the following people have actually "earned" their income? Check those people who have "earned" their income by marking (✓) next to the corresponding letter on your answer sheet. You will probably have more than one answer.

__ a. An unemployed single man who receives a check from the unemployment compensation plan operated by the State of Ohio
__ b. A stockholder who has received a dividend check on stock he owns
__ c. An unmarried woman who receives a check from the State of Ohio under the Aid for Dependent Children program
__ d. A landlord who receives cash from his tenant in his aparemtnt building
__ e. A gambler who wins money in a card game
__ f. An elderly man who receives his monthly check from the Social Security Administration
__ g. A farmer who has sold 200 bushels of wheat to the local grain elevator operator and received cash for his grain
__ h. A widow who receives a check for the life insurance held by her late husband
__ i. An ex-service man receives a check to help finance his college education
__ j. A check a farmer receives from the federal government as a result of not planting a certain number of acres of wheat

155. DIRECTIONS: Check those items which you believe are good sources for obtaining a lead on a job. Check an item by marking (✓) next to the corresponding letter on your answer sheet. You will probably have more than one answer.

__ a. Friends of family
__ b. School guidance counselors
__ c. Teachers
__ d. Classified ads in newspaper
__ e. Television advertisement
__ f. Walking the streets looking for help wanted signs
__ g. State employment agency
__ h. Private employment agency

---

* Parts IV and V would require a different type of answer sheet than that used for Parts I-III.

156. DIRECTIONS: Check each of the following you consider a basic reason why people are unemployed. Check an item by marking (✓) next to the corresponding letter on your answer sheet. You will probably have more than one answer.

__ a. Unemployed are lazy and don't want to work
__ b. Automation and mechanization has resulted in machines replacing workers
__ c. Poor education and training of workers
__ d. Not great enough demand for goods or services produced by workers
__ e. Racial discrimination against negro workers
__ f. Unemployed men and women will not move to where the jobs are available
__ g. Lack of information on job opportunities

157. DIRECTIONS: Check those character and personality traits which you think should make it possible for you to be a success in your chosen vocation. Check an item by marking (✓) next to the corresponding letter on your answer sheet. You will probably have more than one answer.

__ a. Just or fair
__ b. Honest
__ c. Dependable
__ d. Energetic
__ e. Sensitive
__ f. Cheerful
__ g. Reckless
__ h. Imaginative
__ i. Orderly
__ j. Responsive
__ k. Friendly
__ l. Careful of property
__ m. Patriotic
__ n. Religious
__ o. Fearful
__ p. Punctual
__ q. Courteous
__ r. Courageous
__ s. Patient
__ t. Rational

PART V: RANKING

158: DIRECTIONS: Rank the following jobs in terms of their contribution to the community's welfare. Give the job which makes the greatest contribution to the community welfare a rating of 1 (greater contribution) to 15 (contributes least) for the job that furnishes the least. Put your numerical ratings next to the corresponding letter on the answer sheet.

a. Doctor
b. Judge
c. Housewife
d. Service station attendant
e. Minister
f. Undertaker
g. Carpenter
h. Bus driver
i. Nurse
j. Plumber
k. Teacher
l. Garbage collector
m. Retail store clerk
n. Crane operator
o. Secretary

159. DIRECTIONS: Rank the following as methods of improving one's chances to get a promotion on a job. Give the best method of improving one's chances to get a promotion on a job a rating of 1 (greatest contribution) to 7 (contributes least) for [redacted] the most undesirable method. Put your numerical ratings next to the corresponding letter on the answer sheet.

a. Marry the boss's daughter
b. Work harder
c. Learn more about your job
d. Belittle others who might be considered for job
e. Plan and execute a more efficient operation of your job
f. Be "one of the boys"
g. "Butter-up" your supervisor or boss

160. DIRECTIONS: Rank the following reasons why the taxpayers should support public education. Give the best reason why the taxpayers should support public education a rating of 1 (greatest contribution) to 6 (contributes least) for the most unimportant reason. Put your numerical ratings next to the corresponding letter on the answer sheet.

a. Some of them have children who are now or will be enrolled in the schools.
b. Education is good for the country as a whole in that it creates more intelligent citizens.
c. Education is a major source of economic growth in that it transfers and creates new knowledge, helps to develop skills, creates markets, and leads to technological change.
d. We are engaged in the Cold War with the Communist world and educated people are resources in the fighting of the War.
e. Education leads to a better understanding of the world in which we live.
f. Education leads to an appreciation of the "finer" things in life.

161. DIRECTIONS: Rank the following as ways one can improve his chances to get and keep a job that pays well. Give the best way one can improve his chances to get and keep a job that pays well a rating of 1 (greatest contribution) to 7 (contributes least) for the way that will be most undependable. Put your numerical ratings next to the corresponding letter on the answer sheet.

a. Being willing to move to a new community
b. Working hard
c. Having a good education
d. Planning an intelligent job-seeking campaign
e. Having a good personal appearance
f. Dressing well
g. Being cooperative and friendly

162. DIRECTIONS: Rank the following occupations in terms of their providing good sources of employment in the future (10 years from now or more). Give the best source of employment in the future a rating of 1 (greatest contribution) to 19 (contributes least) for the most unlikely source of good employment opportunities. Put your numerical ratings next to the corresponding letter on the answer sheet.

a. Architects
b. Policemen
c. Lawyers
d. Teachers
e. Bankers
f. Accountants
g. Economists
h. Clerks
i. Ministers
j. Soldiers
k. Musicians
l. Cab drivers
m. Farmers
n. Waiters & waitresses
o. Janitors
p. Mechanics
q. Welders
r. Librarians
s. Beauticians

163. DIRECTIONS: Rank the following industries in terms of their providing good sources of employment in the future (10 years from now and more). Give the best source of employment in the future a rating of 1 (greatest contribution) to 15 (contributes least) for the most unlikely source of good employment opportunities. Put your numerical ratings next to the corresponding letter on the answer sheet.

a. Aircraft, missile, & spacecraft industry
b. Garment industry
c. Electric power industry
d. Iron & steel industry
e. Automobile industry
f. Furniture industry

g. Rubber industry
h. Aluminum industry
i. Glass industry
j. Plastic industry
k. Copper industry
l. Construction industry
m. Food processing industry
n. Oil industry
o. Mining industry

164. DIRECTIONS: Rank the following as the most important features of a job. Give the most important feature of a job a rating of 1 (greatest contribution) to 10 (contributes least) for the least important feature. Put your numerical ratings next to the corresponding letter on the answer sheet.

a. Pay
b. Hours
c. Security
d. Fringe benefits
e. Challenge to ability
f. Contribution to society
g. Type of fellow workers
h. Work conditions
i. Chances for advancement
j. Interest

165. DIRECTIONS: Rank those items below in terms of their importance to you in terms of "rewards" for work. Give the most important reward for work a rating of 1 (greatest contribution) to 8 (contributes least) for the least important. Put your numerical ratings next to the corresponding letter on the answer sheet.

a. Doing the job efficiently
b. Pay
c. Fringe benefits
d. Completing the job satisfactorily
e. Friendship of fellow workers
f. Praise from the boss
g. Contributing to the welfare of society by being productive
h. Interesting work

APPENDIX C

Appendix C, a 150-item IBM answer sheet, could be used for the type of questions found in Parts I through III of the questionnaire. This type of answer sheet can be scored by IBM equipment.

C-2

NAME _____ (LAST / FIRST / MIDDLE) DATE _____ AGE _____ SEX _____ (M OR F) DATE OF BIRTH _____

SCHOOL _____ CITY _____ GRADE OR CLASS _____ INSTRUCTOR _____

NAME OF TEST _____ PART _____ 1 _____ 2 _____

DIRECTIONS: Read each question and its numbered answers. When you have decided which answer is correct, blacken the corresponding space on this sheet with a No. 2 pencil. Make your mark as long as the pair of lines, and completely fill the area between the pair of lines. If you change your mind, erase your first mark COMPLETELY. Make no stray marks; they may count against you.

IDENTIFICATION NUMBER

	0	1	2	3	4	5	6	7	8	9
	0	1	2	3	4	5	6	7	8	9
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	0	1	2	3	4	5	6	7	8	9
	0	1	2	3	4	5	6	7	8	9
	0	1	2	3	4	5	6	7	8	9

SAMPLE

1. CHICAGO is
   1-1 a country 1-4 a city
   1-2 a mountain 1-5 a state
   1-3 an island

	1	2	3	4	5
1				▬	

SCORES

1		5	
2		6	
3		7	
4		8	

	T	F			
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21	1	2	3	4	5
25	1	2	3	4	5
29	1	2	3	4	5
33	1	2	3	4	5
37	1	2	3	4	5
41	1	2	3	4	5
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136	1	2	3	4	5
140	1	2	3	4	5
144	1	2	3	4	5
148	1	2	3	4	5

IBM 1230 DOCUMENT NO. 505 WHICH CAN BE USED IN LIEU OF
IBM 805 FORM NO. 1000A 155 AND 1000B 108. PRINTED IN U. S. A.

5757

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VT 012 713
Community Development Training Program.

Massachusetts State Dept. of Community Affairs, Boston. Office of Training.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 20p.

DESCRIPTORS - *COMMUNITY DEVELOPMENT; *CULTURALLY DISADVANTAGED; *MANPOWER DEVELOPMENT; *EDUCATIONAL PROGRAMS; MANPOWER UTILIZATION; SUBPROFESSIONALS; LOCAL HOUSING AUTHORITIES; MANAGEMENT EDUCATION; *OCCUPATIONAL MOBILITY
IDENTIFIERS - MODEL CITIES PROGRAM

ABSTRACT - This report describes the first year's operation of a program to train municipal officials and employees and members of nonprofit community development organizations. During this period, programs were offered in the areas of city administrative management, housing, and employment and upgrading of the disadvantaged. The available Model Cities and community action programs are described. (BH)

VT 012 713

ED0 57254

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PUBLICATION OF THIS DOCUMENT APPROVED BY ALFRED C. HOLLAND, STATE PURCHASING AGENT.

1500-5-70-046952

5761

Estimated Cost Per Copy: $.163

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COMMUNITY DEVELOPMENT TRAINING PROGRAM

The Office of Training within the Department of Community Affairs has recently completed the first year of a Community Development Training Program funded in part under the auspices of Title VIII of the 1964 Housing Act by the Department of Housing and Urban Development.

The Community Development Training Program is primarily designed to provide training for municipal officials and employees and members of private, non-profit community development organizations. The first year of the program concentrated on three main areas of activity. The first was training in the area of administrative management for cities and towns. The following programs were offered in this area:

PROGRAM	ADMINISTRATIVE MANAGEMENT FOR CITIES AND TOWNS
Orientation in Automatic Data Processing	The three-day orientation session was presented in cooperation with the U. S. Civil Service Commission in Northampton, Worcester, and Boston during October and November. The purpose of the course was to introduce persons unfamiliar with ADP to the principles and possibilities of data processing.
Advanced Training in Automatic Data Processing	The five-day advanced program in ADP, also offered in conjunction with the U. S. Civil Service Commission, is designed as a follow-up to the orientation session. It is also for those cities and towns which have already instituted some data processing either in the school system or the administrative offices and desire extra training for personnel.
Training in Capital Improvement Programming	For ten (10) weeks in the fall of 1969 the Capital Improvement Program course was presented in five locations around the Commonwealth. The course was developed in conjunction with Boston College. The program is designed to assist planning boards, finance boards, planners and budget officers in understanding and implementing the Capital Improvement Programming process.

Town Finance Seminars	The Association of Town Finance Committees presented a series of seminars for new and continuing members of Finance Boards in Wellesley and Danvers. The Evening sessions included such topics as: Town Finance Procedures, The Relationship of the Town Tax Dollar to State and Federal Funds and the Finance Committee's Role in Collective Bargaining and School Budgeting.
Municipal Summer Interns	The Department of Community Affairs placed ten (10) summer interns in ten (10) cities and towns for 12 weeks during the summer of 1969 to work in various local government agencies. Interns worked in such departments as the Planning Department, Town Managers Office, and the Model Cities Agency.

The second area of the Community Development Training Program was Housing and its various related aspects. Several programs were offered to both public and private agency personnel. They included:

PROGRAM	HOUSING
Housing Management Training	The Housing Management Training Program was designed for the managers of low and moderate income public and private housing. The 10-day intensive program was developed by the Rental Housing Association of the Greater Boston Real Estate Board. The program covered all the basic aspects of property management including tenant-management relations. A manual of Management will be available for distribution.
Training for Relocation Personnel	A three-day training program for relocation staff personnel and a 2-day management seminar for directors of relocation agencies developed by Harbridge House, Inc., will be presented in December 1969. The case study method will be used and a manual will be available for relocation officials.
Training Program in Code Enforcement	The Code Enforcement Training Program presented a week long session in the summer for code enforcement officials. A more detailed program for code enforcement inspectors was presented over a six week period in the fall. The training program was developed with the assistance of Candeub, Fleissig, and Associates.
Collective Bargaining	The Department is now presenting a training seminar in collective bargaining for the property management supervisors of its Division of Community Development. This seminar is being conducted by James T. Grady, Esq., an experienced negotiator. As a result of Chapter 231 of the General Laws, which "requires a housing authority to bargain collectively with labor organizations representing its employees," public housing managers continually seek advice from the property management supervisors, the only source of advice to which managers can turn at present.

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This seminar covers the law, the labor movement and its effects on state government, especially in the area of finance. In particular, the concern is with the effect of collective bargaining on the low-income housing budgetary requests, which will also reflect increases on tenants' rents or increase the state subsidy.

It is expected that this seminar will enhance the capability of the property management supervisor to deal more effectively with the problems inherent in labor-management relations.

Maintenance Training and Inspection

We are now conducting a thorough program of maintenance inspection, evaluation and training for improving and enlarging the skills of maintenance personnel in public housing throughout the Commonwealth of Massachusetts. At present there are over 500 maintenance personnel who are responsible for the upkeep of over 23,000 units of housing in nearly 160 housing authorities. Through the normal process of wear-tear and aging, the satisfactory care for over 23,000 units constitutes an enormous responsibility.

As a result of local housing authority maintenance needs, this program consists of three phases performed by four men in five regions covering the entire state.

Phase I will consist of a thorough inspection of the operations of the local authority. From this inspection, an evaluation will be made and there will be a work-up of the weak maintenance skill areas which require immediate strengthening.

Phase II will consist of in-depth study and improvement and enlarging the skills of the maintenance personnel.

Phase III will consist of follow-up of the original Phase I inspection and evaluation. Immediate need training and continued weak skill areas will be strengthened.

One of the main purposes of this kind of technical expertise of local housing authority training is the use of the maintenance personnel as resources in both inspection-evaluation and in training. It is expected that the potential is great for this kind of interchange of technical assistance to continue beyond the limits of the program.

The third aspect of the program was designed to provide individuals from disadvantaged groups (unemployed or under-employed) with the necessary skills and/or educational background which would facilitate upward mobility to the paraprofessional or subprofessional level within areas of community development. An additional objective of the program was to give these new subprofessionals an access to positions within municipal agencies or private, non-profit organizations concerned with community development.

In order to give municipalities the opportunity to employ individuals at the subprofessional level, the Department of Community Affairs was able to provide one-half of the trainee's salary for a period of nine months (full salary for four and one-half months) as well as all costs incurred in the training of the individual for a specific position. In most instances the training included academic course work at local educational institutions in addition to on-the-job training in the form of workshops, seminars, and field trips conducted by outside consultants and agency staff members.

At the conclusion of the training period, each new paraprofessional was retained by the municipal agency or private, non-profit organization for a one-year period and received all the rights and benefits guaranteed to permanent employees.

The program also provided in-service training funds for those paraprofessionals already employed by municipal agencies or private, non-profit organizations to upgrade the skills involved in their present positions.

The major source of interest in the program came from three distinct community development groups--the Model Cities Administrations, Community Action Program Agencies, and private, non-profit organizations dealing with housing. The following is a breakdown of the program according to those three classifications.

PROGRAM	MODEL CITIES ADMINISTRATIONS
Boston Model Cities	An intensive eight-week program in the area of housing rehabilitation to train three Rehabilitation Finance Specialists and six Rehabilitation Specialists selected from the Model Neighborhood Area. Due to an immediate need for personnel equipped to assist property owners of the Model Neighborhood Area in preparing cost write-ups, obtaining loans and securing contractors, the program was "advocacy-oriented"--trainees would learn to direct their efforts towards the special needs of neighborhood homeowners and orient their services towards providing community people with technical assistance in home improvement. Training was conducted by staff members, consultants from local agencies, businesses and contracting firms.
Boston Model Cities	An intensive eight-week training program in the area of community planning to train three Community Planners and two Planning Aides from the Model Neighborhood Area. Training consisted of course work at the Boston Architect Center dealing with urban renewal and architecture in addition to seminars and workshops involving such topics as sources of data, interviewing techniques, cartography and site planning. The Community Planner's emphasis would be on interviewing, data collection and graphic presentation while the Planning Aide's training would focus on research and analysis of data. Outside consulstants and Model Cities staff members conducted the on-the-job portion of the program
Cambridge Model Cities and CEOC	The Cambridge Model Cities Staff in conjunction with the Cambridge Economic Opportunity Committee, Inc. (a Community Action Program Agency) has developed a program called "New Professionals" designed to train 14 Model Neighborhood Area residents to serve as links and interpreters between the Neighborhood Area, Model Cities Administration and City Departments to upgrade the community's understanding of the planning process. The following is a list of the positions which were filled. 2 Citizen Participation Assistants - assist in informing residents of Model Cities plans, coordinate special events and attend neighborhood meetings. 1 Program Information Assistant - write press releases, Newsletter, compose flyers for special events.

1 Housing Component Coordinator
1 Education Coordinator
1 Municipal Services Coordinator
1 Recreation Coordinator
1 Manpower Coordinator
1 Health and Social Services Coordinator

Model Neighborhood Councils will be established corresponding to each of these areas. They will draft proposals for submission to Model Cities during the action phase of the program. Each Component Coordinator will represent these councils and work to implement their proposals within the Model Cities Administration.

CAP Agency

2 Housing Specialists - gain expertise in rehabilitation and home improvement.

1 Communications Specialist - publicize CEOC Programs.

2 Juvenile Specialist - deals with problems of youth and delinquency.

The training consisted of a basic core curriculum in each of the "New Professionals" fields which was taken at the Harvard Extension School, Tufts University and Boston University. Seminars and workshops given by outside consultants, and state and city officials were held for all participants to allow them to gain knowledge of the available resources within existing government agencies. In addition, the New Professionals made site visits to other Model Cities Areas and attended conferences in their particular field of concentration.

The New Professionals wrote bi-monthly reports and critiques of their work and training program.

Lowell Model Cities Acre Model Neighborhood Organization, Inc.

A newly incorporated organization within the Model Neighborhood Area which made use of the program to train residents for subprofessional staff positions. A resident attended Lowell Tech to learn bookkeeping procedures and received on-the-job training in accounting, payroll and other related procedures from Model Cities Staff members. Another resident received training in building maintenance from Modern Floors, Inc., a large janitorial service concern and assumed the position of custodian in the New "ACRE" building.

New Bedford Model Cities Administration	The New Bedford Model Cities Administration made use of the in-service training funds and sent three residents of the Model Neighborhood Area already employed by the Model Cities Administration to S. E. Mass. U. and the Swaine School for additional training in the area of planning which provided them with the necessary skills to upgrade their positions to planning assistants.
Worcester Model Cities Administration (Worcester Cooperation Council, Inc.)	An intensive training program designed to train residents from the Model Neighborhood Area for new positions within the Model Cities Administration in three specific areas.

a. Community Worker - serve as an intermediary between the Spanish Community, the Model Cities Administration and the local government. Training included appropriate courses (sociology, psychology, etc.) at Worcester Jr. College and Quinsigamond Community College in addition to seminars and workshops conducted by consultants and local officials.

b. Environmental Health Inspector - to work with city health officials and Model Cities Administration to inspect restaurants and food stores within Model Cities Area and also to aid in code enforcement procedures. The trainee attended courses at the above-mentioned educational institutions (Public Health, Public Health Laws) and participated in an On-The-Job Training Program conducted by the City Health Inspector.

c. Employment Counselor - to interview applicants for job training programs and assist local employers in identifying the problems of the hard core unemployed. Training included courses at the above-mentioned institutions (Management Industries Organization, etc.,) and an internship with the Division of Employment Security. Seminars at the National Alliance of Business Office and a Neighborhood Orientation through the Community Action Council Neighborhood Centers.

And the second aspect of the Worcester program involved the Webster Square Day Care Center - a subsidiary of the Model Cities Administration.

Teacher Aide - assists head teacher - schedules certain activities, leads some group activities. Training included orientation to day care procedures, seminars

dealing with care of pre-school children, and appropriate courses at the above-mentioned institutions (Orientation to Early Childhood, Pre-school Planning).

Cook - under supervision of consultant - nutritionist, prepares menus, in addition to holding seminars for neighborhood mothers in the preparation of meals (discussions of nutritional value, etc.) Training included two courses - A Catering Course at Girls Trade and Nutrition and Food Preparation, as well as seminars and on-the-job training by the consulting nutritionist.

Assistant Teachers - devotes most of time to problem children and individual needs. Similar training to the aides, but more intensive course work (especially in areas of children's literature, music, etc.)

Head Teacher - responsible for scheduling of Total Day Care Activities - keep records on children's progress and exercises judgment as to development needs - evaluates each child, assigns classroom responsibilities. Training included course work in program planning in addition to other mentioned courses as well as seminars in the problems of low income children.

The second group of participants included those agencies described as Community Action Program Agencies.

PROGRAM	COMMUNITY ACTION
Action, Inc. Gloucester	The program trained an individual to serve in the capacity of Neighborhood Worker who works in the following area: Outreach - stimulate low income residents who have saleable skills to seek employment--opens employment opportunities. Serve as liaison between Action, city officials and residents. Publicize programs and attend neighborhood meetings. Training was given by the Job Developer (an Action, Inc. employee) in the form of workshops and case studies. The second phase of the Action, Inc. participation included in-service training for six paraprofessionals already employed by the Agency. Their training included course work at the North Shore Community College to give them additional expertise in their present positions. The following positions received this educational training: 1 Clerk/typist 1 Research Assistant 1 Teacher Aide 1 Social Services Aide 1 Bookkeeper 1 Work Coordinator
North Berkshire Community Action, Inc. North Adams	The North Berkshire program was unique in that it dealt with conservation, recreation and resource development within an entire region. The 12 trainees underwent an intensive 12-week training session in which they received instruction in map reading, silvaculture, reforestation and equipment operation. The Department of Natural Resources supplied the instruction and arranged field trips to study nursery planning and landscaping. The trainees will be employed as foresters upon completion of the training program.

Quincy Community Action Organization, Inc., Quincy	A training program for eight individuals who will represent the community on a Title I (ESEA) education board. These residents received instruction in the purpose, function and mechanics of the board as well as the specific educational problems of their respective areas. The trainees met for twelve sessions in which various educational consultants spoke. The trainees also attended conferences on various educational topics. The second phase of the program allowed six Work Incentive Individuals to work in the CAP Agency and learn work habits, vocational opportunities, and establish relationships with individuals and groups, outside their immediate environment. Training consisted of group sessions with CAP personnel, workshops at the South Shore Mental Health Center and seminars given by outside consultants (topics included Philosophy of Community Action, role of Division of Employment Security, Role of Massachusetts Rehabilitation Center, Techniques of outreach, purpose of Head Start).
Self-Help, Inc. Operation Mainstream Brockton	The program provided on-the-job training for a Job Orientation Counselor who would analyze information on applicants for the Mainstream program--interview, appraise apptitude tests, discuss social and emotional problems with applicants. Training included seminars conducted by outside consultants and workshops held by Self-Help staff members. Another individual with typing abilities was trained to instruct other mainstream participants in speed-writing, practical English, use of office machines and switchboard operation.

PROGRAM	PRIVATE, NON-PROFIT ORGANIZATIONS
Community Venture Projects, Inc. New Bedford	The program was designed to train three individuals to become physical housing organizers. Their duties include the mobilization of citizens groups to influence all government and non-government priorities with respect to housing within the Model Cities area. They also assist tenants and groups in working with housing inspectors and Building Code Authorities with respect to correcting violations--refer needy families to Model Cities, Community Ventures Projects, and other Agency housing placement services. Training included a course in Housing Rehabilitation at Massachusetts Bay Community College, technical assistance training by the Model Cities Administration and Workshops with the Housing Authority Office and Minimum Standards Office.
Interfaith Housing Corporation, Boston	Six individuals were trained to become housing managers of moderate income housing units. These people supervise the physical upkeep of the properties, direct the leasing of units and screen new tenants and conduct annual surveys of tenant income in conjunction with federal regulations. Training consisted of a course in Housing Management offered by the Department of Community Affairs in addition to seminars given by outside consultants and individual case studies.
Springfield Chapter of the NAACP	Training of one housing manager (similar duties to the above-mentioned manager), Course work in the field of counseling and human relations at American International College and an internship with the Springfield Corporation.

COMMUNITY DEVELOPMENT TRAINING PROGRAM

The second year of the Community Development Training Program for the period January, 1970 - June, 1970 has been completed by the Office of Training. Again, the programs fall into the three major categories of administrative management for cities and towns, housing, and subprofessional training. While new programs were introduced into the curriculum, those programs which were well received were repeated.

PROGRAM	ADMINISTRATIVE MANAGEMENT FOR CITIES & TOWNS
Orientation in Automatic Data Processing	The three-day orientation session was presented in cooperation with the U. S. Civil Service Commission in Burlington during the month of April. The purpose of the course was to introduce persons unfamiliar with ADP to the principles and possibilities of data processing.
Advanced Training in Automatic Data Processing	The five-day advanced program in ADP, also offered in conjunction with the U. S. Civil Service Commission, is designed as a follow-up to the orientation session. It is also for those cities and towns which have already instituted some data processing either in the school system or the administrative offices and desire extra training for personnel.
Training in Capital Improvement Programming	Utilizing a Capital Budgeting and Capital Improvement Manual published under Title IX auspices, DCA Office of Training presented a training session for local finance officers and other governmental officials in capital budgeting procedures.
Planning Programming Budgeting Systems I	Management Analysis Center, Inc. developed a program for top elected and appointed municipal officials in the development and implementation of PPBS utilizing lectures, discussions, cases and workshops. The three-day orientation sessions were held at Boston College on April 27-29 and at U. of Mass. on May 18-20.

Planning Programming Budgeting Systems II	A five-day residential workshop program was also developed by Management Analysis Center and offered at the Round Hills Center in South Dartmouth, Mass., on June 15-19. In addition to the planned program, the two instructors were available for discussion with individual participants who sought guidance on adapting PPB to the particular needs of their own cities and towns.
Local Government Seminars	The Association of Town Finance Committees presented a series of ten conferences at five locations for city and town officials in such areas as strengthening municipal government, budgeting for towns, funding collective bargaining, capital budgeting, etc. At each conference there was a keynote speaker followed by a general governmental discussion and a specialized finance session.
Municipal Summer Intern	Twelve interns were placed in the following cities and towns: Winchester, Williamsburg, Waltham, Springfield, Medford, Amherst, Fall River, Somerville, New Bedford, Milton, Salem, and Melrose. The interns worked in some of the following areas or offices: planning, law, mayors' and selectmen's offices, community relations, and code enforcement.

The second area of the Community Development Training Program was Housing and its various related aspects. Several programs were offered to both public and private agency personnel. They included:

PROGRAM	HOUSING
Housing Management Training	The Housing Management Training Program was designed for the managers of low and moderate income public and private housing. The program covered all the basic aspects of property management including tenant-management relations. A manual of Management will be available for distribution.
Training for Relocation Personnel	The Relocation Training Program offered last year was updated and offered in June. Three days of training were provided staff personnel (1½ on family and 1½ on business) and two days on administration for Relocation Administrators.
Training Program in Code Enforcement	The Code Enforcement Training Program was revised and offered in June in Boston and Worcester. The program for the Housing Inspectors' was three days a week for three weeks and the Administrators' program was one week of intensive training.

The HUD criteria for the subprofessional training portion of the program was changed during the Fiscal Year 1969. The salary supports supplied by the DCA for new paraprofessional personnel during the training period were reduced from 50% to 25% of the trainee's salary. With the coming Fiscal Year beginning July, 1970, the Department will no longer be able to pay <u>any</u> salary support as the HUD emphasis has shifted entirely to training and to support of all relevant training costs.

The major recipients of the training grants were Model Cities Administrations, Community Action Program Agencies, and private, non-profit housing groups.

PROGRAM	MODEL CITIES AGENCIES
Lowell Model Cities	A specialized program utilizing two "model cities on wheels" in the form of buses. The AMNOBUS housed information personnel whose job it was to initiate response and feedback from the Model Neighborhood Area. The MINI-BUS housed outreach workers who aided residents in specific agency referral problems.
New Bedford Model Cities	The Model Cities Agency made use of the in-service training funds to send 11 paraprofessional staff to courses at the Plus-Kenyon School of Business and Southeastern Mass. Univ. in the areas of planning, finance and secretarial skills. Salary supports were also provided.
	COMMUNITY ACTION AGENCIES
Action, Inc. Gloucester	The agency made use of the in-service training funds and sent 10 paraprofessional staff to North Shore Community College in the areas of sociology and engineering. One course entitled "Man in Society" was especially designed by the college for the Action personnel.
Berkshire Community Action Council, Inc. Pittsfield	Experts in the field of community organization taught agency staff the theory and techniques involved in mobilizing the community around important local issues. Other agency staff were versed in the latest techniques in such areas as employment, agency referral systems, tenant-landlord relations, and welfare rights.

Eastern Middlesex Opportunity Council, Inc. Somerville-Malden	A training program in community organization for 10 paraprofessional staff personnel utilizaing the general and specialized theory and techniques of group organization. The trainees also learned about the power structure of their community and the role of the CAP agency.
Onboard, Inc. New Bedford	A training program for paraprofessional staff utilizing the new pre-programmed Xerox training in community relations and problem solving techniques. In addition to the audio/visual portions of the Xerox training, the program included field trips and guest speakers from various state and city departments.
Worcester Community Action Council, Inc.	A training program designed to train 48 key community residents to effectively participate in the planning process. The program consisted of group sessions which discussed various topics such as the role of boards, committees and councils, problem solving on the neighborhood level, format of meetings, and group dynamics. The second phase of the program utilized the same basic training techniques, but concentrated on the young adult neighborhood population.
	PRIVATE, NON-PROFIT HOUSING GROUPS
Association for Better Housing, Inc.	New staff members of this non-profit housing corporation were given specialized training in the area of home ownership counseling. Experts from the housing field were called upon to train the staff in mortgage financing, housing management, housing rehabilitation and development, and community organization
	GENERAL
Spanish Education Program	The Spanish Instruction Program was designed to train state, municipal, and private non-profit community development group employees in Spanish as a second language. As a result of this instruction, it is expected that the quality of public services provided to the Spanish-speaking residents of the Commonwealth will be improved. Classes (ranging in size from 10-20 students) were held on-site, and each course was specially developed to meet the particular needs of each work-group. Classes met two or three times a week for 12 weeks; intensive learning techniques were employed. Recent classes have been held for Mass. Commission Against Descrimination, Dept. of Public Welfare, the Parole Board, Boston City Hospital, Boston Housing Authority, and Action for Boston Community Development, Inc.

VT 012 715
Cudaback, Dorothea
Training and Education of New Careerists in Public Welfare.

California Univ., Richmond. Research Projects Office.
California State Dept. of Social Welfare. Projects Div.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 15May69 13p.

DESCRIPTORS - *MANPOWER UTILIZATION; *CULTURALLY DISADVANTAGED; *CAREER OPPORTUNITIES; *SOCIAL WELFARE; MANPOWER DEVELOPMENT; WELFARE RECIPIENTS; EMPLOYMENT PROGRAMS; *GOVERNMENT EMPLOYEES; OCCUPATIONAL MOBILITY
IDENTIFIERS - *NEW CAREERS

ABSTRACT - In requiring public welfare departments to hire welfare recipients as service workers, the 1967 Social Security Act Amendments were intended both to provide productive jobs for the disadvantaged and to improve welfare services. On the basis of a New Careers welfare service aide project undertaken in an urban California county, this report describes the features essential to the success of this type of project. Stressed are education and skill training with heavy reliance on peer group learning and total agency committment. (BH)

VT 012 715

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TRAINING AND EDUCATION OF NEW CAREERISTS IN PUBLIC WELFARE

This Project was Sponsored by the
California Department of Social Welfare
Projects Division

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May 15, 1969

VT012715

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TRAINING AND EDUCATION OF NEW CAREERISTS IN PUBLIC WELFARE

Building in "New Careers" Concepts

By July 1969 in compliance with the 1967 Amendments to the Social Security Act (PL 90-248), all public welfare departments will be required to employ as service workers, welfare clients or others drawn from poverty areas. The two-pronged intent of this law—moving the disadvantaged from dependency to useful jobs, and improving the welfare department's services to clients—is laudable and may well be achievable if in recruitment, work assignments and training these programs truly reflects the laws' intent. If they do not, this will be just another empty promise to the poor.

The New Careers Concept[1/] on which fully successful indigenous worker programs must be based has three essential ingredients: (1) the new careerist must be indigenous to the population served by the agency;[2/] (2) the job assigned must use the particular knowledge and skill the new careerist has gleaned by living in a poverty area and being a recipient of service;[3/] (3) the new careerist's job though open at trainee level to those of limited education and vocational skills must have built-in opportunities for vocational and academic advancement.

One of my points of reference will be a Welfare Service Aide Project at Alameda County Public Welfare Department in California. Alameda County is an urban county with its full share of urban problems. The project started in 1966 and now continues as an agency administered program with 40 welfare aides.[4/]

Laying the Foundation

A good Training and Education program is vital for a successful New Careers program, but the best training program in the world can be an instant flop if it is not buttressed by a good employment structure. The

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1/ For a fuller discussion of the New Careerist philosophy see Riessman 1969, p. 22, and Pearl and Riessman 1965. For clarification of the distinctions between New Careerists and others who may work as assistants to social workers, see Otis 1965, pp. 13-14.

2/ For welfare departments, the most "indigenous" workers would be drawn from the client rolls and be like a substantial subgroup of clients with respect to past experience and life style. The specific experience of being a welfare client is important. The experience of being on the receiving end of welfare, of knowing how it feels to ask for money, to complete forms, to be investigated for eligibility and to receive social workers in your home—all this equips the New Careerist as nothing else can to understand the clients' feelings and guess at the questions they fear to ask. This client experience and no other enables the New Careerist to chip at client fear or hostility by saing, "I was on welfare too." As we will see later, the New Careerists' past experience as clients also serves as a valuable tool in teaching counseling skills.

3/ In keeping with this criteria, the public welfare New Careerist might be expected to provide three kinds of service:

(I) Counseling and educating clients on homemaking, child care, money management and use of community resources;

(2) Bridging communication barriers between social workers and clients; helping clients understand and use the welfare agency fully, and helping the agency better understand and serve clients.

(3) Providing those concrete services for which the New Careerist background is useful—shopping, transportation, house finding, etc.

By the same criteria the aide would not compute welfare budgets, do eligibility investigations, or do routine clerical work.

4/ For more on this project, see Cudaback, 1968.

tasks assigned to the new careerists must be appropriately important, challenging and responsible. The job description must be clear (but flexible), administrative and supervisory structure explicit. Standards of work performance must be open and evaluations of the new careerists in relation to these standards frequent and honest. The salary should be fair and the career ladder reasonable. The aides should be expected to abide by the same general agency regulations and reap the same benefits as other employees.

Since use of aides in welfare is new and uncharted, and since aides themselves have particular potential and problems, it is important that responsibility for the aide program be centralized. This does not mean that supervision of individual aides should be centralized, in fact it is my opinion that aides can best be integrated into the welfare program if they are supervised by line (unit) supervisors and work beside line social workers. The aide program administrator would be responsible for aide recruitment, selection and training and would insure that the agency prepared for, and used the aides effectively. He would be responsible for ongoing evaluation and improvement of the aide program. This is a key position—the way in which the administrator functions can make the difference between a pedestrian (or disastrous) new careerist program or an innovative and exciting one.

Before the aide program is established, staff who will be working with aides should be involved in planning for their training, supervision and use. An ongoing aide program advisory evaluation committee of workers, supervisors and administrators can be invaluable in helping the aide administrator and improving the integration of the aide program with the rest of the agency. Meetings between aides and workers to improve teamwork and increase understanding are vital and must be held on a continuing basis, especially in agencies in which there is heavy line staff turnover as is common in welfare departments. Aides should be used to teach social work classes—social workers to teach aide classes; both have a special bag of knowledge and skill.5/ At Alameda County Welfare Department, two or three aides spent several hours with each new class of social work trainees discussing the welfare aide program and the client's view of welfare. Similarly, line social workers instructed aides in medical services, use of community resources and AFDC budgeting. Aides and social workers often joined for case conferences.

Profile of the New Careerist in Public Welfare

Any good training program starts with sizing up the trainee then building on his strengths and helping him overcome his weaknesses—and every category of human service worker has a particular pattern of each.6/

We would expect the typical welfare department (ex-client) New Careerist to possess the following characteristics: She is probably an AFDC mother, since they comprise the largest pool of able-bodied clients (we had 38 women aides and 2 men); she has probably been a recipient for some years (ours averaged 7 years) has minor children (most of ours had 2 to 4 minor children), is between the ages of 25 and 50 (since we look for experienced adults) and is a member of a cultural or racial minority group (we had 36 Black, 2 Brown – Spanish Americans, 2 White). If we follow New Careers guidelines for selection, our aides will be educationally and vocationally limited and will identify with lower-class life styles.

Assuming an adequate system of recruitment and screening, we would expect that all are motivated to improve their lives. They will want a job with responsibility and a future and will be willing to work hard to achieve it if they are convinced their efforts will be worth while. Having a history of failure, they may need a lot of convincing. They have a store of useful knowledge and skills but need help to broaden and apply them. They have a personal, practical, but partial, knowledge of nutrition, homemaking, money management

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5/ For more on the particular skills of New Careerists and Social Workers in public welfare departments, see Cudaback 1967.

6/ Unfortunately, our view of the indigenous worker is too often clouded by romanticism. For some, especially "liberal" social workers, it has become popular to idealize the poor and blindly condemn the middle class (especially middle class social workers). Neither deserves these extreme judgments. However, to deny differences between classes is equally unjust. We must recognize and use differences but as a guide, tailored to individual needs, not a prescription, lest we sink to stereotyping.

and child care. They will have a valuable clients-eye view of the welfare department but their knowledge of the welfare system, its rules and policies, may be surprisingly scant and inaccurate.7/

New Careerists know how it feels to be poor, an asset in working with clients, but their understanding of the broader etiology, effects and remedies of poverty are limited (Wallrich 1967). They are likely to have a peculiarly valuable and practical store of information about community resources—the fair landlord, the benevolent used furniture dealer, stores which give honest credit, churches with loan funds—but they are not likely to know how to use and manipulate the formal agencies, probation departments, public schools, and psychiatric clinics. They will need help to learn the mechanics of making effective referrals, organizing inter-agency staff conferences, maintaining formal collaboration, etc.

New Careerists' attitudes may at times block their effectiveness. They may share with others who are poor, political and social conservatism.8/ They may be critical and judgmental of those who are "lazy," sinful, etc., and we as teachers must be prepared to recognize and deal with these attitudes.

If carefully chosen, the New Careerists are likely to be sensitive and responsive to others, particularly those like themselves. They are not likely to be knowledgeable about the theory and dynamics of human behavior and dysfunction. They cannot be expected to be particularly aware of their own personal blocks and biases—or their strengths. Introspection and self-evaluation may be alien to their cultural background.9/ Their partial and intuitive understanding of themselves and others may make it difficult to serve clients differentially, to understand and generalize from their successes and failures. We encourage New Careerists to be friendly and personal with clients, but for beginning aides this may result in their becoming too involved with clients—to their own and the clients' detriment. Their over-optimism may turn to defeatism (Riessman 1963, p. 35), they may be too anxious to "please" their client (Riessman 1963, p. 9). They also may be overly hurt by client rejection—this for aides seems to be most difficult to accept. They may find it hard to

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7/ We found the welfare aides in Alameda County had been surprisingly ignorant of even those regulations which directly affected their eligibility and grant—and I'm sure this is true for any welfare department. . . . "The client doesn't know and tries to hide things . . . you are afraid and don't know what to ask". . . "We kept ourselves in a kind of rut because we were so misinformed, what the agency was, what the worker was doing. They didn't tell me anything I could do. It was only what I couldn't do." (Excerpts of taped discussions with Welfare Aides 2/68.) Needless to say, they learned these rules quickly as trainees and then eagerly taught their own clients how to work the welfare system.

8/ Gertrude Goldberg writes (1963 pp. 4-5): ". . . we found that even those persons who have themselves lived in poverty, nonetheless had many of the prevailing middle-class attitudes toward the "down and out," viz., that persons are to blame for their social circumstances, that persons who do not pay for a service are getting a favor and have relinquished the right to make demands upon the dispensers of that service. The attitudes of our workers stemmed partly from negative self-images and internalization of the majority viewpoint; partly they are the familiar reactions of persons who have bettered themselves, even if just a little, toward the group from which they have risen."

Scott Briar (Briar 1966) reports from his research that welfare clients he interviewed tended to express opinions about other welfare clients which are usually associated with conservative anti-welfare groups. They did not regard welfare as a right.

9/ See for example Brill and Storrow 1965 p. 73, Aronson 1966 p. 44 and Hollingshead 1968. These and others are generally agreed that lower-class psychiatric patients are less able and willing to invest themselves in self evaluation and introspection.

share the client with other workers; learning how and when to share client "confidences" may prove a painful dilemma;10/ sacrificing short-term gains (and satisfactions) for long-term client goals may seem highly artificial. Training has to help the New Careerists augment their natural sensitivity with understanding (of self and others) so that their effectiveness is enhanced without detracting from their unique style and I'm convinced this is possible.

New Careerists are likely to have had limited work experience, particularly experience in large bureaucratic agencies. They will need extra help in learning to maintain work schedules, keep records, use written resource material, exploit agency channels of communication and participate productively in staff meetings. Simple office procedures—answering phones, leaving messages, filing material—may need to be specifically taught. We found that experienced and competent aides were particularly effective instructors in this.

Finally and importantly, we can expect New Careerists to be subject to a particular set of situational pressures which may call for our help. Family problems may cause absenteeism; children may get ill or into difficulty. Extended families may make unreasonable demands on the New Careerists' time. We found that many of our aides were seen as the strong family member on whom all had depended in crisis. When the aide became employed, she had less time to travel about caring for relatives; both aide and family found this adjustment painful. Financial problems may plague them. Having no financial margin for emergencies, New Careerists may find themselves slipping from one financial crisis to another. Old debts become critical when clients become salaried employees and wages can be attached. The paycheck looks so much bigger before the unaccustomed deductions. Extra expenses, like doctor bills which are no longer covered by Welfare, may bite into their budget disastrously.

The transition from housewife to employee, client to worker, may cause stress requiring special attention. Illness may be a problem. We know the poor are more likely to suffer from health problems than are those of other social classes.11/ Our aides had a relatively high level of absenteeism due to sickness. Even when they came to work they were often debilitated by some low-grade illness. They needed extra help to use preventative measures, to get regular physical examinations, etc.

Work – Training – Education: The Essential Triad

> Nothing could undermine the New Careers concept so much as allowing untrained persons to do meaningful work with the romantic notion that their unsullied lower-class status is sufficient qualification for helping others. The nonprofessional without training is not an asset; he can, in fact, be a menace to the service. Not only is he unaware of his active role, he also has no idea of what he must not do.
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> (Pearl & Riessman 1965, p. 157)

For many, if not most adults, personal pride, effectiveness and hope come only through some combination of employment, training and education. For many disadvantaged adults, these must occur concurrently; for them

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10/ Two situations in the application questionnaire we used for screening aides were designed to bring out the applicant's attitude toward sharing "confidences" with social workers: (1) A client you have visited several times tells you she does not like her social worker because she is cold and disinterested. What would you say or do? (2) When visiting a client to discuss budgeting the client tells you she is working half-time but has not told her social worker because she does not want her welfare grant discontinued—what would you say or do? There was less unanimity of response to these questions than to any of the others—demonstrating the applicants' initial conflict over the issues. In the course of training those same situations were discussed and role played by the group—the results being that aides could begin to air their feelings, sort them out and subordinate them to long-range service goals for clients.

11/ Thirty percent of all the families with incomes less than $2,000 per year suffer chronic health conditions that adversely affect their employment as compared to 8% of families with incomes of $7,000 or more (U.S. Riot Commission Rept. 1968, pp. 269-270).

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the New Careers model, work first education later, has repeatedly succeeded where the reverse has failed. Good employment gives vital financial security and pride, training provides the tools for effective work and education brings promise of personal fulfillment and hope for the future. In combination, we can expect that these three components prepare the New Careerist to be an effective employee today, to move up the vocational ladder in the future and to achieve the academic background (with credit bearing courses) which will maximize future vocational usefulness and flexibility.12/ Beyond that, we would expect the New Careerist to have increased his capacity to contribute to his family and his community.13/ New Careerists are likely to be heads of households with minor children depending on them as models and guides. These children will shape the future; their educational achievement will largely determine the way in which they will shape it. Educational attainment will be their key to escaping the slums and poverty (Batchelder 1966, p. 154). Probably the single most important determinant of a child's educational achievement is that of his parents—if they achieve academically their children will follow suit.14/ Our aides reported that when they began course work their children's interest and achievement in school increased quite spontaneously.

Education-Training Methods

Poverty culture is a peer culture.15/ For residents of any age level the peer group is probably the most influential and cohesive social force in the slums. (McCreary 1966, p. 51). Aides then would be expected to be particularly responsive to peer group teaching, and indeed this is validated in practice. (See for example Shaffer & Specht 1966, p. 29; Pearl & Riessman 1965, Ch. 8; MacLennan & Klein 1965; Pointer & Fishman 1968, p. 16). In my aide training program I relied on the peer group as the key to training. Through the aide group, information was tested and assimilated, roles were identified and supported, change and learning were encouraged and guided.

12/ Walter Fogel's study of education and income shows that though a given educational attainment has less income value for minority groups than for the majority, nevertheless for any group high levels of educational achievement case entry into desirable labor force positions, command higher salaries, increase chances of job promotion and insure greater ability of employment (Fogel 1967, pp. 22-23).

13/ For further discussion of the relationship between education and social leadership, see Harbison 1965.

14/ Only 10% of sons of college graduates did not go to college in 1964 (Jenks & Riessman 1968, p. 133). With regard to Junior College, Patricia Cross concludes from a careful survey, "The nature of parental example and encouragement as perceived by the student has a direct relationship to his motivation for higher education; parental encouragement seems to influence who goes to college, what college he enters and how long he remains in the academic environment." (Cross 1968, p. 48).

Harvey Leibenstein (1965 p. 62) in discussing educational investment in underdeveloped countries (to which our poverty areas bear some resemblance) writes, "To a considerable extent linguistic skills and attitudes toward literacy and learning are fostered and determined by the whole environment. As a consequence the general education of women is significant in this connection. The education of potential mothers is an indirect investment in the most basic elements of the education of the future work force. While this indirect element cannot readily be measured, it may be more important than the output of direct investment."

15/ Herbert Gans (Gans 1967, p. 122) points out that peer group society is associated with working and lower-class life regardless of ethnic, religious or racial composition.

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When we employ indigenous service workers we are searching for a new kind of service method, one we hope will improve and augment, not copy, our existing imperfect model. We have much to teach about human behavior, case work, community and agency structure, but we have lots to learn too—we have to rely on our aides as co-learners and co-teachers with us. They are freer to teach in groups where they outnumber us, we can all learn more when we pool and sift our ideas and together grope toward better understanding of clients, more effective ways of helping them and a workable system of dividing the service functions between aide and social worker.

Identity diffusion can be a problem when ex-clients surrounded by social workers attempt to find a special role for themselves. At Alameda County Welfare Department we specifically looked for clients who were able to accept their clients' status and poverty background and use it to serve others. As one means of sifting this out we asked applicants for the aide position what they would say or do in the following situation:

> "You are visiting a client to help her learn to manage her finances better. She is suspicious of you and says she knows you can't help her because you've never had to live on a welfare grant. What would you say or do?" Of 27 responses of aides chosen for the program, 24 said they would specifically tell the client they had also lived on a welfare grant. Some examples of responses which show acceptance of client status and concern for client: "I would not hesitate to let her know I was on welfare—I would show her the short cuts I had learned . . . above all I would not do or say anything to give the client the impression I was looking down on her. I would explain I'd lived on welfare. I would show her I honestly cared about her problems and was not faking. People need to know they are cared about."

The aide group served to help the aides consolidate and articulate their special identity and skills.

New Careerists have a particular style of providing client services. They are likely to be more informal, personal, direct, and demonstrative than social workers.16/ We have seen that this style succeeds where others fail—but we have also seen the spin-off problems previously discussed for which we have no ready remedy. The Alameda County aides were beginning to develop their own guides for these difficulties, learning by trial, error and group discussion. An aide who regrets inviting an alcoholic client to live with her advises another aide to cancel her plans to "adopt" a deprived adolescent client. Another aide who had very successfully housed a client's abandoned children, shares her experiences. Why did it work one time and not another? The group begins to define guidelines. The aide decides not to adopt the teen-ager and reports later that in view of subsequent events she'd made the right decision. The group learns. An aide mentions her guilt about accepting a shower of gifts from a grateful client. The group role-plays it, discusses it, and comes to ways of handling proffered gifts without rejecting the client. Another aide has trouble cutting off her visits from a needy, dependent client. The group helps—and the solutions are not always those found in casework texts. Aides learn to look beneath behavior for reasons, they broaden their repertoire of service approaches and they learn to use these methods differentially depending on the client and the situation.

They also learn about themselves. They discuss the kinds of clients with whom they don't seem to get along. They learn their blind spots and learn it's O.K. to have blind spots. An aide tells the group she refuses to take financial counseling referrals when her own finances are tangled; she's found she can't help clients then. She gets support for this from the group and in the process the group reaffirms its acceptance of fallibility—and then is free to look for ways of overcoming the problems. When they trust the group, aides can expose their counseling hangups by role playing and can accept the group comments and criticisms. If aides cannot trust each other, client discussions turn into useless one-upmanship's sessions.

As we have seen the poor can be particularly critical and judgmental—but the New Careerists have done a lot of living and if they can accept their experiences they can help to temper their own attitudes and those of their peers. An aide who hates alcoholics is countered and helped by another who has some sympathy for her

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16/ For further discussion of new careerists' style see Brager 1965, Reissman 1964, Goldberg 1963, Cudaback 1967.

alcoholic father. An aide who can't stand a lazy client who keeps a dirty house is challenged by a group of aides who in the hopelessness of their client days did the same. Again, role playing may help the critical aide identify with and understand her "bad" client. Then we can move from judging to understanding and on to guidelines for helping. Aides learn in a very personal way. They try every idea on for size; they accept those ideas that fit their own experience–reject the rest.17/ If they are intrigued by a recipe they try it out on their own families first then pass it on to clients. They can accept new ideas if someone they respect has found by experience they work–experts are likely to be less convincing than peers. This is one reason that we had aides provide services to the clients from the first week of training; they thus had experience to which they could tie theory and vice versa.

When I taught casework method, I didn't teach theory first; I asked the aides about their own experiences as clients: What did they want? How did they feel? Which social workers helped and which made them feel worse and why? From this we pulled some generalizations; then I tacked on theory. They struggled with the difference between helping friends and helping clients. Pooling their experiences, they agreed that they could be just as concerned, friendly and informal with clients but that they also had to be more responsible. They realized that clients and the Agency saw them as experts and as agency representatives and whether the aides like it or not they had therefore a more than friendly relationship with clients. They had to think of the clients' needs, not just their own; they had to do more than just please the client.18/

A crucial measure of the success of any New Careers training program in Welfare is the way in which the aides and social workers learn to pool their efforts to improve client services. This requires learning by both workers and aides. From beginning of training we had aides assigned to units in which they would later be working so aides and workers could learn together. In some ways the social workers and aides at Alameda switched from worker-recipient relationship to co-employee relationship quite quickly. Most of them easily shifted to first names, shared confidential records, participated together in planning meetings and shared the same in-agency jokes and gripes. Their respect for each other as people and service workers grew easily–up to a point. The rub came when job territorial boundaries were "violated," when status was threatened or disagreements about client service arose. Sometimes, workers and aides could talk out these differences directly, more often they could not. Aides' feelings of personal and professional vulnerability and workers' reluctance to "hurt" aides often caused both to circumvent issues, leaving them unresolved. Training has to help both workers and aides recognize and accept the problems inherent in teamwork and then learn ways of tackling them directly. We found joint aide-worker discussions and role-playing of aide-worker conflicts helped considerably but the problem takes continuous work.

New Careerists respond best to concise, practical experience based class material presented in a planned and structured (though informal) way. Our aides quickly became bored and uneasy when discussion rambled or direction was unclear. They expected the leader to take major responsibility for teaching but could help considerably in planning and evaluating their class work. They welcomed opportunities to teach classes on subjects about which they had particular expertise or interest, and usually carried out this responsibility quite well. They responded well to continuous feedback. They wanted to know where they stood and how they

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17/ An example of personalized case work learning is shown in this excerpt of an aide's paper written for case work class.

"Instead of making the transition from layman to professional, I feel I have to change from professional to layman. I am a professional on knowing how it feels to be an insecure, hostile and withdrawn client." The aide then goes on to discuss her reactions as a client served by two different social workers–one who made her feel more hopeless and inadequate, the other who helped her regain her self-confidence and move up. The aide concludes, "The feeling of insecurity can bring on so many other feelings. When I go to see a client I can understand his hostility and insecurity. I try to help them realize that they are people and not "those people."

18/ One aide described the difference between helping a friend and helping a client as follows: "The sameness in two acts of helping I believe would be my genuine interest in wanting to help. The difference, however, would be in the fact that I am more conscious of the act. . .therefore, it is with more discretion I go about helping since I have been employed by the county."

stacked up with others. Fearing failure, they were usually surprised and relieved to find they had underestimated themselves. We gave weekly multiple choice civil service-like tests during training to our aides to help them prepare for the civil service exam they had to pass at termination of training; we also gave weekly written assignments during the Junior College casework class. The test scores, grades and voluminous written comments on papers were welcome, specific indications of competency.

The Academic Component

None of the 14 aides who pioneered the Alameda County Welfare Department aide program expected to go to college when they began training, and indeed, educational advancement was not a specific part of the initial project goal. By the second year of the project, aides had gained considerable self-confidence and about a third of them were thinking vaguely about going to college. Nothing happened, however, (even though some aides lived near the local Junior College) until a particularly outgoing and supportive member of the Junior College faculty visited the aide group to discuss their program, encourage the aides to take classes and most importantly offered to help them make it through the maze of registration, testing and course planning. Then six aides started classes. Since that time we have taken every opportunity to build into our program credit carrying Junior College courses. Two such courses have been taught on agency time at the welfare department.19/

The two most recent classes of aides have scheduled time off for Junior College courses on campus. One group was given half time for courses during the first three months (one quarter) of training; the second group, operating under the Scheuer Amendment to the Economic Opportunity Act, will have half time off for course work for their first two years of employment. Some aides have completed courses on personal time but this has proven a very heavy burden for mothers who are fully employed. Those who have had 50% time off for classes have successfully taken 11 to 13 units a quarter (about a full load); the few aides who have been able to take courses on their own time have earned only two or three units a quarter. All aides have maintained at least a B average in college work.

Everywhere, New Careerists have demonstrated their motivation for academic advancement and their ability under the right conditions to do college level work, in both basic and job-related courses. It is my firm conviction that there should be some provision made for every promising New Careerist to take academic courses on work time—and New Careerists are increasingly demanding this opportunity.20/ Further, it has been my experience that junior colleges are more than willing to work with New Careers programs and to move in flexible and innovative ways to mesh education and work. Junior colleges are tuition free, centrally located and committed to an open admission policy. They may give courses at the agency and will under certain circumstances give credit for work experience and field work. All in all a most valuable educational resource.21/

Summary

The success of indigenous worker programs in public welfare rests heavily on the agency's commitment to and implementation of New Careers concepts. The fully effective program must provide for a combination of

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19/ The first agency based college course was in Case Work Methods. It was taught by a university instructor on college standards. Though enrollment was voluntary, all aides elected to take the course. Some shifted to auditor status when they found homework demands too heavy but 7 of the 14 completed it for credit all earning a B or better. The growth of their reading, writing and comprehension skills was little short of remarkable. The next two courses given at the agency required less homework and have been taken and passed by all aides.

20/ For further documentation of the ability of New Careerists to use educational opportunities and for description of appropriate curriculum, see Kestenbaum & Wiley 1967, Cohen 1967, Wattenberg 1968, Cudaback 1968 (Summary Report).

21/ For further information on Community Colleges, see Glazer 1968 and Cross 1968.

meaningful work, useful training and educational opportunity (on agency time). Training provides the aides with skills: education and the diploma it brings give breadth and flexibility.

Since education and training programs for New Careerists should make maximum use of peer group learning, it is essential that a cohesive, supportive, learning-oriented peer group atmosphere be fostered and used. Content of the courses should be well organized and structured but informally presented. Information should be practical and usable, built on the New Careerists' experiences as parents, clients and aides; theory should follow, not precede this experience based discussion. Feedback should be frequent and honest so New Careerists always know where they stand—where they excel and where they need more help. Teaching techniques should be varied; role playing, agency visits, case presentations can be particularly useful. New Careerists individually and in teams should have ample opportunity to teach aide and case worker classes and all should be involved in planning and evaluation of training programs.

Educational programs should stretch, not pamper the New Careerists; they can learn, they want to learn and are willing to put out a remarkable amount of effort if they are convinced that what they learn will pay off in employee skills today and job advancement tomorrow.

New Careerists are a challenging and exciting group with which to work; if we will let them, they will help us renovate both our social work and educational methods.

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VT 012 718
Preparation for Law Enforcement.

Wisconsin State Univ., Stevens Point. Office of Institutional Research.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Nov70 41p.

DESCRIPTORS - *POLICE; *PROFESSIONAL EDUCATION; *EDUCATIONAL NEEDS; STATE SURVEYS; RATING SCALES; CURRICULUM RESEARCH; *LAW ENFORCEMENT
IDENTIFIERS - WISCONSIN

ABSTRACT - To determine public opinion in Wisconsin regarding the educational preparation necessary for policemen, nearly 500 police chiefs, sheriffs, district attorneys, school superintendents, and Rotary Club presidents were surveyed. Over 40 courses or topics were evaluated as essential, helpful, or not needed in the preparation of patrolmen and staff officers. In separate listings for the two categories of policemen, the courses are ranked according to the percentages of "essential" and "helpful" responses. The complete responses are included, broken down by both rater group and police category. (BH)

VT 012 718

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OIR FILE NO. D-12

REPORT SERIES 4
SERIES NO. 12

DATE November, 1970

Office of Institutional Research

Opinions Concerning Curriculum For Law Enforcement Officers

Patrolmen
Staff Officers

Responses of

Police Chiefs
County Sheriffs
County District Attorneys
School Superintendents
Rotary Club Presidents

PREPARATION FOR LAW ENFORCEMENT

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ED0 57254

INTRODUCTION

Few people have been more in the news these days than policemen. There are numerous reasons for this publicity, just as the publicity itself has many facets, both positive and negative. Mob action and bombings have made the life of the policeman hazardous and harrassed. The 1970 shootings of policemen have added to the hazard. The expression "off, the pigs" (meaning, "get the police out of here") reflects the feelings of some groups that police officers are repressive, and the chief cause of violence. The great majority of the populace does not share this view. Some, however, believe that police may over-react in certain situations, thus producing more violence. Others believe that police generally have acted with proper restraint, or that threats have prevented them from doing their duty in many instances.

The hazards of being a policeman and the conflict concerning his role in law enforcement both point to the need for well trained law officers. The question is, what should constitute the education of a policeman so that he can draw the fine line between the individual's and society's rights, and between human compassion and protection as required by law. It is now clear that becoming a competent policeman is no simple matter. In the age of technology, it is necessary for the policeman to be at least as advanced as criminals in scientific matters, and to have a good understanding of the humanity with which he must deal.

This research is aimed at gathering opinions of several concerned groups of citizens concerning what should constitute police education. The sampling was limited to the state of Wisconsin. The Office of Institutional Research is indebted to Mr. Claude Aufdermauer for his assistance in suggesting various police curriculum elements when preparing the questionnaire. (A copy of the instrument used is appended to this report.)

A distinction has been made between the curriculum of the staff officer and that of the patrolman. The questionnaire made no distinction between on-the-job training curricula and that of formal education.

Responses were obtained from five clearly defined categories of respondents, identified by letter as follows:

A: A random sample of Police Chiefs in Wisconsin

B: County Sheriffs in Wisconsin

C: County District Attorneys in Wisconsin

D: A random sample of School Superintendents in Wisconsin

E: A random sample of the Rotary Club Presidents in Wisconsin

The first three categories were chosen because they are directly concerned with law enforcement. School Superintendents are in the position to observe law enforcement close at hand. Rotary Clubs represent a variety of service leaders, since the office of Rotary Club President rotates from time to time.

A final word concerning the purpose of this study. It was undertaken in order to determine what concensus, if any, exists in the State of Wisconsin concerning the kind of preparation policemen should have. The author has no particular police program in mind in doing this study.

THE SAMPLE

Questionnaires were mailed to 492 persons. About 80.2 per cent or 395 usable responses were obtained. This response is considered quite good in view of the fact that only one follow-up letter was sent. The number and per cent responding are shown in Table 1.

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TABLE 1

Number and Per Cent of Police Questionnaire Responses by Category

Category	Number Sent	Number Returned	Per Cent Returned
A. Police Chiefs	162	129	79.6
B. County Sheriffs	72	61	84.7
C. County District Attorneys	72	50	69.4
D. Supts. of Schools	99	94	94.9
E. Rotary Club Presidents	87	61	70.1
Totals	492	395	80.2

A few responses were returned too late to be included in this report. The relatively high per cent of return indicates that much cooperation and interest were displayed by the respondents. It also insures that the findings on the basis of the respondents received represent the views of the populations sampled within a reasonable degree of error.

Responses Concerning Staff Officer Education

The questionnaire used in this study called for rating each proposed curriculum unit as "essential," "helpful," or "not needed." Separate ratings were required for staff officer and patrolman education. We shall first observe how the curricula are rated for the staff officer, as revealed in Tables 2 through 6, and in Table 7 which sums the responses of these five tables. The reader should keep in mind when examining Table 7 that the five categories are not represented equally in the totals. Since there are only 72 counties, there are fewer sheriffs and county district attorneys than of others in the population sampled, though the number of sheriffs responding equals the number of Rotary Club Presidents' responses because of a higher per cent of response.

Some notable differences of opinion are expressed among the five categories. For example, the proportion who considered basic typing essential for the police

staff officer is shown by category as follows: police chiefs 64.2%; county sheriffs 60.4%; county district attorneys 53.1%; school superintendents 45.9%; and Rotary Club presidents 54.5%, for an overall average of 56.4%. The reader is welcome to choose the group or groups whose opinions should be most respected. Taken in descending order of the proportion of all respondents who checked that response, the curricula considered essential for the police staff officer by the majority of respondents are shown as follows:

Curriculum	Per Cent Rating "Essential"
Police Ethics and Conduct	93.0
Criminal Investigation: Arrest, Search & Seizure Provisions	92.7
Law: Criminal Code	92.0
Law: Court Procedure	89.5
Law: Motor Vehicle Code	88.3
Supervision	86.7
Interviewing Techniques	86.1
Community Relations	84.6
English: Report Writing	82.3
Criminology	81.5
Disaster Emergency Training	78.3
Firearms: Handling and Range	77.2
Law: Recent Court Decisions	77.5
Narcotics - and Chemistry of	73.5
Juvenile Behavior	76.3
Public Speaking, Including Crowd Control	73.6
Law: Civil Law Code	73.0
Traffic Planning	70.6
Finger Printing	69.6
Phy. Ed. - Self Defense & Tactical Defense	63.5
Criminal Investigation: Firearms & Modus Operandi Investigation	64.6
Patrol Function: Foot and Vehicle	63.3
Sensitivity Training: Prejudice, etc.	61.0
Basic Typing	56.5
Psychology	55.9
Pursuit Driving & Safety	54.8
Study of Social Problems (Sociology)	50.8

The following curricula were given the modal number of "essential" ratings, though less than 50 per cent of all ratings: driver training, criminal investigation: typewriter & handwriting investigation, and statistics.

For the following curricula, the modal response was "helpful": art - perspective, sketching, drawing; audio-visual aids; physical conditioning, WSI swimming; political science; general business; study of individual problems; photography; biology; coaching youth sports; advanced typing.

Only one proposed curriculum, cultural studies, received a modal rating of "not needed." Little interest was shown in this proposed course, since it involved only 124 responses of all kinds compared to 341 or more responses for all others. Nearly 60 per cent of all responses rated the various proposed curricula "essential" for the police staff officer.

Overall, the proportion of all responses which rated curricula "essential" showed remarkable agreement among the five categories of respondents with one exception. The proportion of all responses listing curricula essential to the preparation of the police staff officer by category of respondent as follows:

Police Chiefs	61.8%
County Sheriffs	61.2
County District Attorneys . . .	49.1
Supts. of Schools	61.5
Rotary Club Presidents	60.0

A similar pattern can be observed showing divergence in the proportion of "essential" responses for an individual curriculum. "Law-Civil Code" is an example.

Police Chiefs	72.6
County Sheriffs	76.8
County District Attorneys . . .	29.2
Supts. of Schools	88.6
Rotary Club Presidents	83.3

On the other hand, note the similarity in proportion of all responses by category to the proposed curriculum: Law-Motor Vehicle Code.

Category	Response		
	Essential	Helpful	Not Needed
Police Chiefs	87.1%	12.1%	0.8%
County Sheriffs	92.9	7.1	0.0
County District Attorneys	83.3	16.7	0.0
Supts. of Schools	89.8	10.2	0.0
Rotary Club Presidents	88.5	9.6	1.9

The reader is invited to make other comparisons drawn from the tables.

TABLE 2

Ratings by Police Chiefs of Proposed Curricula for Staff Officers

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Typing-Basic	79	64.2	41	33.3	3	2.5	123
Typing-Advanced	31	26.5	59	50.4	27	23.1	117
Sociology	57	47.5	59	49.2	4	3.3	120
Psychology	71	58.7	48	39.7	2	1.6	121
Criminology	91	73.3	29	23.5	4	3.2	124
Biology	11	9.3	64	54.2	43	36.5	118
General Business	46	38.0	61	50.4	14	11.6	121
English: Report Writing	107	85.6	18	14.4	0	0.0	125
Political Science	36	29.8	76	62.8	9	7.4	121
Public Speaking; Inc. Crowd Control	104	83.2	21	16.8	0	0.0	125
Photography	50	40.7	66	53.6	7	5.7	123
Art-Perspective, Sketching, Graphing	19	15.3	88	71.0	17	13.7	124
Driver Training	53	43.4	56	45.9	13	10.7	122
Pursuit Driving and Safety	68	54.4	52	41.6	5	4.0	125
Disaster Emergency Training	92	74.8	30	24.4	1	0.8	123
Law: Court Procedures	111	88.8	12	9.6	2	1.6	125
Law: Recent Court Decisions	107	85.6	17	13.6	1	0.8	125
Law: Criminal Code	119	94.4	6	4.8	1	0.8	126
Law: Civil Code	90	72.6	32	25.8	2	1.6	124
Law: Motor Vehicle Code	108	87.1	15	12.1	1	0.8	124
Audio-Visual Aids	37	30.3	82	67.2	3	2.5	122
Cultural Studies: Art, Drama, Music	1	2.7	13	35.1	23	62.2	37
Phy. Ed.: Coaching Youth Sports	3	2.5	56	47.5	59	50.0	118
Phy. Ed.: Physical Conditioning, WSI Swimming	21	18.4	86	75.4	7	6.2	114
Phy. Ed.: Self Defense & Tactical Defense	78	63.9	41	33.6	3	2.5	122
Supervision	107	93.0	8	7.0	0	0.0	115
Narcotics - And Chemistry Of	95	75.4	31	24.6	0	0.0	126
Police Ethics and Conduct	119	94.4	6	4.8	1	0.8	126
Juvenile Behavior	98	78.4	27	21.6	0	0.0	125
Community Relations	116	92.1	10	7.9	0	0.0	126
Traffic Planning	100	80.0	25	20.0	0	0.0	125

Ratings by Police Chiefs of Proposed Curricula for Staff Officers - Continued

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Firearms - Handling & Range	106	83.5	20	15.7	1	0.8	127
Finger Printing	74	59.2	49	39.2	2	1.6	125
Criminal Investigation: Arrest, Search and Seizure Provisions	122	96.8	4	3.2	0	0.0	126
Criminal Investigation: Typewriter, Handwriting Investigation	52	43.0	62	51.2	7	5.8	121
Criminal Investigation: Firearms and Modus Operandi Investigation	72	59.5	48	39.7	1	0.8	121
Patrol Function: Foot and Vehicle	91	72.8	30	24.0	4	3.2	125
Sensitivity Training: Prejudice, etc.	75	61.0	45	36.6	3	2.4	123
Interviewing Techniques	111	90.3	11	8.9	1	0.8	123
Statistics	74	60.2	45	36.6	4	3.2	123
Study of Social Problems	69	56.1	54	43.9	0	0.0	123
Study of Individual Problems	70	57.4	51	41.8	1	0.8	122
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	3,141	61.9	1,654	32.6	276	5.4	5,071

TABLE 3

Ratings by County Sheriffs of Proposed Curricula for Staff Officers

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Typing-Basic	32	60.4	21	39.6	0	0.0	53
Typing-Advanced	11	22.0	26	52.0	13	26.0	50
Sociology	22	44.0	26	52.0	2	4.0	50
Psychology	23	43.4	26	49.1	4	7.5	53
Criminology	42	76.4	13	23.6	0	0.0	55
Biology	5	9.6	33	63.5	14	26.9	52
General Business	26	47.3	28	50.9	1	1.8	55
English: Report Writing	50	90.9	5	9.1	0	0.0	55
Political Science	14	25.5	36	65.5	5	9.0	55
Public Speaking; Inc. Crowd Control	42	79.2	11	20.8	0	0.0	53
Photography	25	47.2	26	49.1	2	3.7	53
Art: Perspective, Sketching, Graphing	15	27.8	35	64.8	4	7.4	54
Driver Training	26	49.1	23	43.4	4	7.5	53
Pursuit Driving and Safety	32	58.2	18	32.7	5	9.1	55
Disaster Emergency Training	42	79.2	10	18.9	1	1.9	53
Law: Court Procedures	53	94.6	3	5.4	0	0.0	56
Law: Recent Court Decisions	47	85.5	8	14.5	0	0.0	55
Law: Criminal Code	55	98.2	1	1.8	0	0.0	56
Law: Civil Code	43	76.8	13	23.2	0	0.0	56
Law: Motor Vehicle Code	52	92.9	4	7.1	0	0.0	56
Audio-Visual Aids	14	26.4	36	67.9	3	5.7	53
Cultural Studies: Art, Drama, Music	0	0.0	7	36.8	12	63.2	19
Phy. Ed.: Coaching Youth Sports	2	4.0	30	60.0	18	36.0	50
Phy. Ed.: Physical Conditioning, WSI Swimming	11	23.4	28	59.6	8	17.0	47
Phy. Ed.: Self Defense & Tactical Defense	35	67.3	15	28.8	2	3.9	52
Supervision	45	91.8	4	8.2	0	0.0	49
Narcotics - And Chemistry Of	38	70.4	16	29.6	0	0.0	54
Police Ethics and Conduct	50	92.6	3	5.6	1	1.8	54
Juvenile Behavior	32	60.4	19	35.8	2	3.8	53
Community Relations	46	85.2	8	14.8	0	0.0	54
Traffic Planning	35	66.0	16	30.2	2	3.8	53

Ratings by County Sheriffs of Proposed Curricula for Staff Officers - Continued

Curriculum	RATINGS Essential No.	Essential Per Cent	Helpful No.	Helpful Per Cent	Not Needed No.	Not Needed Per Cent	Total
Firearms - Handling and Range	43	79.6	9	16.7	2	3.7	54
Finger Printing	41	75.9	11	20.4	2	3.7	54
Criminal Investigation: Arrest, Search and Seizure Provisions	52	96.3	2	3.7	0	0.0	54
Criminal Investigation: Typewriter, Handwriting Investigation	26	50.0	23	44.2	3	5.8	52
Criminal Investigation: Firearms and Modus Operandi Investigation	34	64.2	17	32.1	2	3.7	53
Patrol Function: Foot and Vehicle	29	54.7	20	37.7	4	7.6	53
Sensitivity Training: Prejudice, etc.	27	51.9	21	40.4	4	7.7	52
Interviewing Techniques	47	87.0	7	13.0	0	0.0	54
Statistics	29	48.0	20	40.0	1	2.0	50
Study of Social Problems	26	49.1	26	49.1	1	1.8	53
Study of Individual Problems	24	47.1	27	52.9	0	0.0	51
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	1,343	61.2	731	33.3	122	5.5	2,196

TABLE 4

Ratings By County District Attorneys of Proposed Curricula for Staff Officers

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Typing-Basic	26	53.1	20	40.8	3	6.1	49
Typing-Advanced	7	15.6	21	46.7	17	37.7	45
Sociology	17	36.2	25	53.2	5	10.6	47
Psychology	20	41.7	24	50.0	4	8.3	48
Criminology	35	72.9	12	25.0	1	2.1	48
Biology	4	8.3	19	39.6	25	52.1	48
General Business	6	12.8	29	61.7	12	25.5	47
English: Report Writing	32	65.3	17	34.7	0	0.0	49
Political Science	8	17.0	25	53.2	14	29.8	47
Public Speaking; Inc. Crowd Control	22	47.8	22	47.8	2	4.4	46
Photography	20	41.7	20	41.7	8	16.6	48
Art: Perspective, Sketching, Graphing	6	12.8	26	55.3	15	31.9	47
Driver Training	14	31.1	17	37.8	14	31.1	45
Pursuit Driving and Safety	14	29.8	26	55.3	7	14.9	47
Disaster Emergency Training	30	62.5	17	35.4	1	2.1	48
Law: Court Procedures	41	85.4	7	14.6	0	0.0	48
Law: Recent Court Decisions	34	70.8	13	27.1	1	2.1	48
Law: Criminal Code	42	84.0	8	16.0	0	0.0	50
Law: Civil Code	14	29.2	25	52.1	9	18.7	48
Law: Motor Vehicle Code	40	83.3	8	16.7	0	0.0	48
Audio-Visual Aids	14	29.2	26	54.1	8	16.7	48
Cultural Studies: Art, Drama, Music	1	5.3	4	21.1	14	73.6	19
Phy. Ed.: Coaching Youth Sports	2	4.4	19	42.2	24	53.4	45
Phy. Ed.: Physical Conditioning, WSI Swimming	9	19.6	27	58.7	10	21.7	46
Phy. Ed.: Self Defense & Tactical Defense	26	55.3	17	36.2	4	8.5	47
Supervision	34	77.3	10	22.7	0	0.0	44
Narcotics - And Chemistry Of	34	69.4	14	28.6	1	2.0	49
Police Ethics and Conduct	43	87.8	5	10.2	1	2.0	49
Juvenile Behavior	34	70.8	14	29.2	0	0.0	48
Community Relations	31	64.6	15	31.3	2	4.1	48
Traffic Planning	23	48.1	20	41.5	5	10.4	48

Ratings By County District Attorneys of Proposed Curricula For Staff Officers - Continued

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Firearms - Handling and Range	24	52.2	20	43.5	2	4.3	46
Finger Printing	33	71.7	12	26.1	1	2.2	46
Criminal Investigation: Arrest, Search and Seizure Provisions	43	89.6	5	10.3	0	0.0	48
Criminal Investigation: Typewriter, Handwriting Investigation	21	45.7	21	45.7	4	8.6	46
Criminal Investigation: Firearms and Modus Operandi Investigation	28	63.6	14	31.8	2	4.6	44
Patrol Function: Foot and Vehicle	23	52.3	18	40.9	3	6.8	44
Sensitivity Training: Prejudice, etc.	24	51.1	20	42.6	3	6.3	47
Interviewing Techniques	39	83.0	8	17.0	0	0.0	47
Statistics	11	23.4	23	48.9	13	27.7	47
Study of Social Problems	14	29.8	26	55.3	7	14.9	47
Study of Individual Problems	13	28.9	25	55.6	7	15.5	45
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	956	49.1	744	38.1	249	12.8	1,949

TABLE 5

Ratings By Superintendents of Schools of Proposed Curricula For Staff Officers

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Typing-Basic	39	45.9	40	47.1	6	7.0	85
Typing-Advanced	9	10.3	36	41.4	42	48.3	87
Sociology	55	60.4	36	39.6	0	0.0	91
Psychology	58	64.4	32	35.6	0	0.0	90
Criminology	84	92.3	7	7.7	0	0.0	91
Biology	9	10.3	51	57.9	28	31.8	88
General Business	21	23.8	58	65.9	9	10.3	88
English: Report Writing	69	77.5	20	22.5	0	0.0	89
Political Science	31	34.8	50	56.2	8	9.0	89
Public Speaking; Inc. Crowd Control	62	68.9	28	31.1	0	0.0	90
Photography	27	30.3	50	56.2	12	13.5	89
Art: Perspective, Sketching, Graphing	10	11.2	60	67.4	19	11.4	89
Driver Training	61	67.8	21	23.3	8	8.9	90
Pursuit Driving and Safety	57	64.0	29	32.6	3	3.4	89
Disaster Emergency Training	78	87.6	10	11.2	1	1.2	89
Law: Court Procedures	81	91.0	7	7.8	1	1.2	89
Law: Recent Court Decisions	65	73.9	23	26.1	0	0.0	88
Law: Criminal Code	81	92.0	7	8.0	0	0.0	88
Law: Civil Code	78	88.6	9	10.2	1	1.2	88
Law: Motor Vehicle Code	79	89.8	9	10.2	0	0.0	88
Audio-Visual Aids	27	30.3	59	66.3	3	3.4	89
Cultural Studies: Art, Drama, Music	1	3.4	13	44.8	15	51.8	29
Phy. Ed.: Coaching Youth Sports	5	5.5	55	60.4	31	34.1	91
Phy. Ed.: Physical Conditioning, WSI Swimming	23	26.7	49	57.0	14	16.3	86
Phy. Ed.: Self Defense & Tactical Defense	54	60.7	31	34.8	4	4.5	89
Supervision	66	77.6	19	22.4	0	0.0	85
Narcotics - And Chemistry Of	68	75.6	22	24.4	0	0.0	90
Police Ethics and Conduct	84	93.3	5	5.6	1	1.1	90
Juvenile Behavior	76	84.4	12	13.3	2	2.3	90
Community Relations	81	92.0	7	8.0	0	0.0	88
Traffic Planning	63	70.0	25	27.8	2	2.0	90

Ratings By Superintendents of Schools of Proposed Curricula For Staff Officers-Continued

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Firearms - Handling and Range	72	80.0	18	20.0	0	0.0	90
Finger Printing	67	75.3	21	23.5	1	1.2	89
Criminal Investigation: Arrest, Search and Seizure Provisions	81	91.0	8	9.0	0	0.0	89
Criminal Investigation: Typewriter, Handwriting Investigation	49	55.1	35	39.3	5	5.6	89
Criminal Investigation: Firearms and Modus Operandi Investigation	62	72.1	22	25.6	2	2.3	86
Patrol Function: Foot and Vehicle	56	65.1	28	32.6	2	2.3	86
Sensitivity Training: Prejudice, etc.	63	70.8	23	25.8	3	3.4	89
Interviewing Techniques	73	82.0	16	18.0	0	0.0	89
Statistics	33	36.7	52	57.8	5	5.5	90
Study of Social Problems	53	58.2	38	41.8	0	0.0	91
Study of Individual Problems	44	50.0	43	48.9	1	1.1	88
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	2,255	61.5	1,184	32.3	229	6.2	3,668

TABLE 6

Ratings By Rotary Presidents of Proposed Curricula For Staff Officers

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Typing-Basic	30	54.5	19	34.5	6	11.0	55
Typing-Advanced	9	17.0	20	37.7	24	45.3	53
Sociology	31	56.4	22	40.0	2	3.6	55
Psychology	33	60.0	21	38.2	1	1.8	55
Criminology	52	94.5	3	5.5	0	0.0	55
Biology	9	17.0	23	43.4	21	39.6	53
General Business	17	32.1	35	66.0	1	1.9	53
English: Report Writing	48	88.9	6	11.1	0	0.0	54
Political Science	13	24.1	32	59.3	9	16.6	54
Public Speaking, Incl. Crowd Control	40	75.5	10	18.9	3	5.6	53
Photography	9	16.7	35	64.8	10	18.5	54
Art: Perspective, Sketching, Graphing	6	11.1	38	70.4	10	18.5	54
Driver Training	25	47.2	24	45.3	4	7.5	53
Pursuit Driving and Safety	34	64.2	16	30.2	3	5.6	53
Disaster Emergency Training	46	83.6	9	16.4	0	0.0	55
Law: Court Procedures	49	89.1	6	10.9	0	0.0	55
Law: Recent Court Decisions	33	62.3	17	32.1	3	5.6	53
Law: Criminal Code	47	87.0	7	13.0	0	0.0	54
Law: Civil Code	45	83.3	8	14.8	1	1.9	54
Law: Motor Vehicle Code	46	88.5	5	9.6	1	1.9	52
Audio-Visual Aids	18	33.3	35	64.8	1	1.9	54
Cultural Studies: Art, Drama, Music	0	0.0	10	50.0	10	50.0	20
Phy. Ed.: Coaching Youth Sports	6	11.1	26	48.1	22	40.8	54
Phy. Ed.: Physical Conditioning, WSI Swimming	17	32.1	32	60.4	4	7.5	53
Phy. Ed.: Self Defense & Tactical Defense	38	70.4	14	25.9	2	3.7	54
Supervision	49	90.7	5	9.3	0	0.0	54
Narcotics - And Chemistry Of	39	72.2	14	25.9	1	1.9	54
Police Ethics and Conduct	51	94.4	3	5.6	0	0.0	54
Juvenile Behavior	43	78.2	12	21.8	0	0.0	55
Community Relations	40	72.7	14	25.5	1	1.8	55
Traffic Planning	39	70.9	11	20.0	5	9.1	55

Ratings By Rotary Presidents of Proposed Curricula For Staff Officers - Continued

Curriculum	RATINGS Essential No.	Essential Per Cent	Helpful No.	Helpful Per Cent	Not Needed No.	Not Needed Per Cent	Total
Firearms - Handling and Range	42	76.4	11	20.0	2	3.6	55
Finger Printing	42	76.4	11	20.0	2	3.5	55
Criminal Investigation: Arrest, Search and Seizure Provisions	46	85.2	8	14.8	0	0.0	54
Criminal Investigation: Typewriter, Handwriting Investigation	25	47.2	25	47.2	3	5.6	53
Criminal Investigation: Firearms and Modus Operandi Investigation	34	65.4	17	32.7	1	1.9	52
Patrol Function: Foot and Vehicle	30	55.6	21	38.9	3	5.5	54
Sensitivity Training: Prejudice, etc.	36	67.9	16	30.2	1	1.9	53
Interviewing Techniques	47	85.5	8	14.5	0	0.0	55
Statistics	26	47.3	27	49.1	2	3.6	55
Study of Social Problems	25	46.3	29	53.7	0	0.0	54
Study of Individual Problems	24	45.3	29	54.7	0	0.0	53
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	1,339	60.0	734	32.9	159	7.1	2,232

TABLE 7

Ratings By All Respondents of Proposed Curricula For Staff Officers

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Typing-Basic	206	56.5	141	38.6	18	4.9	365
Typing-Advanced	67	19.1	162	46.1	122	34.8	351
Sociology	182	53.4	146	42.8	13	3.6	341
Psychology	205	55.9	151	41.1	11	3.0	367
Criminology	304	81.5	64	17.2	15	1.3	373
Biology	38	10.6	190	52.9	131	36.5	359
General Business	116	31.9	211	58.0	37	10.1	364
English: Report Writing	306	82.3	66	17.7	0	0.0	372
Political Science	102	27.9	219	59.8	45	12.3	366
Public Speaking; Incl. Crowd Control	270	73.6	92	25.1	5	1.3	367
Photography	131	35.7	197	53.7	39	10.6	367
Art: Perspective, Sketching, Graphing	56	15.2	247	67.1	65	17.7	368
Driver Training	179	49.3	141	38.9	43	11.8	363
Pursuit Driving and Safety	205	54.8	141	37.7	28	7.5	374
Disaster Emergency Training	288	78.3	76	20.6	4	1.1	368
Law: Court Procedures	324	89.5	35	9.7	3	0.8	362
Law: Recent Court Decisions	286	77.5	78	21.1	5	1.4	369
Law: Criminal Code	344	92.0	29	7.8	1	0.2	374
Law: Civil Code	270	73.0	87	23.5	13	3.5	370
Law: Motor Vehicle Code	325	88.3	41	11.1	2	0.6	368
Audio-Visual Aids	110	30.1	238	65.0	18	4.9	366
Cultural Studies: Art, Drama, Music	3	2.4	47	37.9	74	59.7	124
Phy. Ed.: Coaching Youth Sports	18	5.0	186	52.0	154	43.0	358
Phy. Ed.: Physical Conditioning, WSI Swimming	81	23.4	222	64.2	43	12.4	346
Phy. Ed.: Self Defense & Tactical Defense	231	63.5	118	32.4	15	4.1	364
Supervision	301	86.7	46	13.3	0	0.0	347
Narcotics - And Chemistry Of	274	73.5	97	26.0	2	0.5	373
Police Ethics and Conduct	347	93.0	22	5.9	4	1.1	373
Juvenile Behavior	283	76.3	84	22.6	4	1.1	371
Community Relations	314	84.6	54	14.6	3	0.8	371
Traffic Planning	260	70.6	97	26.4	11	3.0	368

Ratings By All Respondents of Proposed Curricula For Staff Officers - Continued

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Firearms - Handling and Range	287	77.2	78	21.0	7	1.8	372
Finger Printing	257	69.6	104	28.2	8	2.2	369
Criminal Investigation: Arrest, Search and Seizure Provisions	344	92.7	27	7.3	0	0.0	371
Criminal Investigation: Typewriter, Handwriting Investigation	173	47.9	166	46.0	22	6.1	361
Criminal Investigation: Firearms and Modus Operandi Investigation	230	64.6	118	33.2	8	2.2	356
Patrol Function: Foot and Vehicle	229	63.3	117	32.3	16	4.4	362
Sensitivity Training: Prejudice, etc.	225	61.0	130	35.2	14	3.8	369
Interviewing Techniques	317	86.1	50	13.6	1	0.3	368
Statistics	173	48.0	167	46.3	21	5.7	361
Study of Social Problems	187	50.8	173	47.0	8	2.2	368
Study of Individual Problems	141	39.2	208	57.8	11	3.0	360
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	8,989	59.6	5,063	33.6	1,034	6.8	15,086

Responses Concerning Police Patrolman Education

Tables 8 through 12 summarize responses by category which rate the proposed curricula for preparation of police patrolmen. Table 13 gives composite responses of the five categories. It is apparent that the curricula are not rated as important, in the average, for patrolmen as they are for staff officers. From Table 13 we can see that 48.9 per cent of all responses were in the "essential" category, while 40.3 per cent were rated "helpful" and 10.8 per cent were rated "not needed." Again the reader is invited to decide which group(s) of respondents are in the best position to judge the worth of police patrolman curriculum elements.

A majority of all responses were "essential" for the following curricula in descending order of preference:

Curriculum	Per Cent Rating "Essential"
Police Ethics and Conduct	89.7
Law: Motor Vehicle Code	88.4
Firearms - Handling and Range	88.3
Pursuit Driving and Safety	84.8
Patrol Function: Foot and Vehicle	84.3
Phy. Ed.: Self Defense & Tactical Defense	83.5
Law: Criminal Code	80.0
Law: Court Procedures	76.8
English: Report Writing	76.2
Juvenile Behavior	75.5
Disaster Emergency Training	74.5
Community Relations	71.9
Driver Training	65.4
Interviewing Techniques	63.3
Criminology	62.8
Recent Court Decisions	60.1
Civil Code	58.0
Narcotics - And Chemistry Of	57.3
Sensitivity Training: Prejudice, etc.	55.3
Criminal Investigation: Firearms, Modus Operandi	46.3*

*Same number of responses for rating of "helpful".

The following curricula, for which the modal response for patrolmen education was "helpful," are listed in descending order of preference:

Curriculum	Per Cent Rating "Helpful"
Supervision	71.1
Audio-Visual Aids	69.4
Study of Social Problems (Sociology)	66.0
Study of Individual Problems	65.6
Political Science	65.5
Art: Perspective, Sketching, Graphing	61.0
Traffic Planning	58.5
General Business	58.4
Basic Typing	56.5
Statistics	56.3
Photography	55.4
Phy. Ed.: Physical Conditioning, WSI Swimming	54.7
Criminal Investigation: Typewriter, Handwriting Investigation	53.7
Psychology	52.9
Public Speaking; Including Crowd Control	52.0
Biology	50.0
Phy. Ed.: Coaching Youth Sports	49.0
Finger Printing	48.8

It should be noted here that the per cent listing a curriculum "helpful" is not the best index of preference. A more effective method is to add the "essential" and "helpful" ratings, or conversely to note the "not needed" percentages in ascending order. By this method we may note for example that only 6.7 per cent of all respondents considered finger printing "not needed."

Only two curricula received a modal response of "not needed" as preparation for police patrolmen: cultural studies and advanced typing.

The reader may wish to choose only one responding group, such as sheriffs or police chiefs as being the authorities for curriculum selection. Certain differences of opinion are noted, for example, in Tables 8 and 9. Police Chiefs tended

to rate police ethics and conduct, and criminal investigation involving arrest, search, and seizure as being most essential. Sheriffs tended to rank the motor vehicle code first and criminal code second, with arrest, search, and seizure close behind. No attempt will be made here to point out all such differences of opinion, but they can all be gleaned from Tables 8 through 12.

Certain differences of opinion as seen in the proportions of responses in the "essential," "helpful," and "not needed" ratings are observed among the five categories of respondents. Of the sheriff ratings, 51.0 per cent were "essential" and only 8.5 per cent were "not needed." At the other extreme, 43.3 per cent of the county district attorney ratings were "essential", and 16.9 per cent were "not needed."

When ratings of curricula for the staff officer are compared to those for the patrolman, the differences were seen in the proportion of "essential" and "helpful" responses more than in preference of one curriculum over another for a particular kind of position. Staff officers are thought to need the same kinds of preparations as patrolmen, but their needs are considered more urgent. For example, 93.0 per cent of all responses rated police ethics and conduct as "essential" for the staff officer, while 89.7 per cent of all responses rated this curriculum essential for the patrolman. There are some exceptions, and one example is the fact that the motor vehicle code is considered at least as important for patrolmen as staff officers. Pursuit driving and safety is rated far higher for patrolmen than for staff officers. In contrast, 86.7 per cent of ratings for staff officers of supervision curriculum were in the "essential" category, while only 19.2 per cent of the ratings for patrolman education of the supervision curriculum were essential - though more than 71 per cent considered supervision helpful to the patrolman. Similar kinds of contrasts can be observed by scrutiny of Tables 7 and 13.

TABLE 8

Ratings By Police Chiefs of Proposed Curricula For Patrolmen

Curriculum	RATINGS Essential No.	Essential Per Cent	Helpful No.	Helpful Per Cent	Not Needed No.	Not Needed Per Cent	Total
Typing-Basic	62	50.4	57	46.3	4	3.3	123
Typing-Advanced	13	10.9	65	54.6	41	34.5	119
Sociology	41	34.2	73	60.8	6	5.0	120
Psychology	50	42.4	64	54.2	4	3.4	118
Criminology	63	52.1	52	43.0	6	4.9	121
Biology	1	0.9	60	52.6	53	46.5	114
General Business	12	10.0	65	54.2	43	35.8	120
English: Report Writing	108	86.4	17	13.6	0	0.0	125
Political Science	11	9.2	82	68.3	27	22.5	120
Public Speaking; Incl. Crowd Control	55	45.1	65	53.3	2	1.6	122
Photography	46	37.4	72	58.5	5	4.1	123
Art: Perspective, Sketching, Graphing	21	16.9	77	62.1	26	21.0	124
Driver Training	66	54.1	45	36.9	11	9.0	122
Pursuit Driving and Safety	101	80.8	22	17.6	2	1.6	125
Disaster Emergency Training	81	65.9	39	31.7	3	2.4	123
Law: Court Procedures	107	85.6	18	14.4	0	0.0	125
Law: Recent Court Decisions	91	72.8	33	26.4	1	0.8	125
Law: Criminal Code	109	86.5	17	13.5	0	0.0	126
Law: Civil Code	74	59.7	49	39.5	1	0.8	124
Law: Motor Vehicle Code	111	90.3	11	8.9	1	0.8	123
Audio-Visual Aids	19	15.7	86	71.1	16	13.2	121
Cultural Studies: Art, Drama, Music	0	0.0	6	17.1	29	82.9	35
Phy. Ed.: Coaching Youth Sports	3	2.6	49	41.9	65	55.5	117
Phy. Ed.: Physical Conditioning, WSI Swimming	29	25.9	78	69.6	5	4.5	112
Phy. Ed.: Self Defense & Tactical Defense	104	84.6	18	14.6	1	0.8	123
Supervision	22	20.4	81	75.0	5	4.6	108
Narcotics - And Chemistry Of	67	54.9	55	45.1	0	0.0	122
Police Ethics and Conduct	116	92.8	9	7.2	0	0.0	125
Juvenile Behavior	86	69.4	38	30.6	0	0.0	124
Community Relations	99	79.2	26	20.8	0	0.0	125
Traffic Planning	26	21.1	77	62.6	20	16.3	123

Ratings By Police Chiefs of Proposed Curricula For Patrolmen - Continued

Curriculum	Essential		Helpful		Not Needed		Total
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Firearms - Handling and Range	114	90.5	11	8.7	1	0.8	126
Finger Printing	46	36.5	76	60.3	4	3.2	126
Criminal Investigation: Arrest, Search and Seizure Provisions	115	92.7	9	7.3	0	0.0	124
Criminal Investigation: Typewriter, Handwriting Investigation	31	25.8	67	55.8	22	18.4	120
Criminal Investigation: Firearms and Modus Operandi Investigation	47	38.5	67	54.9	8	6.6	122
Patrol Function: Foot and Vehicle	108	87.1	16	12.9	0	0.0	124
Sensitivity Training: Prejudice, etc.	66	53.7	55	44.7	2	1.6	123
Interviewing Techniques	82	66.1	40	32.3	2	1.6	124
Statistics	18	14.8	67	54.9	37	30.3	122
Study of Social Problems	37	30.1	82	66.7	4	3.2	123
Study of Individual Problems	36	29.5	84	68.9	2	1.6	122
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	2,494	49.6	2,080	41.3	457	9.1	5,033

TABLE 9

Ratings By County Sheriffs of Proposed Curricula For Patrolmen

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Typing-Basic	27	46.6	30	51.7	1	1.7	58
Typing-Advanced	2	4.3	19	41.3	25	54.4	46
Sociology	14	26.4	37	69.8	2	3.8	53
Psychology	16	28.6	35	62.5	5	8.9	56
Criminology	35	61.4	21	36.8	1	1.8	57
Biology	3	5.6	27	50.0	24	44.4	54
General Business	6	10.9	41	74.5	8	14.6	55
English: Report Writing	50	87.7	7	12.3	0	0.0	57
Political Science	8	14.8	38	70.4	8	14.8	54
Public Speaking; Incl. Crowd Control	23	41.8	31	56.4	1	1.8	55
Photography	28	51.9	25	46.3	1	1.8	54
Art: Perspective, Sketching, Graphing	18	32.1	31	55.4	7	12.5	56
Driver Training	39	69.6	13	23.2	4	7.2	56
Pursuit Driving and Safety	48	85.7	7	12.5	1	1.8	56
Disaster Emergency Training	35	62.5	19	33.9	2	3.6	56
Law: Court Procedures	48	82.8	9	15.5	1	1.7	58
Law: Recent Court Decisions	41	71.9	15	26.3	1	1.8	57
Law: Criminal Code	51	87.9	7	12.1	0	0.0	58
Law: Civil Code	31	54.4	23	40.4	3	5.2	57
Law: Motor Vehicle Code	52	91.2	4	7.0	1	1.8	57
Audio-Visual Aids	11	19.6	40	71.4	5	9.0	56
Cultural Studies: Art, Drama, Music	2	9.1	8	36.4	12	54.5	22
Phy. Ed.: Coaching Youth Sports	2	3.7	28	51.9	24	44.4	54
Phy. Ed.: Physical Conditioning, WSI Swimming	19	37.3	25	49.0	7	13.7	51
Phy. Ed.: Self Defense & Tactical Defense	44	80.0	10	18.2	1	1.8	55
Supervision	11	22.0	34	68.0	5	10.0	50
Narcotics - And Chemistry Of	34	63.0	20	37.0	0	0.0	54
Police Ethics and Conduct	47	82.5	8	14.0	2	3.5	57
Juvenile Behavior	39	70.9	15	27.3	1	1.8	55
Community Relations	37	64.9	19	33.3	1	1.8	57
Traffic Planning	18	32.2	32	57.1	6	10.7	56

Ratings By County Sheriffs of Proposed Curricula For Patrolmen - Continued

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Firearms - Handling and Range	45	78.9	11	19.3	1	1.8	57
Finger Printing	29	53.7	22	40.7	3	5.6	54
Criminal Investigation: Arrest, Search and Seizure Provisions	48	87.3	7	12.7	0	0.0	55
Criminal Investigation: Typewriter, Handwriting Investigation	19	35.2	30	55.6	5	9.2	54
Criminal Investigation: Firearms and Modus Operandi Investigation	30	54.5	21	38.2	4	7.3	55
Patrol Function: Foot and Vehicle	46	82.1	9	16.1	1	1.8	56
Sensitivity Training: Prejudice, etc.	28	52.8	20	37.7	5	9.5	53
Interviewing Techniques	41	73.2	13	23.2	2	3.6	56
Statistics	6	11.3	37	69.8	10	18.9	53
Study of Social Problems	15	27.3	38	69.1	2	3.6	55
Study of Individual Problems	16	29.1	38	69.1	1	1.8	55
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	1,162	51.0	924	40.5	194	8.5	2,280

TABLE 10

Ratings By County District Attorneys of Proposed Curricula For Patrolmen

Curriculum	RATINGS Essential No.	Essential Per Cent	Helpful No.	Helpful Per Cent	Not Needed No.	Not Needed Per Cent	Total
Typing-Basic	9	18.0	40	80.0	1	2.0	50
Typing-Advanced	4	8.9	11	2.4	30	66.7	45
Sociology	10	21.3	30	63.8	7	14.9	47
Psychology	16	34.0	27	57.5	4	8.5	47
Criminology	32	66.7	15	31.2	1	2.1	48
Biology	4	8.2	18	36.7	27	55.1	49
General Business	2	4.3	16	34.8	28	60.9	46
English: Report Writing	31	63.3	18	36.7	0	0.0	49
Political Science	6	12.8	25	53.2	16	34.0	47
Public Speaking; Incl. Crowd Control	13	27.1	29	60.4	6	12.5	48
Photography	18	36.0	27	54.0	5	10.0	50
Art: Perspective, Sketching, Graphing	7	14.3	27	55.1	15	30.6	49
Driver Training	23	46.9	19	38.8	7	14.3	49
Pursuit Driving and Safety	40	80.0	10	20.0	0	0.0	50
Disaster Emergency Training	34	68.0	16	32.0	0	0.0	50
Law: Court Procedures	39	79.6	10	20.4	0	0.0	49
Law: Recent Court Decisions	29	60.4	17	35.4	2	4.2	48
Law: Criminal Code	38	77.6	10	20.4	1	2.0	49
Law: Civil Code	11	22.9	24	50.0	13	27.1	48
Law: Motor Vehicle Code	43	86.0	7	14.0	0	0.0	50
Audio-Visual Aids	5	10.9	29	63.0	12	26.1	46
Cultural Studies: Art, Drama, Music	0	0.0	4	20.0	16	80.0	20
Phy. Ed.: Coaching Youth Sports	2	4.4	16	35.6	27	60.0	45
Phy. Ed.: Physical Conditioning, WSI Swimming	14	29.8	24	51.1	9	19.1	47
Phy. Ed.: Self Defense & Tactical Defense	36	75.0	10	20.8	2	4.2	48
Supervision	10	22.2	29	64.4	6	13.4	45
Narcotics - And Chemistry of	26	53.0	21	42.9	2	4.1	49
Police Ethics and Conduct	42	85.7	6	12.2	1	2.1	49
Juvenile Behavior	34	70.8	14	29.2	0	0.0	48
Community Relations	26	55.3	18	38.3	3	6.4	47
Traffic Planning	6	12.8	28	59.6	13	27.6	47

Ratings By County District Attorneys of Proposed Curricula For Patrolmen - Continued

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Firearms - Handling and Range	42	87.5	5	10.4	1	2.1	48
Finger Printing	24	51.1	16	34.0	7	14.9	47
Criminal Investigation: Arrest, Search and Seizure Provisions	45	93.7	3	6.3	0	0.0	48
Criminal Investigation: Typewriter, Handwriting Investigation	14	29.8	22	46.8	11	23.4	47
Criminal Investigation: Firearms and Modus Operandi Investigation	24	52.2	17	37.0	5	10.8	46
Patrol Function: Foot and Vehicle	36	76.6	9	19.1	2	4.3	47
Sensitivity Training: Prejudice, etc.	18	38.3	26	55.3	3	6.4	47
Interviewing Techniques	30	62.5	17	35.4	1	2.1	48
Statistics	0	0.0	17	35.4	31	64.6	48
Study of Social Problems	7	14.6	31	64.6	10	20.8	48
Study of Individual Problems	8	17.0	29	61.7	10	21.3	47
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	858	43.3	787	39.8	335	16.9	1,980

TABLE 11

Ratings By Superintendents of Schools of Proposed Curricula For Patrolmen

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Typing-Basic	18	21.2	51	60.0	16	18.8	85
Typing-Advanced	3	3.7	19	23.5	59	72.8	81
Sociology	42	47.2	47	52.8	0	0.0	89
Psychology	50	56.2	38	42.7	1	1.1	89
Criminology	65	73.0	24	27.0	0	0.0	89
Biology	6	7.0	51	59.3	29	33.7	86
General Business	6	7.1	52	61.2	27	31.7	85
English: Report Writing	56	63.7	31	35.2	1	1.1	88
Political Science	15	17.4	58	67.4	13	15.2	86
Public Speaking; Incl. Crowd Control	44	50.6	39	44.8	4	4.6	87
Photography	23	26.4	47	54.0	17	19.6	87
Art: Perspective, Sketching, Graphing	8	9.2	60	69.0	19	21.8	87
Driver Training	67	76.1	14	15.9	7	8.0	88
Pursuit Driving and Safety	77	87.5	9	10.2	2	2.3	88
Disaster Emergency Training	78	89.7	8	9.2	1	1.1	87
Law: Court Procedures	64	73.6	23	26.4	0	0.0	87
Law: Recent Court Decisions	41	47.7	41	47.7	4	4.6	86
Law: Criminal Code	65	75.6	21	24.4	0	0.0	86
Law: Civil Code	63	73.2	22	25.6	1	1.2	86
Law: Motor Vehicle Code	75	87.2	11	12.8	0	0.0	86
Audio-Visual Aids	8	9.2	58	66.7	21	24.1	87
Cultural Studies: Art, Drama, Music	1	3.6	11	39.3	16	57.1	28
Phy. Ed.: Coaching Youth Sports	3	3.4	56	62.9	30	33.7	89
Phy. Ed.: Physical Conditioning, WSI Swimming	36	42.4	41	48.2	8	9.4	85
Phy. Ed.: Self Defense & Tactical Defense	75	86.2	11	12.7	1	1.1	87
Supervision	11	13.6	56	69.1	14	17.3	81
Narcotics - And Chemistry Of	51	57.9	36	41.0	1	1.1	88
Police Ethics and Conduct	83	94.3	4	4.6	1	1.1	88
Juvenile Behavior	78	88.6	9	10.3	1	1.1	88
Community Relations	71	80.7	15	17.0	2	2.3	88
Traffic Planning	28	31.8	52	59.1	8	9.1	88

Ratings By Superintendents of Schools of Proposed Curricula For Patrolmen - Continued

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Firearms - Handling and Range	81	92.0	7	8.0	0	0.0	88
Finger Printing	42	48.3	37	42.5	8	9.2	87
Criminal Investigation: Arrest, Search and Seizure Provisions	73	83.0	14	15.9	1	1.1	88
Criminal Investigation: Typewriter, Handwriting Investigation	16	18.4	44	50.6	27	31.0	87
Criminal Investigation: Firearms and Modus Operandi Investigation	39	46.4	37	44.0	8	9.6	84
Patrol Function: Foot and Vehicle	79	90.8	7	8.1	1	1.1	87
Sensitivity Training: Prejudice, etc.	59	67.0	24	27.3	5	5.7	88
Interviewing Techniques	49	55.7	33	37.5	6	6.8	88
Statistics	4	4.5	49	55.7	35	39.8	88
Study of Social Problems	27	30.3	56	62.9	6	6.8	89
Study of Individual Problems	29	33.3	53	60.9	5	5.8	87
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	1,809	50.4	1,376	38.3	406	11.3	3,591

TABLE 12

Ratings By Rotary Presidents of Proposed Curricula For Patrolmen

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Typing-Basic	17	29.8	33	57.9	7	12.3	57
Typing-Advanced	1	1.9	20	37.7	32	60.4	53
Sociology	21	36.8	33	57.9	3	5.3	57
Psychology	23	40.4	30	52.6	4	7.0	57
Criminology	38	67.9	18	32.1	0	0.0	56
Biology	3	5.5	23	42.6	28	51.9	54
General Business	1	1.8	37	67.3	17	30.9	55
English: Report Writing	40	72.7	15	27.3	0	0.0	55
Political Science	6	10.9	34	61.8	15	27.3	55
Public Speaking; Incl. Crowd Control	26	47.3	27	49.1	2	3.6	55
Photography	13	23.2	34	60.7	9	16.1	56
Art: Perspective, Sketching, Graphing	11	19.6	32	57.1	13	23.3	56
Driver Training	34	61.8	18	32.7	3	5.5	55
Pursuit Driving and Safety	51	92.7	4	7.3	0	0.0	55
Disaster Emergency Training	50	87.7	7	12.3	0	0.0	57
Law: Court Procedures	34	59.6	22	38.6	1	1.8	57
Law: Recent Court Decisions	21	38.2	29	52.7	5	9.1	55
Law: Criminal Code	37	66.1	18	32.1	1	1.8	56
Law: Civil Code	36	64.3	17	30.4	3	5.3	56
Law: Motor Vehicle Code	48	85.7	7	12.5	1	1.8	56
Audio-Visual Aids	5	9.4	39	73.6	9	17.0	53
Cultural Studies: Art, Drama, Music	0	0.0	7	36.8	12	63.2	19
Phy. Ed.: Coaching Youth Sports	5	8.9	28	50.0	23	41.1	56
Phy. Ed.: Physical Conditioning, WSI Swimming	30	53.6	24	42.9	2	3.5	56
Phy. Ed.: Self Defense & Tactical Defense	49	87.5	5	8.9	2	3.6	56
Supervision	11	19.6	41	73.2	4	7.2	56
Narcotics - And Chemistry Of	33	60.0	22	40.0	0	0.0	55
Police Ethics and Conduct	49	87.5	7	12.5	0	0.0	56
Juvenile Behavior	43	76.8	12	21.4	1	1.8	56
Community Relations	35	62.5	18	32.1	3	5.4	56
Traffic Planning	20	35.1	28	49.1	9	15.8	57

Ratings By Rotary Presidents of Proposed Curricula For Patrolmen - Continued

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Firearms - Handling and Range	50	87.7	4	7.0	3	5.3	57
Finger Printing	24	42.1	30	52.6	3	5.3	57
Criminal Investigation: Arrest, Search and Seizure Provisions	51	89.5	6	10.5	0	0.0	57
Criminal Investigation: Typewriter, Handwriting Investigation	12	21.8	32	58.2	11	20.0	55
Criminal Investigation: Firearms and Modus Operandi Investigation	27	50.0	25	46.3	2	3.7	54
Patrol Function: Foot and Vehicle	43	76.8	13	23.2	0	0.0	56
Sensitivity Training: Prejudice, etc.	32	57.1	22	39.3	2	3.6	56
Interviewing Techniques	34	59.6	22	38.6	1	1.8	57
Statistics	3	5.3	37	64.9	17	29.8	57
Study of Social Problems	14	25.0	38	67.9	4	7.1	56
Study of Individual Problems	15	27.3	36	65.5	4	7.2	55
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	1,096	47.5	954	41.4	256	11.1	2,306

TABLE 13

Ratings By All Respondents of Proposed Curricula For Patrolmen

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Typing-Basic	133	35.7	211	56.5	29	7.8	373
Typing-Advanced	23	6.7	134	39.0	187	54.3	344
Sociology	128	35.0	220	60.1	18	4.9	366
Psychology	155	42.2	194	52.9	18	4.9	367
Criminology	233	62.8	130	35.0	8	2.2	371
Biology	17	4.8	179	50.1	161	45.1	357
General Business	27	7.5	211	58.4	123	34.1	361
English: Report Writing	285	76.2	88	23.5	1	0.3	374
Political Science	46	12.7	237	65.5	79	21.8	362
Public Speaking; Incl. Crowd Control	161	43.9	191	52.0	15	4.1	367
Photography	128	34.6	205	55.4	37	10.0	370
Art: Perspective, Sketching, Graphing	65	17.5	227	61.0	80	21.5	372
Driver Training	229	65.4	95	27.1	26	7.5	350
Pursuit Driving and Safety	317	84.8	52	13.9	5	1.3	374
Disaster Emergency Training	278	74.5	89	23.9	6	1.6	373
Law: Court Procedures	292	76.8	82	21.6	6	1.6	380
Law: Recent Court Decisions	223	60.1	135	36.4	13	3.5	371
Law: Criminal Code	300	80.0	73	19.5	2	0.5	375
Law: Civil Code	215	58.0	135	36.3	21	5.7	371
Law: Motor Vehicle Code	329	88.4	40	10.8	3	0.8	372
Audio-Visual Aids	48	13.2	252	69.4	63	17.4	363
Cultural Studies: Art, Drama, Music	3	2.4	36	29.0	85	68.6	124
Phy. Ed.: Coaching Youth Sports	15	4.2	177	49.0	169	46.8	361
Phy. Ed.: Physical Conditioning, WSI Swimming	128	36.5	192	54.7	31	8.8	351
Phy. Ed.: Self Defense & Tactical Defense	308	83.5	54	14.6	7	1.9	369
Supervision	65	19.2	241	71.1	33	9.7	339
Narcotics - And Chemistry Of	211	57.3	154	41.9	3	0.8	368
Police Ethics and Conduct	332	89.7	34	9.2	4	1.1	370
Juvenile Behavior	280	75.5	88	23.7	3	0.8	371
Community Relations	268	71.9	96	25.7	9	2.4	373
Traffic Planning	98	26.4	217	58.5	56	15.1	371

Ratings By All Respondents of Proposed Curricula For Patrolmen - Continued

Curriculum	RATINGS						Total
	Essential		Helpful		Not Needed		
	No.	Per Cent	No.	Per Cent	No.	Per Cent	
Firearms - Handling and Range	332	88.3	38	10.1	6	1.6	376
Finger Printing	165	44.5	181	48.8	25	6.7	371
Criminal Investigation: Arrest, Search and Seizure Provisions	332	89.2	39	10.5	1	0.3	372
Criminal Investigation: Typewriter, Handwriting Investigation	92	25.4	195	53.7	76	20.9	363
Criminal Investigation: Firearms and Modus Operandi Investigation	167	46.3	167	46.3	27	7.4	361
Patrol Function: Foot and Vehicle	312	84.3	54	14.6	4	1.1	370
Sensitivity Training: Prejudice, etc.	203	55.3	147	40.1	17	4.6	367
Interviewing Techniques	236	63.3	125	33.5	12	3.2	373
Statistics	31	8.4	207	56.3	130	35.3	368
Study of Social Problems	100	27.0	245	66.0	26	7.0	371
Study of Individual Problems	104	28.4	240	65.6	22	6.0	366
Other	0	0.0	0	0.0	0	0.0	0
TOTALS	7,414	48.9	6,107	40.3	1,647	10.8	15,168

SUMMARY AND CONCLUSIONS

This questionnaire study was conducted in order to determine what consensus exists among law enforcement officers and certain other citizens of Wisconsin concerning what should constitute background preparation for police staff officers and patrolmen. Of 492 questionnaires sent out, 395 or 80.2 per cent were returned from police chiefs, county sheriffs, county district attorneys, school superintendents, and Rotary Club presidents. The investigator has no particular police program in mind in conducting the study; the findings will be made available to the public or to any interested party.

Forty-two separate proposed curricula were listed on the questionnaire, and respondents were asked to indicate if each was "essential," "helpful," or "not needed" for the police staff officer and for the patrolman. The respondents were invited to name other pertinent curricula or training units, and some of them did so. The following additional course contents were mentioned two or more times:

first aid (and advanced first aid)
public relations (though community relations was listed)
recognizing and preserving physical evidence at scene of crime
economics
communications
foreign language
data processing, programming business machines

The following learnings were listed by one person as needed in preparation for law enforcement:

accident investigation
admissibility of evidence
agriculture training (general)
aircraft accidents
alcoholism
animal calls
batons, use of
CBR training
common and technical terms
common law
constitution, the
criminal vocabulary
dictation techniques

domestic disturbances
drug traffic and dispensing
employment evaluation and development
explosives
family problems
handling youthful offenders, female offenders, abnormal people
logic
mechanics (auto)
memory and observation
mental illness
personnel management
physics
police role in a free society
probation and parole
sex offenders
techniques in field interrogations
telephone techniques and courtesy

Some comments were directed to the format and organization of the questionnaire. There were several very favorable comments such as, "I feel you have covered the field quite completely," and "very well put together." There were criticisms too, including the following rather specific comments:

"It appears that 'training' and 'education' are being used interchangeably, which would be disastrous." (Note: no attempt was made to separate them, though they are dissimilar.)

"In various technical aspects of law enforcement, a department usually has specialists, i.e., the essential and helpful categories can be shifted to suit individual departments."

"Selection should be a prime concern. All the courses in the world will not help if the candidates do not possess good emotional stability."

"I would question experienced police people to see their needs. They need support, not education."

"Course contents and instructor qualifications related to law enforcement are easier to rate than course titles."

"Your survey should include a third category for specialists; many that are checked helpful for staff officers would then be marked essential."

Following comments point to specific needs of policemen:

"We need officers who are educated in all fields."

"All police officers need at least a month course in humility."

"Every police officer should know how his country came to be and its development through history; he will better understand what his duty is as a police officer for his country." (from a police chief)

Said another police chief, "We find the greatest problem in police education is using instructors who learn from a book and have no first hand knowledge or examples to keep the interest of the class."

Both district attorneys and police chiefs pointed out that ideally all police officers should possess a legal education and keep up with recent developments in the law.

The following quotes point to what are considered some principal problems of police work:

"Two of the biggest problems facing police departments or officers in Wisconsin today are lack of good training prior to being assigned full time duty, and low wage scale. Equipment is also a problem. Police instructors always talk in terms of large departments.... The instructor should gear his class to the men and size of department they will be working with." (from a police chief)

"One of the biggest obstacles relative to police education in the social problems field is the lack of understanding of the role of a police agency - all of our men who have attended felt they were more misunderstood than (were) the problems." (from a police officer)

"I feel the real problem of qualified police department people has come about because of our so called professional people such as professors and judges who teach and permit all our permissiveness and freedom of anything we think is our right in society." (from a citizen)

"I'm very happy that law enforcement is finally being recognized as a profession and that police officers are being educated and trained. If through this the wages and therefore the qualifications can be raised, law enforcement will be a real profession. There are too many men working for police departments that are not police officers."

When responses concerning staff officer preparation are considered separately, 59.6 per cent of all responses were "essential" ratings, indicating that most of the proposed learnings were considered quite important. Only 6.8 per cent of the ratings were "not needed." County district attorneys tended to rate the curricula lower, for only 49.1 per cent of their responses were "essential." The other four categories of respondents tended to agree quite closely in their rating patterns.

The studies which headed the list as having the highest proportion of "essential" ratings were: police ethics and conduct; arrest, search and seizure provisions; criminal code; court procedures; motor vehicle code; supervision; and interviewing

techniques. All told, more than 50 per cent of all responses were "essential" for 27 of the 42 proposed learnings. Only one proposed curriculum, "cultural studies: art, drama, music" received a modal response of "not needed" for preparation of police staff officers.

When responses concerning patrolman preparation are considered separately, the "essential" responses constitute 48.9 per cent of the total, while 10.8 per cent of all ratings were "not needed." The highest proportion of "essential" responses were registered for the following courses: police ethics and conduct; motor vehicle code; firearms - handling and range; pursuit driving and safety; patrol function: foot and vehicles; and self defense and tactical defense. Some 19 of the 42 proposed courses received 55.3 per cent "essential" ratings or higher. For all but two other courses the modal rating was "helpful."

There is a surprising tendency for representatives of somewhat diverse citizen groups to agree on what should constitute staff officer and patrolman education. The reader is invited to single out any group or groups as the proper authorities on police education. But the findings do not vary greatly among groups in most cases. It appears to be consensus that 40 of the 42 proposed police courses are at least helpful in the preparation of law officers. If we accept these views, policemen have a great deal to learn that will help them become better officers. Staff officers especially have much that is rated "essential" to learn, either in school or in special on-the-job instruction. The content of such instruction is beyond the scope of this investigation.

* * *

(cover letter)

WISCONSIN STATE UNIVERSITY

STEVENS POINT, WISCONSIN 54481

The enclosed questionnaire is being sent to you because of the need for accurate up-to-date information on Police Education. There appears to be a need to reevaluate police training. Please complete this form fully, answering in the line of your observations and experiences.

The findings of this study will be useful to those planning to provide Police Education in the State of Wisconsin. Your prompt reply will be greatly appreciated.

Sincerely yours,

William H. Clements
Director of Institutional
Research & Studies

WHC:cm

POLICE EDUCATION (questionnaire)

Instructions: Consider carefully each of the following proposed course names or topics in terms of their usefulness as part of the college preparation of a policeman who is preparing for the position of (a) staff officer and (b) patrolman. Please check the appropriate column for each category. Add any other needed course contents to this list as you see fit.

Course or Subject Matter	STAFF OFFICER			PATROLMAN		
	Essential	Helpful	Not Needed	Essential	Helpful	Not Needed
Typing: Basic						
Typing: Advanced						
Sociology						
Psychology						
Criminology						
Biology						
General Business						
English (Report Writing)						
Political Science						
Public Speaking (Incl. Crowd Control)						
Photography						
Art: perspective, sketching, graphing						
Driver Training						
Pursuit Driving and Safety						
Disaster Emergency Training						
Law: Court procedures						
Recent court decisions						
Criminal code						
Civil Code						
Motor vehicle code						
Audio-Visual Aids						

5835

(over, please)

	STAFF OFFICER			PATROLMAN		
	Essential	Helpful	Not Needed	Essential	Helpful	Not Needed
Cultural studies (art, drama, music)						
Phy. Ed: coaching youth sports						
Physical conditioning, WSI swimming						
Self defense & tactical defense						
Supervision						
Narcotics: (and chemistry of)						
Police Ethics and Conduct						
Junvenile Behavior						
Community Relations						
Traffic Planning						
Firearms: handling & range						
Finger Printing						
Criminal Investigation: arrest, search & seizure provisions						
typewriter, handwriting investigation						
firearms and modus operandi investigation						
Patrol function (foot and vehicle)						
Sensitivity training (prejudice, etc.)						
Interviewing techniques						
Statistics						
Study of Social Problems						
Study of Individual Problems						
Other (please list)						

Other Comments

VT 012 724
Pucel, David J., And Others
Vocational Maturity and Vocational Training.

American Vocational Association, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Dec70 11p.Presented at the American Vocational Association Convention (New Orleans, Dec 7, 1970).

DESCRIPTORS - *OCCUPATIONAL ASPIRATION; *MATURITY TESTS; WORK EXPERIENCE; VOCATIONAL COUNSELING; VOCATIONAL DEVELOPMENT; *VOCATIONAL INTERESTS; *TEST VALIDITY; TEST RESULTS; ERROR PATTERNS; ADULT VOCATIONAL EDUCATION; CAREER PLANNING; *CAREER CHOICE
IDENTIFIERS - *VOCATIONAL DEVELOPMENT INVENTORY; VDI

ABSTRACT - Because of biased test results which appeared in a study of the Vocational Development Inventory (VDI), this paper questions the use of the VDI as an instrument for vocational counseling. Finding positive relationships between test scores and both intelligence and choice of a professional career, the study showed that the VDI does not provide accurate estimates of vocational maturity, since the extent to which vocational plans are developed is not the only variable affecting test results. (BH)

VT 012 724

ED0 57254

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VOCATIONAL MATURITY AND VOCATIONAL TRAINING

by

David J. Pucel*
Howard F. Nelson
Darrell Heitzman
David N. Wheeler

SUMMARY

The utility of the Vocational Development Inventory as an instrument to be used to counsel persons in terms of vocational-technical programs is questioned based on the results of this study. The instrument appears to have been developed in such a way that aspiring to a typical vocational program would give a person a low score as contrasted with persons aspiring to professional level occupations independent of how well thought out their vocational plans are. The basic factors contributing to this bias appear to be an interest continuum favoring persons interested in professional occupations and an intelligence continuum favoring the more intelligent.

This sub-study also revealed that post-high school vocational training has a differential effect upon the vocational maturity of persons enrolled in different training programs as measured by the attitude scale of the Vocational Development Inventory. Persons enrolled in technical programs significantly increased in vocational maturity while persons enrolled in skilled and sales/clerical programs did not. Also, it appears that persons with relatively low VDI scores who are not accepted for training and who enter employment do increase their VDI scores to a level similar to that of those who have taken part in training. Such a finding implies that experience in the world of work has the effect of increasing the vocational maturity of persons who originally have relatively low levels of vocational maturity as measured by the VDI.

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*All of the authors were staff members of Project MINI-SCORE, U.S.O.E. project no. HRD 5-0148, Department of Industrial Education, University of Minnesota. Paper presented at the American Vocational Association Convention, New Orleans, December 7, 1970.

VT012724

INTRODUCTION

According to early trait-and-factor theory, vocational choice was a point in time event, occurring usually upon leaving high school. More recent research into vocational choice behavior has pointed out the developmental process of occupational choice and underlined the importance of the concept of vocational maturity over time (Carter, 1940; Super, 1942). Ginzberg (Ginzberg, et al., 1951) proposed a vocational choice theory consisting of three major postulates:

1. Vocational choice is a process spanning the adolescent years.
2. The process is largely irreversible.
3. The process ends in a compromise between the individual's needs and the external realities.

Super (Super, 1957) has additionally emphasized the longitudinal nature of the choice phenomenon by suggesting the phrase "vocational choice" be replaced by that of "vocational development."

> The concept of vocational development leads logically to that of vocational maturity....Vocational maturity is used to denote the degree of development, the place reached on the continuum of vocational development from exploration to decline. Vocational maturity may be thought of as vocational age, conceptually similar to mental age in early adolescence... (pp. 185-186)

Central to the idea of vocational development is the concept of vocational maturity. Crites (Crites, 1965, 1969a, 1969b) has devised a standardized measuring instrument to assess an individual's vocational maturity at a point in time. His Vocational Development Inventory (VDI) consists of an Attitude Scale and a Competence Test, of which only the Attitude Scale has been fully developed. This 50 item scale, standardized on some 5,000 students from grades 5 through 12, deals with the concepts of: (a) involvement in the choice process, (b) orientation toward work, (c) independence in decision making, (d) preference for vocational choice factors, and (e) conceptions of the choice factors.

Most students who took the Project MINI-SCORE applicant test battery which included the Attitude Scale of the VDI, were 18 years of age. This places them toward the end of the exploratory or tentative stages of vocational choice -- development as set forth by most theoreticians (Ginzberg, et al, 1951; Super, 1957; Miller and Form, 1951), with vocational "maturity" or the realistic stage of vocational choice several years away. Therefore, if retested at a later date, an increased level of vocational development should be expected. Further, if vocational education helps to increase an individual's vocational maturity as is often suggested by supporters of vocational education, those who persist in vocational education ought to reach a higher degree of vocational maturity over a given period of time than initially similar persons who do not attend a vocational school.

STATEMENT OF THE PROBLEM

This investigation, a sub-study of Project MINI-SCORE research , was designed to investigate (1) the utility of the Vocational Development Inventory (VDI) as a counseling aid to be used with post-high school students, and (2) the effect post-high school vocational training has on the vocational maturity of students as measured by the VDI.

PART I

THE UTILITY OF THE VDI AS A COUNSELING AID FOR POST-HIGH SCHOOL VOCATIONAL STUDENTS

Two measures of the utility of an instrument as a vocational counseling aid might be (1) whether or not it provides information in addition to information obtained from other instruments, and (2) whether or not the instrument provides information which can be used by individuals to make occupational choices. The VDI was investigated in regard to both of these criteria.

The Uniqueness of Information Obtained from the VDI

Population and Sample

In order to investigate the question of the uniqueness of data obtained from the VDI, the VDI scores for a sample of individuals were correlated with other scores on the individuals available in the Project MINI-SCORE data bank. The population consisted of 6061 students that made application for entrance into one of the twenty-four, post-high school, Minnesota Area Vocational Technical schools taking part in Project MINI-SCORE during the period between January, 1968, and September, 1968. The intercorrelations were obtained from a sample of 1000 persons drawn randomly from the population. Intercorrelations were computed between the VDI and the following instrument scales: (1) the seven written General Aptitude Test Battery (GATB) aptitudes, (2) the nine Minnesota Vocational Interest Inventory (MVII) homogeneous keys, (3) the Sixteen Personality Factors (16-PF) scales, (4) the 30 scales of the 30 scale version of the Minnesota Importance Questionnaire (MIQ), (5) the Minnesota Scholastic Aptitude Test (MSAT) score and (6) 11 personal variables including work history and prior education.

A correlation program (UMST500) was used to correlate the VDI with the 74 other variables. See Table I for a list of these variables and their correlations with the VDI. Those variables which correlated significantly with the VDI at the .01 level are indicated with an asterisk.

TABLE I

CORRELATIONS BETWEEN THE VDI
AND OTHER PROJECT MINI-SCORE TEST BATTERY SCORES

VARIABLE	CORRELATION
GATB	
1. G-Intelligence	.328*
2. V-Verbal Aptitude	.357*
3. N-Numerical Aptitude	.257*
4. S-Spatial Aptitude	.140*
5. P-Form Perception	.114*
6. Q-Clerical Perception	.148*
7. K-Motor Coordination	.110*
MVII	
1. H-1 Mechanical	-.133*
2. H-2 Health Service	.110*
3. H-3 Office Work	.120*
4. H-4 Electronics	-.095*
5. H-5 Food Service	.062
6. H-6 Carpentry	-.080
7. H-7 Sales-Office	.116*
8. H-8 Clean Hands	.050
9. H-9 Outdoors	-.117*
16 PF	
1. A-Aloof vs. Warm, Outgoing	.076
2. B-Dull vs. Bright	.146*
3. C-Emotional vs. Mature	.022
4. E-Submissive vs. Dominant	-.074
5. F-Glum, Silent vs. Enthusiastic	-.021
6. G-Casual vs. Conscientious	-.017
7. H-Timid vs. Adventurous	.095*
8. I-Tough vs. Sensitive	.097*
9. L-Trustful vs. Suspecting	-.050
10. M-Conventional vs. Eccentric	-.028
11. N-Simple vs. Sophisticated	-.066
12. O-Confident vs. Insecure	-.052
13. Q1-Conservative vs. Experimenting	.064
14. Q2-Dependent vs. Self-Sufficient	.040
15. Q3-Uncontrolled vs. Self-Controlled	.120*
16. Q4-Stable vs. Tense	-.067
MIQ	
1. Ability Utilization	.049
2. Achievement	.078
3. Activity	.077
4. Advancement	-.040
5. Authority	-.226*
6. Company Practices & Policies	.139*
7. Compensation I	-.090*
8. Co-workers	.052
9. Creativity	-.107*
10. Independence	-.273*

TABLE I (continued)

VDI CORRELATIONS

VARIABLES	CORRELATION
11. Moral Value	.170*
12. Recognition	-.156*
13. Responsibility	-.162*
14. Security	.047
15. Social Service	.052
16. Social Status	-.251*
17. Supervision (Human Relation)	.077
18. Supervision (Technical)	.012
19. Variety	-.088*
20. Working Conditions	.021
21. Work Challenge	-.208*
22. Company Image	.101*
23. Organization Control	-.170*
24. Feedback	-.035
25. Physical Facilities	-.100*
26. Work Relevance	-.030
27. Company Prestige	.047
28. Company Goals	.002
29. Closure	-.036
30. Compensation II relative to other jobs	-.127*
MSAT	.129*
PERSONAL DATA	
1. Age	.064
2. Years of Education	.079
3. High School Graduate	.030
4. Number of Dependents	.049
5. Married	.073
6. Number of Trade Changes	.016
7. Prior High School Vocational Training	-.013
8. Prior Post-high Vocational Training	.017
9. Related Work Experience	.064
10. Unrelated Work Experience	.032
11. Sex	-.184*

*correlation significantly different than zero at the .01 level

Results

The results will be discussed in regard to one instrument at a time. Only those scales of a given instrument that were significantly correlated with the VDI at the .01 level will be discussed.

GATB

All of the seven written GATB aptitudes significantly correlated with the VDI. The highest correlations (.328, .357 and .257) were with those scales closely related to intelligence. It appears that more intelligent persons obtain higher scores on the VDI.

MVII

Six of the nine MVII homogeneous key scales were significantly correlated with the VDI. The results indicate that there are positive relationships between increases on the following scales and vocational maturity: health service, office work and sales-office. There are negative relationships between the VDI and the mechanical scale, electronics scale, and outdoors scale. Apparently the VDI considers a positive attitude as one being oriented toward professional or white collar occupations as contrasted with an attitude oriented toward skilled or blue collar occupations.

16-PF

Four of the sixteen scales of the 16-PF were found to have significant positive correlations with the VDI: scale B, scale H, scale I and scale Q3. The results indicate that persons who are more intelligent, venturesome, tender-minded and/or controlled obtain higher scores on the VDI.

MIQ

Fourteen of the thirty scales of the thirty scale version of the MIQ were found to be significantly correlated with the VDI. All but the correlation with the "Company Image" scale, the "moral value" scale and the correlation with the "Company Practices and Policies" scale were negative. The scales which correlated negatively with the VDI were "Authority","Compensation I", "Creativity", "Independence", "Recognition", "Responsibility","Social Status", "Variety", "Work Challenge", "Organizational Control", "Physical Facilities", and "Compensation II." The results imply that people who wish to work for a company with prestige and fair policies and do not aspire to a position of independence, recognition, social status and relatively large amounts of compensation receive higher scores on the VDI.

Personal Data

Sex was the only one of the eleven personal data variables which significantly correlated with the VDI. Apparently females obtained higher scores on the average than did males. This may be due to the fact that most females applied to white collar types of jobs. Age and amount of prior education did not significantly correlate with the VDI. These findings can possibly be explained by the fact that persons in the population were quite homogeneous in terms of age and prior education. Most of the persons were about eighteen years of age and were high school graduates.

Ability of the VDI to Differentiate Graduates from Different Vocational-Technical Curricula

Another previously completed Project MINI-SCORE sub-study, Differentiating Among Graduates of Vocational-Technical Curriculums (Pucel, et al., 1970) described differences in VDI scores among persons who entered and graduated from selected groups of male and female curriculums. The results of this study indicated that significant differences existed between persons who entered and graduated from different male curricula as well as from different female curricula.

Conclusions

The attitude scale of the VDI apparently is measuring something relatively unique from any one of the scales of the other instruments included in the Project MINI-SCORE battery although it is significantly correlated with many of the scales. The highest correlation between any of the scales and the VDI was the correlation with the verbal aptitude scale of the GATB (.357). Four other scales had correlations with the VDI greater than plus or minus .25: GATB-G and GATB-N and MIQ-Independence and MIQ-Social Status. A total of 33 of the 74 scales of the Project MINI-SCORE battery correlated significantly at the .01 level with the VDI. These 33 scales represent constructs which appear to be related to intelligence and aptitudes, white collar versus blue collar job interests, and/or controlled behavior. Persons who have more aptitude, have white collar versus blue collar job interests and/or do not aspire to increase their social and occupational levels appear to obtain higher VDI scores.

Regardless what constructs the VDI is actually measuring it does appear to be capable of distinguishing graduates from different vocational-technical curricula.

PART II

THE EFFECT OF POST-HIGH SCHOOL TRAINING ON VOCATIONAL MATURITY

The objective of this investigation was to determine if taking part in a post-high school vocational program increases a student's vocational maturity as measured by the attitude scale of the VDI.

Population and Sample

The population for the investigation consisted of students who were originally tested by Project MINI-SCORE and applied to one of thirteen curriculums offered by the area vocational-technical schools between January and September of 1968. Three schools participated in the study: Minneapolis, St. Cloud, and Alexandria. The thirteen curriculum areas were clustered into three occupational clusters as follows: technical cluster - computer programming, electronics, data processing, offset printing; skilled cluster - carpentry, diesel mechanics, farm equipment mechanics, automotives, machine shop; and sales/clerical cluster - accounting, fashion merchandising, sales & marketing, and sales management.

Each cluster was divided into two groups. One group consisted of persons who applied, were accepted for training, and were about to graduate (experimental group). The other group consisted of persons who applied and were not accepted (control group). The original control groups included 103 persons. Seventy-one per cent or 73 returned their questionnaires and are reported in the control groups of this investigation. The sample group sizes are presented in Table II.

TABLE II

SAMPLE GROUPS

	"EXPERIMENTAL"	"CONTROL"
CLUSTER	ACCEPTED ABOUT TO GRAD	NOT ACCEPTED
TECHNICAL	48	21
SKILLED	93	37
SALES CLERICAL	44	15

Results

The experimental and control groups were compared on the basis of pre-VDI scores obtained prior to the accepted groups enrolling in vocational programs in an attempt to determine if persons were admitted on the basis of vocational maturity.

TABLE III

PRE-VDI DIFFERENCES BETWEEN THE EXPERIMENTAL ON CONTROL GROUPS

	EXPERIMENTAL	CONTROL	F-VALUE
TECHNICAL	N = 48 $\bar{x}$ = 39.041 s = 3.775	N = 21 $\bar{x}$ = 38.381 s = 3.247	.485
SKILLED	N = 93 $\bar{x}$ = 37.344 s = 4.412	N = 37 $\bar{x}$ = 35.703 s = 5.825	3.029
SALES & CLERICAL	N = 44 $\bar{x}$ = 37.818 s = 3.724	N = 15 $\bar{x}$ = 38.733 s = 4.876	.575

Table III indicates that the experimental and control groups were not different for any of the three clusters on the basis of pre-VDI scores. Therefore, vocational maturity does not appear to have been a systematic factor in admitting students.

The treatments which the experimental groups received consisted of taking part in vocational-technical training programs offered by the vocational schools. Both the experimental and control groups were re-tested with the VDI when the experimental groups were about to graduate from the vocational schools. The experimental groups were tested in the schools and the control groups were followed up with a mailed questionnaire.

A comparison was made of pre and post training VDI scores of the experimental groups. The data reported in Table IV reveal that although the post-VDI group means were higher than the pre-VDI means for each of the three groups, the difference was significant only for the technical group. Persons in the technical group had significantly higher VDI scores when they were about to leave the training programs than when they entered.

TABLE IV

GAIN IN VDI SCORES FOR
EACH EXPERIMENTAL GROUP

		PRE	POST	F-VALUE
N = 48	TECHNICAL	$\bar{x}$ = 39.041 s = 3.775	$\bar{x}$ = 41.375 s = 4.134	8.344**
N = 93	SKILLED	$\bar{x}$ = 37.344 s = 4.412	$\bar{x}$ = 38.237 s = 4.593	1.825
N = 44	SALES & CLERICAL	$\bar{x}$ = 37.818 s = 3.724	$\bar{x}$ = 38.818 s = 4.363	1.338

**significant at the .01 level

Of the 73 members of the control groups, a number had to be eliminated in order to obtain a control group composed of persons who had not received any vocational training since they had applied to the schools. Forty-eight persons or 66 per cent of the control groups indicated on their follow-up questionnaires that they had taken part in public post-high school vocational training since originally not being admitted to the vocational schools. An additional eight people did not complete their post-VDI instrument and two persons were taking part in apprenticeship programs. The remaining 15 people from the three control groups were combined into one combined group.

In order to obtain an experimental group with a similar composition to that of the combined control group, a proportional stratified random sample was taken from the three occupational cluster experimental groups stratified according to the proportions of occupational training programs originally desired by persons in the combined control group. The results of the comparison of the combined control group and the stratified sampled experimental group are presented in Table V.

TABLE V

PRE-VDI AND POST-VDI COMPARISONS
OF THE COMBINED CONTROL GROUP
AND THE COMBINED EXPERIMENTAL

	N = 30 EXPERIMENTAL	N = 15 CONTROL	F-VALUE
Pre-measures	$\bar{x}$ = 38.87 s = 3.07	$\bar{x}$ = 35.53 s = 3.80	F = 10.05**
Post-measures	$\bar{x}$ = 38.80 s = 4.96	$\bar{x}$ = 37.87 s = 5.42	F = .33

The comparison of the two groups on the basis of pre-VDI scores indicated that the two groups were significantly different. The control group had significantly lower pre-VDI scores. A comparison of the two groups on the basis of post-VDI scores indicated that the groups were no longer significantly different when the experimental group was about to graduate. The control group scores increased on the average while the experimental group remained about the same.

Conclusions

Post high school vocational training appears to have a differential effect upon the vocational maturity of persons taking part in different types of training. Persons enrolled in the technical programs significantly increased in vocational maturity while persons enrolled in skilled and sales/clerical programs did not. Also, it appears that persons with relatively low VDI scores who are not accepted for training and who enter employment do increase their VDI scores to a level similar to that of those who have taken part in training. Such a finding implies that experience in the world of work has the effect of increasing the vocational maturity of persons who originally have relatively low levels of vocational maturity as measured by the VDI.

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VT 012 726
Osborn, William C.
An Approach to the Develcpment of Synthetic Performance Tests for Use in Training Evaluation. Professional Paper 30-70.

Human Resources Research Organization, Alexandria, Va.
Department of the Army, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Dec70 11p. Presentation to Annual Military Testing Association Conference (12th, French Lick, Ind., Sep 1970).

DESCRIPTORS - *TEST SELECTION; *TEST VALIDITY; *TEST CONSTRUCTION; *PERFORMANCE TESTS; *EVALUATION TECHNIQUES

ABSTRACT - This paper describes an approach to the selection of inexpensive alternatives to fully job-relevant performance tests. Based on the concept of content validity, the approach is to utilize the skill and knowledge required of the trainee as a criterion for assessing the cost and job-relevance of fabricated alternatives to performance tests. Two job tasks are analyzed to illustrate the concept. (Author/BH)

VT 012 726

ED0 57254

Professional Paper 30-70
December 1970

An Approach to the Development of Synthetic Performance Tests for Use in Training Evaluation

by

William C. Osborn

Presentation to
12th Annual Military Testing
Association Conference
French Lick, Indiana September 1970

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VT012726

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HUMAN RESOURCES RESEARCH ORGANIZATION

5850

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The contents of this paper are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

Published
December 1970
by
HUMAN RESOURCES RESEARCH ORGANIZATION
300 North Washington Street
Alexandria, Virginia 22314

5851

Prefatory Note

This paper was presented at the 12th Annual Military Testing Association Conference at French Lick, Indiana in September 1970. The focus of the research is on economical and job-relevant testing.

The research on which this paper is based was performed under Work Unit TRAINMAN, Development of an Instructional Program in Training Technology and Training Management, at the Human Resources Research Organization, Division No. 2, Fort Knox, Kentucky.

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AN APPROACH TO THE DEVELOPMENT OF SYNTHETIC PERFORMANCE TESTS FOR USE IN TRAINING EVALUATION

William C. Osborn

The problem of job performance measurement in its simplest form is the identification of tests that are (a) economically feasible to administer, and (b) relevant to actual job behavior. Mr. Engel[1] has described one possible solution of the problem in terms of a program of correlation research that involves a concurrent validity approach to the identification of useful test methods.

I share Mr. Engel's interest in the problem of finding efficient alternatives to work sample tests. However, the focus of my paper will differ in two respects. First, I am more narrowly concerned with training evaluation and the problem of developing efficient performance tests for use in measuring student achievement. Second, rather than an approach involving concurrent validity, I am interested in a solution that has *content* validity. However, my final comments will indicate how the two approaches could be used to complement one another.

Performance Tests for Training

As an opening statement, it will be helpful to first review one or two primary concepts in training system engineering.

The training objective is a concept which bears directly upon the problem of test development for training. A training objective states a behavior which the student is to demonstrate at the end of training, the conditions under which he is to perform, and the standard of performance he is to reach. If the objective has been properly derived, these three elements—behavior, conditions, and standard—will reflect as closely as possible the real life requirements of the job-task for which the student is to be trained. When a job-task is being translated into a training objective, the training analyst also identifies the skill and knowledge components which the trainee must master to attain the training objective.[2]

The training objective (or set of objectives), along with the structure of skills and knowledge that the student is expected to master, is

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[1]John D. Engel. "An Approach to Standardizing Human Performance Assessment," HumRRO Professional Paper 26-70, October 1970. Mr. Engel also presented a paper at this Military Testing Association Conference.

[2]Robert G. Smith. *The Development of Training Objectives*, HumRRO Research Bulletin 11, June 1964.

of course the substance which training developers used to fashion a program of instruction, and it is also of great importance to the developer of training tests. A well prepared training objective is a stylized model of a job-task and serves as the model from which performance tests should be constructed. If thoroughly developed, such tests will enable us to satisfy the goals of training evaluation.

Tests are used in training to accomplish two objectives: (a) to document a student's achievement relative to a training objective or group of objectives, and (b) to diagnose deficiencies in a student's performance—that is, reasons for his failure to meet the objective as inferred from reasons for failing the test.[1]

Certification of student achievement is the more obvious use of tests. Here the training manager uses pass-fail results as the basis for decisions to advance the student to the next level of training, or, ultimately, out of training and into the job. The second, and perhaps less obvious, use of training tests is as a diagnostic aid. Here test results should provide information on why the student failed or performed poorly and enable the training manager to identify remedial training needs, as well as to isolate areas of weakness in the training program.

The importance which training objectives have for the use of tests in training evaluation is evident from this summation. The test will call for the behavior stated in the training objective, and if the student can perform this behavior at the proficiency level or the standard set in the objective, a pass or certification decision can be made. With the addition of some analytic scoring procedures, student strengths and weaknesses in performing the skill and knowledge components of the behavior may be diagnosed.

Thus we see how the training system loop is closed, and the training product is quality controlled. Job requirements are translated into training objectives; training objectives are translated into training content on one hand, and performance tests on the other; then the tests are used to evaluate the quality of student performance in relation to the training objectives or, synonymously, the job requirements.

The Problem in Developing Tests for Training

With this outline of the quality control system in mind, we are now ready to focus on the problems confronting the developer of tests for training evaluation. He shares the dilemma of those involved in all applications of performance measurement. It is always preferable to use performance tests that are as much like the job as possible, which normally implies some type of job sample test. But cost often prohibits this approach, particularly when large numbers of students must be tested, and when available time and field facilities for conducting job relevant tests are limited.

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[1]Eugene A. Cogan. "System View of Training and Quality Control," in *An Experimental Program of Instruction on the Management of Training*, by Donald F. Haggard, *et al.*, HumRRO Technical Report 70-9, June 1970.

An equally serious problem is that, in coping with the dilemma, it has become customary to rely on tests of knowledge to measure achievement. Paper-and-pencil tests seem to prevail, even though the real objectives often pertain to behaviors not closely related to recall or recognition of facts and principles. Clearly, we would not license a man to drive a car merely because he knows the rules of the road. Nor would we assume, on the basis of a trainee's correct recitation of rifle nomenclature, that he could accurately shoot a rifle. These are extreme examples representing instances in which manual performance tests are the rule. But the fact is that *most* behaviors in job-oriented training programs have both knowledge *and* skill requirements. To limit tests of these behaviors to knowledge elements does not meet the need for quality control in a training system.

Obviously, where job sample tests are not feasible, and job knowledge tests are not relevant, some compromise or intermediate method of testing should be found. Mr. Engel has referred to such intermediate methods as simulated performance tests. However, we are still left with a two-fold question: (a) How does one go about constructing such a test, and (b) how does one judge its relevance?

A Synthetic Approach to Performance Test Development

Although I don't have the final answer to these questions, it may be useful to conduct a reanalysis of the problem, and demonstrate one method of devising a test for a specific job task. The main idea, as you will see, is to employ the skill and knowledge components of a behavior in (a) synthesizing possible test methods, and (b) judging their relevance.

The job-task I have chosen, the task of determining range to a target using a binocular, is one of moderate importance to the job of a reconnaissance scout. To perform it he must know, or know how to do, three things:

(1) Know the width or height of the target or of objects near the target.
(2) Measure the apparent size of the target with the mil scale on the lens of the binocular.
(3) Employ the mil relation which is:

$$\text{Range} = \frac{\text{target size (width or height)}}{\text{apparent size of target in mils}}$$

Accuracy of range determination by this method depends on knowledge of target dimensions, the ability to make precise measurements with the binocular, knowledge of the mil relation, and the ability to divide correctly.

On the basis of an analysis of the task, a training objective could be prepared which might look something like this:

> Using binoculars, paper and pencil, and given a series of 20 targets in various degrees of concealment and orientation, and at ranges of 500 to 2500 meters,

student estimates and reports range to each target. Student has two minutes per target, and must report the range within ± 50 meters on 16 of the 20 targets.

Under ideal conditions—time and money being no object—student performance on this objective should be evaluated by field test. That is, 20 realistic targets would be located on an outdoor range. These should be a representative cross-section of targets that a reconnaissance scout might be expected to encounter in combat. They should be representative in terms of number of targets of each type (i.e., so many tanks, personnel carriers, bridges, troops, buildings), degree of concealment, orientation or angular view, and range.

Test stations, each station supervised by a tester, could be set up; a standardized instruction read to the student; and his performance scored in relation to the standard stated in the objective. This pass-fail score would be used in qualifying the student for the job. There should also be a supplemental scoring procedure, for use in evaluating the training program: the tester scoring the student on the enabling skills and knowledges. This score would probably be judgmental or subjective in the case of evaluating the student's skill in adjusting and stabilizing the binocular. However, most of the enabling performances could be objectively evaluated from the numbers written down by the student in the process of determining range: accuracy in reading the mil scale, estimated target size, knowledge of the mil relation, and accuracy in dividing.

This test procedure is ideal from the standpoint of realism, but hardly practical. The costs in time and support for conducting the test in such a setting would probably not be offset by the gain in realism of environmental and target conditions, particularly for testing on the less important student performance objectives (i.e., job-tasks not especially critical in terms of mission accomplishments).

If it is decided that a "full-field" simulation for performance testing is a luxury, some alternate method must be devised. It should *not* be too quickly assumed that the only alternative is a paper-and-pencil test of "knowledge of the task." Explicit in the concept of a student performance objective is the notion of an overt, demonstrable behavior. Every effort should be made to create test conditions and methods that will call for an exhibition of this behavior, and in a form that is as close to the actual job behavior as possible.

As I have indicated, procedures for developing an optimal test method short of full simulation are not apparent. For a given task we do not know what conditions and elements of behavior are most critical in terms of transfer from the test situation to the job situation. There are no guidelines for analyzing a task and then reproducing the critical elements in the form of a simulated or synthetic, job-relevant test situation. Nevertheless, training managers concerned with quality control must get on with the business of proficiency testing, and I believe that the tests might be substantially improved by applying resourcefulness and imagination.

Faced with the task of devising a method of performance testing when a field test is uneconomical and when a job-knowledge test is obviously inadequate, how might we proceed?

In terms of our example, Figure 1 summarizes the elements of one possible approach. Listed across the top of the chart are the skill and knowledge components of the task. Down the left side are potential test methods, graded in degree of complexity. Note that Method 1 is a full-scale job-sample test representing a direct translation of the training objective. Method 7, at the other extreme, is a paper-and-pencil test of knowledge of the mil relation, which to the best of my knowledge is the method now used to evaluate student performance on

Devising Methods for Testing Job Performance

METHODS OF TESTING TERMINAL PERFORMANCE (COMPLEX → SIMPLE)	COMPONENT (ENABLING) BEHAVIORS →							
	Adjusts and focuses binocular	Achieves stabilized view of target area	Identifies target or adjacent object of known size	Positions binocular mil scale on target or ranging object	Reads and records mil width or height of target or ranging object	Recalls or estimates and records actual size of target or ranging object	Recalls mil relation	Performs arithmetic division operation to obtain range
1. Full field test as described in objective.	•	•	•	•	•	•	•	•
2. Miniaturized replica of the field test; using toy targets on an indoor range: all to scale.	•	•	•	•	•	•	•	•
3. Photographs or drawings of targets mounted at fixed distance from student; student uses binoculars (lens replaced by plain glass with imprinted mil scale).		•	•	•	•	•	•	•
4. Target pictures printed on test; student uses mil scale overlay.			•	•	•	•	•	•
5. Target pictures with superimposed mil scale printed on test.					•	•	•	•
6. Name of target (or ranging object) and value of mil reading given on test.						•	•	•
7. Width (or height) of target and value of mil reading given on test.							•	•

Figure 1

this task. Methods 2 through 5, which represent alternatives of intermediate complexity, were fabricated by considering economically available ways of eliciting each skill and knowledge, and then attempting to synthesize them into a test method.

Now consider the evaluation of the alternatives. As the simplicity of test method increases, information on some component behaviors is lost. Thus, in achieving a simple test method we must sacrifice in two areas: (a) in test relevance (which often drops to a point where there is little justification for spending the testing time), and (b) in diagnostic information useful to the trainers—that is, if class performance was substandard on this task, was it because the trainees generally failed to attain a stabilized view of the target, *or* made constant errors in reading the mil scale, *or* inaccurately estimated target size, and so forth? The issue here becomes a tradeoff. How much test relevance and related diagnostic data pertaining to performance of component behaviors is one willing to sacrifice in achieving an easier and more economical test method?

Even without any cost figures, fair guesses can be made as to the relative economy of these test procedures. A substantial gain in time and money would probably result if we rejected Methods 1 and 2, and only small additional gains if we rejected Methods 3 through 6. Also, relatively few task-relevant behaviors are lost between 2 and either 3 or 4, whereas more such losses are associated with 5, 6, and 7.

There are those who would say that Method 1 is the *only* acceptable one because it *is* the job—therefore the only method that insures job-relevance. On the other hand, there are those who would maintain that Method 7 is sufficient because students who do well on one aspect of the job tend to do well on other aspects, so we can sort the better from the poorer students pretty well with even a small sample of their performance.

Which test method would you recommend?

Implications of the Approach

What I have described in this example is merely an application of the concept of a "table of specifications," as used in developing content validity in educational measurement. It appears to be a useful way of looking at the development of training tests, though certainly it is not the final answer. Perhaps it is best viewed as an interim aid to the development of feasible tests that, at least on logical grounds, are also job-relevant tests. The actual relevance of a test method could then be left to empirical verification through a research program of concurrent validation.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY *(Corporate author)*
Human Resources Research Organization (HumRRO)
300 North Washington Street
Alexandria, Virginia 22314

2a. REPORT SECURITY CLASSIFICATION
Unclassified

2b. GROUP

3. REPORT TITLE
AN APPROACH TO THE DEVELOPMENT OF SYNTHETIC PERFORMANCE TESTS FOR USE IN TRAINING EVALUATION

4. DESCRIPTIVE NOTES *(Type of report and inclusive dates)*
Professional Paper

5. AUTHOR(S) *(First name, middle initial, last name)*
William C. Osborn

6. REPORT DATE
December 1970

7a. TOTAL NO. OF PAGES
9

7b. NO. OF REFS
3

8a. CONTRACT OR GRANT NO.
DAHC 19-70-C-0012

b. PROJECT NO.
2Q062107A712

c.

d.

9a. ORIGINATOR'S REPORT NUMBER(S)
Professional Paper 30-70

9b. OTHER REPORT NO.(S) *(Any other numbers that may be assigned this report)*

10. DISTRIBUTION STATEMENT
Approved for public release; distribution unlimited.

11. SUPPLEMENTARY NOTES
Presented at the 1970 Military Testing Association Conference, 12th Annual, French Lick, Indiana

12. SPONSORING MILITARY ACTIVITY
Office, Chief of Research and Development
Department of the Army
Washington, D.C. 20310

13. ABSTRACT
This paper describes an approach to the selection of inexpensive alternatives to fully job-relevant performance tests. Based on the concept of content validity, the approach is to utilize the skill and knowledge required of the trainee as a criterion for assessing the cost and job-relevance of fabricated alternatives to performance tests. Two job tasks are analyzed to illustrate the concept.

DD FORM 1 NOV 65 1473

Unclassified

Security Classification

5859

Unclassified

Security Classification

14. KEY WORDS	LINK A ROLE	LINK A WT	LINK B ROLE	LINK B WT	LINK C ROLE	LINK C WT
Ability Tests						
Learning Ability						
Learning Systems						
Synthetic Performance Tests						
Training Evaluation						

Unclassified

Security Classification

VT 012 727
Licensed and Certified Occupations in Nevada.

Nevada State Dept. of Employment Security, Carson City. Manpower Information and Research Section.
Nevada State Dept. of Education, Carson City. Guidance and Pupil Personnel Service.
MF AVAILABLE IN VT-ERIC SET.
Nevada Employment Security Dept., Manpower Information and Research, 500 East Third Street, Carson City, Nevada 89701 (no charge).
PUB DATE - Apr70 196p.

DESCRIPTORS - *OCCUPATIONS; *CATALOGS; *OCCUPATIONAL INFORMATION; *CERTIFICATION; EDUCATIONAL NEEDS; EMPLOYMENT QUALIFICATIONS; *STATE STANDARDS; STATE LICENSING BOARDS
IDENTIFIERS - *NEVADA

ABSTRACT - To meet some of the information needs of the labor market, this catalog of licensed occupations in Nevada includes job descriptions, state licensing requirements, fees, approved training and a source for further information for over 100 regulated occupations. Because of variations between areas, only state requirements are included. (BH)

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LICENSED AND CERTIFIED OCCUPATIONS IN NEVADA

Prepared by:
Nevada Employment Security Department
Manpower Information and Research Section

and

Nevada State Department of Education
Guidance and Pupil Personnel Service
Frank R. Brown, Education Consultant
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APR 1970
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PREFACE

Entry into the licensed and certified occupations in Nevada should remain reasonably open to the increasing number of men and women entering the labor market so that individual freedom to move throughout the job market is maintained. The knowledge of requirements and fees for those occupations licensed or certified in Nevada should facilitate the smooth entry of interested workers. This booklet was designed to provide pertinent information concerning the description of the licensed occupation, the training requirement for a certificate or license, fee assessments, approved training, and the agency which issues the license.

Since many requirements vary from state to state, this information concerning Nevada should aid those people moving into Nevada who may be in a licensed or certified occupation. For more specific information on any of the licensing requirements of the occupations included in this booklet, refer to the listed agency or the appropriate section of the Nevada Revised Statutes.

Some occupations require additional municipal or county fees and added qualifications. For example, electricians and plumbers must have city licenses in both Las Vegas and Reno. Since municipal and county fees and requirements vary from area to area, only Nevada State requirements have been listed in this booklet. Some occupational licenses fringe on business licenses. Peddlers, hawkers, cattle dealers, fur dealers, and motor vehicle dealers all require licenses but have only the fee requirement without specific age, character, education, or other qualifying restriction to entry. In most cases, the above occupations (or businesses) require specific bookkeeping practices to oversee buying and selling the particular goods. These have not been included in this booklet.

ABSTRACTER

DESCRIPTION OF DUTIES	A commissioned abstracter shall have the authority to make search and examination of all public records, and compile abstracts of title to real property or other property therefrom, to make abstracts or copies of any and all instruments of record in any public office within this state, and to certify the same in his official name and title, and under his official seal. Term of office - 4 years.
REQUIREMENTS FOR LICENSE	1. Take official oath as prescribed by law. 2. Enter into a bond to the State of Nevada in the sum of $2,000, to be approved by the district judge of the county for which the commissioned abstracter may be appointed. 3. Appointed by Governor.
EXAMINATION AND FEE REQUIREMENTS	$10.00 fee paid to Secretary of State.
AGENCY THAT ISSUES LICENSE	Secretary of State Capitol Building Carson City, Nevada 89701
APPROVED TRAINING	None
FOR FURTHER INFORMATION	Secretary of State Capitol Building Carson City, Nevada 89701

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CERTIFIED PUBLIC ACCOUNTANT

DESCRIPTION OF DUTIES

A certified public accountant is a person who has successfully passed the Certified Public Accountant examination and is certified by the proper officials to practice accounting in any one state or territory of the United States. The services he renders may be either on a fee basis or as a member of an accountancy firm. These services consist of preparing or reviewing tax returns, or contesting claims before tax officials; preparing and certifying financial statements for presentation to executive boards of directors, banks and other lending agencies, stockholders, or other regulatory public bodies; devising and installing accounting systems, filing and bookkeeping systems, conducting financial investigations in matters such as suspected fraud, bankruptcy, royalty payment disputes, insolvency, and breach of contract; acting as a liquidating trustee in dissolution proceedings, or as an umpire in controversies involving accounts and clients; furnishing testimony in court and arbitration cases. He may also work independently, or supervise others in performing routine phases of operation, and any other legal financial matters that may fall within the capacity of a C.P.A.'s line of duty.

Certified Public Accountants must conduct their practices in conformity with rules of professional conduct which have been established to provide and maintain a high standard of integrity and dignity in the profession. These rules are also designed to assure that the C.P.A. can maintain his independence in reporting financial affairs.

REQUIREMENTS FOR LICENSE

1. Has attained the age of 21.
2. Is of good moral character.
3. Is a resident of this state or has a place of business therein, or is regularly employed in Nevada.
4. Is a citizen of the United States or has duly declared his or her intention of becoming a citizen.
5. Has not been convicted of violating any of the accountancy laws in Nevada.
6. Examinations for the certificate of Certified Public Accountant will be held simultaneously in Reno and Las Vegas, and such other places as the Board may from time to time designate, in May and November of each year. Applications for the May examination must be filed not later than March, and applications for the November examination not later than September 1.

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7. During the first 3-year period immediately following April 1, 1960, for a C.P.A. certificate shall be the satisfactory completion of a high school education in a high school accredited by the University of Nevada, or have completed a high school education acceptable to the board.

8. The experience requirements shall be four years of public accounting experience, satisfactory to the board, in any state in practice as a certified public accountant or as a public accountant, or in any state in employment as a staff accountant by anyone practicing public accounting, or any combination of either of such types of experience, but if all of such experience has been as a certified public accountant of another state or in the employ of a certified public accountant, then the term shall be three years.

9. During the second 3-year period immediately following April 1, 1960, the educational requirements shall be satisfactory completion of 2 years of study at one or more colleges or universities recognized by the board, or graduation from a junior college recognized by the board or private school or college licensed by the State Board of Education. The experience shall be the same as those set forth in Paragraph 8.

10. During the third 3-year period following April 1, 1960, the educational requirements for a certificate of certified public accountant shall include all of the above, and in addition, satisfactory completion of what the board determines to be substantially the equivalent of an accounting major, including related courses in other areas of business administration; and the experience requirements shall be the same as those set forth in Paragraph 8 of this section.

11. Every candidate for the C.P.A. certificate shall be subject to an examination in Theory of Accounts, Accounting Practice, Auditing, Commercial Law, and in such other related subjects as the Board shall determine to be appropriate which shall be wholly in writing and upon forms furnished by the Board.

EXAMINATION AND FEE REQUIREMENTS	Application fee shall be $50.00 payable to the Nevada State Board of Accountancy.
AGENCY THAT ISSUES LICENSE	Nevada State Board of Accountancy

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APPROVED TRAINING IN STATE:

University of Nevada
Reno, Nevada 89507

University of Las Vegas
Las Vegas, Nevada 89109

OTHER:

Any school or college approved by the Nevada State Board of Accountancy

FOR FURTHER INFORMATION

Mr. J. W. McMullen, Secretary-Treasurer
Nevada State Board of Accountancy
Post Office Box 30
Reno, Nevada 89504

Journals:

Journal of Accountancy
The Certified Public Accountant
(Issued to members only.)

5871

AIR TRAFFIC CONTROL SPECIALIST

DESCRIPTION OF DUTIES	Duties of ATC Specialist vary according to the option. Centers: Control of aircraft operating enroute along the airways for the purpose of assuring proper separation between aircraft. Terminals: Control of aircraft in the vicinity of airports for the purpose of assuring proper separation between aircraft. Flight Service: Provide information about weather, air navigation and airport conditions to pilots before and during flight.
REQUIREMENTS FOR LICENSE	All three options require successful completion of the Air Traffic Control School at the FAA Academy, Oklahoma City, Oklahoma. A passing grade of 70% is required on the written examination for ATC certificate. Successful completion of on-the-job training program with issuance of appropriate facility rating. Time limitation and complexity of training program is varied dependent upon size and type of facility.
EXAMINATION AND FEE REQUIREMENTS	There are no fee requirements. The examination is administered by the FAA upon recommendation of training department.
AGENCY THAT ISSUES LICENSE	Department of Transportation, Federal Aviation Administration
APPROVED TRAINING	Military Air Traffic Control Schools, pilot training at FAA approved schools and a few accredited universities.
FOR FURTHER INFORMATION	Contact nearest Federal Aviation Administration facility or U.S. Civil Service Commission office. Federal Aviation Administration Reno: Reno Municipal Airport (89502) Las Vegas: McCarran Airport (89111) U.S. Civil Service Commission Reno: 300 Booth Street (89502) Las Vegas: 300 Las Vegas Boulevard South (89101)

APPRAISER

DESCRIPTION OF DUTIES	Association staff members serving as appraisers are required by NRS 673.317 to be approved by the Savings and Loan Commissioner. This is granted on a criteria basis only, depending upon past experience and rating certificates earned from extension courses offered by three nationally recognized membership organizations.
REQUIREMENTS FOR LICENSE	None for savings and loan associations or the savings and loan division of the Department of Commerce of State of Nevada.
EXAMINATION AND FEE REQUIREMENTS	None
AGENCY THAT ISSUES LICENSE	Savings and Loan Commissioner, State of Nevada
APPROVED TRAINING	Past experience and rating certificates.
FOR FURTHER INFORMATION	State Department of Commerce Savings and Loan Division Nye Building, Room 216 201 South Fall Carson City, Nevada 89701

ARCHITECT

DESCRIPTION OF DUTIES

Provides services to the public of the scientific, aesthetic and orderly coordination of all processes entering into the production of a completed building performed through unbiased plans, specifications, supervision of construction, preliminary studies, consultations, evaluations, investigations, contract documents, oral advice, and direction.

REQUIREMENTS FOR LICENSE

By Examination:

7 written and 2 oral examinations, totaling 36½ hours, given in June and December, based on school and work experience at 5-year and 7-year level.

Application supported by fingerprint report cleared with the FBI. Letters of reference from 3 registered architects and transcripts of high school and college grades.

By Reciprocity (Registered in other states.):

Application supported by fingerprint report cleared with the FBI. Letters of reference from 3 registered architects, NCARB certificate. A treatise written on lateral forces with problem. (If not already examined for this.) A personal interview with the Board for approval of certification.

EXAMINATION AND FEE REQUIREMENTS

By examination:

First writing	$35.00
Re-writes	$25.00
Certification	$25.00
Yearly renewal	$25.00

By Reciprocity:

Application	$35.00
Certification	$25.00
Yearly Renewal	$25.00

AGENCY THAT ISSUES LICENSE

Nevada State Board of Architecture
137 Vassar Street
Reno, Nevada 89502

APPROVED TRAINING

National Accrediting Board issues list of qualified colleges in architectural training.

FOR FURTHER INFORMATION

Contact the Secretary of the Nevada State Board of Architecture at 137 Vassar Street, Reno, Nevada 89502. Telephone: 702-329-9103.

5874

ATTORNEY AT LAW

DESCRIPTION OF DUTIES

An attorney at law is a person of recognized educational experience, and legal qualifications who renders his services for free or reward, to defend or prosecute cases in courts of record, or other judicial tribunals of the United States, or of any of the states or give legal advice in relation to any causes or matters whatsoever.

REQUIREMENTS FOR LICENSE

Any person who wishes to be admitted to practice as an attorney and counselor at law in Nevada shall meet the following qualifications. These requirements apply to all such applicants after September 12, 1966: (Rule 51, Supreme Court Rules)

1. Be a citizen of the United States of America.

2. Have attained his majority.

3. Have been, and still be, a bona fide resident of the State of Nevada for a period of at least 6 months preceding the examination for which he applies, and shall have been physically present within the State of Nevada during all of the 6-month period for which bona fide residence is claimed. Should a bona fide resident, after completing the 6-month residence requirement above, absent himself from Nevada with the intention in good faith to return without delay and continue his residence the time of such absence shall not result in the loss of the applicant's bona fide residence.

4. If application for admission is made prior to September 12, 1966, have completed satisfactorily 2 years of college work in an accredited college or university.

5. If application for admission is made after September 12, 1966, have completed satisfactorily 3 years of college work in an accredited college or university, or have completed satisfactorily 2 years of college work if he was enrolled in a 4-year full-time law school program of an accredited college or university, and shall present evidence of the same.

6. Have received a degree of bachelor of laws, or an equivalent law degree, from a law school approved by the committee on legal education and admissions to the bar of the American Bar Association, and shall present evidence of the same.

7. Demonstrate that he is of good moral character, and that he is willing and able to abide by the high ethical standards required of attorneys and counselors at law.

8. Not have been refused admission to practice law, or have been disbarred from the practice of law, in any state or before any court or governmental agency of the United States on the ground of unfitness of character.

9. The names and post office addresses of all persons by whom the applicant has been employed, for a period of 10 years immediately preceding making of his application. Applications must be filed by April 1 of examination year.

10. Transcripts of all the applicant's academic grades provided board of bar examiners. These transcripts are included as part of the application and at his own expense.

EXAMINATION AND FEE REQUIREMENTS	Application fee $125.00 (Not previously admitted in any jurisdiction) NO PAYMENT SHALL BE REFUNDED. Application fee $200.00 (An attorney previously admitted in any jurisdiction) NO PAYMENTS SHALL BE REFUNDED.
AGENCY THAT ISSUES LICENSE	Clerk of the Supreme Court, Library Building, Carson City, Nevada. (Admission fee $25.00)
APPROVED TRAINING	Any law school fully approved by the Council of Legal Education of the American Bar Association.
FOR FURTHER INFORMATION	Board of Bar Examiners of Nevada Robert R. Herz, Executive Secretary State Bar of Nevada P.O. Box 2125 Reno, Nevada 89505

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BARBER

DESCRIPTION OF DUTIES

Cuts hair according to instructions of patron or according to original style; shapes neckline with comb and clippers or scissors. Usually shaves patron's neck; shampoos, dries, recombs hair, and applies tonic on request. Gives scalp treatments to cure dandruff or check falling hair. Serves male patrons by shaving beard, trimming beards and mustaches, giving facial massage; and performs other personal services incidental to barbering, such as trimming superfluous hair on eyebrows, in nostrils and ears.

REQUIREMENTS FOR LICENSE

To qualify for either journeyman or apprentice examination, the following requirements for all applicants must be met.

1. Must be a citizen of the United States, or citizenship must be pending.

2. Must submit a fingerprint card, furnished by the board. If applicant has ever been convicted of a felony, he must appear before the board to determine if applicant will be allowed to take an examination.

3. Must furnish two (2) 3" x 5" photographs of applicant, signed across the back in applicant's own handwriting.

4. Must submit a health certificate, furnished by this Board, and completed by a Nevada physician. This certificate, including a chest X-Ray and a blood test, will verify that applicant is free from infectious or contagious diseases, tuberculosis, or communicable diseases; that applicant is not a user of any kind of morphine, cocaine, or other habit forming drugs, and not a habitual drunkard.

JOURNEYMEN

In addition to the above requirements for all applicants, the following conditions must also be met:

1. Must furnish two (2) notarized affidavits on application blank, showing at least five (5) years experience as a barber, served within the last ten years. These affidavits must be signed by persons who can swear from their personal knowledge that applicant has the experience claimed.

2. Must furnish a current, paid-up license from the State or States in which experience is claimed.

3. Must furnish proof of at least a 10th grade education or an equivalent.

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APPRENTICES

In addition to the previous requirements for all applicants, the following conditions must also be met:

1. Must furnish two (2) notarized affidavits on application blank, certifying to the fact that applicant has been a resident of the State of Nevada for at least six (6) months, within one year prior to filing completed application.

2. Must furnish a graduation certificate, showing completion of a minimum of 1248 hours of instruction in a barber school approved by this Board. This instruction must be completed within one year prior to examination unless applicant is barbering in another state as a licensed apprentice.

3. Must furnish proof of at least a 12th grade education or an equivalent.

The Board reserves the right to refuse consideration of any application which is not in order.

Examinations are given the first part of March, June, September, and December.

Applications must be in the hands of the Secretary on or before the 15th of the month preceding examination date.

These requirements subject to change without notice.

EXAMINATION AND FEE REQUIREMENTS

The total fee will be $65.00; a $10.00 deposit to be paid upon issuance of application, and a balance of $55.00 to be paid when completed application is filed with the Secretary of the Board.

Personal checks will not be accepted unless certified.

FOREIGN APPLICANTS ONLY:

In addition to the above requirements for ALL applicants, the following requirements must be met:

Must furnish proof of at least a 12th grade education or equivalent.

Must furnish two (2) notarized affidavits on application blank, certifying to the fact that applicant has been a resident of the State of Nevada for at least six (6) months, within one year prior to filing completed application.

Must furnish two (2) notarized affidavits on application blank, certifying at least five (5) years experience as a licensed Registered (Journeyman or Master) Barber, served

within the last ten years. These affidavits must be signed by persons who can swear from their personal knowledge that you have the experience claimed.

Must furnish a current, paid-up license from the country in which your experience is claimed.

Must complete a refresher course of not less than 250 hours in a barber school approved by this Board.

AGENCY THAT ISSUES LICENSE

Nevada State Barbers Health & Sanitation Board

APPROVED TRAINING

Sacramento-Moler Barber College
727 J Street
Sacramento, California 95814

American Barber Colleges of Los Angeles
417 South Hill Street, Suite 701
Los Angeles, California 90013

or

any other barber school approved by the Nevada State Board.

FOR FURTHER INFORMATION

Mr. Elmo H. Martinelli, Secretary
Nevada State Barbers Health & Sanitation Board
1535 Clemson Road
Reno, Nevada 89502

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PROFESSIONAL BONDSMAN

DESCRIPTION OF DUTIES

"Professional bondsman" means any person, firm or corporation, other than a fidelity or surety company, or any of its officers, agents, attorneys or employees, authorized to execute bail bonds or to handle business on its behalf, who engages in the business of giving bail, giving or soliciting undertakings, giving or soliciting indemnity or counter-indemnity to sureties on undertakings.

REQUIREMENTS FOR LICENSE

1. Over 21 years of age.
2. Bona fide resident of Nevada for at least 3 months.
3. Has never been convicted of a felony.
4. Is financially capable of conducting the business.
5. Continuously maintains an office in the county where his business is conducted.

An application, fingerprint cards, and approval of the Commissioner of Insurance are required before a license is issued.

EXAMINATION AND FEE REQUIREMENTS

$50.00 annual license fee.

AGENCY THAT ISSUES LICENSE

Department of Commerce, Insurance Division

APPROVED TRAINING

None

FOR FURTHER INFORMATION

Contact: Department of Commerce, Insurance Division
Nye Building Room 319
201 South Fall Street
Carson City, Nevada 89701

or

Refer to: Nevada Revised Statutes 685.210 - 685.300.

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BUYERS, PRODUCE OR LIVESTOCK

DESCRIPTION OF DUTIES	Persons making purchase from the producer for resale or for shipment out of state. Broker-Dealer-Commission, Merchant-Cash, Buyer-Agent
REQUIREMENTS FOR LICENSE	Broker-Dealer-Commission Merchant 1. Financial statement. 2. $5,000 performance bond. 3. Character and good faith. Cash Buyer Payment in cash or certified check at time of delivery of items purchased. Agent Representative for one of the above.
EXAMINATION AND FEE REQUIREMENTS	Buyer - $40.00 per year. Agent - $10.00 per year.
AGENCY THAT ISSUES LICENSE	Nevada Department of Agriculture P.O. Box 1209 Reno, Nevada 89504
APPROVED TRAINING	None
FOR FURTHER INFORMATION	Nevada Department of Agriculture P.O. Box 1209 Reno, Nevada 89504

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APPRENTICE CARPENTER

DESCRIPTION OF DUTIES

An apprentice means a person who has agreed to work at and learn the carpentry trade in accordance with set standards, and who has signed the standard apprentice agreement, which agreement provides for four years of reasonably continuous employment for such person, and his participation in the approved program of training, through employment and through education in related and supplemental subjects.

REQUIREMENTS FOR LICENSE

Applications for apprenticeship must be made between the ages of 17 and 27. Veterans may be given special consideration.

1. Applicants for apprenticeship shall satisfy the local joint committee that they have sufficient education to take the related instruction, and be able to meet the requirements of the definition of a carpenter apprentice set forth in the above description.

2. An applicant must be an American citizen, or be in the process of naturalization, and be physically able to perform the work and meet such other entrance qualifications as shall be established by the joint committee. Usually a high school education, with no less than one year of mathematics is required.

3. The applicant must be prepared to furnish his own hand tools and related instruction material, as recommended by the joint committee.

4. Every apprentice must pay the premium for, and carry throughout his four years of apprenticeship, the schooltime accident insurance available through the school.

   Upon becoming indentured, the apprentice agrees not to hold the school, the instructor, the coordinator, the committee, or any member thereof, responsible for any accident.

5. The apprentice (and if the apprentice is a minor, the parent or guardian) and a member of the local joint committee, shall be required to sign this agreement, which shall conform to and be predicated upon these standards and bear the approval of the Nevada State Apprenticeship Council.

6. As a prerequisite or during the apprenticeship training period, it is recommended that the apprentice take or prepare to take 2 years of general math, one year of algebra (factoring, square roots, equations involving fractions, and fundamentals of trigonometry) and one semester of geometry.

7. Credit for previous experience: The local joint committee will evaluate all claims of previous experience and shall determine the credit for such experience on the apprenticeship term. The apprentice shall be paid the wage rate of the period in which he is classified.

APPROVED TRAINING

Adult and Continuing Education
Washoe County School District
395 Booth Street
Reno, Nevada 89502

or

Adult and Continuing Education
Clark County School District
401 South 9th Street
Las Vegas, Nevada 89101

FOR FURTHER INFORMATION

Churchill County

Carpenters' Joint Apprenticeship Council
Norman Robson, Secretary
P.O. Box 265
Fallon, Nevada 89406

Clark County

Carpenters' Joint Apprenticeship Council
A. D. McKenna, Coordinator
501 North Lamb Blvd.
Las Vegas, Nevada 89110

Maintenance Carpenters Joint Apprenticeship Council
Stauffer Chemical Company
Frank Bleak, Secretary
P.O. Box 86
Henderson, Nevada 89015

Elko County

Carpenters' Joint Apprenticeship Council
Louis Koncher, Secretary
P.O. Box 524
Elko, Nevada 89801

Mineral County

Carpenters' Joint Apprenticeship Council
Cecil Lowe, Secretary
308 "B" Street
Hawthorne, Nevada 89415

Washoe County

Carpenters' Joint Apprenticeship Council
H. S. Hoff, Secretary
P.O. Box 536
Al Tahoe, California 95702

Carpenters' Joint Apprenticeship Council
Gene L. Thompkins, Secretary
P.O. Box 442
Kings Beach, California 95719

Carpenters' Joint Apprenticeship Council
Ben E. Jones, Coordinator
1150 Terminal Way
Reno, Nevada 89502

White Pine County

Carpenters' Joint Apprenticeship Council
Kennecott Copper Corp.
B. C. Carter, Chairman
McGill, Nevada 89318

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CHIROPRACTOR

DESCRIPTION OF DUTIES

"Chiropractic" is defined to be the science, art and practice of palpating and adjusting the articulations of the human body by hand, the use of physiotherapy, hygienic, nutritive and sanitary measures and all methods of diagnosis; but in such diagnosis no piercing or severing of body tissues shall be permitted, save for the drawing of blood for diagnostic purposes only.

REQUIREMENTS FOR LICENSE

No person shall be allowed to take an examination for a license to practice chiropractic in Nevada, or secure a license by reciprocity, unless he or she has presented to the chiropractic board a basic science certificate issued by the Nevada State Board of Basic Science Examiners.

1. He must be a citizen of the United States.

2. He is not less than 21 years old.

3. He must be a person of good moral character.

4. He must be a graduate of an accredited high school.

5. He must be a graduate from a recognized college of chiropractic whose minimum course leading to the degree of doctor of chiropractic consists of not less than 4,000 hours and embraces the following subjects: Anatomy, bacteriology, chiropractic theory and practice, diagnosis and chiropractic analysis, elementary chemistry and toxicology, histology, hygiene and sanitation, obstetrics and gynecology, pathology and physiology.

6. After January 1, 1970 every applicant shall be required to submit evidence of not less than 2 years' education in an accredited college or university.

EXAMINATION AND FEE REQUIREMENTS

Applicants who have not been licensed to practice chiropractics in any other state shall pay $75.00.

Applicants who have been previously licensed to practice chiropractic in any other state shall pay $100.00.

A fee of $10.00 shall be collected before a license can be delivered.

A licensee shall pay an annual renewal fee of a minimum of $15.00 and not more than $25.00.

The fee for examination by the board shall be $75.00.

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AGENCY THAT ISSUES LICENSE	Nevada State Board of Basic Science Examiners Lowell L. Jones, Secretary P. O. Box 8355 University Station Reno, Nevada 89507
FOR FURTHER INFORMATION	John M. Montgomery, D.C., Secretary-Treasurer Nevada State Board of Chiropractic Examiners 915 E. Charleston Blvd. Las Vegas, Nevada 89104
	Nevada State Board of Basic Science Examiners Lowell L. Jones, Secretary P. O. Box 8355 University Station Reno, Nevada 89507

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COLLECTION AGENCY MANAGERS

DESCRIPTION OF DUTIES	In full charge of managing the agency. Supervises personnel. Oversees office operations and records. Is responsible for Trust Fund maintenance. Handles client problems. Interviews prospective clients. Collects accounts.
REQUIREMENTS FOR LICENSE	Each applicant for a manager's certificate shall: (a) Be a citizen of the United States. (b) Be 21 years of age. (c) Be of good moral character and not have been convicted of any crime involving moral turpitude. (d) Not have committed any of the acts specified in NRS 649.215. (e) Have had not less than 2 years' full-time experience in the collection of assigned accounts of which at least 1 year is within the 18-month period preceding the date of filing the application. (f) Pass the examination provided for. (g) Pay the required fees. (h) Submit three recent photographs and three sets of fingerprints in such form as the superintendent prescribes.
EXAMINATION AND FEE REQUIREMENTS	$75.00 Investigation Fee $20.00 Annual Certificate Fee
AGENCY THAT ISSUES LICENSE	Banking Division State of Nevada
FOR FURTHER INFORMATION	Preston E. Tidvall Superintendent of Banks Nye Building, Room 321 Carson City, Nevada 89701

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CONTRACTORS

DESCRIPTION OF DUTIES

The more than 100 primary and sub-classifications of contractors are listed here because they compose a group of specialists that require certain proven skills that must have been demonstrated over a period of time. In each case there must be a person listed on the application who has the required skills. The contractor may be a one man business or a large corporation employing large numbers of workers.

A General Engineering
- A1 Airports and Airways
- A3 Dams and Reservoirs
- A5 Diamond Drilling
- A6 Oil and Gas Well Drilling
- A7 Excavating & Grading
- A9 Piers & Foundations
- A10 Swimming Pools
- A11 Clearing & Land Leveling
- A12 Excavating, Grading, Trenching & Surfacing
- A13 Wrecking, Demolition & Building Moving
- A14 Steel Erection
- A15 Grading & Surfacing
- A16 Sewers, Drains, Sewage Disposal & Pipelaying
- A18 Asphalt Paving of Subdivisions, Driveways & Parking Lots
- A19 Transmission Lines
- A22 Irrigation
- A23 Pipelines & Conduit
- A24 Industrial Piping
- A25 Pole Lines
- A26 Fencing & Guardrails
- A30 Unclassified

B General Building
- B2 Residential & Small Commercial
- B3 Speculative Building
- B4 Unclassified

C1 Plumbing & Heating
- C1A Boiler, Hot Water Heating Steamfitting
- C1B Fire Protection (Sprinkler Systems)
- C1D Plumbing
- C1E Sheet Metal
- C1F Warm Air Heating, Ventilating & Air Conditioning
- C1G Lawn Sprinkler Systems
- C1H Gas Appliances

C2 Electrical
- C2A Electrical Wiring
- C2C Fire Detection
- C2D Sound Systems
- C2E Signal Systems
- C2F Electrical Transmission Lines
- C2G Integrated Ceilings

C3 Carpentry
- C3A Carpentry, Remodeling, Repairs
- C3B Flooring (Wood)
- C3C Cabinet & Millwork
- C3D Insulation
- C3E Siding
- C3F Weatherstripping & Caulking
- C3G Acoustical Tile
- C3H Counter Tops
- C3I Overhead Doors
- C3J Drywall
- C3K Roof Decking
- C3M Sheet Metal Studs

C4 Painting & Decorating
- C4A Painting
- C4B Paperhanging
- C4C Taping & Finishing
- C4D Sand Blasting
- C4E Drywall

C5 Concrete

C6 Signs
- C6A Outdoor Advertising
- C6B Electrical Signs
- C6C Sheet Metal

C7 Elevators & Conveyors
- C7A Elevators
- C7B Conveyors
- C7C Dumbwaiters
- C7D Escalators

C8 Glass & Glazing
- C8A Glazing
- C8B Window Wall
- C8C Store Fronts
- C8D Shower, Tub Enclosures & Toilet Partitions

C9 Building Moving

C10 Landscaping & Lawn Sprinklers
- C10A Landscaping
- C10B Lawn Sprinklers
- C10C Patios
- C10D Tree Removal & Surgery

C11 Gunite

C12 Lift-Slab

C13 Sheet Metal

C14 Steel Reinforcing & Erection
- C14A Reinforcing
- C14B Structural
- C14C Ornamental
- C14D Curtain Wall
- C14E Metal Doors & Frames
- C14F Metal Windows & Frames
- C14G Store Fronts
- C14H Prefabricated Steel Structures
- C14I Awnings
- C14J Louvres
- C14K Rigging

C15 Roofing, Siding
- C15A Roofing
- C15B Siding
- C15D Insulation
- C15E Waterproofing

C16 Floor Coverings
- C16A Floor Coverings, Composition
- C16B Counter Tops
- C16C Plastic Wall Tile
- C16D Carpet Laying

C17 Lathing & Plastering
- C17A Lathing
- C17B Plastering
- C17C Drywall
- C17D Acoustical
- C17E Stucco & Cement Coatings
- C17F Sheet Metal Studs

C18 Masonry

C19 Terrazzo & Marble
- C19A Terrazzo
- C19B Marble

C20 Tile, Ceramic, Mosaic, Plastic

C21 Refrigeration & Air Conditioning
- C21A Refrigeration
- C21B Air Conditioning
- C21C Sheet Metal

C22 Welding

C23 Well Drilling & Pumps
- C23A Well Drilling
- C23B Pumps

C24 Scaffold Erection

C25 Fencing, Guard Rails & Playground Equipment

C26 Institutional Equipment
- C26A Kitchen & Laboratory Equipment
- C26B Building Accessories & Specialties

C27 Septic Tanks, Cesspools

C28 Tanks, Structural

C29 Structural Pest Control

C30 Water Treatment

C31 Wrecking & Demolition

C32 Refractories & Fire Brick

C33 Industrial Machinery

C34 Bowling Alleys

C35 Vaults & Safes

C36 Wood Trusses

C38 L.P. and Natural Gas
- C38A Gas Piping & Venting
- C38B Gas Appliance & Equipment
- C38C Warm Air Heating & Ventilating

C39 Furnaces & Burners

C40 Unclassified

E Owners License

REQUIREMENTS FOR LICENSE	Applicant must be able to establish that he or his qualified employee has at least four (4) years experience as a skilled craftsman. Proof of financial responsibility, must be prepared through independent audit and attested to by a recognized public accountant, or CPA (statement must be dated and be current within six months). Also a verification of the applicant's balances of bank accounts and instruments of liability by bank customer must be authorized by applicant. Eight references which must be listed to substantiate craftsmanship and financial responsibility. The application must be notarized. All new applicants for Contractor's license are required to submit to a written Construction Management Examination. In addition written examinations are also required covering technical knowledge in certain selected classifications.
APPLICATION AND LICENSE FEE	$100.00 application fee 40.00 license fee Total fee for one or more Sub-Classification under Primary Classification - $140.00. If the applicant desires Sub-Classifications not under the same Primary Classification (An application for A-19, Transmission Lines, would require $140.00; an application for C4a, Painting would require an additional $140.00, or a total of $280.00).
AGENCY THAT ISSUES LICENSE	State Contractors Board P.O. Box 7497 Reno, Nevada 89502 or 1760 Industrial Road Las Vegas, Nevada 89102
FOR FURTHER INFORMATION	State Contractors Board P.O. Box 7497 Reno, Nevada 89502 or 1760 Industrial Road Las Vegas, Nevada 89102 Refer to: Nevada Revised Statutes 624

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COSMETIC DEMONSTRATOR

DESCRIPTION OF DUTIES	A person who, for the purpose of advertising, promoting, or selling any drug, lotion, compound, preparation or substance, performs or demonstrates.
REQUIREMENTS FOR LICENSE	He must demonstrate his ability to the satisfaction of the Board of Cosmetology.
EXAMINATION AND FEE REQUIREMENTS	$15.00 with renewal annual fee of $5.00.

COSMETOLOGY DEMONSTRATOR FOR PURPOSE OF EDUCATION

DESCRIPTION OF DUTIES	A person who conducts demonstrations and exhibitions, temporarily and primarily for educational purposes, of hair-styling, makeup and hair-dyeing techniques for the benefit and instruction of hairdressers, cosmeticians, electrologists, manicurists, junior operators and students enrolled in licensed schools of cosmetology.
REQUIREMENTS FOR LICENSE	He must demonstrate to the satisfaction of the Board of Cosmetology that he is qualified and that the permit is sought primarily for educational purposes.
EXAMINATION AND FEE REQUIREMENTS	Permit is $2 and good for only 10 days and is not renewable.
AGENCY THAT ISSUES LICENSE	State Board of Cosmetology
APPROVED TRAINING	Factory or company training.
FOR FURTHER INFORMATION	Miss Bernice Randall, Secretary State Board of Cosmetology 111 West Telegraph Avenue Carson City, Nevada 89701

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OFFICIAL (COURT) REPORTER

DESCRIPTION OF DUTIES

The official reporter of the court must record in shorthand all the testimony, the objections made, the rulings of the court, the exceptions taken, all arraignments, pleas and sentences of defendants in criminal cases, and all statements and remarks made by the district attorney or judge, and all oral instructions given by the judge.

He will write out the same, or such specific portions thereof as may be requested, in plain and legible longhand, or by typewriter or other printing machine, and certify to the same as being correctly reported and transcribed.

REQUIREMENTS FOR LICENSE

An applicant must:

1. Present evidence of good moral character.
2. On a test of competency, write in the presence of the examining committee at the rate of at least 150 words per minute for 5 consecutive minutes upon matter not previously written by or known to him.
3. Immediately read the same back to the examining committee and transcribe the same into longhand, plainly and with accuracy.

EXAMINATION AND FEE REQUIREMENTS

None

AGENCY THAT ISSUES LICENSE

<u>1st Judicial District</u>:

Carson City Churchill County Douglas County Lyon County Storey County	Frank B. Gregory, Dept. No. 1 Richard L. Waters, Jr., Dept. No. 2 Carson City Courthouse Carson City, Nevada 89701

<u>2nd Judicial District</u>:

Washoe County	Grant L. Bowen, Dept. No. 1 John W. Barrett, Dept. No. 2 John E. Gabrielli, Dept. No. 3 Thomas O. Craven, Dept. No. 4 Emile J. Gezelin, Dept. No. 5 Washoe County Courthouse Reno, Nevada 89501

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3rd Judicial District:

Eureka County Lander County	John E. Sexton Washoe County Courthouse Reno, Nevada 89501

4th Judicial District:

Elko County	George F. Wright Elko County Courthouse Elko, Nevada 89801

5th Judicial District:

Esmeralda County Mineral County Nye County	Kenneth L. Mann Box 393 Tonopah, Nevada 89049

6th Judicial District:

Humboldt County Pershing County	Llewellyn A. Young Pershing County Courthouse Lovelock, Nevada 89419

7th Judicial District:

Lincoln County White Pine County	Roscoe H. Wilkes White Pine County Courthouse Ely, Nevada 89301

8th Judicial District:

Clark County	Clarence Sundean, Dept. No. 1 William P. Compton, Dept. No. 2 William R. Morse, Dept. No. 3 Thomas J. O'Donnell, Dept. No. 4 John F. Mendoza, Dept. No. 5 Howard W. Babcock, Dept. No. 6 Clark County Courthouse Las Vegas, Nevada 89101

FOR FURTHER INFORMATION — Contact the judge of the court in which applicant is interested. (see above)

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DENTAL HYGIENIST

DESCRIPTION OF DUTIES

A dental hygienist is any person who practices the treatment of human teeth by removing from the surface thereof calcareous deposits and stains, by removing accumulated accretions from directly beneath the normal free margin of the gums, and by polishing the exposed surface of the teeth.

REQUIREMENTS FOR LICENSE

Any person shall be eligible to take the examination for a license to practice dental hygiene in the State of Nevada who:

1. Is of good moral character.
2. Is over 18 years of age.
3. Is a citizen of the United States or who has applied for citizenship.
4. Is a graduate of an accredited high school.
5. Has successfully completed training in a school of dental hygiene approved by the board, or who has successfully completed 2 years' training in a dental college or dental infirmary approved by the board.

Applicants are required to take an examination. Contents are largely left up to the board of examiners. The examination shall include the following subjects: elements of inorganic chemistry, physiology, anatomy, bacteriology, principles of nursing and hygiene, anesthesia, radiography, materia medica, dental histology, and a practical examination in the removal of deposits from, and the polishing of, the exposed surface of the teeth.

The examination shall be written, oral or a combination of both.

Every applicant for a license to practice dental hygiene shall:

1. File an application with the board.
2. Accompany such application with a recent photograph of himself together with the required examination fee.

EXAMINATION AND FEE REQUIREMENTS

All fees are payable in advance and shall not be refunded.

Examination fee for license to practice dental hygiene..$ 75
Biennial license renewal fee for a dental hygienist.....$ 30
Reinstatement fee for forfeited dental hygiene license..$100

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AGENCY THAT ISSUES LICENSE	Nevada State Board of Dental Examiners
APPROVED TRAINING	Any accredited college or university that offers approved courses in dental hygiene.
FOR FURTHER INFORMATION	Nevada State Dental Board 1100 California Avenue Reno, Nevada 89502 American Dental Hygienists Association 211 East Chicago Avenue Suite 1616 Chicago, Illinois 60611

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DENTIST

DESCRIPTION OF DUTIES

Any person practicing dentistry who:

1. Uses words or any letters or title in connection with his name which in any way represents him as engaged in the practice of dentistry, or any branch thereof; or

2. Advertises or permits to be advertised by any media that he can or will attempt to perform dental operations of any kind; or

3. Shall diagnose, profess to diagnose or treat or profess to treat any of the diseases or lesions of the oral cavity, teeth, gums or the maxillary bones; or

4. Shall extract teeth; or

5. Shall correct malpositions of the teeth or jaws; or

6. Shall take impressions; or

7. Shall supply artificial teeth as substitutes for natural teeth; or

8. Shall place in the mouth and adjust such substitutes; or

9. Does any practice included in the curricula of recognized dental colleges; or

10. Administers or prescribes such remedies, medicinal or otherwise, as shall be needed in the treatment of dental or oral diseases; or

11. Shall use an X-ray for dental treatment or dental diagnostic purposes.

REQUIREMENTS FOR LICENSE

Any person shall be eligible to take an examination for a license to practice dentistry in the State of Nevada who:

1. Is over the age of 21 years.

2. Is a citizen of the United States, or who has applied for citizenship.

3. Is a graduate of a dental college recognized and endorsed by the board, or who was licensed and practicing dentistry in another state or territory of the United States continuously for a period of 5 years immediately prior to the filing of his application.

4. Is of good moral character.

An application must be filed with the board 30 days prior to the examination.

A photograph of applicant must accompany each application.

Applicants are required to take a practical and theoretical examination.

The theoretical examination shall be in writing and shall include the following subjects: anatomy, physiology, chemistry, materia medica and therapeutics, dental materials, dental histology and pathology, general pathology, operative and prosthetic dentistry, dental medicine, periodontia, treatment planning, roentgenology and dental jurisprudence.

The board shall recognize a certificate granted by the National Board of Dental Examiners in lieu of such theoretical examination.

EXAMINATION AND FEE REQUIREMENTS

All fees shall be payable in advance and shall not be refunded.

Examination fee.....$100
Biennial license renewal fee.....$ 50
Reinstatement fee for suspended dental license.....$100
Reinstatement fee for forfeited dental license.....$100

AGENCY THAT ISSUES LICENSE

State Board of Dental Examiners

APPROVED TRAINING

Any accredited college or university that offers approved courses in dentistry.

Fifty-five schools of dentistry are listed as accredited by the council of Dental Education of the American Dental Association as of 1970.

FOR FURTHER INFORMATION

The Secretary
State Board of Dental Examiners
1100 California Avenue
Reno, Nevada 89502

American Association of Dental Examiners
Board of Education Building
Albany, New York

REGISTERED DIETITIAN

DESCRIPTION OF DUTIES

Training concentration may be in one of three areas, however, a dietitian receives some training in all three of the areas. The duties vary depending on the area of concentration, (1) Administration, (2) Teaching, (3) Therapeutic.

1. Administation - Administers all aspects of the food service department, including organization, personnel management, training, food costing, purchasing, traffic flow, equipment layout, etc.

2. Teaching - May be employed in educational capacity teaching in colleges. This type of position usually requires additional degree or degress, or may be employed in food service institutions to train staff and teach nursing or medical students.

3. Therapeutic - May be employed in clinical or metabolic research, or may be responsible for planning therapeutic diets and counseling patients concerning the diets in hospitals, clinics, nursing homes, Heart Association, etc.

In addition to the three more routine classifications for registered dietitians, positions are available for consulting in the administrative and therapeutic areas. Positions are available in Public Health Service at State, County, and City levels, in Medicare Service in the National School Lunch Programs, and in Federal, State, and County Extension Service. The duties vary with the type program and the needs to be filled.

REQUIREMENTS FOR LICENSE

To become a registered dietitian, one must complete 1 or 2:

1. A B.S. degree in foods and nutrition from an accredited school of home economics, plus the successful completion of a dietetic internship from an institution approved by The American Dietetic Association.

2. A Masters, or Doctoral Degree, meeting the academic requirements set by the Committee on Professional Registration; The American Dietetic Association.

EXAMINATION AND FEE REQUIREMENTS

Individuals meeting requirements will be tested on completion of the training. Individuals meeting requirement 2, will be required to pass a test administered by

The American Dietetic Association
620 North Michigan Avenue
Chicago, Illinois 60611

Registration fee is $5.00.

Fee for membership in The American Dietetic Association is $30.00.

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AGENCY THAT ISSUES LICENSE	Registration number and card are issued by The American Dietetic Association. Individuals who become registered are required to show evidence of 75 clock hours of continuing education each five years, or registration may not be renewed.
APPROVED TRAINING	The American Dietetic Association will provide any institution of higher education with a guide line of core subjects designed to provide a college graduate with the background for the successful completion of a dietetic internship. Students who have not completed these core subjects, are not usually accepted into internship training. Internship programs must meet standards set by and be approved by an internship committee of The American Dietetic Association.
FOR FURTHER INFORMATION	Contact the Nevada Dietetic Association through a hospital dietetian, or through the Nevada Division of Health, or write The American Dietetic Association, 620 North Michigan Avenue, Chicago, Illinois 60611.

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DRIVER TRAINING SCHOOL OPERATOR

DESCRIPTION OF DUTIES

A person who operates a driver training school which offers motor vehicle driving instruction and drivers license examination preparation.

REQUIREMENTS FOR LICENSE

1. Be of good moral character.
2. Maintain an established place of business open to the public which is not within 200 feet of any building used by the Department of Motor Vehicles as an office.
3. Have the equipment necessary to give proper instruction in the operation of motor vehicles.
4. Be 21 years of age or older.
5. Hold a valid driving instructor's certificate issued by the State Department of Education in accordance with regulations prescribed by the State Board of Education governing the qualifications of instructors in privately owned driver training schools.

EXAMINATION AND FEE REQUIREMENTS

License fee is $50.00. It is valid for two years.

AGENCY THAT ISSUES LICENSE

Department of Motor Vehicles in the following cities:

Carson City
Elko
Ely
Fallon
Las Vegas
North Las Vegas
Reno

Other cities as scheduled:

Alamo
Austin
Battle Mountain
Beatty
Boulder City
Caliente
Carlin
Empire
Eureka
Fernley
Gabbs
Hawthorne
Lovelock
McDermitt
Mercury
Mesquite
Minden
Overton
Owyhee
Panaca
Pioche
Stateline
Tonopah
Wells

	Henderson	Winnemucca
	Incline Village	Yerington
APPROVED TRAINING	University of Nevada (Reno Campus)	
FOR FURTHER INFORMATION	Department of Motor Vehicles Drivers License Division Carson City, Nevada 89701	

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DRIVING INSTRUCTOR

DESCRIPTION OF DUTIES

A Driving Instructor is a person who is qualified to instruct in the operation of a motor vehicle and prepare the learner to qualify for the driver's license.

REQUIREMENTS FOR LICENSE

1. Be of good moral character.
2. Pass such examination as the Department of Motor Vehicles may require on traffic laws, safe driving practices and operation of motor vehicles.
3. Be physically able to operate a motor vehicle safely and train others in the operation of motor vehicles.
4. Hold a valid Nevada drivers license.
5. Be 21 years of age or older.
6. Hold a valid driving instrutor's certificate issued by the State Department of Education in accordance with regulations prescribed by the State Board of Education governing the qualifications of instructors in privately owned driver training schools.

EXAMINATION AND FEE REQUIREMENTS

License fee is $10.00. It is valid for two years.

AGENCY THAT ISSUES LICENSE

Department of Motor Vehicles in the following cities:

Carson City
Elko
Ely
Fallon
Las Vegas
North Las Vegas
Reno

Other cities as scheduled:

Alamo	Lovelock
Austin	McDermitt
Battle Mountain	Mercury
Beatty	Mesquite
Boulder City	Minden
Caliente	Overton
Carlin	Owyhee
Empire	Panaca
Eureka	Pioche
Fernley	Stateline
Gabbs	Tonopah

	Hawthorne	Wells
	Henderson	Winnemucca
	Incline Village	Yerington

APPROVED TRAINING University of Nevada (Reno Campus)

FOR FURTHER INFORMATION
Department of Motor Vehicles
Drivers License Division
Carson City, Nevada 89701

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APPRENTICE ELECTRICIAN

DESCRIPTION OF DUTIES

An apprentice electrician may be any person who is between the ages of 18 and 23 years old in Reno or 18 and 24 in Las Vegas and has agreed to comply with all of the written rules stated in the apprenticeship contract. (Veterans of active duty are given a two year credit on the age limit in Reno and four year credit in Las Vegas.) An apprentice electrician works under the direct supervision of a journeyman in this field. His duties consist of installing electrical wiring and other electrical fixtures in construction work. He may install and connect high tension cables, test installation of equipment using megger or low voltage equipment and special testing transformer or high voltage equipment to determine insulation resistance. He may rig scaffolds and hoisting equipment for installing ducts and cables on walls and ceiling and for moving heavy equipment. May repair equipment such as fans, motors, blowers, and bus bars, and may be required to repair major electrical equipment such as generators. A salary raise is granted to each apprentice at intervals of six months periods as his trade knowledge and performance improves.

REQUIREMENTS FOR LICENSE

An applicant in the State of Nevada must meet the following requirements:

1. The following documents must be filed along with the application:

   a. High School diploma or GED.
   b. High School transcript of grades attained.
      1. Grades must be average or better.
      2. Particular attention is paid to grades in mathematics.
   c. Record of any special training taken (University-Vocational training and any certificates for special training).
   d. Age must be 18 up to and including the age of 23 years in Reno and 24 in Las Vegas. (If a veteran, a two year age credit in Reno (four years in Las Vegas) applies--this does not apply to service in reserve forces not on active duty).
   e. Proof of age (birth certificate).
   f. Record of the required Aptitude Test, given by the Nevada State Employment Service.
   g. Physical fitness (not a medical examination--statement from family doctor or medical statement at discharge).
   h. Armed Forces Discharge if a veteran
      or
      Selective Service Classification.
   i. Three character references (not relatives). Applies to Northern Nevada only.

2. Must be of good moral character.

3. Must have been a resident of Nevada for at least one year prior to filing an application. (Not required in Las Vegas.)

4. Must be a citizen of the United States or have declared his intention of becoming a citizen.

5. An apprentice who is accepted must purchase his own tools and is required to purchase his own class books each year.

EXAMINATION AND FEE REQUIREMENTS	None for Northern Nevada (Reno). $10.00 indenture fee, refundable on completion (Las Vegas).
AGENCY THAT ISSUES LICENSE	Joint Apprenticeship & Training Committee For the Electrical Industry
APPROVED TRAINING	8,000 hours on-the-job training (usually 4 years). During apprenticeship period, the individual will attend night classes (twice a week in Reno or once a week for four hours per night in Las Vegas).
FOR FURTHER INFORMATION	Secretary Joint Apprenticeship & Training Committee For the Electrical Industry 1075 East Second Street, Suite 6 Reno, Nevada 89502 Electrical Workers' Joint Apprenticeship Committee R. G. Park, Secretary 1521 Western Street Las Vegas, Nevada 89102 Electrical Workers' Joint Apprenticeship Committee American Potash & Chemical Corp. James H. McGee, Chairman P.O. Box 55 Henderson, Nevada 89015 Electricians' Joint Apprenticeship Committee Boulder Canyon Project O. A. Keller, Chairman Boulder City, Nevada 89005

Maintenance Electricians'
Joint Apprenticeship Committee
Titanium Metals Corp. of America
Nelson Oldman, Chairman
P.O. Box 2128
Henderson, Nevada 89015

Electricians'
Joint Apprenticeship Committee (Mines Plant)
Kennecott Copper Corp.
Howard D. Gardner, Chairman
McGill, Nevada 89318

Electricians'
Joint Apprenticeship Committee (Reduction Plant)
Kennecott Copper Corporation
A. M. Sunde, Chairman
McGill, Nevada 89318

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ELECTROLOGIST

DESCRIPTION OF DUTIES

"Electrologist" means any person who engages in the occupation of removing superfluous hair from the body of any person by the use of an electric needle only.

REQUIREMENTS FOR LICENSE

Every application for admission to examination as an electrologist shall be submitted in writing and on forms prepared and furnished by the Board, and who:

1. Is not less than 18 years of age.

2. Is of good moral character and temperate habits.

3. Has been a bona fide resident of Nevada for 6 months.

4. Has completed any one of the following:

   a. A minimum training of 1,000 hours under the immediate supervision of an approved electrologist in an approved school in which the practice is taught.

   b. Study of the practice for at least 1,000 hours extending over a period of 5 consecutive months, under a licensed electrologist, or a hairdresser and cosmetician so licensed.

   c. A valid electrology license issued by a state whose licensing requirements are equal to or greater than those of the State of Nevada.

   d. Either training or practice, or a combination of training and practice, in electrology outside the State of Nevada for such period as may be specified by rules of the board.

5. Has successfully completed the 12th grade in school or its equivalent.

EXAMINATION AND FEE REQUIREMENTS

Examination shall be practical demonstrations and written or oral tests.

Examination fee is $15.00.

The fee for each re-examination (other than a second examination, for which no fee shall be charged) is $7.50.

Each applicant, in addition to the fees specified therein, shall pay to the board the reasonable value of all supplies necessary to be used in the examination or examinations.

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AGENCY THAT ISSUES LICENSE	State Board of Cosmetology
APPROVED TRAINING	Any school or college with approved courses in electrology. Department of Professional and Vocational Standards Cosmetology Division 1020 "N" Street Sacramento, California 95814
FOR FURTHER INFORMATION	Miss Bernice Randall, Secretary State Board of Cosmetology 111 West Telegraph Carson City, Nevada 89701

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EMBALMER

DESCRIPTION OF DUTIES

An embalmer is a licensed technician who treats a dead human body with antiseptic and disinfectant chemicals to provide:

1. The proper sanitary conditions.
2. A reasonable degree of preservation.
3. Restoration of a normal life like appearance to the body.

REQUIREMENTS FOR LICENSE

An applicant for a license to practice the profession of embalming in the State of Nevada shall:

1. Have attained the age of 21 years.
2. Be of good moral character.
3. Be a high school graduate and have completed two years of college or the equivalent. The college course or the equivalent must include 6 semester hours of English, 9 semester hours of biological science, and 9 semester hours of Chemistry.
4. Have completed the full course of instruction in an embalming college or school of mortuary science accredited by the Conference of Funeral Service Examining Boards of the United States, Incorporated, and approved by the Board and have not less than 1 year's practical experience under the supervision of an embalmer licensed in the State of Nevada.
5. Have actually embalmed at least 50 bodies under the supervision of a licensed embalmer prior to the date of examination.
6. Present to the Board affidavits of at least two reputable residents of the county in which the applicant proposes to engage in the practice of an embalmer to the effect that the applicant is of good moral character.

LICENSING BY RECIPROCITY

Reciprocity may be arranged by the Board if an applicant:

1. Is a graduate of a school of mortuary science which is accredited by the Conference of Funeral Services Examining Boards of the United States, Incorporated.
2. Is licensed as an embalmer in another state.
3. Has practiced embalming successfully for at least 5 years and practiced actively for two years immediately preceding the application for a license by reciprocity.

4. Is of good moral character and has been a resident of the State of Nevada for at least 6 months.

5. Has passed an oral examination given by the board on the subjects set forth in subsection 2 of NRS 642.090.

6. Pays a fee of $75.00 to the Secretary of the Board.

EXAMINATION AND FEE REQUIREMENTS

Examinations shall be both written and oral, and by actual demonstration on a cadaver or written affidavit of Nevada proctor. Applicants shall be examined in the following areas:

1. Anatomy, sanitary science and signs of death.

2. Care, disinfection, preservation, transportation of and burial, or other final disposition of dead bodies.

3. The manner in which death may be determined.

4. The prevention of the spread of infectious and contagious disease.

5. Chemistry, including toxicology.

6. Restorative art, including plastic surgery and derma surgery.

7. Rules and regulations of the State Board of Health relative to infectious diseases and quarantine.

8. Any other subject which the board may determine by rule or regulation to be necessary or proper in order to prove the efficiency and qualification of the applicant.

State license fee not to exceed	$75.00
Renewal fee not to exceed	15.00
Time limits on State license	One Year

AGENCY THAT ISSUES LICENSE

Nevada State Board of Funeral Directors and Embalmers

APPROVED TRAINING

IN STATE: None

OTHER: The board shall approve such colleges and schools of Mortuary Science as are accredited by the Conference of Funeral Service Examining Boards of the United States, Incorporated.

FOR FURTHER INFORMATION

Mr. Silas E. Ross, Secretary-Treasurer
State Board of Funeral Directors and Embalmers
P.O. Box 2068
Reno, Nevada 89505

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HOISTING ENGINEER

DESCRIPTION OF DUTIES

Any person who operates any steam, electric, gas, air, or any other hoisting machine over 6 horsepower when either is used in lowering or hoisting men in a mine.

REQUIREMENTS FOR LICENSE

Applicant must:

1. Know the safety laws pertaining to mining and all bell code signals in order to operate a cage, skip, or bucket.

2. File with his application a form from a licensed physician stating the condition of the applicant's heart, sight, and hearing.

   a. The applicant shall have a visual acuity of at least 20/80 in each eye separately without correction, provided that the vision in either or both eyes can be brought up to 20/40.

   b. If the applicant has only one eye, the vision must be not less than 20/50 and must be brought up to 20/30 by glasses.

   c. The applicant must be able to hear ordinary conversation at 5 feet in one or both ears.

   d. The applicant must not be subject to attacks of unconsciousness or incoordination due to heart disease or any other cause.

EXAMINATION AND FEE REQUIREMENTS

Oral or written examination will be given at the discretion of the district examining board.

$5 license fee.

$2.50 for change of classification.

AGENCY THAT ISSUES LICENSE

Inspector of Mines
Mervin J. Gallaher
Capitol Building
Carson City, Nevada 89701
Telephone: (720) 882-7500

APPROVED TRAINING

Any man over 20 years old (and not addicted to the use of intoxicating liquors or drugs) may be an apprentice hoisting engineer. An apprentice hoisting engineer shall be under the tutelage of a hoisting engineer who holds a Nevada hoisting engineer's license, which license is in good standing and

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qualifying the hoisting engineer to operate the type and horsepower of the hoist in which operation the apprentice hoisting engineer is being instructed.

FOR FURTHER INFORMATION

Inspector of Mines
Mervin J. Gallagher
Capitol Building
Carson City, Nevada 89701
Telephone: (720) 882-7500

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REGISTERED PROFESSIONAL ENGINEER

DESCRIPTION OF DUTIES

A person who by reason of his professional education and practical experience is qualified in the State of Nevada to engage in the professional services of surveying, consultation, investigation, evaluation, planning and design, or responsible supervision of construction or operation in connection with any public or private utilities, structures, buildings, machines, equipment, processes, works or projects wherein the public welfare or the safeguarding of life, health or property is concerned or involved, when such professional services require the application of engineering principles and data.

REQUIREMENTS FOR LICENSE

An applicant for a registered professional engineer's license must be:

1. A citizen of the United States, or must declare his intentions to become a citizen of the United States.

2. Over 21 years old.

3. Of good character and reputation.

4. A graduate from an approved course in engineering of four years or more in a school or college approved by the board as of satisfactory standing, and must have a specific record of an additional 4 years or more of active experience in engineering work of a character satisfactory to the Board, indicating that the applicant is competent to be placed in responsible charge of such work; or he must have a specific record of 8 years or more of active experience in engineering work of a character satisfactory to the Board, indicating that the applicant is competent to be placed in responsible charge of such work.

The satisfactory completion of each year of approved courses in engineering in a school or college approved by the Board as of satisfactory standing without graduation shall be considered as equivalent to one year of active experience.

Graduation in a course other than engineering from a college or university of recognized standing shall be considered as equivalent to 2 years of active experience.

No applicant shall receive credit for more than 4 years of active experience because of educational qualifications.

An applicant who meets all of the State requirements for a registered professional engineer is eligible to apply, although he may not be practicing his profession at the time of making his application.

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REQUIRED FEES	Application fee.....$35.00 Annual renewal fee.....$10.00
AGENCY THAT ISSUES LICENSE	State Board of Registered Professional Engineers P.O. Box 5208 Reno, Nevada 89503
APPROVED TRAINING	In State: College of Engineering University of Nevada Reno or Las Vegas, Nevada Mackay School of Mines University of Nevada Reno, Nevada Other: Any accredited college or university with approved courses in engineering or land surveying.
FOR FURTHER INFORMATION	The Executive Secretary State Board of Registered Professional Engineers P.O. Box 5208 Reno, Nevada 89503

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FARM LABOR CONTRACTOR

DESCRIPTION OF DUTIES	Contracts and performs farm labor. Does not include sheep shearing and forage harvesting.
REQUIREMENTS FOR LICENSE	Performance bond based upon weekly payroll. Insurance liability if providing transportation. Industrial insurance coverage for employees. Moral character and good faith.
EXAMINATION AND FEE REQUIREMENTS	Fee $10.00 per year.
AGENCY THAT ISSUES LICENSE	Nevada Department of Agriculture P.O. Box 1209 Reno, Nevada 89504
APPROVED TRAINING	None
FOR FURTHER INFORMATION	Nevada Department of Agriculture P.O. Box 1209 Reno, Nevada 89504

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HAIRDRESSERS AND COSMETICIANS

DESCRIPTION OF DUTIES

"Hairdresser and cosmetician" means any person who engages in the practice of cosmetology, except the branches of electrolysis and manicuring.

A "junior operator" means any person who is engaged in learning or acquiring a knowledge of the occupation of a hairdresser and cosmetician in a hairdressing or cosmetological establishment under the supervision of a licensed hairdresser and cosmetician.

REQUIREMENTS FOR LICENSE

Every application for admission to examination, and every application for registration as a hairdresser and cosmetician, or in any branch of cosmetology, shall be in writing on forms prepared and furnished by the board.

All applicants must meet the following requirements;

1. Is not less than 18 years of age.
2. Is of good moral character and temperate habits.
3. Has been a bona fide resident of Nevada for 6 months.
4. Must have successfully completed the 10th grade in school or its equivalent.
5. Had training of at least 1,800 hours, extending over a school term of 10 months in a school of cosmetology approved by the board; or
6. Practiced the occupation of a cosmetologist for a period of 4 years outside the State of Nevada; or
7. Served for at least 2 years as a junior operator in a licensed cosmetological establishment in which all of the occupations of a cosmetologist are practiced.

EXAMINATION AND FEE REQUIREMENTS

Examination shall be practical demonstrations and written or oral tests.

Examination fee $15.00.

The fee for each re-examination (other than a second examination, for which no fee shall be charged) is $5.00.

Each applicant, in addition to the fees specified therein, shall pay to the board the reasonable value of all supplies necessary to be used in the examination or examinations.

AGENCY THAT ISSUES LICENSE

State Board of Cosmetology

APPROVED TRAINING IN STATE:

Ponce Beauty College
102 East Second Street
Reno, Nevada 89502

Prater Way College of Beauty
1627 Prater Way
Sparks, Nevada 89431

Las Vegas Beauty College
124 South 4th Street
Las Vegas, Nevada 89101

Marinello-Hollywood Beauty College
116 North 3rd Street
Las Vegas, Nevada 89101

Sierra Beauty College
105 North Sierra Street
Reno, Nevada 89502

Sahara Beauty Academy
953 East Sahara
Las Vegas, Nevada 89109

Southern Nevada Vocational Technical
Training Center
Cosmetology Department
5710 Maple Street
Las Vegas, Nevada 89109

OTHER:

Any school or college with approved courses in hairdressing and cosmetology.

FOR FURTHER INFORMATION

Miss Bernice Randall, Secretary
State Board of Cosmetology
111 West Telegraph Avenue
Carson City, Nevada 89701

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FLIGHT INSTRUCTOR
AIRPLANE, GLIDER, OR ROTORCRAFT

DESCRIPTION OF DUTIES	Teachers theory of navigation, meteorology, airframes and power plants and technique and performance of maneuvers as well as practical aspects of foregoing in flight.
REQUIREMENTS FOR LICENSE	Hold a commercial pilot certification and pass an oral and practical test on teaching techniques and a written examination on fundamentals of teaching and the techniques and performance of flight maneuvers. Must be at least 18 years old.
EXAMINATION AND FEE REQUIREMENTS	None
AGENCY THAT ISSUES LICENSE	Federal Aviation Administration
APPROVED TRAINING	Available from Air Agencies Flying Schools with Flight Instructor.
FOR FURTHER INFORMATION	Contact General Aviation District Office at Las Vegas or Reno. FAA McCarran Airport Las Vegas, Nevada 89111 FAA Reno Municipal Airport Reno, Nevada 89502

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GROUND INSTRUCTOR

DESCRIPTION OF DUTIES	Teaches aviation meteorology, navigation, physiology, airframe, power plants, Federal Aviation Regulations, pilotage, dead reckoning and radio.
REQUIREMENTS FOR LICENSE	1. Be of good moral character and at least 18 years of age. 2. Pass a written examination.
EXAMINATION AND FEE REQUIREMENTS	A written examination with a grade of 70% or better is required. No fees.
AGENCY THAT ISSUES LICENSE	Federal Aviation Administration
APPROVED TRAINING	None
FOR FURTHER INFORMATION	General Aviation District Office at Las Vegas or Reno. McCarran Airport Las Vegas, Nevada 89111 Reno Municipal Airport Reno, Nevada 89502

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INDEPENDENT AND/OR PUBLIC INSURANCE ADJUSTER

DESCRIPTION OF DUTIES

"Adjuster" means any person who, for compensation as an independent contractor for fee or commission, investigates, settles and reports to his principal relative to claims arising under insurance contracts, on behalf solely of either the insurer or the insured.

REQUIREMENTS FOR LICENSE

The applicant must fulfill the following requirements:

1. Make an application and submit fingerprint cards.
2. Take written examination.
3. Be 21 years of age.
4. Be bona fide resident of Nevada for 6 months.
5. Have 2 years experience, or special training with reference to the handling of loss claims under insurance contracts of sufficient duration and extent reasonably to make him competent to fulfill the responsibilities of an adjuster.
6. Be bonded - $5,000.00.
7. Never been convicted of a felony.

EXAMINATION AND FEE REQUIREMENTS

$10.00 examination fee.

$10.00 license fee.

AGENCY THAT ISSUES LICENSE

Department of Commerce, Insurance Division

APPROVED TRAINING

Insurance Code - $2.50 from the Insurance Division

Piver Study Books

FOR FURTHER INFORMATION

Contact: Department of Commerce, Insurance Division
Nye Building, Room 319
201 South Fall Street
Carson City, Nevada 89701
or
Refer to: Nevada Revised Statutes, 685.020.

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INSURANCE AGENT, NONRESIDENT

DESCRIPTION OF DUTIES	"Nonresident agent" means any agent as defined as residing in the District of Columbia, the territories or any state in the United States other than Nevada.
REQUIREMENTS FOR LICENSE	Resident of District of Columbia, territory or other state with which we have a reciprocal agreement may become licensed upon proper application and a Certificate of License Status from his state of domicile. If we do not have a reciprocal agreement with his state of domicile, he must qualify by written examination through this Insurance Division. 1. Appl ation 2. 21 years of age. 3. Fingerprint cards. 4. Appointment and fees from an insurer.
EXAMINATION AND FEE REQUIREMENTS	If an examination is required, the fee is $10.00 for each class.
AGENCY THAT ISSUES LICENSE	Department of Commerce, Insurance Division
APPROVED TRAINING	Insurance Code - May be purchased from Insurance Division - $2.50.
FOR FURTHER INFORMATION	Contact: Department of Commerce, Insurance Division Nye Building Room 319 201 South Fall Street Carson City, Nevada 89701 Or See: Nevada Revised Statutes 684.150 and 684.020.

5922

INSURANCE AGENT, RESIDENT

DESCRIPTION OF DUTIES	"Agent" means any person, partnership, association or corporation who or which solicits, negotiates or effects in this state, on behalf of any company, contracts for insurance of any of the classifications listed in NRS 681.010. A person who secures and forwards information for the purposes of group insurance coverages or for enrolling individuals under group insurance coverages, or issuing certificates thereunder, where no commission is paid for such services, is not an agent and is not required to be licensed under the provisions of this title.
REQUIREMENTS FOR LICENSE	1. 90 day resident. 2. 21 years of age. 3. Examination - written. 4. Application and fingerprint cards. 5. Appointment from an insurer.
EXAMINATION AND FEE REQUIREMENTS	Must qualify by written examination for each class of insurance he wishes to sell. Examination fee $10.00 for each class.
AGENCY THAT LISSUES LICENSE	Department of Commerce, Insurance Division
APPROVED TRAINING	Insurance Code - May be purchased from Insurance Division - $2.50. Piver Study Books may be purchased from Bert Acrea, Reno. Occasional courses are given by University. Occasional courses are given by Reno Adult Education.
FOR FURTHER INFORMATION	Contact: Department of Commerce Insurance Division Nye Building Room 319 201 South Fall Street Carson City, Nevada 89701 or Check: Nevada Revised Statutes, 684.020

5923

INSURANCE BROKER, NONRESIDENT

DESCRIPTION OF DUTIES	"Nonresident broker" means any person, partnership, association or corporation, not a resident of or a domiciled company in this state, who or which for money, commission, brokerage or anything of value acts or aids in any manner in any solicitations or negotiation, on behalf of the assured, of contracts of any of the kind or kinds enumerated in Chapter 681 of Nevada Revised Statutes.
REQUIREMENTS FOR LICENSE	Certificate of License Status from State of Domicile. Application - $2,500.00 bond. Fingerprint cards, 21 years of age.
EXAMINATION AND FEE REQUIREMENTS	No examination required if we have a reciprocal agreement with his State of Domicile. If not then $10.00 examination fee for each class. $50.00 fee if residency is more than 50 miles from Nevada. $25.00 fee if residency is less than 50 miles from Nevada.
AGENCY THAT ISSUES LICENSE	Nevada State Department of Commerce, Insurance Division
APPROVED TRAINING	Insurance Code - May be purchased from Insurance Division - $2.50.
FOR FURTHER INFORMATION	Contact: Department of Commerce, Insurance Division Nye Building, Room 319 201 South Fall Street Carson City, Nevada 89701 or Refer to: Nevada Revised Statutes 684.020

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INSURANCE BROKER, RESIDENT

DESCRIPTION OF DUTIES	"Broker" means a person who, for compensation and on behalf of another person, transacts insurance with, but not on behalf of, any insurer.
REQUIREMENTS FOR LICENSE	1. Application and fingerprint cards. 2. 90 day residence in Nevada. 3. 21 years of age. 4. Has been an agent for 1 year, or a solicitor for 2 years or, qualifies by examination (written). 5. $2,500.00 bond.
EXAMINATION AND FEE REQUIREMENTS	$10.00 for each class of insurance. $25.00 broker license. $25.00 license fee.
AGENCY THAT ISSUES LICENSE	Department of Commerce, Insurance Division
APPROVED TRAINING	Insurance Code - May be purchased from Insurance Division - $2.50. Piver Study Books Occasional Courses at University or Reno Adult Education.
FOR FURTHER INFORMATION	Contact: Department of Commerce, Insurance Division Nye Building Room 319 201 South Fall Street Carson City, Nevada 89701 or Refer to: Nevada Revised Statutes, 684.020.

5925

FRATERNAL INSURANCE AGENTS

DESCRIPTION OF DUTIES	The term "insurance agent" as used - means any authorized or acknowledged agent of a society who acts as such in the solicitation, negotiation or procurement or making of a life insurance, accident and health insurance or annuity contract.
REQUIREMENTS FOR LICENSE	No examination. Appointment from a fraternal society licensed in Nevada. Application.
EXAMINATION AND FEE REQUIREMENTS	Annual license fee - $5.00.
AGENCY THAT ISSUES LICENSE	Department of Commerce, Insurance Division
APPROVED TRAINING	None
FOR FURTHER INFORMATION	Contact: Department of Commerce, Insurance Division Nye Building, Room 319 201 South Fall Street Carson City, Nevada 89701 or see: Nevada Revised Statutes, 685.335

5926

MANAGING GENERAL INSURANCE AGENT, RESIDENT

DESCRIPTION OF DUTIES	"Managing general agent" means an individual, firm, corporation, copartnership or other legal entity appointed, as an independent contractor, by one or more insurers to exercise general supervision over the business of the insurer in this state, with authority to appoint agents for such insurers and to terminate such appointments. This subsection shall not apply to life and accident and health insurance.
REQUIREMENTS FOR LICENSE	1. Application must be made. 2. Appointment by insurer or underwriter.
EXAMINATION AND FEE REQUIREMENTS	Agent and/or broker examination. $10.00 for each class of insurance. $5.00 appointment fee.
AGENCY THAT ISSUES LICENSE	Nevada State Department of Commerce, Insurance Division
APPROVED TRAINING	Insurance Code: $2.50 from Insurance Division Piver Study Books
FOR FURTHER INFORMATION	Contact: Department of Commerce, Insurance Division Nye Building Room 319 201 South Fall Street Carson City, Nevada 89701 or Check Nevada Revised Statutes, 684.020.

5927

SERVICE REPRESENTATIVE (INSURANCE)

DESCRIPTION OF DUTIES	"Service representative" means an individual regularly employed on salary by an insurer, group of insurers, or managing general agent, who works in the field with and assists agents and solicitors in soliciting, negotiating and effectuating insurance for such insurer or for the insurers represented by such managing general agent. This subsection shall not apply to life and accident and health insurance.
REQUIREMENTS FOR LICENSE	The applicant must: 1. Be a resident. 2. Be 21 years of age. 3. File an application. 4. Be appointed by an insurer or managing general agent. 5. Be licensed for each company, group of companies, or managing general agent by whom he is employed. 6. Be approved by the Commissioner of Insurance.
EXAMINATION AND FEE REQUIREMENTS	$5.00 fee
AGENCY THAT ISSUES LICENSE	Department of Commerce, Insurance Division
APPROVED TRAINING	None
FOR FURTHER INFORMATION	Contact: Department of Commerce, Insurance Division Nye Building, Room 319 201 South Fall Street Carson City, Nevada 89701 Refer to: Nevada Revised Statutes, 684.020.

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SOLICITOR (RESIDENT ONLY)

DESCRIPTION OF DUTIES	"Solicitor" means any person engaged in the solicitation of contracts of the kind or kinds enumerated for any agent, broker or nonresident broker. (However, NRS 684.260 1 (A) "Only to a natural person who has been a bona fide resident of this state for not less than 3 months immediately prior to the filing of the application" nullifies the nonresident broker portion of 684.020 (7).
REQUIREMENTS FOR LICENSE	90 day residency. 21 years of age. Appointment and appointment fee from resident agent or broker. Written examination.
EXAMINATION AND FEE REQUIREMENTS	$10.00 for each class for which agent or broker is licensed except life (Class 1).
AGENCY THAT ISSUES LICENSE	Department of Commerce, Insurance Division
APPROVED TRAINING	Insurance Code - Obtained for $2.50 from Insurance Division. Piver Study Books Occasional classes at UN or Adult Education in Reno.
FOR FURTHER INFORMATION	Contact: Department of Commerce, Insurance Division Nye Building, Room 319 201 South Fall Street Carson City, Nevada 89701 Refer to: Nevada Revised Statutes, 684.020.

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PRIVATE INVESTIGATOR

DESCRIPTION OF DUTIES

"Private Investigator" means any person who for any consideration engages in business or accepts employment to furnish, or agrees to make or makes any investigation for the purpose of obtaining, information with reference to:

1. The identity, habits, conduct, business, occupation, honesty, integrity, credibility, knowledge, trustworthiness, efficiency, loyalty, activity, movement, whereabouts, affiliations, associations, transactions, acts, reputation or character of any person;

2. The location, disposition or recovery of lost or stolen property;

3. The cause or responsibility for fires, libels, losses, accidents or damage or injury to persons or to property; or

4. Securing evidence to be used before any court, board, officer or investigating committee.

REQUIREMENTS FOR LICENSE

Be at least 21 years of age.
Be a citizen of the United States.
Be of good moral character and temperate habits.
Be a resident of the State of Nevada for at least 6 months.
Have no felony conviction.
That the applicant has had 3 years of experience prior to an application for a license. (A year's experience shall consist of not less than 2,000 hours of actual compensated work performed by the applicant within ten years next preceding the filing of an application.)
Applicant must file with the board a surety bond executed by the applicant, with two or more sureties or by a surety company authorized to do business in this state, conditioned for the faithful and honest conduct of the business for which the applicant is licensed. The amount of the required bond for licensing is $10,000.
No person, unless he is licensed under Chapter 648, shall
1. engage in the business of Private Investigator,
2. advertise his business as such, irrespective of the name or title actually used.
Other requirements as determined by the board.

EXAMINATION AND FEE REQUIREMENTS

Applicant shall file with the board a written application accompanied by a fee of $25.00 to cover costs of examination. The fee shall not be rebatable. If the applicant fails to pass the examination required by NRS 648.100 he shall not be reexamined until he has paid another fee of $25.00 to cover costs of reexamination. License fee is $75.00 per year due on July 1. The board may provide that the fee be reduced ratably for portions of the license period.

AGENCY THAT ISSUES LICENSE	Department of Attorney General Private Investigator's Licensing Board Supreme Court Building Carson City, Nevada 89701
APPROVED TRAINING	That the applicant has had 3 years of experience prior to an application for a license. (A year's experience shall consist of not less than 2,000 hours of actual compensated work performed by the applicant within 10 years next preceding the filing of an application.)
FOR FURTHER INFORMATION	Department of Attorney General Private Investigator's Licensing Board Supreme Court Building Carson City, Nevada 89701 882-7401

LABORATORY ASSISTANT

DESCRIPTION OF DUTIES	He shall assist manually in laboratory procedures which require minimal exercise of independent judgment and limited technical skill.
REQUIREMENTS FOR LICENSE	He shall be a high school graduate, and subsequent to graduation shall have demonstrated a certain ability to assist in laboratory procedures, including assisting in autopsy examination, preparation of specimens, etc., after 1 year of training by a certified laboratory director.
EXAMINATION AND FEE REQUIREMENTS	$10.00 shall accompany application.
AGENCY THAT ISSUES LICENSE	Nevada State Board of Health 790 Sutro Street Reno, Nevada 89502
APPROVED TRAINING	On-job-training at a laboratory under an approved director.
FOR FURTHER INFORMATION	State Board of Health 790 Sutro Street Reno, Nevada 89502

LABORATORY DIRECTOR

DESCRIPTION OF DUTIES

A laboratory director shall select and supervise all laboratory procedures, report the findings or results of laboratory tests, actively participate in the operation of the laboratory to the extent necessary to assure compliance with state requirements, and be responsible for the proper performance of all work in the laboratory and of all subordinates.

REQUIREMENTS FOR LICENSE

He shall meet at least one of the following requirements:

1. He shall be a physician certified in anatomical and/or clinical pathology by the American Board of Pathology or the American Osteopathic Board of Pathology, or possess qualifications which are equivalent to those required for such certification, or

2. He shall be a physician who (a) is certified by the American Board of Pathology or the American Osteopathic Board of Pathology in at least one of the laboratory specialties or (b) is certified by the American Board of Microbiology, the American Board of Clinical Chemistry, or other national accrediting board acceptable to the Board in one of the laboratory specialties, or (c) subsequent to graduation has had four or more years of general laboratory training and experience, of which at least two were spent acquiring proficiency in one of the laboratory specialties in a clinical laboratory - with a director at the doctoral level - of a hospital, health department, university, or medical research institution, or in the case of a State which regulates clinical laboratory personnel, in a clinical laboratory acceptable to that State, or

3. He shall hold an earned doctoral degree from an accredited institution with a chemical, physical, or biological science as his major subject, and (a) is certified by the American Board of Microbiology, the American Board of Clinical Chemistry, or other national accrediting board acceptable to the Board in one of the laboratory specialties, or (b) subsequent to graduation has had four or more years of general clinical laboratory training and experience, of which at least two years were spent acquiring proficiency in one of the laboratory specialties in a clinical laboratory - with a director at the doctoral level - of a hospital, health department, university, or medical research institution, or in the case of a State which regulates clinical laboratory personnel, in a clinical laboratory acceptable to that State, or

4. (a) He shall be a physician licensed in the State of Nevada whose experience is acceptable to the Board and/or by examination is qualified to direct those procedures requested in application, or

(b) He shall possess a Bachelor's Degree in Biological Sciences, and shall have achieved subsequent to graduation five years of pertinent experience as a laboratory technician acceptable to the Board and shall take an examination to determine whether he is qualified to perform those procedures requested in application.

A director qualifying under this factor (4) must demonstrate continuing proficiency in the laboratory fields requested in his application.

5. For a period ending January 1, 1967, an exception to the requirements of factors 1, 2, or 3 above will be made if the director holds a master's degree from an accredited institution with a chemical, physiological or biological science as a major subject and subsequent to graduation has had five years of accredited clinical laboratory experience and at least five years residence in Nevada prior to January 1, 1967.

EXAMINATION AND FEE REQUIREMENTS	$10.00 shall accompany application.
AGENCY THAT ISSUES LICENSE	Nevada State Board of Health 790 Sutro Street Reno, Nevada 89502
APPROVED TRAINING	University of Nevada or other approved university.
FOR FURTHER INFORMATION	State Board of Health 790 Sutro Street Reno, Nevada 89502

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MANICURISTS

DESCRIPTION OF DUTIES	"Manicurist" means any person who, for compensation, engages only in the occupation of manicuring the nails of any person.
REQUIREMENTS FOR LICENSE	Every application for admission to examination as a manicurist shall be submitted in writing and on forms prepared and furnished by the board, and who: 1. Is not less than 18 years of age. 2. Is of good moral character and temperate habits. 3. Has been a bona fide resident of Nevada for 6 months. 4. Has completed the 10th grade in school or its equivalent. 5. Had practical training of at least 350 hours extending over a period of not less than 3 months under the immediate supervision of a licensed instructor in a licensed school in which the practice is taught; or 6. Practiced manicuring for a period of 1 year outside the State of Nevada.
EXAMINATION AND FEE REQUIREMENTS	Examination shall include both practical demonstrations and written or oral tests. Examination fee $10.00. The fee for each re-examination (other than a second examination, for which no fee shall be charged) is $2.50. Each applicant, in addition to the fees specified therein, shall pay to the board the reasonable value of all supplies necessary to be used in the examination or examinations.
AGENCY THAT ISSUES LICENSE	State Board of Cosmetology
APPROVED TRAINING	IN STATE: Ponce Beauty College 102 East Second Street Reno, Nevada 89502 Sierra Beauty College 105 North Sierra Street Reno, Nevada 89502

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Prater Way College of Beauty
1627 Prater Way
Sparks, Nevada 89431

Sahara Beauty Academy
953 East Sahara
Las Vegas, Nevada 89109

Las Vegas Beauty College
124 South Fourth Street
Las Vegas, Nevada 89101

Marinello-Hollywood Beauty College
116 North Third Street
Las Vegas, Nevada 89101

Southern Nevada Vocational
Technical Training Center
Cosmetology Department
5710 Maple Street
Las Vegas, Nevada 89109

OTHER:

Any school or college with courses in manicuring approved by the State Board of Cosmetology.

FOR FURTHER INFORMATION

Miss Bernice Randall, Secretary
State Board of Cosmetology
111 West Telegraph Avenue
Carson City, Nevada 89701

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AIRFRAME AND/OR POWERPLANT MECHANIC

DESCRIPTION OF DUTIES	Performs inspections; repairs and overhauls aircraft and aircraft powerplants.
REQUIREMENTS FOR LICENSE	Before an applicant can take the written examination, he must: Have 18 months practical experience for each rating or 30 months experience for both. Graduate from a certified mechanic school. Applicant must take a written examination; and after passing the examination, he must take an oral and practical examination.
EXAMINATION AND FEE REQUIREMENTS	No fees to the FAA. If oral and practical tests are taken from designated examiner, a fee will be charged - approximately $25.00 to $50.00.
AGENCY THAT ISSUES LICENSE	Federal Aviation Administration
APPROVED TRAINING	FAA certified mechanic school or experience on-the-job training under supervision of a certified mechanic.
FOR FURTHER INFORMATION	General Aviation District Office McCarran Airport Las Vegas, Nevada 89111 Reno Municipal Airport Reno, Nevada 89502

METEOROLOGIST
AND
METEOROLOGICAL TECHNICIAN (Observer-Briefer)

DESCRIPTION OF DUTIES	Prepares weather forecasts for various areas. Makes hourly weather observations for aviation and daily climatological observations. Forecasts river flow for the various rivers in Nevada and surrounding areas. Prepares forestry forecasts for the federal and state forestry interests. Issues severe weather warnings. Takes radiological observations for civil defense. Collects and documents climatological and aviation weather observations for many Nevada and eastern California points.
REQUIREMENTS FOR LICENSE	As an observer-briefer a Weather Bureau "Pilot Weather Briefer" course is required. Also surface and upper air observational examinations are required. Training of the equivalent to a degree in Meteorology is required for meteorologist positions. Observer-briefers must have training in observations, usually in the U.S. Air Force or Navy.
EXAMINATION AND FEE REQUIREMENTS	For employment a general federal Civil Service Examination is the first requirement. The observer-briefer examinations are given by the Weather Bureau at no cost. Meteorologist positions are filled by educational requirements only. No further examination is required.
AGENCY THAT ISSUES LICENSE	United States Department of Commerce Environmental Science Services Administration Weather Bureau
APPROVED TRAINING	University meteorology courses are given at numerous universities and colleges.
FOR FURTHER INFORMATION	Meteorologist in Charge Weather Bureau Office 2601 East Plumb Lane Reno, Nevada 89502 Phone: (702) 784-5402 Meteorologist in Charge Weather Bureau Office McCarran Airport Las Vegas, Nevada Phone: 736-2508

NOTARY PUBLIC

DESCRIPTION OF DUTIES	Takes depositions and administer oaths and affirmations. Takes affidavits to be used before any court, judge or officer in this state. Takes and certifies to the acknowledgment or proof of powers of attorney, mortgages, deeds and other instruments in writing.
REQUIREMENTS FOR LICENSE	1. Must be a citizen of the United States. 2. Must be a qualified voter in this state. 3. Must furnish a bond in the sum of $2,000.00 upon the surety of a qualified surety company.
EXAMINATION AND FEE REQUIREMENTS	$25.00 shall accompany application.
AGENCY THAT ISSUES LICENSE	Office of the Governor
APPROVED TRAINING	No special training required.
FOR FURTHER INFORMATION	Office of the Governor Capitol Building Carson City, Nevada 89701

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PRACTICAL NURSE

DESCRIPTION OF DUTIES

"Practice of practical nursing" means the performance for compensation of selected acts in the care of the ill, injured or infirm under the direction of a registered professional nurse, a licensed physician, a licensed dentist or a licensed chiropodist, not requiring the substantial specialized skill, judgment and knowledge required in professional nursing.

REQUIREMENTS FOR LICENSE

Each applicant for a license to practice as a practical nurse shall submit to the board written evidence, under oath, that he:

1. Is of good moral character.
2. Has completed 2 years of high school or its equivalent and has such other preliminary qualification requirements as the board may prescribe.
3. Is at least 18 years of age.
4. Has successfully completed the prescribed course of study in an accredited school of practical nursing.

EXAMINATION AND FEE REQUIREMENTS

Application fee - $20.00
Temporary license - $5.00, for 4 month period.

AGENCY THAT ISSUES LICENSE

Nevada State Board of Nursing
Reno, Nevada

APPROVED TRAINING

Washoe-Western School of Practical Nursing
Washoe Medical Center
Reno, Nevada 89502

St. Mary's School of Practical Nursing
St. Mary's Hospital
235 West 6th Street
Reno, Nevada 89503

Lyon School of Practical Nursing
Lyon Health Center
Yerington, Nevada 89447

Elko School of Practical Nursing
Elko General Hospital
Elko, Nevada 89801

Southern Nevada School of Practical Nursing
Southern Nevada Memorial Hospital
West Charleston Blvd.
Las Vegas, Nevada 89102

Sunrise School of Practical Nursing
Sunrise Hospital
Maryland Parkway
Las Vegas, Nevada 89109

Lahontan School of Practical Nursing
Churchill Public Hospital
Fallon, Nevada 89406

Sierra Nevada School of Practical Nursing
110 North Nevada Street
Carson City, Nevada 89701

Reno V.A. School of Practical Nursing
V.A. Hospital
Reno, Nevada 89502

FOR FURTHER INFORMATION

Mrs. Jean Peavy
R.N. Executive Secretary
Nevada State Board of Nursing
644 South Center
Reno, Nevada 89501

National Federation of Licensed Practical Nurses
1465 Broadway
New York, New York 10036

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REGISTERED NURSE

DESCRIPTION OF DUTIES

"Professional nursing" shall apply to any person who for compensation performs any professional services requiring the application of principals of the biological or physical sciences and nursing skills in the care of the sick, in the preventing of disease, in conservation of health, or in the supervision and teaching of other personnel.

REQUIREMENTS FOR LICENSE

Every applicant for a license to practice as a professional nurse in the State of Nevada shall submit to the board written documents under oath of the following:

1. Is at least 20 years of age.
2. Is of good moral character.
3. Is in good physical and mental health.
4. Has completed a course of study in an accredited school of professional nursing and holds a diploma therefrom.
5. Meets such other reasonable preliminary qualfication requirements as the board may from time to time prescribe.
6. The board may, without examination, issue a license to practice nursing as a professional nurse to any applicant who meets the qualifications required of professional nurses in this state and who has been duly licensed or registered as a registered nurse, after examination, under the laws of any other state, territory or foreign country.
7. A written examination may be supplemented by an oral or practical examination in the discretion of the board.

EXAMINATION AND FEE REQUIREMENTS

Each applicant shall submit a fee of $30.00 with his application for a license to practice as a professional nurse in Nevada.

Temporary license - $8.00 issued for 4 month period.

AGENCY THAT ISSUES LICENSE

Nevada State Board of Nursing
Reno, Nevada

APPROVED TRAINING

IN STATE:

Orvis School of Nursing
University of Nevada
Reno, Nevada 89507

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Associate Degree Program in Nursing
University of Nevada
Las Vegas 89109

OTHER:

Any accredited school of professional nursing.

FOR FURTHER INFORMATION

Mrs. Jean T. Peavy
R.N. Executive Secretary
Nevada State Board of Nursing
644 South Center
Reno, Nevada 89501

American Nurses Association
10 Columbus Circle
New York, New York 10019

Orvis School of Nursing
University of Nevada
Reno, Nevada 89507

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OCCUPATIONAL THERAPIST

DESCRIPTION OF DUTIES

The occupational therapist is a part of the rehabilitation team including the physician, physical and speech therapists, nurses, psychologists, social workers, vocational counselors and other specialties necessary in promoting the emotional and physical independence and well-being of their patients. The therapist must evaluate each patient upon the request of the physician to determine the current level of function and plan a therapeutic program to follow certain objectives; (a) to promote and maintain health, (b) to evaluate behavior, (c) to treat physical or emotional disability, and (d) to prevent further disability. During therapy, the patient is re-evaluated for progress in his level of function and progress notes or recommendations are made. The therapist works with patients of all ages and disability including neurologically handicapped, deaf and blind, physical injuries, heart, emotionally and mentally disturbed, and geriatrics. Work is done in general and special hospitals, psychiatric clinics, rehab centers, military hospitals, community health centers, nursing homes, special schools, home, sheltered workshops, and colleges and universities. Positions for therapists include staff or senior therapist, evaluator as a member of the health team, researcher, educator, supervisor, and consultant.

REQUIREMENTS FOR LICENSE

Basically, there is a college degree from an accredited OT curriculum, 6 to 9 months affiliation work in different areas of interest in accredited OT facilities, and the national registration examination. The basic college curriculum is liberal with a broad base of natural sciences, behavioral sciences and humanities. To meet the qualifications of the undergraduate or certificate program, or on a master's degree level and before the registration exmination, the following course work is necessary:

High School	Units
Biology, Chemistry or Physics	1-3
English	3-4
History or Social Studies	1-2
Language	2-5
Mathematics	2-4

College	Semester Credits
Biological Sciences (human anatomy, physiology, emphasis on neuroanatomy and neurophysiology, principles of human motion)	9
Behavioral Sciences (personality development, group processes, personal and professional relationships)	9

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College	Semester Credits
Physical and Psychosocial Dysfunction (basic general pathology and psychopathology)	6
OT Skills (creative and manual skills, daily living skills, teaching methods)	9
OT Evaluation and Treatment Principles	12
Clinical Experience	6 months

Personal qualities necessary to succeed as an occupational therapist are to be creative, warm toward people of all ages and backgrounds, versatile to meet ever-changing demands, responsible, determined, and patient.

EXAMINATION AND FEE REQUIREMENTS

After completion of the required course work and clinical experience, a student is then required to take the national registration examination. There is a fee for this examination.

AGENCY THAT ISSUES LICENSE

Upon passing the examination and application for membership in the American Occupational Therapy Association, the therapist is then licensed for employment. Annual fees are required by the association to maintain and renew this license.

APPROVED TRAINING

The following lists of schools and universities are approved training centers for occupational therapy. They are accredited by the American Medical Association in collaboration with the American Occupational Therapy Association.

University of Birmingham
College of General Studies
720 South 20th Street
Birmingham, Alabama

Boston University
Sargent College
University Road
Boston, Massachusetts

Colorado State University
Ft. Collins, Colorado

Columbia University
College of Physicians and Surgeons
New York, New York

Eastern Michigan University
Ypsilanti, Michigan

University of Florida
Box 212
J. Hillis Miller Health Center
Gainesville, Florida

University of Illinois
College of Medicine
P.O. Box 6998
Chicago, Illinois

Indiana University
School of Medicine
Indiana University Medical Center
Indianapolis, Indiana

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University of Iowa
College of Medicine
Box 120
Westlawn Iowa City, Iowa

University of Kansas
Lawrence, Kansas

Loma Linda University
Loma Linda, California

University of Minnesota
College of Medical Sciences
Minneapolis, Minnesota

University of Missouri
Medical Center
West 338
Columbia, Missouri
(Developing program not yet accredited.)

Mount Mary College
Milwaukee, Wisconsin

University of New Hampshire
School of Health Studies
Durham, N. H.

University of New York
School of Education
New York, New York

University of New York State
Downstate Medical Center
Box 16
445 Lennox Road
Brooklyn, New York

University of New York State
at Buffalo
Buffalo, New York

University of North Dakota
Grand Forks, North Dakota

Ohio State University
School of Allied Medical Professions
Columbus, Ohio

University of Pennsylvania
School of Allied Medical Professions
Philadelphia, Pennsylvania

University of Puerto Rico
School of Physical and
Occupational Therapy
Medical Science Campus
Industrial Hospital
Rio Piedras, Puerto Rico

University of Puget Sound
Tacoma, Washington

Quinnipiac College
Box 136
Mt. Carmel Avenue
Hamden, Connecticut
(Developing program not yet accredited.)

College of Saint Catherine
St. Paul, Minnesota

San Jose State College
San Jose, California

University of Southern
California
College of Letters, Arts &
Sciences
Box 274
Los Angeles, California

Temple University
College of Allied Health
Professions
Philadelphia, Pennsylvania

University of Texas-Medical
Branch
School of Allied Health
Sciences
Galveston, Texas

Texas Woman's University
Denton, Texas

Tufts University-Boston School
of Occupational Therapy
Boston, Massachusetts

Utica College of Syracuse
University
Burrstone Campus
Utica, New York

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Virginia Commonwealth University
901 West Franklin Street
Richmond, Virginia

Washington University
School of Medicine
St. Louis, Missouri

University of Washington
School of Medicine
Seattle, Washington

Western Michigan University
Kalamazoo, Michigan

University of Wisconsin
1308 West Dayton Street
Madison, Wisconsin

FOR FURTHER INFORMATION

Write to the:

American Occupational Therapy Association
251 Park Avenue South
New York, New York 10010

and to the individual schools for information.

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OCCUPATIONAL THERAPY ASSISTANT

DESCRIPTION OF DUTIES

The certified OT assistant works under the supervision of a registered occupational therapist and administers the planned program for the patient to bring about specific emotional and/or physical responses. In certain areas in the country, the C.O.T.A. may supervise the program in nursing homes but must still have a registered occupational therapist as a consultant.

REQUIREMENTS FOR LICENSE

A person requesting admission to a training program must be a high school graduate. Upon completion of the training program, a certificate is awarded by the American Occupational Therapy Association. Training programs vary in their requirements but each program must be approved by the American Occupational Therapy Association. Variations include some of the following points:

1. Training in the basics of occupational therapy in all major categories of patient care.
2. Admission to the training programs limited to residents of that immediate geographical area.
3. Specialization to work with the mentally ill.
4. An employment requirement before application to the training program is requested by some of the schools.
5. Emphasis on preparation for work with the geriatric and long term patients.

Basic studies include the following areas:

The Normal Man
  Body structure and function
  Growth and development
Illness and Injury - its effect on the patient
Skills - a variety of activities used in Occupational Therapy
Principles and practice of Occupational Therapy
Supervised practical experience

C.O.T.A.'s are found in the following work situations:

Psychiatric hospitals and clinics
Chronic disease hospitals, convalescent and nursing homes
General and specialized hospitals and rehabilitation centers
Schools and clinics for handicapped children
Facilities for the mentally retarded.

EXAMINATION AND FEE REQUIREMENTS

In addition to student fees and uniforms, the American Occupational Therapy Association receives annual dues to renew membership and certification requirements.

AGENCY THAT ISSUES LICENSE

The American Occupational Therapy Association

APPROVED TRAINING Occupational Therapy Training Programs:

1. Bird S. Coler Hospital, New York City, New York Medical College Center for Chronic Disease, 20 weeks, semi-annual program.
2. Colorado State Hospital, Pueblo, Colorado, 20 weeks, annual.
3. Columbus Ohio Public Schools, Department of Adult Education, 1 year, vocational program.
4. Commonwealth of Puerto Rico, Department - Gericulture Commission 22 weeks.
5. Hartford Hospital, The Occupational Therapy Assistant Training Program, Department of Psychiatry, Hartford, Connecticut, 26 weeks.
6. Houston, Texas Chronic Illness Control Division, Houston Health Department, 21 weeks.
7. Madison Area Technical College, School of Health Occupations, Madison, Wisconsin, one year vocational program.
8. Murfreesboro City Schools, Adult Vocational Education, Murfreesboro, Tennessee, 24 weeks.
9. St. Mary's Junior College, 436 West Main Street, St. Paul, Minnesota 55102, Director, Mrs. Patricia Babcock, OTR, 2 years associate degree program.
10. Virginia Program for Occupational Therapy Assistants, Center for Continuing Education, Virginia Commonwealth University, Richmond, Virginia, annual summer program.

Psychiatric Programs:

1. Marcy State Hospital, Marcy, New York. Annual program, six month's work experience in New York State Department of Mental Hygiene hospitals required prior to application, 13 weeks.
2. Massachusetts Department of Mental Health. Boston State Hospital, Boston, Massachusetts, annual program. Nine month's employment in a state hospital in Massachusetts required prior to application, 13 weeks.
3. Rockland State Hospital, Orangeburg. New York, annual program. Six month's work experience in New York State Department of Mental Hygiene hospitals required prior to application, 13 weeks.
4. Wisconsin Department of Mental Hygiene, Madison, Wisconsin. Semi-annual program. Eligibility based on employment within the state, 14 weeks.
5. Mount Aloysius Junior College, Cresson, Pennsylvania. 2 year associate degree program.
6. Duluth Area Institute of Technology, Duluth, Minnesota, 6 months.

Training areas in both psychiatric and psychical disability areas:

1. Erie County Technical Institute, Buffalo, New York. 2 year associate degree program.
2. Green River Community College, Auburn, Washington. 2 year associate degree program.

3. Community College of Baltimore and Maryland State Department of Health, 2901 Liberty Heights Avenue, Baltimore, Maryland 21215, Mr. Erwin H. Pepmeier, Jr., OTR., Director. 1 year certificate program, 2 year associate degree program.
4. Mount Hood Community College, Gresham, Oregon, 1 year vocational program.
5. Los Angeles City College, Los Angeles, California, 1 year vocational program, associate degree program.
6. Area Ten Community College, Cedar Rapids, Iowa, one year vocational program.
7. Schoolcraft College, Livonia, Michigan, 1 year vocational program.
8. Southwestern College, Chula Vista, California, one year vocational program.
9. Technical Educational Center, Anoka, Minnesota, one year vocational program.

FOR FURTHER INFORMATION

Write to the American Occupational Therapy Association
251 Park Avenue South
New York, New York 10010

and to the individual schools for further information.

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DISPENSING OPTICIAN

DESCRIPTION OF DUTIES

Dispensing Optician, or Ophthalmic Dispenser, fills prescriptions for eyeglasses and/or contact lenses in a retail optical goods establishment, interprets prescription of oculist or optometrist to determine lens specifications; measures facial contours of wearers to determine size and shape of frames and lenses best suited to wearer's needs; prepares and delivers work order specifications to workers engaged in grinding and mounting lenses; and receives finished spectacles and makes necessary adjustments to fit wearer.

REQUIREMENTS FOR LICENSE

Qualifications of candidate for examination and certification. A candidate in order to qualify for examination and certification as an ophthalmic dispenser, must furnish proof that he:

1. Is at least 21 years of age.
2. Is of good moral character.
3. Is a citizen of the United States, or has legally declared his intention of becoming one.
4. Has either:
   a. Served as an apprentice for not less than 4 calendar years full time employment in an optical establishment where prescriptions for optical glasses from given formulae have been filled, and has acquired experience in the production and reproduction of ophthalmic lenses and mounting the same to supporting materials, and 1 year of ophthalmic dispensing experience under the direct supervision of a licensed ophthalmic dispenser or licensed optometrist; or
   b. Successfully completed a course of study in a school of ophthalmic dispensing recognized by the board as maintaining a satisfactory standard and 1 year of ophthalmic experience under the direct supervision of a licensed ophthalmic dispenser or licensed optometrist.

EXAMINATION AND FEE REQUIREMENTS

Examination Fee, $50.00.

Annual License Fee, $15.00.

AGENCY THAT ISSUES LICENSE

Nevada State Board of Dispensing Opticians

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APPROVED TRAINING

IN STATE:

Training under any licensed dispensing optician or optometrist.

OTHER:

Training under any licensed dispensing optician or optometrist where licensing is required.

APPROVED SCHOOLS:

School of Optics, Los Angeles City College
Los Angeles, California 90029

Erie County Jr. College
Buffalo, N.Y.

Ferris Institute
Grand Rapids, Michigan

FOR FURTHER INFORMATION

Nevada State Board of Dispensing Opticians
1008 East Charleston Boulevard
Victor Isaacson, Secretary
Las Vegas, Nevada 89104

The Dispensing Optician
Robert L. Pickering, Editor
1980 Mountain Boulevard
Oakland, California 94611

Guild of Prescription Opticians of America
J. A. Miller, Executive Secretary
494 Broad Street
Newark, N.J. 07102

5952

OPTOMETRIST

DESCRIPTION OF DUTIES

An optometrist specializes in the examination of the eyes for the conservation and improvement of vision. He makes a complete vision analysis, administering a series of tests to determine the efficiency of one's eyes for both distance and near point vision. If deficiencies are found, he prescribes and provides any lenses, visual training or specialized services needed in order to achieve accurate, comfortable and efficient seeing. The optometrist also has extensive training in the detection and recognition of diseases in the eye. When evidence of pathology is present, he refers the patient for other professional care.

REQUIREMENTS FOR LICENSE

Any person not licensed to practice optometry in the State of Nevada, who desires and intends to commence such practice must comply with the following requirements:

1. Not less than 21 years old.
2. Citizenship of the United States.
3. Good moral character.
4. File proof of his qualifications.
5. Make application for an examination.
6. Take and pass the examination.
7. Preliminary education equivalent to 4 years in a registered high school.
8. Graduation from a school of optometry accredited by the established professional agency and the board, maintaining a standard of 6 college years, and including, as a prerequisite to admission to the courses in optometry, at least 2 academic years of study in a college of arts and sciences accredited by the Association of American Universities or a similar regional accrediting agency.
9. Written application for examination, made on a form furnished by the board and verified by the applicant, must be filed with the secretary at least 2 weeks prior to examination of the applicant.
10. A grade of 75 in all included subjects shall be necessary to pass the examination.

EXAMINATION AND FEE REQUIREMENTS

Examination fee.....$ 50
Reexamination fee.....$ 25
Reciprocity application fee...$100
License issuance fee.....$ 10

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Annual license renewal fee: Not less than $25.00 and not more than $50.00 as the board shall determine annually.

Recording Fee.....$1.00.

AGENCY THAT ISSUES LICENSE

Nevada State Board of Optometry
Reno, Nevada

APPROVED TRAINING

Pennsylvania State College of Optometry
6100 N. 12th Street
Philadelphia, Pennsylvania 19141

Southern College of Optometry
1246 Union Avenue
Memphis, Tennessee 38104

Pacific University
College of Optometry
Forest Grove, Oregon 97116

University of California
School of Optometry
Berkeley, California 94720

University of Houston
College of Optometry
Houston, Texas 77004

Illinois College of Optometry
3241 South Michigan Avenue
Chicago, Illinois 60616

Indiana University
Division of Optometry
Bloomington, Indiana 47401

Massachusetts College of Optometry
178 Newbury Street
Boston, Massachusetts 02116

Los Angeles College of Optometry
950 West Jefferson Blvd.
Los Angeles, California 90007

Ohio State University
School of Optometry
Columbus, Ohio 43210

FOR FURTHER INFORMATION

William G. Van Patten, Secretary
Nevada State Board of Optometry
P.O. Box 987
Carson City, Nevada 89701

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PRIVATE PATROLMAN

DESCRIPTION OF DUTIES	"Private Patrolman" means a person engaged in the business of employing and providing for other persons watchmen, guards, patrolmen or other individuals for the purpose of protecting persons or property or to prevent the theft, loss or concealment of property of any kind.
REQUIREMENTS FOR LICENSE	Be at least 21 years of age. Be a citizen of the United States. Be of good moral character and temperate habits. Be a resident of the State of Nevada for at least 6 months. Have no felony conviction. That the applicant has had 2 years of experience prior to an application for a license. (A year's experience shall consist of not less than 2,000 hours of actual compensated work performed by the applicant within ten years next preceding the filing of an application). Applicant must file with the board a surety bond executed by the applicant, with two or more sureties or by a surety company authorized to do business in this state, conditioned for the faithful and honest conduct of the business for which the applicant is licensed. The amount of the required bond for licensing is $2,000. No person, unless he is licensed under Chapter 648, shall (1) engage in the business of Private Patrolman (2) advertise his business as such, irrespective of the name or title actually used. Other requirements as determined by the board.
EXAMINATION AND FEE REQUIREMENTS	Applicant shall file with the board a written application accompanied by a fee of $25.00 to cover costs of examination. The fee shall not be rebatable. If the applicant fails to pass the examination required by NRS 648.100 he shall not be reexamined until he has paid another fee of $25.00 to cover costs of reexamination. License fee is $75.00 per year due on July 1. The board may provide that the fee be reduced ratably for portions of the license period.
AGENCY THAT ISSUES LICENSE	Department of Attorney General Private Investigator's Licensing Board Supreme Court Building Carson City, Nevada 89701
APPROVED TRAINING	That the applicant has had 2 years of experience prior to an application for a license. (A year's experience shall consist of not less than 2,000 hours of actual compensated work performed by the applicant within 10 years next preceding the filing of an application.)

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FOR FURTHER INFORMATION

Department of Attorney General
Private Investigator's Licensing Board
Supreme Court Building
Carson City, Nevada 89701
882-7401

5956

CUSTOM PEST CONTROL OPERATOR

DESCRIPTION OF DUTIES	Makes application of pesticides in order to control pests.
REQUIREMENTS FOR LICENSE	1. Pass written examination on knowledge of pest and pesticides. 2. Have proof of financial responsibility including PI & PD insurance. 3. Have equipment satisfactory to perform work. 4. For aircraft application, must have: a. Private pilot license b. FAA certificate on aircraft c. FAA certificate or certification by person holding certificate of FAA agricultural permit.
EXAMINATION AND FEE REQUIREMENTS	Fee $25.00 principle $10.00 operator Examination - Individually scheduled by Department.
AGENCY THAT ISSUES LICENSE	Nevada Department of Agriculture
FOR FURTHER INFORMATION	Nevada Department of Agriculture P.O. Box 1209 Reno, Nevada 89504 Phone: 784-6401 (Area 702)

5957

PHARMACEUTICAL CLERK (INTERN)

DESCRIPTION OF DUTIES	A pharmaceutical clerk is a student who is obtaining the necessary practical experience to enable him to take the examination for registration as a pharmacist.
REQUIREMENTS FOR LICENSE	Individual must have completed a minimum of 60 units of a college of pharmacy or department of pharmacy of a university approved by the Board. Must submit a letter from person willing to be preceptor or responsible for all work performed by the individual.
EXAMINATION AND FEE REQUIREMENTS	$5.00
AGENCY THAT ISSUES LICENSE	Nevada State Board of Pharmacy Post Office Box 1087 Reno, Nevada 89504
APPROVED TRAINING	Any accredited college of pharmacy or pharmacy of a university approved by State Board of Pharmacy.
FOR FURTHER INFORMATION	Nevada State Board of Pharmacy Post Office Box 1087 Reno, Nevada 89504

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PHARMACIST

DESCRIPTION OF DUTIES

A pharmacist is a person who compounds and dispenses medicines and preparations as directed by prescriptions prepared by licensed physicians and dentists.

STATE REQUIREMENTS FOR LICENSE

An applicant to become a registered pharmacist in this state must:

1. Be a citizen of the United State of America.

2. Be of good moral character.

3. Be a graduate of a school or college of pharmacy approved by the National Association of Boards of Pharmacy or by the Nevada State Board of Pharmacy.

4. Satisfactorily pass an examination prepared, given and graded by the Nevada State Board of Pharmacy.

5. Comply with such rules or regulations, or both, of the Nevada State Board of Pharmacy as the board may adopt, from time to time, concerning applications to become a registered pharmacist in this state.

EXAMINATION OF APPLICANTS: REEXAMINATION.

1. An applicant for a certificate as a registered pharmacist who has failed to pass the board's examination for such certificate shall not be eligible for reexamination within 6 months from the date of such failed examination.

2. No applicant for a certificate as a registered pharmacist shall be entitled to more than three examinations for such certificate.

AGENCY THAT ISSUES LICENSE

Nevada State Board of Pharmacy

REQUIRED FEE

All fees shall be payable in advance and shall not be refunded.

Recording of certificate.....$1.00
For examination of applicant for certificate as registered pharmacist.....30.00
For issuance of certificate of registration as registered pharmacist.....10.00
For annual renewal of certificate of registration as registered pharmacist.....10.00

FOR FURTHER INFORMATION

Nevada State Board of Pharmacy
Post Office Box 1087
Reno, Nevada 89504

PHYSICIAN AND SURGEON

DESCRIPTION OF DUTIES

A person holding a degree as Doctor of Medicine, (M.D.) graduating from an approved United States or Canadian medical school.

REQUIREMENTS FOR LICENSE

Every person desiring to practice medicine, surgery and obstetrics in any of their branches shall, before beginning to practice, procure from the board a certificate authorizing such practice. A certificate may be issued to any person who is a citizen of the United States, or any citizen of Canada who has declared his intention to become a citizen of the United States, who has served as an interne for at least 1 year in a hospital recognized for interne training by the American Medical Association. The applicant for a certificate to practice medicine, surgery and obstetrics, or any other specialized branch shall submit to the board through its secretary:

1. His diploma or a photostatic copy thereof issued by a United States or Canadian medical school recognized as reputable by the Board, the requirements of which medical school shall have been, at the time of granting such diploma, in no particular less than those prescribed for that year by the American Medical Association. The board may retain the diploma for a reasonable time, not to exceed 6 months.

2. An affidavit setting forth the number and duration of terms the applicant was required to attend, that the applicant is the lawful possessor of the diploma, is the person named therein, and that it was procured without fraud or misrepresentation of any kind.

3. A certificate or other document proving a period of internship of not less than 1 year in a hospital recognized for interne training by the American Medical Association.

4. An affidavit of two physicians, residents of the county in which the applicant has most recently resided, stating that the applicant is the identical person named in the diploma and is of good moral standing and of good repute.

All applicants must have a Nevada "Certificate of Proficiency in the Basic Sciences" issued by the Nevada State Board of Examiners in the Basic Sciences, Box 8355, Reno, Nevada 89507.

In addition to the above requirements the board may take such further evidence as in its discretion may be deemed proper concerning the matters embraced therein. And if it shall appear that the applicant is not of good moral character or that any credential submitted is false, the applicant shall be rejected.

EXAMINATION AND FEE REQUIREMENTS	The required fee for licensure by examination, $100; for licensure by reciprocity, $200.
FOREIGN MEDICAL SCHOOL GRADUATES	(a) Must show proof that he is a citizen of the United States, has filed a petition for naturalization or has filed a declaration of intention to become a citizen. (b) Prove that he has completed 2 years of internship in an approved hospital in the United States or Canada within the 5 year period preceding application. The board may consider 1 or more years of post-graduate study or residency training in an approved medical school or hospital in the United States or Canada as a substitute for the 1 year of internship. (c) Prove that he has received the degree of Doctor of Medicine from a foreign medical school recognized by the Educational Council of Foreign Medical Graduates and has received their certificate. (d) Prove that he has passed the examination of the National Board of Medical Examiners or the Federal Licensing Examination of the Federation of State Medical Boards of the United States, Inc., given by a medical examining board of another state or the District of Columbia. (e) Submit affidavits of two physicians, residents of the county in which the applicant has most recently resided, attesting to his good moral standing and reputation. (f) Prove that he has satisfactorily served as a resident medical officer in a hospital in Nevada for not less than 1 year under a permit issued by the Board. If the applicant is a diplomat of an approved specialty board recognized by the American Medical Association, the requirements of paragraphs (b), (d) and (f) may be waived by the board. Before issuance of a certificate to practice medicine, surgery and obstetrics, the applicant who pays the fee ($200) and presents the above required proof, shall appear personally before the board and satisfactorily pass an examination as to his qualifications to practice.
PERMITS FOR RESIDENT MEDICAL OFFICERS	The holder of a permit shall practice medicine, surgery and allied specialties only within the confines of the hospital specified on his permit and under the supervision of the regular hospital medical staff; and the board shall have in its possession a letter from a Nevada hospital requesting such permit for that individual; meet the requirements for permanent licensure.

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FOR FURTHER INFORMATION

Mr. Nelson B. Neff, Executive Secretary
Nevada State Board of Medical Examiners
3660 Baker Lane
Reno, Nevada 89502

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COMMERCIAL PILOT
AIRPLANE, ROTORCRAFT OR GLIDER

DESCRIPTION OF DUTIES	Pilot aircraft for corporations, air taxis and industrial - agricultural.
REQUIREMENTS FOR CERTIFICATION	1. Be at least 18 years of age. 2. Have 200 flight hours, with 50 hours cross country, 10 hours instrument, 5 hours night flying. 3. Pass written and flight examinations.
EXAMINATION AND FEE REQUIREMENTS	None - Must furnish aircraft for flight test.
AGENCY THAT ISSUES CERTIFICATION	Federal Aviation Administration
APPROVED TRAINING	Available at Air Agency Flying Schools where required hours are cut to 160.
FOR FURTHER INFORMATION	Contact Las Vegas or Reno General Aviation District Office. McCarran Airport Las Vegas, Nevada 89111 Reno Municipal Airport Reno, Nevada 89502

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APPRENTICE PLUMBERS

DESCRIPTION OF DUTIES

An apprentice plumber is a person who has agreed to comply with all of the plumber apprenticeship rules. He works under the direct supervision of a journeyman in this same field. The plumber assembles and installs water and waste-disposal systems; cuts openings in walls for pipes; bends, threads and reams pipes; tests joints and pipe systems for leaks; and any other plumbing duties that may fall in his line of work. During the course of training an apprentice plumber will perform all of the major and minor jobs required.

REQUIREMENTS FOR LICENSE

All applicants who wish to enter as an apprentice plumber shall meet the following requirements:

1. Applicant must be a high school graduate and under 23 years of age.
2. Applicant must present high school diploma or copy of same.
3. Applicant must be able to present records of curriculum, give name and address of high school attended.
4. Applicant must contact Employment Security Department and take aptitude test. It is also the responsibility of applicant to get the results of test to attach to application.
5. Must be a citizen of the United States, or declared his intention of becoming a citizen.
6. Must agree to work willingly under the direct supervision of a plumber journeyman.
7. Must spend not less than 144 clock hours per year in apprenticeship training.
8. Must agree to spend 5 years in the apprenticeship program, or 10,000 hours. Three months probationary period.
9. As a beginner apprentice he must agree to accept the beginning apprentice salary. The salary is based on 45% of a journeyman's wages, increasing every six months.

EXAMINATION AND FEE REQUIREMENTS

Any required GED tests shall be at applicant's expense.

Any physical tests will be at applicant's expense.

AGENCY THAT ISSUES LICENSE

Nevada State Apprenticeship Council

5964

APPROVED TRAINING — Recommended training school given by the Bureau of Apprenticeship and Training, U. S. Department of Labor, and local apprenticeship councils.

FOR FURTHER INFORMATION

Clark County

Plumbers' JAC
Boulder Canyon Project
O. A. Keller, Chairman
Boulder City, Nevada 89005

Plumbers' and Steamfitters' JAC
American Potash & Chemical Corp.
P.O. Box 55
Henderson, Nevada 89015

Plumbers' & Steamfitters' JAC
David L. McGinty, Chairman
725 North Lamb Boulevard
Las Vegas, Nevada 89110

Washoe County

Plumbers & Steamfitters' JAC
Steve Carolo, Secretary
2161 Logan Way
Sparks, Nevada 89431

Other Counties

Plumbers' & Pipefitters JAC
Kennecott Copper Corp.
B. C. Carter, Chairman
McGill, Nevada 89318

5965

DOCTOR OF PODIATRIC MEDICINE (D.P.M.)

DESCRIPTION OF DUTIES	Medical foot specialists in the diagnosis, medical treatment, and surgery - limited to the foot and leg.
REQUIREMENTS FOR LICENSE	Graduation from a recognized college of podiatric medicine. (N.B.: Those recognized by the Council on Education of the American Podiatry Association). Examinations are given twice yearly by the Nevada State Board of Podiatry - first Monday in May and November.
EXAMINATION AND FEE REQUIREMENTS	Examinations by the Nevada State Board of Podiatry are given twice yearly - 1st Monday in May and November. Examination fee is $50.00. Yearly license renewal fee is $10.00.
AGENCY THAT ISSUES LICENSE	Nevada State Board of Podiatry: William A. Edwards, D.P.M., Secretary.
APPROVED TRAINING	Any college of Podiatric Medicine recognized by the American Podiatry Association, 20 Chevy Chase Circle, Washington, D.C. 20015.
FOR FURTHER INFORMATION	Nevada State Board of Podiatry William A. Edwards O.P.M., Secretary 311 Elm Reno, Nevada 89503 American Podiatry Association 20 Chevy Chase Circle Washington, D. C. 20015

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POLYGRAPH OPERATOR

DESCRIPTION OF DUTIES	"Polygraph operator" means any individual who, for compensation uses any polygraph or similar device to determine the truth of any statement made by an individual examined by him.
REQUIREMENTS FOR LICENSE	Be at least 21 years of age. Be a citizen of the United States. Be of good moral character and temperate habits. Be a resident of the State of Nevada for at least 6 months. Have no felony conviction. That the applicant has had 2 years of experience prior to an application for a license. (A year's experience shall consist of not less than 2,000 hours of actual compensated work performed by the applicant within ten years next preceding the filing of an application.) Applicant must file with the board a surety bond executed by the applicant, with two or more sureties or by a surety company authorized to do business in this state, conditioned for the faithful and honest conduct of the business for which the applicant is licensed. The amount of the required bond for licensing is $2,000. No persons, unless he is licensed under Chapter 648, shall (1) engage in the business of Polygraph Operator (2) advertise his business as such, irrespective of the name or title actually used. Other requirements as determined by the board.
EXAMINATION AND FEE REQUIREMENTS	Applicant shall file with the board a written application accompanied by a fee of $25.00 to cover costs of examination. The fee shall not be rebatable. If the applicant fails to pass the examination required by NRS 648.100 he shall not be reexamined until he has paid another $25.00 to cover costs of reexamination. License fee is $75.00 per year due on July 1. The board may provide that the fee be reduced ratably for portions of the license period.
AGENCY THAT ISSUES LICENSE	Department of Attorney General Private Investigator's Licensing Board Supreme Court Building Carson City, Nevada 89701
APPROVED TRAINING	That the applicant has had 2 years of experience prior to an application for a license. (A year's experience shall consist of not less than 2,000 hours of actual compensated work performed by the applicant within 10 years next preceding the filing of an application.)

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FOR FURTHER INFORMATION

Department of Attorney General
Private Investigator's Licensing Board
Supreme Court Building
Carson City, Nevada 89701
882-7401

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PROCESS SERVER

DESCRIPTION OF DUTIES	"Process server" means a person, other than a peace officer of the State of Nevada, who engages in the business of serving legal papers in any civil matter.
REQUIREMENTS FOR LICENSE	Be at least 21 years of age. Be a citizen of the United States. Be of good moral character and temperate habits. Be a resident of the State of Nevada for at least 6 months. Have no felony conviction. That the applicant has had 2 years of experience prior to an application for a license. (A year's experience shall consist of not less than 2,000 hours of actual compensated work performed by the applicant within ten years next preceding the filing of an application). Applicant must file with the board a surety bond executed by the applicant, with two or more sureties or by a surety company authorized to do business in this state, conditioned for the faithful and honest conduct of the business for which the applicant is licensed. The amount of the required bond for licensing is $2,000. No person, unless he is licensed under Chapter 648, shall (1) engage in the business of Process Server (2) advertise his business as such, irrespective of the name or title actually used. Other requirements as determined by the board.
EXAMINATION AND FEE REQUIREMENTS	Applicant shall file with the board a written application accompanied by a fee of $25.00 to cover costs of examination. The fee shall not be rebatable. If the applicant fails to pass the examination required by NRS 648.100 he shall not be reexamined until he has paid another fee of $25.00 to cover costs of reexamination. License fee is $75.00 per year due on July 1. The board may provide that the fee be reduced ratably for portions of the license period.
AGENCY THAT ISSUES LICENSE	Department of Attorney General Private Investigator's Licensing Board Supreme Court Building Carson City, Nevada 89701
APPROVED TRAINING	That the applicant has had 2 years of experience prior to an application for a license. (A year's experience shall consist of not less than 2,000 hours of actual compensated work performed by the applicant within 10 years next preceding the filing of an application.)

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FOR FURTHER INFORMATION

Department of Attorney General
Private Investigator's Licensing Board
Supreme Court Building
Carson City, Nevada 89701
882-7401

5970

PSYCHOLOGIST

DESCRIPTION OF DUTIES

"Practice of psychology" means the application of established principles of learning, motivation, perception, thinking, and emotional relationships to problems of personnel evaluation, group relations and behavior adjustment by persons trained in psychology. The application of such principles includes but is not restricted to:

1. Counseling and the use of psychotherapeutic measures with persons or groups with adjustment problems in the areas of work, family, school or personal relationships.

2. Measuring and testing of personality, intelligence, aptitudes, emotions, public opinion, attitudes and skills.

3. Doing research on problems relating to human behavior.

REQUIREMENTS FOR LICENSE

Each applicant shall furnish evidence satisfactory to the board that he:

1. Is at least 21 years of age.

2. Is of good moral character.

3. Is a citizen of the United States, or has declared his intention of becoming a citizen.

4. Has received a doctorate in psychology from an educational institution approved by the board, or has training deemed equivalent by the board in both subject matter and extent of training.

5. Has at least 1 year of post-doctoral experience satisfactory to the board.

Each applicant for a certificate shall be given a written examination by the board on his knowledge of psychology. In addition the board may require an oral examination.

The board may grant a certificate without any examination to any person certified or licensed by a board of psychological examiners of another state if the board determines that the requirements in such state are at least equivalent to the requirements of Nevada.

EXAMINATION AND FEE REQUIREMENTS

Application Fee	-	$10.00
Certification Fee	-	$15.00
Examination Fee	-	$25.00
Endorsement Fee	-	$50.00
Registration Fee	-	$25.00

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AGENCY THAT ISSUES LICENSE	Nevada State Board of Psychological Examiners University of Nevada Reno, Nevada 89507
APPROVED TRAINING	Any accredited university offering a doctorate in psychology and recognized by the University of Nevada.
FOR FURTHER INFORMATION	Dr. Robert McQueen, President Nevada Board of Psychological Examiners University of Nevada Reno, Nevada 89507

5972

RACING OCCUPATIONS

DESCRIPTION OF DUTIES

The following occupations require licensing by the Nevada State Racing Commission in any horse race in the State of Nevada.

Stewards - have control over all stands, weighing rooms, enclosures and all other places within the grounds where racing is being conducted. They have power to regulate and control the conduct of all officials and all other persons attending or participating in any manner at a racing meeting.

Authorized Agent - is a person legally authorized to act for the owner.

Jockey - is a rider of a horse in a race.

Jockey Agent - shall represent one or more jockeys to secure engagements for them to ride in a race.

Racing Secretary - shall write the condition of all races and shall publish them.

Judges - shall determine the finish of each race, and shall view the track and report any incident which occurs. They shall keep record of all equipment carried by the horses.

Veterinarian - shall examine each horse as it enters the paddock to determine its fitness to race.

Other racing activity workers such as Owner, Apprentice Jockey, Trainer, Driver (Harness), Groom, Exercise Boy, Officials, Mutual Employees, Stable-Foreman and Concessionaires and Employees also have to be licensed.

REQUIREMENTS FOR LICENSE

All persons engaged in racing or employed in the conduct of racing must be able to demonstrate that he has a character reputation above reproach.

EXAMINATION AND FEE REQUIREMENTS

Steward	$10.00
Owner	5.00
Authorized Agent	5.00
Jockey	5.00
Apprentice Jockey	5.00
Jockey Agent	5.00
Trainer	5.00
Driver (Harness)	5.00
Groom	1.00
Exercise Boy	2.50
Officials	10.00
Mutual Employees	1.00
Racing Secretary	10.00

Judges	5.00
Stable Foreman	2.50
Veterinarian	5.00
Concessionaires and Employees	1.00

AGENCY THAT ISSUES LICENSE: Nevada State Racing Commission

FOR FURTHER INFORMATION: Nevada State Racing Commission
Mr. S. A. Wells
365 Moraine Way
Reno, Nevada 89503

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REAL ESTATE BROKER

DESCRIPTION OF DUTIES

"Real Estate Broker" is any person, copartnership, association or corporation:

1. Who for another and for a compensation, or who with the intention or expectation of receiving a compensation sells, exchanges, options, purchases, rents, or leases, or negotiates or offers, attempts or agrees to negotiate the sale, exchange, option, purchase, rental, or lease of, or lists or solicits prospective purchasers of, or collects or offers, attempts or agrees to collect rental for the use of, any real estate or the improvements thereon; or

2. Who engages in or offers to engage in the business of claiming, demanding, charging, receiving, collecting or contracting for the collection of an advance fee in connection with any employment undertaken to promote the sale or lease of business opportunities or real estate by advance fee listing advertising or other offerings to sell, lease, exchange or rent property.

3. Any person, copartnership, association or corporation who, for another and for a compensation, aids, assists, solicits or negotiates the procurement, sale, purchase, rental or lease of public lands shall be deemed to be a real estate broker.

REQUIREMENTS FOR LICENSE

Licenses shall be granted only to persons who:

1. Bear a good reputation for honesty, truthfulness and fair dealing.

2. Are of good moral character.

3. Are competent to transact the business of a real estate broker or real estate salesman in such a manner as to safeguard the interests of the public.

4. An applicant must be a person whose application has not been rejected or denied, except for a failure to pass the written examination, in this or any other state within the period of one year prior to the application, or whose real estate license has not been revoked in this or any other state, district or territory of the United States or in any foreign country within one year prior to the date of application.

Every applicant shall be:

1. 21 years of age or over.

2. A citizen of the United States, or has a formal declaration of intention to become a citizen of the United States.

3. A bona fide resident of the State of Nevada, as evidenced by actual physical presence in the state for a period of at least 6 months next immediately preceding the filing of the application for a license.

No broker's license shall be issued to a copartnership, association or corporation unless all the members of any such copartnership or association who will actively engage in the real estate business, and all of the officers and directors of any such corporation who will actively engage in the real estate business are:

1. 21 years of age or over.

2. Citizens of the United States; but any person not a citizen of the United States may be eligible for license if due proof is made to the commission that he has declared his intention to become a citizen of the United States.

3. Residents of the State of Nevada for a period of at least 6 months next immediately preceding the filing of the application for license.

Any person licensed as a real estate broker or real estate salesman within the State of Nevada at any time prior to July 1, 1949, shall be exempt from the citizenship requirements of this chapter. Nothing in this chapter shall affect the right of such noncitizen now holding a real estate broker's license or a real estate salesman's license to renewal or reinstatement of his license in accordance with the provisions of this chapter.

On and after July 1, 1960, in addition to the other requirements contained in this chapter, an applicant for an original real estate broker's license shall furnish proof satisfactory to the commission that he has successfully completed, within 1 year prior to the date of his application for a broker's license, a course of instruction in real estate principles, practices, procedures and ethics, which course may be an extension or correspondence course offered by the University of Nevada, or any other accredited college or university, or by any other college or school approved by the commission.

An applicant for an original real estate broker's license may substitute, in lieu of the educational requirement, proof satisfactory to the commission that he was continuously licensed as a real estate salesman in this state or as a real estate broker or salesman in another state or district for at least 1 year within the 3 years immediately prior to the date of his application, and continuously during such time was actively engaged in the business of real estate salesman or broker.

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EXAMINATION AND FEE REQUIREMENTS	For each real estate broker's examination.....$40 For each original real estate broker's license.....$40 For each renewal real estate broker's license, for 1 year or fraction thereof.....$40 For each license as a real estate broker issued to a member of copartnership, association or officer of a corporation, other than the member of the copartnership, association or officer of the corporation named in the license issued to such copartnership, association or corporations.....$40 For each annual renewal thereof.....$40 For each branch office broker's license, for 1 year or fraction thereof.....$25 For each duplicate license or pocket card where the original license or pocket card is lost or destroyed, and affidavit made thereof.....$10 For each reinstatement of a real estate broker's license.....$10 For each reinstatement of a real estate broker's license when a licensee fails to give written notice to the commission within 30 days of a change of name, address or broker-employer.....$20 For each change of status from broker to broker-salesman, or the reverse.....$10 For each change of name or address.....$10
AGENCY THAT ISSUES LICENSE	Nevada State Department of Commerce
APPROVED TRAINING	IN STATE: University of Nevada Reno and Las Vegas Las Vegas School of Real Estate Las Vegas, Nevada Reno School of Real Estate Reno, Nevada OTHER: Any accredited school, college or university approved by the Real Estate Commission.
FOR FURTHER INFORMATION	State of Nevada Department of Commerce Real Estate Division 201 South Fall Street - Room 327 Carson City, Nevada 89701

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For each reinstatement of a real estate salesman's license.....$10

For each reinstatement of a real estate salesman's license when a licensee fails to give written notice to the commission within 30 days of a change of name, address or broker-employer.....$20

AGENCY THAT ISSUES LICENSE

The Nevada Real Estate Commission

APPROVED TRAINING

IN STATE:

University of Nevada
Reno and Las Vegas

Las Vegas School of Real Estate
Las Vegas, Nevada

Reno School of Real Estate
Reno, Nevada

OTHER:

Any accredited school, college or university approved by the Real Estate Commission.

FOR FURTHER INFORMATION

Real Estate Division
Administrative Office
201 South Fall Street - Room 327
Carson City, Nevada 89701

Real Estate Division
Eastern District Office
P.O. Box 291
Las Vegas, Nevada 89101

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REAL ESTATE SALESMAN

DESCRIPTION OF DUTIES

A "real estate salesman" is any person who is employed or engaged by a licensed real estate broker to do or to deal in any act, acts or transactions set out or comprehended by the definition of a real estate broker for compensation or otherwise.

REQUIREMENTS FOR LICENSE

Licenses shall be granted only to persons who:

1. Bear a good reputation for honesty, truthfulness and fair dealing.

2. Are of good moral character.

3. Are competent to transact the business of a real estate salesman in such a manner as to safeguard the interests of the public.

An applicant must be a person whose application has not been rejected or denied, except for a failure to pass the written examination, in this or any other state within the period of 1 year prior to the application, or whose real estate license has not been revoked in this or any other state, district or territory of the United States or in any foreign country within 1 year prior to the date of application.

Every applicant for a license as a real estate salesman shall be:

1. 21 years of age or over.

2. A citizen of the United States, or shall have declared an intention to become a citizen of the United States.

3. A bona fide resident of the State of Nevada, as evidenced by actual physical presence in the state for a period of at least 6 months next immediately preceding the filing of the application for a license.

Any person licensed as a real estate salesman within the State of Nevada at any time prior to July 1, 1949, shall be exempt from the citizenship requirements of this chapter.

EXAMINATION AND FEE REQUIREMENTS

For each real estate salesman's license.....$25
For each renewal real estate salesman's license, for 1 year or fraction thereof.....$25
For each change of name or address.....$10
For each transfer of real estate salesman's license on change of employer.....$10
For each duplicate license or pocket card where the original license or pocket card is lost or destroyed, and affidavit made thereof.....$10

5978

MOBILE RADIO REPAIRMAN
(Radiotelephone Operator)

DESCRIPTION OF DUTIES	Maintains and repairs 2-way mobile radio equipment.
REQUIREMENTS FOR LICENSE	Applicants must: 1. Be a citizen of the United States. 2. Successfully pass the appropriate test administered by FCC.
EXAMINATION AND FEE REQUIREMENTS	$4.00 for Second Class License $5.00 for First Class License
AGENCY THAT ISSUES LICENSE	Federal Communications Commission
APPROVED TRAINING	Correspondence Schools Private Commercial Schools Some colleges and universities
FOR FURTHER INFORMATION	Federal Communications Commission Field Engineering Bureau 323-A Customhouse San Francisco, California 94111

5980

REPOSSESSOR

DESCRIPTION OF DUTIES	"Repossessor" means a person who engages in business or accepts employment to locate or recover personal property which has been sold under a conditional sales agreement or which is subject to any other security interest.
REQUIREMENTS FOR LICENSE	Be at least 21 years of age. Be a citizen of the United States. Be of good moral character and temperate habits. Be a resident of the State of Nevada for at least 6 months. Have no felony conviction. That the applicant has had 2 years of experience prior to an application for a license. (A year's experience shall consist of not less than 2,000 hours of actual compensated work performed by the applicant within ten years next preceding the filing of an application.) Applicant must file with the board a surety bond executed by the applicant, with two or more sureties or by a surety company authorized to do business in this state, conditioned for the faithful and honest conduct of the business for which the applicant is licensed. The amount of the required bond for licensing is $10,000. No person, unless he is licensed under Chapter 648, shall 1. engage in the business of Repossessor, 2. advertise his business as such, irrespective of the name or title actually used. Other requirements as determined by the board.
EXAMINATION AND FEE REQUIREMENTS	Applicant shall file with the board a written application accompanied by a fee of $25.00 to cover costs of examination. The fee shall not be rebatable. If the applicant fails to pass the examination required by NRS 648.100 he shall not be reexamined until he has paid another fee of $25.00 to cover costs of reexamination. License fee is $75.00 per year due on July 1. The board may provide that the fee be reduced ratably for portions of the license period.
AGENCY THAT ISSUES LICENSE	Department of Attorney General Private Investigator's Licensing Board Supreme Court Building Carson City, Nevada 89701
APPROVED TRAINING	That the applicant has had 2 years of experience prior to an application for a license. (A year's experience shall consist of not less than 2,000 hours of actual compensated work performed by the applicant within 10 years next preceding the filing of an application.)

FOR FURTHER INFORMATION

Department of Attorney General
Private Investigator's Licensing Board
Supreme Court Building
Carson City, Nevada 89701
882-7401

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SANITARIAN

DESCRIPTION OF DUTIES	A sanitarian makes food and drug inspections, must be knowledgeable of all aspects of environmental health work, water and air pollution, sewer plants and poisons. He must know all local, state and federal laws pertaining to the above. He is also charged with enforcing the above laws.
REQUIREMENTS FOR LICENSE	Graduate from a college or university with 40 hours of basic sciences. Written examination from American Public Health Association. On-the-job training for a period of one year while on the job is required before the examination is taken. Examinations are usually conducted at least once a year but more often as required. The examination is conducted by the Secretary of the State Board and with one other board member present.
EXAMINATION AND FEE REQUIREMENTS	Registration fee - $20.00. Examination fee - $25.00. Certificate fee for one year - $10.00. Mailing fee for obtaining and returning examination under registered mail - $5.00.
AGENCY THAT ISSUES LICENSE	Nevada State Board of Registration for Public Health Sanitarians.
APPROVED TRAINING	On-the-job training is available if the applicant meets all requirements for employment.
FOR FURTHER INFORMATION	Nevada State Board of Registration for Public Health Sanitarians. R. Arthur Warden, R.P.H.S. Secretary 1010 Robin Street Reno, Nevada 89502

5983

SEWAGE TREATMENT PLANT OPERATOR

DESCRIPTION OF DUTIES

Operates sewage treatment, sludge processing, and disposal equipment in sewage treatment plant to control flow and processing of sewage.

REQUIREMENTS FOR LICENSE

A. Operators shall be examined by the Board as to education, experience, and knowledge of wastewater characteristics, sewage treatment processes, and treatment plant operation as related to the certificate classification for which examined. Applicants shall be required further to give evidence of good moral character, dependability, initiative, interest in his work, and other pertinent characteristics in relation to responsible supervision over waste treatment plant operation.

B. Five classes of operators are hereby established whose minimum qualifications are herein set forth.

CLASS I:

1. Applicant must have completed grammar school or equivalent.
2. One year acceptable employment in wastewater treatment plant.

CLASS II:

1. Applicant must have completed grammar school and one year of high school or equivalent and,
2. One year of acceptable employment in a wastewater treatment plant.

CLASS III:

1. Applicant must have completed two years of high school or equivalent and,
2. Three years of acceptable employment in a wastewater treatment plant or plants.

CLASS IV:

1. Applicant must have completed four years of high school or equivalent and,
2. Three years of acceptable operation of waste treatment plants, two years of which must represent time in a position of major responsibility.

CLASS V:

1. Applicant must have completed two years of a standard curriculum in engineering or a curriculum related to wastewater treatment or equivalent, and

2. At least five years of acceptable operation of waste treatment plant, two years of which must represent time in a position of major responsibility.

C. The satisfying of equivalent education requirements will be governed by the following:

1. One year in responsible charge, or two years experience in an important phase of operation other than responsible charge, will be considered equivalent to one year of college or two years high school.

2. Satisfying completion of recognized courses of study in the field of wastewater treatment, such as correspondence courses or short courses will be equivalent to a maximum of six months of college or one year of high school.

3. An operator who can read simple technical material, write legibly, and perform arithmetical calculations necessary to keep satisfactory operation records will be credited with the equivalent of a grammar school education.

4. Experience credited as an equivalent of education may not be applied to the qualification of experience, nor may education credited as an equivalent of experience be applied to the qualification of "education".

5. Where applicable, education may be substituted for experience on the basis of two years of high school or one year of college for one years experience, except that a Class V operator must have a minimum of three years experience (two years responsible charge). For Classes I and II, a minimum of one years experience is required.

D. The satisfying of experience requirements will be governed by the following:

1. Responsible charge generally means to be in a position as plant superintendent or assistant superintendent. At large plants where responsibilities are divided, supervisors of important divisions may be credited as having responsible charge.

2. Acceptable operation includes only work involved in operating treatment units. Reports made by State Health Department and water control engineers or agents of the Board will be used

as a basis for determining whether or not operation is satisfactory.

3. Partial credit may be given for operating experience in maintenance, laboratory work, or work in allied trades such as water plant operation or plumbing.

EXAMINATION AND FEE REQUIREMENTS	$5.00 nonrefundable examination fee.
AGENCY THAT ISSUES LICENSE	Nevada Water Pollution Control Association
APPROVED TRAINING	Most training is on-the-job. However, universities in surrounding states offer specialized courses in sanitary engineering and sewage treatment. Some courses in water resource engineering and sanitary engineering are offered in the civil engineering department at the University of Nevada. However, no formal training for this occupation *per se* is available in Nevada.
FOR FURTHER INFORMATION	Wendell D. McCurry Bureau of Environmental Health 201 South Fall Street Carson City, Nevada 89701

5986

REGISTERED LAND SURVEYOR

DESCRIPTION OF DUTIES

A person who by reason of his professional education and practical experience is qualified in the State of Nevada to engage in the professional service of land surveying which includes the location, or relocation, of land boundaries, the preparation and interpretation of land and deed descriptions and the preparation and filing for public record plats and maps pertaining thereto.

REQUIREMENTS FOR LICENSE

An applicant for a registered land surveyor's license must have the following qualifications:

1. He has graduated from an accredited engineering or surveying curriculum of four years or more, which is approved by the board; and

2. He has had, subsequent to graduation, 2 years of land surveying experience of a character satisfactory to the board; and

3. He has attained a passing grade on the written examination described in NRS 625.280; or

4. He has completed 6 years of land surveying experience of a character satisfactory to the board.

Reference: Nevada Revised Statutes 625.

AGENCY THAT ISSUES LICENSE

(See - FOR FURTHER INFORMATION)

FEE REQUIREMENTS

Application fee - $35.00. Annual renewal fee - $10.00.

APPROVED TRAINING

In State:

College of Engineering
University of Nevada
Reno or Las Vegas, Nevada

Mackay School of Mines
University of Nevada
Reno, Nevada

Other:

Any accredited college or university with approved courses in engineering or land surveying.

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FOR FURTHER INFORMATION

These requirements are general to the field. Detailed information regarding the practice of land surveying may be secured from the Office of the State Board.

The Executive Secretary
State Board of Registered Professional Engineers
P. O. Box 5208
Reno, Nevada 89503

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SCHOOL ADMINISTRATIVE PROFESSIONAL

DESCRIPTION OF DUTIES

A certificate for the appropriate administrative field is required for the following positions in the public schools of the State of Nevada: County superintendents, assistant superintendents, associate superintendents; principals and assistant principals of elementary, secondary, and combined schools; supervisors, directors; and administrative assistants. Certificated personnel who spend half or more of their time in administrative or supervisory duties are required to hold an appropriate endorsement.

NOTE: Superintendents, assistant superintendents, principals and vice principals who hold life diplomas in the fields in which they are working are not required to hold an Administrator Endorsement.

REQUIREMENTS FOR CERTIFICATION

There are seven levels of endorsement.

1. ADMINISTRATOR LIMITED

   Requirements

   a. A valid certificate endorsed for teaching in the elementary or secondary grades.

   b. A bachelor's degree

   c. Sixteen semester hours graduate course work in school administration distributed to include at least five of the following fields:

      1. Public school administration and organization.

      2. Supervision of instruction.

      3. Curriculum development and evaluation.

      4. Statistical methods in education.

      5. School finance.

      6. School facilities planning and maintenance.

      7. History or philosophy of education.

   d. Experience: Three years verified teaching or teacher supervision experience in public schools.

2. ELEMENTARY PRINCIPAL

   Requirements

   a. A valid certificate endorsed for teaching in the

elementary grades.

b. Three years verified teaching, supervisory or administrative experience at the elementary level (K-8)

c. A master's degree with 16 semester hours graduate course work in school administration, distributed to include at least five of the following fields.

1. Public school administration and organization--elementary school.

2. Supervision of instruction--elementary school.

3. Curriculum development and evaluation--elementary school.

4. Statistical methods in education.

5. School finance.

6. School facilities planning and maintenance.

7. History or philosophy of education.

3. SECONDARY PRINCIPAL

Requirements

a. A valid certificate endorsed for teaching in the secondary grades.

b. Three years verified teaching, supervisory or administrative experience at the secondary level (7-12).

c. A master's degree, with 16 semester hours graduate work in school administration, distributed to include at least five of the following fields.

1. Public school administration and organization--secondary school.

2. Supervision of instruction--secondary school.

3. Curriculum development and evaluation--secondary school.

4. Statistical methods in education.

5. School finance.

6. School facilities planning and maintenance.

7. History or philosophy of education.

8. Administration of vocational-technical education.

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NOTE: Principals of combined schools (K-12) are required to hold either the Elementary Principal Endorsement or the Secondary Principal Endorsement.

4. ADMINISTRATOR

Requirements

a. A valid certificate endorsed for administration in the elementary or secondary grades.

b. A master's degree plus 15 semester hours graduate course work.

c. Completion of the required course work for the Elementary and Secondary Principal Endorsements.

d. Three years experience in public school administration.

5. PROFESSIONAL ADMINISTRATOR

Requirements

a. Meet the requirements for the Administrator Endorsement.

b. A master's degree plus 30 semester hours course work in an approved program for preparation of education specialists.

c. At least 3 years experience in public school administration.

6. SUPERVISOR, CURRICULUM AND INSTRUCTION

Requirements

a. A valid certificate endorsed for teaching in the elementary or secondary grades. (Special subject supervisors shall hold an endorsement appropriate to the field of supervision.)

b. Three years verified teaching experience in the field of supervisory assignment.

c. A master's degree which includes the following:

1. Advanced course work in the field of supervisory assignment.

2. Advanced course work in professional education.

7. PROFESSIONAL SUPERVISOR

Requirements

a. Meet all of the requirements for the Supervisor Endorsement.

b. Three years verified experience in supervision.

c. Fifteen semester hours graduate credit above the master's degree.

CERTFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 or State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

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ART TEACHER

DESCRIPTION OF DUTIES

Instructs pupils in art, such as printing, sketching, designing, and sculpturing: Demonstrates method and procedure to pupils. Observes pupil's work to make criticisms and corrections. May also direct planning and supervising of student contests and arranging of art exhibits.

REQUIREMENTS FOR CERTIFICATION

1. ART

   Requirements

   a. A bachelor's degree and completion of an approved program of preparation for teaching art in elementary or secondary schools.

   b. A bachelor's degree from an accredited college or university and completion of the following:

      1. Art Specialization--36 semester hours credit, or the equivalent, distributed among the following areas, relating to the elementary or secondary fields: Philosophy, principles, methods, and a study of the curriculum in the fine arts; art history and appreciation; drawing, composition and applied arts; painting and sculpture; graphic arts; crafts.

      2. Professional Education: 18 semester hours credit, or the equivalent, distributed to include course work in each of the following areas:

         a. Foundations of education

         b. Methods of teaching art in the elementary or secondary schools.

         c. Supervised teaching-6 semester hours.

2. PROFESSIONAL ART

   Requirements

   a. Meet all of the requirements for the Art Endorsement.

   b. Three years experience as an art teacher in the public schools.

   c. A master's degree or the equivalent.

CERTIFICATE FEE

$3.00 for each certificate.

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AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

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TEACHER OF THE AURALLY HANDICAPPED

DESCRIPTION OF DUTIES

Teaches elementary and secondary school subjects to deaf or hard of hearing pupils, using special skills, such as lip reading, and then teaches the students specific skills such as sense vibration and lip reading.

REQUIREMENTS FOR CERTIFICATION

1. TEACHER OF THE AURALLY HANDICAPPED

   Requirements, complete a or b

   a. A bachelor's degree and completion of an approved program of preparation for teaching the aurally handicapped.

   b. A bachelor's degree and a valid certificate endorsed for teaching in the elementary or secondary grades and completion of the following:

      1. Two years verified teaching experience in the public schools.

      2. Completion of a program for teaching the deaf and hard of hearing, consisting of no fewer than 12 semester hours course work distributed to include preparation in each of the following areas, or their equivalent:

         a. Introduction to the psychology and education of the exceptional child.

         b. Anatomy and physiology of the ear and speech mechanism.

         c. Audiometry, hearing aids, and auditory training.

         d. Methods and materials for teaching the aurally handicapped.

         e. Counseling and guidance for exceptional children.

2. PROFESSIONAL TEACHER OF THE AURALLY HANDICAPPED

   Requirements

   a. Meet all of the requirements for the Teacher of the Aurally Handicapped.

   b. A master's degree, or the equivalent, in education of aurally handicapped, or a master's degree and completion of at least 12 semester hours course work above the requirements for the first level of endorsement in the education of the aurally handicapped.

   c. Three years verified experience teaching the aurally handicapped in the public schools.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

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SCHOOL CASE WORKER

DESCRIPTION OF DUTIES

Counsels and aids students in primary or secondary schools. Interviews students and secures information, contributing to his situation and evaluates these and the student's capacities; refers student to other professional help if necessary; works with student to modify his attitudes and patterns of behavior by increasing understanding of himself, his problems, and his part is creating them.

REQUIREMENTS FOR CERTIFICATION

1. SCHOOL CASE WORKER ENDORSEMENT

   Requirements

   a. A bachelor's degree and a valid certificate endorsed for teaching in the elementary or secondary grades.

   b. Three years successful teaching experience or three years of approved social work experience or a combination of both.

   c. Twenty-four semester hours credit distributed to include course work in each of the following areas: (A minimum of twelve credits shall be at the graduate level.)

      1. Psychology: Including educational psychology, psychology of adolescense, child growth and development, and psychology of the exceptional child.

      2. Education: Including philosophy of education, history of education, principles and methods of teaching, and curriculum studies.

      3. Sociology and social problems: Course work dealing with delinquency, poverty, interracial and intercultural problems and community organization.

      4. Social case work (introductory).

2. PROFESSIONAL SCHOOL CASE WORKER ENDORSEMENT

   Requirements

   a. Meet requirements for the Standard School Case Worker Endorsement.

   b. Three years of successful experience as a school case worker.

   c. Twelve graduate semester hours credit above the School Case Worker requirements, distributed to include course work in each of the following areas:

1. Advanced social case work, including principles and practices in social case work, interviewing, and methods and skills in diagnosis.

2. Medical aspects relating to the function of the case worker in health problems.

3. Mental health and psychopathology.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

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1. A bachelor's degree and completion of the following professional preparation for elementary teaching:

   a. Eight semester hours elementary teaching methods, basic subjects, including teaching of reading.

   b. Ten semester hours in foundations of education.

2. Three months verified full-time experience (400 clock hours) under academic supervision in a public school situation in social services, psychological services, health services or speech correction.

3. Eighteen semester hours credit (twelve semester hours at the graduate level) in counselor preparation distributed to include course work in each of the following areas or their equivalents in separate or integrated courses:

   a. Principles and practices in guidance and counseling.

   b. Individual analysis and assessment.

   c. Group procedures in guidance and counseling.

   d. Techniques in counseling.

   e. Educational and occupational information (career development).

   f. Practicum in supervised counseling. [2]

2. PROFESSIONAL ELEMENTARY COUNSELOR

   Requirements

   a. Meet all of the requirements for the Elementary School Counselor Endorsement.

   b. Two years verified counseling experience in public elementary schools.

   c. A master's degree, or the equivalent, in guidance and counseling (elementary grades) and advanced course work in each of the following areas or their equivalents:

      1. Structure and supervision of pupil personnel services.

      2. Diagnosis and treatment of learning difficulties.

      3. Educational measurements and evaluation.

      4. Curriculum development.

[2] ibid.

SCHOOL COUNSELOR

DESCRIPTION OF DUTIES

Counsels individuals and provides group educational and vocational guidance services: Collects information about individuals, appraises their attitudes, aptitudes, abilities, personalities, etc. Compiles and studies occupational, educational, and economic information to aid students in making and carrying out vocational and educational objectives.

REQUIREMENTS FOR CERTIFICATION

1. ELEMENTARY COUNSELOR

   Requirements, complete a, b or c

   a. A bachelor's degree and completion of an approved program of preparation for elementary school counseling.

   b. A valid certificate, based upon a bachelor's degree, endorsed for teaching in the elementary grades.

      1. Two years successful teaching experience at the elementary level (K-8) in the public schools.

      2. Eighteen semester hours credit (twelve hours of which must be at the graduate level) in counselor preparation distributed to include course work (emphasis on elementary school children) in each of the following areas or their equivalents in separate or integrated courses:

         a. Principles and practices in guidance and counseling.

         b. Individual analysis and assessment.

         c. Group procedures in guidance and counseling.

         d. Techniques in counseling.

         e. Educational and occupational information (career development).

         f. Practicum in supervised counseling. [1]

   c. Completion of a program of counselor education which includes the following elements:

[1] Two years verified public school counseling experience at the appropriate level prior to June 30, 1970, may be accepted in lieu of the practicum, or provisional certification may be granted with one year allowed for removal, or waived if the person serves one year under the direction and supervision of a regularly certificated counselor.

3. SECONDARY SCHOOL COUNSELOR

Requirements, complete a or b

a. A bachelor's degree and completion of an approved program of preparation for secondary school counseling.

b. A valid certificate endorsed for teaching in the secondary grades.

1. One year of verified teaching experience at the secondary level in the public schools.

2. Twelve months cumulative work experience other than certificated school (K-12) employment.

3. Eighteen semester hours credit (twelve semester hours of which must be at the graduate level) in counselor preparation distributed to include course work (emphasis on secondary school children) in each of the following areas or their equivalents in separate or integrated courses:

a. Principles and practices in guidance and counseling.

b. Individual analysis and assessment.

c. Group procedures in guidance and counseling.

d. Techniques in counseling.

e. Educational and occupational information (career development).

f. Practicum in supervised counseling. [3]

4. SECONDARY PROFESSIONAL COUNSELOR

Requirements

a. Meet all of the requirements for the Secondary School Counselor Endorsement.

b. Two years verified counseling experience in public secondary schools.

c. A master's degree, or the equivalent, in guidance and counseling (secondary grades) and advanced course work in each of the following areas, or their equivalents:

1. Structure and supervision of pupil personnel services.

[3] ibid.

2. Diagnosis and treatment of learning difficulties.

3. Educational measurements and evaluation.

4. Curriculum development.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

6002

DRIVER EDUCATION

DESCRIPTION OF DUTIES	A teacher of driver education and training is one who has the educational qualifications to instruct students in the basic manipulative skills required for safe driving, the basic operation checks of a vehicle, and the respective motor vehicle laws covering driving in Nevada.
REQUIREMENTS FOR CERTIFICATION	1. A bachelor's degree and a valid certificate endorsed for teaching at the secondary level. 2. Completion of a minimum of three semester hours credit in basic driver education course work.
CERTIFICATE FEE	$3.00 for certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education.
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

6003

ELEMENTARY TEACHER

DESCRIPTION OF DUTIES

An elementary teacher teaches all subjects in grades kindergarten through six, and in self-contained seventh and eighth grade classes; and also teaches a field of concentration in the elementary grades kindergarten through eight.

REQUIREMENTS FOR CERTIFICATION

1. ELEMENTARY

   Requirements, complete a or b

   a. A bachelor's degree and completion of an approved program of preparation for teaching in the elementary grades.

   b. Completion of the following:

      1. A bachelor's degree.

      2. Thirty semester hours course work in elementary professional education which include the following:

         a. Supervised teaching-6 semester hours.

         b. Teaching methods-8 semester hours in methods of teaching the basic subjects, including the teaching of reading.

         c. Sixteen semester hours course work selected from an approved program of preparation for teaching the elementary grades.

2. PROFESSIONAL ELEMENTARY

   Requirements

   a. Meet all requirements for the Elementary Endorsement.

   b. Master's degree or completion of a fifth year program which includes 32 semester hours course work.

   c. Three years of verified successful teaching in grades K-8 in the public schools.

3. ELEMENTARY TEMPORARY

   Emergency Certification: This certificate will be granted after August 1, of any year, only upon the request of a county superintendent and approval by the State Department of Education. A person applying for this type of certificate must present the Department of Education with evidence that he is enrolled in a program of studies in an accredited college or university leading to a baccalaureate degree.

   Requirements

a. Completion of a minimum of 96 semester hours credit toward a bachelor's degree.

b. Thirty semester hours course work in elementary professional education including work in the following:

1. Supervised teaching-6 semester hours.

2. Teaching methods-8 semester hours in methods of teaching the basic subjects, including the teaching of reading.

3. Sixteen semester hours course work selected from an approved program of preparation for teaching the elementary grades.

4. ELEMENTARY LIMITED

Requirements

a. A bachelor's degree.

b. Completion of 18 semester hours course work in elementary professional education which includes the following:

1. Supervised teaching - 6 hours.

2. Teaching methods - 8 semester hours in methods of teaching the basic subjects, including the teaching of reading.

3. Four semester hours course work selected from an approved program for teaching in the elementary grades.

5. SUBSTITUTE--ELEMENTARY GRADES

Requirement

a. A minimum of 62 semester hours credit from an accredited college or university and completion of at least six semester hours credit in elementary education course work. (Provisional certification not authorized.)

NOTE: Substitute teachers are limited to consecutive service for not more than 20 days. However, in exceptional cases, and upon request from a county superintendent, extension for a similar period may be granted by the Department of Education.

CERTIFICATION FEE $3.00 for each certificate.

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AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

6006

TEACHER OF THE EMOTIONALLY DISTURBED

DESCRIPTION OF DUTIES

Teaches students who have emotional limitations which impair their normal academic progress. A certificate for teaching the emotional disturbed is required for performance of this service in the elementary or secondary public schools.

REQUIREMENTS FOR CERTIFICATION

1. TEACHER OF THE EMOTIONALLY DISTURBED

   Requirements, complete a or b

   a. A bachelor's degree and completion of an approved program of preparation for teaching the emotionally disturbed.

   b. A bachelor's degree and a valid certificate endorsed for teaching in the elementary or secondary grades and completion of the following:

      1. Two years verified teaching experience in the public schools.

      2. Completion of a program for teaching the emotionally disturbed consisting of no fewer than 12 semester hours course work distributed to include preparation in each of the following areas or their equivalents:

         a. Introduction to the psychology and education of the exceptional child.

         b. The emotionally disturbed child.

         c. Special learning disabilities including neurological impairment.

         d. Abnormal psychology, including mental retardation.

         e. Counseling and guidance for exceptional children.

2. PROFESSIONAL TEACHER OF THE EMOTIONALLY DISTURBED

   Requirements

   a. Meet all of the requirements for the Teacher of the Emotionally Disturbed.

   b. A master's degree, or the equivalent, in education of the emotionally disturbed, or a master's degree, and completion of at least twelve semester hours course work above the requirements for the first level of endorsement in the emotionally disturbed.

c. Three years verified experience teaching the emotionally disturbed in the public schools.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

6008

FOREIGN LANGUAGE TEACHER

DESCRIPTION OF DUTIES

Teaches students vocabulary, grammar, inflection, etc. in a specific foreign language (Spanish, French, German, etc.). A certificate for teaching a foreign language is valid for performance of this service in elementary and secondary public schools.

REQUIREMENTS FOR CERTIFICATION

1. A FOREIGN LANGUAGE

   Requirements

   a. A valid certificate endorsed for teaching in elementary or secondary schools with a major in the foreign language and completion of the following:

      1. Foundations of education - minimum of 3 semester hours.

2. PROFESSIONAL

   Requirements

   a. Meet all of the requirements for the Foreign Language Endorsement.

   b. Three years experience teaching a foreign language in the elementary and secondary schools.

   c. A master's degree, or the equivalent.

CERTIFICATE FEE

$3.00 for each certificate.

AGENCY THAT ISSUES CERTIFICATE

Nevada State Department of Education

APPROVED TRAINING

University of Nevada or any approved college or university.

FOR FURTHER INFORMATION

State Department of Education
Heroes' Memorial Building
Second and Carson Streets
Carson City, Nevada 89701

State Department of Education
State Office Building
215 East Bonanza
P.O. Box 390
Las Vegas, Nevada 89101

TEACHER OF THE GIFTED

DESCRIPTION OF DUTIES

A certificate for teaching the gifted is required for performance of this service in the elementary or secondary public schools. There are two levels of endorsement.

REQUIREMENTS FOR CERTIFICATION

1. TEACHER OF THE GIFTED

   Requirements, complete a or b

   a. A bachelor's degree and completion of an approved program of preparation for teaching the gifted.

   b. A bachelor's degree and a valid certificate endorsed for teaching in the elementary or secondary grades and completion of the following:

      1. Two years successful teaching experience in the public schools.

      2. Completion of a program for teaching the gifted, consisting of no fewer than 12 semester hours course work distributed to include preparation in each of the following areas or their equivalents.

         a. Introduction to the psychology and education of the exceptional child.

         b. Methods in teaching the gifted.

         c. Curriculum for the gifted.

         d. Educational testing and evaluation.

         e. Practicum in the education of the gifted.

2. PROFESSIONAL TEACHER OF THE GIFTED

   Requirements

   a. Meet all of the requirements of the Teacher of the Gifted.

   b. A master's degree, or the equivalent, in education of the gifted, or a master's degree, and completion of at least 12 semester hours course work above the requirements for the first level of endorsement in the education of the gifted.

CERTIFICATE FEE

$3.00 for each certificate.

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AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
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INDUSTRIAL ARTS TEACHER

DESCRIPTION OF DUTIES

Teaches students basic theory and assists in development of manipulative skills in industrial arts: Lectures, illustrates or demonstrates to teach proper use of shop tools and machines, safety practices, and theory as applied to industrial arts.

REQUIREMENTS FOR CERTIFICATION

1. INDUSTRIAL ARTS

   Requirements, complete a or b

   a. A bachelor's degree and completion of an approved program for teaching industrial arts in elementary and secondary schools.

   b. A bachelor's degree and completion of the following:

      1. A minimum of 36 semester hours of course work leading to technical competencies in the following divisions of industrial art subject matter:

         a. Drafting

         b. Electricity, electronics

         c. Graphic arts

         d. Power and transportation

         e. Manufacturing and construction--at least two of the following: Ceramics, crafts, metals, plastics, textiles, woods.

      2. Professional Preparation--20 semester hours.

         a. Historical development of technology.

         b. Principles, methods and materials in industrial arts teaching.

         c. Supervised teaching--6 semester hours.

         d. Foundations of education.

2. PROFESSIONAL INDUSTRIAL ARTS

   Requirements

   a. Meet all of the requirements for the Industrial Arts Endorsement.

   b. Three years verified experience as an industrial arts teacher in the public schools.

   c. A master's degree, or the equivalent.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
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SPECIAL INTERNSHIP (PUBLIC SCHOOLS)

DESCRIPTION OF DUTIES

A certificate appropriately endorsed for the level of duty assignment and for the field/s of concentration or specialization is required for the performance of internships in the public schools, provided the internship is a sequence within an approved program developed by a college or university with a local school district. The Special Internship Certificate may be converted, on request of the holder, to a standard certificate endorsed for performance of the educational service for which he has qualified.

REQUIREMENTS FOR CERTIFICATION

1. ADMINISTRATIVE INTERNSHIPS

   Requirements

   a. A baccalaureate or higher degree from an accredited college or university.

   b. A valid certificate endorsed for teaching in the elementary or secondary grades.

   c. Three years teaching experience.

   d. Completion of eight semester hours course work requirements for the Administrator Limited.

   e. Acceptance by the training institution and the local school district for the internship sequence of professional preparation for school administration within a program approved by the State Department of Education.

   f. Recommendation of the training institution and the local school district.

2. TEACHER INTERNSHIP ENDORSEMENT (Elementary or Secondary Grades)

   Requirements

   a. Acceptance for internship in teacher education as a sequence in professional preparation for teaching within a program approved by the State Department of Education.

   b. Recommendation by the training institution and the local school district.

   c. Completion of all statutory and regulatory requirements for teacher certification including the following: Application, health certificate, chest x-ray report, fingerprints and authorization to process, transcripts, and Constitutional Oath of Office.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

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LIBRARIAN

DESCRIPTION OF DUTIES

A certificate for a Librarian-Teacher or Librarian is required for performing library services in the public schools. There are three levels of endorsement.

REQUIREMENTS FOR CERTIFICATION

1. LIBRARIAN-TEACHER

   Requirements

   a. A bachelor's degree and a valid certificate endorsed for teaching in the elementary or secondary schools.

   b. Sixteen semester hours preparation in library science distributed to include course work in each of the following areas:

      1. Organization and administration of the library.

      2. Cataloging and classification.

      3. Book selection, including children's literature.

      4. Reference and bibliography.

      5. Audio-visual materials.

2. LIBRARIAN

   Requirements, complete 1 or 2

   a. A bachelor's degree from a college or university accredited for the preparation of librarians and completion of an approved program for performance of library services.

   b. Meet all of the following conditions:

      1. Completion of all of the requirements for the Librarian-Teacher Endorsement.

      2. Completion of eight semester hours additional preparation in library science through in-residence training in a college or university approved for the preparation of librarians.

3. PROFESSIONAL LIBRARIAN

   Requirements

   a. Meet all of the requirements for the Librarian Endorsement.

   b. A master's degree in library science or a master's

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degree, or the equivalent, and completion of 30 semester hours preparation in library science.

c. Three years verified experience, full-time, as a librarian in the public schools.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

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TEACHER OF THE MENTALLY RETARDED
(Educable or Trainable Mentally Retarded)

DESCRIPTION OF DUTIES

Teaches mentally retarded children basic academic subjects in schools, centers and institutions. Plans courses of study according to pupils' levels of learning. Devises instructional method and aids, such as audiovisual techniques and materials, to meet needs of pupils.

REQUIREMENTS FOR CERTIFICATION

1. TEACHER OF THE MENTALLY RETARDED

   Requirements, complete a or b

   a. A bachelor's degree and completion of an approved program of preparation for teaching the mentally retarded.

   b. A bachelor's degree and a valid certificate endorsed for teaching in the elementary or secondary grades, and completion of the following:

      1. Two years successful teaching experience in public schools.

      2. Completion of a program for teaching the mentally retarded consisting of no fewer than 12 semester hours course work distributed to include preparation in each of the following areas, or their equivalents:

         a. Introduction to the psychology and education of the exceptional child.

         b. Curriculum development for the mentally retarded.

         c. Abnormal psychology, including mental retardation.

         d. Special learning disabilities.

         e. Counseling and guidance for exceptional children.

2. PROFESSIONAL TEACHER OF THE MENTALLY RETARDED

   Requirements

   a. Meet all of the requirements for the Teacher of the Mentally Retarded.

   b. A master's degree or the equivalent in education of the mentally retarded; or a master's degree and completion of at least 12 semester hours course work above the requirements for the first level of endorsement in the education of the mentally retarded.

c. Three years successful teaching of the mentally retarded in the public schools.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

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MUSIC TEACHER

DESCRIPTION OF DUTIES

Teaches individuals or groups instrumental or vocal music. Instructs students in basic harmony and melody and may lead orchestra and choral groups in regular and special performances for school programs, community activities, concerts, and festivals.

REQUIREMENTS FOR CERTIFICATION

1. MUSIC

   Requirements, complete a or b

   a. A bachelor's degree and completion of a program approved by the Department of Education, for the preparation of music teachers for the public elementary or secondary schools.

   b. A bachelor's degree and completion of the following:

      1. Music specialization--36 semester hours or the equivalent distributed among the following areas: Music reading and dictation, music history and music literature, music theory, applied music, with specialization in vocal or instrumental music, or both.

      2. Professional education--18 semester hours or the equivalent, with course work in each of the following areas:

         a. Foundations of education.

         b. Methods of teaching music in the elementary or secondary schools.

         c. Supervised teaching--6 semester hours.

2. PROFESSIONAL MUSIC

   Requirements

   a. Meet all of the requirements for the Music Endorsement.

   b. Three years experience as a music teacher in the public schools.

   c. A master's degree, or the equivalent.

CERTIFICATE FEE

$3.00 for each certificate.

AGENCY THAT ISSUES CERTIFICATE

Nevada State Department of Education

APPROVED TRAINING University of Nevada or any approved college or university.

FOR FURTHER INFORMATION

State Department of Education
Heroes' Memorial Building
Second and Carson Streets
Carson City, Nevada 89701

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215 East Bonanza
P.O. Box 390
Las Vegas, Nevada 89101

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SCHOOL NURSE

DESCRIPTION OF DUTIES

Plans and carries out, in cooperation with medical authority and administrators of school personnel, policies, standards, and objectives of school health program. Participates in medical examinations and reviews findings to evaluate health status of pupils and progress of program. May instruct classes on child care, first aid, etc.

REQUIREMENTS FOR CERTIFICATION

1. SCHOOL NURSE, R.N.

   Requirement

   a. Valid R.N. licensure in the State of Nevada.

2. SCHOOL NURSE

   Requirement, complete a or b

   a. Valid R.N. licensure in the State of Nevada and completion of the following:

      1. A bachelor's degree in Public Health Nursing, including completion of a program approved by the National League for Public Health Nursing.

   b. Valid R.N. licensure in the State of Nevada and completion of the following:

      1. A bachelor's degree and completion of the public health course work content in a program of preparation approved by the National League for Public Health Nursing.

3. PROFESSIONAL SCHOOL NURSE

   Requirement

   a. Meet the requirements for the School Nurse Endorsement.

   b. Two years verified experience in the nursing profession.

   c. A master's degree.

CERTIFICATE FEE

$3.00 for each certificate.

AGENCY THAT ISSUES CERTIFICATE

Nevada State Department of Education

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APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

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PHYSICAL EDUCATION TEACHER

DESCRIPTION OF DUTIES

Instructs students in physical education activities in educational institutions: Teaches field, court, and combative sports to individual or groups, utilizing knowledge of sports techniques and of physical capabilities of students.

REQUIREMENTS FOR CERTIFICATION

1. PHYSICAL EDUCATION

   Requirements, complete a or b

   a. A valid certificate endorsed for teaching physical education in the secondary schools, and completion of the following:

      1. Foundations of elementary education - minimum of 3 semester hours course work.

      2. Physical education activities in the elementary grades - minimum 3 semester hours course work.

   b. A valid regular certificate endorsed for teaching in the elementary grades, and completion of the following:

      1. A minor in physical education - 18 semester hours preparation.

2. PROFESSIONAL

   Requirements

   a. Meet all the requirements for Physical Education Endorsement.

   b. Three years experience teaching physical education in the elementary and secondary grades.

   c. A master's degree, or the equivalent.

CERTIFICATE FEE

$3.00 for each certificate.

AGENCY THAT ISSUES CERTIFICATE

Nevada State Department of Education

APPROVED TRAINING

University of Nevada or any approved college or university.

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FOR FURTHER INFORMATION

State Department of Education
Heroes' Memorial Building
Second and Carson Streets
Carson City, Nevada 89701

State Department of Education
State Office Building
215 East Bonanza
P.O. Box 390
Las Vegas, Nevada 89101

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CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

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TEACHER OF THE PHYSICALLY HANDICAPPED

DESCRIPTION OF DUTIES

Teaches handicapped pupils in elementary and secondary grades, evaluating pupils' abilities in order to determine training program that will result in maximum progress.

REQUIREMENTS FOR CERTIFICATION

1. TEACHER OF THE PHYSICALLY HANDICAPPED

Requirements, complete a or b

a. A bachelor's degree and completion of an approved program of preparation for teaching the physically handicapped.

b. A bachelor's degree and a valid certificate endorsed for teaching in the elementary or secondary grades; and completion of the following:

1. Two years verified teaching experience in the public schools.

2. Completion of a program for teaching the physically handicapped, consisting of no fewer than 12 semester hours course work distributed to include preparation in each of the following areas, or their equivalents:

a. Introduction to the psychology and education of the exceptional child.

b. Methods and materials for teaching children with chronic health problems, cerebral palsy and orthopedic conditions.

c. Special health problems of the physically handicapped.

d. Counseling and guidance for exceptional children.

e. Principles and methods of individualized instruction.

2. PROFESSIONAL TEACHER OF THE PHYSICALLY HANDICAPPED

Requirements

a. Meet all of the requirements for the Teacher of the Physically Handicapped.

b. A master's degree, or the equivalent, in education of the physically handicapped; or a master's degree and completion of at least 12 semester hours course work above the requirements for the first level of endorsement in the education of the physcially handicapped.

c. Three years verified experience teaching the physically handicapped in the public schools.

SCHOOL PSYCHOMETRIST

DESCRIPTION OF DUTIES

Administers, scores, and interprets intelligence, aptitude, achievement, and other psychological tests: Gives paper and pencil tests, dexterity boards, and wiggly blocks, under standard conditions. Interprets test results in light of standard norms and limitations of test in terms of validity and reliability.

REQUIREMENTS FOR CERTIFICATION

1. SCHOOL PSYCHOMETRIST

   Requirements, complete a or b

   a. A master's degree and completion of an approved program of preparation for school psychometric services.

   b. A master's degree with major emphasis in educational psychology, guidance and counseling, or psychology; and completion of undergraduate or graduate preparation in each of the following areas or their equivalents:

      1. Analysis of the individual student, including psychological testing.
      2. Diagnosis and treatment of learning difficulties.
      3. Educational psychology--graduate level.
      4. Social psychology.
      5. Mental hygiene, or psychology of personality.
      6. Methods and/or techniques of counseling.
      7. Principles and practices of the guidance program.
      8. Psychological development: Child, adolescent, or developmental psychology.
      9. Group psychological tests and measurement.
      10. Psychology of exceptional children.
      11. Statistical methods.

2. PROFESSIONAL SCHOOL PSYCHOMETRIST

   Requirements

   a. Meet the requirements for school psychometrist.

   b. Three years experience as a school psychometrist.

   c. Completion of 15 semester hours graduate

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credit distributed to include course work in each of the following areas, or their equivalents, in separate or integrated courses:

1. School administration.
2. Curriculum.
3. Education of exceptional children.
4. Remedial instruction.
5. Guidance techniques.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
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READING TEACHER

DESCRIPTION OF DUTIES

A certificate for teaching remedial reading or for supervising reading programs (reading specialist) is required for the performance of these services in the public schools, respectively. There are two levels of endorsement.

REQUIREMENTS FOR CERTIFICATION

1. READING

   Requirements

   a. A bachelor's degree and a valid certificate endorsed for elementary or secondary teaching.

   b. A minimum of six semester hours preparation in separate or integrated courses covering each of the following areas:

      1. Reading skills and abilities.

      2. Diagnosis and remedial teaching.

      3. Organization of the reading program.

      4. Materials in reading instruction.

      5. Application of reading skills.

2. PROFESSIONAL READING SPECIALIST

   Requirements, complete 1 or 2

   a. A master's degree and completion of an approved program of preparation for reading specialists.

   b. A master's degree with a major emphasis in reading; or a bachelor's degree and 32 semester hours preparation distributed to include course work in each of the following areas:

      1. A minimum of 12 semester hours graduate course work distributed to include each of the following areas:

         a. Foundations or survey of reading.

         b. Diagnosis and correction of reading disabilities.

         c. Clinical or laboratory practicum in reading.

      2. A minimum of 20 semester hours, graduate or undergraduate level, selected from the following areas:

         a. Measurement and evaluation.

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b. Child or adolescent psychology.

c. Personality and/or mental hygiene.

d. Literature for children or adolescents.

e. Organization and supervision of reading programs.

f. Linguistics

g. Curriculum

h. Guidance

i. Speech and hearing.

j. Psychology of the exceptional child.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
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SECONDARY TEACHER

DESCRIPTION OF DUTIES

A certificate in a recognized teaching (subject) field/s is required for teaching in departmentalized seventh and eighth grades, junior high schools, and senior high schools. Endorsements are dependent upon the applicant's field/s of specialization or concentration, usually designated as majors or minors or areas of concentration.

A. Teaching Field Majors and Minors, Definition

1. All majors and minors must be in subject matter fields normally taught in the public junior and senior high schools.

2. The State Board of Education reserves the right of determining the acceptability of majors and minors.

B. RECOGNIZED TEACHING FIELDS--SECONDARY TEACHING ENDORSEMENTS

Comprehensive Fields of Concentration
(Major-36 semester hours)
(Minor-24 semester hours)

1. Agriculture-non-vocational.
2. Art Education
3. Biological Science
4. Biological Science-Mathematics
5. Business Education
6. English-Drama
7. English-Journalism
8. English-Speech
9. General Science
10. Home Economics-non-vocational
11. Industrial Arts
12. Music Education
13. Physical Education-Health
14. Physical Science
15. Physical Science-Mathematics

16. Speech-Drama

17. Social Science

Single Subject Majors
(Major=24 semester hours)
(Minor=16 semester hours)

1. Anthropology

2. Biological Science Area

   a. Biology

   b. Botany

   c. Physiology

   d. Zoology

3. Health Education

4. Language Arts Area

   a. Drama

   b. English

   c. Journalism

   d. Reading

   e. Speech

5. Languages

   a. French

   b. German

   c. Italian

   d. Latin

   e. Russian

   f. Spanish

6. Library Science

7. Mathematics

8. Physical Education

9. Physical Science Area

3. SUBSTITUTE--SECONDARY GRADES

Requirements

a. A bachelor's degree.

b. Six semester hours credit in secondary education course work. (Provisional certification not authorized.)

NOTE: Substitute teachers are limited to consecutive service for not more than 20 days. However, in exceptional cases, and upon request from a county superintendent, extension for a similar period may be granted by the Department of Education.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
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a. Chemistry

b. Earth Science

c. Geology

d. Physics

10. Psychology

11. Social Science Area

a. Economics

b. Geography

c. History

d. Political Science

e. Sociology

REQUIREMENTS FOR CERTIFICATION

1. SECONDARY

Requirements, complete a or b

a. A bachelor's degree and completion of an approved program of preparation for secondary school teaching.

b. A bachelor's degree and completion of the following:

1. A teaching field major and a teaching field minor.

2. Professional preparation - 20 semester hours to include:

a. Supervised teaching - 6 semester hours.

b. Methods, materials of teaching in the field/s of specialization.

c. 14 semester hours course work selected from an approved program of preparation for teaching in the secondary schools.

2. PROFESSIONAL SECONDARY

Requirements

a. Meet all of the requirements for the Secondary Endorsement.

b. Master's degree, or the equivalent, or completion of a fifth year program.

c. Three years of verified teaching experience in secondary public schools.

6034

SCHOOL PSYCHOLOGIST

DESCRIPTION OF DUTIES

Diagnoses needs of gifted, handicapped, or disturbed children within educational systems or school, and plans and carries out corrective programs to enable them to attain maximum achievement and adjustment.

REQUIREMENTS FOR CERTIFICATION

1. SCHOOL PSYCHOLOGIST

Requirements, complete a or b

a. A master's degree or doctor's degree and completion of an approved program for the preparation of school psychologists.

b. Completion of a program of preparation for school psychologists consisting of at least 50 semester hours credit (36 semester hours at the graduate level) distributed to include course work in the following areas (starred fields required):

1. Foundations of education--12 semester hours credit in course work selected from the following areas or their equivalents:

a. Modern school practices

b. Curriculum construction

c. School administration

*d. Psychology and education of the exceptional child, including the handicapped.

e. Methods and materials used in teaching the mentally retarded.

*f. Diagnosis and treatment of learning disabilities and/or readiness (the use and interpretation of diagnostic instruments in a school setting).

2. Testing and clinical techniques--18 semester hours credit distributed to include course work in each of the following areas or their equivalents:

a. Individual and group testing

b. Clinical interviewing and counseling

c. Measurements and evaluation

d. Projective techniques and diagnostic case studies.

e. Personality theory

3. Personality and behavioral development--12 semester hours credit distributed to include course work in each of the following areas, or their equivalents:

   a. Learning theory

   b. Educational, developmental, and adolescent psychology

   c. Abnormal psychology and atypical development.

4. Electives--eight semester hours credit selected from courses related to 2 and 3 above.

5. An internship: 480 clock hours in supervised field work by meeting (a) or (b):

   a. Completion of college credit course work which includes at least 240 clock hours supervised field experience with public school students.

   b. One year successful experience with provisional certification under the direction and supervision of a regularly certificated school psychologist.

2. PROFESSIONAL SCHOOL PSYCHOLOGIST

   Requirements

   a. Meet all the requirements for the School Psychologist Endorsement.

   b. Completion of a total of 60 semester hours course work (50 semester hours graduate level) in an approved program for the preparation of the school psychologist.

   c. Three years verified experience as a school psychologist in the public schools.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701

State Department of Education
State Office Building
215 East Bonanza
P.O. Box 390
Las Vegas, Nevada 89101

6038

SCHOOL SOCIAL WORKER

DESCRIPTION OF DUTIES

Aids children having difficulty adapting themselves to school life and where individualized professional help is indicated: Counsels children whose behavior or school progress indicates need for individual guidance. Consults with teachers, parents, and other school personnel to determine causes of problems and effect solutions. Arranges for additional professional help.

REQUIREMENTS FOR CERTIFICATION

1. SCHOOL SOCIAL WORKER

   Requirement

   a. A master's degree (Master of Social Work) from a college or university accredited for the preparation of social workers by the American Council on Social Work Education.

2. PROFESSIONAL SCHOOL SOCIAL WORKER

   Requirements

   a. Meet the requirement for the School Social Worker Endorsement.

   b. Completion of 1 or 2

      1. Possession of a valid certificate for teaching at the elementary or secondary level in the public schools in Nevada.

      2. Completion or an internship in a public school setting, consisting of no fewer than 240 clock hours duration as part of professional preparation or three years verified experience in school social services.

CERTIFICATE FEE

$3.00 for each certificate.

AGENCY THAT ISSUES CERTIFICATE

Nevada State Department of Education

APPROVED TRAINING

University of Nevada or any approved college or university.

FOR FURTHER INFORMATION

State Department of Education
Heroes' Memorial Building
Second and Carson Streets
Carson City, Nevada 89701

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State Department of Education
State Office Building
215 East Bonanza
P.O. Box 390
Las Vegas, Nevada 89101

6040

SPEECH CORRECTIONIST

DESCRIPTION OF DUTIES

Instructs speech handicapped students in the elementary or secondary public schools in correction of speech impairments due to stuttering, cleft palate, aphasia, etc.

REQUIREMENTS FOR CERTIFICATION

1. SPEECH CORRECTIONIST

   Requirements, complete a or b

   a. A bachelor's degree and completion of an approved program of preparation for teachers of the speech handicapped.

   b. Completion of a program for teaching the speech handicapped, consisting of no fewer than 30 semester hours course work distributed to include preparation in each of the following areas or their equivalents:

      1. Introduction to the psychology and education of the exceptional child, three semester hours.

      2. Basic areas: Anatomy and physiology of the ear and vocal mechanism-phonetics, semantics, speech and voice science, psychology of speech, experimental phonetics and similar areas, six semester hours.

      3. Specialized professional course work in speech correction and speech pathology, selected from the following: Stuttering, voice disorders, articulation disorders, cleft palate, asphasia, cerebral palsy, and similar areas, twelve semester hours.

      4. Specialized professional course work in audiology, hearing problems and the testing of hearing, selected from the following: Introduction to audiology, auditory training, speech reading, speech for the acoustically handicapped, problems of the child with a hearing loss, and similar areas, three semester hours.

      5. Cognate preparation: Human growth and development, mental hygiene or psychology of adjustment, six semester hours.

2. PROFESSIONAL SPEECH CORRECTIONIST ENDORSEMENT

   Requirements

   a. Meet all of the requirements for the Speech Correctionist Endorsement.

6041

b. A master's degree or the equivalent in education of speech handicapped which shall include an additional 100 clock hours of supervised clinical experience in speech correction.

c. Three years of successful experience as a speech correctionist.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

6042

STAFF SPECIALIST

DESCRIPTION OF DUTIES

A certificate for staff specialist is required for professional full-time personnel whose major duty assignment is the performance of specialized educational services. These services are classified as technical, non-teaching, and non-supervisory, and include the following: research and development; consultant; educational data processing; and educational media, including television. There are two levels of endorsements.

REQUIREMENTS FOR CERTIFICATION

1. STAFF SPECIALIST

   Requirements

   a. A bachelor's degree.

   b. Three years verified experience in the field of specialization.

2. PROFESSIONAL STAFF SPECIALIST

   Requirements

   a. A master's degree in course work directly related to the field of specialization.

   b. Three years verified experience in the field of specialization in a public school district.

CERTIFICATE FEE

$3.00 for each certificate.

AGENCY THAT ISSUES CERTIFICATE

Nevada State Department of Education

APPROVED TRAINING

University of Nevada or any approved college or university.

FOR FURTHER INFORMATION

State Department of Education
Heroes' Memorial Building
Second and Carson Streets
Carson City, Nevada 89701

State Department of Education
State Office Building
215 East Bonanza
P.O. Box 390
Las Vegas, Nevada 89101

6043

TEACHER OF THE VISUALLY HANDICAPPED

DESCRIPTION OF DUTIES

Teaches elementary and secondary school subjects to blind pupils, using braille system: Instructs pupils in reading and writing braille, using slate and stylus or braille writer.

REQUIREMENTS FOR CERTIFICATION

1. TEACHER OF THE VISUALLY HANDICAPPED

   Requirements, complete a or b

   a. A bachelor's degree from a college or university accredited for the preparation of teachers for the blind or partially sighted and completion of a program of training approved by the Department of Education.

   b. A bachelor's degree and a valid certificate endorsed for teaching in the elementary or secondary grades and completion of the following:

      1. Two years successful teaching experience in the public schools.

      2. Completion of a program for teaching the visually handicapped, consisting of no fewer than 12 semester hours course work distributed to include preparation in each of the following areas, or their equivalents:

         a. Introduction to the psychology and education of the exceptional child.

         b. Methods of teaching the visually handicapped, including Braille, typewriting and the practicum.

         c. Counseling, vocational guidance, and rehabilitation services for the handicapped.

         d. Electives related to the education of the visually handicapped.

2. PROFESSIONAL TEACHING OF THE VISUALLY HANDICAPPED

   Requirements

   a. Meet all of the requirements for the Teacher of the Visually Handicapped.

   b. A master's degree or the equivalent in education of the visually handicapped, or a master's degree and and completion of at least 12 semester hours of course work above the requirements for the first level of endorsement in the education of the visually handicapped.

6044

c. Three years verified teaching of the visually handicapped in the public schools.

CERTIFICATE FEE	$3.00 for each certificate.
AGENCY THAT ISSUES CERTIFICATE	Nevada State Department of Education
APPROVED TRAINING	University of Nevada or any approved college or university.
FOR FURTHER INFORMATION	State Department of Education Heroes' Memorial Building Second and Carson Streets Carson City, Nevada 89701 State Department of Education State Office Building 215 East Bonanza P.O. Box 390 Las Vegas, Nevada 89101

6045

MEDICAL TECHNICIAN

DESCRIPTION OF DUTIES	He shall perform those laboratory procedures which require limited technical skill and responsibility with a minimal exercise of independent judgement.
REQUIREMENTS FOR LICENSE	He shall meet one of the following requirements: 1. He is a high school graduate and subsequent to graduation has completed at least 1 year in a technician training program approved by the Council on Medical Education and Hospitals of the American Medical Association or approved by the Board. 2. He is a high school graduate and subsequent to graduation has served 2 years as a technician trainee in a clinical laboratory with a director at the doctoral level, or in the case of a State which regulates clinical laboratory personnel, in a clinical laboratory acceptable to that State. 3. He is a high school graduate, and subsequent to graduation has successfully completed an official military medical laboratory procedures course of at least 50 week's duration, and has held, at the journeyman's level, the military enlisted occupational specialty of Medical Laboratory Specialist (Laboratory Technician).
EXAMINATION AND FEE REQUIREMENTS	$10.00 shall accompany application.
AGENCY THAT ISSUES LICENSE	Nevada State Board of Health
APPROVED TRAINING	On-job-training at a laboratory under approved director.
FOR FURTHER INFORMATION	State Board of Health 790 Sutro Street Reno, Nevada 89502

6046

RADIO-TELEVISION TECHNICIAN
(Radiotelephone Operator)

DESCRIPTION OF DUTIES	Operates and controls the technical equipment of a radio or television station. There are first, second and third class levels of knowledge and ability demanded according to the size and power of the station. One who operates, repairs and maintains radio equipment for telephone and telegraph companies. One who operates, repairs and maintains airborne radio equipment.
REQUIREMENTS FOR LICENSE	Applicants must: 1. Be a citizen of the United States. 2. Successfully pass the appropriate test administered by FCC.
EXAMINATION AND FEE REQUIREMENTS	$3.00 for Third Class Permit $4.00 for Second Class License $5.00 for First Class License
AGENCY THAT ISSUES LICENSE	Federal Communications Commission
APPROVED TRAINING	Correspondence Schools Private Commercial Schools Some colleges and universities.
FOR FURTHER INFORMATION	Federal Communications Commission Field Engineering Bureau 323-A Customhouse San Francisco, California 94111

6047

ASSISTANT CLINICAL LABORATORY TECHNOLOGIST

DESCRIPTION OF DUTIES

He performs tests which require the exercise of independent judgment and responsibility with minimal supervision.

REQUIREMENTS FOR LICENSE

He shall meet the following requirements:

1. He shall be a high school graduate, and subsequent to graduation shall have completed at least 2 years of college education from an accredited college or university with a major in biologic sciences.

2. In addition, he shall have successfully completed at least a 1 year training course in a school of medical technology approved by the Council on Medical Education and Hospitals of the American Medical Association; or, successfully completed a 52 week training program in the Armed Services Schools of Medical Technology, or other such school for training of medical technologists approved by the Board.

3. Successful completion of at least 2 years work experience in a clinical laboratory under the direction of person or persons whose education is at least of the doctorate level.

Note: For a period beginning January 1, 1967, and ending January 1, 1972, and not thereafter, any clinical laboratory technician may apply for certification by examination as clinical laboratory technologist or assistant clinical laboratory technologist, provided that:

1. He is a high school graduate.

2. He has been a resident of the State of Nevada for at least 3 years prior to application for examination.

3. He furnishes written evidence of not less than five (5) years of pertinent clinical laboratory experience in a clinical laboratory directed and supervised by a Laboratory Director at the doctorate level, qualifying under the provisions of state requirements.

EXAMINATION AND FEE REQUIREMENTS

$10.00 shall accompany application.

AGENCY THAT ISSUES LICENSE

Nevada State Board of Health
790 Sutro Street
Reno, Nevada 89502

APPROVED TRAINING

University of Nevada or other approved university.

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FOR FURTHER INFORMATION

State Board of Health
790 Sutro Street
Reno, Nevada 89502

6049

CLINICAL LABORATORY TECHNOLOGIST

DESCRIPTION OF DUTIES

Performs clinical laboratory tests which require the exercise of independent judgment and responsibility with minimal supervision by the director.

REQUIREMENTS FOR LICENSE

He shall meet one of the following requirements:

1. Successful completion of a full course of study which meets all academic requirements for a bachelor's degree in medical technology from an accredited college or university, or

2. Successful completion of 3 academic years of study (a minimum of 90 semester hours or equivalent) in an accredited college or university which met the specific requirements for entrance into, and the successful completion of a course of training of at least 21 months in a school of medical technology (approved by the Council on Medical Education and Hospitals of the American Medical Association), or

3. Successful completion in an accredited college or university of a course of study which meets all academic requirements for a bachelor's degree in one of the chemical, physical, or biological sciences, and additional experience and/or training covering several fields of medical laboratory work, provided the combination has given the applicant the equivalent of the education and training in medical technology described in Paragraphs (1) or (2) above, or

4. Successful completion of 3 years (90 semester hours or equivalent) in an accredited college or university with a distribution of courses as shown below, and, in addition, successful experience and/or training covering several fields of medical laboratory work of such length (not less than 1 year), and of such quality that this experience or training, when combined with the education, will have provided the applicant with education and training in medical technology equivalent to that described in Paragraphs (1) or (2) of this standard.

   Distribution of course work. (Where semester hours are stated, it is understood that the equivalent in quarter hours is equally acceptable. The specified courses must have included lecture and laboratory work. Survey courses are not acceptable.)

5. For those whose training was completed prior to September 15, 1963: At least 24 semester hours in chemistry and biology courses, of which not less than 9 semester hours must have been in chemistry and must have included at least 6 semester hours in inorganic chemistry, and not less than 12 semester hours must have been in biology courses pertinent to the medical sciences.

NUCLEAR MEDICINE TECHNOLOGIST

DESCRIPTION OF DUTIES

Uses radioactive isotopes to assist the radiologist in the diagnosis and/or treatment of illness or injury.

REQUIREMENTS FOR CERTIFICATE

Each applicant must:

1. Be a citizen of the United States or shall have filed a declaration of intention.

2. Have at least one year of full time experience in clinical radioisotope work, including didactic experience equivalent to the radioisotope curriculum recommended by The American Society of Radiologic Technologists.

3. Meet at least one of the following:

   a. Graduation from an A.M.A. approved program in x-ray technology.

   b. Certification as an x-ray technologist by the American Registry of Radiologic Technologists (ARRT).

   c. Certification as a medical technologist by the Registry of Medical Technologist (ASCP).

   d. Registration as a professional nurse.

   e. A baccalaureate degree from an accredited institution.

NOTE: As an alternative to the requirements in 2 and 3 above, candidates may meet one of the following:

1. The successful completion of a course of at least two years in radioisotope technology accepted by the American Registry of Radiologic Technologists.

2. Graduation from a four year high school course plus at least five years of full time (40 hours per week) experience in a clinical radioisotope laboratory or department accepted by the American Registry of Radiologic Technologists.

3. Certification as an x-ray technologist by the American Registry of Radiologic Technologists plus at least two years of full time (40 hours per week) experience in a radioisotope laboratory or department accepted by The American Registry of Radiologic Technologists.

EXAMINATION AND FEE REQUIREMENTS

$15.00

6051

RADIATION THERAPY TECHNOLOGIST

DESCRIPTION OF DUTIES

One who uses radiation producing devices to administer therapeutic treatments as prescribed by the radiologist.

REQUIREMENTS FOR CERTIFICATE

Each applicant must:

1. Be a citizen of the United States or shall have filed a declaration of intention.

2. Have successfully completed a 12-month course in radiation therapy technology as prescribed by the American College of Radiology, the American Society of Radiologic Technologists and the American Registry of Radiologic Technologists.

3. Meet at least one of the following conditions:

   a. Graduation from a two year program in x-ray technology approved by the Council on Medical Education of the American Medical Association.

   b. Certification as an x-ray technologist by the American Registry of Radiologic Technologists.

   c. Certification as a nuclear medicine technologist by the American Registry of Radiologic Technologists.

   d. Registration as a professional nurse.

Note: As an alternate to the requirements in 2 and 3 above, candidates may successfully complete a two year course in radiation therapy technology accepted by the American Registry of Radiologic Technologists. Such training must be accomplished in an institution which meets the minimum standards for a major cancer management center established by the American College of Radiology and published in the American College of Radiology Annual Report of 1965.

EXAMINATION AND FEE REQUIREMENTS

$15.00

AGENCY THAT ISSUES CERTIFICATE

The American Registry of Radiologic Technologists.

APPROVED TRAINING

The University of Nevada (Reno) - Nevada Technical Institute in affiliation with Washoe Medical Center and St. Mary's Hospital in Reno.

The University of Nevada (Las Vegas) - has a bachelor's program.

6052

X-RAY TECHNOLOGIST

DESCRIPTION OF DUTIES	Demonstrates a portion of the human body on an x-ray film or fluoroscopic screen for diagnostic use of the radiologist.
REQUIREMENTS FOR LICENSE	Each applicant must: 1. Be a citizen of the United States or shall have filed a declaration of intention. 2. Have a high school education and 24 months formal training which must be approved by the Council on Medical Education of the American Medical Association.
EXAMINATION AND FEE REQUIREMENTS	$15.00
AGENCY THAT ISSUES LICENSE	The American Registry of Radiologic Technologists
APPROVED TRAINING	The University of Nevada (Reno) - Nevada Technical Institute in affiliation with Washoe Medical Center and St. Mary's Hospital in Reno. The University of Nevada (Las Vegas) - Bachelor Program in X-Ray Technology
FOR FURTHER INFORMATION	The University of Nevada Nevada Technical Institute Radiologic Technology Program Reno, Nevada 89507 The University of Nevada General Technical Studies Radiologic Technology Program Las Vegas, Nevada 89109 The American Society of Radiologic Technologists 645 North Michigan Avenue Chicago, Illinois 60611 The American Registry of Radiologic Technologist 2600 Wayzata Boulevard Minneapolis, Minnesota 55405 Council of Medical Education of the AMA 535 North Dearborn Chicago, Illinois 60610

6053

MILK AND CREAM TESTER

DESCRIPTION OF DUTIES	Accurately performs tests dealing with butter fat determinations on milk and milk products.
REQUIREMENTS FOR LICENSE	Pass a written test dealing with butter fat determinations on milk and milk products, and demonstrate ability to perform such tests accurately.
EXAMINATION AND FEE REQUIREMENTS	After successfully passing examination a $10.00 fee is charged for issuance of license. License must be renewed yearly.
AGENCY THAT ISSUES LICENSE	Nevada State Health Division Bureau of Environmental Health Section of Food & Drug Control
APPROVED TRAINING	College or University School of Agriculture
FOR FURTHER INFORMATION	Food & Drug Commissioner 201 South Fall Street Carson City, Nevada 89701

6054

HEAVY DUTY TRUCK DRIVER

DESCRIPTION OF DUTIES	Drives truck with capacity of more than 3 tons.
REQUIREMENTS FOR LICENSE	Class "A" - Having full knowlege of trucks on over-the-road driving.
EXAMINATION AND FEE REQUIREMENTS	A physical examination is required. Forms are provided by the Department of Transportation.
AGENCY THAT ISSUES LICENSE	License can be obtained from any Drivers License Bureau. The Interstate Commerce Permit which has to be renewed every three years is issued by the Interstate Commerce Commission.
APPROVED TRAINING	No training program is provided in Nevada. The drivers usually learn by driving small equipment and graduating up the scale to Heavy Duty.
FOR FURTHER INFORMATION	Teamsters Union Local 533 1550 Glendale Road Sparks, Nevada 89431 Teamsters Union Local No. 631 P.O. Box 1870 Las Vegas, Nevada 89101

6055

VETERINARIAN

DESCRIPTION OF DUTIES

A veterinarian is a person who practices veterinary medicine, surgery, obstetrics or dentistry in the treatment or prevention of disease of domesticated animals by means of drugs, medicines, surgical or dental operations, the administration or prescribing of sera, vaccines, drugs, pharmaceuticals or biological preparations for the treatment, prevention, or diagnosis of disease and receives or expects to receive any money, fee, salary or any consideration of value.

REQUIREMENTS FOR LICENSE

Any person who desires to practice veterinary medicine, surgery, obstetrics or dentistry in the State of Nevada must meet the following requirements:

1. Is more than 21 years of age.
2. Is of good moral character.
3. Has received a diploma conferring the degree of doctor of veterinary medicine or its equivalent from a veterinary school or college approved by the American Veterinary Medical Association.
4. Is a citizen of the United States or has filed a declaration of intention to become a citizen.

The board may in its discretion license an applicant without examination upon sufficient proof that the applicant has a currently valid certificate of qualification from the National Board of Veterinary Medical Examiners.

EXAMINATION AND FEE REQUIREMENTS

Application fee, $100.00.

Renewal fee, $15.00.

AGENCY THAT ISSUES LICENSE

Nevada State Board of Veterinary Medical Examiners

APPROVED TRAINING

Any veterinary school or college approved by the American Veterinary Medical Association.

FOR FURTHER INFORMATION

Dr. John L. O'Harra, Secretary-Treasurer
Nevada State Board of Veterinary Medical Examiners
Post Office Box 1209
Reno, Nevada 89504

6056

PUBLIC WEIGHMASTERS

DESCRIPTION OF DUTIES	Third party issuance of certificates of weight.
REQUIREMENTS FOR LICENSE	Equipment - Weighing device suitable for the task to be performed. (Most Public Weighmasters are truck motor scale type of operations.) $1,000 performance bond.
EXAMINATION AND FEE REQUIREMENTS	$15.00 license fee 1st year. $10.00 annual renewal.
AGENCY THAT ISSUES LICENSE	Nevada Department of Agriculture P.O. Box 1209 Reno, Nevada 89504
APPROVED TRAINING	None - Knowledge of weighing procedures.
FOR FURTHER INFORMATION	Nevada Department of Agriculture P.O. Box 1209 Reno, Nevada 89504

6057

VT 012 735
Green, Muriel, Ed., And Others
Aerospace Education Resource Conference
(Flushing, N.Y., May 3, 1968).

New York City Board of Education, Brooklyn, N.Y. Bureau of Curriculum Development
New York State Aerospace Education Advisory Council
New Jersey Aerospace Education Advisory Committee
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Jul68 120p.

DESCRIPTORS - *EDUCATIONAL RESOURCES; *AEROSPACE TECHNOLOGY; *AEROSPACE INDUSTRY; CONFERENCE REPORTS; *TECHNOLOGICAL ADVANCEMENT; SCHOOL INDUSTRY RELATIONSHIP; EDUCATIONAL OBJECTIVES; CURRICULUM DEVELOPMENT; *EDUCATIONAL RESPONSIBILITY

ABSTRACT - The great impact which the aerospace industry will have on education is just now becoming evident. This 1-day conference met to discuss this growing impact, disseminate knowledge and interest in aerospace, and develop the cooperation of the aerospace industry in education. The discussion group format of the conference provided a favorable environment for interaction in analyzing curriculum problems in small groups, divided in the morning session by grade level, and in the afternoon session by subject area. Their conclusions contain implications for the schools, industry, and government agencies. (BH)

VT 012 735

ED0 57254

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EDUCATION & WELFARE
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AEROSPACE EDUCATION RESOURCE CONFERENCE

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New York State Education Department

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Bureau of Curriculum Development, Board of Education
New York City

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AEROSPACE EDUCATION
RESOURCE CONFERENCE

May 3, 1968

Sheraton • Tenney Inn

La Guardia Airport • Flushing, N.Y.

SPONSORING ORGANIZATIONS

Bureau of Curriculum Development
Board of Education, New York City

Aviation Development Council
New York City

Aerospace Education Committee
New York City Schools

New Jersey Aerospace
Education Advisory Committee

New York State Aerospace
Education Advisory Council

6062

PROGRAM

8:00 a.m. Registration–Coffee–Exhibits
9:20 a.m. General Assembly

INTRODUCTIONS –

John J. Shelly, Assistant Director, Aviation Development Council, New York

OPENING REMARKS–"Vignettes for the Future"

Dr. William H. Bristow, Assistant Superintendent, Bureau of Curriculum Development, Board of Education, City of New York
Dr. Franklyn M. Branley, Chairman, American Museum–Hayden Planetarium, New York
James T. Pyle, Director, Aviation Development Council, New York

MORNING SESSION
10:00–11:45 a.m.

GRADE LEVEL DISCUSSION GROUPS

Group I Curriculum at the Primary Level–
Dr. Harold A. Failey, Principal, Union Free School District 4, E. Northport, New York

Group II Curriculum at the Intermediate Level–
Dr. Fred Winston, Aerospace Specialist, Louis Pasteur Junior H.S., Queens, New York

Group III Curriculum at the Secondary Level–
Alvin E. Rubin, Associate in Secondary Curriculum Development, N.Y. State Dept. of Education

Group IV Curriculum at the Continuing Education Level–
Dr. Milton W. Horowitz, Associate Professor, City University of New York, Queens College

LUNCHEON ADDRESS
12:30 p.m.

Dr. Mervin K. Strickler, Special Assistant for Aviation Education, Federal Aviation Administration, Washington, D.C.

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AFTERNOON SESSION
2:00–3:45 p.m.

CURRICULUM DISCUSSION GROUPS

Group V Curriculum in Science and Mathematics–
Dr. Milton Rosenberg, Chairman, Science Dept., Elmont Memorial High School, Elmont, N.Y.

Group VI Curriculum in History and Social Sciences–
Dr. Jerome J. Haggerty, Professor, C.W. Post College, Brookville, N.Y.

Group VII Curriculum in the Humanities–
Leo Benardo, Director of Foreign Languages, Board of Education, City of New York

Group VIII Curriculum in Occupational Education–
Frank Woehr, Principal, Aviation High School, New York

Group IX Curriculum in Educational & Vocational Guidance–
Cecilia L. Sarasohn, Assistant Director, Bureau of Educational & Vocational Guidance, Board of Education, City of New York

SUMMARY ASSEMBLY
4:00 p.m.

REMARKS
Gordon Van Hooft, Chief, Bureau of Secondary Curriculum Development, New York State Department of Education

OBSERVATIONS
Dr. Daniel A. Salmon, Curriculum Coordinator, Bureau of Curriculum Development, Board of Education, City of New York

EXHIBITORS' RECEPTION
4:30–5:30 p.m.

6064

Conference Planning Co-chairmen

Dr. Daniel A. Salmon–Bureau of Curriculum Development,
Board of Education, City of New York

John J. Shelly–Aviation Development Council, New York

Committee

Gustava O. Anderson–Dist. 27, Board of Education, New York
Muriel Green–Bureau of Curriculum Development, Board of Education, New York
Dr. Milton W. Horowitz–Queens College, New York
Warren Kenn.–Port of New York Authority, New York
Mary V. Lyons–Dist. 15, Board of Education, New York
Margaret M. O'Rourke–P.S. 140, Brooklyn, N.Y.
Joan Rosner–Bureau of Science, Board of Education, New York
Bernard Spar–Dist. 27, Board of Education, New York
William Stein–Air Force Association, New York
Antone Straussner–Civil Air Patrol, Mineola, N.Y.
Frank Woehr–Aviation High School, New York

Cooperating Agencies & Organizations

Air Force Association
American Airlines Inc.
Beech Aircraft Corp.
Cessna Aircraft Company
Civil Air Patrol
Eastern Air Lines Inc.
Federal Aviation Administration
Mohawk Airlines Inc.
National Aeronautics & Space Administration
National Aerospace Education Council
New Horizons Publishers Inc.
Pan American World Airways
Port of New York Authority
Sanderson Films Inc.
Sony Corp.
The 3M Company
Trans World Airlines Inc.
United Air Lines Inc.
Aviation Distributors and Manufacturers Assn.
Atlantic Aviation
Van Duesen Aircraft Supplies

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BACKGROUND AND DEVELOPMENT OF THE CONFERENCE

In June 1967 a meeting of interested people concerned with the future of Aerospace Education met at the offices of the Bureau of Curriculum Development of the Board of Education of New York City. Participants included staff members of the Board, representatives from industry, various aerospace agencies, colleges, and cooperating community groups. It was agreed that a meeting should be planned which would provide educators and industry with the opportunity to share ideas and explore possibilities for the future of aerospace programs in the schools.

With the cooperation of the aerospace industry, a first one-day conference was planned for the following year. Participants would include people from the East Coast Region.

The stated purpose of the Conference would be as follows:

To review developments in aerospace education

To outline resources available to interested members of the staff, students, and members of the community

To identify problems and issues that need further consideration

To interest people in aerospace education in the schools of the metropolitan area

A series of meetings with representatives from local and federal agencies, other school systems, manufacturers, airlines, publishers, and universities indicated that a great deal of interest could be developed through the medium of a conference. Commitments for participation were secured and a planning group developed the program.

The objectives of the Aerospace Education Resource Conferences were circulated and approved:

To create interest in aerospace

To acquaint participants with aerospace activities in other communities

To make known what is available; how to obtain these resources; and suggestions for adapting these resources to meet specific communities needs

To provide the Aviation Development Council with facts for seeking additional aid and resources from industry

To explore the impact of various existing programs provided by the industry on teachers' classroom activities

To lead to additional aerospace-related activities and implementation in the courses of study of various curriculum areas

To suggest follow-up regional meetings within a prescribed length of time after the Conference; written reports from each of these regional meetings to be circulated to other regions

The report of this Conference will provide a basis for further discussion and exploration of aerospace programs in the schools. Recommendations by the participants may serve as guides for industry, governmental agencies, educators, and others interested in the future of aerospace. As one of the largest industries in the east coast region, aviation and space will have an impact in education that is only now becoming evident. The conference will, hopefully, provide some guidelines for this anticipated growth and development in all areas of the curriculum and at all levels of instruction.

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OPENING REMARKS

John J. Shelly: Good morning, my name is Jack Shelly, and I have the pleasure of serving as co-chairman of this conference. And it's my pleasure to welcome you here and to thank you all for giving up your Friday to be with us.

We are deeply grateful to all of the people who have made this conference possible, especially to the exhibitors who have taken a lot of time and effort to put together the displays that you see here today. And I'm deeply indebted to all of them.

May I at this point introduce my co-conspirator, co-chairman of the conference, a gentleman who's done a lot of work in making what we hope will be a successful day, Dr. Daniel A. Salmon.

Daniel A. Salmon: Thank you. About a year ago at a meeting of the Aerospace Education Committee, which is an arm of the Bureau of Curriculum Development of the Board of Education of the City of New York, Assistant Superintendent, Dr. William H. Bristow suggested an idea for a conference. At that time it was just a thought, but he indicated that we should have a conference of interested educators, people from industry, and people who are looking for ways and means of using aero and space -- a hyphenated word -- in the curriculum of the schools at all levels, and for all youngsters, and in all disciplines.

At that time none of us in the Aerospace Committee knew what direction to take, but over the period of one year we met at irregular intervals, and this one-day, all-day conference, sponsored by education, industry and various organizations connected with government, have worked together to prepare this beginning conference. We think of this as the beginning of a series of meetings and investigations for aero-space education.

Our opening speakers this morning represent three areas which are interested in aero-space. These three areas are education, science, and industry. Each of our speakers this morning will mention briefly his orientation to the subject.

The opening speaker will be Dr. William H. Bristow, Assistant Superintendent of the Bureau of Curriculum Development of the City of New York. This meeting was Dr. Bristow's idea, and we think he should launch it.

Dr. William H. Bristow: Will Rogers once said that he didn't mind if people lied about him if it was in his favor. I can't think of anything more important than to be identified with this particular enterprise.

Now somebody has said that we do not remember the days, or months, or years; we only remember moments. And one of the great moments that I remember was when we organized and established what came to be known in the New York City schools as the committee on the air age. And that was aeons ago, because it's no longer air age, it's aero-space.

Now I did help to launch this conference, but I helped only because the situation seemed to be right. You have a sheet that says what I think we ought to get out of this conference. I would hope that before the day is over you might run down it, because I'm not going to run down it at this time.

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I'm going to say just four things: - that aero-space, the word, the concept, the ideas behind it provides a new orientation to many of the things that we are doing. It is not only an idea, it's an instrumentality, a direction, content, activities, approach and motivation. And it has not been adequately exploited in these United States; let alone in England, or Denmark, or Italy, or in India. That's one of the reasons why we're here.

One of our mentors in this particular enterprise of air education, and finally air and space education, was George Gardner — George and Jimmy Bernardo, and I could mention the Curriculum Assistants of the New York City schools, because they have carried a tremendous weight in the development. If I went a little farther, I would give a little credit to myself, and to my colleague Sam Schenberg, and to other people in the Bureau, and to others.

But now this idea, this very important idea doesn't need a sponsor; it's got plenty of sponsors. But it needs something to bring together its significance.

Aero-space has implications for all curriculum, and all teacher training. We have people in this audience who realize this and recognize it, and I would hope will be able to put things together a little more. And it affects the three year old, and the two year old, and the elementary, and the junior high, and the high school, the college, and adult. In some places we are doing something, but the gaps are not filled in. It affects the business of occupational education, the kind of occupational education that Frank Woehr stands for, and the Academy of Aeronautics stands for. But also the kind of occupational education that ought to be in high schools generally. Now it provides the challenge, an implicit challenge, such a dramatic challenge that people don't quite realize what they have at hand. That's one of the things that ought to come out of this conference. This challenge is dominant, it's below the surface, it is hardly mentioned in any except conferences on science. It was not mentioned at the ASCD conference,

as far as I know. It had only a little mention at the Audio-Visual conference. I don't remember that there was a panel on it at the American Association of School Administrators.

The real thrust of this meeting today is to come together to see the significance of this idea which has been building up every day from the community, the great opportunities that are available in business, in the museums, in the planetarium, in the audio-visual field, in the printing industry. Out of this we must make our personal commitment, our thrust, our directions, and our plans for the future.

This is one of the very significant conferences which will be held this year. I, along with you, am grateful, probably more grateful to the industry than almost to anyone else, because of their confidence in us and what they have done to make it possible for us to come together at this time.

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AERO-SPACE EDUCATION AND THE FUTURE

William H. Bristow,
Assistant Superintendent New York
City Schools

1. The objectives of education, of schools, and of the curriculum reflect the Aero-Space Age.

2. The general content and methodology of the curriculum at all levels and in all fields and in all subjects, should give appropriate attention to Aero-Space Education.

3. The programs and content of Occupational Education, both in comprehensive and special schools should reflect the Aero-Space goals.

4. Teaching materials, resource units, courses of study, curriculum guides, should provide guidance and suggestions for crucial activities relating to Aero-Space Education.

5. Learning materials and media should bring the significant importance and drama of Aero-Space to children, youth, and adults.

6. Every curriculum program initiated should review the extent to which Aero-Space goals, content, and activities are an integral part of the mission.

7. Every person, by simulation, media, or actual flight, should understand and experience flight.

8. Every teacher should have actual flight experience and one or more dramatic contacts with Aero-Space content.

9. Every teacher-training program should assess its responsibility and opportunities in relation to the Aero-Space goal.

10. Every school administrator and supervisor should explore the opportunities available to him, his

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teachers, and his students in his community through space orientated parents, professionals, museums, and commercial groups.

11. Every professional group concerned with teacher preparation, teaching, and learning should assess their program to see what responsibility they have in relation to Aero-Space Education.

12. Every scientific, research, or commercial agency, groups or business should look about to see if they are meeting their responsibilities and taking advantage of the opportunities to help improve Aero-Space Education.

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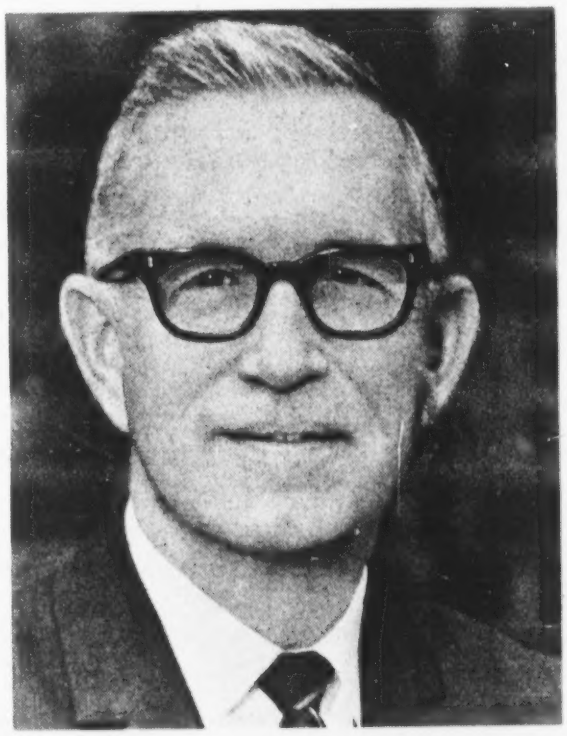
Dr. Salmon: Our next speaker will be Dr. Franklyn M. Branley, chairman of the Hayden Planetarium of the American Museum of this City. Dr. Branley is responsible for the programs that are developed for youngsters who attend at the Hayden Planetarium. He is a noted educator, author and scientist.



Franklyn M. Branley: Thank you very much, Dr. Salmon. I'm certainly delighted to be here with you this morning, discussing aero-space education. Our field has been light years away, I guess, the field of astronomy. But I personally feel that our responsibilities are close together. I have personally taken an active role insofar as my time has allowed in working with the New Jersey Aero-Space Education Committee. I must say that I have never done any work with the New York Committee. I regret this very much because I would personally like to become part of this program, and I would like the institution I represent to become part of it.

I think it's appropriate to let you know some of the work that we are doing, and then you can fit it into the perspective as you go on with your meetings this morning and this afternoon.

We have been offering workshops for teachers. These are workshops in astronomy for teachers in the State of New York. We haven't gotten too much co-operation from the New York City school system because they don't give free time to teachers to attend workshops on Fridays.

I see Sam Schenberg there. I'm glad Sam's here, so he can work at that suggestion. We intend to offer more of these workshops. We have found them to be tremendously exciting to us, and tremendously effective, we think, in at least stimulating teachers to the excitement that there is in the study of astronomy. I see no reason why we couldn't modify our procedures a little bit and make these workshops in aero-space education.

In the high school field we have been offering for the past ten years a summer program in astronomy for high-ability students. We had had twelve hundred students, and now, at the present time, I have students coming back and teaching the program. So this has worked out very nicely; I get a lot of inbreeding. We expect to continue this kind of program. Again, we have found that astronomy is a subject to be emphasized. Even though we call it astronomy and space science, we have found that our students are more interested in astronomy than in space science. This is probably because of our own enthusiasms. However, I see no reason why we shouldn't consider possible ways of modifying our approach, or maybe expanding our offerings.

For the first time next fall we will have a laboratory course in astronomy for elementary school teachers. Again, I see no reason why aero-space couldn't logically fit into this kind of a program.

I hope in your deliberations and your thinking about curriculum needs and equipment needs that you will move with great care when you consider planetariums. It has been my experience in going around and seeing installations of planetariums in high schools that it is rather difficult to justify the expenses involved. Maybe, as time goes on, this situation

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will change. But I think it would be much wiser when you consider a planetarium to consider ways of using what I think are superb facilities already available to you, run by a staff whose entire life is dedicated to the proper use of that equipment, actually equipment that demands, in our case, about twenty-five full time employees.

Our planetarium is available. We are presently offering a program for the junior high school department of New York City; we should like to present additional programs for them and for high school students, and for teachers. I think it's rather a shame that our facilities are not used more extensively by the New York City school system.

When it comes to science per se, the science of aero-space, I'm reminded of a technician we used to have at the planetarium. Whenever we were desigining a piece of equipment he always said, "if you're doing it the hard way you're doing something wrong." I think this is right.

I was down at the Museum of Science and Technology, the Smithsonian in Washington, and I saw what must have been the original harvester. It's about the size of a house. It's a combine; one of those that was drawn by about 40 or 50 donkeys. And it's just -- well, you don't believe it. I though of John Tuma when I looked at that, and he said, "if you're doing it the hard way you're doing something wrong." They were doing it the hard way.

I think this is very true, not only in science learning, but I think also in the whole area of education, which we're primarily involved with this morning. If the procedure is difficult and involved, you're doing something wrong. I think that real science is simplicity. Ultimately, when we really get down to knowing things, the fundamentals of things, we have reduced them down to very simple relationships. Until we do that, we really haven't digested our knowledge sufficiently.

I think that the major problem that all of us are facing is one of teacher education. We can talk until the cows come home, and we can devise all sorts of equipment, and we can devise all sorts of curricula and goals, and objectives, but unless you reach the teacher I think you have to forget it. Once the door to the classroom is closed, he determines the curriculum in spite of pressures from up above. When we think of spending money -- the PSSC for example spent $10 million on their curriculum. The Illinois Project, not quite so able to reach the higher levels of finance, is only in seven figures. A lot of that money was spent on curriculum, and a relatively small fraction was spent on teacher education. I think it's much wiser to reverse the expenditures.

I would like to go back, in closing, to my original statement. First, I'd like to let you know that for the first time this spring the Planetarium has expanded its education offerings to include flying. Well, not really flying, but a ground school for pilots. This we did this spring for the first time. This is a 40 hour course, and we have 48 students presently enrolled.

We are the center for astronomy education in the metropolitan area, and perhaps, even in a wider community. We would like to become a center for pilot training of this kind in the metropolitan area. We would like to become a center of aero-space education. I would like to assure you that insofar as our staff and our abilities, and our facilities allow, they are at your disposal.

Dr. Salmon: Our third speaker this morning is Mr. James T. Pyle, who is presently Director of the Aviation Development Council of New York City. Mr. Pyle is a veteran of 30 years in Aviation with experience as an airline executive, naval air officer, president of an air charter company in addition to his government service as Administrator of the Civil Aviation Agency and Deputy Administrator of the Federal Aviation Agency.

Born in New York City, Mr. Pyle is a graduate of Princeton University and is one of our staunchest

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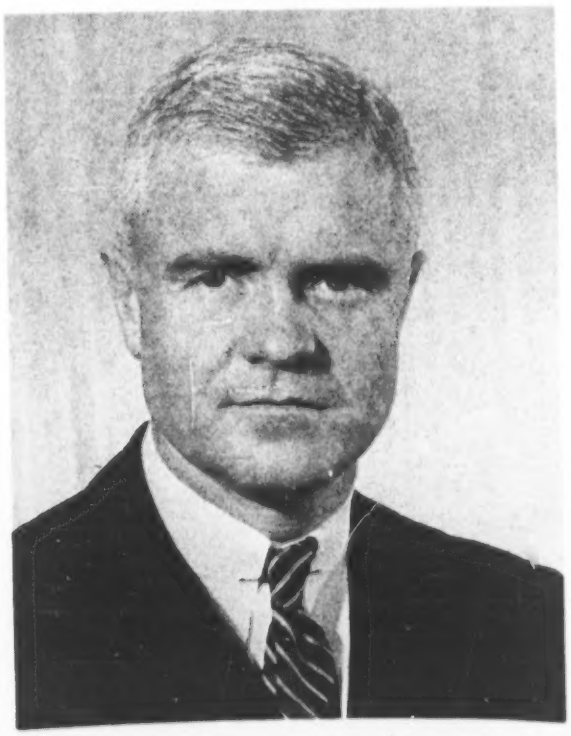
supporters of aero-space education in New York City. He has been a supporter of Aviation Education throughout the Nation for many years, but we like to claim him for our own because his offices at the airport are located right across the road.



James T. Pyle: Thank you, Dr. Salmon. The members of the Aviation Development Council staff and I are deeply appreciative of your interest and the interest of the exhibitors who have taken so much time and trouble to put together this exciting information and make it available to all who are present today.

I would like to offer a few personal comments regarding some of the people who are involved with today's program. First, I think we all owe a real debt of gratitude to Dr. William Bristow. You know, he's retired. But this is the kind of retirement I like to see -- continuing an aggressive needling of all of us. I hope he will keep it up for the next fifty years. I'd also like to express my personal appreciation to one whom you will hear more from a little later on, the featured speaker, Dr. Merv Strickler.

Secondly, I'd like to say just a word to someone who isn't here, Jimmy Bernardo, because I think, as Dr. Bristow said, he was one of the ones who pioneered aviation aero-space education here in New York when he was with the Civil Aviation Administration, back in the mid-fifties. As you may know, he is presently with NASA. I don't know whether Jimmy is going to be with the first men on the moon, but he'll be on the second flight, I would imagine, second only to the astronauts.

This is a real ambitious task that has been laid out before all of you today, to take a look at curriculum development for the next ten years. And, I think it's doubly awesome after I read through Dr. Bristow's checklist.

Let me just try and relate for a second what this exercise means to me, one who is basically an operational airline type. Just for a minute, let's look at what's happening to this Industry. Air transportation is today, this country's seventh largest and by far, its fastest growing industry. During the next ten years, we anticipate that the business of transporting people by air will triple in size on a worldwide basis, -- from 225 million passengers in 1967 to more than 750 million passengers in 1980. During this same period, air cargo is expected to increase almost sevenfold from some 6 billion to about 41 billion ton miles.

Next, lets briefly review what is -- and what will be flying:

Types of aircraft in use today.

a. The twin-engine and prop jets serving the medium haul routes - 100 to 1000 miles;

b. The tri-jets serving up to 1500 miles;

c. The four engine jets serving up to a range of 5000 miles and the stretch versions which have been introduced on some of the more heavily travelled routes.

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Also, the business aircraft prop and jet - STOL and the helicopter.

Tomorrow's aircraft will involve:

a. 747 Superjet - to be introduced in late '69 early '70 - 490 passengers maximum - probable configuration 365 in two classes - higher, faster, more comfortable and more economical.

b. The airbus - due in '71 - 250 passengers - 3 jet cousin of the superjet.

c. The Concorde SST - 120 passengers - twice the speed of sound by 1971-72.

d. The Boeing SST should be flying by 1976 and it will carry 300 passengers at 1800 MPH which is almost three times the speed of sound.

Beyond that - hypersonic and nuclear powered aircraft will probably be flying before the turn of the century.

Let's look at what this means in terms of human beings. The airline industry's direct employment today is somewhere on the order of 285 thousand people. And it's increasing at the rate of 35 thousand people a year. And it is believed that this rate within the next ten years will double: 70 thousand people will be added to the airline family, and these are just direct employees.

Let's look at what it means here in the New York area -- and by New York, I mean Northern New Jersey, parts of Western Connecticut, and New York State. 50 thousand people are currently employed at the three major New York airports: with an annual payroll of $475 million. When you add all the associated and related logistic support and other things that go into the make-up of air transportation; both air carrier and general aviation, there are approximately 180 thousand people in the New York metropolitan area earning more than $1.3 billion. It's the single largest industry in the New York metropolitan region.

Statistics on some of the requirements for future employment are not as available as they should be. I But in the skilled category, there are some interesting statistics which might be helpful. Let's take a look at two categories: pilots and technicians. I say technicians, because in my judgment, we can no longer call them mechanics, or grease monkeys. When a highly trained individual goes out and signs off a $40 million supersonic transport, indicating, that it's airworthy, he's no grease monkey, he's a skilled technician, believe me.

In the air carrier community, there are about 23 thousand pilots right now. This will grow by 1980 -- and remember that's only 12 years from now -- to about 43,600. To achieve this figure will require 44 thousand new hires because of attrition and FAA's compulsory retirement at age 60. It has been interesting to me, to read the airline pilot's magazine and see how many of my old friends are now retiring age 60, approximately 30 and 40 of them a month.

In the technician category, there are about 44 thousand today. Requirements for the air carriers alone - 80 thousand by 1980, and this will require 95 thousand new technicians to be hired within 12 years to meet this total. The average mechanic today is over 45 years old. And there are less than an adequate number of young fellows coming in on the pipeline to meet these needs. If it weren't for dedicated people like Frank Woehr and his Aviation High School, we would be suffering far worse than we are today.

Now I've talked about the airlines. Let's look at general aviation for a minute. General Aviation, for those of you who don't know, is everything but military or scheduled air carriers. It covers the gamut, from the crop duster up to the corporate Lockheed Jet Star, that comes in and out of LaGuardia. 49 thousand pilots, professional pilots, are now flying in the general aviation community, in corporate aircraft, as salesmen, and so forth. The requirement within 12 years -- 182 thousand. Technicians; at present there are about 40 thousand working. The

requirement, (and this is a figure that is fairly accurate), 138 thousand in 12 years. Better than 10 thousand alone in the general aviation community.

So, what are we talking about? A quarter of a million pilots, a quarter of a million technicians that we've got to lay our hands on within 12 years.

Now, lest this sound like a very optimistic picture, you as teachers, I think, should appreciate this. These are people that will have to have integrity and self-discipline. Ours is a demanding industry. The lives of hundreds of thousands and millions of people depend on the integrity of these people. And, if there's anything that I can remember from my training with the predecessor of the Academy of Aeronautics, was the importance of self-discipline and being sure you do a job right.

I think Merv Strickler -- I hope I'm not stealing some of your thunder, Merv -- but he has spelled it out quite clearly. He said, "You know, passing is 65 or 70, depending on your school curriculum. But boy, you don't make a 65 percent landing. You make a 100 percent landing or it isn't any good. The same applies to a maintenance technician signing off an airplane." This is the kind of integrity and self-discipline we must instill in -- this younger generation.

Now I've talked a little bit about two skilled categories. But, there are all kinds of other occupations, activities, that are involved in this exciting industry; professional, the standard business part, the typists and so forth, secretaries, the accountants, the sales and marketing -- tremendous challenges they face. And, of course, there are wonderful guys wo have come up through the ranks to head these companies, like Harold Gray of Pan American, Floyd Hall of Eastern Airlines, both started in the cockpit. George Keck of United Airlines was an engineer. Lew Dymond, a personal friend of mine, started as a plane washer for National Airlines. He's now chairman of Frontier. Marion Sadler, who unfortunately recently retired because of ill health, was president of American.

He began as a ramp man, loading baggage in Nashville, Tenn.

And let's not overlook the girls, the stewardi, as Allen Sherman calls them. We've got to have stewardesses for the co-pilots to marry. The control of traffic is in the hands of the Federal Aviation Administration, and they're hurting for disciplined, dedicated air traffic controllers. It's demanding work, but it's exciting work, and important work.

Well, these are some of the things that are ahead of us, that are ahead of you as teachers. I might quote from Dr. Scott of the University of Illinois, who's doing such a magnificent job in aviation education: "A physics student is not expected to become a physicist. Those who take aviation courses are not expected necessarily to become aviators." So, there's a broad gamut that we can intrigue and stimulate kids to think about.

The answers to many of these problems will take alertness, an open mind, and a great deal of imagination on your part. We'll need a good many of these students you are now training and will train in the future who can combine these qualities and assure the continued rapid growth of our industry.

So we are, frankly, a little bit selfish in working with you, because we need your help. But we also feel very strongly that if we can make a contribution to facilitate what you're doing and to provide the resources of this industry to assist you in your awesome task, in your awesome responsibility, I think it's our privilege. And we hope you will call on us.

Thank you very much.

Dr. Salmon: Dr. Bristow has requested the floor for a brief statement.

Dr. Bristow: I don't think we should let another minute go by without investing Dr. Bradley in membership - member-at-large of all the groups that are represented

in this conference, including the New York City School Aero-Space Committee...

(Laughter, Applause) ... I invest you.

Frank Blair over there will make it official.

Dr. Branley: Well, I'm delighted, absolutely delighted.

Mr. Shelly: Gentlemen, thanks so much. You've set the theme for our conference. Not only do we want you, as educators, to be aware of the resources that are currently available to you, but we need your help, as Mr. Pyle indicated. As the other gentlemen indicated -- how can we play a more meaningful role in assisting you in developing your curriculum over the next ten years.

I'd like to at this time introduce the group chairmen for the morning session.

Group Number One: Dr. Harold Failey

Group Number Two: Dr. Fred Winston

Group Number Three: Mr. Alvin Rubin

Group Number Four: Dr. Milton Horowitz

GUIDELINES FOR THE DISCUSSION GROUPS

In order to provide a framework for the discussions in the various group sessions, a suggested outline was prepared by the planning committee. Discussion leaders were provided with some orientation materials, and each group leader had the opportunity to review the materials and use them as they might prove to be useful for the individual session. Although the group sessions were in themselves unique, the thread of aerospace education was a distinct part of the dialogue.

The outline below is typical of the kinds of questions which became part of the individual group sessions. Most of the discussions were not as tightly structured as the outline might indicate; the talks tended to follow patterns based upon the interests and experiences of the members of the group. The questions represented some of the problems which need to be investigated if a program of aerospace is to become par of the total curriculum at all levels of instruction.

Because the groups were comprised of professional educators, as well as representatives of government, industry, publishers, and community agencies, each contributor to the discussion perceived the problems from his own orientation and interest. The reports of the group discussions which follow tend to reflect the opinions of each of these representatives, but the recommendations of each group can provide the reader with suggestions for further discussions,review, and action for implementation of aerospace education programs.

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SUGGESTED GUIDELINES

Panel No. Topic

Group Leader

I. Introduction of Topic

1. Review broad objectives for the grade and curriculum level being discussed.

2. Establish scope of term "Aerospace" as it applies to the group topic.

II. Questions

1. What are the objectives in aerospace education at the level being considered in this panel?

2. Should aerospace education be taught as a separate unit, or should it be woven into the fabric of each curriculum area?

3. How can an "aerospace" emphasis make the curriculum more meaningful or enjoyable?

4. Which aspects of the curriculum - either as it now stands or with slight modifications - can be utilized to implement an understanding of aerospace concepts?

5. What programs or activities in aerospace education can be - or have been - built into the curriculum most effectively?

6. What kinds of resources are employed in developing aerospace concepts, activities, or units?

7. What are the needs for additional teaching materials and resources? How might these needs be met?

8. What new methodology has been used to enhance the teaching of basic aerospace concepts?

III. Summary Statement

1. Present activities and programs.

2. Projection for the future, curriculum development and implementation.

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GROUP I - CURRICULUM AT THE PRIMARY LEVEL

Group Leader: Dr. Harold A. Failey

Recorder: Margaret M. O'Rourke

In setting the tone of the meeting the chairman referred to an article by Arthur C. Clark in a recent issue of the Suffolk Sun which pointed out that fifty and even twenty-five years ago scientists scoffed at the possibility of the development of things we now take for granted. Those scientists who lacked imagination, creativity, and the nerve to do something failed to foresee important changes in technology. If we are to help prepare children to take their places in the world of the future, we must find and express these three qualities.

The committee tried to define aerospace education. It includes many interrelated disciplines. Besides the more obvious aspects of physics (what makes an airplane fly?) astronomy (study of outer space), and other sciences, it embraces the entire field of economics (job opportunities, expanded markets, foods), and language arts (all types of communication). It has implications for an extensive list of learning areas.

The first problem considered by the group was the basic one: Should Aerospace Education become an entity in the curriculum or is it destined to be an offshoot of other areas?

There seemed to be a general agreement that children come to school with a basic understanding of their environment. The job of the school is to help them focus their attention and extend that understanding in order to develop attitudes of acceptance of the lives they will lead.

There was some feeling that there should be a separate aerospace education curriculum that would include vocabulary and some technology.

A number of group members cautioned that the elementary curriculum is now very heavy. It would be impossible to add to it without subtracting something else. Aerospace must, therefore, be fitted into the existing subject areas rather than kept as a separate entity.

It was pointed out that the New York City science bulletins did not aim at including aerospace but did try to include whatever concepts are important in the life of the child. Many of the topics throughout the grades are related to concepts developed in aerospace. At the sixth grade level these concepts can all be pulled together and called aerospace.

It was also noted that the New York State science bulletins are excellent. A hope was expressed that the State Department of Education will develop guidelines for Aerospace Education.

In cooperation with the New York City Board of Education the State Education Department has produced a series of video tapes for student and teacher orientation in aerospace education.

Many children do have an opportunity to fly. The suggestion was made that every child be given a flight experience.

In the same way that aerospace education can be viewed as a part of a total curriculum the entire subject can be considered part of the all inclusive question of living on our planet. Man must consider, for example, how much aviation he can afford to have and still live on earth. Is there a limit, beyond which he can not go without destroying other values such as conservation?

Another major problem discussed was the need for teacher training. There seems to be a reluctance on the part of teachers to become involved in aerospace education because they feel they know less about the subject than children do.

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Teacher workshops were suggested as one possible way of making teachers aware of the interweaving of aerospace into all areas of the curriculum.

The industry has the resources to support aerospace education programs but educators have failed to ask for that help. It was noted, however, that although money is available coordination is needed.

In the past the industry has shown more interest in reaching the student as a possible future employee. Educators should bring to the attention of the industry the importance of teacher training.

The suggestion was made that future conferences should include more classroom teachers.

The Hayden Planetarium and the Civil Air Patrol offer courses that are valuable to teachers.

A plea was made for increased use of educational television as a means of communicating with teachers and students. Once taped, the programs can be broadcast both for in-school and out-of-school audiences.

There are aerospace bulletins for teachers, but teachers need to be motivated to use them.

It was noted that more and more aerospace oriented materials are becoming available for children. Julius Schwartz's book, THE EARTH IS YOUR SPACESHIP, is an outstanding example. However, it was felt that there is still a serious lack of properly written attractive reading materials for elementary and intermediate school levels, commercial aviation companies and agencies such as the Federal Aviation Administration should review objectively their present publications, remove the deadwood, and embark on a production program which will result in highly motivational, readable materials that can be looked at, read and enjoyed by children (and teachers).

We were reminded that as teachers we are working with youngsters for whom there is no job description

in the dictionary of occupations because the jobs they will hold have not yet been developed. As we continue our efforts we must keep our feet on the ground and our eyes on the stars.

Civil air patrol cadets at their exhibit

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GROUP II - CURRICULUM AT THE INTERMEDIATE LEVEL

Group Leader: Dr. Fred Winston

Recorder: Margaret McNamara

Dr. Fred Winston, group leader, opened the discussion by asking the following questions:

What has been done?
What do we want?
Where do we want to go?

By attempting to answer these questions, the panel might use such evaluation as a springboard for future meetings.

What has been done

A team teaching unit on Aerospace was carried on in Intermediate School 8, District 28, Queens. The project was carried out by a team of Social Studies and English teachers with a Speech teacher, Audio-Visual teacher, Librarian, and Science teacher acting as resource personnel.

The project had many goals but two of the most significant were to expose the children to career opportunities in aviation, and to prepare the students, as future voting citizens, to determine the direction and progress of our space program.

A teacher of Latin had used an Aerospace Dictionary as a springboard for language study, where it was discovered that many words had Latin derivations. A creative writing lesson developed from this research, in which astronauts names were latinized for 'LATIN IN AEROSPATIO'.

Air travel has also touched the Social Science curriculum. Historically, the population flow has been from east to west. Plane travel has overcome the old obstacles of travel. The use of aerial photography in making maps provides a functional

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approach to scale. It was agreed that urban children are geared to changes made by air travel.

For several years the Aerospace Education Institute (New York City Board of Education) in cooperation with the Aviation Development Council has conducted institutes for teachers at Kennedy Airport for the purpose of stimulating teachers' interest in aviation, and eventually in aerospace. Several institutes have included flights to the Air Traffic Control Center, MacArthur Airport, Islip, Long Island, New York.

What do we want?

It was generally agreed that the knowledge of aviation and aerospace expressed by teachers and pupils alike left much to be desired. An example was given in which boys and girls were asked, "What is aerospace?" Responses were limited to the NASA program of man in space and moon travel. Comprehension of the more relevant aspects of aerospace - e.g., weather, communications, aerial photography and its implications was limited.

It was pointed out that the motivation (rocket launchings, etc.) sometimes overshadows subsequent learnings. Both teachers and children should learn to think rationally rather than emotionally, applying the basics of science teaching to this field.

A suggestion was also made not to "integrate, but try to articulate" Aerospace in Language Arts.

In Social Science learnings, Aerospace is the thread or strand which can be drawn through the entire K-12 course of study, by exploring talents, helping students to teach themselves (inquiry, discovery approach), and to teach more about less (study in depth).

Participation by young people in an actual flight was deemed desirable as a motivation for learning. During recent educational flight of college student over New York City it was discovered that 50% of

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those present had never flown before, and didn't know their own city's landmarks. Preparation by means of a study of aerial photography before the flight was helpful. It was suggested that this experience be brought within reach of a greater number of students by having the county or educational system buy a plane and take teachers and students aloft regulary, but the many problems inherent in this proposal for example, maintenance, insurance - make it impractical.

Where do we want to go?

A statement was made that "aerospace in itself is not a science, it is the application of sciences," and as such should focus on the student population and interests to determine its relevance.

It was felt that school administrators should disseminate informational materials more effectivately.

The importance of aerospace learnings in citizenship education was underlined when, as future citizens, students may be asked to vote on bond issues for aerospace expansion, research, noise abatement. Education in early years would help produce intelligent voters.

The need to know how aerospace technology can help us in the future is important. Information from space by means of satelites has led to corrections in existing calculations (e.g., geographic location), and may in future help to discover new oil fields or perhaps find diseases in forests.

In the opinion of one of the members, a teacher should correlate only that which he knows. To inject Aerospace into Language Arts compositions without a certain background of information often leads to misstatement of fact and reinforcement of error.

This view was substantiated by the fear of another panelist that Humanities classes may be promulgating science fiction rather than science fact if the teacher does not have the background to question a students' writing content.

But what is the minimal knowledge a teacher needs for this aspect of learning, and how does he obtain it? The consensus of panel members was that a syllabus of minimal science information be complied entitled "Aerospace for Non-Science Teachers."

Mr. Robert O'Neill discusses an exhibits with students from Aviation High School

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GROUP III - CURRICULUM AT THE SECONDARY LEVEL

Group Leader: Alvin E. Rubin

Recorder : Elaine David

The conference was opened by Mr. Rubin who cited the early interest and involvement of New York State in aerospace education, as evidenced by the pertinent publications developed under its aegis since 1941, and the course recommendations which followed "Aviation in School and Community" put out by the American Council on Education with Civil Aeronautics Administration in 1954. Since 1962 several related federal acts have been passed to help meet the increasing demands for skilled labor needed by industry. These include: The Manpower Development and Training Act; Public Welfare Amendments; Higher Educational Facilities Act; Vocational Education Act; Elementary and Secondary Act; Higher Education Act; and the Adult Education Act.

Conference participants offered the following:

A broadly based aerospace course which integrates with social studies and industrial arts as well as science curricula, is currently being offered in Kansas. The point was made that often more sparsely settled

Alvin E. Rubin – Leader (left), Ken S. Jordan – Sanderson Films

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areas have greater need for aviation than urban communities and this need often results in greater progress. Consequently states such as Kansas have been 'forced' to become a leader in this particular way.

Including aerospace education in the total curriculum, rather than limiting it to occupational education, was suggested as being vital to the education of all children. Voting intelligently on bond issues concerning airport location and/or various other related legislation requires knowledgeable citizens with basic understanding of the fundamentals of aviation and problems of the aerospace age. The new Transportation Bond Issue providing two billion dollars, which will include development of new airports among other vital concerns, is expected to cause an explosion in aviation development beyond its present proportions.

Instructional materials for teaching about aerospace are available for teacher use though teachers are generally not familiar with their availability. Among other resources were those available from the Civil Air Patrol which prepared material for use by the armed forces in their training programs. The motivational value of these materials was mentioned as valuable in combating the 'staleness' of the standard curriculum offered to the disadvantaged child. Additional resources were mentioned as being available from Federal Aviation Administration, National Aeronautics & Space Administration and National Aerospace Education Council.

In responding to the problems of where to place priority in aerospace education, much discussion and diversity ensued. Some thoughts were:

> Interest in aerospace should be aroused very early in child's school career, and this should be infused into the regular school curriculum.
>
> Specifics should be taught from the 10th-12th grades, but programs should be more general in content in lower grades.

Specialization should not be part of the high school curriculum but there could be a generalized high school course which might lead to later specialization. For example, in high school there might be an orientation flight in an airplane. Later in the course there could be a lab-type flight with a few students at a time being exposed to navigation, aerospace science, etc.

Teacher training as an essential concomitant to any aerospace education endeavor was discussed. New York State teacher training program will be held this summer in Cortland, New York City, and Plattsburgh.

There are about one hundred seventy-five college workshops being sponsored by Civil Air Patrol. These are, for the most part, designed for elementary schools but there are some for secondary schools. It was felt that school districts should take on responsibility in this area.

It was suggested that credit be given on undergraduate or graduate level for participation in aerospace education courses. Mentioned in this regard was the ESEA Title III Industrial Arts Grants in several colleges including, Michigan, Florida and Connecticut, for industrial teacher education in which graduate credit is to be given to participants.

Group III

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Released time for teachers to attend teacher training workshops was suggested.

Teachers should be provided with curriculum and related student materials to encourage them to include aerospace education into pertinent areas of the curriculum.

IN SUMMARY:

There is an interest in aerospace education on all levels from kinderarten through higher education, and in all areas of the curriculum, but much more needs to be done.

There is a need to encourage pupils, particularly those from disadvantaged areas, to prepare for careers in the aerospace industry. This would be mutually beneficial to pupils and industry.

There is a need to interest and involve more teachers in aerospace education by providing more in-service workshops for which released time is provided and credit is granted. Discount plane travel to interest teachers was suggested by an airlines representative and enthusiastically received by participants.

More available and pertinent aerospace educational materials are needed by teachers to assist in the implementation of aerospace curriculum.

The variety of opinions indicated that teaching in the field of aviation should not be just general or specific, but both general and specific if the wide range of needs and interests are to be met.

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GROUP IV - CURRICULUM AT THE CONTINUING EDUCATION LEVEL

Group Leader: Dr. Milton W. Horowitz

Recorder: Roberta Streich

To initiate discussion, Dr. Horowitz stated that the problems of society are the problems of aviation. He then posed the question - how can we educate people to the needs of the aerospace age?

Because of rapid change and technological advances, the development of more effective means of training men in aviation is of paramount importance.

Certain questions need to be answered: - what are the roles of schools in training people? what kinds of people does the industry want? who will do the training? how does the student perceive the role of the technician and how can this role be enhanced in the public eye?

The principal role of education is to plan its curriculum according to present and future needs. Revising and updating of obsolete manuals of instruction and enlisting the services of instructors of new techniques are essential for this purpose. The procedure for dissemination of information to teachers and stu-

Dr. Milton Horowitz

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dents must be improved. It is felt that industry's message is not coming across effectively. There was general agreement with the statement that "teachers can't sell a program they don't understand," and that greater personal experience is needed. For New York City there may be a two-year wait for interested teachers wishing to visit the Air Traffic Control Center at Islip. From the school administrator's point of view the idea of aerospace curriculum can be sold to colleges, but financing the program and placing the students present problems.

Industry's role is one of defining its needs, and acting as a center of practical information and resources for education. It was felt that industry must bring its message to the public in person, utilizing radio, TV and other mass media. The airlines have expressed a great need for mechanical help. Inherent in this situation is the problem of motivation - the improvement of the image of "working with the hands." Educators requested expansion of industry's public visitation program, to give teachers and students more opportunities for first-hand experiences.

There was also an expressed need for more airline representatives to speak personally to teachers, students and the public. Industry must help to educate people to change, because "change is the only stable aspect of our society."

The role of adults, including parents and the general public is an important one. Parents should be informed of available opportunities, and there should be a conscious effort to upgrade the image of jobs in the aviation industry in order to attract qualified personnel. The general public must also be educated to understand the complexities of aviation, and to understand the economics and techniques of aviation.

In summarizing, panel members agreed that - Aviation must be related to people. Educators and the general public should recognize that aviation is an important means of communication and that it is an integral part of society. - Communication on person-

to person and person-to industry levels is essential. To achieve this, ther must be further in-service training of teachers and expansion of the curriculum in the colleges. Members of industry have called upon educators to identify their problems of instruction. The industry is prepared to act as a resource center in the dissemination of aerospace information.

Furthemore, it was suggested that educators prepare individuals for the industry by reinforcing general literary skills, (e.g. public speaking and writing). thus equipping them with the tools needed for future education of the public.

Dr. Daniel A. Salmon checks registration as Mrs. Marilyn Lemon assists Mrs. Whiteman and Miss Dean.

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LUNCHEON ADDRESS

Mr. Jack Shelly: Ladies and gentlemen, while we're having our coffee and dessert, I thought I might make a few brief announcements.

First of all, in our program this afternoon, one of our discussion leaders will be a pinch hitter. In baseball a pinch hitter is supposed to get up and hit home runs all the time, and I'm sure this gentleman has that kind of qualifications. Group number five, dealing with curriculum in Science and Mathematics, is Dr. Milton Rosenberg, who is chairman of the Science department of Elmont Memorial High School. We're delighted to have Dr. Rosenberg with us.

Luncheon – John J. Shelly – Co-Chairman – M.C.

A few more brief announcements. First of all, an omission or two, or three actually. On our program, under cooperating agencies and organizations, our exhibitors, in addition to those you see on the program, is the Aviation Distributors and Manufacturers Association. We're delighted to have them. We have Atlantic Aviation, and Van Deusen Aircraft Supplies. I'm again extremely pleased with all of the exhibitors and their enthusiasm and interest in our conference. I'm also delighted that our exhibitors are going to sponsor our cocktail party this afternoon. And I think

they deserve a big round of applause for that. (We would have had the cocktails at lunch but we wanted to keep you here all afternoon.)

There are a few people that I would like to introduce, if I may. A lady who has been active in aerospace education in New York City over the years and actually is one of the pioneers; I haven't had the pleasure of knowing her very long because I've only been in the New York area a relatively short time. But I've heard so much about her, and as I said I've only met her once or twice, Mrs. Eugenie Nadleman.

I'd also like to introduce the co-sponsors of the conference. As you know the biggest co-sponsor is the Aviation Development Council and Mr. James T. Pyle. He hasn't received the bill yet, but he will. Representing the New Jersey Aerospace Education Advisory Committee, its President and Superintendent of Schools of the Wycoff School District, Dr. Harold Shafer.

Representing New York City, the Aerospace Education Committee of New York City, which has two co-chairmen, two lovely ladies, Miss Gustava Andersen and Miss Margaret Mary O'Rourke.

Representing many areas, including the New York State Aerospace Advisory Council, is Mr. Frank Woehr, its chairman.

Now we have a fearless friend in our group. My fearless buddy, the intrepid Fred Feldman, who has been real active in aviation education, and he's sitting over there with four girls.

Fred gets us to work and back home very safely every day. Doesn't do much for me on the Long Island Expressway, but that's the way it goes.

I might mention that the Aviation Development Council next Saturday is sponsoring a program which was designed for specific areas of our community, both New York and New Jersey. We have invited a group of civic leaders and elected officials from the New York metropolitan area to join with us at a briefing in

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East Hartford, Connecticut, at the Pratt & Whitney Aircraft facility here. I mention this because we have two airplanes, one leaving from Newark Airport at 8:30 next Saturday morning, one leaving from LaGuardia at 8:45 next Saturday morning. Those of you who are in attendance who would like to join us, we do have some room and we'd be happy to hear from you.

I'd like to again remind you of the film strip that will be shown immediately following lunch in the Assembly Room, a film strip entitled WHY AVIATION EDUCATION? I've heard from all sources that it's an excellent 20-minute presentation, and I'm looking forward to seeing it and I hope you are too.

I think that takes care of all of my announcements. I've probably forgotten to introduce someone, but I hope whoever that might be will forgive me. Because I'd like now to introduce our luncheon speaker, our keynote speaker.

Dr. Strickler has been active in aviation education for nearly 30 years. He has been among many things a military instructor, a school teacher of aviation, graduate of Clarion State College of Pennsylvania and of Stanford University where he received his doctorate in aviation education. He has headed Civil Air Patrol aviation education programs. He is currently heading the FAA's Aviation Education program on a national scale. A real fine gentleman, and I know you'll enjoy hearing from him.

REMARKS OF LUNCHEON SPEAKER, DR. MERVIN K. STRICKLER
at
AEROSPACE EDUCATION RESOURCE CONFERENCE, MAY 3, 1968

Jack, our distinguished, generous, genial and wonderful host, Jim Pyle, and members of the Aviation Development Council, ladies and gentlemen, and various entrepeneurs both educational and commercial, it really is a privilege to be here. I don't feel like a visiting fireman or a visiting speaker, largely because so many of you I consider friends.

Dr. Mervin K. Strickler delivers the Keynote Speech

I was real interested in the morning session -- I believe Eugenie Nadelman spoke up in one of the sessions.

Didn't you suggest, Jeannie, that one of the things we ought to do in this business is to get more in touch with the women, the women's organizations, and so on? I think this is a very good point. I did have the privilege of being able to visit the various groups, and I've thrown away my speech and I'm going to instead make use of some of the notes. Mrs. Nadelman did have an excellent point. Namely, those of us in education, in aviation, in government, in the various interests represented here, should not overlook the power of the potential for communicating that the women of our world offer.

And this reminds me both of a challenge, and an anecdote which I'd like to share with you, because it has to do with a male friend of mine who was so sick and tired of having his wife, who was a women-type leader, come home and say the women were doing this, the women were doing that. And as he knows and we know, they do own most of the wealth and they do control most of the things in our society, certainly those that are among the most important. And in any event he said, "I'm so sick and tired of hearing about what you

women are doing all the time." He said, "I suppose the next thing --" this happened to be a member of the Protestant faith -- he said, "the next thing we will be having women ministers."

And she said, "Well, if you're so tired of this why don't you pray? Pray to God, maybe she'll help you."

As I listened to Dr. Bristow, this great, great national educator, a man to whom all of us in education, in curriculum work, are greatly indebted, as I listened to Dr. Frank Branley, who is such a tremendous resource, and thanks to Dr. Bristow's initiative he's now a part of your group and he's no longer a deprived resource person, and as I listened to my good friend Jim Pyle, and particularly as I visited the various group sessions, I was struck by the relevance of some material on which I had been working as recently as two o'clock this morning. A manuscript, and it's by my favorite author, and it's on the topic of the history of what has been variously known as air age, and aeronautical, and aviation, and now aerospace education. And I couldn't help but think, as I listened this morning, there are some things in here that we could profitably benefit from today.

If I have a message it's related to three parts: past, present, and future. I want to talk briefly to these three points.

How many of you have read this delightful little thing called Classics in the Classroom? These are little gems that a Missouri school teacher collected. One, a youngster's reaction to aviation. And by the way, this girl commenting on the duties of a navigator, said "I'm one of aviation's starchest supporters," she said -- she was describing what navigators do. She said, "The navigator figures out the latitude and longitude. Latitude tells him where he is, and longitude tells him how long he can stay there."

Well I want to stay for just a few moments on this historical point. And I want to share with you a comment made by a distinguished historian - at the

time - of the University of California, Dr. Lynn White, Jr., who has written a book that we could all use as a frame of reference and possible inspiration today.

His book, entitled MEDIEVAL TECHNOLOGY AND SOCIAL CHANGE, has I think a very succinct statement that's relevant today. White makes this point: "As our understanding of the history of technology increases, it becomes clear that a new device merely opens a door. It does not compel one to enter. The acceptance or rejection of an invention or the extent to which its implications are realized if it is accepted depend quite as much upon the condition of the society, and upon the imagination of its leaders, as upon the nature of the technological item itself."

And ladies and gentlemen, I think Lynn White is certainly describing, though he may not have intended to, the circumstances, the challenges, the impact, the educational significance, the economic, the moral, if you will, and even the spiritual implications of this age in which we live.

Now for a brief look at some of the history. Many people are not aware of the fact that we really don't have to do a selling job in aerospace education. Few people recognize that where traditionally it has taken 25 to 50 years for a new technology to have a significant impact on education -- driver education is a case in point -- aviation has been an exception to this. Within five years after Orville and Wilbur made their historic attempts, a school in Los Angeles was offering a course in aviation.

How many of you in this room knew that? Let me see your hands.

What I'm saying is that we don't have to worry about the customary selling job in terms of aviation and its influence. It's been long recognized.

Incidentally, one of these youngsters said in relationship to aviation back in the twenties, this youngster was about 11 years old, and was commenting on some of the activities. And she said, "you know,

during the twenties people started walking on airplane wings, and things like that." She said, "I know it's crazy, but this was before television or anything so there wasn't anything else to do." So if you wonder how some of these things happen, these youngsters can tell you.

Allow me to share with you very briefly what I think, Jim, could very well have been the Aviation Development Council of an earlier day, forty years ago as a matter of fact, and right here in New York. Now to some of you this won't be news, but I hope that it will be for others.

I know a lot of you have heard of the name Guggenheim. But how many of you really realize that the Daniel Guggenheim Fund for the Development of Aeronautics is really -- probably counts more than any other single force in our society for some of the things that we're doing today? This foundation, was set up to foster aviation. And it was designed -- and I'll quote from the fund's objectives. 1) To promote aeronautical education, both academic and general. This is forty years ago, and in New York City. 2) To assist in the extension of fundamental aeronautical science. 3) To assist in the development of commercial aircraft. 4) To further the application of aircraft in business, industry, and other economic and social activities of the nation.

One of America's most distinguished educators over the longest period of time of anyone that I know of in this business, who was just recognized by the National Aerospace Education Council and the National Aeronautic Association last week in Denver, Colorado, where the NAEC had their first national congress in aerospace education, was presented the Brewer Trophy for his outstanding work, nearly a half a century of activity in aeronautical aviation and aerospace education. I refer of course to the beloved and very great Dr. Roland H. Spaulding, Emeritus Professor of Aeronautical Education at New York University. Who, incidentally, this week end will be leaving to go to Liberia where he is serving as a consultant to Pan American World Airways and the Liberian government,

helping establish and nurture a modern aviation training program, thus, Spaulding is even to this day continuing his work.

Now let me share with you some of the things that were done at New York University, so if any of you here run into a supervisor, a teacher, a parent, a comptroller, a stockholder, a school board member, a trustee, or even the worst of those things you know, a dean -- are there any deans here? -- present company excepted, of course -- let me just give you a little historical ammunition that you might be able to use.

New York University under the aegis of the Guggenheim Fund Committee on Education in 1928 offered a course for teachers. How many of you in this room knew about that? Anyone? I might have known that George would know that. Let me give you the titles of some of the lectures that were delivered. This was the summer of 1928, before this class of about 50 teachers from throughout the metropolitan area.

One was called The Automotive and Aero Department of Cass Technical High School, describing what was going on up there in Detroit. The Aeronautical Chambe of Commerce, in other words flight training in France and the United States during the war. Another was a demonstration lesson in elementary aerodynamics, in other words, the design and construction of model airplanes. The Daniel Guggenheim Fund was explained and also the following:

1. The Uses of Aircraft in Modern Times for Regular Line Transportation

2. Personal Flights and Experiences

3. Social and Economic Aspects of Commercial Aviation

4. Uses of Aircraft in the Arts of War, Navy

5. The Development of Commercial Aviation in Europe

6. The Aviation Industry and the School Board

7. Aerial Photography and Mapmaking

8. Elementary Principles of Flight

9. Sociology, Education and Aviation

10. Aircraft Instruments

11. Teaching Aeronautical Knowledge by Means of School Activities

12. Pioneers of Aviation

13. Aircraft Engines

14. Uses of Aircraft in the Arts of War, Army

15. The Instruction in Aeronautics Given at Galt High School and Junior College.

Galt, by the way, was a junior college that had a flight training program starting in 1925, running longer continuously than any in America. I wonder how many of the people, at the Community College Conference out in Kansas City three weeks ago, gathered to discuss the impact of aviation technology, realized that one of the real leaders in the world in junior college aeronautical education was at Galt Junior College, 25 miles south of Sacramento, California, back that long ago?

The Design and Use of Aircraft. Aeronautical Education. In other words, ladies and gentlemen, we have ample historical, academic, with credit, if you will, precedents for many, many of the kinds of things we're talking about. I wish there were time today to share with you some of the kinds of specific curriculum programs that are described in some of these efforts. I won't take time here, but there are examples that range from toy parachute work, non-flying models, and paperweights, and the term kiddie cars were used then -- I haven't heard that in many years, ranging from

Grade 4, up to vocational, technical, and what we would now call post-secondary kinds of activities.

I'm not going to read all of them to you, but let met just share some selected papers. These are the term papers that were written by these 1928 summer session students at New York University in this project: AERONAUTICAL INSTRUCTION THROUGH SCHOOL CLUB ACTIVITIES. THE ELEMENTARY CURRICULUM RECEIVES ITS WINGS. HEALTH AND SAFETY. AERONAUTICAL INSTRUCTION THROUGH SCRAPBOOKS IN THE HIGH SCHOOLS. AVIATION INSTRUCTION FOR THE FOURTH GRADE. PLANS FOR AN AERONAUTICAL CLUB ON THE JUNIOR HIGH LEVEL. SOCIOLOGY AND AERONAUTICS. THE MATHEMATICS OF AERONAUTICS FROM THE VIEWPOINT OF THE SECONDARY SCHOOL. THE APPLICATION OF AERONAUTICAL MATERIAL TO NEW UTRECHT HIGH SCHOOL AS AN EXTRACURRICULAR ACTIVITY. SOME INSTRUCTION UNITS FOR MECHANICS IN TRAINING ON FLYING SCHOOL AIRPLANES. CURRENT EDUCATIONAL ACITIVITIES IN AERONAUTICS AND THE DEVELOPMENT OF NEWARK AIRPORT.

Well, the only thing I want to communicate in this part of my rapid presentation here, which I have labeled Past, Present and Future, is: there is ample, there is abundant evidence to sustain the contention by any of us, whether we represent industry or government, to do some of these things.

Now I ran across another item that I'd like to share with you on this, as we move rapidly up to today.

Incidentally, I know you're not supposed to give commercials, but part of this is going to appear in one of those things that -- one of those magnificent series of materials out there you can see, they're encyclopedias that are going to have some of this, that some of us in education, and in industry and government, are working on to relate to some of the things that all of us have been talking about here. How do we get clear, up-to-date material to put in the hands of teachers?

The item that I'm looking for has to do with the attitudes of aviation toward carrying passengers.

The gist of the message was that as recently as less than forty years ago the air carriers of the nation were not faced with the kind of problems that Jim Pyle pointed out so well this morning. On a typical

John J. Shelly and James T. Pile listen to Dr. Strickler

flight by a carrier from New York to Chicago one of the real management problems was the fact that people insisted on wanting to fly on the airplane. They were far more concerned, and it was more economically rewarding, to carry cargo and mail. So when the first people showed up they said, well, how much will it cost? And somebody said, well, $200. But they were terribly disappointed, so many people kept showing up wanting to fly from New York to Chicago that they raised the price to $400. But to their great consternation people continued to show up.

Now what I'm trying to point out is that, if you think that all isn't right in education, and maybe everything isn't going right, everybody in aviation doesn't know everything about all this business either. Aviation people have had to learn the hard way. That was really the point of what I was going to bring out. And so those of us in aviation, those of us in education, those of us in government, do indeed have a great deal to learn from each other.

Now let me move rapidly from the past to the present. And then let's move from that as fast as we can into the future. Before we do that though I'd like to transition back to what some of these youngsters wrote, because we still are on the historical side. One of these young people said, "Back in 1924 eight men tried to fly around the world, but they only ended up where they started." And maybe that's where we'll be here in what we're trying to do today. Let's take a look at the present. As Jim Pyle has pointed out, this growth is fantastic. We were talking with Durward West of United Air Lines during one of the breaks, and Durward said, "Merv, one of the problems we have is that it's difficult for educators to understand that we do want to fly them," -- because this was brought out in one of the group discussions. But he said, "One of our problems is, we can earn about $15 thousand per day with one of these jets. And one of the facts of the jet age is that when the bird is on the ground it isn't earning any money. It isn't earning any money for the company, it isn't earning any money for the stockholders, it isn't earning the money that helps pay a lot of the taxes that help to support schools and many other fine things."

So we urge you, if you can't get the airplane you want, maybe a less desirable but perhaps fruitful alternative is look into the operations, and the economic implications of this. I have not heard as much as I'd like to hear about the economics of aviation, all the way across the board. What kind of investments are there? What kinds of returns are there? What kinds of investments in education? What kinds of community investments are involved? What kinds of investments on the part of all of us as taxpayers?

There are some tremendously fascinating, exciting and interesting economic implications of all phases of aviation, general as well as air carrier. And I also hasten to want to point out one of the greatest areas of ignorance in this is in terms of general aviation. And candor alone would require that I would say that among some of the most ignorant are those of us in aviation. Many general aviation people don't understand the problems of the air carrier. And I can assure you

that there are many air carrier people who don't know much about general aviation.

One of our problems in aviation is that we, just as all of us in education, have got to understand each other's problems and work together a little more.

So there are many, many challenges here. Let me share with you an experience of one of our friends in the metropolitan Washington area. He teaches sixth grade. He decided that he was going to do something about the economics. So he went into the sixth grade, and he said, "We want to talk, in the unit we're going to be working on in about eight weeks, about our economy generally, and the forces of the economic pressures in our society. And one of the things we're going to talk about is stocks and bonds, and things like this."

You know, the youngsters didn't look to be too interested. He said, "By the way, how many of you know what stocks and bonds are?" All the kids put up their hands. And then he said, kind of flippantly, "Well now, I wonder if any of you own any stocks." Twenty-two of the twenty-six youngsters put up their hands, and he checked further and found out that nineteen of them were actively trading them successfully.

Now the point that I want to make here is, we're talking about the present, we as adults are completely out of touch in nine out of ten cases with our young people. I want to make sure I'm not misunderstood. We as adults, and I include businessmen, I include government people, and I include educators, we as adults in nine cases out of ten are completely out of touch with the real world, it isn't man who's going to be out in space, we're going to be out in space. Because there's not going to be any place else left.

And I think this is the biggest single problem we have to face. These young people who are here, from Frank Woehr's marvelous Aviation High School, from the Civil Air Patrol, are typical. We could learn a great deal from them. We are discovering something in Washington. It may not appear that way to everybody around the country, but we do learn some things.

Civil Air Patrol Exhibit, Lt. Margaret Schroder

Some of us are taking part in what we believe is a truly exciting educational experience. Sponsored by the Aero Club of Washington, and working with the University of Maryland, all of the industry people, and education people, NASA, and Air Force Association, Civil Air Patrol, many of the same people represented here, we have forty-seven teachers who are meeting, incidentally, on Saturday in an in-service aviation education workshop.

These teachers are getting scholarships and college credit. But what we've done that we think is innovative that we'd like to toss out here as a challenge to you folks today is this: after the very first meeting of this in-service workshop, which by the way runs until the 22nd of June, we said: we would encourage any of you who wish to invite a youngster of your choice into this project. We ask only that they be at least fifth grade or above, so we could assure communication. Because we believe a fifth grader represents adult level as far as communications and general experience are concerned.

I wish you could behold the environment of learning that's taking place in this workshop. Some of the most intelligent, some of the most carefully thought out questions, some of the most constructive

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ideas, are coming from the youngsters. The youngsters are learning from the teachers, the teachers and all the staff are learning from them. And what I'm suggesting is -- all of us are learning. The youngsters are having a different attitude toward the teachers. The teachers, I can assure you, are having a remarkably different attitude toward youngsters.

Well I suggest that maybe we shouldn't compartmentalize and separate these things. Maybe the real world is one of togetherness, ready or not, like it or not. And maybe we in aerospace education ought to be doing more of these things that have common interests, common experiences, common clientele.

Now none of us are going to take away from this session here today the same reactions. It's not going to have the same effect on our behavior. But generally speaking it should be positive. Otherwise it will not have been a truly educational experience.

This leads me back to the reference to the women. One of these youngsters, commenting in this little Classics of the Classroom, said "Through the years people have guessed that Venus might be inhabited by women, dragons, or other creatures."

I think that we have an obligation to these youngsters that we're working with in this real world to make sure that adults aren't dragons, they're not other creatures, they're people just like they are. And so the only message I would relate to you is, there are very, very few things left in our culture, and there are very, very few things left in our current civilization, and American society in particular, where adults and younger people can have bridges and channels of communication.

And I say to you in all seriousness and candor, we may very well achieve some national goals and objectives, and some family and personal and educational goals and objectives, if we will capitalize on one of these few remaining bridges which I happen to believe is the kind of thing you can do in aviation and in aerospace. This, I would suggest to you, is one of the realities of today.

I also would urge all of us in education, in government, and in industry to examine for a moment what education is, and the process involved. I think historically we have made a tragic mistake in misunderstanding what education is. I like Dr. Roland Spaulding's point, it's revelant. He says, "You know, one of the greatest problems we have in this world is too many people think that consciousness is the same as thinking." There's one big difference.

Too many people, it seems to me, think -- and I think there are some of us in education who feel this way, and I know there are some of us in other endeavors who feel this way -- that education and the spewing of facts, or the imparting of information, are synonymous. This is nonsense. We have got to recognize that education is indeed a process. It's not an accidental process, it's an important process, and it's a lasting process. And it's a difficult, and a challenging, and exciting, and intangible process.

But I know of nothing that can make education more interesting, more lasting, and more effective, by whatever criteria you want to select, than capitalizing on the stimulating aviation and aerospace education processes that relate to strengthening learning. And that leads me to the next point.

We have no reason, in my view, to say we ought to teach this, or we ought to teach that, or we ought to arrange this learning experience or that one, primarily to serve aviation's goals or space goals. We will achieve aviation and aerospace goals to the extent that we can accomplish some behavior change, some education. And our goal should be helping to strengthen, helping to nurture, helping to undergird the educational process. And to the extent we do that, to that extent will we be achieving our various goals, be they economic, be they cultural, be they philosophic, be they whatever they might be, vocational, technical, and so on.

And that leads me to the next point I want to make. A favorite theme of mine in talking about education and some of the challenges we have, has to do with the two initials I and P. Now how many of you here in

aviation would know what I mean if I say IP is very important in aviation? May I see your hands, so I can tell these fellows who know that IP stands for Instructor Pilot, right?

Now the IP that I'm talking about stands for something else. It stands for Ignorance and it stands for Prejudice. Two thirds of the reasons why we are not making more progress in aerospace education, in my humble opinion, stem from both ignorance and prejudice about the nature of the learning process, and the opportunities that are available to all of us. If we can just overcome some of these things, many of the problems will flow away.

The vocational-technical area, the industrial arts education area -- we are so ignorant, and we are so prejudiced in relationship to vocational technical education, nine out of ten of the very fine, very well trained, typically middle-class value system counselors that I talked to just won't counsel the youngsters into vocational-technical fields. It's a built-in psyche value system in what we're doing. And I don't blame the counselors. It's not their fault. We in industry, we in government, we in the aerospace industry haven't done a good enough job of letting them know. We must encourage direct firsthand experiences, getting them into the factories, getting them into the industry, getting them into the airplane, letting them have the direct experience, not talking at them or about them, but letting them experience it, it's only this that's going to change.

And I predict that unless we can solve some of this prejudice and ignorance in the area of attitudes of our culture towards work, we are in for big, big trouble. As Jim Pyle pointed out, we do not see where we're going to get the employees that we need in any of these areas.

Bob, wasn't it out in Los Angeles the other day where a friend of ours did a check, an unscientific experiment? How many of you would suggest that a porter would be a good job at an airport? Let's see the hands. We did a check, and what was it the

question was: He was earning at the rate of $10.25 an hour.

Now, any questions? Do you have your application forms here? (LAUGHTER) Well what I'm saying is, I can't think of a better example of ignorance and prejudice than this. We have to examine our whole culture in terms of work opportunities, economic opportunities, and related incentives, it seems to me.

Well, enough on that point. I've got about four more minutes, is that correct? Jack says I may use five.

Well there's every opportunity that you can be misunderstood. As this youngster said, "When anybody says plane, what he's saying depends on whether he's saying it to a pilot or a carpenter."

We were talking about sex education -- I wasn't, but I was listening -- somebody mentioned sex education in one of the rooms, and that reminded me of this lass who's reported here. She said in answer to a teacher's question, "I know what a sextant is, but I'd rather not say."

We've talked a bit about the past. We talked a bit about the present. Let's talk very hastily about the future. Now I'm going to take the electric approach, you know, like the philosopher who hadn't payed his electric bill. Some of you will bear with me, you've heard parts of this. But I'm going to compress into about three and a half minutes a look into the future.

I want to ask you to engage in an exercise now. Let's assume, very rapidly, that it's 100 years ago, 1868. There are a group of technology people, railroad people probably, you know, horse and buggy types, all educators, all gathered here together. And incidentally, you would be able to look around and you could easily see who the educators are, you could easily see who the businessmen are, you could easily see who the clergymen are. I defy you to look at this audience and tell the difference by looking at you: everybody looks alike,

you know. Like the Chinese fellow said of the Americans, "They all look alike."

The topic of this meeting 100 years ago is Looking Ahead 100 Years Hence. And the speaker is standing before you and saying this and that and the other thing is going to happen in the year 1968. He talks about television, and he talks about 600 mile per hour vehicles that will go through the air, and vehicles that can go up to almost a hundred miles per hour down the road on these concrete things, you know, he talks about all the things that we take for granted now.

Now wouldn't you agree, ladies and gentlemen, in all fairness, if a speaker in 1868 stood here in this context and talked about all the things we take for granted, wouldn't you agree that you could logically say as of that context, he was out of his mind? Would anyone disagree with that? Would you all agree?

Okay. Well now, in about a minute and a half, at rapid rate, let's move forward 100 years. What would you do if I were to suggest this to you? In the year 2068 here are some things that I believe we will find. I think the world of work will be the single most important activity that man faces. Because on the average the work week will be about five hours per week for those fortunate few in our culture who will have an opportunity to be active. Man will have achieved what the ancient Greeks talked about in terms of the man of arete, the man of leisure, contemplation, scholarship. He will have achieved this, unlike the Greeks, who planned it on a human slave system, with an electronic micro-miniaturized solid-state slave system.

The average life span will be on the order of 175 to 225 years. We will have achieved interplanetary space travel in fact. We will probably be living under glass. Not pheasants, not peasants, but populus under glass. Because we will have polluted our atmosphere so much, and even the space garbage will have contaminated our atmosphere, that we have no other choice.

Field trips for those youngsters in school will be to go out from under glass and take a quick look while they can at what's around, then hurry up and get back under cover. This is all assuming that man isn't going to blow himself off the face of the earth, of course. That's one of the basic premises.

Now what will be some of the most important things in our culture? Education: we'll have compulsory education to age of between 50 and 75. We'll have to have the equivalent of what we would now think of as seven or eight Phd's just to be able to converse. The biggest single problem that man will have is: what does he do with himself?

Let me ask you right here, suppose you were faced right now with the opportunity to spend the next ten years doing nothing but thinking. Nothing, just think for the next ten years. How many of you, honest to God, think that you're ready right now to be faced with that kind of a requirement? Have you thought about it?

Let's talk quickly about travel. Let's assume that Dr. Einstein is wrong, that the maximum velocity that matter can attain is not the speed of light, 186 thousand miles per second, that matter does not change to energy at this velocity that instead we have passed an energy and a matter barrier here and there is no upper limit to the velocity that matter can attain. Now I'm asking you to make some assumptions here, just as your speaker would have 100 years ago.

This means then that we've eliminated all these travel problems. For example, to come back to this, the youngster said, "A visa is a passport permitting an airplane to leave the country. For round trips you need a visa versa." We'll have teleportation in this day, instantaneous transmission of matter. Have you thought about that? We'll have a thing like a telephone booth, you can go down put yourself in it, -- you won't have coins then, it'll be an IBM card type of thing (golf shoes might help because you can, you know, step on the card and reprogram it) -- boom! instantaneously you're someplace else. You see, we'll

eliminate all the airplane problems, Jim. Notice how easy that was?

Well, we'll have the professors of New York University and other places traveling to other parts of the universe. I can just see, can't you, the professor who's chairman of the New York Aerospace Education Committee going out into space to one of the planets. Boom! He's there, he makes his speech, boom! he comes back.

Now we'll still have some problems. There'll be some ionospheric radioactivity, this sort of thing, and some kennelly-heaviside layers still won't have been, you know, penetrated properly. And he may come back not as a man but as a horse, or part of one. We'll still have the equine paradox in our society. But we'll have psychiatrists around, so although they won't be able to change him, he won't feel bad about being a horse.

Well, I'm going to stop. And you may say, it's about time. Maybe one of the biggest problems the young bride of 2068 will have is kissing her husband goodbye as he leaves on an interplanetary trip, and she won't see him for four generations. What kind of value system, will we need in a culture like this to prepare people for a life like this?

Well let me just end on this point. What are you doing in your school today to prepare the youngsters for life in the 21st century? That I think is the challenge that we face.

As Jim Pyle pointed out this morning grades and performance of 65 percent, 70 percent are not enough. The youngsters in our schools today are going to be among the work force of the 21st century. And while some of us may not be around, the blame can still be placed.

I would like to close by sharing with you something that I think has implications for what we've just said. I've borrowed this from Sheila Greenwald, who published this poem in Harper's Magazine two

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years ago. It's called My Life Story. And it's written from the point of view of a youngster who is, I believe, about six years old. Here's the youngster's story in poetry:

"From the day I was born my parents have seen to it that I'm a winner./ When I was two years old I was taken to a cubicle in New Haven,/ where they taught me to type./ Two year olds can learn such things,/ and if they don't they merely waste their time./ When two year olds who don't know how to type meet two year olds who do know how to type,/ they're overwhelmed, and far behind, and are losers from then on.

"At two and a half I was sent to school,/ where I played with learning equipment./ I excel in carrot grading./ My playtime is not frivolous or wasted,/ I learn about textures and colors,/ and relationships.

"At three my mother taught me to read./ Children of three can learn to read,/ and if they don't they waste their time./ They fall behind in school from the start,/ and they are losers.

"My parents never neglected the social side of my development./ I've been exposed to children constantly./ After school I attend play groups./ Relationships with one's contemporaries cannot start soon enough,/ and are vital in the child's development.

"If these exposures to one's contemporaries don't begin soon enough,/ the child cannot cope with them./ When he starts grade school he falls behind./ He's a loser.

"I began to attend rhythm class at three and one half./ I play drums and run like a pony,/ which strikes me as frivolous,/ but it instilled something in me,/ and I'll be a winner,/ rhythmically speaking.

"Now that I'm four I feel sure of my ground./ When I enter the kindergarten of my choice in the Fall,/ it will be with a sense of purpose and readiness to cope with all situations,/I will be on my way as a winner. "When I grow up I'd like to be a garbage man."

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Ladies and gentlemen, the whole purpose of this conference, and I think what we're all here for is to see that none of us, and none of the youngsters for whom we have this great and awesome responsibility, will be losers, and will in fact be winners.

I'm deeply grateful for the opportunity to be here.

Mr. Jack Shelly: Thank you very much, Merv. I'm sure that Maria Montessori would be delighted to hear that last poem of yours.

Before we adjourn I'd like to first call on Mr. Bill Neville, Vice President of the Metropolitan Chapter of the Air Force Association.

Mr. William Neville: Thank you, Jack. For some thirty odd years, and I'm not going to tell you how much over thirty it is, I've known Frank Woehr. As a member of the Aeronautical Advisory Commission of the Board of Education in New York, I've watched him grow. I knew him when he was teaching school in a delapidated,

Mr. William Neville of the Metropolitan Squadron Air Force Association

condemned, drafty building up in the sixties. He's parlayed that building into one of the finest schools of its kind anywhere.

It gives me a great deal of pleasure to confer on him the Air Force Certificate of Outstanding Service.

Mr. Frank Woehr accepting the award from Mr. Neville

Frank Woehr: Thank you. I'm proud to receive this, and I do thank you and the Metropolitan Chapter. Of course, it gives me an opportunity to say that a couple of the blessings in my life is the fact that as Principal of the Aviation High School, it brings me in contact with 4,240 wonderful boys every day. And that is a great joy.

Second, it has brought me contact with so many wonderful friends in the aviation, aerospace industry. For these two blessings I'm very proud.

This certificate of service merely is confirmation of your regard for me. I want to take this opportunity to extend to you my reciprocal feelings for all the wonderful people with whom I work every day. Thank you.

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Mr. William Neville making a presentation to Mr. Frank Woehr, Principal of Aviation High School

Mr. Jack Shelly: Frank, my congratulations. Those of us who work very closely with Frank Woehr know how very well-deserved the award is.

I'd like to mention that Frank Woehr has an excellent film on Aviation High School. Those of you who know about Frank Woehr's high school know what a great job he does. Those of you who do not, may welcome seeing this film, about 20 minutes long, which will be shown in the Assembly Room at the conclusion of our afternoon work discussion groups.

We have a film strip, to be shown immediately following this session in the Assembly Room, which runs about 20 minutes. From there we will go into our afternoon group discussion sessions. I would like the discussion leaders, if they will, to stand so they can be identified, at this point.

Dr. Milton Rosenberg will chair Group #5

Dr. Jerome J. Haggerty will chair Group #6

Mr. Leo Benardo will chair Group #7

Mr. Frank Woehr will chair Group #8

Mrs. Cecilia Sarasohn will chair Group #9

GROUP V - CURRICULUM IN SCIENCE AND MATHEMATICS

Group Leader: Dr. Milton Rosenberg

Recorder: Elsa Voss

The problem of curriculum in mathematics and science in relation to aerospace education was discussed by the group under the leadership of Dr. Rosenberg.

Brightest students in some schools get a background that will enable them to enter the various fields of the space program in its broadest sense. Mathematics and physics might be taught by engineers. Both analog and digital computer training could be offered. It was noted that although many qualified students - proficient in three-phase vector analysis and able to take systems apart - are available for summer employment, industry is offering them ridiculously low wages.

The point was raised that pupils are now more sophisticated than formerly. In the 8th grade study of the basic concept of vectors, for example, many areas of application are explored, including the fields of aviation.

It was suggested that industry examine and study our existing courses of study, then follow up by making suggestions as to where pertinent examples and applications may be used. In the field of the physical sciences, the need for teacher training is especially acute.

New York State now has a Group III physics program. It was suggested that physics courses be given in the senior year.

The structure of mathematics and science until now have been emphasized; we should next proceed to motivate and enliven the study by practical application to aerospace concepts. The group was cautioned against assuming that all children are interested in aerospace.

The question was raised concerning the basic function of the school. The school does not exist to answer the needs of industry, but rather to expose our youth to the various disciplines including those of the humanities. New courses of study in mathematics and science have brought topics to a younger grade level than formerly. It was suggested that each youngster be given as much as he can possibly handle, short of having him experience failure and discouragement. Job analysis was also suggested, however, objectives should not be determined by the needs of industry. An answer to industry is that we already have the students that industry wants; if industry will indicate their needs, the schools will find the individuals to fill them since, in general, students tend to seek the jobs in which they are capable of succeeding.

It was stated that a series of courses be developed to meet the varies needs of students; not in aerospace programs per se, but as a sound background for all. Aerospace education is applied science; technical education should also be available for those not pursuing a scientific career. Industry wants students with trainable backgrounds. General education enables pupils to be further educated according to the needs of a particular profession; on-the-job training can be provided to serve the needs of a specific program or area within the industry. Indeed, many sophisticated industries must provide the specific training required for the equipment used. Students with broad abilities to apply toward these operations are more desirable then those who have a narrow field of special training.

The question of the objectives of aerospace education was discussed. Are they to be vocational, technical, pre-professional or cultural? In New York City, one problem is a greater demand for admission to Aviation High School than there are available places, since the school offers, in addition to college preparation, Federal Aviation Administration mechanics programs and assembly line job preparation.

GROUP VI - CURRICULUM IN HISTORY AND THE SOCIAL SCIENCES

Group Leader: Dr. Jerome J. Haggerty

Recorder: Roslyn Weissman

Having agreed upon a working definition of aerospace as the medium within which all man's activities on an above the earth take place, the objectives of the Curriculum in History and the Social Sciences were reviewed. These objectives include the systematic development of the ability to recognize the existence of the specific dimensions of a problem, the ability to locate the necessary data for its solution, and the skill to use these findings in a purposeful objective manner, consistent with the disciplines involved. That the problems of the future may well be unconceivable to us at present make it all the more necessary to develop in our children an understanding of the basic structure of their world - the alternative is an accumulation of fragmentary factual information which may be dangerously mistaken for broad understanding.

Since by definition aerospace is the stage upon and within which all man's activities take place, obviously it becomes a vital part of the History and Social Sciences Curriculum.

Dr. Jerome J. Haggerty, Dr. Hal Shafer and John J. Shelly compare notes.

Having agreed upon the relevance of Aerospace education within this framework, the group then sought to define the specific objectives of aerospace education. Among the objectives submitted for consideration were the preparation of our children for the very real possibility of their own personal involvement in movement to outer space.

On a more earthly level the suggestion was made that a determined effort be made to bring a consciousness of aerospace into the curriculum at all levels in the school system from kindergarten to college, into teacher training programs, and into in-service courses for practicing teachers.

An intensive public relations program was considered between educators and the lay community on one hand and the aerospace industry on the other. Such a "marriage of industry and education" might be very fruitful.

Returning to specific questions of curriculum it was proposed that aerospace material be woven into existing courses of study for younger children, but should have status as a separate curriculum for specialized high schools and junior colleges. Where aerospace material is included within the existing History and Social Sciences course of study it must be highlighted by making the teacher conscious of the necessity of stressing an awareness of aerospace at all levels.

How can aerospace consciousness be developed in the classroom teacher? A number of suggestions were made including future professional conference and workshops, an exchange program where in selected teachers present to industry the viewpoint of the educator, visits to airline facilities by teachers. By means of a team approach more teachers such as librarians, audio-visual teachers and industrial arts instructors can become aero-minded.

The inclusion of questions on Aero-Space on Regents examinations, would undoubtedly focus attention of both teachers and students on this area, though more in-

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Samuel Arbital, Social Studies specialist makes a point as he converses with James T. Pyle.

trinsic means already exist to enlist the interest of our youngsters and teachers. We already have available free and inexpensive and resources materials from industry and government including printed publications, audio-visual materials, speakers, demonstrations, and airport visits.

There is a need for aerospace oriented material for our very youngest children where the social sciences programs can be readily interwoven with aerospace education. In this, as in every other level, industry and education can mutually profit by more attention to one another's point's of departure and ultimate objectives.

"Ad astra per aspera"

However there is a need for a corps of representatives of the industry trained to work with urban children.

Publishers should be encouraged to bring together educators and aviation experts to produce meaningful books enjoyable and understandable as well as scientifically accurate. Educational TV offers great possibilities.

GROUP VII - CURRICULUM IN THE HUMANITIES

Group Leader: Leo Benardo

Recorder: Jeanette McInerney

Discussion centered around possible changes that may occur in the Humanities curriculum because of the vast growth in technological and scientific knowledge involved in aerospace education and the related problem of teacher education along these lines.

It was felt that the foreign language area was directly affected by the aerospace age. Increasing air travel has created a need for present and future Americans to achieve some facility in a foreign language. This may require a re-thinking and re-organizing of the content and approaches involved in the teaching of foreign languages. Perhaps there is a need for courses in the teaching of the colloquial speech of a country.

Some suggestions on this point were as follows:

> Children of Air Force personnel are spending some of their foreign language classtime visiting the country of selected language. Impractical and expensive as this may sound, it may become a future trend in foreign language education for all children.
>
> Future improvement in foreign language teaching with tangential benefits in developing better understanding between countries, would be to exchange tape recordings (similar to Pen Pal letters) between American and foreign country students.

In the area of Art, it was noted that there was a movement away from romanticism into a more realistic, even surrealistic, approach. More and more we see paintings which concern themselves with planes, capsules, outer space.

Performing arts are the exponents of culture in a country. The Air Age has forced teachers to recognize and teach these varying cultures of countries which are emerging as cultural forces in the world.

Aerospace has forced the inclusion into present day speaking, reading and writing vocabulary of many terms never used before. In order to guide children in the area of Language Arts, teachers will have to grow in their own knowledge of technological and scientific advances in Aerospace.

The problem of teacher education would seem to be of primary importance. Humanities teachers need sympathy for, empathy with and knowledge of the impact of the Air Age on their field of specialization. The question is how to do this.

Several additional suggestions were made:

One was for a teacher to realize that he or she is not an expert in this area, not the sole disseminator of information. Learning in this area could become a valuable joint operation between teacher and students - each gaining knowledge from the other through research.

Summer institutes or workshops where teachers could study opportunities for incorporating air age education into the Humanities curriculum would be of value.

Other resources mentioned for teacher training were:

community resources (people, places, materials)

teachers of science within the schools or districts.

There would seem to be a great need for many more books, filmstrips, films and tapes to be produced by the aviation industry to assist teachers in expanding the role of aerospace within the curriculum. Books should be attractive and colorful, simple in format,

sequential in developing ideas, controlled in vocabulary and geared to all levels of maturity. This would seem to require close collaboration between the aviation industry and experienced curriculum workers.

Mr. Fred Rockmis left of the Federal Aviation Administration reviews material with conferees

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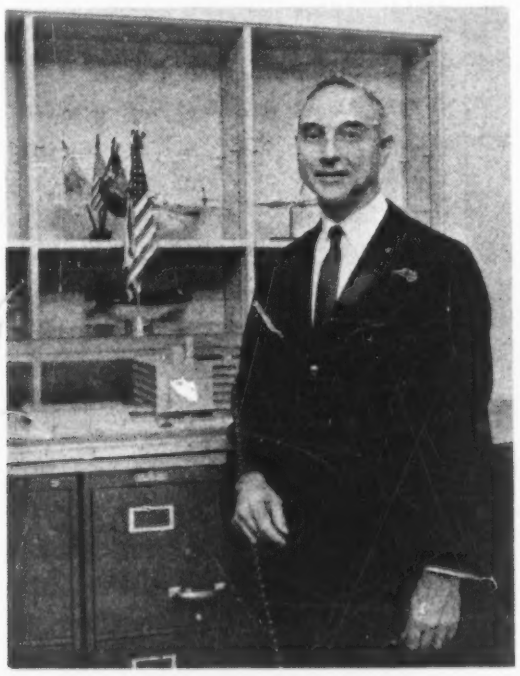
GROUP VIII - CURRICULUM IN OCCUPATIONAL EDUCATION

Group Leader: Frank Woehr

Recorder: Flora Belle Zaluskin

The group session was opened by its chairman, Mr. Woehr, who defined occupational education as that phase of education which prepares a person for the world of work - for entry into and ability to succeed and progress in the particular area he selects. He stressed the continous need to find ever-better ways of educating to occupational efficiency because of impending serious shortages, escalating technology and need.



Mr. Frank Woehr

Priority was given to discussion of items on the agenda that concerned the occupational education of the disadvantaged. Interchange among the participants brought out the following:

> Experiences of NASA personnel using Spacemobile in disadvantaged areas indicated that pupils were highly motivated toward further aerospace interest after presentation.

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Air industry reports indicate that the problem of our modern society, independent of class, manifest themselves in integrity lacks and moral lapses. Complaints of airlines pilferage, incompetencies of its workers, and the prevailing "grin-and-bear-it" attitude because of labor shortages, were discussed at length.

Although not the responsibility of the school alone, character education and the building of integrity may have to be intensified by the schools.

Industry has begun to accept responsibility for the hiring and training of hard-core unemployed. Although formerly an attempt was made to change undesirable behavior first and then train the individual, current practice is not to separate the two. Today the boy is asked to "come to work washed, shaved, on time, and ready to work."

The present attitude of regarding the college-trained as "successful" and the men who works with his hands as a failure, has resulted in a major problem which confronts industry - employees who are unskilled, want white collar jobs but do not want to get their hands dirty.

An approach to remedying this situation was suggested by referring to the means by which the nursing shortage was met. Analysis of the duties of the nurse indicated that the job could be broken down into smaller segments.

Structure of a promotional ladder within the industry might be a way in which employees in the aerospace industry might be able to start low and with appropriate training and supervision have the opportunity to advance.

It was pointed out that promoting individuals is beyond the role of industry - it is in the union's domain. Yet there is continous negotiation between industry and the union - and that changes, for example, admission of minority

groups members, do and have occurred in heretofore 'closed' unions as a result of legal action despite membership feeling.

There is a need for pupils of all abilities to prepare for work in aerospace industries, yet there has been an acknowledged stigma attached to vocational education in the minds of college oriented parents. It was pointed out that college education and vocational education are not mutually exclusive. However, access to comprehensive programs in aerospace education needs greatest nurturing.

Reference to the Conant definition of comprehensive high school education indicated that there is more than enough room for an in-depth sequence in which the pupil can progress toward examination and pilot licensing. A newly initiated program beginning this year at the University of Miami provides for private pilot licensing during the first two years; after two years the student can get an associate degree in air transportation and air traffic control, can go onto B.S. degree in four years.

Looking ahead ten years and projecting the needs, it is evident that aerospace education must now be given greater emphasis and be included in the curriculum at all levels.

An excellent source of jet mechanics, pilots, etc. are currently being trained by the armed forces.

Extension program training currently being carried on at Aviation High School in New York City includes certification for these who now work at airports and are hopeful of being upgraded.

Summary

There is a need to:

recruit a large number of workers from among the disadvantaged;

manpower requirements are growing very fast.

dignify maintenance jobs.

define a wide range of jobs qualifications, beginning with mechanic trades and working progressively higher.

make the schools more responsive to the aerospace point of view.

structure educational programs in terms of where they fit best; whether at vocational high school or aviation high school or comprehensive high school, or technical training at junior college level, or continuation level.

decide whether aerospace education is entirely the job of the school, or a responsibility which should be shared by industry.

keep pupils alert to, interested and constructively occupied in, an open-ended curriculum offering a variety of programs.

be aware that education that has relevance today, may not tomorrow.

plan for better programs of aerospace education for teachers.

include more aerospace activities in the curriculum. Each curriculum area on all grade levels can profitably favor learning activities with meaningful aerospace references.

encourage aerospace industries to do more to help via conferences with educators for the exchange of ideas, providing materials, and personnel to the schools.

GROUP IX - CURRICULUM IN EDUCATIONAL AND VOCATIONAL GUIDANCE

Group Leader: Cecilia L. Sarasohn

Recorder: Nola L. Whiteman

Cecilia L. Sarasohn, Assistant Director, Bureau of Educational and Vocational Guidance of the New York City Board of Education opened the discussion group by providing those present with background information dealing with the development of her bureau. She pointed out that initially the bureau was concerned with servicing the vocational needs of high school students. It soon became apparent that academic guidance as well as vocational guidance was a necessity for the elementary and junior high students also. In many cases it was found that pupils were pursuing programs which would not meet their needs. Too often a students' decision about his life's goal was made after he had been programmed for a different aspiration. It was felt that if information and guidance was provided at earlier stages, the student could make a more informed choice. The Bureau of Educational and Vocational Guidance was then expanded to include these additional services.

During the discussion which followed, members of the group who were directly involved in the Aerospace industry pointed out their present needs, and projected those needs for the future. The industry has expanded so rapidly that there are severe shortages of personnel in all areas of employment and the demands of the advancing technology of this industry as well as it projected growth are overwhelming. They would like to attract interested persons in order to alleviate this problem. It was suggested that the Bureau of Educational and Vocational Guidance stress this field of opportunity. Speakers, films, written materials, and personnel recruiters are available from the Aerospace industry who would assist the schools in their endeavors.

The intermediate and junior high schools were discussed as possible focal points due to the fact

that such a large percentage of these pupils never reach the high schools. It was hoped that the Aerospace industry might serve as an inducement for such pupils to remain in school. In addition to the informational program, a cooperative apprentice program was discussed. The possibility of providing after-school and/or summer employment for interested pupils was explored. Several barriers were noted in this connection. One of which was the problem of attaining the cooperation of the associated unions, and the other being New York State's employment laws governing the hiring of minors.

Several members of the group expressed interest in continuing along the aforementioned lines and hopefully some progress will be made.

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SUMMARY REMARKS

Daniel A. Salmon: Ladies and gentlemen, perhaps for the first time this afternoon we're without the benefits of today's technology. Maybe it's to our advantage at this point. But we have no microphone, and while I don't mind perhaps Mr. Van Hooft will be a disadvantaged person in this respect. Our closing remarks and final observation will be made by Gordon Van Hooft, who is the Chief of the Bureau of Secondary Curriculum Development of the New York State Education Department.

Mr. Gordon Van Hooft: I don't know what to make of that comment: it may be to your advantage that I do not have a microphone.

I welcome this chance to try to do a little by way of tying together a few ideas. I did not attempt to circulate because I didn't want to confuse my prepared thoughts. The other day I told one of my superiors, who shall remain unnamed for obvious reasons, that I was involved with an aerospace meeting, and his comment was, "Aerospace? You know what I do with anything that comes to my desk on aerospace?"

I was expecting some great statement of an educational nature. He said, "It goes into the wastebasket."

This is a fact, and it concerned me considerably in the week that followed. But I don't think it changed the fact that there are six of us here from the curriculum center, plus another good man from the vocational technical industrial area. We have people with you at the elementary, secondary, and continuing levels.

There are many administrators who feel, generally speaking, this was about aerospace education. They also feel this way about a number of other areas. I think aerospace education should not feel exclusive.

He went on to say that all that was needed was good science teaching, and this would solve all of the problems. Then this morning the first thing we were greeted with was the list that Bill Bristow gave us. I looked over that list during the course of the day two or three times, and I think we have talked around many of his points. We recognize that there are on that list many desirable things that relate to aerospace education, things that need to be done and will be done in the schools, in the state, in the country, and in the area.

Bill Bristow and I have been together since last Friday night on three different occasions. I want to tell you this in order to put somethings into perspective. Last Friday night we were together here in the city on a panel on Conservation Education where there was a great deal of talk about the need for enviromental science courses per se, and more emphasis on Conservation Education throughout the total curriculum.

Monday and Tuesday we were together at the Concord, and participated on a panel related to Economic Education. We discussed everything that covers the gamut from K to 12, related to Economics Education, including Consumer Education and the pressures that are relative to that area.

I went back to Albany, and the first thing I was involved in the other night, getting back from the Concord, was a meeting on Humanities Education. The next day I was involved in some problems that related to performing arts in the curriculum and the importance of bringing performances into the schools and taking youngsters to see a variety of performing artists

I also had a hassle in Albany, and there was a meeting which I missed, but I was involved in the followup, on the general topic of Sex Education, and that is in essence a larger part of the overall mandate for more health education in the total program.

When in the film strip today there was a comment to the effect that it is easy to introduce a course in aviation - it is not quite so simple. I think all of you recognize this. I also recall at luncheon the fact that Dr. Strickler was predicting a five hour work week. I wondered how Mohawk pilots could be in the air long enough to take their customers around; or more importantly, how are we going to get the larger number of pilots, technicians, mechanics, now that each one will be working only a five hour week?

I submit that there will perhaps be something of a point of diminishing returns which will be operating. This and the subsequent discussion in the session this afternoon in the science and mathematics group, reminded me of a very significant and provocative article which I think all of you should read and get some ideas from. I think that this would pull together some basic things you have been thinking about, and we as educators must be concerned with.

The article is in the April 29th issue of SCIENCE. It's by Harvey Brooks, the dean of engineering at Harvard. It's entitled, as I recall it, PHYSICS AND THE GENERAL PUBLIC. In there he tackles the rather innocent problem of the decline in physics enrollment, but more fundamentally, the current decline in the support for basic science such as the decline in

the support for NASA, and he puts this into a frame of reference which is highly interesting as you read it. The point he makes essentially is that many of the youth of today, in our schools and colleges, do not find physics particularly relevant to the problems that society is facing up to; and many of them see physics mainly through, perhaps quite incorrectly, the applications that have been quite influential in recent years in causing many of the problems to take place and to become worse. They think of physics, then, pretty largely in terms of the applications of such things as the nuclear bomb, and such things as the space effort with its drain of money. They think of certain aspects which to them make physics, the natural sciences, less than relevant.

He makes a point, and I think this is important for aerospace education, that in recent years we have seen science and mathematics follow the lead of some of our eminent scientists and mathematicians, essentially focusing more and more on less and less, in the words of Brookls, or more and more upon the way out, to the expense, essentially, of the significant applications of science.

You will find in that article a distinction between intensive science, learning more and more about less and less -- for example, atomic structure, -- and an extensive science which essentially would capitalize on significant applications of science that are reflected in technology. Aerospace education undoubtedly, in this context, is going to be significant factor in bringing us back to earth as we get what is bound to happen - the reaction to having gone too far in the intensive science type of instruction.

I mentioned the key word; relevance, because to me we do see relevance in aerospace education. As Dr. Bristow pointed out in his series of statements, the fact is that this can be relevant to many different curriculum areas for many different reasons, and for many different kinds of pupils. I think it points up the fact that there are different solutions as we try to make our programs in general education

relevant for the students in our high schools. We need to concern ourselves with the question - what is relevant for those who are going on to become the technicians, to become engineers, and develop some criteria, as we have done in the past and then forgotten, which would say that our general education programs in science and mathematics had better pay attention to the general needs rather than to the specific needs of the minority.

I am not saying that we need not have these better courses in science and mathematics for those who need them. But I think I agree, as Sam Schenberg and I were just talking, with the fact that we need science courses, and as we were talking with Leonard Simon of New York City, we need mathematics courses that are not going to steer youngsters from careers that relate to aerospace.

I don't think I'm going to comment on the point that came up several times during the day: the aerospace course per se versus the integrated treatment throughout the total curriculum. I think some schools will offer elective courses in their general program for some students. We have seen quite a few of these develop essentially as ground courses for would-be pilots in upstate schools. We know that there will be material included in the science program that relates to principles of flight and aero-dynamics. We know that applications will be back in the program and will be used to reinforce the understandings of the mathematical or scientific principles.

I tried to sound out a few people about what happened in the elementary, intermediate, high school, and the adult groups, and I came up with the feeling, in terms of the elementary program, that basically what is needed at that level are a variety of materials to help teachers in providing some very important experiences for the elementary students, not only in science, but also materials for the social studies area in terms of the impact of the changing concepts of time and space that relate to problems in transportation and international relations, and the like.

In our group on the intermediate school this morning someone had the temerity to mention the fact that what was done ought to relate to the needs of that particular type of student in the type of program that they are having. I had the feeling someone was saying there that we will be tying together some of the understandings that were developed at the elementary level, and we are going to have a program that reinforces and builds upon them.

In the high school I have a feeling that we have talked around several ideas, particularly with respect to the vocational guidance area. We saw an excellent film strip some time back in Albany that related to problems of vocational guidance, featuring the aviation industries. I have a feeling that perhaps too much emphasis has been given, perhaps in our discussion or thinking, to the need for mechanics and pilots, at the exclusion of many other people who are in the large constellation of occupations that relate to aviation industries; to say nothing of the total space program and the occupations there. I think we need more of that type of vocational guidance material. I had the idea that we could use more cross section materials that would point up, in terms of instrumentation or electricity, the opportunities that would cut across not only the aviation-space industries, but also other industries which had similar opportunities.

You should recognize that there is a great deal being done in experimental programs, some related to computers, and methods of retrieval of information, with respect to vocational and educational guidance. I think we are going to see starting earlier, perhaps focused particularly in the middle school or the intermediate grades, a great deal more of what would be an integrated attempt to have more vocational guidance and learning about the world of work, including the opportunities in aerospace.

I don't think it's a matter of the teacher telling the pupil of the opportunity, as much as the youngster having the opportunity to find out about a variety of occupations that are possible, and to

get an idea of the avenues that he can take as he proceeds through his total program.

I suspect, as I try to filter out finally some of the comments from the other group, that there is a great deal of concern in terms of the humanities and the history programs of developing attitudes on the part of the general public that would relate to certain problems that exist. In our economic education, for example, we might focus on some of the economic problems faced by the airlines. We might also focus on some of the critical matters that relate to noise abatement, and the attitudes of the public toward this type of thing.

I think, generally speaking, the feeling I have is essentially the feeling that I came with; that aerospace education offers plenty of opportunity to make the total curriculum more relevant for the children who are going through it. But if it is to be more relevant we have got to work on the nature of that curriculum. The people in the aerospace industries can be most helpful by providing us with more materials. The ones that we have been receiving from NASA, from the various airline companies, and the other sources, have been very useful. I think, in addition to the necessary training of teachers, we must support them with adequate materials that will make it possible to put into the hands of the students meaningful material to illustrate some of the occupations, some of the problems, and some of the future that lies ahead in aerospace education.

Dr. Salmon: Thank you, Mr. Van Hooft.

The program says I am supposed to make some observations. I think all the important statements have been made. I would like to make one or two points which might clarify questions members of the audience may have.

The report of this conference will be printed, thanks to the efforts of the recorders at each session and to the mechanical recorders, located under the lecterns, supplied by 3-M and Wollensack. The publication will be printed by the Port of New York

Authority, and it will be mailed to you. I believe this first aerospace conference of its kind in this region has given us an opportunity to meet together, to share our ideas, and to look forward to new developments in the aerospace programs at all levels and in all schools. We who have worked on this program - the committee, the members of the industry, the Aviation Development Council, and all of those who have participated in the planning and preparation have welcomed the opportunity to share with you our aerospace experiences, and to have others let you know what is going on in their institutions and their school systems.

We anticipate that there will be other meetings in the near future, and in other regions. We hope that you will be able to start the ball rolling for meetings of this type in your particular school district, or your area. I say this because there are at this conference people from Pennsylvania, New Jersey, Rhode Island, New York, Long Island, and most of the areas in the general East Coast region.

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PROJECTIONS - AN AGENDA FOR AEROSPACE EDUCATION

1. Aerospace Education in the Schools

   a. Programs for aerospace education should be developed at all levels correlated with all subject areas. These activities should be appropriate to the curriculum and related to the interests and abilities of the students.

   b. Provision should be made for specific occupational training at the secondary level. Guidance and instruction should provide for opportunities in a variety of areas of the aerospace industries. An extension of training programs could include ground service and flight personnel, research and development specialists, business and administrative assistants, and related occupational areas which might provide entering jobs for youngsters with different levels of abilities.

   c. Early exposure to flight experience should be made available to pupils and teachers. The scientific and the economic aspects of aerospace should be included in the enrichment programs as well as in the fundamental aspects of the curriculum.

   d. College programs and courses in public and private institutions should be extended to provide greater opportunities in the technological areas related to aerospace. The growing needs of the industry implies an expansion of the kinds of offerings available in post-graduate institutions.

2. Responsibilities of Industry

   a. Industry must endeavor to communicate more with the educational institutions at all levels. It must accept the fact that students will become involved with the aerospace industries as employees or consumers of services. It is important that a shared

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responsibility for the education of these youngsters be accepted by the industry as well as the community.

b. The technology changes rapidly; industry must make available to the schools the means for introducing the devices and equipment used by industry if the schools are to provide the trained manpower for operating this equipment.

c. Greater opportunity for on-the-job experience should be made available by industry. Cooperative programs should be developed as part of the training and learning experiences for students.

3. Participation by Federal and State Agencies

a. Agencies such as Federal Aviation Administration and National Aeronautics & Space Administration should provide resource materials and funding to develop greater lanes of communication. Conferences, meetings, and educational programs including industry and agency involvement can do much to help plan and develop activities for the future of aerospace education.

b. Resource personnel from all levels of education should work closely with specialist who plan and develop activities and materials for use in educational programs. Greater involvement with institutions such as museums, science and industry institutes, and traveling scientific and technical exhibits will assist in the development of resources which can serve the needs of students at all levels and with many different kinds of interests and aspirations.

c. Opportunity should be provided at the state level for greater participation on the part of educators in conferences and meetings concerned with aerospace education. Plans should be developed to provide for program

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development and course implementation in all grades from Kindergarten through the university level.

d. Multi-media teaching and learning materials should be prepared in cooperation with agencies and publishers. As part of the development of these materials, provision should be made for experimental programs, research, and evaluation by specialists in curriculum development.

Daniel A. Salmon
Co-Chairman

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REACTION QUESTIONNAIRE

EVALUATION RESPONSE SUMMARY

Participants in the conference were asked to react to the conference by completing the questionnaire shown below. Seventy responses were returned; a summary of the findings follow:

PURPOSES

The majority of the responses indicated that the objectives of the conference were clearly defined. The activities were planned to meet these objectives were fulfilled.

PLANNING AND ARRANGEMENTS

The location of the conference and the conference rooms were rated excellent by the majority of the respondents. The communications and planning, as well as the conference site, were similarly rated.

PROGRAM FORMAT

The organization and time devoted to the program were rated good to excellent by all of the respondents. It was felt that the discussions were timely and of interest. The talks by the principal speakers were rated excellent by the majority.

DISCUSSION GROUPS

All of the groups were generally rated good to fair. It was felt that preplanning and structuring of the discussions were, for the most part, good. During the groups discussion, particular ideas were identified and tabulated by the group leader and there was ample opportunity for sharing of ideas and opinions. The group leaders were able to keep the discussion within the framework of the assigned topic.

EXHIBITS

The majority of the conference attendees indicated that there was adequate time for viewing the exhibits. The exhibits were rated excellent by the majority of the respondents and they were appropriate to the conference.

OPEN RESPONSE

Although the respondents had many point of views, it was evident that the majority felt the conference to be an outstanding educational experience. It was well-organized and appropriate, and the day went quickly.

Some of the suggestions made were as follows:

The conference should be a two day meeting; there was too much to absorb in one session.

Additional follow-up meetings should be planned.

Discussion groups tended to become too much involved with broad issues in education. The group leaders could be more specifically oriented in subject areas.

The participants at each group session offered worthwhile and constructive suggestions and criticism.

In some instances the group chairman tended to dominate the discussions.

More of a group dynamic approach should be attempted.

OUTSTANDING FEATURES

1. Well organized - reflected good planning
2. Conference did what it was expected to do
3. Diversification of discussion groups

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4. Sharing of ideas between educators and industry.
5. Attendance of segments of aerospace-education, industry, government
6. Speakers at General Assembly and Luncheon
7. Exhibits
8. Excellent materials made available by exhibitors
9. Location of Conference and facilities for sessions
10. Involvement of people in the total program

SUGGESTIONS

1. Part of a general session could be devoted to a presentation of existing classroom materials
2. Copies of curriculum outlines, lesson plans and resource materials should be made available
3. There could be more emphasis on the teacher-training aspect of an aerospace program
4. Programs could include practical classroom demonstrations
5. The afternoon sessions could be devoted to a follow-up of the morning sessions
6. More time should be provided for viewing exhibits
   Conference should have been given greater publicity
7. Invite key classroom teachers to next program
8. There should be more such meetings on a regional basis
9. Program could be extended to at least two days

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AEROSPACE EDUCATION RESOURCE CONFERENCE
May 3, 1968 . Sheraton-Tenney Inn . LaGuardia Airport
Flushing, N.Y. 11371

EVALUATION RESPONSE

Will you please assist in an evaluation of this conference by responding frankly to the following items?

Circle the number following each statement which best represents your judgment concerning the item.

PURPOSES	Excellent	Good	Fair	Poor	No Opinion
1. The objectives of the conference were clearly identified.	4	3	2	1	0
2. The activities were definitely aimed at meeting these objectives.	4	3	2	1	0
3. The aims and objectives of the conference were fulfilled.	4	3	2	1	0
PLANNING AND ARRANGEMENTS					
1. Conference rooms were adequate, comfortable, and convenient.	4	3	2	1	0
2. Communications pertaining to the conference were clear and their timing was appropriate.	4	3	2	1	0

3. The location (site) of the conference was appropriate.	4	3	2	1	0

PROGRAM FORMAT	Excellent	Good	Fair	Poor	No Opinion
1. The time devoted to conference activities was utilized effectively.	4	3	2	1	0
2. The time devoted to general sessions was adequate.	4	3	2	1	0
3. The time devoted to small group discussions was adequate.	4	3	2	1	0
4. The time devoted to the summary session was adequate.	4	3	2	1	0
5. The topics explored in the discussion groups were timely and of interest.	4	3	2	1	0
6. The topics discussed by the key speakers were timely and of interest.	4	3	2	1	0

DISCUSSION GROUPS

Write your group number ☐ A.M.

in the appropriate box ☐ P.M.

	Excellent	Good	Fair	Poor	No Opinion	
1. Pre-planning and structuring by the chairman and resource person were in evidence.	4	3	2	1	0	AM
	4	3	2	1	0	PM
2. Sources of materials and practical ideas were identified.	4	3	2	1	0	AM
	4	3	2	1	0	PM
3. Ample opportunity was provided for the sharing of ideas, opinions, and techniques.	4	3	2	1	0	AM
	4	3	2	1	0	PM
4. The central focus was on the assigned topic (discussion did not "drift" without purpose.)	4	3	2	1	0	AM
	4	3	2	1	0	PM

EXHIBITS

1. Ample opportunity was provided for reviewing the exhibit area.	4	3	2	1	0

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2. Exhibits were arranged so that the materials could be examined easily.	4	3	2	1	0
3. The exhibits were appropriate to the conference.	4	3	2	1	0

OPEN RESPONSE:

Outstanding Features:

Suggestions for Improvement:

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ATTENDANCE AT AEROPACE EDUCATION RESOURCE CONFERENCE
May 3, 1968 Sheraton-Tenney Inn

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Photographs taken at the Conference were done by Anthony Fiqurella.

Appreciation for a major part of the organizational preparation and the paperwork associated with this Conference as well as the typing of the draft materials for the entire program and this report is extended to Mrs. Evelyn Evans and Mrs. Marilyn Lemons, secretaries for the Bureau of Curriculum Development and the Aviation Development Council.

This publication was printed by the Port of New York Authority. Warren Kenn served as liaison and expedited the completion of the document.

July, 1968

VT 012 737
First Annual Report.

Vermont State Advisory Council for
Vocational-Technical Education, Montpelier.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 16Nov70 17p.

DESCRIPTORS - *STATE PROGRAMS; *VOCATIONAL
EDUCATION; *PROGRAM EVALUATION; ANNUAL
REPORTS; ADVISORY COMMITTEES
IDENTIFIERS - VERMONT

ABSTRACT - This first annual report evaluates
Vermont's vocational education system. Ten
recommended improvements are suggested, with
heavy emphasis on the need for better
vocational guidance. The Council's
constitution is appended. (BH)

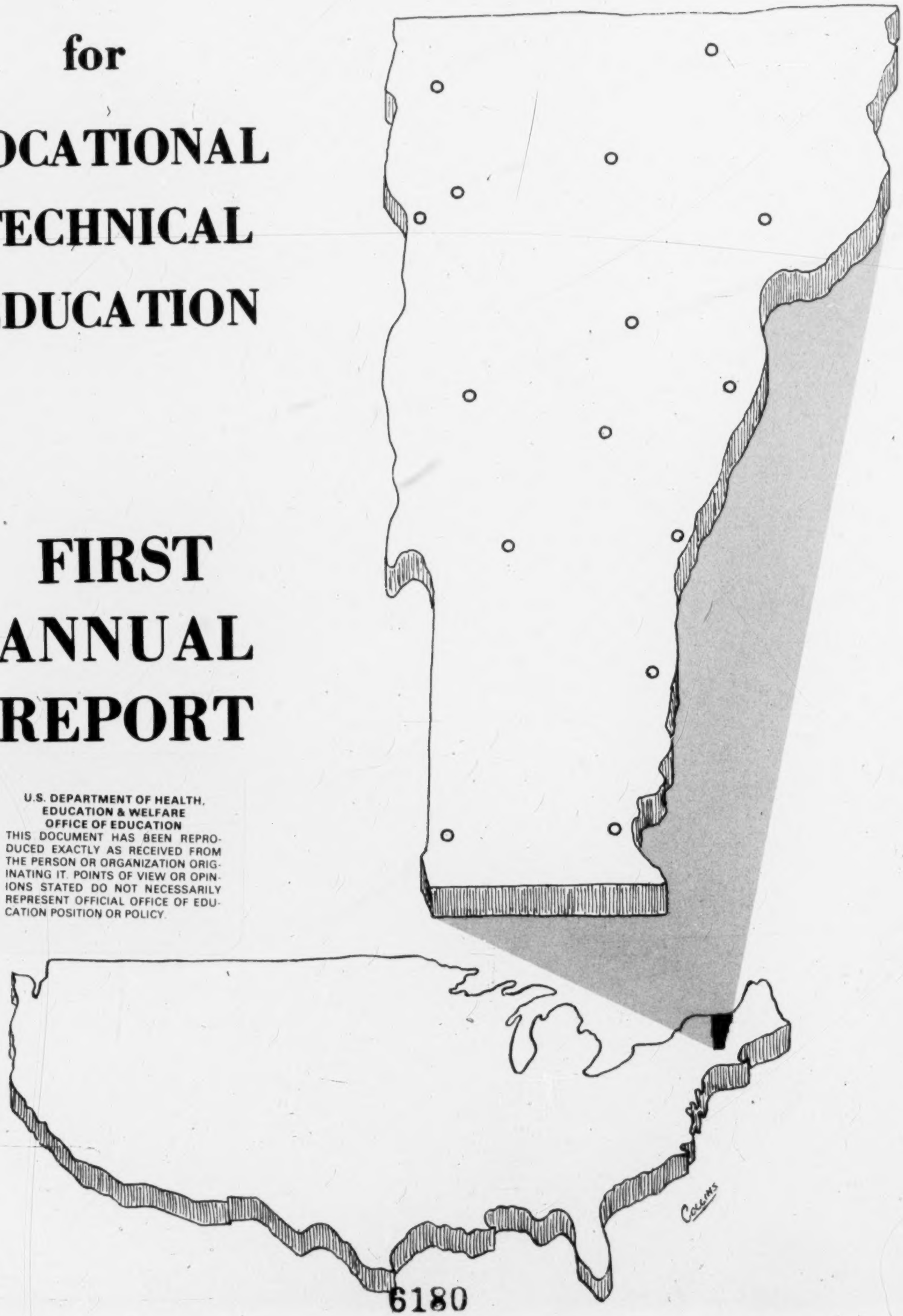
VT 012 737

ED0 57254

VERMONT STATE ADVISORY COUNCIL

for

VOCATIONAL TECHNICAL EDUCATION



FIRST ANNUAL REPORT

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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for

VOCATIONAL - TECHNICAL EDUCATION

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Cover—The cover was designed to show the influence that Federal legislation has on Vermont and illustrate the direction Vermont has taken to fulfill this commitment for its students.

A more detailed explanation of the Area Center Concept progress may be made by checking the map in the appendix.

— FORWORD —

The Vermont State Advisory Council for Vocational-Technical Education was created by the United States Congress through the Vocational Education Amendments of 1968. It is composed of 20 persons, appointed by Governor Davis. from diverse backgrounds in labor, management and education. It has the responsibility by law to advise the State Board of Education concerning the operation of vocational and technical programs in Vermont, to evaluate programs of vocational and technical education, and to make reports to the State Board of Education for transmittal to the United States Commissioner of Education and the National Advisory Council.

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Map of Vermont with designated Centers
Constitution

6184

STATE OF VERMONT

ADVISORY COUNCIL FOR VOCATIONAL-TECHNICAL EDUCATION

52 STATE STREET

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November 16, 1970

TO: Mrs. Marian C. Taylor, Chairman, Vermont
State Board of Education

FROM: Vermont State Advisory Council for Vocational-Technical Education

SUBJECT: First Annual Report

The Vermont State Advisory Council for Vocational-Technical Education hereby submits, in accordance with Section 104, PL 90-576, to the Vermont State Board of Education its first annual report for the consideration of the Board and further transmittal to the Commissioner of Education, U.S. Office of Education and the Chairman of the National Advisory Council on Vocational Education.

It was developed following many hours of observation and questioning of local school personnel and students and reactions from public meetings.

These constructive recommendations have been directed toward areas that seem to be of most immediate concern to many Vermonters.

The Council would like to express appreciation for the cooperation and support it has received from the Vermont State Board of Education during this past year of added responsibilities.

Respectfully submitted,

Pelton Goudey, Chairman
Vermont State Advisory Council for
Vocational-Technical Education

INTRODUCTION

One of the prime responsibilities of the State Advisory Council for Vocational-Technical Education is to conduct an evaluation of the programs of vocational and technical education as they now exist in Vermont.

We are basing our evaluation on the fiscal year 1970, at which time the Council did not have a staff to support its activities. The Council members scheduled visitation to centers and some sending or feeder schools. The monthly meetings were also scheduled at both area centers and sending schools.

Using this informal approach the first year, the Council has been able to develop an overview of the many problems that are facing an effective system for preparing youth for employment in Vermont.

It is with this background the Vermont State Advisory Council is placing first priority on guidance services, area center operation, and public attitudes.

RECOMMENDATIONS

1. That the State Board of Education upgrade and fill the vacant vocational guidance consultant position in the State Department of Education.

2. That the State Department of Education develop a clear and concise position relative to guidance services in the State of Vermont, K through 12.

It is the firm belief of the Council that guidance services cannot be separated into any divisions and still provide an effective service for all students. Therefore, the Council further recommends:

3. That all guidance counselors shall be considered to be and to serve as vocational guidance counselors.

4. That an incentive system be established to encourage local administration to instill in all guidance counselors greater awareness of vocational and technical education programs and careers.

5. That a career development program be developed and initiated for grades K-6 to supplement the redirected secondary program.

The Council members are in support of the present Area Center concept for vocational education for Vermont youth for lack of a better alternative. However, the Council feels its recommendations should be directed toward more equal access for all Vermont students regardless of geographical location.

Specifically we are talking to shared-time attendance from sending schools in comparison to attendance by area center resident students.

6. That the State Board of Education provide direction demonstrating that the Centers are part of the sending school's curriculum.

7. That the general advisory committees in each center become more active in encouraging closer cooperation and coordination in regard to transportation, scheduling and pre-vocational offerings.

8. That some exemplary pilot projects be developed illustrating better use of the student's time while being transported. These not to be limited to vocational offerings. For example—individualized instruction, providing shared time of teachers, and enrolling students in courses not specifically identified as vocational.

9. That the Area Vocational Guidance Coordinator serve on an equal basis all Guidance counselors in a designated geographical area.

It is the firm belief of the Council that many students throughout Vermont schools do not have adequate knowledge of occupations (professional and non-professional) and their relationship to existing vocational programs. The Council would like to see the area vocational guidance coordinator function as a coordinator of resources between local craft advisory committees, area business people and guidance counselors. This area vocational guidance coordinator would have no direct student counseling load but would be responsible for an ongoing orientation program climaxing prior to registration time each year. It is with these thoughts the Council further recommends:

10. That the support of funding for this position be increased to make it economically feasible to function in this manner.

The State Advisory Council is proud of the foresight and determination of the State Board of Education and State Department of Education in establishing and implementing a planned program for vocational education opportunities which could serve most Vermont youth.

These recommendations are submitted to the State Board of Education for consideration and transmittal to the Commissioner of Education, Washington, D.C. and to the National Advisory Council on Vocational Education.

Respectifully submitted,

PELTON GOUDEY, *Chairman*
Vermont State Advisory Council for
Vocational-Technical Education

ADVISORY COUNCIL ACTIVITIES FOR FY 1970

1. Public Law 90-576 (Vocational Education Amendments of 1968) Section 123 (a) requires that the State Plan "(1) has been prepared in consultation with the State Advisory Council for that State;"

The Vermont State Advisory Council did consult with representatives of the division of Vocational Education at the folowing Council meetings, October 8, 1969, December 17, 1969, February 10, 1970, May 19, 1970.

Further details were discussed by the State Plan Committee composed of the following members: Mr. John White, Chairman; Mr. Gerald Greemore, Mr. Donald Raymond and Mr. Lafayette Saucier, in joint meetings of this committee and the Vocational Education division of the State Department of Education.

2. Section 104 (b) requires that "(3) each State Advisory Council shall provide for not less than one public meeting each year at which the public is giving opportunity to express views concerning vocational education."

The Vermont State Advisory Council organized a public meeting in Montpelier, Vermont on March 10th, 1970 which was attended by 250 citizens. Among those represented were State Board members, State legislators and other government representatives. The students in attendance, including the panel, were outstanding.

3. Section 104 (b) states that "(4) State Advisory Councils are authorized to obtain the services of such professional, technical, and clerical personnel as may be necessary to enable them to carry out their functions under this title and to contract for such services as may be necessary to enable them to carry out their evaluation functions."

A six month search for staff culminated with the hiring of an Executive Director and Secretary as of July 1, 1970.

4. Joint meetings of the Council with interested educational groups were scheduled to foster cooperative understanding.

(a) The State Board of Education met with the Advisory Council. A better understanding of the functions of each resulted. As a result of this meeting the Executive Director was invited to attend all State Board meetings.

(b) Local Directors of Vocational Education, Vocational Guidance Coordinators and the Advisory Council met and discussed staff relationships at area centers as they relate to the State Plan.

5. Monthly meetings were held throughout the year at different locations in the secondary schools in an attempt to completely familiarise the Council members with the Area Center Concept. Explanations and observations of operating programs greatly enriched the Council's understanding of Vocational Education in Vermont.

Many Council members made other visits to selected schools to gain a broader appreciation and understanding of the problems facing Vocational Education.

6. The Constitution and By Laws Committee worked diligently through three revisions to provide the Council with a set of working regulations. These are included in the appendix.

APPENDIX

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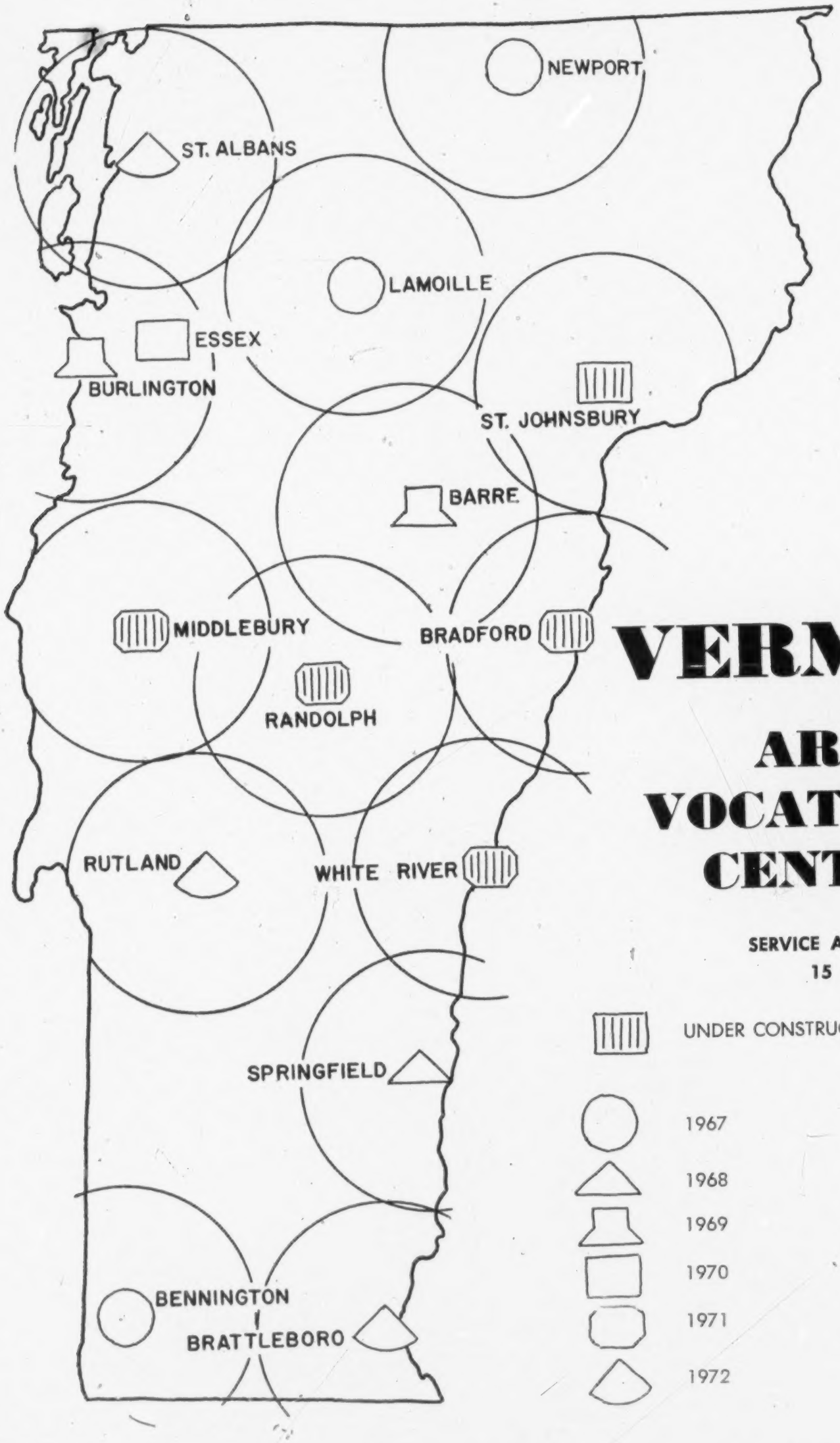

VERMONT

AREA VOCATIONAL CENTERS

SERVICE AREA RADIUS
15 MILES

UNDER CONSTRUCTION

1967

1968

1969

1970

1971

1972

VERMONT STATE ADVISORY COUNCIL
FOR
VOCATIONAL TECHNICAL EDUCATION

CONTSITUTION AND BYLAWS

ARTICLE I — NAME

The name of the organization shall be the Vermont State Advisory Council for Vocational Technical Education.

ARTICLE II — PURPOSES

The Council is established under the provisions of Public Law 90-576 and has the duties and responsibilities stated in the law and the regulations promulgated thereunder including but not limited to:

1. Advise the State Board and its staff of the Division of Vocational and Technical Education on development of the State Plan and on policy matters arising in the administration thereof.
2. Evaluate vocational education programs, services, and activities under the State Plan and publish and distribute the results thereof.
3. Prepare and submit through the State Board to the Commissioner and to the National Advisory Council an annual evaluation report accompanied by such comments of the State Board as the State Board deems appropriate, which evaluates the effectiveness of the educational programs, services, and activities carried out in the year under review in meeting the program objectives set forth in the State Plan. Recommend changes as warranted by the evaluation.
4. Provide two way communication between the State Board and business and industry, legislature, higher education, State and local Vocational Advisory Committees and the general public.
5. Aid in the recruitment of qualified personnel for the Division.

ARTICLE III — MEMBERSHIP

1. Membership to the Advisory Council shall be appointed by the Governor in compliance with specifications of Public Law 90-576. It is recommended that appointments will be made on a 3-year staggered basis except for those representatives who are appointed by virtue of their position with an agency or organization.
2. A member may be appointed for successive terms.
3. The term of membership shall begin on July 1.

4. The Council may by a two-thirds vote of those present recommend termination of the membership of any member who fails to attend two (2) consecutive meetings of the Council without just cause, provided the person affected is given an opportunity to be heard.

ARTICLE IV — MEETINGS

1. Meetings shall be held upon call of the Chairman or upon written request of three (3) or more Council members. There shall be not less than three (3) meetings a year plus one (1) public meeting.
2. The Chairman shall decide time and place of meetings for the Council and Executive Committee.
3. Written notices and agendas of meetings will be mailed to all members at least a week before each meeting.
4. The Chairman, with the advice of the professional staff of the Council, shall prepare the agenda for each meeting.
5. Minutes of all meetings shall be kept by the Executive Director and a permanent record maintained. Copies will be mailed to all members, the Chairman of the State Board of Education, Commissioner of Vermont Education and the Director of Vocational-Technical Education.
6. Not less than one (1) public meeting shall be held each year at which the public is given opportunity to express views concerning Vocational Education.

ARTICLE V — OFFICERS AND THEIR DUTIES

1. The officers of the Council shall be Chairman, Vice-Chairman and Treasurer elected from the membership. The Executive Director of the Council shall act or serve as the Secretary.
2. Officers shall be elected annually by majority vote of the Council members present at the first meeting of the Council following certification of membership by the U. S. Office of Education.
3. The Council may establish and abolish committees who shall have the authority, duties, and responsibilties delegated to them by the Council.

   (a) There shall be an Executive Committee whose membership shall consist of the elected officers, Chairman of the State Plan Committee, Chairman of the Budget Committee, Chairman of the Program Evaluation Committee and not more than two (2) representatives of the student organizations appointed by the Council.

   The Executive Committee members shall serve their term of office until replaced.

   The Executive Committee shall have full powers of the Council between meetings of the Council and shall be responsible for the appointment and for contractual arrangements with the Executive Director.

Minutes of all Executive Committee meetings will be forwarded to Council members to be acted on at the next duly called Council meeting.

4. (a) The officers shall have duties and responsibilities required by their offices.

   (b) The Chairman shall be the chief executive officers of the Council and shall serve as Chairman of the Executive Committee.

5. Executive Director—the responsibilities of the Executive Director shall be those which commonly pertain to that office. The Executive Director shall serve as Secretary, ex-officio, of the Council and Executive Committee. He shall maintain the records of the Council, manage the Council's headquarters, and employ staff within the policies and budget established by the Council.

ARTICLE VI QUORUM (Council and Executive Committee)

The appointed members present at any appropriately announced and called meeting shall constitute a quorum.

ARTICLE VII — AMENDMENTS

This Constitution and Bylaws may be amended by a two-thirds vote of the members at any regular meeting provided the proposed amendments accompanied the notice of the meeting and were announced as an agenda item for the meeting.

VT 012 738
Toward Your Future Job--Drive or Drift? An Exploratory Look at Career Hopes and Occupational Aspirations of Young People of Oregon.

Oregon State Bureau of Labor, Salem.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 78p.

DESCRIPTORS - *STUDENT ALIENATION; *OCCUPATIONAL ASPIRATION; *CAREER PLANNING; *HIGH SCHOOL STUDENTS; SCHOOL SURVEYS; *CAREER CHOICE; VOCATIONAL INTERESTS; INDIVIDUAL CHARACTERISTICS; SOCIOECONOMIC INFLUENCES; STUDENT ATTITUDES
IDENTIFIERS - OREGON

ABSTRACT - To determine the degree of alienation among Oregon youth, this study investigated the vocational plans of youth in the age group 16-18. A survey was made, mostly of applicants for minor's work permits, resulting in 766 usable responses. After finding specific goals or plans among 90 percent of the boys and girls surveyed, the study recommended implementation of a referral program to bring together students and employers to make available first-hand information on the occupations. (BH)

VT 012 738

ED0 57254

TOWARD YOUR FUTURE JOB...

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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An Exploratory Look at Career Hopes and Occupational Aspirations of Young People in Oregon . . . As Compiled by the

...DRIVE OR DRIFT?

OREGON BUREAU OF LABOR

NORMAN O. NILSEN
COMMISSIONER OF LABOR

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RESEARCH DIRECTOR

VT012738

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TOWARD YOUR FUTURE JOB—DRIVE OR DRIFT?

An Exploratory Look At Career Hopes and Occupational Aspirations of Young People of Oregon

OREGON BUREAU OF LABOR

Norman O. Nilsen
Commissioner of Labor

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Research Director

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TO BRING OUT THE BEST IN EVERY OREGONIAN FOR THE BEST OF OREGON

Shortly before publication of this report, one of the most widely read national magazines contained a lengthy article, with much descriptive detail, about the Nation's restless and rebellious younger generation. Among the many letters to the editor received in response, one written by an Ohio physician referred to the aimlessness of some of our young in phrases such as these: "They are going to show a new purpose by having no purpose," "They want to be nonproductive on someone's production. . ."

This report, based on research conducted by the Bureau of Labor, reveals that Oregon's young people, at an early stage, have a more positive and purposeful outlook on life.

While this may be a comforting indication, it implies a strong and direct obligation to nurture and to further such "non-alienated" attitude of our youngsters. This concerns all responsible citizens of our state who do not wish to see sound and sensible youthful ambitions wither away through the indifference of adults.

If, as the report points out, nine out of ten boys and girls in Oregon between the ages of 16 - 18 do have some specific goal, idea or plan relative to their future occupation, and if personal interest is by far their most important motivating factor, then it is up to all of us to make sure that that potential does not remain untested and untapped.

It is with this objective in mind - to bring out the best in every Oregonian for the best of Oregon - that this report is presented.

N.O. Nilsen

Norman O. Nilsen
Commissioner of Labor

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ABOUT THIS STUDY

> In his Journal, Thoreau made the observation, "The youth gets together his materials to build a bridge to the moon, or perchance, a palace or a temple on earth...." And then, later in life, "....he concludes to build a woodshed with them."

This is a report on a study conducted by the Oregon Bureau of Labor among young people of high school age. The study's principal concern is not the type of structure the youth hopes to erect some day but whether a boy or a girl wishes to build at all and therefore "gets together his materials."

This concern is reflected in the name of our undertaking which tried to make clear to its youthful participants what all the "official nosiness" was about: "Toward Your Future Job--Drive or Drift?"

The focal question which several hundred Oregon boys and girls were asked in the survey during the summer and fall of 1966 was, therefore, intentionally broad in its formulation--

"Have you any plans or ideas about your future occupation?"

Although the sample included its share of high school dropouts whose problems and circumstances were closely examined, the main exploratory interest was directed at dropouts in a wider sense and not confined to those whose mood and manner of "disengagement" related to life in school alone but, more generally, to life beyond school.

About 10 years ago, the Oregon Bureau of Labor published a report, Oregon's Labor Force--A Great Natural Resource. In its concluding remarks, the report stated--

> "If a responsible and capable labor force is one of the essential factors for industrial growth and economic development, then Oregon, indeed, appears to possess this potential for progress. This claim is not the offspring of some legend nurtured on self-admiration or complacency.
>
> "Oregon's manpower is one of its true 'natural resources.' Its significance goes deeper and is more fundamental than any attached to the other natural resources which have been bestowed upon this state, because it represents the human element. It may grow or diminish, improve or deteriorate, but it never can be substituted."

6200

That "potential for progress" needs re-examination. We must ask ourselves: What have those intervening, restless years done to the prospects for the state's "great natural resource?"

At a time when the mood of "alienation" among many young people veers between escapist retreat and extremist rebellion, how do Oregon boys and girls between the ages of 15 and 18 look toward tomorrow, toward their tomorrow?

Is there direction or is there aimlessness? Do they, in their youthful dreams and hopes, plan for a life of purpose? Or is there only the emptiness of juvenile cynicism?

And if they do show drive and dare to dream of goals they wish to reach, what roadblocks do they have to face? And who is there to stretch out a hand to help them clear the road? And, above all, who is there to listen, to listen with a sympathetic ear? These are questions of concern and urgency. They demand answers. This study was undertaken by the Bureau of Labor in an attempt to search for the answers.

During the time of the preparation of this report, W. Willard Wirtz, then Secretary of Labor, in an address to the American States members of the International Labor Organization, declared--

> "So long as 'employment' is considered a satisfactory condition in its traditional sense--as covering <u>any</u> paid activity, regardless of its terms and conditions or the extent to which it uses the individual's potential or provides him with satisfaction--the term is insufficient for the purposes of advancing a human resources development program beyond its minimum essentials."

Here, a new concept of manpower is expressed, stressing human aspirations and possibilities as well as accumulated skills. It is against the background of this emerging idea of active and purposeful individual involvement that the problem of occupational drive or drift of our young people takes on added and new meaning. Their attitudes, hopes and ambitions, achievements and defeats will determine not only their future part in society but also the future of the society of which they are a part.

6201

THE PARTICIPANTS

In answer to the question "Have you any plans or ideas about your future occupation?" an average ranging from less than eight to more than nine out of 10 Oregon boys and girls ages 16 to 18 had some ambition, idea or plan about their future occupation.

Before examining the details of this response, let us look at those who provided it.

A total of 766 boys and girls, most of them ages 15 to 17 years, returned questionnaires that were usable in terms of completeness and consistency of information. Twenty-nine of the state's 36 counties were represented in the sample.

The majority of the respondents were applicants for minor's work permits, which are issued by the Oregon Bureau of Labor to persons between ages 14 to 18 and enable the holders to perform paid jobs under prescribed conditions.

The fact that the bulk of the sample is made up of those young people who, because of either need or interest or both, seek to earn money on a job possibly introduces a bias of built-in youthful initiative, a trait which is not necessarily generally prevailing. On the other hand, it can be argued with some validity that the majority of the jobs for which minor's permits are issued are the same that at a later stage, past high school age, often become a dead-end street for many who "didn't make it." In other words, the young person's wish to "get a job to make some money" in itself may turn out to be the start on the road to somewhere or the first stop in a dismal circle leading nowhere.

* * *

The usual reluctance and suspicion with which surveys and other forms of organized "nosiness" are met by members of minority groups may have accounted, in part at least, for the rather sparse response from Negro youngsters who were handed questionnaire forms when applying for a minor's work permit. It became necessary, therefore, to establish other points of contact and communication in order to reach minority group respondents. Among the additional channels were a community service center; Jefferson High School in Albina, an area of high Negro concentration in Oregon's largest city, Portland; a youth opportunity center; the Neighborhood Youth Corps and the Urban League of Portland.

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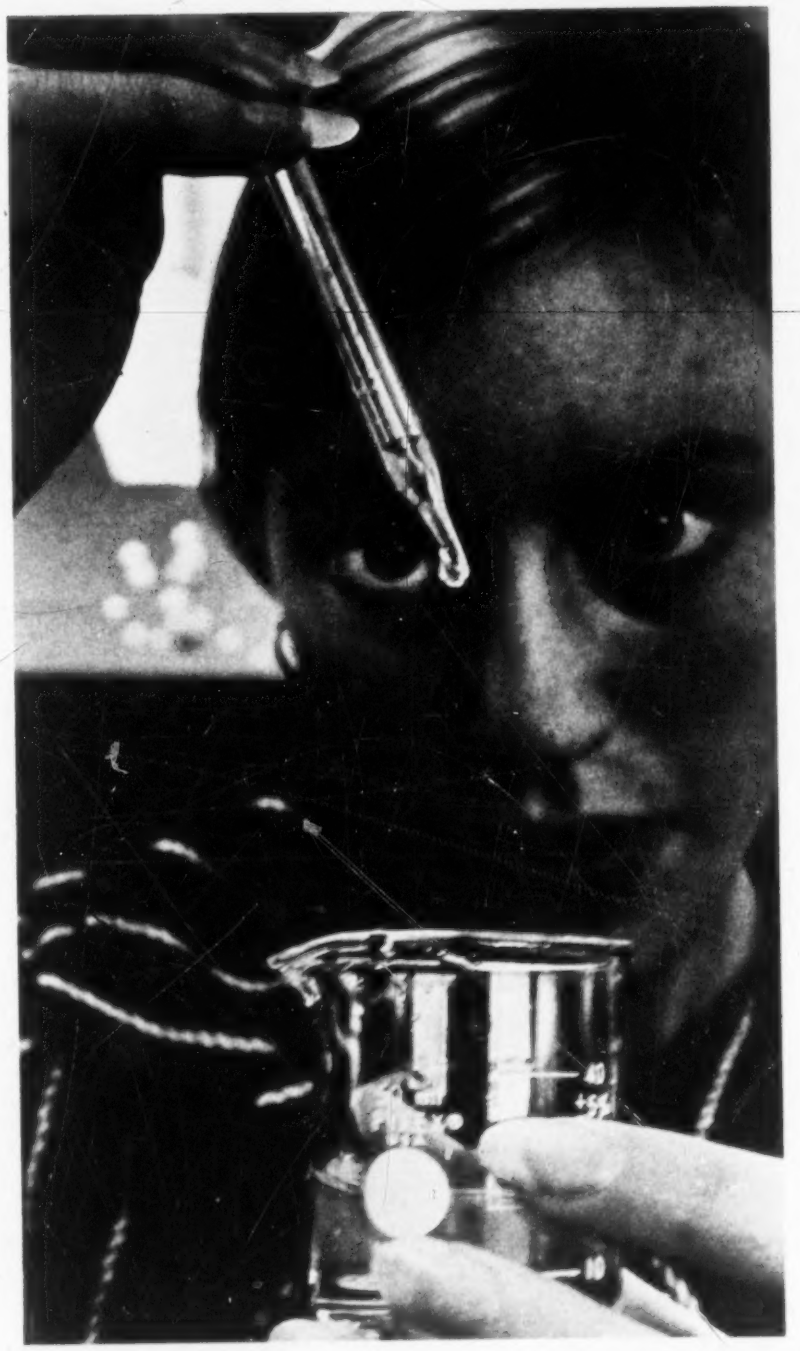
One result of using those supplementary avenues of approach was a more extended range in age groups in the Negro subsample with a notable shift toward higher age brackets. Therefore, whenever comparisons are made in our analysis, they are between comparable age groups.



* * *

The study is based upon two components: the Portland sample and the sample representing areas outside Portland.

The sample outside Portland contains 335 respondents, or 44 per cent of the total; as to its ethnic composition, it can be assumed to be virtually non-Negro.

The Portland sample, with 431 respondents, is made up of three elements. One is a general or "unclassified" subsample of 134 participants, covering the broad spectrum of the city's teenage youth. Its composition as to ethnic groups is unknown.

The other two components are one Negro and one non-Negro subsample which provide the setting for a comparative analysis of the social and economic environment and its influence upon motivation and development potential in those youth segments.

The total number of respondents in the Negro sample is 160, 53 per cent male.

6203

The non-Negro sample for Portland consists of 137 youngsters, 54 per cent male.

Participants in areas outside Portland show a 52:48 ratio of males to females.

These proportional figures are of some interest as indicators of survey participation. They reflect greater responsiveness by the girls. Their proportion among the applicants for minor's work permits generally amounts to 40 per cent or less. Significantly, a similar indication was furnished by a small-scale teenage youth survey conducted by the Bureau of Labor in 1962 and devoted to many of the same questions. At that time, the total of respondents was 53 per cent boys and 47 per cent girls.

TOTAL SAMPLE

State	Number of Participants	Per Cent Boys	Per Cent Girls
	766	56	44
Portland	431	58	42
Outside Portland	335	52	48

In most instances where statistics covering both sexes are presented, weights based on official figures are used in this report to provide the proper balance.

6204

THEIR AGE

"I think it helps young people if we give them a sense of perspective, if we help them understand that we've all got problems, no matter where we are, that everyone is struggling..."

Q. "How did they react?"

"They opened up. They told me what their hopes and ambitions were. They talked about their problems.[1]"

This study, too, has tried to make the young people "open up" and talk about their hopes and ambitions.

In evaluating the significance of their responses, age, obviously, is one of the most meaningful factors.

A lack of concern about one's occupational future may be called the "carefree attitude of youth" at age 14, but it turns into a "don't care" attitude at 17 or 18.

Also, the actual need to find a sense of purposeful direction becomes greater as the time for personal decision draws nearer.

When young people do express ideas about their future, telling of their plans and expectations, their age provides--to some extent at least--a gauge to determine the "write-off margin," thus helping us to discern between youthful daydreams and free flights of fantasy, and imaginative drives to aim high and to hitch one's wagon to a star.

The 16-to-18 age bracket, that period in the lives of the young closest to the point of departure from compulsory schooling, is the most telling age as far as the principal objectives of our exploration are concerned.

1. *From an interview with Governor Nelson A. Rockefeller on problems of youth published in 1966.*

6805

In our study, the youngsters were divided into the following age groups--

AGE DISTRIBUTION: PORTLAND

Age	White	Negro	Unclassified
	Per Cent		
14	4	2	2
15	13	18	9
16	45)	28)	50)
17	35)82	28)72	38)89
18	2)	16)	1)
19		5	
20		1	
21	1	2	

There is in the Negro subsample a notably smaller concentration in the "telling age bracket" of the 16-to-18 year olds than in the other two groups. And within the 16-18 bracket itself, the proportion of 18-year-olds is considerably larger among Negroes than among non-Negroes or among youngsters of the unclassified sample.

The higher age of Negro respondents--24 per cent, or almost one fourth, were 18 years or older--apparently is due to the supplementary avenues used in reaching them, such as various youth employment and social action programs. This applies particularly to those youngsters who for one reason or another were not in school. The characteristic age distribution also is determined by those contacted through the Neighborhood Youth Corps at a high school with high Negro enrollment. As comparative data will show later, the proportion of Negro students "more than one grade below age level" is considerably larger than the respective share among the non-Negro group and thus contributes to a shift toward higher age brackets.

6296

The age group of both boys and girls compared as follows--

AGE DISTRIBUTION BY SEX: PORTLAND

Per Cent

Age	White		Negro		Unclassified	
	M	F	M	F	M	F
14	7	2	4	1	3	-
15	15	11	27	8	14	2
16	44)	46)	30)	25)	53)	48)
17	34)78	36)85	20)63	36)81	28)81	48)98
18	-)	3)	13)	20)	-)	2)
19			4	7		
20				1		
21			2	1		
Not reported		2				

In each of the three groups, the female respondents are older than their male counterparts, a fact shown in their substantially high concentration in the 16-18 bracket. This preponderance is particularly marked in the Negro subsample.

The higher average age level of the participating girls is a parallel to the earlier noted greater survey response shown by them. Both indications appear to be linked to the fact that, in general, for the girl there still are limited and traditional occupational choices. Her job orientation occurs somewhat later and it is more definite and direct. To put it in more descriptive terms: the 14-year-old boy may wish to become an astronaut or race car driver, but the girl waits until she is 16 and then knows she wants to be a secretary and is quite serious about it.

In the case of the Negro girl, this seriousness reflects also anticipation of her role as principal or supplementary family provider and an awareness that various service occupations, particularly those connected with health care, are fairly accessible.

Outside Portland, the age distribution was--

Per Cent

Age	Boys	Girls	Total
14	6	2	4
15	17	13	15
16	43)	51)	47)
17	33)77	33)84	33)80
18	1)	)	)

6207a

IN SCHOOL AND OUT OF SCHOOL

As we explore what Oregon's teenagers hope to do tomorrow, we consider what they are doing today. The question of what they want to be relates to what they are.

A total of 95 per cent of the respondents were students at the time of the survey.

Taking a closer look at the student-versus-nonstudent ratio in the Portland area, the findings disclose distinct disparities between the two sampling groups of white and Negro youngsters.

Within each subsample, Negro and non-Negro, figures for the girls show a higher percentage of students. These figures also show a smaller share of dropouts. (These two variables are not complementary since nonstudents need not be dropouts).

Notwithstanding this parallel, the data relating to Negro youth of both sexes indicates smaller proportions of students and higher dropout rates than do comparative figures for white youngsters.

In Portland, the proportion of those between the ages of 14 and 18 who did not attend school was--

White	5.8 per cent
Negro	11.4 per cent

6208

The same comparison, when figures are broken down according to sex, shows this picture--

	Boys		Girls	
	White	Negro	White	Negro
Per cent of nonstudents	6.7	12.5	4.8	10.3

As for the dropouts, the respective data reported by Portland boys and girls age 16 to 18 are--

White	3.6 per cent
Negro	5.9 per cent

Listing boys and girls separately, the dropout rates compare--

Per Cent of Dropouts

Boys		Girls	
White	Negro	White	Negro
4.0	7.5	3.2	4.4

In 1966, when information for this report was gathered, an article appeared in The Oregonian (Portland) of November 16, which dealt with the increased high school dropout rate in the city. It quoted Larry Winter, Assistant Superintendent of Schools for Portland as saying--

> "The main cause of students' leaving school is the pitifully bum break that most of these youngsters have in their homes. You want to cry when you see the complete lack of interest in homes from which these children come."[1]

1. *In March, 1969, when this report was in its final stages, The Oregonian (Portland) noted that the number of dropouts among Portland's high school students had declined by seven per cent; between September, 1968, and late March, 1969, the number of dropouts was 572, as compared to 615 during the same period of the preceding year. The article also stated, "Portland's dropout rate is generally good when compared with state and national standards, but school officials became alarmed last year when the rate appeared to be climbing markedly."*

6209

Winter's remark only confirms what an earlier report, A New Look at School Dropouts, by Jeanette H. Sofokidis and Eugenia Sullivan, published in April, 1964, by the United States Department of Health, Education and Welfare, stated--

> "Many dropouts have unhappy home and family situations. They are unable to compete successfully with their brothers and sisters. Their parents may have a negative or even antagonistic attitude toward the school and frequently attach no importance to high school graduation for their children."

The same report also agrees with the basic indication of our findings--

> "More boys than girls are school dropouts."

We said earlier that our study's particular interest was directed mainly at "dropouts in a wider sense," thus implying that being a school dropout may be but symptomatic of a general, negative attitude toward competitive participation. In the context of our theme, "Toward Your Future Job--Drive or Drift?" an observation made in the Sofokidis-Sullivan report seems pertinent--

> "Usually potential dropouts are purposeless and have no clearly defined goals for achievement. Not knowing what they want, they fail to see the value of school in their individual futures and are willing to settle for short range satisfactions."

Unfortunately, as some of the statements from dropouts in our study show, the realization of their mistakes and the regret they feel do not necessarily prompt the youngsters to try to undo their past errors. There is a pathetic and ominous mood of resignation in their explanations why they do not think they have a chance to get the kind of job they want--

> "I stopped school too soon, and life at home isn't much fun."

* * *

> "I let the chance to advance pass me."

The Sofokidis-Sullivan report also spoke of a fairly consistent pattern which shows that most dropouts are "underachievers" and that "many have been retained in grade at least once in elementary school and,

6210

at the time of dropping out, are a year or two behind their age level in class placement."

At the same time, the report stressed that studies refute the common misconception about a lack of intelligence being the dominant cause of dropping out of school.

Similar views were expressed by Milton Field, Director of Special Services for the Portland School District, as reported by John Guernsey, education writer for The Oregonian, in August, 1967. Discussing what was termed the "alarming factor" of the greater increase in Portland's dropout rate during the preceding three years as compared to the state as a whole, the article read--

> "A remarkably small number of Portland students dropout of high school because they lack ability to do the school work, reports Milton Field...
>
> "His studies indicate that the majority leave school before graduation because of lack of achievement and a failure to attend classes."

Our survey shows that in Portland--

- 2.5 per cent of the high school students questioned were more than one grade below their age level (as compared to 1.7 per cent in areas outside Portland).
- 1.6 per cent of the respondents among Portland white high school students were more than one grade below their age level.
- 3.5 per cent of the respondents among Portland Negro high school students were more than one grade below their age level.

These weighted averages, however, do not show the differences between the proportions of male and female students within each group and the differences between proportions of those of the same sex although in different groups.

6211

While a considerably larger percentage of Negro boys was more than one grade below age level as compared to their white counterparts, Negro girls, on the other hand, reporting no such cases, did better than the white female students--

PORTLAND: HIGH SCHOOL STUDENTS MORE THAN ONE GRADE BELOW AGE LEVEL

	Per Cent	
	Boys	Girls
White	1.5	1.7
Negro	7.0	-

The substantial disparity between Negro boys and Negro girls with regard to the number of more-than-one-grade-below-level students seems to bear out Daniel P. Moynihan's observation that, "There is much evidence that Negro females are better students than their male counterparts."[1]

1. *The Negro Family-The Case for National Action*, U.S. Department of Labor, Office of Planning and Research, March 1965.

USA
6212

"FAMILY PORTRAIT"

The young people who begin charting the course, however tentatively, toward their occupational destination--and those who do not--both have their ships lying at anchor in home ports which are of interest to us.

It is at home that the youngsters, as they develop the ideas for their future, may find help or hindrance or--quite often--indifference.

Or they may grow up in homes where hopes wither almost before they begin to bud.

Or they may live in homes which are not homes.

On one of the preceding pages a reference by the assistant superintendent of the Portland schools to the "pitifully bum break that most of these students have in their homes" was mentioned.

6213

In April, 1968, another newspaper article told its readers about Bob Lutz, a former "booze-swilling roughneck who had spent most of his life in migrant farm camps," and who, in spite of his sixth grade education, succeeded at age 39 in enrolling at Linfield College and, after becoming a straight-A student, in acquiring a master's degree. Bob Lutz, the newspaper reported, heads "Project Boost" of the Oregon State System of Higher Education with a purpose of finding "capable kids who can make the grade in any college--but have never given it a thought because they come from poverty homes, migrant families, or troubled homes where college is for the birds."

In the words of Bob Lutz, "It just makes you want to cry when you see how many smart high school kids there are who never even think of college. They make A's and B's in high school but have been convinced by boozing or drifting parents that there's no chance for them to get to college."

The type of parents Mr. Lutz so vividly describes, one would hope, represents a special group. But, there is nothing special about indifferent parents or about parents who have stopped being parents.

They are not peculiar to any special economic level, segment or social strata.

By assembling some of the pieces that make up the "family portrait" of the young people included in our study, the background setting is presented against which their answers, statements, or their occasional silence should be understood and evaluated.

Our findings showed that:

- More than seven out of 10 Oregon boys and girls, or 72 per cent, came from homes where both parents were present.
- In Portland, 70 per cent of the youngsters reported both their parents as present.
- In areas outside Portland, 74 per cent of the boys and girls stated that both their parents were present.
- The lower proportion for Portland of young people with both parents living and present reflects in part the situation in the families of Negro youngsters of whom only 56 per cent reported both their parents as living and present.

NUMBER OF BOYS AND GIRLS FROM FAMILIES
WHERE BOTH PARENTS ARE PRESENT

	Per Cent
Statewide	72
Portland	70
White	71
Negro	56
Unclassified	70
Outside Portland	74

"Broken homes," denoting here families with parents either divorced or separated, accounted for the major share of situations where at least one parent was reported not present.

The incidence of broken homes, as reported by the boys and girls participating in our study, is shown by the following proportional figures--

PARENTS DIVORCED OR SEPARATED

	Per Cent
Statewide	21
Portland	21
White	18
Negro	28
Unclassified	23
Outside Portland	20

In the composite picture of prevailing family situations, the instances of one or both parents listed as deceased showed the Negro respondents with the highest proportional figure. This indication reflects poorer health conditions and higher death rates among minority group members, particularly adults. Whether, in addition, in some cases absent or unknown fathers may have been reported as deceased could only be speculated. The response itself did not offer concrete evidence to that effect.

REPORTED FAMILY SITUATIONS

Per Cent

	Statewide Total	Portland Total	Portland White	Portland Negro*	Portland Unclassified	Outside Portland*
Both parents present	72	70	71	56	70	74
Broken homes	21	21	18	28	23	20
Parent(s) deceased	7	9	11	15	7	5

**Because of rounding, percentages do not add to 100*

As a rule, the family situation in most cases determines where and with whom the youngster is living.

The question, "With whom are you living?" received this response--

In Portland	Per Cent	Outside Portland	Per Cent
Parents	70	Parents	70
Mother	19	Mother	14
Father	2	Father	3
Mother and stepfather	4	Mother and stepfather	5
Grandparents	2	Others	2
Uncle and aunt	1	Foster parents	2
Foster	1	Inconclusive answer	4
Others	1		

Characteristic differences in the family situation are revealed by comparing the response from white and Negro youngsters in the Portland area. In order to avoid any bias based on dissimilarities in age structure, only replies from 14-to-18 years olds were considered.

FAMILY SITUATION
WITH WHOM DO THE YOUNGSTERS LIVE--PORTLAND

14 - 18 Year Olds

	Per Cent	
	White	Negro
Parents	71	51
Mother	17	30
Father	3	-
Mother and Stepfather	4	7
Grandparents	3	4
Others	2	2
Spouse	0	3

Separate data for boys and girls seem to confirm that children from broken marriages as a rule live with their mother. Similarly, our figures support the often-heard thesis of the matrifocal family structure among Negroes. (A deviation from the general trend is shown by our sample of white girls; a relatively small proportion reported living with their mothers.)

FAMILY SITUATION: WITH WHOM DO THE YOUNGSTERS LIVE?

Per Cent of 14 - 18 Year Olds

	Boys				Girls			
	Portland			Outside	Portland			Outside
	White	Negro	Unclassified	Portland	White	Negro	Unclassified	Portland
Parents	70	56	72	70	71	44	67	69
Mother	19	24	16	13	14	38	24	16
Father	5	-	2	4	-	-	2	2
Mother & stepfather	4	10	2	3	5	3	5	6
Father & stepmother	-	1	1	-	-	-	-	-
Grandparents	-	1	1	-	6	7	2	-
Aunt & Uncle	-	4	2	-	-	2	-	-
Foster	-	(	(	1	2	-	-	2
Others	-	(4	(3	2	-	-	-	3
Mother & Grandparent	-	(	-	-	2	-	-	-
Spouse	-	-	-	-	-	6	-	-
Inconclusive	1	-	-	6	-	-	-	2

6217

The poignant feature that emerges is that generally seven out of 10 young people at high-school age live with both their natural parents while on the average only about one half of the Negro children find themselves in the same situation.

One other essential component of the "family portrait" of our respondents is the average number of children in the family.

In answer to the question, "How many brothers and sisters do you have?" the youngsters indicated that--

> There were on the average less than four children in white families and slightly more than six children in Negro families.

The reported number of brothers and sisters per family in average figures were--

Portland	
White	2.6
Negro	5.1
Unclassified	2.9
Areas outside Portland	2.7

Having discussed the various home situations in which some of the boys and girls have to grow up, there is one additional, and disturbing, commentary to be made. It is contained in a recent news item which tell us of young people with no "home situations."

Under the headline, "'Drifters' Home' For Youths slated," The Oregonian of March 6, 1969, gave the following account:

> "A 'drifters' home' for Washington County Youths with no place to live will be opened by the Washington County Community Action Program...said Hugh Rosenberg, Community Action executive director....
>
> "Some youths join the Job Corps but cannot be placed at a Job Corps center for a few months, he explained. Others are attempting to complete their High school education. For one reason or another, the youths are not living with their families. Many are in their late teens, and there is no public agency to provide them housing, he said.
>
> "Rosenberg told of a 19-year-old who sleeps in the Gaston Neighborhood Center...The youth refuses to become a high school dropout....
>
> "Youths staying at the home may study for a GED or high school diploma to be eligible for apprenticeship training."

FINANCES OF THE FAMILY

On the premise that the home usually represents a young person's most immediate environment, we have taken a look at the family situation. We now turn our attention to that part of the response that provided some indication of the financial circumstances in the home. One question which "touched both bases," the family situation as well as the financial condition, asked, "Does your mother work outside her household?"

The answer showed--

> About one half of all mothers were working outside their homes. While generally the reported number of working mothers ranged between 49 and 52 per cent, the average number of working Negro mothers was somewhat lower--47 per cent.

By comparison the proportion nationally of working mothers among mothers of children 6-17 years of age was reported as 49 per cent in March of 1967.

Our weighted proportional figures based on the reports by the youngsters of both sexes were--

WORKING MOTHERS

	Per Cent
Portland	
White	49
Negro	47
Unclassified	52
Outside Portland	50

Two reasons may explain the fact that fewer Negro mothers were reported working outside their households. As we have just noted, the average number of children in the Negro family is larger. This in itself and in conjunction with the greater incidence of fatherless households may account for the higher proportion of Negro families receiving welfare payments, mostly in the form of Aid to Dependent Children.

6219

Curiously, in each of the subsamples, with the exception of the white Portland group, more girls than boys indicated that their mothers were working outside the home.

"DOES YOUR MOTHER WORK OUTSIDE HER HOUSEHOLD?"

Per Cent of Yes Answers

Portland White		Portland Negro		Unclassified		Outside Portland	
Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
51	48	44	51	45	60	46	55

As to family finances, the youngsters were asked into which of several brackets from $250 or less up to $850 or more the monthly income of their families fell. This question was accompanied by the remark, "If you don't know the answer, don't guess."

The reaction appears to be meaningful and interesting in several respects.

There are those who did know the approximate family income and those who thought they knew and then--in a rather significant way, too--there are the blank spots or "don't knows" of those who heeded the questionnaire's admonition and indicated ignorance.

Concerning those who did not know, we notice that in each group it is the girls who more often admitted to being uninformed about the level of their family income.

The proportions of boys and girls stating or implying they did not know the level of the monthly family income are--

	Per Cent	
	Boys	Girls
Portland		
~~Negro~~ White	20	32
~~White~~ Negro	38	41
Unclassified	16	24
Outside Portland	15	20

6220

Apart from the fact that the Negro girls like the girls of the other groups, appear less informed about family finances than the boys, we also note that Negro youngsters of both sexes had the largest percentage of those who did not know or did not think they knew the amount of their monthly family income.

Also noteworthy is the indication that the girls in each group report a lower estimate of the family income than do the boys.

Median family incomes as reported by the youngsters ranged between the lows listed by the girls and the highs listed by the boys--

	Girls	Boys
Portland		
White	$570	$590
Negro	340	380
Unclassified	520	540
Outside Portland	550	560

The proportions of families with monthly incomes up to and including $450 show a notably greater agreement between the male and female response--

MONTHLY INCOME OF $450 OR LESS

Per Cent of Boys and Girls Reporting

	Boys	Girls
Portland		
White	27	28
Negro	67	74
Unclassified	34	38
Outside Portland	34	34

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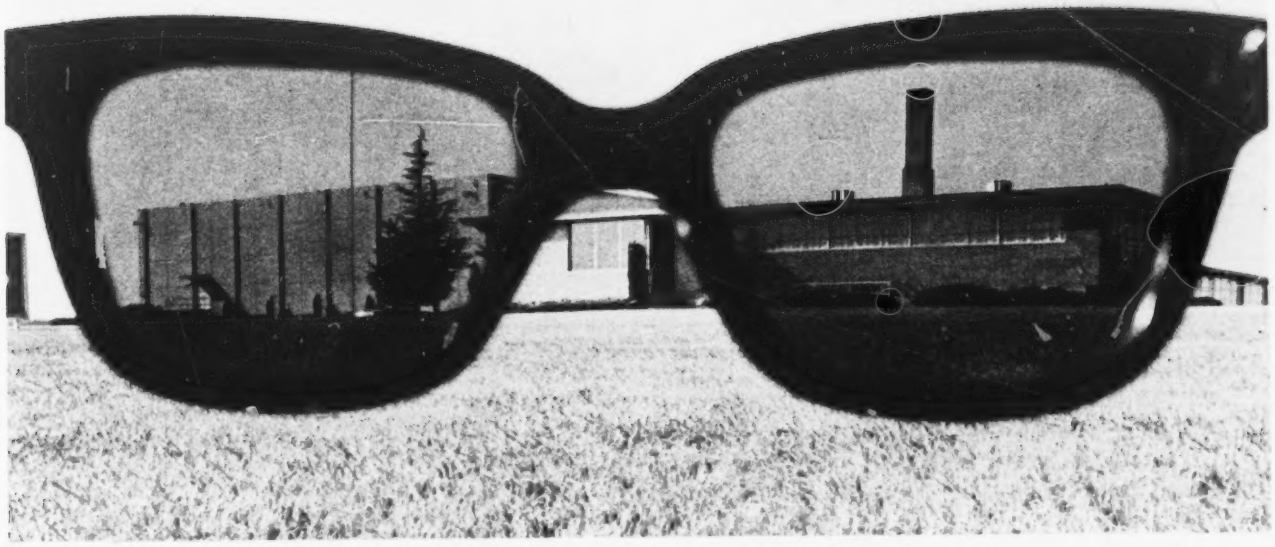

LOOKING TOWARD TOMORROW

Having observed the young people and some of the elements in their immediate environment which may have had a bearing upon their approach and outlook concerning future occupations, we now return to the principal question of this investigation for a closer scrutiny of the answer. That question was--

"Have you any plans or ideas about your future occupation?"

The response from the 16-18 year olds, those who were close to the end of compulsory school age or had actually reached it, indicated that--

In Portland--

Seven per cent of the white boys and girls and 18 per cent of the Negro boys and girls had no plans or ideas about their future occupations. Of the Portland boys and girls in the "unclassified" sample, 10 per cent did not state any occupational goals.

6222

Outside Portland--

Nine per cent of the questioned youngsters had no plans or ideas.

The detailed picture of the individual reaction by the several subsamples highlights two pertinent points--

More girls than boys between the ages of 16 and 18 have some plan or ambition concerning their future occupations.

Considerably fewer Negro boys and girls than white boys and girls have such plans or ideas.

"HAVE YOU ANY PLANS OR IDEAS
ABOUT YOUR FUTURE OCCUPATION?"

Per Cent of Yes Answers

Age Groups: 16 - 18 Years

	Portland			Outside
	White	Negro	Unclassified	Portland
Boys	90	79	87	87
Girls	96	85	93	95

If this response is compared with the response from all boys, that is, those 14 years and older, we find that among the older boys in Portland proportionately fewer had any plans or ideas concerning their future jobs than had those in the group which also included the lower age levels.

The percentage of "goal-oriented" girls, on the other hand, increases or remains virtually unchanged when the lower age limit is moved up.

"HAVE YOU ANY PLANS OR IDEAS
ABOUT YOUR FUTURE OCCUPATION?"

Per Cent of Yes Answers

All Age Groups

	Portland			Outside
	White	Negro	Unclassified	Portland
Boys	90	82	88	85
Girls	95	85	92	92

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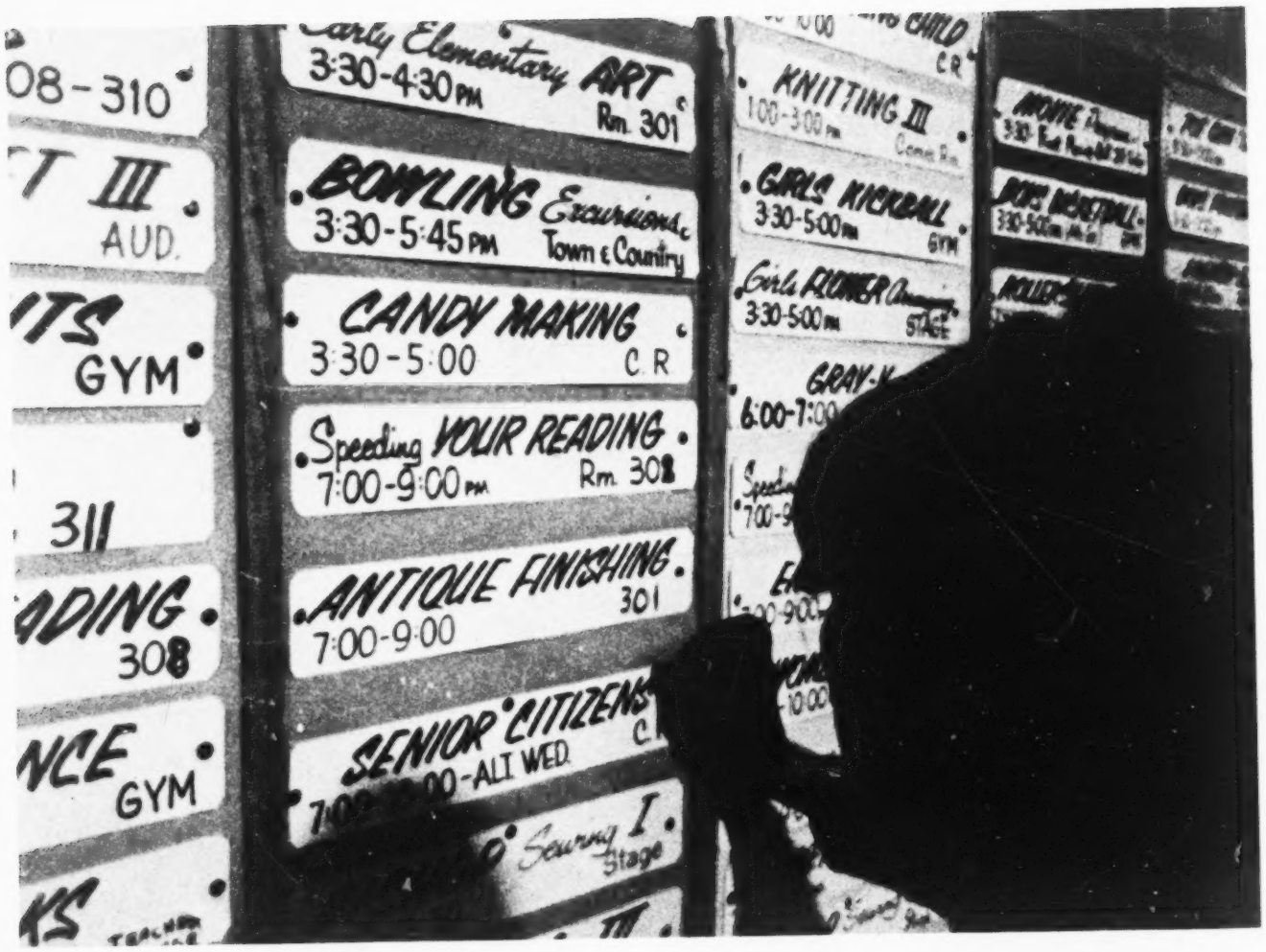


One might presume that the boys' indecision or lack of direction often increases once their youthful dreams of becoming astronauts and race car drivers begin to dissolve and the contours of a less glamorous reality become more visible. Girls who, as was mentioned, are much more "earthbound" in their choices to begin with, thus find themselves more ready to cope with the sober facts of the world of work. The Negro girls' response, in particular, seems to confirm this speculative thought: the anticipation of responsibilities that await them as soon as they leave school and the awareness of the still limited opportunities that are open to them are reflected in slightly less than 15 per cent of "no goals" answers, a proportion which remains unchanged regardless of whether the age is 14-16 or 16-18. In contrast, the three per cent increase in negative replies from older Negro boys pathetically mirrors the melting away of early ambitions and hopes.

Having determined what proportion of the youngsters do have some ideas of what they would like as to their future job or the career they wish to pursue, we take a look at the actual choices made and the order in which they are listed.

In Portland, the boys expressed the following preferences for occupational fields--

Per Cent

All Ages

	White	Negro	Unclassified
Occupational Groups:			
Professional	52	35	49
Semiprofessional, technical	17	32	19
Managerial, official	5	5	10
Service	9	8	8
Sales	3	-	
Skilled trades	11	14	11
Semiskilled trades	3	3	
Unskilled trades)			
Clerical)		3	3
Others)			

Per Cent

16 - 18 Years

	White	Negro	Unclassified
Occupational Groups:			
Professional	56	37	43
Semiprofessional, technical	16	34	20
Managerial, official	4	5	11
Service	6	5	8
Sales	4	-	-
Skilled trades	11	12	14
Semiskilled trades	3	5	-
Unskilled trades)			
Clerical)		2	4
Others)			

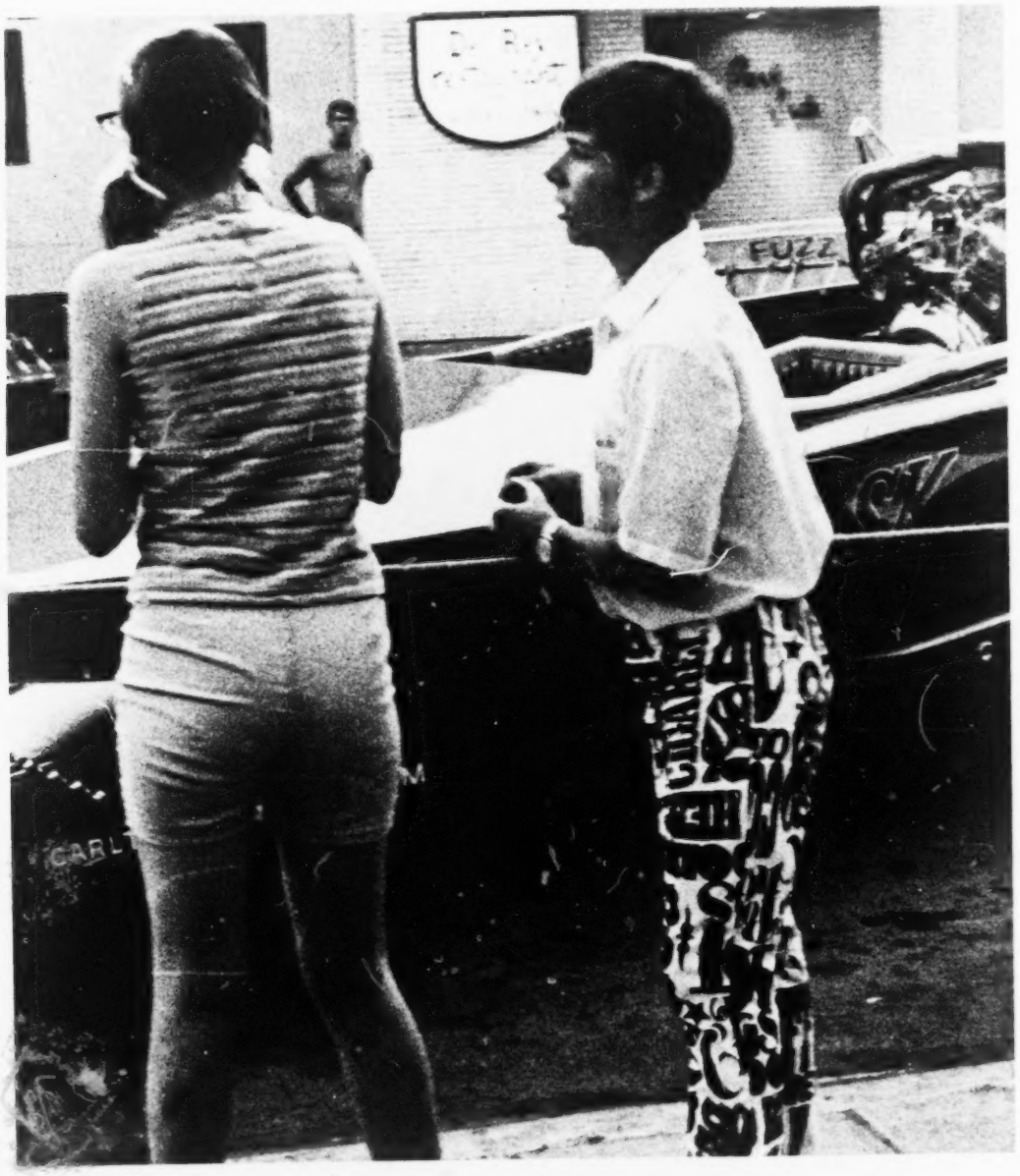
More than two thirds of all Portland boys aim at professional, semiprofessional or technical careers. This tendency appears more pronounced among white and Negro boys between the ages 16-18.

But the characteristic differences between the two groups, or between Negro boys and those in the "unclassified" group for that matter, lie in the proportional composition of professional and semiprofessional and technical choices. While professional occupations show a substantial preponderance within that top group of preferences in the white and "unclassified" columns, professional, and semiprofessional and

6225

technical choices are almost evenly divided among Negroes. Even more revealing is a comparison of individual occupations actually chosen in each group. It then becomes evident that the rather high proportion of young Negroes listed as would-be professionals and semiprofessionals is largely due to the technical fact that physical education instructors and professional athletes are classified as professional or technical occupations respectively.

The occupational preferences expressed by the Negro boys, with professional sports chosen by almost one out of four and followed by various forms of teaching, only dramatize what limited exposure can do to the outlook and expectation of young people. To put it into less academic language, the stated choices--sports, teaching, mechanics--represent the fenced-in world of the choosing boy: school playground, school classroom and the street corner service station.



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PREFERRED OCCUPATIONS: BOYS-PORTLAND

Rank	White	Per Cent	Negro	Per Cent	Unclassified	Per Cent
1	Engineers (except Electronics)	9	PE instructors, coaches, professional athletes	23	Electronics (engineers & technicians)	9
2	Natural & physical sciences	8	Teaching, incl. art & vocational	11	Engineering Teaching (incl. music)	8 each
3	Architects, architechtural engineers & technicians, commercial pilots, mechanics	5 each	Mechanics	6	Forestry, mechanics	6 each
			Law, business administration, engineer, machinist	5 each		

PREFERRED OCCUPATIONS: BOYS 16 - 18, PORTLAND

Rank	White	Per Cent	Negro	Per Cent	Unclassified	Per Cent
1	Engineering (except electronics	10	PE instructor, coach, professional athletes	24	Forestry, mechanic, teaching	8 each
2	Natural & physical sciences	8	Teaching	12	Engineer (except electronics)	6
3	Architects, arch. engineering, commercial pilots, teaching, electronics engineer & technicians	6	Mechanics, machinist engineering, M. D., Electronic techn.	5 each	Electronics (engineer & techn.), commercial pilot, draftsman	5 each

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Eighty-five per cent of the boys in other areas of the state who had ideas indicated their choices as--

OCCUPATIONAL PREFERENCES: BOYS, OUTSIDE PORTLAND

Occupational Group	Per Cent All Age Groups	Per Cent 16 - 18
Professional	48	50
Semiprofessional & technical	12	11
Managerial, official	7	8
Service	9	9
Sales	4	3
Skilled trades	16	17
Clerical	1	2
Other	3	-

PREFERRED OCCUPATIONS BOYS OUTSIDE PORTLAND

Rank	All Age Groups	Per Cent	16 - 18	Per Cent
1	Mechanic	9	Engineer (except electronics); mechanics	8 each
2	Engineer (except electronics); armed services	7 each	Physical & natural sciences*; armed services	7 each
3	Natural & physical sciences; teaching; forestry	5 each	Teaching	6

**If social sciences are added, then sciences are the chosen field of nine per cent in all age groups as well as of the 16-18 year olds; sciences would share the first place among choices of all age groups and would be the first choice of 16-18 year olds.*

Girls, because they "traditionally" choose from a more limited set of objectives, appear to be less affected by a lack of exposure to the challenges and possibilities which exist "out there." As a consequence, there is far less disparity between the occupational goals of white and Negro girls in Oregon. Those differences which do appear, however, are quite telling. Negro girls more frequently than white girls wish to

6228

become social workers--a profession with which many of them obviously are acquainted through personal contact. At the same time, the career of airline stewardess, fully opened to them by federal legislation only two years prior to our survey, had not yet generated a full realization of its possibility in order to become as prominent a choice as it is with white girls.

OCCUPATIONAL PREFERENCES: GIRLS, PORTLAND

Per Cent

All Ages

	White	Negro	Unclassified
Occupational Groups:			
Professional	39	40	54
Semiprofessional & technical	12	6	2
Managerial, official	3	-	-
Clerical	22	41	31
Service	24	11	13
Skilled trade	-	2	-

Per Cent

16 - 18 Year Olds

	White	Negro	Unclassified
Occupational Groups:			
Professional	40	45	53
Semiprofessional & technical	10	8	3
Managerial, official	-	-	-
Clerical	31	39	32
Service	13	6	13
Skilled trade	-	2	-

6229

PREFERRED OCCUPATIONS: GIRLS, PORTLAND

Rank	White	Per Cent	Negro	Per Cent	Unclassified	Per Cent
1	Secretarial; clerical	20	Secretarial; clerical	32	Secretarial; clerical	23
2	Nursing	15	Nursing	13	Teaching	18
3	Beautician; hairdresser	14	Social work; IBM oper.	10 each	Nursing	13
4	Teaching	12	Teaching	8	IBM oper.; beautician; Social workers	8 each

PREFERRED OCCUPATIONS: GIRLS 16 - 18, PORTLAND

Rank	White	Per Cent	Negro	Per Cent	Unclassified	Per Cent
1	Secretarial; clerical; Nursing	17 each	Secretarial; clerical	28	Secretarial; clerical	23
2	Beautician; hairdresser	15	Nursing	16	Teaching	18
3	Teaching	12	IBM operator	12	Nursing	13
4	Airline hostess	6	Social worker	10	IBM operator, beautician	8 each

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OCCUPATIONAL PREFERENCES: GIRLS OUTSIDE PORTLAND

Per Cent

Occupational Group	All Age Group	16 - 18
Professional	39	38
Semiprofessional, technical	14	14
Managerial	1	2
Clerical	21	22
Service	22	22
Sales) Skilled) Other)	2	2

PREFERRED OCCUPATIONS GIRLS OUTSIDE PORTLAND

Rank	All Age Groups	Per Cent	16 - 18	Per Cent
1	Secretarial; clerical	18	Secretarial; clerical	18
2	Teaching; counseling	17	Teaching; counseling	16
3	Nursing	12	Nursing	12
4	Beautician; hairdresser	10	Airline hostess	10

6231

SOMEBODY'S SUGGESTION?

Glancing over the list of vocational goals and hoped-for careers, one wonders how the young people arrive at their choices. If anybody or anything influences them in selecting a job, who or what is it? Who or what impresses them enough to direct their thoughts toward their personal future.

In response to the question, "Has anybody suggested this occupation to you?" the indications were--

- Boys were less influenced by suggestions of others than were girls.
- Negro boys were more dependent on the suggestions of others than white boys.
- Negro girls showed slightly more independence in their choices than did white girls, an indication probably due to the higher average age level of the former.

In percentages, the "Yes" answers to that question, indicating that the choice indeed was based on the suggestion of another person, were divided--

Portland						Outside Portland	
Boys			Girls				
White	Negro	Unclassified	White	Negro	Unclassified	Boys	Girls
30	37	29	43	39	32	34	41

6232 1650

Who makes the suggestions? Or, perhaps more accurately, to whose suggestions are the young people susceptible?

Although no clearcut and consistent pattern emerges from the response, comparisons between the groups nevertheless point to these characteristics--

- Parents, alone or in conjunction with others, such as teachers or friends, appear to be the major influence wherever the choice is not a completely independent one.

- Next to parents, friends are most often mentioned as those who suggested occupations chosen by the respondents. This, however, is not the case with young Negroes, both boys and girls. There the role of the friend as personal confidant and counselor in questions of occupational planning and hoping appears to be distinctly minor when compared to the situation among white youth.

- Characteristically, the figures indicating suggestions and advice by "others" are much higher among Negro boys and girls than among their white counterparts. This apparently reflects the effects of various official and semiofficial job counseling and training programs set up to reach disadvantaged youth, particularly those in the ghettos.

- School counselors do not appear to play a particularly significant part in helping to determine job preferences. Only Negro boys in their response somewhat accentuated the role of the school counselor.

The persons making the suggestions, according to the number of youngsters who mentioned them, separately or together with others, are--

6233

"HAS ANYBODY SUGGESTED THIS OCCUPATION TO YOU?"

Per Cent

Boys

Who?	Portland White	Portland Negro	Unclassified	Outside Portland
Parents	20	28	18	24
Teachers	10	12	18	8
Counselors	5	16	6	2
Friends	10	4	23	20
Others	10	24	12	22
Parents & teachers, friends, Others	40	4	14	14
Teachers & counselors, friends. others	5	4	9	4
Friends, counselors, others	-	-	-	-
No information	-	8	-	6

Per Cent

Girls

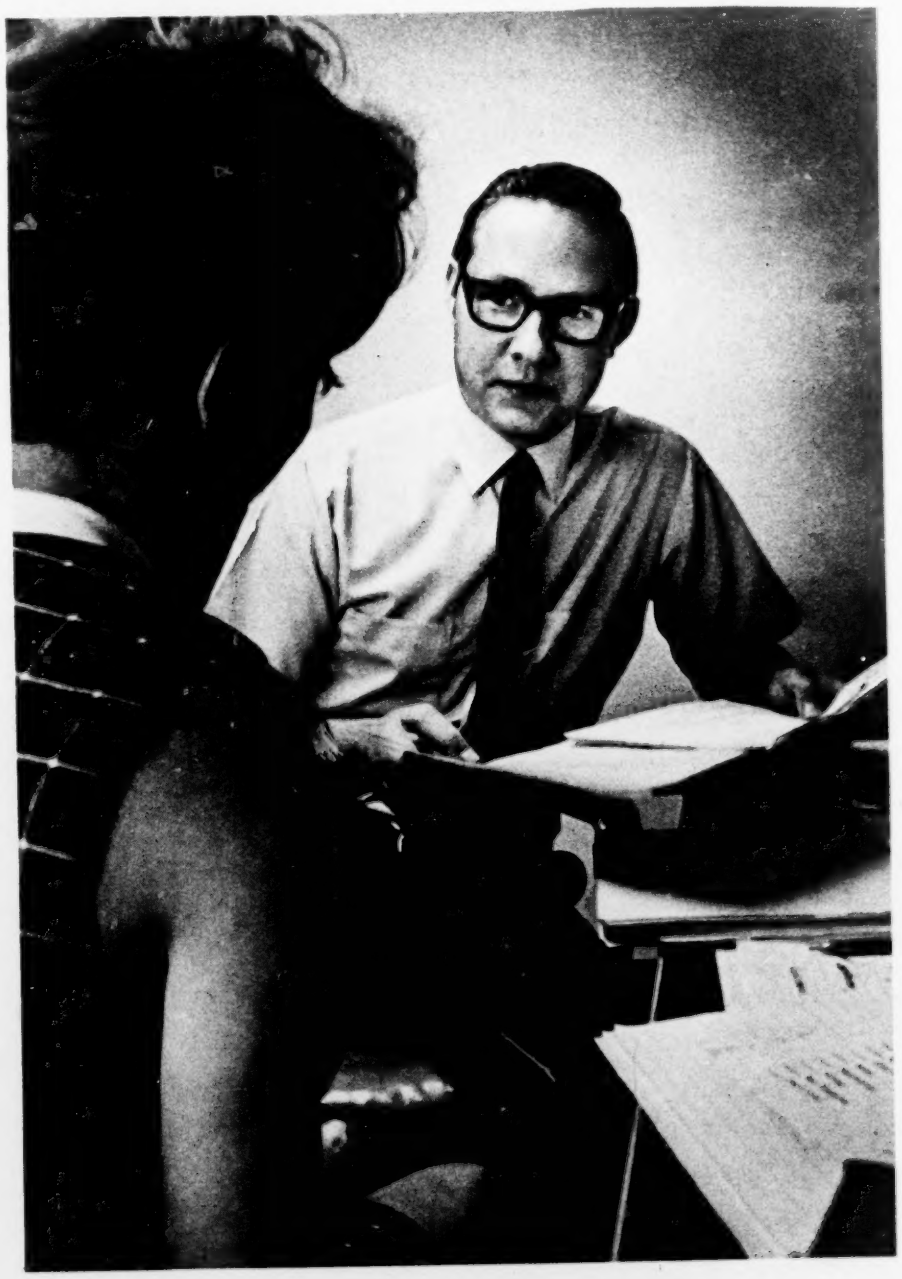
Who?	Portland White	Portland Negro	Unclassified	Outside Portland
Parents	19	16	15	42
Teachers	-	8	23	17
Counselors	8	8	-	4
Friends	19	8	-	10
Others	4	40	23	17
Parents & teachers, friends, others	28	12	15	8
Teachers & counselors, friends, others	4	4	15	-
Friends, counselors, others	12	4	9	-
No information	6	-	-	2

6234

WHO IS LISTENING

More important perhaps than the question of who suggests a future career or stimulates the young persons' interests in specific vocational goals is the question of who is there to talk over the situation with the boys and girls once they have some concept, however vague, of what they might wish to do. Who is there with whom they can discuss their hopes and ambitions and in whom do they feel they can confide?

We pointed out before that some 30 to 40 per cent of our respondents claimed their preferred job or vocation was suggested by "another person." Among these other persons, as we noted, parents figured rather prominently. We must keep in mind, however, that this concerns a minority of the youngsters--although a substantial one.



It does not tell us what relationships exist between parents and children in these important matters and how parents react to the youthful plans and expectations.

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Essentially, what sort of "hearing" do the youngsters get at home?

To explore this particular area, the boys and girls were asked this opening question, "Do Your Parents Know About Your Plans And Ambitions For the Future?"

And This is the way they answered--

Per Cent

Boys

	White	Portland Negro	Unclassified	Outside Portland
Yes	98	72	89	92
No	2	24	7	6
"Vaguely" (assumed "yes")	-	1	4	-
No Answer	-	3	-	2

Per Cent

Girls

	White	Portland Negro	Unclassified	Outside Portland
Yes	98	91	97	97
No	-	6	-	3
"Vaguely" (assumed "yes")	2	3	-	-
No answer	-	-	3	-

6236

The overall picture presented by the figures shows--

> There are proportionately more parents of girls who know about the vocational plans and career ambitions of their daughters than there are parents of boys who are informed about the aspirations of their sons.
>
> * * *
>
> More parents of white children are aware of their offsprings' occupational goals than there are parents of Negro children in the same position.

How do the parents, in the opinion of their children, react? Before taking a closer look at the youngsters' report on that point, first let us see which of the two parents is listed more often as responding in one way or the other to the boys' and girls' disclosure or career hopes and ambitions.

Per Cent

Boys

Reaction from	Portland White	Portland Negro	Unclassified	Outside Portland
Father	95	83	92	93
Mother	95	93	93	96

Per Cent

Girls

Reaction from	Portland White	Portland Negro	Unclassified	Outside Portland
Father	95	68	89	93
Mother	93	97	97	96

We note that, with the exception of the white girls in the Portland area, the youngsters report mothers more often than fathers are responding to the occupational plans of their children. In the case of Negro girls and of those in the unclassified sample, the difference between the respective proportions of responding fathers and mothers is more pronounced. A good deal of this lack of response on the part of the fathers may be attributed to the fact that by the time the girls formulate their plans for their job future some of their fathers are, for one reason or another, no longer with their families.

6237

As for the kind of parental reaction which youthful plans produce, the range of the responses extends from "approval and encouragement," to "approval," to mere acceptance ("It's OK with them"), to opposition ("are against it"), to, finally, indifference ("don't care").

How did the fathers react when informed of the childrens' vocational aspirations? --

Per Cent

Boys

	White	Portland Negro	Unclassified	Outside Portland
Approve & encourage	63	62	61	64
Approve	6	8	7	6
"It's OK"	21	25	25	25
Against	2	-	2	3
"Don't care"	8	4	4	2

Per Cent

Girls

	White	Portland Negro	Unclassified	Outside Portland
Approve & encourage	61	63	59	66
Approve	5	12	6	5
"It's OK"	28	23	32	23
Against	2	-	-	-
"Don't care"	4	2	3	6

6238

And how did the mothers respond? --

Per Cent

Boys

	White	Portland Negro	Unclassified	Outside Portland
Approve & encourage	66	71	68	61
Approve	6	6	7	7
"It's OK"	25	18	22	30
Against	-	2	-	-
"Don't care"	4	2	3	2

Per Cent

Girls

	White	Portland Negro	Unclassified	Outside Portland
Approve & encourage	68	77	68	73
Approve	5	13	5	6
"It's OK"	16	10	27	16
Against	2	-	-	1
"Don't care"	9	-	-	4

It should be noted that in the father and mother columns the reactions of those were listed who more accurately would be defined as male or female heads of the family. For instance, included were step-parents, grandparents, uncles and aunts. A check of the Portland sample showed that the reactions of male and female heads of family numerically exceeded those of real fathers and mothers by two to five per cent. No marked difference was noted in that respect between the white and Negro samples.

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A comparison of these data leads to the following general observation--

- Mothers are more outspoken in their encouragement of their children's occupational goals and aspirations than are fathers. They also show--with one notable exception--less indifference than the fathers.

- Relatively more white mothers than Negro mothers take a "don't care" attitude toward the vocational preferences mentioned by their children.

- Generally, more girls get encouragement from their mothers than do boys.

- The highest proportion of any group of youngsters in the survey receiving approval and encouragement are Negro girls of whom 77 per cent received the moral support of their mothers.

To be sure, all these comparative observations are relative. They refer to the total of all the reactions shown by the respective group of parents. Thus, for instance the relatively high proportion of Negro fathers reacting positively by encouragement, approval--or both--to the occupational plans of their children should be evaluated against the fact that Negro fathers were the one parent group with the fewest reported reactions of any kind.

6240 0058

ELEMENTS OF CHOICE

As pointed out before, from six to seven out of 10 boys and girls who indicated some preference as to their future job also reported that the choice was their own and not influenced by suggestions and advice of others.

No matter who or what influenced the young persons' concept of his or her hoped-for future--and there is influence of one sort or another since such concepts do not spring up in a vacuum--he or she must develop, or adopt, reasons as to the why. That is, if the choice is to be considered genuine and not an empty gesture in order not to appear "stupid" or to please the questioner, these reasons are essential.

What are the elements of choice? What do young people find attractive in careers they wish to follow or jobs they might want to hold?

The questionnaire listed several possible reasons for choosing a particular occupation--

- Interest in the particular type of work.
- Money--the possibility of better-than-average earnings.
- Prestige--for the person engaged in the chosen type of work.
- Employment opportunity--good chance to find a job.
- Job security--which the type of job is likely to offer.

These tentatively listed reasons were neither mutually exclusive or exhaustive. The young respondents were asked to rank them in order of importance. They also were given the opportunity to name other reasons and assign whatever rank they felt expressed relative importance.

By applying to the answers a scoring system that would allow a perfect score of 100 for a motivating factor of maximum importance and for factors of lesser significance a correspondingly smaller numerical value, the rank order of motivational factors was established.

6241

"WHAT IS YOUR PERSONAL REASON FOR CHOOSING THIS OCCUPATION?"

	Portland								Outside Portland			
	Boys				Girls							
	White		Negro		White		Negro		Boys		Girls	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
It is the kind of work that interests you	1	81.2	1	82.4	1	82.1	1	82.4	1	85.6	1	81.8
Gives one a chance to earn much money	2	41.6	2*	37.9	4	30.5	2	40.0	3	34.7	5	31.3
Gives prestige to the person engaged in it	5	25.5	4	25.3	5	29.4	5	32.6	5	27.1	4	32.3
Gives you the best chance to find employment	4	30.0	3	32.6	3	35.6	4	36.3	4	31.5	3	37.0
Is likely to offer job security (steady employment)	3	36.9	2*	37.9	2	37.9	3	38.0	2	38.9	2	37.8

*Tie

Since the rank order is based on the subjective judgment of the young people, it may well be that the sincerity of their choices--which we need not doubt--is not always matched by their validity. In other words, a boy or girl may honestly wish to follow a certain occupational path in life yet may do so for the wrong reason.

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Nevertheless, although we may use whatever caution necessary in looking at the answers, there are several points which emerge clearly enough and which appear meaningful--

1. Interest in the preferred job or career is by far the most important motivation. Among the possible alternatives, the one asking,"Is it the kind of work that interests you?" received the most affirmative replies from both boys and girls and from each of the subsamples. In each instance, its score was about twice that of the second-ranking reason on the list.

In 1962, a similar question was asked in the small-scale teenage youth survey by the Bureau of Labor and the principal finding brought this comment by the study report--

> **"Interest in the job itself because of the specific activity and individual effort involved is clearly the most important motivating element for boys and girls in planning their future occupation."**

It is interesting to note that not only was the answer the same as it is in the present study, but "interest," which appeared at the top of the list in 1962, at that time, too, scored about twice as many points as the second ranking motivational factor.

2. Job security, or "steady employment," as the questionnaire added by way of explanation, is a very powerful element of job attraction. Still, in comparison to what our inquiry of a few years ago indicated, a notable shift in emphasis seems to have taken place from "job security" to "monetary rewards." In 1962, "job security" held the second spot, and our report made these observations--

> **"Job security is the second most important factor of motivation and outranks favorable prospects of monetary rewards by a substantial margin. This indication may raise some doubts whether the traditional and popular concept of 'making good' still exists among American youth today.**
>
> **"There would be as many 'explanations' of this phenomenon as there are 'orientations.'**

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"Is the attitude, as revealed through our inquiry, a psychological inheritance handed down to the youngsters by a generation still haunted by fearful memory of the Great Depression, or is it the young generation's own anxiety and insecurity nurtured by worldwide unrest and economic displacement through automation at home? Or is it, as some would say, a weakening of the fiber in our youth due to the expanding realm of the welfare state and its--protective or coddling, whichever one prefers--legislation?

"Or is it the result of our 'affluent society' where inflationary trends on the one hand, and a high standard of living on the other, determine an unimaginative desire to preserve the status quo?"

Our present investigation shows that in Portland white boys place "the chance to earn much money" ahead of "job security" while Negro boys assign equal importance to both factors.

Perhaps today such a trend might justify a different interpretation based on a simpler logic by assuming that an "affluent society" and a relatively high employment rate are beginning to generate in the minds of the young an attitude of "What's so good about a steady job with not much money?"

3. Money, that is the possibility of better-than-average earnings ranks third among the elements of choice. However, a rather characteristic disparity in the evaluation of the monetary reward factor appears here between the sexes. Girls, generally, seem to be less materialistically motivated in the determination of occupational choices than boys. There is one notable and significant exception: Negro girls agree with the boys in attaching considerable importance to the question of monetary rewards with regard to their future job or career preference. Here again, we have to assume that a realistic appraisal of her anticipated role as provider and family supporter determines the Negro girl's approach.

On the question of monetary reward as a motivational factor, we find in Reasons for Selection of Expected Occupations, a study published by North Carolina State University at Raleigh in 1965, these observations--

"More male students responded with answers in this category than did female students. This category is considered to be a pragmatic one, and those students who responded in this category are, it seems, realistically oriented to their future occupations."

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Commenting further, the University of North Carolina report refers to findings which differ from our own:

> **"Difference in female response is evident, with a smaller percentage of Negro females giving reasons in the category of monetary reward. The implication seems to be that Negro females are less motivated by selfish materialism with regard to selection of an occupation than are respondents of the other sex-race categories."**

It would seem that the response from the Negro girls in Portland represents a more plausible reaction to the reality of their environment. It is but one more indication of the young Negro female's purpose-oriented outlook which we noted before and which also is apparent in a recent Bureau of Labor study on Oregon self-supporting women with dependents. [1]

4. "Best chances to find employment" are generally not considered a factor of particular concern. This, somewhat surprisingly, applies also to the response of Negro youngsters among whom one would expect to find some awareness of particular employment problems existing in the Negro community. Unless one wishes to dismiss their answers as superficial or naive, one has to look for a more plausible explanation. The fact that Negro girls are even less concerned about their "chances to find employment" than white girls seems to be the clue to an answer which would be realistic rather than naive: Negro girls--and to some extent Negro boys as well--make their choices to begin with among the kind of jobs that are "safe bets" for them and have been so in the past.

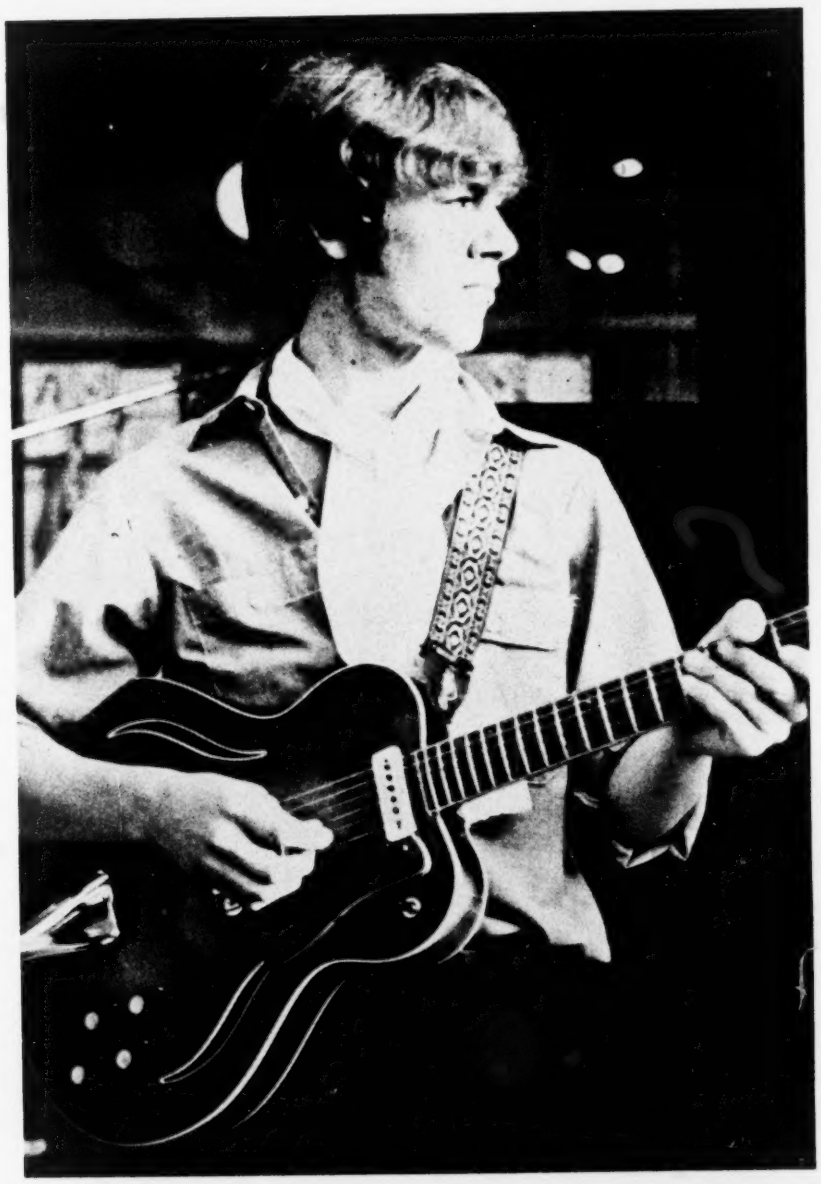
5. Prestige which the job assumedly confers upon the holder appears at the lower end of the value scale just as it did in our earlier inquiry. In fact, in 1962 it was said--

> **"One characteristic indication in this connection was that...the girls did show a markedly higher valuation of the prestige assumedly attached to certain jobs than did the boys. The female species thus appears to be more naturally inclined to be a status seeker..."**

1. *They Carry the Burden Alone. OBOL, 1968*

The results now show that only female respondents in areas outside Portland put prestige next to and not in last place on their list of reasons for preferring a certain job.

6. "Other reasons," among which were those essentially extensions of the "interest in the job," such as the "wish to meet people," and the "chance to travel" frequently mentioned by would-be airline stewardesses. Similarly, the phrase "because I like to work with children" is a recurrent explanation by girls planning to become grade school or kindergarten teachers.



Some of the "other reasons" reflect the youngster's concern with the requirements of the job he or she has in mind. In this group belong statements such as "I have the experience" or "I an presently doing it" or "It's a job I know and easy to learn." One boy who chose some menial task as his future job adds a pathetic note by giving his reason in the terse remark "mentally retarded."

In addition, there are explanations which stress an inner drive for independence. Significantly, the response furnished two examples of such motivation which, however, pointed in opposite directions--independence within society and outside of it. Both statements came from white Portland boys. One wants to follow a professional career

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because he wishes "to be his own boss". The other, too, wants to be his own boss; he uses the same words but his aspirations move in less "traditional" ways. His goal is to become a "surf bum" or a "drifter." He is 16 years old, lives with his divorced mother; on the road to being a social dropout, he apparently has taken something of the first step by dropping out of school.

Altruistic motives play a conspicuous role among the other reasons.

Although out inquiry did not find a particular emphasis by Negroes on the altruistic motivation, as was the observation of the North Carolina study, there was a notable and telling difference in projection of altruistic intentions. While white youngsters wished to advance progress in human welfare "at large," young Negroes aimed such intended efforts closer to home.

Thus a white boy, son of an electronics engineer, wishes to become a missionary priest and explains his ambition by saying, "It is a way to help people who need things more than I do," and he adds as an

afterthought, "A way to make friends which the United States needs now..." But the Negro youngster's objective does not lie across the seas. His ambition is to become a lawyer because, as he puts it, "It gives me a chance to help my race."

Similarly, among white girls the frequently used phrase in stating altrustic motives for choosing a job was "to help others." On the other hand, a Negro girl who writes, "I want to go back to school and become a social worker," clarifies it by stating, "I would like to try to help other young people like myself," She is 16 years old, married to a merchant seaman and the mother of a small son.

"LITTLE MORE THAN A GUESSING GAME"

About 12 years ago, an exhaustive study named "Project Talent," involving approximately 440,000 high school students, was launched by the University of Pittsburgh for the United States Office of Education. Its stated objective was "identification, development and utilization of the talents of American youth." Among the findings of that research undertaking was one which, in reference to career choices voiced by high school youngsters, said, "The students have been faced with choices they were not adequately prepared to make." This situation, in the words of a noted newspaper columnist reviewing the Pittsburgh study, was the reason why "a career choice at this level is little more than a guessing game" and why three out of four high school graduates change career goals one year after graduation.

Although we may feel somewhat more optimistic about the validity of the response by Oregon youngsters, such observations certainly merit some thought.

We ask ourselves, how much of a "guessing game" is there in our own inquiry? How much did our respondents actually know about the choices they were stating?

The probing into this particular aspect of our survey was confined to the two Portland subsamples of white and Negro youth.

The youngsters were asked--

> "Have you had any personal experience in the occupation you wish to choose, like actual practice, an activity that may serve as preparation, a part-time job, or an experience in a related field, etc.?"

Because it was felt that the problem especially relates to those boys and girls who could be expected to base their preferences and aspirations on a more realistic and factual evaluation--that is the boys and girls approaching high school graduation--a distinction was made between the general response and the response from youngsters age 16 or older.

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Characteristic features reflected in the answers to this question were--

- More boys and girls in the higher age bracket indicate personal experience in relation to their vocational preference than youngsters in all survey age groups.

- More boys than girls, both white and Negro, have had some personal experience in their chosen occupation.

- Both Negro boys and girls show a higher proportion of personal experience as to their stated preferences than shown by white boys and girls.

- We may assume this interesting indication is determined by the fact that the choices of young Negroes are confined to occupational categories within comparatively easy reach and therefore offering easier access to practical experience. The inherent quality of this situation is a negative one: the limitation of choice is the cause of the lesser limitation in practical experience.

A similar indication was furnished by the response to the question--

> "Have you observed others engaged in the occupation chosen by you?"

Here again we find that limited exposure to occupations other than those carried on within the environment relates to the larger proportion of Negro youth observing those engaged in the more easily accessible and therefore preferred types of work.

The next question was--

> "Have you read more than casually about the occupation chosen by you?"

The youngsters were asked if they had read about the occupation in one or more of the following sources: books, magazines, brochures, reports and newspapers.

Because of the inclusion of various types of reading material, some of which--notwithstanding the qualifying phrasing of the question--are conducive to very casual reading, the answers presumably are not very accurate and offer a picture which is not very revealing or consistent.

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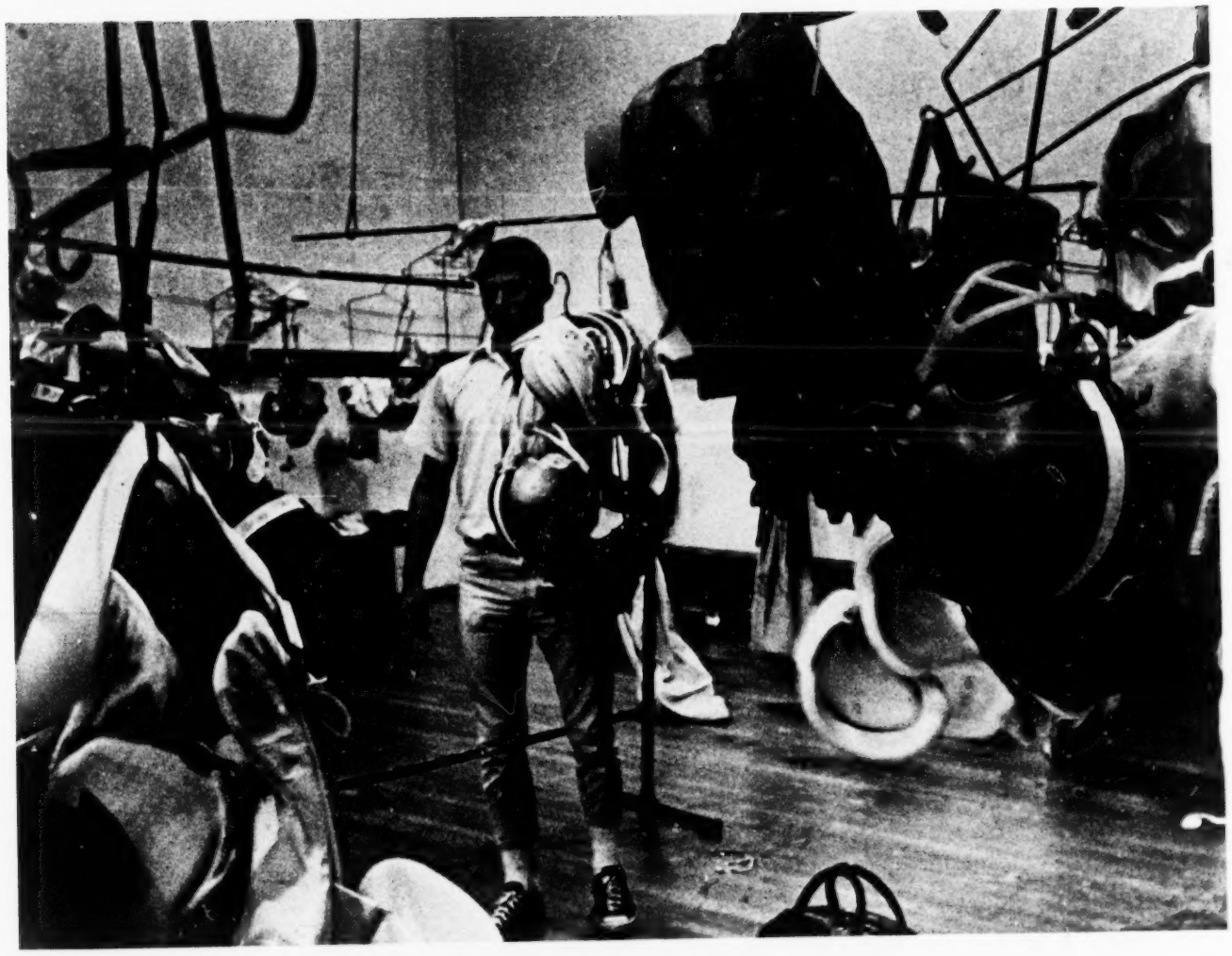

A more precise indication results from the direct and specific question--

> "Are you at present reading on the subject of your chosen occupation and keeping interested in the literature dealing with it?"

The replies reveal a greater interest in printed material dealing with the chosen occupation by white boys as compared to Negro boys and by Negro girls as compared to white girls. In the case of the boys, it would seem that once again a larger number of occupational choices expressed by white boys stimulate, by their very nature, a search for information through the printed word. As for the notably larger proportion of Negro girls as against white girls reportedly reading on the subject of their chosen occupation, there are mainly two components that may account for that preponderance: a greater sense of urgency with regard to needed preparation for their future occupations and a generally higher age level.

Finally, the young people were asked--

> "Have you heard any lectures on the subject of the occupation you wish to choose, or on topics closely related to it?"

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The fact that not even half of the youngsters indicated that someone with the proper know-how or background had addressed them about their chosen occupations points to a notable shortage in oral communication where it is needed.

"HAVE YOU HAD ANY PERSONAL EXPERIENCE IN THE OCCUPATION YOU WISH TO CHOOSE... ?"

PORTLAND

Per Cent

	Boys				Girls			
	White		Negro		White		Negro	
"Yes"	All	16 +	All	16 +	All	16 +	All	16 +
Personal experience?	51	52	57	69	45	51	53	60
Observed others?	71	70	63	81	62	64	61	71
Have read:								
Books?	60	62	53	64	43	47	56	65
Magazines	51	52	40	48	43	45	48	56
Reports & brochures?	51	54	23	26	52	57	39	44
Newspapers?	35	34	21	21	17	19	33	38
Presently reading?	57	56	37	43	25	28	55	60
Heard lectures?	40	40	36	45	25	28	36	40

The data just reviewed certainly are not evidence to prove Oregon youngsters to be "more adequately equipped for the choices they face" than their counterparts of Project Talent. Still, we cannot gloss over the inpression conveyed by the replies that a considerable number of Oregon boys and girls may have a pretty good idea of what they are talking about when they tell us what occupation they would like to choose.

The phrase "would like to choose" requires some qualification, however. As we have noted, familiarity with many occupations in the case of Negro youth relates to a narrow, traditional pattern which raises more questions than it answers.

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The disappointingly small number of youngsters who are exposed to authoritative oral information seems to indicate that the extent to which the "career choice at that level is little more than a guessing game" will depend on the measure of information that will be offered rather than the amount obtained by personal haphazard efforts.

6252

ANTICIPATING ROADBLOCKS

If one is not prepared to dismiss a career choice at this level as "little more than a guessing game," it becomes necessary to ask not only how much does a youngster know about his choice but also how much does he know about himself and his own situation?

How realistically does a boy or girl appraise circumstances which bear on the prospects of making a choice come true?

One feels that such ability, too, will be important for a decision on whether "the students have been faced with choices they were not adequately prepared to make."

The young people participating in our inquiry were asked--

"If your future occupation is not likely to depend on your choice, is it because..."

This was the young people's response--

	In Portland Per Cent				Outside Portland Per Cent	
	Boys		Girls			
	White	Negro	White	Negro	Boys	Girls
Among youngsters who stated their future career hopes, this proportional number gave reasons why the realization of their goals was unlikely.	42	99	28	75	37	40
These were the reasons:						
Financial situation in the family does not permit them to follow their own choices.	11	38	9	35	10	19
There are plans for them to enter the family business (or the business of some relative or friend).	2	7	-	2	2	1
Their parents prefer an occupation for them which they would not pick for themselves.	4	2	2	6	1	2
They will have to take the first job they can get.	15	31	4	19	9	6
They don't think they have a chance to get the kind of job they want.	6	14	9	11	7	6
Other reasons.	4	7	4	2	8	6

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Among the characteristic points of this tabulation are--

- Out of every 10 boys and girls who have some occupational goal or career ambition, three to four feel that the realization of their aspirations is unlikely to materialize. This feeling exists among practically all Negro boys and among three out of four Negro girls.

- Generally, less than two out of 10 youngsters with occupational preferences believe that the financial situation of their families will not permit them to follow their own choice. The same indication is given by almost four out of 10 Negro boys and girls.

- More boys than girls think their occupational hopes will be thwarted by the fact that they will have to take the first job they can get. This anticipation is twice as frequent among Negro boys as among white boys and five times as frequent among Negro girls as among white girls.

6254

"WHAT IT TAKES"

Let us take one further step in probing how sound and valid are the young people's occupational choices and aspirations. Let us find out "what it takes"--in their judgment--to reach their chosen goals.

Besides giving us an idea of how they assess the requirements of the specific occupation or career of their choice, their response may tell us, in general terms, something about their basic approach and the values they apply as they look toward their occupational future.

We focused our attention on the Portland area and asked--

> "Which qualities or conditions do you think are most important to achieve your career goal?"

Since there is a marked difference in age structure between the white and Negro samples, which possibly could lead to some bias when comparing results, the following data are based on answers from comparable age groups, that is, from the 14-17 year olds.

These were the qualities or conditions considered most important by Portland youngsters to achieving their career goals.

Age Group 14 - 17

Boys

	White		Negro	
	Rank	Score	Rank	Score
Hard work and perseverance	2	59.4	1	67.1
Winning personality	3	32.9	4	35.2
Education	1	63.3	2	55.7
Family finances	4	32.0	3	35.9
Social background	5	25.0	5*	27.8
Luck	6	24.1	5*	27.8

*Tie

Girls

	White		Negro	
	Rank	Score	Rank	Score
Hard work and perseverance	2	60.5	1	64.6
Winning personality	3	37.2	3	37.3
Education	1	60.7	2	63.9
Family finances	4	30.0	4	29.3
Social background	5	25.0	5	27.4
Luck	6	23.7	6	27.0

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Summarizing the more indicative aspects of this comparative listing, we note--

White boys and white girls list the qualities and conditions necessary to achieve their occupational objectives in exactly the same rank order; however, the scores on which that order is based reveal that boys assign a higher priority to "education" than do girls and girls find "a winning personality" to be more of an essential requirement than do boys.

* * *

Although both Negro boys and girls place "hard work and perseverance" and "education" in first and second place respectively, the boys' response shows a much wider gap in scoring points between these two factors.

* * *

Negro boys consider the financial situation at home to be slightly more important than the factor of personality. Negro girls, on the other hand, believe a "winning personality" to be an element of greater consequence than family finances.

* * *

By and large, there are close similarities in the response pattern of both white and Negro youngsters.

* * *

The notable difference lies in the listing of "hard work" and "education" by Negro boys and girls. Their ranking inverts the order assigned to those factors by white youngsters. However, the girls, white as well as Negro, indicate only a fractional disparity in their scoring values for "hard work" and "education," thus rating them practically even. In contrast, the difference in the evaluation of those two factors by white and Negro boys is pronounced.

* * *

Finally, the fact that on each of the four scales the element of "luck" appears at the bottom is a reassuring symptom. It implies, regardless of any anticipation of roadblocks by the boys and girls, their essentially positive reaction to the alternative of "Drive or Drift."

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BEYOND HIGH SCHOOL

We have noted that among the youngsters with some concept or idea about their occupational objectives, there is an acute awareness of the important role education plays in achieving those goals.

This raises the question whether such awareness manifests itself affirmatively in a desire of the young people to continue their education after high school graduation.

Our survey showed that of all the participating boys and girls of ages 16 to 18, those who explicitly stated they wish to go on to college and those who through their choice of occupation made clear their intentions to continue their education on the college level amounted to--

Per Cent

Portland				Outside Portland	
Boys		Girls			
White	Negro	White	Negro	Boys	Girls
55	39	33	24	55	34

Proportional figures indicating how many of the youngsters in that age bracket specifically stated which college or university they had in mind in order to pursue post-high school education were--

Per Cent

Portland				Outside Portland	
Boys		Girls			
White	Negro	White	Negro	Boys	Girls
46	35	24	18	49	28

6238

The overall picture, which includes study at community colleges, seminaries, military academies, etc., and, in the case of girls, college level training programs in medical and dental technology, shows the total percentages of those intending to seek post-high school education--

Per Cent

	Portland				Outside Portland	
	Boys		Girls			
	White	Negro	White	Negro	Boys	Girls
Total of those planning on post-high school education	69	52	45	37	66	41
College	55	39	33	24	55	34
Community college	7	6	6	10	7	4
Other schools*	7	7	6	3	4	3

Includes religious seminaries, military academies, medical technical college programs etc.

We thus find that about two out of three male white high school students intend to continue their education after graduation. The corresponding proportion of male Negro students is about one out of two. The proportional difference between white and Negro female students in this regard is less pronounced. The respective figures are somewhat above and below the 40 per cent mark.

How do these "indications of intent" compare with the actual data on Oregon's freshmen entering schools beyond high school expressed as percentages of high school graduates? According to information released by the Research and School Finance Division of the Oregon Department of Education, these are the proportions of 1967-68 freshmen expressed as a percentage of June, 1967, high school graduates--

	Per Cent	
	38	institutions of higher education, public and private
	13	community colleges
Total	51	

Considering that these data concern both male and female students and possibly indicate some shifts from planned college study to actual

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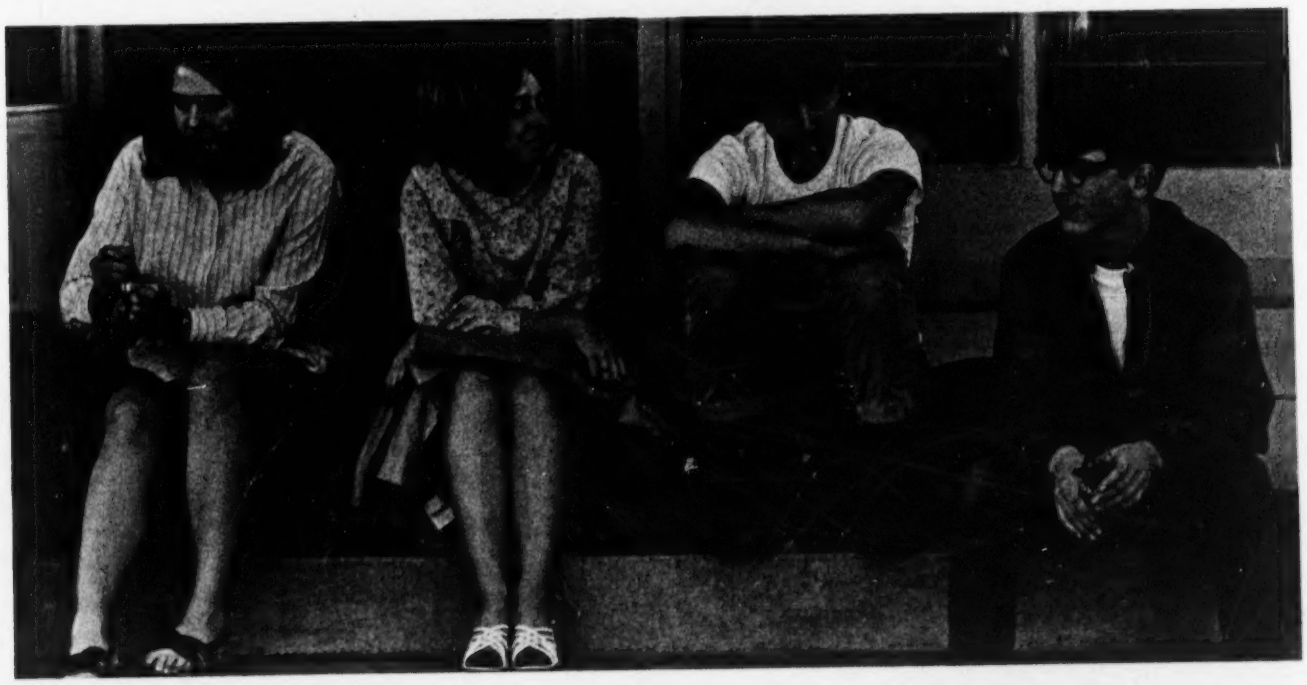
attendance at community colleges, the "indications of intent" provided by our respondents do not seem to be far out of line. It appears that the gap between expectation and actual realization, at least in its initial stage, is narrow enough that the young people should be helped to close it when, otherwise, reasonable and justified hopes and aspirations may founder.

The remarks added to the questionnaire answers by a 16-year-old girl attending high school in a Portland suburban area point to one of the hurdles which may stand in the way of the young when they try to turn from dreaming to doing--

> "I hope that I have helped you and I hope that you in return can do something about the job situation in our community. Many students need and want jobs, and are capable of handling them, but few can find work out here. Most students who are planning on a college education need to work to help their families' financial situation, but few of these people are poor enough to come under the 'War on Poverty' program. What few openings there are are usually filled up with these Distributive Ed. kids and students whose families are poor. This does not seem right to me or many others. It is almost impossible for a student living out here to work in Portland because of the transportation problem. I only wish that a program could be set up to help students get jobs in related fields of their interests while earning money to help with college."

On the basis of the response to our inquiry, less than one out of four youngsters expects full support from his family while in college and about two out of three anticipated partial family support.



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SOMEBODY TO TALK TO

Having reported and compared the statements of Oregon's young people, having listed the dreams and doubts they nurture about their future careers and obstacles they anticipate, and having assembled some of the jigsaw pieces of what we call "environment," we now return to the question we posed earlier: What sort of hearing do the young people get?" In this era when speed and span of human communications stagger our imagination, who is there to listen and to talk to a teenage boy or girl who wants to "drive" rather than "drift" into tomorrow and still wants to be reassured of driving in the right direction?

In Human Resources, Eli Ginzberg wrote in 1958--

> "...the major waste of potential occurs because young people aim too low, not too high. They do so because, among other reasons, they have no clear-cut perception of their potentialities or of the opportunities available to them in the world of work. There is great need for our society to improve the services to young people in order to help them appraise the complex occupational structure and the ways in which they can best qualify themselves for the fields of their choice. One of the most difficult challenges that the schools face is to know how to provide some understanding of this adult world for adolescents who are preoccupied with other, more immediate, problems."[1]

This was written 10 years ago.

What did our own investigation say on this point eight years later? To our question, "Have you discussed the choice of your occupation with your counselor?" about half of the boys and between six and seven out of every 10 girls gave a "Yes" answer. Or, to underscore the unmet needs, we may say that of the youngsters who had stated the choice of their future occupations, about one half of the boys and, on the average about a third of the girls had not discussed their choice with their counselors.

1. *Eli Ginzberg. Human Resources: The Wealth of a Nation. New York: Simon and Schuster, 1958.*

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Among the several of the reasons given, these were the most frequently mentioned--

"I haven't gotten to it";

* * *

"They can't help" or "They're not interested";

* * *

"I don't have a counselor."

Broken down by sample groups, the affirmative answers were--

"HAVE YOU DISCUSSED THE CHOICE OF YOUR OCCUPATION WITH YOUR COUNSELOR?"

Per Cent of "Yes" Answers

Portland						Outside Portland	
Boys			Girls				
White	Negro	Unclassified	White	Negro	Unclassified	Boys	Girls
51	49	63	70	55	66	41	58

A comparison of proportions of "Yes" answers from other than Negro youngsters indicates more counselor-student contacts about future occupations and careers in the Portland area than in the rest of the state.

Ginzberg further observes--

"Fortunately, much of the knowledge which youngsters require to help them with their occupational choice is gained from life directly--from their parents, relatives, and friends and from the community in which they live."

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Although a discussion of occupational choice as such does not necessarily amount to "gained" help, Ginzberg's statement, in general, seems supported by the data gathered in our inquiry--

"HAVE YOU DISCUSSED THE CHOICE OF YOUR OCCUPATION WITH OTHERS?"

Per Cent of "Yes" Answers*

Boys

Discussed with:	Portland White	Portland Negro	Portland Unclassified	Outside Portland
Friends	77	64	67	70
Teachers	34	39	51	38
Parents & relatives	35	27	35	35

Girls

Discussed with:	Portland White	Portland Negro	Portland Unclassified	Outside Portland
Friends	89	66	88	86
Teachers	52	41	62	48
Parents & Relatives	44	46	50	54

* *Percentages are not mutually exclusive*

We note in each group, relative to each of the alternatives, that girls appear more communicative.

We further gather from the data that among Negro boys and girls, "friends" seem to be considered confidants in matters of occupational aspirations to a lesser extent than is the case with other youth.

Also, a significant indication appears to be the comparatively low proportion of Negro boys who discuss their plans with parents or relatives.

It is in the area of these personal relationships that communication about such matters, by comparison, lags behind in the environment of most Negro youth. This, then, is the vacuum to be filled by the official programs previously mentioned (a community service center, a youth opportunity center, etc.).

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Yet a vacuum seems to exist which is not confined to any particular group or segment of our youth.

Next to the focal question on occupational plans and goals, one of the most signal importance was--

"Would you like to have someone counsel you now with regard to your plans for a future occupation?"

In response, of all boys and girls who stated their preferences for any particular occupation or career, from 40 to 80 per cent were looking for counseling and guidance at the time of our inquiry.

This is the detailed picture--

"WOULD YOU LIKE TO HAVE SOMEONE COUNSEL YOU NOW...?"

Per Cent of "Yes" Answers

Portland						Outside Portland	
Boys			Girls				
White	Negro	Unclassified	White	Negro	Unclassified	Boys	Girls
69	66	50	51	82	40	59	46

It is interesting to see that with the exception of Negro boys, the male respondents in each group are the ones more desirous to talk and to listen to someone about their goals. Is it because the girls, at the time of the survey, already had done most of their talking and listening to others? Or, is it rather because career goals and occupational objectives of boys generally are more complex, the manner in which they can be achieved more involved and, therefore, sound counsel and advice require more expertise and are harder to find?

When asked who they think could advise them, a majority gave this simple and sensible answer--

"Someone who is working in that field."

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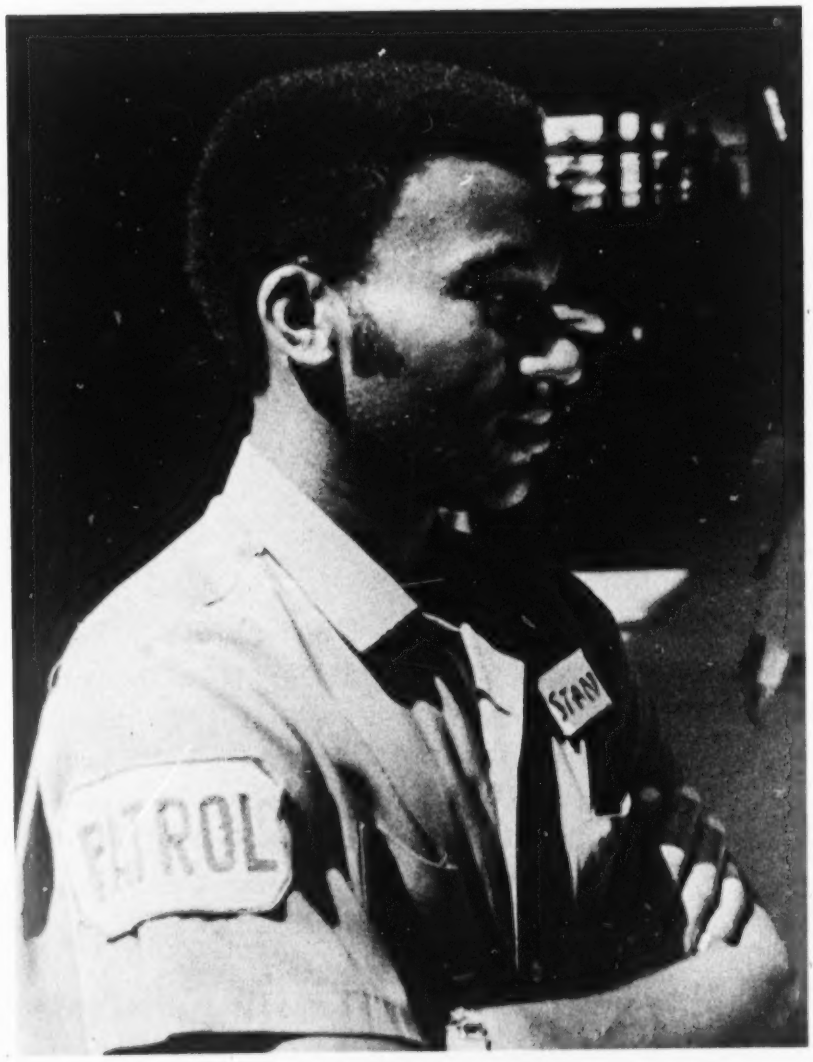
SUMMING UP

While this study was in progress, the problem which exists today in the relationship between some of our youth and the rest of society deepened and the edges of conflict sharpened.

The problem is one of many facets and much discussion about it goes on.



We have tried to touch on one particular aspect which we consider basic and significant. It seems that others share our view.

Shortly before the 1968 national election, public opinion analyst Samuel Lubell, in a series of three articles on the problem of our youth, wrote that the question, "What career or occupation do you intend to follow. . . ?" was, in his words, "the most revealing single question a young person could be asked these days."

He explained that answers to this question "leave little doubt that one's choice of vocation operates as both the young person's sense of economic self-interest and as a major force shaping how he identifies with the future." This identification with the future is at the core of the conflict. It indicates whether there is "alienation," whether the young person feels and acts as a "stranger in society"

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with nothing to give and nothing to gain, or as one ready to share society's destiny by being determined to shape his own.

The impact and the urgency of the youth problem are to be considered and discussed in relation to the demographic changes in this country since the mid-1960's. In 1964, there were 2.8-million youngsters reaching the age 18; in 1965--just one year later--the number had jumped to 3.8 million. (This demographic revolution, incidentally, is not confined to the United States; Today there are more members of the under-25 generation on earth than at any other time.)

Turning to the local scene, projections for Oregon indicate that the male population under 25 will increase from 1960 to 1970 by some 53 per cent.

The male labor force in the same age bracket and for the same period will increase 65 per cent. The number of females in Oregon under 25 will rise by more than 50 per cent while their number in the labor force will jump a whopping 90 per cent.

Viewing this general trend, Lubell concludes--

> "This increase has generated a whole chain reaction of stresses and strains, reflecting the difficulties in assimilating so many youthful millions into adult society.
>
> "...Whatever speeds the assimilation of our youth into our social and occupational structure is desirable, whatever delays or obstructs it is harmful."

Our exploratory effort was directed at the young people at a relatively early stage of their voyage. The signals which they conveyed through their response therefore were early signals. Therein lies their significance. These signals suggest the need for early steps to encourage and direct the young toward participation and involvement--terms one would perhaps prefer to Lubell's "assimilation," which seems to make little, if any, allowance for the perennial fact that every new generation will turn to new ideas and question old ones.

The principal message is essentially affirmative: Oregon's young people, in an overwhelming majority, hope to pursue a life of positive purpose within our social and occupational structure.

- Nine out of 10 boys and girls in Oregon in the 16-18-year-age group have some specific ambition, idea or plan concerning their future occupation.

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- Personal interest in the preferred job or career is by far the most important among several motivating factors for all Oregon boys and girls, white and black. Thus the pursuit they wish to follow is meant not only as an activity to provide the means of living but also living with meaning.

These two major findings are brought into proper perspective, however, by the further indication that--

- From 40 to 80 per cent of the young people of high school age who already have some idea or plan as to their future occupation are looking for advice and direction in connection with their youthful ambitions.

Here is an open challenge to the concerned community of adults. There are others. They are implied in these findings--

- In Portland, an average of seven per cent of the white and 18 per cent of the Negro youngsters between the ages of 16 and 18 had no plans or ideas about their future occupations. Of the Portland boys and girls in the unclassified sample of the same age group, 10 per cent did not state any occupational goals.

- Among Portland boys of the Negro and unclassified samples, the proportion of those who had plans or ideas about their future occupations was smaller in the older group (16-18 years) than in the group which also included the lower age level, i.e., from 14 years up. In other words, there is a "shrinkage" of hopes and plans as the reality of the world of work draws nearer.

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No such melting away of early ambitions occurs among girls. Both white and Negro girls maintain practically the same level of "goal orientation" when broader or narrower age brackets are applied. This indication, coupled with the fact that generally more girls than boys reported preferences as to future jobs or careers, suggests that the more "traditional" and circumscribed occupational hopes of women have a better chance to withstand the lack of adequate advice and encouragement than many of the more far-reaching or imaginative choices of boys.

Along the same line, we may interpret the point made by the study that more boys than girls believe their occupational hopes will not materialize because they will have to accept the first job they can get.

There appears to be a characteristic relationship between the student versus nonstudent situation among white and Negro youngsters on one hand and their respective evaluations as to the most important requirements to achieve occupational goals on the other.

The reported proportion of dropouts among Negroes was notably higher than among whites. But while Negro boys listed almost twice as many dropouts in their ranks as did white boys, the respective difference between Negro and white girls was comparatively small.

When it comes to the question of "what it takes" to reach one's occupational objective, white boys and girls list "education" first and "hard work and perseverance" second; Negro youngsters reverse the order, giving "hard work and perseverance" top priority and relegating "education" to second place. However, in view of what has just been observed regarding the respective differences in dropout incidence, it is interesting to note that while the response from Negro boys has "education" follow "hard work and perseverance" by a substantial margin in scoring points, the difference in evaluation as reported by the Negro girls is only minimal.

In general, the reaction of Negro youngsters to the question of "what it takes" seems to reflect a "make-do" determination with regard to "hard work and perseverance," as a result of past experiences with the educational process. (However, the notable difference in the attitude of boys and girls among Negro youth, once again, seems to support the thesis that the girls are more responsive to the idea of education.)

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But, the aspect of particular importance, regardless of group or sex, lies in the fact that "education and "hard work"--concepts representing personal effort and endeavor--are considered the most necessary elements in achieving the stated occupational goal.

This, in addition to the large number of young people with occupational goals for the future and with personal interest in those goals as their most decisive motivation, is rather significant. The young people reveal that at an early stage in their lives, at least, there is no general mood of incipient alienation or social dropout attitude.

The rating which education receives as a means of achieving the individual's occupational goal, besides being affected by past scholastic experience, often is determined primarily by the type of goal the person choses for himself or herself.

The "setting of the type of goal," often is determined by the circumstances in which a young person finds himself or herself. We have found that Negro boys and girls more frequently reported some kind of initial personal experience in the occupations they indicated as their choices than did white youngsters. To say that this familiarity with a future

occupation makes the choices of Negro youth "less of a guessing game," would be a perhaps true but sadly ironic comment on their situation. Most of the Negroes' choices still are confined to occupational categories within comparatively easy reach which offer easier access to practical experience. Or, as the report puts it,"The inherent quality of this situation is a negative one: the limitation of choice is the cause of the lesser limitation in practical experience."

At the conclusion of a recent interview, Senator Barry Goldwater, a spokesman for political conservatism, was asked--

> "If you could give a message to parents and to young people, what would you say on the basis of your experience in traveling around to all these college groups?"

His answer was--

> "I think the advice is needed more by parents than the young. I would say: get with your children--live with them.
>
> "Now--as to the children--frankly, what I've seen, I think they are doing pretty darn good. I think I am very safe in saying again what I've said before: this is the best generation I've seen in my lifetime."

Our inquiry indicated that parents appear to influence, alone or in conjunction with others, the youngster's occupational choice wherever it is not a completely independent one. This, however, is a relative assessment, applying to a situation where all others particularly school counselors, play minor roles.

It was pointed out that, with a few exceptions, most parents had some notion regarding the career hopes and wishes of their children. On the other hand, about three out of 10 reacted with varying degrees of indifference to the disclosures of those hopes and wishes. They did not, in the words of Barry Goldwater, "get with their children..."

There also is the question whether, besides the need of getting with their children, the parents actually are in a position of effectively "getting with" the new dimensions of their children's era. In our fast-moving time, there is indeed a generation gap between today's and

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tomorrow's jobs and their educational demands. Parents can and should provide understanding and interest. But, in a world of growing complexity, how many will be able to guide and advise their children? And how much more critical must this question be in one-parent families or in homes of the socially and educationally disadvantaged where the parents' background and qualifications do not match the demands of today, let alone those of tomorrow?

"LET US BE RESPONSIVE TO THEIR QUEST"

These questions need to be answered. The challenges must be met. The point of departure in our thinking in terms of a practical plan, program or experiment must be the proposition which was stated before--that Oregon's young people in their teens, in spite of doubting and distrusting the older generation, want to be part of society rather than stand apart from it.

Therefore, when they speak of their ambitions and aspirations, let us listen. They seek not promises of things to get but opportunities for things to do. Let us be responsive to their quest.

They look for advice and direction, and when asked who they think could advise and direct them best, their simple and sensible answer is: "Someone who is doing what I would like to do."

They understandably wish to get a close look at the reality of their goals so that they can say they know what they want and they want what they know. Ambitions and aspirations which can stand the light of objective scrutiny must not be allowed to wither away in the solitude of youthful disappointments and frustrations. Their potential must not remain untapped and untested. Through our indifference, the young may lose today what we all shall miss tomorrow. The less they know about the real world of work they are expected to enter--because of conditions of their environment, be they economic, social, cultural or ethnic--the more they should be exposed to that world of work through regular contact and communication.

To establish such contacts and communications on a regular basis, the approach must be direct, practical and effective.

It calls for the setting up of--

- A referral system which brings boys and girls regularly into contact with establishments and enterprises which have to do with their chosen or preferred occupations and a system which establishes direct communications between the boys and girls and the men and women actively engaged in those fields.

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Oregon youngsters from 16 to 18 years of age thus will be given the opportunity to check periodically the individual concepts of their hoped-for careers and vocational preferences against the reality of the occupations, and, consequently, be either reassured or redirected in their planning for the future.

This program, enabling our young people to talk to practitioners of the pursuits they wish to make their own and to observe them at work may be developed in its initial phase on a limited experimental scale, covering certain areas or a number of designated schools.

The Oregon Bureau of Labor should serve as the main career plans collection point and referral center. Following its guiding philosophy of looking at labor and management as components rather than opponents in our economy, the Bureau is in a position to reach, and to keep in touch with, a great number and variety of segments of Oregonians at work.

Organizations representing business and industry, labor unions, professional and trade associations and Chambers of Commerce should function as relay stations, referring within their respective areas of interest young people according to occupational goals and preferences.

This plan calls for the cooperation of all who are determined to see the potential of our youth developed to the fullest. What a majority of Oregon young people essentially want is not a life with tasks equal to their abilities but abilities equal to their tasks.

If they are willing to "drive" rather than to "drift," they should find road signs along their way to avoid the dead-end streets.

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VT 012 755
Emerging Patterns. Academic and Industrial Approaches to Education, Training and Manpower Development in Graphic Communications.

Graphic Arts Technical Foundation, Inc., Pittsburgh, Pa.
MF AVAILABLE IN VT-ERIC SET.
The Graphic Arts Technical Foundation, Inc., 4615 Forbes Avenue, Pittsburgh, Pennsylvania 15213.
PUB DATE - 69 96p.Addresses given at the Graphic Arts Technical Foundation, Inc. General Education Meeting (1969).

DESCRIPTORS - *GRAPHIC ARTS; EDUCATIONAL SUPPLY; *TRADE AND INDUSTRIAL EDUCATION; EDUCATIONAL NEEDS; *MANPOWER NEEDS; *CURRICULUM PROBLEMS; *SCHOOL INDUSTRY RELATIONSHIP; EDUCATIONAL IMPROVEMENT; COMMUNITY COLLEGES; INPLANT PROGRAMS

ABSTRACT - For many years, school and industry educational programs have failed to meet the manpower needs in the graphic arts occupations. This gap has widened as changes in jobs and required skills have not been accompanied by educational changes. The 10 papers presented in this document by K.C. Morrisey, R.I. Squire, R. Cowan, W.J. Henretty, R.G. Karnes, K.G. Scheid, W.H. Smith, L.A. Valicenti, R.B. Burr, and F.R. Maffei, Jr., have as a common goal the improvement of coordination between school and industry in meeting educational needs. The papers cover the community college role, graphic arts curriculum, inplant programs, education as a capital investment, and evaluation of present efforts by school, association, and industry. (BH)

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Emerging Patterns

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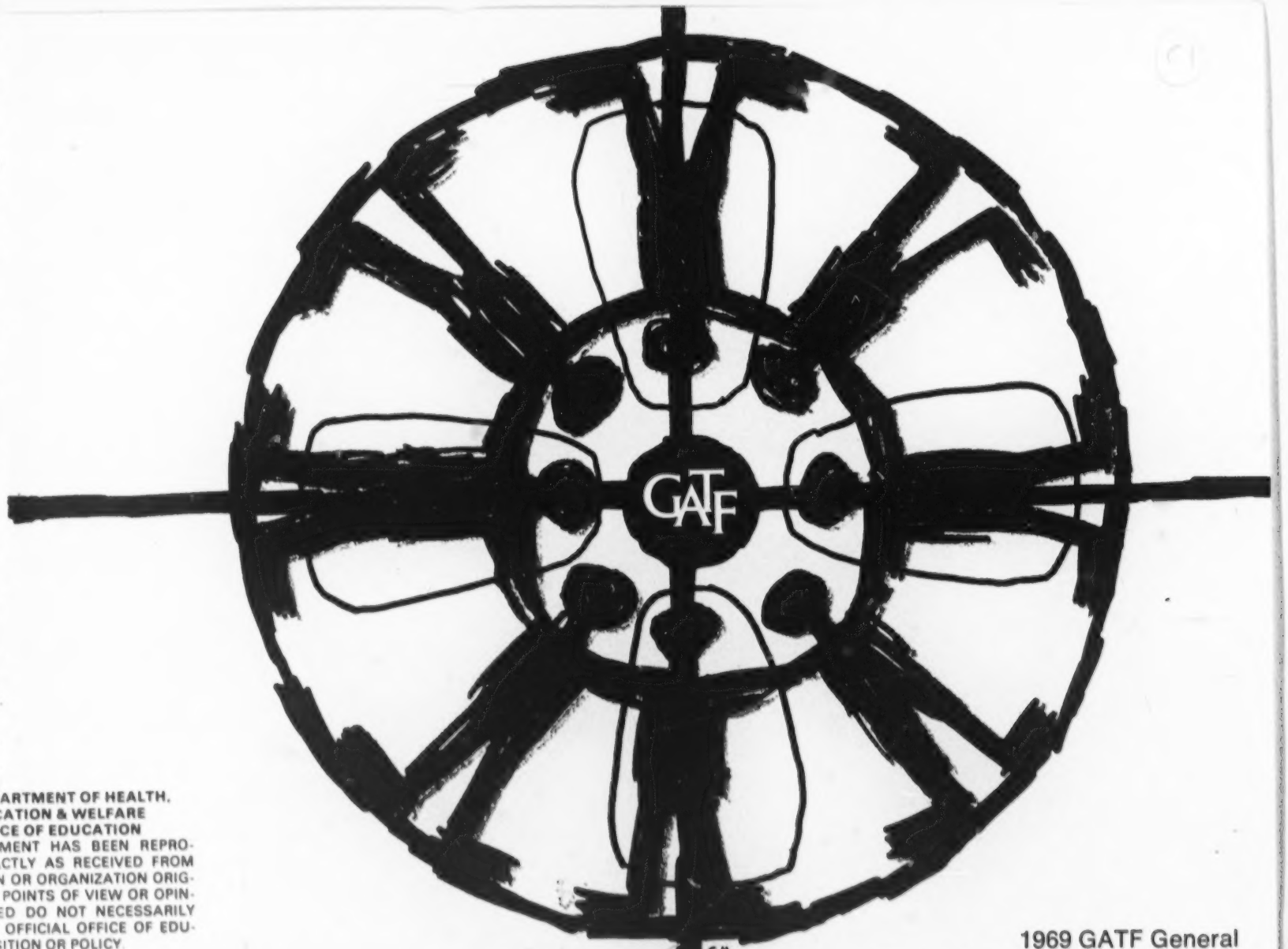

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1969 GATF General
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Emerging Patterns.

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Addresses given at the 1969
GATF General Education Meeting

GRAPHIC ARTS TECHNICAL FOUNDATION, INC.
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Copies of this booklet
may be purchased by writing to:

THE GRAPHIC ARTS TECHNICAL FOUNDATION, INC.
4615 Forbes Avenue Pittsburgh, Pennsylvania 15213

Library of Congress Catalog Card Number: 76-96930

Printed in the United States of America

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Foreword

Certain emerging patterns related to the academic and industrial approaches to education, training and manpower development in the graphic communications industries are evident. These patterns require the increased time and attention of industry management, and those who develop the curriculum by which the youth of today and tomorrow will be guided.

For many years, the educational and training efforts of the schools and the industry have produced less manpower than management and the production lines of the industry have needed. But the picture is more complex than to reduce the problem of graphic arts education to a shortage of persons coming from the schools and industry training programs to fill today's and tomorrow's jobs. For longer than we would like to admit, the industry has been impeded by having at its disposal only a narrow spectrum of skills to fill a growing number of jobs; jobs which are craft, as well as increasingly management and science oriented. Neither have the schools been able to appeal to a wide enough range of talents to channel sufficient manpower into the ever-widening range of career opportunities in the industry. While the schools are not meant to provide a "finished" individual to the ranks of the industry, they are all too often accused of graduating those who are not ready to assume responsibility in industry.

These crises have been brought to light more clearly in recent years because of the vast numbers which will be needed in the industry in the immediate future, and the ever-increasing varieties of career opportunities in the industry related to the sciences, management, and electrical and mechanical engineering careers and others. There is an obvious need for a better industrial image which will attract the young person to fill these new career challenges. There is an even greater need for the schools and the industry to collaborate on the development and standardization of curriculums on every level which will prepare youth for industry jobs which did not exist five or ten years ago, and which may not exist today.

A primary source of assistance to our efforts lies in the willingness of the Federal government to partially underwrite educational programs in our schools, and a variety of training programs in the industry. Delay and hesitation on the part of our educational institutions, as well as industry and its associations, to cooperate with one another, and with the government will only create a more serious problem and of deeper complexities.

For two successive years the Foundation has held special educational conferences on the specific problems surrounding graphic arts education in the schools and the industry. The general education proceedings for the 1969 education meetings represent an analysis of the variety of education and training programs available to and conducted by the industry. They represent an analytical approach to education and training problems the industry faces today, and increasingly tomorrow. Opinions and ideas are set forth which will provide the structure for basic solutions to some of our most pressing manpower problems, not the least of which is the utilization of younger talent being graduated from our technical and community colleges and universities.

Dr. Jack Simich
Education Director
Graphic Arts Technical Foundation

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The Community College - An Aid to Industry

by Kermit C. Morrissey

ABSTRACT

The two-year community college can be an affective aid to industry by helping to meet its current need for trained personnel. Presently, almost one-third of all students in higher education are enrolled in community colleges. This figure is expected to reach 50 per cent by 1975. Industry must work with area community colleges in the development of up-to-date training programs.

The Community College, a two-year public phenomenon, is clearly abrasive in a number of ways, deeply upsetting to the American mentality and to some extent a jarring, democratizing, and popularizing force in connection with higher education. What we are doing now in the nationwide community college movement is the broad underpinning of everything that will take place in higher education tomorrow.

I had a delightful discussion prior to the meeting about some of my experiences at Brandeis. Dr. Paul Noble from New York asked me why Brandeis had not gone into Chicago and Los Angeles with the incredible demands coming upon it. The pressure on admission in the freshman class was enormous. As a private institution, probably the finest decision Brandeis ever made in anticipation of the larger future was that they would zero their precious resources into something very special and excellent, and that they would not try to do what only the taxpayer is going to be able to afford in the matter of higher education.

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The public two-year community colleges now enroll very close to one-third of all students and adults taking advantage of higher educational opportunity. This will increase to fifty percent by 1975, according to figures of the Department of Health, Education, and Welfare. For all of you who are fathers like myself, the odds are that your son or daughter will receive his entry into higher education at a two-year community institution which will be heavily subsidized by state, local, and increasingly the federal governments. I would suggest to everyone here that these new institutions, which began as local concerns, are no longer really local. The two-year public college in America is now so clearly a matter of national interest that recently Senator Harrison Williams introduced the Omnibus Community College Bill in Washington, with thirty-three congressional dignitaries sponsoring it, and with so many congressmen lining up on the other side of the aisle, that it is quite clear that within a very few years we will be reporting to HEW and receiving support on a regular basis, the same as we do today from Harrisburg and the same as we do from various state capitols in the United States. This is now a national matter; no longer can support of the community college come entirely from within the framework of the local community; the federal partnership is absolutely required.

Emphasis on Student Qualification

Now, what do we in the community colleges do? First, we behave in a notably different fashion than collegiate institutions have ever behaved in the American past. Our concern is not with the prior experience of the individual, but rather with what kind of program we can prepare for that boy or girl who comes to us seeking service. We are not concerned with whether he was in the top ten percent of his class. I have always been fascinated by the rejection of American pluralism in the stress, for example, on SAT

scores. Life is a rather longer game played by different rules, and yet we all pretend this is a perfectly valid standard of educational judgment.

Several million students have transferred to four-year colleges and universities from public two-year colleges, and have done well. To get French II, or History I, or Biology II, you can do well in a "store front" if you have the faculty; in fact, a four-year setting is really not needed to begin. For those of you who believe a select setting adds to the excellence of education, we recommend that you read the latest report by the American Council on Education on this subject. This report makes perfectly clear that where the student went to school has nothing to do with the quality of education the student happened to receive. The student got his education with his interest, drive, dominance, and the rest of it. So the idea that there are special places of excellence to develop is, I think, very narrow and suspect; most recent research suggests very much the opposite. The community college--the public 3
two-year college--on a broad geographic base with substantial federal, state, and local funding will provide equality of opportunity from coast to coast.

My dentist called me from Arlington, Virginia, last night; his boy has to get into the University of Vermont and he is twenty-five points light. A distinguished citizen of Pittsburgh stopped me on the street last week; his boy is a splendid boy who has gone to a great private school but he has only a fifty, and he must go to a resident institution in New England; and on and on. You have heard it all before. It is a monotonous kind of thing and it is tragic in some ways because it reflects an older view of life. But there is something special about particular kinds of institutions that will guarantee life's chances to people to whom they would not otherwise be available. I suggest that it is becoming less and less true and that we have a lot of catching up to do in terms of understanding.

Problems of the Conventional University

The community college is not just the underpinning of four-year institutions. That job, I would suspect, could be done at bargain rates to you as taxpayers. That is not where the problem really lies. The problem for the public community college is that it starts with a different kind of thrust--a different approach to the whole problem and the whole challenge of human diversity that faces it. Not everyone wants an exclusively verbal experience; not everyone is equipped either in background or interest for a liberal arts curriculum that was set down by the president of Yale in 1876, or whenever it was, and has been only slightly modified in all the years since. That is not the answer to the needs of human diversity in our kind of changing society.

The land grant colleges and the land grant universities allegedly were begun to serve in the mechanical arts and to train people to perform specific and useful roles in the economy of agriculture and the economy of industry. Gradually, due to the pressure of demand, changes have occurred in the whole character of their operations to the point that now several land grant universities are competitive with Harvard and Princeton; indeed, they are indistinguishable from them. So we have had a major change, and we now need to recreate the principles of the Morrill Act of the Twentieth Century.

The Morrill Act of the Twentieth Century is the Williams Omnibus Community College Bill now before the United States Senate, on which hearings will be held this year. The national interest to which I refer will be the subject of discussion to make perfectly sure that these institutions are able to provide some of our current imminent needs in training people for effective and specific roles in a technological world where the demands are considerable.

Now a beginning has already been made. The community colleges, in most cases, have not waited for federal assistance in order to proceed. Priorities have already developed extensive programs in the two-year public college such as the health technologies in two-year nursing; this in direct conjunction with hospitals and professional associations--half-time in the college and half-time in the laboratory, half-time in the college and half-time in nursing service in the hospital. Numerous industrial technologies are already developed at the two-year public college level; they have both software and hardware.

Effectiveness of the Community College Movement

The Community College System in Pittsburgh has developed a public service institute where, for example, some two hundred fifty policemen are now beginning a Police Science Program leading to a degree. One hundred new recruits soon will come from the area high schools to begin a career in law enforcement. The same is true of the Fire Safety Technology Programs for people now on the job who may be inadequately trained for what is required of them. The Community College also has an appeal to youth going into the areas of civil technology.

What is the advantage of this type of college offering? First, this system calls upon the total population. There are people here today from Kansas City, Kansas; Chicago, Illinois; perhaps someone from St. Louis, Missouri; Hartford, Connecticut; Cleveland, Ohio. These are all areas where whatever I am saying about this community college can be translated to those community environments. The public two-year colleges are waiting to be used in an appropriate way to meet the needs of industry on the one hand, and the needs of individuals on the other. In this sense, the community college is the "mid-wife" at the present time to the technological changes of

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our society; it provides the kind of training needed by industry, and at the same time recruits from a large enough population to make certain results can be achieved.

We have 1,600.000 people in this particular County. The recruiting base is massive for whatever the College attempts to do. It recruits from among adults and from high school graduates. The Veterans' Administration tells us that, of the more than 1,000 veterans who are leaving the service every year, seventy-five percent have a high school diploma and twenty-five percent do not. My concern is the twenty-five percent who do not. How can we adapt federal policy to welcome those people? The recruitment capacity of the two-year public college is considerably larger and more embrasive than that of other institutions. We are not concerned, really, with where one stood before, but rather where one stands now. For example, our testing begins seriously after the student is admitted. We apply various kinds of tests to determine where the individual is most likely to have a successful experience. I would expect that the first rule of education--and this after a century of dialogue about this very controversial matter--is that education to be meaningful should be easy; it should be a successful experience for the individual, leading him into the escalation that follows any kind of intelligent self-directed life.

The public college, flexible in its admission policy, can apply a variety of standards and tests to people that come in order to place them at the level where they are most likely to have success. At the present time in this particular system, we have about twenty percent in career programs out of the 8,000 people enrolled; we have fifteen to eighteen percent enrolled in various business programs; and the balance in Liberal Arts, with some career op-

tions coming out of that such as medical records librarian, social welfare aides, and teachers' aides. There are a large number of jobs in software that come out of Liberal Arts in the Community College that will not be evident in overall statistics. Fortunately, twenty percent of any graduating class will transer to four-year institutions; eighty percent will and should be prepared for some meaningful career or a meaningful life in connection with industry.

Community College Industry Rapport

We have had rather good results with advertising agencies in connection with commercial art, for example. Our people prove to be very much in demand and are functioning very effectively following study with us. A large number of students have already been employed by United States Steel and Westinghouse, and are progressing. This happens to be the city where the Graphic Arts Technical Foundation is located, serving a national industry made up of many small parts. Your Foundation Executive Director, Mr. William Webber, has advised me of some of the peculiarities of this industry. I would suggest to you that no institution is as well suited as GATF to perform the functions that you will require in the conduct of our own enterprise as you undergo change. You have already undergone it, most of you, and you are now beginning to look for people who will be productive employees. That "know how" will be present in a combination between the public community college in America, wherever it is, and your industry. We are in dialogue with the Graphic Arts Technical Foundation in Pittsburgh concerning the development of a full program of at least two technical specialities in the very near future.

Mr. Clarence Harlowe, Chairman of the GATF Education Committee, has been closely associated with a community college in the Washington, D. C.,

area. They have developed programs, recruited people, and are now beginning the development of instructional and technical capacity in that city. I am sure that you from other cities have already entered into such discussions; if you have not, in your own economic self-interest I would suggest that you consider its initiation.

May I mention one particular item here. In the Vocational Education Amendments of 1968 there was included a very special provision that may be of major interest to some of the industries represented here today. There is, for the first time in federal legislation, an incentive for the development of cooperative programs--incentives for the college, for the industry, and for the individual. Individuals who follow a program of study and technical training, and who also spend a portion of their time on various types of on-the-job experiences as an integral part of their education, would benefit themselves and society.

The Community College Student--Who Is He?

We have a new college generation. Ninety-four percent of those on our three campuses come from families where no previous member of the family has ever attended college at any level. So it is all new; a totally new experience. To some extent it is a threatening experience, certainly in the sense that no one in their families ever did it before them. The families themselves are torn between the vocational needs as they see it and the program of study for technical education that the individual is pursuing. To some extent the program of study is actually a denial of income-producing time, and to some extent a threat to the family. So we have a very interesting situation. In the public two-year college wherever we can develop a cooperative program we will hold the student's relationship to his own family; this makes more tan-

gible the goal and advantage of specific location in an occupation following the completion of the degree.

The cooperative program would accomplish perhaps more than any other kind of program if it could be effectively worked out. It would preserve motivation for this new college generation who want, need, and require something quite tangible while undergoing the educational experience. These youths are not retreating into the folds of academia and getting checks from middle-class fathers in order to sustain their own notions of human individuality. It is quite a different cup of tea. These youths are looking so desperately for the next rung of the ladder--they want it, and they very much want to climb. They need it; society needs it to introduce new sources of manpower; and, therefore, I would look upon the cooperative program between industry and public two-year colleges in urban environments as one of the finest down-payments that can be made in the interest of everyone concerned--industry, the individual, and the college.

Future of the Community College

I anticipate that, within a relatively few years, the number of students in colleges will not be any more impressive than the number of adults. Our own estimates for this County are that, in 1974, we will have an equal number of adults and students. That is who we will always service--a large number of adults who have been out of school for many years; people seeking retraining, new careers, and new lives--new ways of getting into the swing of things; new ways of learning that enlarge the recruitment capacity beyond the high school graduate pool, which is not at all the whole issue for the public two-year college.

The public community college is created to serve everybody; it is publicly funded, and it is here to provide a means of linking various kinds of needs. There are industrial needs, commercial needs, banking needs, library needs, police needs, and health needs. These needs must all be met by the new catalyst, or this new "mid-wife," called the two-year public college. No four-year college can pretend to perform its responsibilities; no university would dare to try. We are here entirely because other institutions have outgrown one part of their original purpose. This institution was created in order to re-establish the urban land grant concept in our time; to provide excellent kinds of technical training; to be adaptive; to provide second, third, fourth, and fifth chances, if needed, for Americans on the educational merry-go-round; and in effect, to be a source of public investment for the enhancement of private life and the public good. I think it is quite the most exciting and interesting thing that is happening in American education today. Unless this is done, and done superbly well, we are wasting an awful lot of our time and money in baccalaureate degrees. Statistics on baccalaureates may produce humility in the audience. Only two out of every ten high school graduates in American Society will ever receive the baccalaureate degree. The idea of an entire educational system sending twenty percent of the entire propulation to four-year colleges or universities is a monstrous horror, in my view. This institution--the community college--is created to do justice to the immense diversity of human personality, to meet the needs of various kinds of industries and the kind of technological change which we are undergoing in every industry. This applies to legal services, medical services, the production of films, and everything we do. These changes cannot have the kind of productive manpower necessary unless the public community college is indeed the mid-wife between a supportive industry, a recruitment capacity on the part of the college, and substantial public funding in the middle to make the marriage possible. This is really what the game is all about. It is a new

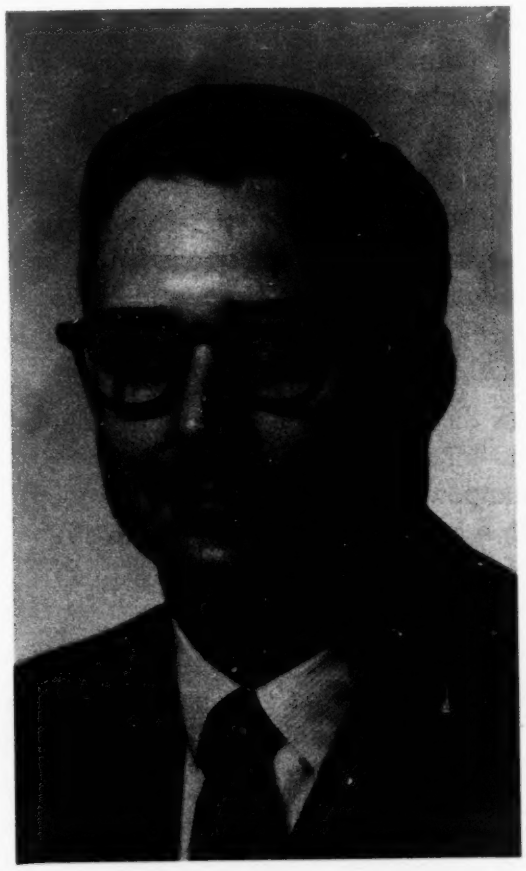
kind of technical education, but I suggest that without it we can not face tomorrow.

An example of community interest in local programs is the Police Training Program in Allegheny County. Within a three-month period the whole structure of police training has been transformed. Fairly modest investments by the Pittsburgh Plate Glass Foundation made funds available at critical priority points. In terms of local manpower needs, bonanzas which we had no right to anticipate resulted.

I am, then, an unabashed champion of the two-year public college as a means of meeting the needs of the maximum number of American people. I think we are here to serve industry and its needs, and to unite that with the needs and aspirations of individual human beings who are Americans. With those national interests referred to earlier, we consider it to be very essential in the 11
improvement of manpower technical training and industrial collegiate relations in the United States.

The Schools and Graphic Arts Education

by Ralph I. Squire



ABSTRACT

There are few up-to-date school programs in graphic arts and few instructors well-prepared to teach graphic arts subjects. The communications gap between educators and industry must be closed to effect a change in concept and curriculum. There are three main areas of concern: redefining the objectives for graphic arts education; providing better quality curriculum and teachers; and initiating industry support in carrying out the first two objectives through advisory and economic assistance.

Industry feels that schools are not teaching the type of program in graphic arts that will provide for their future manpower needs. Does industry know what their future manpower needs are? Educators wonder! As educators see it, "industry is only concerned with filling today's job openings." 13

Do educators think they are teaching an effective program in graphic arts for today's manpower needs and for the future? In general, I would say that they feel they are not doing the job they could or should do. Let us ask ourselves the question here today, "What should the educational objectives be for the graphic arts industry manpower requirements for today and the future?" To answer this question, we must place in perspective the role of the educator and our present educational process.

The School Programs

There are two basic school programs that provide graphic arts instruction. These programs are: general education, with the industrial arts curriculum

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and the vocational school that provides specific technical training. The general education program provides the student, through industrial arts instruction, with a general or overall perspective of the various industrial technologies. The student is usually exposed to industrial arts through a mandatory program in the junior high school. If the student shows an interest in a specific area, such as graphic arts, he may elect to take advanced training in high school. If the student's desire is strong enough, and his guidance counselor and parents encourage him, he may be transferred to a vocational school on a cooperative program for his remaining years in high school.

The goal of the vocational school is to provide specific training in a vocation that will enable the student to earn a living in that vocation upon graduating from school. Whereas, the objective of the general education program is to provide an educational experience so the student can better choose his own future, be it vocational career or college.

By looking at these two programs, educators say, "the objectives and curriculum for each program must be different." The vocational school is strongly influenced by industry's present manpower needs, while the general education program provides the student with a broad perspective to enable him to adjust more rapidly to the requirements of the future.

With this background on education and the educators role, we can provide some insight into the educational objectives for the graphic arts industry. We can see that, generally, vocational and technical schools must provide the present manpower requirements for this industry. It has not been made clear, however, what the role of the general education school is by either the educator or industry.

Upgrading the Curriculum

It could be said, "That there is a revolution going on in education with respect to the teaching of graphic arts." There is a strong move to change the name and the objectives of graphic arts education. Last year's Education Council sessions heard arguments for upgrading our technology by using the name "Graphic Communications." The arguments are valid, but we "printers" are slow to accept change. The printing industry has never been subjected to a technological revolution like it is going through today. Although the educators are not abreast of specific areas of change, as industry is, they are very much aware and concerned that the communications gap between industry and education is rapidly widening.

The educator is eagerly looking at another terminology and concept, "Visual Communications." Under a Ford Foundation Grant, Dr. Ray Schwalm has broken down this concept of visual communications into four areas: "(1) the visualization of ideas and concepts through the use of symbols; (2) the reproduction of visual information; (3) the methods and techniques for visual-information presentation; and (4) the recording, storing, retrieval, and rapid reproduction of the retrieved information." 15

The aim would be to develop in students an "understanding" as well as the "process-technique" of the reproduction of visual information. In grades nine and ten, "common trends" that run through visual communication would be stressed: symbology, design fundamentals, color principles, typography, character generation, line art and copy, the layout, and the paste-up.[1]

This type of program would provide the student with a broad base for continued education in the visual or graphic communications field in either college or vocational school. Graphic arts and the concept graphic communications

are part of an interrelated program including other visual concepts as photography, graphic design and advertising.

Whether we call it Visual Communications or Graphic Communications, it's time for a change in our "Graphic Arts" curriculum. Educators must keep up with the technological changes in this industry. This change must also be felt in the vocational schools. No longer are we doing justice to industry or to the student in allowing him to spend hours on a platen press and hand-setting of type from a California job case. The manpower needs are in the large plants, not in the corner print shop.

The Communications Gap

To affect a change in concept and curriculum, we must close the communications gap between educators and industry. Industry must visit the schools, review their present curriculum and facilities. Educators, likewise, must keep up with industry by investigating a variety of operations and reading the industry journals and attending association meetings.

The type of instruction being given in graphic communications today is typically the desire of the teacher. As a vocational teacher, he could either by design or unknowingly over-specialize in one facet of industrial technology. The industrial arts teacher may have a strong desire for an area of technology, such as electronics, and do a poor job of graphic communications instruction. He may give the student repetitive projects teaching individual skills rather than spend time with the student teaching him concepts and relationships.

Let us look at another serious fault of our educational system. There are colleges that teach industrial arts teacher-training programs that have little

or no facilities or instruction in graphic communications. It is easy to see the end result. An industrial arts teacher, right out of one of these colleges, will certainly not be capable of teaching an appropriate course in graphic communications compared to the other areas of technology that the college emphasized more thoroughly.

Let's close the communications gap between the industry and education. Although we hear of areas of exceptional cooperation between industry and education, it is generally agreed that nationally, there is still that "big gap." Education has an equal obligation in informing industry of their reactivities and concern. Someone needs to prod each off the fence and have them meet halfway.

Our educational system has three main areas of concern: (1) To redefine the objectives for graphic arts education; (2) To provide a better quality curriculum and teacher; (3) To initiate industry support in carrying out the first two objectives through advisory and economic assistance. 17

Let us explore the areas of coordination, how industry, the associations and education can work together to resolve the concerns of graphic arts education. We can break this coordination into two areas; (1) advisory and (2) economics. We can further define these areas by stating that coordination must be provided at both the local and national level.

To emphasis the last two points, let me say, that industry and associations can provide considerable effort at a local level with their area schools. This is not enough. To solve the many complex problems of education in the graphic communications industry, there must be an extensive effort at the national level. This is the reason for the existence of the Education Council

of the Graphic Arts, International Graphic Arts Education Association, American Industrial Arts Association, American Vocational Association, and many other related industry and education associations.

Local Cooperation

At the local level, industry and association should work closer with education in the following ways:

1. Form a joint advisory committee on graphic communications education.
2. Review education's present commitment to graphic communications education.
3. Through interrelationships, advise the educators on what industry is doing today and what they plan to do in the future commitments.
4. Provide personal interrelationships by attending each other's related meetings.
5. Industry and associations should provide speakers for education.
6. Help education upgrade the teacher.
   a. Provide for in-plant instruction on new processes and those processes that the teacher is unable to provide in his school.
   b. Sponsor or help defray membership dues in related associations.
   c. Sponsor or help defray costs of teachers' attendance at related education seminars, such as the Annual Conference on graphic arts education sponsored by IGAEA.
7. Co-sponsor extensive public relations activities to inform the student, the parent and the school administration of the career opportunities in graphic communications.
8. Provide cooperative educational and work projects for students so they know industry is concerned about their future.

National Cooperation

At the national level, industry and associations have an even greater responsibility to work in coordination with education. Including all of the aforementioned items at the local level, let us list areas of support that can be better supplied at the national level.

1. Public relations--career materials must be developed, and made available, to education to interest the guidance counselors and school administrators, in graphic communications. These can be distributed through GATF and IGAEA. Little or no material exists today of any value. Materials must reflect the vitality of youth rather than the staidness of industry.
2. Curriculum and facilities development--with cooperation from industry, educational research is needed to provide realistic curriculum and facilities to teach graphic communications. There are many capable and eager educators, such as the curriculum committee within IGAEA, who can proivde the educational knowledge and quality for this need. However, they need advisory and financial support from industry.
3. Encourage educators to enter the field of graphic communications instruction--many industrial arts and vocational teachers specialize in other technologies because of the lack of support from the Graphic Communications Industry.
4. Audio Visual materials and other instructional aids--the materials must be prepared with guidance from education. A very large percent of today's materials are made by manufacturers or by industry advisory committees which do not relate to the needs of education. The most common error is: a manufacturer produces an audio visual for marketing and expects the same material to be appropriated for

instructional use. They are usually appropriated to education only as general information.

We have been talking about the many areas in which industry and association can help graphic communications, and to many of you, the concern for the future of our industry is great. To others, all they see is another quest for financial assistance. Education needs the moral support from industry, not lip service. The economic support must be considered a reasonable investment to propagate our industry. Let us make the industry grow from within rather than be led and absorbed by the glamour industries.

Next year, let us not spend our time discussing what we need to do, let us hear reports of what was accomplished throughout the year.

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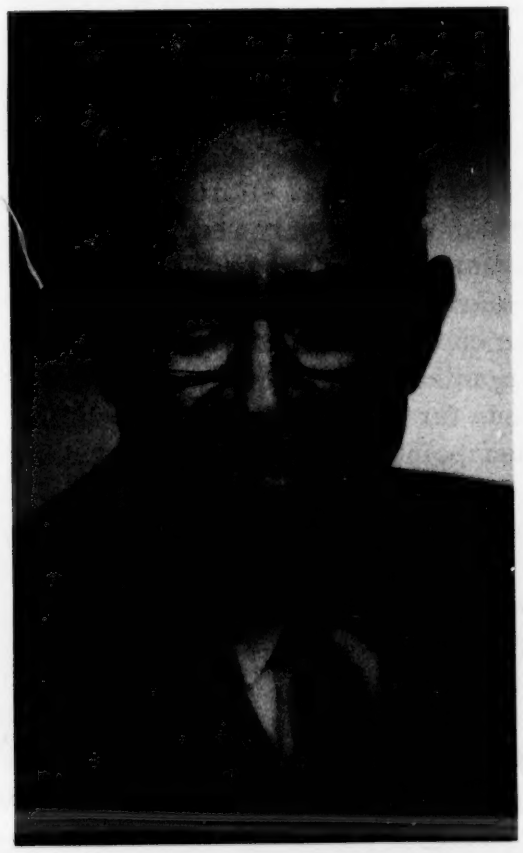
1 Graphic Arts Education: Confusion in the High Schools, Karen Ibrahim. Graphic Arts Progress, Vol. 14, No. 6, September 1967.

A Reassessment of the School, Association and Industry Educational Efforts

by Royal W. B. Cowan



ABSTRACT

School programs must be geared to preparing students not for present-day demands but for the demands of the future. Local industry leaders must cooperate with the schools in up-dating graphic arts school programs on the local level. Local printing organizations through unified effort must also present to school classes a programmed public relations service, informing them of the benefits of a career in graphic communications.

There is a growing need to reassess the cooperative educational efforts of the schools, the association and the industry in the light of tomorrow's demands for maintaining adequate manpower inventories. What educational efforts should our industry expect from the schools? What responsibilities should the industry have in the area of education and training? Is industry satisfied with the graphic communications programs offered in our schools?

A Personal View

To treat this subject with the respect it deserves requires hours of research, brain-picking, traveling, personal dedication and a great deal of correspondence. Your speaker has done little of this--his views are only personal opinions based upon the philosophy that has been born of a period of almost 50 years of personal interest in trying to help upgrade the printing business. GATF's fine booklet covering Manpower, Recruitment and Educational Programs in Graphic Communications was read and digested to the best of his

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ability. Each chapter deplores--to some extent--the lack of keen interest and understanding on the part of a majority in the industry whose involvement in the problems of education would make much more sense when the questions being studied here today are discussed. Personal observations and involvement of the speaker date back to the days of the United Typothetae of America, its death and revivement, as the Printing Industry of America, the formation of the National Association of Photo-Lithographers and its interest in administrative and technical advancement, the formation of local and regional printing ogranizations, the creation and support of regional printing schools, and the personal involvement evidenced by committee work.

All of this activity is a mere pittance compared to the fine efforts of many of the staff of Graphic Arts Technical Foundation, who not only recognize the need for sacrifice of time devoted to the advancement of the profit motif and preservation of private enterprise; but the need for improving the image of the industry on a national level. You gentlemen who have undertaken to sell memberships in national as well as local organizations, or have called upon members of the industry to subscribe to funds for the creation of schools for production employees know full well how disappointing it is to be turned down by friends whom you believed had a better understanding--a more sympathetic understanding--of the needs of the industry. The shoulders of many in the Graphic Arts Technical Foundation are broad enough to take on the responsibility of attending meetings of this kind and paying more than lip service to the seriousness of the questions confronting this panel today.

A New Era

The youth of today is challenging the management of schools, businesses, and organizations as well as the society in which we live. Not that the attitude of the youth today is any different than it has always been, but its voice

and its knowledge are amplified by the sophistication of the new mediums of graphic communications challenging us. This is distinctly a new era. Gone are the days of the shirttail full of type, the craftsman who designed a layout that had a price tag for its excellence. The old masters of the typecase are a memory and an experience gradually being obliterated by the electronic devices which perform faster than man and with greater accuracy when programmed by the expert. The image of the small print shop which used to be the familiar picture given to printing students, now belongs on a stamp, a postcard, or an old bookplate, but not in today's market of graphic communications. It may be interesting to recall that once there were hundreds of automobile manufacturers all competing against each other with an economy destroying vengence. This reckless, aggressive management eagerly sought out the public with promises of great return on the investment. Millions of dollars went down the drain as company after company discovered the fallacy of too many small manufacturers trying to corner the market. 23
Now there are several giant corporations offering automobiles to the public in as many styles or perhaps more than the hundreds the manufacturers did individually in the olden days.

This may also be true of the electronics industry. More and more mergers, acquisitions and expansions reduce the number of separate companies to the point where management becomes more professional in its control of efficiency, economy and the ability to seek and set aside reserves for research and development. Perhaps the day will come--with the age of automation and advanced engineering skills--when production equipment in the printing industry may be purchased only with huge outlays of capital and when members of the Graphic Arts Technical Foundation have the reserves required to build the image the industry deserves. Figures vary as to the number of captive plants which are in existence; but somewhere between 35,000 and 45,000

individual printing plants are vying for the dollars with which to make payrolls, buy equipment, pay overhead and have enough left over to pay taxes. It is a prediction that within the foreseeable future, the number of privately-owned printing plants will decrease to between 18,000 and 20,000 or even less, leaving a wide gap between the small corner-store-type printing plants and those geared to produce the huge quantities of graphic communication materials needed to supply an expanding population with educational and advertising materials.

Demands of the Future

Should the Graphic Arts Technical Foundation begin to prepare itself mentally and financially to supply the image of this new graphics concept for public approval and acceptance as well as to develop interest on the part of students of the future in this career which will be so different from the one with which we were so familiar? There are those who live in the past, those who live for the moment and those who live for the future. The students which the industry needs are those who prepare themselves for the future. Their problems of the moment are solved successfully only when school administrators plan not for today's--or the present day's demands for aptitudes, skills, and knowledge--but for the demands of the future. What will the future demand? Immediately it becomes apparent that research and development must be coordinated with the curriculum of the schools. As machinery and procedures become more sophisticated, the upgrading of future manpower to control them must be designed in keeping with the future standards which are constantly changing. The more this idea is developed the more convinced you can be that there is a need for two types of schools: one on the local level to provide knowledge and skills of the neophyte apprentice preparing for today's work, and one on the national level preparing for tomorrow. It is on the national level that Graphic Arts Technical Foundation should concentrate.

Challenge on the Local Level

The local level is mainly a responsibility of the local industry leaders. Local personnel requirements are immediate. New employees demanded by local industry come from four sources: pirated employees, relocated journeymen, men off the street to be trained and graduate students from printing schools. Pirated employees have already formed their own image of the industry as a place to earn more money and gain more fringe benefits; a relocated journeyman is already "sold"; the man off the street is interested only in what he can take home; he will quit for five cents more an hour even if it means washing dishes in a hamburger stand. The local graduating student has an image of the industry given to him by industrial leaders. Where else can he obtain the best image?

Speaking of creating an image on a local level, is this a challenge then that local leaders must give more than lip service and "conscience money" to schools? It is a challenge! Local printing organizations through unified effort must present to printing school classes a public relations service. It must be consistent. It must be long-lived. It might, for example, reveal the comparative incomes of those in the printing industry compared with those of other industries whose images have been glamorized and held up to the public and student alike as having great potential and prestige. Who ever heard of a young bank vice-president, a student-attorney, a beginning chemical laboratory technician, or a young engineer making as much income as some strippers, cameramen or pressmen (with probably just a high school education) after three, four or five years of training in a printing plant? What has gotten into printing management that it refuses to broadcast this message to the whole country? It is blindly cutting off its own life blood by not submerging itself deeply in the rewarding contacts made in national and

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local printing organizations to learn the desperate national need for trained manpower? Why is management reluctant to put its money and time where its mouth is?

Have you ever witnessed a college coach go after a football player? His job and the success of the school he represents depends upon the recruitment of the finest athletes he can find anywhere and I mean anywhere. Coaches travel from one end of the country to the other, offering scholarships, paid tuitions, travel expenses and more fringe benefits than you or I ever enjoyed. Where do they get the money to buy this talent? From loyal school supporters, local business interests, and former graduates. They raise more money than most aggressive religious leaders ever hope to do.

Is the printing business killing the goose that lays the golden egg by filling its ranks with less than the finest personnel? Must the intelligence of the industry be lowered by the kind of manpower it steals from others, picks off the street or accepts from a school with teaching methods which are long outdated? Does present industry management provide good working conditions, clean work clothes, holidays, pensions, life insurance, and fringe benefits that are offered by competing industries? Does it need to clean its own house before it can boast how good it is? What is the problem? Is it that printing leaders are not confident of their own profession, and therefore subconsciously downgrade the entire picture because they are unhappy about competition, lowered profits, wage scales, the lack of time for management, the need for keeping the presses busy? Is it that the industry is still tied too much to production problems and not enough to management?

What Should be Expected From the Schools?

Considering all of this, what should industry expect from schools? From the

local level the industry should expect students to be well-acquainted with the local printing companies' equipment and methods of operations, plus a personal contact with industry leaders either through tours or talks made by plant owners in the classroom. In addition, students should have copies of career booklets and other data about the industry. On the national level the industry should expect specialists in camera, stripping, platemaking, and presswork. Schools should provide students having been taught all phases of modern administrative as well as production procedures. They should be printing engineers. You may ask how can schools assist the industry? How can schools teach the subject of printing proficiently unless they know what the industry requires? Every printing school should become better acquainted with the research and development being made in the industry through a wide usage of graphic communications from national printing organizations, suppliers and machinery manufacturers. Does it require a separate organization apart from Graphic Arts Technical Foundation, or some other national printing organization? Perhaps it does. Perhaps it must be a separate entity operating under the umbrella of one of them. This entity must have the full cooperation of all the associations and the industry. Has the time come for such action? It is now more than ever incumbent upon the industry to create an exciting recruitment campaign which will impel young people to seek out those centers of learning and prepare themselves for careers in the printing industry.

Industry's Responsibilities

What responsibility should industry have in the area of education and training? Only through national surveys will this question receive a crystalized answer. You are not to be encouraged to believe that all members of the industry will cooperate in an important effort of this kind. But there are many dedicated leaders who form a responsible minority that will participate. If there are

some 35,000 plants in existence there may come some thousands of different answers but an intelligent approach to the best answer will be to select two classifications which will give appropriate suggestions for the small plant and the large plant.

The small plant needs trainees to start at the bottom and learn the routines of its organization. These routines include the simplest forms of the helper who may be trained for a position of greater responsibility. The large plant will require the expertise of the pretrained personnel with a background possibly in phototypesetting, equipment automation, photo-mechanical techniques, electrostatic assists, water and ink balance, ink drying, jet printing, new color theories, the technique of the lazer beam, endless belt printing and so on.

The greatest shortage lies in the field of offset pressman, then strippers and compositors. Yet, in the face of all this shortage, many leaders in the industry fail to outline and conduct training in their own plants let alone a local school. Training to increase the labor supply is one of the industry's most vital needs.

A Public Relations Unit

It is so important and of great economic necessity that immediate steps must be taken to form a Public Relations Unit to formulate plans for coordinating all efforts for the training and recruitment of the manpower needed for this expanding graphic communications industry. The unit must have a prepared plan of action to set into motion this unified idea, which will be sent out in prospectus form showing manpower needed, the funds required to sustain the drive, and the name of a qualified man in the industry to head the drive. This effort must be centralized. It cannot be done successfully unless it has the

cooperation of the industry's leaders. It should not be done singly by GATF. Let's get a survey started today. Let GATF explode with reviewed enthusiasm in this search for better ways to expand the manpower pool. Let's quit hoping, praying, and listening to talks, let's do something NOW. Let's recommend to GATF a survey of printing organizations, schools and industry leaders to learn their interest in forming a central manpower agency to perfect a public image of the industry, cooperate with schools and begin to solve the industry's manpower problem.

Association Programs and Graphic Arts Education

by William J. Henretty

ABSTRACT

The Printing Industry of the Twin Cities' program of industry-school cooperation is based on the belief that the only way one great program can be achieved is for the schools, the association and the individual companies to consider themselves integral parts of the printing industry, all with common objectives. These groups must provide the opportunity for young people to be: told about the industry; counseled honestly regarding their interests and aptitudes as they relate to opportunities in the industry; trained on equipment and through methods that are modern and meaningful; and intelligently placed in companies where their interests and aptitudes can be developed to the fullest extent.

Jack Simich sent me two questions last month to help structure my presentation for this meeting. They were:

1. What is the educational role of an association?
2. What types of programs can be conducted by associations to assure closer relationships between industrialists and educators?

PITC was originally organized to perform one function for its member companies: to negotiate union contracts. It soon becomes apparent that hammering out (if that's the correct word) an agreement was much too narrow a role. Gradually we have evolved a three-point program:

1. To assist our companies to improve their management skills. Under this objective, we conduct training sessions for supervisors at all

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levels. An evening program for twelve weeks, one night a week (two hours) covering problem solving, communications, getting results through people, leadership, work simplification, business economics and proper instruction. We have an advanced course which concentrates on the proper administration of a labor agreement--the "do's and don'ts" of labor relations. We have monthly meetings of specialized groups with a program to fit their individual needs. Controllers, Estimators, and Production Managers meet to be exposed to speakers on topics which are of particular interest. One-day seminars on executive planning, printing sales techniques, and other subjects of management are scheduled on a "break-even" basis conducted by outside experts or PITC staff.

2. Of more importance to this gathering and of equal importance to PITC are our activities in the vocational school, secondary education and guidance area. During the seven years the Rudisill Award has been in existence, we have been chosen as a recipient on three occasions. We would like to think that it has been because we have an outstanding program. That would be dishonest. We have been recognized only because we are doing something and we have only scratched the surface --only realized a fraction of the potential existing in tapping the educational potential in our area. For years we ignored the schools except to criticize them for outdated equipment and outmoded methods. Sanctimoniously, we said there was no substitution for "on-the-job" training and any operation "headstart" was a waste of time. We didn't plan ahead for next year's manpower needs, only today's. As we needed people, we called the Union or the State Employment Service, or hired the next young person who came through the door. We did a minimum of screening, no testing to speak of and managed to create a manpower pool which included a lot of round pegs in square holes.

We were making money--not as much as we would like--but we could always point a finger at the union and say that they had fallen down in their obligation to provide skilled manpower.

3. The locating and placing of qualified manpower for the industry. We weren't getting the people we needed when they were needed. We were hiring more than our share of "round pegs in square holes." At the same time, printing classes in local schools were dwindling because some of their graduates were not placed in the industry and had taken employment in other trades. Nothing wrecks a school program as effectively as unemployed graduates.

Lines of Communication

Nine years ago we invited graphic arts teachers to participate in our Printing Week activities. We were surprised how they responded. They attended the meetings, showed exceptional interest in our industry, and asked for a continuing line of communication which would be maintained throughout the year and not just during Printing Week. With tongue in cheek we formed a sixteen-man committee, eight from the Twin Cities educational system and eight owners of printing plants. Co-chairmen were elected--one from each segment. The line of communication which developed has resulted in better selection, training and placement. We have a number of graphic arts students on a cooperative program--working a half day in a plant and attending school for the other half.

Six months before graduation the schools furnish the committee with resumes of the forthcoming graduates--a transcript of their credits, an evaluation by teachers and counselors of the students' attitudes and potential. They are interviewed and referred to employers who need that particular set of skills

and interests. The fact that it is working is evidenced by the condition which exists where the demand for students far exceeds the supply.

We have been invited to put together an advisory committee to cooperate with the schools in developing and maintaining an up-to-date graphic arts curriculum which will serve the needs of the industry. We have hired a management consultant to conduct a two-year study of the future needs of our companies. What kind of people will we need? In what numbers? What training background should they have? Where will we get them? How much retraining of present employees will be needed because of technological change?

We believe that our Education Committee has learned several important things.

1. There are many dedicated printing teachers and counselors who are hungry for an opportunity to communicate and cooperate with industry for our mutual benefit.
2. The key to a successful school printing department is continuing liaison with the industry and proper placement of its graduates.
3. Teachers respond just like printing plant managers do--they want to make a contribution, to feel a part of the industry and share their problems and ambitions.
4. We all feel a need for recognition and this is one of the functions of the Rudisill Award. We have them framed and present one to each committee member at a formal dinner. The teachers love it and so do we. We fully intend to throw our hat into the Rudisill ring periodically for the selfish purpose of using it as a "bale of hay" for our Education Committee. One school member has all three framed over his desk at the school.

One Great Program

The subject of this panel is listed as "The Schools, The Association, and the Industry . . . Three Small Efforts or One Great Program." We choose to believe that the only way that "one great program" can be achieved is for the schools, the association and the individual companies to consider themselves as integral parts of the printing industry with common objectives. Those objectives are to provide the opportunity for young people to be:

1. Told about our industry.
2. Counseled honestly regarding their interests and aptitudes as they may relate to opportunities in printing.
3. Trained on equipment and through methods that are modern and meaningful today and in the future--not as they were in Ben Franklin's day.
4. Intelligently placed in companies where their interests and aptitudes can be developed to the fullest extent.

If we sound somewhat self-satisfied with our educational program--I'm giving the wrong impression. We feel like Winston Churchill when he was invited to address the London Women's Temperance League, "Oh Lord, so much to be done, and so little time!"

Development and Implementation of an On-Site Manpower Inventory

by Raymond G. Karnes

ABSTRACT

An improved relationship between the Printing Industries of Maryland and local city and county schools has resulted from the publication of a recent survey supported by PIM and conducted by the University of Maryland. The survey was conducted to determine the industry's local manpower training and recruitment needs. In distributing the results of the survey, the industry has given area schools, for the first time, unprejudiced, detailed information on the needs of the industry. The report is something from which the schools can factually plan their vocational education systems. There is a new awareness of what the industry is and what it represents . . . a new respect for the industry. Out-dated school programs have been revised and the report has been used by schools in justifying state aid application for graphic arts programs.

I would like first to go into the history behind our decision to provide a grant to the University of Maryland to conduct a survey on industry manpower requirements. Our primary concern was to develop a program for the recruitment and training of manpower. We must remember that we are competing with our counterparts within the industry and with the filling station down the street, the coal mines, and the dry good stores, etc. When we consider the competition for high school graduates, the working drop-out and college personnel, we see ourselves in a struggle vital to our business lives; a struggle in which we are undermanned, underfinanced and woefully unprepared. We are not competing with the printer around the corner, or with a business

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forms manufacturer but with the whole industrial complex. There just are not enough qualified people to go around. For that matter there may not be enough qualifiable people to go around.

Local Contact and Support

In my travels around the State of Maryland and to the schools, I introduced myself as representing the Printing Industries of America. We were all but unknown; the industry, its place in the national economy, its representative organizations--all unknown or, at best, mysterious and far away from practical relationships to the schools and community. This in itself, was an indictment of our industry; school officials did not know who we are, even though Printing Industries of Maryland was established in 1874. I am sure that in many other areas of the nation, the same thing is true. There has never been an attempt to get across the "story" of our industry. Beautiful work is seen coming out of our industry, but unfortunately, that which we produce for other people does not compare with the cheap, shoddy, trash which is printed to promote our own programs.

It became apparent that we must lay some firm base from which to develop any recruitment program. A direct approach to the printer with questions like: "What do you need in terms of manpower now and what will you need in the future?" resulted in answers often diametrically opposed to each other. Too often the answer was "I don't know," or "I don't care, I need a man now." There is of course the usual turndown of a high school graduate, because he is not a journeyman. Most of the time printers will say "I know we can't get a journeyman out of high school, but I won't hire anybody unless he is experienced." By the same token employers will complain about pirating practices. Therefore, we approached our people and stated simply that in order to have the program we need, preparation for a long-range program must be made.

We must remember that an effective manpower program is not one which will begin today and achieve results tomorrow. Whether or not you have ever done any long-range planning before, you are about to do so now. A program to meet manpower needs that is meaningful must be founded upon accurate data obtained objectively and in a scientific manner.

If for no other reason, my visits to the schools convinced me it would not be done in the first year. The idea of mail survey was eliminated. Recipients of multi-question surveys will normally respond; "I think I've got this many women, I think they're about this age, and all of them graduated from high school." The data received from such response may be impressive in appearance, but is--in my opinion--absolutely worthless. In a discussion with a gentleman from the University of Maryland, he mentioned that we might approach the University of Maryland for research assistance. Their response was in the affirmative and a research grant was set up. The University obtained a graduate student, Mr. Allan Bornkamp, for interview and data compilation and contributed the time of Dr. George Merrill of the staff of the Department of Vocational Education to work with us in the development of the instrument and all other phases of the survey. We agreed to allow them the privilege to "tack on" anything they felt would make the survey more comprehensive than might the responses to our requests. One area of the survey related to the shelter workshop; the University included some information that would assist them in planning in their industrial education department. The contract signing was a testimony to the determination and courage of the PIM Board of Directors. We went into this venture knowing of no precedent. It was a calculated risk. However, we were assured of the value of information and its worth to the University Department of Vocational Education and the high schools even if PIM was unable to utilize the data to its fullest. In developing the survey instrument, we received a great deal of information

and assistance from GATF and the Business & Defense Services Administration of The Department of Commerce. Mr. Bornkamp contacted groups in Oregon and Canada, where similar studies had been conducted. Additional assistance was given by the U. S. Department of Labor, the Job Corps, the President's Committee on Employment of the Handicapped, the Department of Psychology at the University of Maryland, and the Department of Employment Security in Maryland.

Manpower Needs Awareness and Survey Development

As an aid, it is interesting to note that the Department of Employment Security in Maryland felt there was no manpower need in the printing industry. They had good reason to believe this for when a Baltimore printer needs an employee they address a request to the Association. Therefore, the statistics from the State Department of Unemployment showed no requests for employees. Our communication or credibility gap not only existed between the industry and the schools, but also between several of the state departments. This, again, was another of the areas that we hoped the survey would help to correct.

In the development of the survey, we worked out a series of questions which we felt represented the personnel needs in our industry. Full editorial rights were maintained on whatever was printed. Any information regarding processes or equipment that might give a manufacturer a competitive edge was edited out. We did not inquire in any way regarding the policies of the firm, prices and costs. This was made plain to all of the participants in advance and, if the question should come up in conversation, we would not use the information. We made periodic reviews during the interview period and made whatever adjustments were necessary in order to maintain a degree of flexibility while polishing our interview and data gathering technique. In

September of 1967, the development of the questionnaire forms took place. The majority of the work was done by Mr. Bornkamp and his staff with the assistance of related studies which were available, and the Department of Psychology at the University.

Interview Responses

Shortly after the first of the year, the individual interviews began. Response ranged from the sublime to the ridiculous. Some printers were happy to have the interviewer come in and ask about their business; they would not only take him on a tour of the plant, talk about the family, but were willing to open their books. Often he could hardly tear himself away. Then again, our interviewer went into other firms which reacted in an opposite and disagreeable manner.

The personal interview technique proved itself not only in the quantity and quality of information we had requested, but also produced much useful data noted from conversation, opinions and observation of facilities and environment which have been useful in recommendation for low-cost plant improvement. By September (1968) all of the information was in. It took a few months for it to be tabulated and put into the form that you see here. About 60 or so pages are composed of reference material, bibliography, some tables and graphs to illustrate the material contained within. About 75 to 100 pages are statistical data which will be used for broad application and individual studies relative to the need. Strangely, most of the information we obtained was no surprise. It served to buttress or support many of the opinions that had developed as a result of day to day experience with the public, schools and printers. Some figures can be misleading. Many of our plants noted that they have training programs, "apprenticeship" programs, where the man works pretty well on a small press for five years, and he is made a "journeyman

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pressman." These are training programs for machine operators. Real apprenticeship programs are almost non-existent.

Study Implications

Many of the conclusions in the report have to be rejudged in terms of the knowledge that we have of the real situations within the firms. We found 53 jobs listed that women could perform, but only 36 of these were actually being performed by women. The question arises, why not the other 17? This is something we must encourage and we now feel we have industry support within certain limits. There are about 17 or more jobs which were listed which handicapped persons could perform. We have almost no handicapped personnel in the plants in our area. Again, the survey reveals there is a degree of support for greater utilization of employment sources previously considered unsuitable for the industry.

There are some selfish advantages to employment of the handicapped without being altruistic. He is anxious to prove himself, support himself and he will make a good employee. From a purely selfish standpoint, he is not one who can go around the corner and take another job. These examples indicate that our industry is being pushed by necessity to acceptance of a situation long ago recognized by other industries.

We have found that our relationships with the schools have improved as a result of this report. For the first time this industry has given information which is not prejudiced. It is the first time the schools have been given information which says "Here it is, make your own judgments; you don't have to adapt your whole educational system to meet our needs." It is something from which departments of education can obtain guidelines for the building of better vocational education systems. Given concrete proof, they now have

data to support proposals submitted to their Boards of Education. Data compiled by, and in a manner developed by the University--not the industry.

Study Acceptance

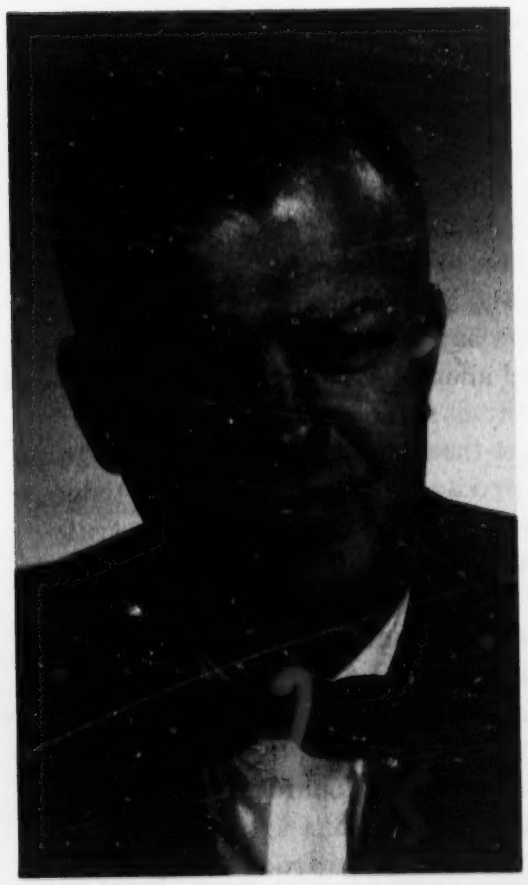
As a result of the study and related material, we are now represented on the highest committee levels in the City of Baltimore. We have been asked to sit in school curriculum planning sessions to recommend equipment and advise on facilities. This has never been done before. There is a new awareness of what we are and what we represent. There is a new respect for us as an industry. And for the first time, instructors and students know that printers make more than $2.00 an hour. It has strengthened some of the present school programs. It was directly responsible for providing a Baltimore school with $75,000 in State funds with which to buy equipment. When the report confirmed that 65 percent of the printing in the City of Baltimore is done by the offset process, the State recognized this as being sufficient evidence to warrant changing the instructional program and provided funds for purchase of some of the new equipment which had been needed for years.

A new emphasis has been placed by the PIM Long-Range Planning Committee upon Manpower. With the industry survey as a reference, this Committee has instructed PIM to revise promotional efforts, streamline and up-date industry personnel records and practices, seek greater involvement in community affairs and work more closely with individual firms regarding personnel problems.

There is much yet which we feel the report can do; it has already done a great deal.

Continuing Education As A Capital Investment

by Kenneth G. Scheid



ABSTRACT

Continuing education is important as a capital investment. Five reasons for this: returns are high, especially if technology is changing rapidly; keeping up to date is a better form of investment than trying to catch up; there is no apparent age limit beyond which continuing education does not produce benefits; the best investments in continuing education start with the young person as soon as his education and training would otherwise begin to become obsolete; and investments can pay a profitable return in any occupation where obsolescence is probable, not simply in those for which a specified education or training was originally given. Although continuing education is important, there is both private and public under-investment. More involvement is needed not only by unions, advertisers and employers but also by the general public.

If I were to ask you to give me your definition of the term "capital," the chances are you would describe financial assets or the physical structures, equipment and inventories into which such assets are converted during the investment process. You might go on to say that capital is also that stock of financial or physical wealth that generates, or is expected to generate, future net returns; that is, interest or profits. And if I asked you to describe the relative worth of capital you would tell me that it is the rate of return on the capital that really determines its value. Indeed, if you were describing the performance of the manager of a capital investment, such as a business

executive or a trust officer, you would tell me what rate of return on net investment or net worth he was able to earn for the investors.

If, on the other hand, I asked you to define the term "labor," you would describe the various categories of employees to whom current compensation is paid for current services. You might add some remark to indicate that labor that is more productive is more valuable, and that labor productivity is the consequence of the financial and physical capital, skills and knowledge, vigor, technology and methods, and management with which it works.

However, if I assembled the terms "capital" and "labor" into a single new term "labor capital," or as it is more commonly called "human capital," and asked you to define that term, it might be unfamiliar to you, and what is more important, an apparent contradiction in economics. And until a few years ago, both of these reactions would have been found even among most economists, whose profession it is to define and analyze the topics of economic importance in our society. But since about 1960 there has been enough careful economic research conducted to demonstrate that our economy abounds with human capital; that it is in fact those capacities embodied in men that enhance their current and future productivity--health, knowledge, skills, information; that expenditures on health services, education, training, and the dissemination of productive information are best considered not as current expenses but as private or public investments; that the annual total of this investment substantially exceeds that made in physical capital and the share is rising; that the average long-term rate of return on this investment is substantially higher than average long-term rates of interest or profit on traditional capital investments; and that the contribution of investments in new human capital to economic growth is probably considerably greater than that from investment in physical capital even when it is recognized that new physical capital embodies new technology of higher productivity.

Educational Investments

Educational investments in human capital can be broadly divided into three types:

1. Investments in the pre-employment schooling of young persons, from elementary through college levels.
2. Investments in initial, post-employment job training, for example apprentices, technical trainees, sales trainees, management trainees, etc.
3. Investments that continue over an individual's working life and are primarily related to acquisition of new knowledge and skills as they become known and to acquisition of knowledge and skills needed to move upward or laterally in the occupational structure.

Economic research to date has been concerned primarily with pre-employment schooling, secondarily with initial on-the-job training, and only occasionally with continuing education over the working life. This has been so because, first of all, data is available or can be developed for the cost and quantity of investment in formal schooling, whereas it is difficult to acquire for initial job training and almost impossible to develop for continuing education except for isolated cases. Second, tax funds have been traditionally allocated to formal schooling and in recent years more such investment has been a major goal of federal, state, and local policy. This is much less the case with initial job training and seldom the case with continuing education except for recent manpower retraining programs and foreign aid programs. Third, economists and most others, including employees and employers, are in some sense captives, in our society, of the view that education and training is a youthful activity primarily--it is something that one "completes." Even

the term "continuing education" is rather strange to our ears, for education is supposed to end rather early in life: we "look back" to our student or trainee days.

What I propose to argue in the balance of this paper is not only that continuing education, broadly defined, is a substantial investment activity today but that from the economic point of view it is very likely one with a particularly high potential rate of return. However, I will also argue that compared to formal schooling and initial job training there is both private and public underinvestment, and that economic benefits would be secured by reallocation of resources, if necessary, away from more formal schooling and initial training and toward continuing education.

Human Capital Vintage

An analogy with investment in physical capital may serve to make the case for investment in continuing education. Let us suppose that the stock of physical capital today is, on the average, ten years old or more. Its vintage year, in other words, would be 1959 or earlier as a whole. Clearly the productivity of the economy is less than it would be if this capital equipment were more up-to-date, assuming as we must that newer equipment incorporates advances in technology over the older equipment. But it would be neither possible nor profitable for an economy to replace its physical capital each time technology advances. What occurs are marginal adjustments, and the gap between the best and the average equipment remains reasonably stable except when a dramatic breakthrough makes the older capital economically obsolete or there is a rapid expansion in some sector. Now human capital is similarly of an early vintage today. Let us say that the average person at work in 1969 completed his formal education twenty years ago or so, and his initial job training shortly thereafter. His education and training is vin-

tage 1949 or so. Assume further that the young person completing his education and training today and entering his first job is potentially more productive because he has had more education and what he has been taught is of recent vintage. Thus human capital, too, decreases in relative productivity with vintage. However, man is not a machine. A machine that is obsolete must be replaced. Man can learn. And this learning activity broadly speaking is what we mean by continuing education.

Economic Benefits From Continuing Education

Continuing education of an individual or an entire labor force is quite obviously not a costless activity. It does require investment, not merely in the means of knowledge dissemination but in the time that otherwise would be given to current production or personal leisure. Thus the key question is what are the probable benefits or returns? We do not have much in the way of estimates of the returns, but what evidence there is for industries or the economy as a whole suggests that they are very high at current levels of cost. In agriculture, for example, direct and indirect investments in extension services and their use may have yielded net annual returns beyond 100 percent of cost.

One of the interesting aspects of the cost-benefit relationship is that the returns are higher if technology is changing rapidly; this is simply to say that otherwise labor becomes obsolete faster. Another aspect is that the benefits are greater if indeed education is continuing, year after year, and not delayed until the need to overcome human obsolescence becomes unavoidable. In brief, "keeping up-to-date" is a better form of investment than "trying to catch up." A third aspect is that there is no apparent age limit beyond which continuing education does not produce benefits. A fourth, however, is that the best investment in continuing education starts with the young person as

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soon as his education and training would otherwise begin to beome obsolete. A fifth is that investments can pay a profitable return in any occupation where obsolescence is probable, not simply in those for which a specified education or training was originally given; on the other hand, the cost of obsolescence is greater for higher-level occupations such as management, engineering, teaching, etc.

Costs and Their Incidence

Continuing education takes a wide variety of forms, running all the way from the most informal sort of conversations in which knowledge is transferred, through all types of learning by doing, across to the use of mass media such as periodicals and other publications as well as film or TV, and on to formal courses within or outside the place of employment. The direct costs of these different forms are, of course, quite varied. (There are perhaps equally wide variations in effectiveness.) The mass media have the interesting property that they decline in cost per unit over great extensions in audience size. But the significant cost is not typically that of the instructional medium. It is the opportunity cost of the individual's time. Ordinarily this means the value of his compensation that would otherwise pay for productive work; it may mean the value of his personal time, and that is often some major fraction of his rate of compensation. Even for high-tuition courses on company time it is generally true that wages for time lost constitute the largest single cost item. For lower cost media the proportion may be even higher.

Who typically bears these costs of continuing education directly? Probably employers carry the largest share, especially in the cost of learning time. In many circumstances suppliers of services to the employer bear a substantial share, for example when they directly provide technical and other productive literature without charge, or when they support fully or partly

the cost of trade periodicals by means of their advertising expenditures. Employees carry some share, especially by after-hours reading and so on, but they carry less of the burden than in their pre-employment days of formal education or in their initial training periods, when in each case they were foregoing earnings as an investment in higher income later. The public --that is, taxpayers--bears little of the cost directly, an interesting contrast with the high share of the cost of formal education it assumes.

Underinvestment

There are reasons for believing that from the point of view of economic welfare substantial underinvestment occurs in continuing education. Consider first that there are weak incentives to many employees to make the investment themselves, especially once they have passed the age where the cost can with some certainty be expected to be returned in higher incomes, either with the current employer or by movement to a new one. Moreover the type of knowledge most obviously useful becomes quite specific to the present occupation as well as employer. And it must be acquired at the cost of limited leisure time that carries an increasingly higher value as incomes continue their secular rise.

The employer, on the other hand, faces what seems to him to be risks that his investment will benefit another firm if the employee does in fact leave for another job. And more importantly, unless the knowledge or learning involved is quite specific to an immediately-perceived need, the employer in any given case may be highly uncertain as to the amount or timing of payoff, even though he may agree that in general--in a sense, "on faith"--that continuing education pays. In short, one might be able to show in theory that employers, especially, should in their own interests invest more heavily--forego current production--in continuing education. But their actual behavior,

when faced with its costs, is conservative--but rational. That is why it is often rather fruitless to exhort employers to become more training- and education-minded. Especially is this the case with small firms where educational costs per unit rise often. The public, of course, makes most of its investment in education in the role of collective parents of young persons. It is only in recent years, and only for labor in developing countries and for the hard core unemployed or the chronically undereducated in our own, that the public has accepted the role of investor in job education and training, and even then with considerable uneasiness. Nor do our public tax laws generally encourage employees or employers to continue education and training, although that is a general problem and not simply one related to this form of education. But it is interesting to note that we frequently favor investment in physical capital over human capital with our tax credits, depletion allowances, etc.

Implications

It can be argued, of course, that competitive pressures among industries, regions, employers, and employees will slowly force the average level of investment in continuing education upward, as those who make the investment profit and those who do not lose. And to an extent that is what has occured, and is occurring. But I suggest that it would be desirable for more direct intervention to take place in order to nudge the process along. A classic example of this intervention has been the removal of the price barrier to dissemination of knowledge via technical and trade periodicals as advertisers have taken on the cost. An interesting, and certainly a still-controversial example, is the intervention of trade unions that negotiate training allowances with employers and proceed to establish their own schools of continuing education, as is the case in some segments of the graphic arts industry.

I suggest that the next move might be to negotiate pay for employee time in these schools.

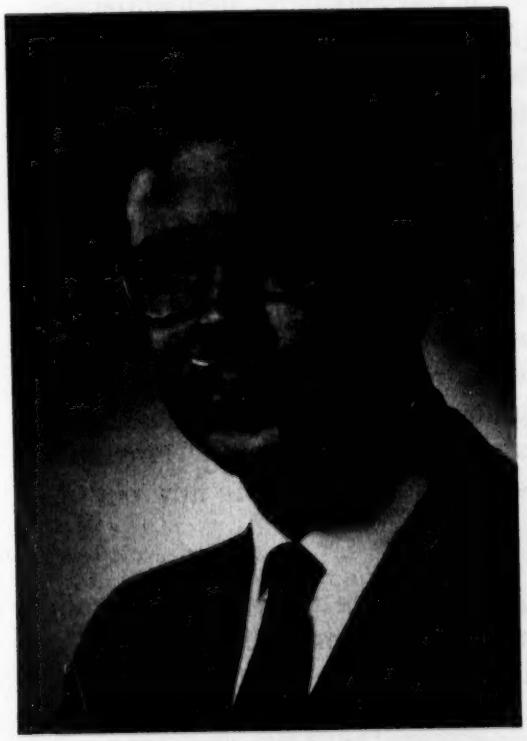
Another example is the intervention of the public through subsidies to continuing education under the federal Technical Services Program that follows the pattern first applied in free agricultural education for farmers. However, in some cases at least there is still underutilization of the program because tuition fees or other prices and costs remain a barrier. A fourth example is the slow rise of educational services through both public and commercial television.

Conclusion

The economic argument, in short, seems to be strong for continuing education at a level, with a persistence, and with an efficiency well beyond what is the case today. As in the case of the education of youth, there is a considerable base upon which to build. But if I were to pick one critical need, it would be for more public involvement, even if that means shifting resources out of pre-employment education and into post-employment, career-long education.

The Organization and Support of In-Plant Training Programs

by William H. Smith



ABSTRACT

In-plant training is not a luxury, but a necessity. Large, complex establishments as well as small and medium-sized firms need to develop training programs to insure continued growth and improved profit. There are six responsibilities or operational steps to in-plant training: management training responsibilities; conducting the employee skills inventory; organizing instructional outlines; choosing an instructional staff; the implementation of training; and program analysis and critical appraisal. Outside education and training sources, such as industry associations and junior and community colleges, should also be utilized.

The educational level necessary for success in an Old Testament society might be comparable to that of a 14-year-old in today's society. The learning optimum, by today's standards was at a very low level, mainly because a high degree of knowledge was not required to exist and succeed in the civilization of that day. Today, however, the picture is completely different. Regardless of whether a person is a manager, scientist, technician, or craftsman, he must seek to broaden his education by every possible method and at an ever-increasing rate. Dr. Malcolm Knowles, of Boston University, has said that by the end of the year 2,000 the professional will experience four changes in his career in an attempt to keep abreast of normal technological change. Augmented training and retraining will be a normal procedure in contrast to today's so-called stopgap training which is generally conducted on a temporary basis.

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Industry management is keenly aware that a business must show gain, or it will fail. Constant attention is given to the development of better production techniques and work methods. We estimate, plan, analyze, study, and seek out every possible way to achieve a more effective management team. Management expects the executive to function in an atmosphere of constant change, in an increasingly effective and efficient manner; to make decisions more intelligently, and to use modern computer techniques if necessary in order to produce a better product than a competitor, more quickly--and in greater quantities if that is a requirement. In some instances, the computer may perform certain functions or decisions for the manager, depending upon production design and ultimate product requirements. We are beginning to see the solution to complex production problems, mainly because the manager does not have to "risk" some decisions; the computer does it for him much more quickly and without error.

If only the mystery or the bugs were taken out of in-plant training, how much happier management would be. For so long, management has taken the position that "Joe has been on the floor back there for 28 years, he'll give that new man some help, and we'll chalk this time up to an apprentice program"; or "We've gotten along for this long without our men doing training, what's all the fuss that I've got to do some training now. I never went through a training program in my life, and I built this place from scratch." Fortunately, we're hearing less and less of this--possibly because Joe is now out of business!

The printing industry has lagged behind other industries in the development of a training and educational philosophy. Not only has this philosophy, or staff of life, been neglected but the utilization of proven educational tools has been overlooked.

The Manpower Division of the Department of Labor, in a published report covering 711,000 business organizations employing over 37,000,000 workers, concluded that only one out of every five establishments maintained any type of formal training activity.[1] The report stated that "The proportion of establishments with training programs was directly related to establsihment size; the larger the number of employees in an establishment, the greater the probability that a training program was in operation. . . Only 11 percent of the smallest establishments as contrasted with almost all of the largest establishments, sponsored some type of training," as shown below:

Number of Employees	% of establishments with training programs
4-19	11
20-99	25
100-499	41
500-999	70
1000-2499	85
2500-4999	90
5000 or more	96

Before proceeding, a definition of in-plant training and industrial educational programs is primary.

In-plant training is that effort which management exerts, directed toward teaching specific procedures or operational techniques, to effect the technical updating of employees, or the training of new personnel. It is skill oriented, and may be conducted on-the-job, or in a classroom. The practical applications of knowledge imparted is normally the main objective.

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Educational programs are normally built around those subjects which may be provided as backup information for production, or exempt employees, and in some cases may be remedial in nature, to more closely insure that training objectives be met in the areas of skill training. Both may be accomplished by instructors in the employ of a company, who may have the required educational background, and qualifications.

Outside Education and Training Sources

A wealth of untapped training and educational assistance is directly available to the industry through its associations, and junior and community colleges. Associations rely on the finest journeymen, craftsmen, owners, and managers to conduct a variety of courses ranging from typography, estimating and pricing, to advanced production techniques and management subjects. What would you pay for similar types of instruction in your plant? Or, for maintaining a person on your staff, with such work and instructional capabilities? Association training can be a natural lead-in to a continuing program on the in-plant level.

Junior and community colleges are growing at a rapid rate. There are now over 966 in the United States. Many are installing--again, with the assistance of local industry associations--substantial printing instructional laboratories for evening classes in reproduction photography, stripping, platemaking, presswork, and numerous other areas, on basic and advanced skill levels.

I would like to submit six items which may be classified as responsibilities and operational steps to in-plant training; those which are compatible with today's "computer advances." They are practical for small-to-medium sized plants, in a wide variety of manufacturing operations. Though these basics

apply to all plant sizes, larger printing establishments normally maintain training as a personnel function.

1. Management training responsibilities. As estimating, planning, and production are the responsibilities of specific individuals, so training should be. Education and training requirements for each company employee should hold high priority and be written into his job description, in support of specific directions for work performance. We in the printing industry are just now beginning to see the advantages to writing production responsibilities into the job descriptions of management personnel and line supervisors. However, areas of responsibility for both production and training should be spelled out equally. Where active, successful training programs are given appropriate attention, changes in work methods and departmental relationships can be communicated and implemented consistently, and with greater effectiveness. Also, a manager's grass-roots contact with his line foremen will allow him to accurately determine the training needs of those under him, and to coordinate these efforts with a company executive responsible for company training and education.
2. The employee skills inventory. From the executive responsible for training to the line supervisor who works directly with production employees, there must be an up-to-date awareness of each employee's skill capabilities. This is equally as necessary as maintaining an inventory of raw materials with which to work, without which production cannot be accomplished. The person most acquainted with the employee's skills and aptitudes is the employee's line supervisor, and he can most easily keep records of skill strengths and weaknesses.

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A skills inventory is merely a record of what a specific production employee can and cannot do compared with the work requirement of of his particular job (you can see how much easier it would be for this line supervisor to keep accurate records if he can readily refer to up-to-date job descriptions--more correctly called a function analysis). From a thorough analysis of production skills and ratings which may be assigned to employees--as a result of similar inventories of department production capabilities--the training director, with the assistance of the line supervisor, can discuss individual skill deficiencies. Weaknesses can then be identified, and major areas of emphasis for instruction planned. The responsibility then falls on the training director to organize program objectives to meet skill deficiencies. He must utilize line foremen to resolve skill weaknesses throughout the production line with effective instruction.

3. Instructional outlines. No simple method exists for the development of outlines for instruction. A subject outline is derived for the specific purpose of reaching training objectives through organized methods of instruction. Training objectives, will have been met when recipients are able to perform work responsibilities in a satisfactory manner. Increased production following instruction will depend to a great degree upon the care, uniformity, and meticulousness with which lesson plans are made and subsequent instruction given.

4. Choosing an instructional staff. Normally, industrial training programs are best organized and developed by the company training director or division cooperating with line management. Except for larger establishments, the graphic arts industry in most instances, does not have this degree of sophistication. Training personnel are

normally not staffed on printing management teams, and if anyone handles training it is generally the plant supervisor or production foreman. The direction of training cannot be given inferior status. Management will suffer from the careless assignment of this responsibility to someone who does not have the respect of line production workers, and an understanding of basic educational concepts and procedures.

The graphic communications industries are increasingly employing skills which require more rigid work standards, and individual alertness, comparable to the country's top scientific industries. Instruction, whether classroom or on-the-job training, must be well organized in order to give employees the feeling that their active participation in training will be recognized. Acceptance of a training program must be established at every level, and in every department 61
and division.

Choose journeymen instructors who are communicators, who understand people, and like to work with them. Assign instructional responsibilities only after a thorough understanding of instructional assignments and after the person understands the responsibilities of leading others. The journeyman who instructs must feel he is the main part of the training program. Consult him in the planning stages, and carry through to actual initiation in the classroom and on-job-training in the plant production areas.

I cannot overstress the importance of the direction of training. If you cannot afford a training director, give your best technical man that "hat" to wear, and the additional title, with the responsibilities

that go with it. If necessary, provide the time and money for a course in educational methods, and interpersonal relationships (sensitivity training), if you feel this would be helpful. If you hire a training specialist,require that he have a basic understanding of formal management processes. This requires a basic awareness of business economics and an understanding of training costs. A local trainer or educator hired on a part-time basis for the prupose of organizing training may be a practical possibility in some business communities.

We tend to forget that training can be organized and conducted to augment instead of to consume the profit margin. We also forget that we are paying for the costs of training, whether we train or not. Goofs and errors can be traced to lack of information, and inefficient operations, or simple ignorance on the part of production employees about work operations. How much better to spend money on the development of programs which will bring permanent results.[2]

Neither must we forget that an employee cannot be forced to take training. While it is hoped that the results of training will allow him to increase his work potential, management must develop education and training programs which will teach beyond the minimal requirements of what an employee should know to do his work. It must build opportunities and career goals into the organization structure. The motivation to suceed will play a vital role in the employee's determination to increase his chances for promotion.

Achievement is naturally a reward in itself; however, management must not assume this to be a sufficient end-goal reward. Economic and psychological rewards should not be separated.

5. The implementation of training. Adult-learning differs widely from that directed to a more youthful level; it is mostly problem-oriented --instead of conceptual. For this reason on-the-job training is one of the more popular training methods used in all major industries. While on-the-job training may have its shortcomings, it is used widely, and successfully as a direct method of instruction.[3]

Organized discussion periods centered around production procedures and problems are also beneficial and effective. Less formal planning is necessary in the development of a substantial block, unit or subject area of instruction, since current problems--with which employees are familiar--would comprise the contents of a class period. Care must be taken not to give employees the impression that sessions of this nature are unplanned; rather, the foreman or supervisor in charge should schedule sessions on certain topics in advance and use problems as examples for learning reinforcement. The utilization of on-the-job training and the discussion of problems may be more useful when planned for intermittent use by the trainer. 63

The scheduling of regular instructional sessions away from work areas to allow the unobstructed presentation of a body of organized material is also of primary importance. The program would have the advantage of conceptual learning, reinforced by experience in application.

6. Finally in order of sequence, as an examination covers a course of instruction, the analysis and critical appraisal of the objectives of in-plant training must be comprehensive and realistic. As a scientist cannot control what he cannot measure, neither can the trainer, foreman, or supervisor control and improve the content of in-plant train-

ing which is not carefully organized, and presented. An accurate determination of the degree of success of a program may be obtained through the expression of opinions by the recipients of training. This "moment of truth" will reveal weaknesses in training which cannot be identified by any other method. Not only weaknesses in program planning, but more important, weaknesses in technical content will be evident. To insure the retention of material, we must follow up with individualized training involving review sessions, scheduled technical reading assignments, and educational activities which may involve remedial reading, math, English, or other educational subjects.

Training is not a luxury, but a necessity; not only for the large, more complex establishments, but for plants which are in business for keeps--to show a profit--for growth companies. If your plant is a growth company, chances are that you have given attention to some form of training or education for your key people, or that you're strongly considering doing so. If your plant is not a growth company, and you are not training, possibly we've just written a prescription for you.

It is apparent that there must be a closer interchange of ideas between our own printing industry associations, and the production man; between the junior and community colleges and the printing industry. We know--supposedly--our industry association education and training programs--but what do we really know about the training potential latent in our institutions of higher learning.

I, therefore, propose that the industry seek cooperation with the colleges and

universities in a professional management in-plant training internship, to afford opportunities to undergraduate and graduate scholars in education to:

1) Become acquainted with the industry's printing production complex;
2) Study the areas of production-training conflicts which are peculiar to custom production industries;
3) Evaluate existing formal and informal in-plant training programs across the industry based upon accepted educational principles and procedures;
4) Assist management in the building of educational and training programs to support expanding production facilities.

These efforts would allow constant and accurate assessment of management's production position and skill-level potentials. Management would have the advantage of an objective, professional evaluation of the requirements for education and training at the line management and production levels, and college and university education majors would obtain an exposure to our industries, its opportunities and challenges. With these objectives as goals, the combined aims of industry and education would be to build a training philosophy which would allow management to involve employees in total training experiences, as opposed to narrow skill training. Education and training would be integrated in realistic, practical, achievement-oriented learning. Great benefit could accrue to the smaller, to medium-sized establishments which may have less staff and/or departmental support for the organizing of training efforts.

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[1] Frankel, Harold, On-the-Job-Training--A Permanent Institution, Training and Development Journal, March 1969, pp. 28-32.

[2] Hennessy, David E., Profit from Training, Training in Business and Industry, February 1969, pp. 34-40.

[3] Axford, Roger W. and Robert W. Schultz, A Yearning for Learning--While Earning! Training and Development Journal, March 1969, pp. 10-13.

Training for the Unemployed, Underemployed, and Hard Core Disadvantaged

by Louis A. Valicenti

ABSTRACT

Industry should keep abreast of local vocational training programs through open communication with local schools and employment security offices. Training programs are being conducted in communities throughout the country under the Manpower Development and Training Act of 1962, but increased industry involvement is needed. Local employment security offices must know the needs of the industry in order to request federal aid for a training program in a particular industry occupation.

Two words are used in today's business world which I want to bring to your attention: communication and awareness. Communication with the school system, and with the employment security agencies will give an awareness of the kinds of educational training conducted in the community. Also, the need for employers and employer organizations to keep in close touch with the vocational school system is becoming increasingly important.

My topic is going to be mainly concerned with the Manpower Development and Training Act of 1962. Much of what I am going to say will relate to a few of the remarks made by a previous speaker. The Manpower Development Training Act was more commonly known as the Clark-Holland Bill. Senator Clark and Senator Holland are both native Pennsylvanians; both did extensive work in developing the MDTA Act. Congressman Holland (deceased) was

from our own Pittsburgh area, and very much concerned with lay-offs in the steel industry and the coal mines.

Back in 1962, Pittsburgh had the honor of submitting a request for the first Manpower Training Program in the nation, the program was the Electronics Mechanic Program. At that time, the Pittsburgh labor market area had the exceedingly high unemployment rate of 13.6 percent. This program was the first experience for us, and without Federal guide lines was primarily developed to provide training opportunities to those who were out of work because of technological change and automation. The MDTA Act states that any person unemployed or underemployed would be eligible for training.

The responsibility for developing training opportunities lies with the Bureau of Employment Security. We were charged with the responsibility of identifying occupations for training. The only way we can do this is by surveying industry, labor and employer groups. The information we accumulated was insignificant, since many employers were reluctant to project their needs. Without the Bureau of Security indicating that there was a need for training in the various occupations, we could not submit a proposal through channels to the Federal government.

Federal Responsibilities

Here are some of the responsibilities of these various organizations in Manpower Training. The Bureau of Employment Security has the responsibility of determining the occupations for training. They also have a responsibility to select trainees. Our selection is based on counseling, interviewing techniques, testing, determining some of the applicant's interests, their leisure time activities, and their physical capabilities. Besides selecting and training, at the end of the training period, we have the respon-

sibility of placing the trainee. We develop a proposal first; this proposal contains justification that a training need exists. The proposal will then be submitted to the Federal Government through state channels. Simultaneously, the Department of Public Instruction has the responsibility of selecting the vocational training facility--either public or private--to develop the course outline for training. They have the responsibility of outlining the curriculum, developing the course, selecting the tools, the equipment, the hiring of instructional help and whatever else is needed in the instructional phase. The businessman is the recipient of these programs at the end of specified training periods. An advisory committee is set up with each occupational training program made up of industry representatives, labor and any other employer group which has an interest is that occupation. The prime function of this Advisory Board is to provide continual technical assistance to the training facility to insure that the training is continually updated based on technological and other changes in the occupation. We invite employers to visit classes as a motivational factor for trainees. 69

Training Act Programs

We have four kinds of training programs in the Manpower Development and Training Act. The largest is what we call Institutional Training. Institutional Training is nothing more than providing classroom instruction in a vocational facility or private school. Our programs range from eight to 52 weeks. The length of training is determined by the skill level of the occupation, as well as the advice from industry as to what they feel the trainee should accomplish. Fifty-two weeks is the maximum training period under the Manpower Development Training Act. We can only prepare the trainees for the basic fundamentals in any occupation and expose them to the tasks they would be confronted with. It is not permissible to train them as journeymen mechanics. We must continually tell the employers who hire these trainees that these

are not journeymen mechanics. We have given them some of the basic tools for particular occupations, and it is up to the employer to build on the information they received in training.

The second phase of training we call Couple Training. This is Institutional Training, and on-the-job training. This institutional phase is nothing more than giving them the basics for a particular occupation. There is some exposure in terms of actual work on equipment, and then a period of on-the-job training. The tie-in here is that while the trainee is in the institutional phase there is a definite job for the trainee at the end of training as opposed to the institutional phase of training when continual job development is necessary to place trainees.

We have the straight on-the-job training program where a trainee is selected through the facilities of the Bureau of Employment Security, or he can be hired on his own by the employer. They are placed directly on the job and paid the going rate. The period of training that most contracts are set up for is a maximum of 26 weeks.

We have one other phase of training known as Less Than Classroom Training. This permits the Bureau of Employment Security to slot one trainee in a training situation. To be eligible for this training one must be considered disadvantaged.

Pittsburgh Area Programs

In Pittsburgh, we have had 30 to 50 occupations in training continually. Here are some of the occupations that we have in training: electronics, automotive mechanics, drafting, cook and baker, cosmotology, medical secretary, surgical technician, machine-tool operator, (lathe, milling machine, drill press

operators, etc.), welding, auto body mechanics, and close to your own industry, reproduction technician. This is in the area of duplicator training, process photography, binding, and display photo-composition.

To give you a quick idea of the composition of some of our training programs, there is much supportive service given in these training programs while training is conducted. This is going to be increased in coming years, mainly because the available supply of potential trainees are disadvantaged and underprivileged.

The Federal Government insists that over 65 percent of the training opportunities will have to be for the disadvantaged. This is a complete reversal from our experiences in 1962. Right now we have the hard core unemployed person in the labor market. This is where the direction of the training program is geared to.

Program emphasis is now directed to a multi-occupational level. This means the grouping of a number of occupations in order to take advantage of Federal funds. We are now working with what we call Multi-Five Program, meaning that in five consecutive years we have submitted multi-occupational training programs. Every one of the multi has carried important component parts in addition to the vocational phase of training. There is counseling with the trainees: a continual reminder of the schedule, how to dress, how to apply for a job, how to prepare for a test, and the giving of tests.

We have basic and remedial education in all our programs for those who need it. Many of the unemployed in our programs have been away from education from two to 20 years. It is necessary to "refresh" education for particular occupations. In some instances, it must be basic. They are also prepared

for the General Education Development test. During the vocational phase they are exposed to "live" automobiles, to actual welding and fitting structural steel parts.

The Bureau of Employment Security continually makes industry aware of training conducted under the MDT Act. We encourage employers to visit the classes, we ask them to interview trainees prior to completion without obligation. This is part of training to prepare these trainees for going out and being accustomed to riding a bus or a streetcar to any part of the city: to walk into an employer's office, to become familiar with what goes on in an employer's office, to file an application. On the whole, industry has been cooperative, but I think they could become more involved in this part of the job development phase.

Let me give you an idea of what we are thinking about for fiscal 1970. Instead of submitting individual or isolated programs for auto mechanics, auto body repair, etc., we are thinking in terms of submitting comprehensive programs which encompass the auto service and repair industry, knowing that some of the trainees can aspire to top level jobs in that field. We also know that there are employers in the industry who will hire service station mechanics, lubrication mechanics, and carburetor specialists. The idea here is that if the person cannot go to the top of the ladder, we would be able to spin him off at lower skill levels. This is going to be a real task for both the training facilities as well as the Bureau of Employment Security.

While trainees are in training, they are paid a stipend amount if they qualify. Any unemployed or underemployed person can qualify for training. They can also be paid a training allowance, or subsistence, and transportation allowance if they qualify; this is determined on an individual basis.

Training Implications of the National Alliance of Businessmen

by Robert B. Burr

ABSTRACT

The National Alliance of Businessmen is a private, non-profit corporation formed in 1968 at the request of the White House. It is businessmen working with other businessmen to assist in solution of the unemployment problems in the cities and the plight of the poor in urban and rural communities. NAB's prime responsibility is to find jobs and to get people into those jobs. Industry involvement is necessary.

The National Alliance of Businessmen (NAB) is a private non-profit corporation which was formed at the request of the White House. It is businessmen 73
working with other businessmen in the private sector. The organization of NAB is in response to certain adverse social and economic conditions in our labor force which must be resolved. The priority that American business attaches to this effort is indicated by statements from executives of various U. S. corporations in the February, 1969 issue of Fortune, under the title: What Business Wants from President Nixon. It is interesting that the traditional business issues of labor, anti-trust, foreign trade, and tariff are far down from the top of the list. The issues that head the list were social issues that confront the nation today. That is certainly an interesting turn of events. One of the three prime tangible goals these executives cited, was the solution of the unemployment problems in the cities, and the plight of the poor--both urban and rural. A prosperous society has finally--and suddenly -- become aware of what it has not accomplished. Business feels that the technology and the progress which we are experiencing and enjoying today,

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is a result of their efforts. And they are also aware of the problems that have been created as a result. Feeling that they have created this technology, and to face their problems, they feel a responsibility to do something about alleviating them. This change in business attitudes is not a superficial one. It is a reaction to a basic change in American life. And that is the achievement of full employment in peacetime.

NAB Aims and Historical Perspective

Now you may say that the aims in business are not entirely altruistic and you may be right. Perhaps they are not and perhaps they should not be. Because if you stop and think about it, six out of every seven jobs, in the United States, are with the private sector. We also realize that business is located in and involved in the cities. In the cities we have the problems of proverty, race, job needs, housing and education. Business, I think, feels that it must succeed in this venture. Leonard Haller, a businessman in San Antonio, Texas, associated with the National Alliance, said that this venture has to succeed; we may not have another chance. The key to eliminating poverty is, of course, meaningful jobs. It is the task of the National Alliance of Businessmen to find jobs and to get people into these jobs so that mutual and productive employment situations result.

Let me give you a little history of NAB: NAB got its mandate from President Johnson's manpower address to Congress on January 23, of last year. He asked Henry Ford II, to form the National Alliance of Businessmen. The 50 largest cities in the country were chosen as primary points around which eight regions were formed. These eight regions remain the same, but as of today, with the new administration, there are now 13 cities involved. They have chosen the next largest cities in which to expand the program. They vary in size depending on the concentration in the area involved. The 1968

campaign was started with a meeting in Washington, on March 16th. At that meeting, the President spoke, Henry Ford II, Paul Astin who is the Vice President of Coca Cola, Leo Bebee from Ford who is the Executive Vice President, Vice President Humphrey, Secretaries of Commerce and Labor, Walter Meany and others. These people returned to their regions and their metropolitan districts and as they did in Pittsburgh, organized a metropolitan group to take charge. I cite Pittsburgh to show you what I am sure existed in other cities, and how great the problem was with which they were faced. In four days after the Pittsburgh organization meeting, people were knocking on the doors of employers. A similar situation existed in other metropolitan areas but in Pittsburgh our goal was to have, on the job by June of this year, 2,000 hard core unemployed. We had rather large terminations initially, some of them attributable to the steel inventories which were built up last fall in anticipation of the strike. Many people, in spite of terminations, have gone on to other employment. 75

Direct Employer Involvement

There is also a summer youth program--last year we had a quota of 3,500. Approximately 2,300 were employed in the private sector. In the Pittsburgh area, consisting of Allegheny, Beaver, Washington and Westmoreland counties, we broke the market down to three areas: Employers employing 1 to 9, 10 to 49 and 50 and up. In this metropolitan area there were over 2,500 with 50 and up. Last year you could see what 55 people would do and how much of an inroad they would make in contacting these employers in two months time. In the 10 to 49 group there were almost 6,000, and in the 1 to 9 category there are over 26,000. These are the people who can provide meaningful jobs. The national goal for this year is to have 100,000 on the job by June 30. 12,500 employers are participating. In the summer youth area last year, the goal was 200,000.

Representation to the Employer

A total of over 20 million dollars was contributed by industries in services, salaries, and equipment. We have a manager for Allegheny County, and for the three-county area. We have a manager for the summer youth campaign. Reporting to team captains are ten field representatives responsible for contacting ten companies. The field representatives are going to be working, instead of a two-month period, for 12 months. Their job will be to persuade and educate their employers in the validity of this effort and to service them in resolving training and retaining needs that they may have. This year we are better manned to contact more companies.

The field representative will contact this employer and ask him to pledge jobs for the hard core and the disadvantaged. They suggest as guidelines two percent of employment or ten percent of a plant's turnover. The employer gives us a pledge which is submitted to the Bureau of Employment Security. They verify when they want the pledge to be filled and refer it to agencies where the hard core people can be referred to jobs. If an employer decides he wants to hire from someone other than the Bureau of Employment Security, he can so indicate to BES. Then it is up to him to make the contact with that agency. This year, we are asking the field representatives to ask the employer, if he does not wish to go to anybody else to give us the privilege of referring his pledge to that agency. We are not permitted to divulge the name of pledging companies. Once this pledge has been made, we explain to the employer that there is a way in which they can be reimbursed for extraordinary training expenses. This is through what is known as a Manpower Administration Contract with the Labor Department. This can be done for individual companies, or it can be done for a group of companies. It provides for pre-vocational training to make the hard core person adaptable and able to fit in and

to retain a job. On-the-job training must be provided by the employer; some reimbursement is provided for wages, extra waste, and extra time involved.

National Goals for 1969

The national goals for this year are set at 100,000 (by June). The cumulative goal for June of next year has been increased to 338,000 with the additional cities; for June of 1971, 614,000. I would like to point out to you in closing, some things that have been recorded in the National Advisory Commission on Civil Disorder: "Progress in dealing with the conditions of slum ghetto life has been nowhere in the scale with the problems. Nor, has the past year seen even a serious start towards the changes in national priorities, programs and institutions advocated by the Commission. Poverty remains a pervasive fact of life. The continuing despairity between this poverty and the general affluence remains a source of alienation and discontent. The study finds the concern of some whites counterbalanced and even overbalanced by resistance of other elements of the white population. Among black Americans, the study finds the mood neither totally militant, nor totally submissive, but not moving in a direction of patience."

A year later, we are a year closer to being two societies, black and white, increasingly separate, and scarcely less equal. The job of discrimination remains a serious problem: it reenforces the concentration of minorities, and low paid, low status occupations. Only limited progress has been made in opening up business opportunities to minorities. It does point to the National Alliance's efforts. This is a job toward which NAB has dedicated itself--the solution of these problems by finding productive jobs. If we are not successful, the alternatives are not going to be very palatable. Any of you who are interested, and feel that you could make room for some hard core employees who are qualified or can qualify, and if you are not approached by a field re-

presentative, call your National Alliance of Businessmen; they will be glad to sit down with you and help you see if you can in some way employ any of these people. I have found many people in the business community say "Aw, they don't want to work." I have been out in the communities, I have met these people, and many do want to work. In fact, to check on one program which has been referred to me and which has been very successful, I heard this remark: "In many instances, the hard core employee turned out to be a better employee than the average applicant." It makes sense because these people have been wanting jobs; when they finally get one, they are going to do their best to make good! The average employee knows if he does not like his job he can go and get another one. These people can't! Gentlemen, if you can participate in the NAB program JOBS, please let us hear from you.

Rehabilitative Training of the Unemployed and the Underemployed

by Francis R. Maffei, Jr.

ABSTRACT

The Human Resources Development program of the Bureau of Employment Security is designed to help those out-of-work become employable. Under HRD, such programs as Work Incentive prepare men and women for employment opportunities. These programs need industry support.

First of all, let me express to you my sincere thanks for giving us the opportunity of speaking to you about our program. The individual who is out looking for a job really has a problem. He may be a new entrance into the labor market; a housewife who has lost her husband and is returning to the labor market; an individual who has lost his job because the plant has moved out of the area; new technology has replaced a trade or craft area, or a handicap has resulted to the worker. A whole variety of reasons exists for a person's search for work.

Several years ago, the Bureau of Employment Security entered into a program of developing Manpower in a completely different way--the Human Resources Development program (HRD). We take a person who needs help and support, and give him employability.

What can we do for this individual to make him employable? This covers a whole variety of areas. First of all, let us take the person who comes in, who has lost his job and needs training. When he steps into our office, he has

a problem. He has a home, a car, a family, children to educate, and he needs a job. All the talking in the world is not going to satisfy him at this point; he needs a job. He may have been on one job for the last twenty years. Our assistance in the area of guidance is to try to help, to support, and to give information. The vocational guidance personnel, or the counsellors are working toward vocations. We take advantage of foundations, community organizations, as well as the school systems. We seek to train him in another occupation, so that he, on his own, can go out and take on a new job which will make him a part of the growing, working community--self-sufficient on his own--so that he can go home and hold up his head in front of his family.

Variety of Training Programs Available

Some cases include the physically unfortunate. A man may not have an arm, he has a hook; he has four children at home; he has been working at a job in a small plant, cleaning up around the work areas. The plant is sold to another organization, they move out of town, this man is out on his own. He may have to go to welfare, but he is too proud to do it--he needs help. Now where do we fit in? The employers fit into this also. First of all, he needs the confidence that he can be retrained. You try to arrange for him to see the Bureau of Vocational Rehabilitation. We arrange for a training situation. The man without an arm wanted to be a welder. Everybody threw up their hands and said it could not be done! A counsellor arranged to get this man into a situation where he could convince an employer that he had the desire to learn and that he felt he could be trained. The man went through the welding course, and eventually into the employer's establishment following training. He turned out to be one of the best workers the employer had. If you can get a person in a job which they like, they will stay with you.

We work with the carpenters, and with nearly every apprenticable trade in

the community. We get them involved. You say that all high school graduates can go into apprenticeships. Don't you believe it. Usually it is too late at this point. A young man must be contacted at the ninth grade. They need math, and some science if they are going to go into some types of apprentice programs. We get the employers and Unions to go out and talk to these students.

You have read in the newspaper, or read elsewhere about WIN--Work Incentive program. This program involves the individual in a more flexible training situation, one at a time. This arrangement could be arranged in an institutional program. I have on my staff right now, in the Human Resources Development Center, one of the ladies who is with the Welfare Rights Organization, and was one of the more militant individuals three months ago. As a result of the program that she has been involved in for some disadvantaged persons, she said to me "Mr. Maffei, three months ago I would have stood up to you and told you that you were a liar, and that you did not know what 81
you were talking about in trying to provide for these people basic English, basic Math, how to dress, why you get up in the morning, why you shut off the alarm clock, when to look at TV, how to get to work on time, and all of these little things which you and I take as everyday activities." This is serious. They do not know what it is to get up at 6:30 or 7:00 in the morning and go to work. They never had to. Not because they did not want to, because they never had the opportunity. They spend money for all the things that they like, and not for the things that are going to help them.

Employer Involvement Vitally Important

Group activity is also organized with the employer. We invite the employer in to talk to the individual. He tells them what he is looking for. The employer also helps the person to learn how to act and how to fill out his application.

The Pittsburgh office last year placed approximately 25,000 people on jobs. Out of that group, 38 percent of those were in minority groups. A great number were placed on an individual basis; one at a time. The individual's problem is personal when they step into our office; he has an immediate problem. Human Resources Development is doing something for the individual, developing a skill which will make him employable in the future, to be a part of our society--a tax payer and not a tax user.

Biographical Sketches of Speakers

KERMIT C. MORRISSEY

Mr. Morrissey is president of the Community College of Allegheny County, Pennsylvania. He holds a B.A. degree from Boston University, Boston, Mass., and is currently completing his thesis for a Ph.D. from Harvard University, Cambridge, Mass.

Prior to his current position, Mr. Morrissey served as chairman of the Massachusetts Board of Regional Community Colleges and as executive assistant to the president and dean of students at Brandeis University, Waltham, Mass. He has also served as Massachusetts State Budget Commissioner and as research director and fiscal and educational advisor to the governor of Massachusetts.

Mr. Morrissey is chairman of the Subcommittee of Fiscal and Other Taxing Devices of the Advisory Committee on Higher Education for the U.S. Department of Health, Education and Welfare and the President's Council of Pennsylvania Community Colleges.

RALPH I. SQUIRE

Mr. Squire is director of special projects for the Graphic Arts Research Center, Rochester Institute of Technology, Rochester, N.Y. He also serves as executive secretary of the International Graphic Arts Education Association.

Mr. Squire directs a Composition Systems Seminar for middle and upper management personnel at GARC and has chaired an American Management Association seminar.

He is a member of the Education Council of the Graphic Arts Industry and the American Society for Training and Development.

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ROYAL W. B. COWAN

Mr. Cowan is chairman of the board, Riverside Press, Inc., Dallas, Texas, and serves as a regional vice president and member of the board of directors of the Graphic Arts Technical Foundation.

He has also served as president of the National Association of Photo-Lithographers, Printing Industry of Dallas and Dallas Advertising League. He is currently a member of the executive committee of NAPL.

Mr. Cowan has also received the Elmer G. Voigt Award from the Education Council of the Graphic Arts Industry for his outstanding contributions to education within the graphic communications industry.

WILLIAM J. HENRETTY

Mr. Henretty is managing director of the Printing Industry of Twin Cities, Inc., St. Paul, Minn. He holds a B.A. degree in education from the University of Wisconsin, Superior, Wis., and an M.A. degree in educational psychology from the University of Minnesota, Minneapolis, Minn.

Mr. Henretty serves as a guest instructor at the Management Institute of the University of Wisconsin and has written several published articles on personnel practices. As managing director of PITC, he conducts management training courses, serves on the various joint apprenticeship committees in the Twin Cities area, and coordinates the activities of the PITC Education Committee.

RAYMOND G. KARNES

Mr. Karnes is assistant managing director of the Printing Industries of Maryland, Inc., Baltimore, Md. A graduate of Ohio State University, Columbus, Ohio, Mr. Karnes has also completed four years of organization management at Syracuse University, Syracuse, N.Y.

Mr. Karnes holds membership in the Maryland Scoeity of Training and Development, American Society of Association Executives, the St. Andrews Society of Baltimore and the education committee of the Graphic Arts Technical Foundation.

KENNETH G. SCHEID

Mr. Scheid is president of Kenneth G. Scheid and Associates, a Pittsburgh (Pa.) consulting firm specializing in all aspects of printing and its use. He is a graduate of the Massachusetts Institute of Technology, Cambridge, Mass., and the University of Chicago, Chicago, Ill.

Prior to his present position, Mr. Scheid served as head of the Department of Graphic Arts, Carnegie-Mellon University, Pittsburgh, and on the faculty of Finance and Commerce, University of Pennsylvania, Philadelphia, Pa.

WILLIAM H. SMITH

Mr. Smith is assistant education director of the Graphic Arts Technical Foundation. He holds a bachelor's degree in education from Marion College, Marion, Ind., and a master's degree in printing management from South Dakota State University, Brookings.

Mr. Smith was formerly a printing specialist for the Federal Aviation Agency, Department of Publications and Audio-Visuals, Washington, D.C., and an assistant professor of typography and design at South Dakota State University.

Mr. Smith is also a recipient of the Elmer G. Voigt Award of the Education Council of the Graphic Arts Industry for outstanding contributions to graphic arts education.

LOUIS A. VALICENTI

Mr. Valicenti is manpower training coordinator for the Bureau of Employment Security, Pittsburgh, Pa., and has received a state merit award for his contributions to the manpower training program in Pittsburgh.

Mr. Valicenti has served in the Bureau of Employment Security since 1945, as veterans employment representative and supervisor and manager of the Braddock, Pa., office.

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ROBERT B. BURR

Mr. Burr is metropolitan director for the National Alliance of Businessmen in Pittsburgh, Pa. He serves NAB on full-time loan from PPG Industries, Inc., where he is employed as manager of the Training and Development Section.

A graduate of the Wharton School of Commerce and Finance at the University of Pennsylvania, Philadelphia, Pa., Mr. Burr has served as national president of the American Society of Training Directors, as a director and chairman of the Education and Training Section of the Pittsburgh Personnel Association, and as a director of the Council for International Progress in Management (USA), Inc. He is a member of the Pittsburgh Group Leadership Training Committee and the National Society of Sales Training Executives.

The author of various papers on management development, sales training and industrial safety, Mr. Burr is listed in the World Who's Who in Commerce and Industry and in Who's Who in the East.

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VT 012 767
The Seventies--Education and Change.

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MF AVAILABLE IN VT-ERIC SET.
The Graphic Arts Technical Foundation, Inc., 4615 Forbes Avenue, Pittsburgh, Pennsylvania 15213.
PUB DATE - 70 60p.Addresses given at the General Education Meeting of the Graphic Arts Technical Foundation, Inc. (1970).

DESCRIPTORS - *GRAPHIC ARTS; EDUCATIONAL CHANGE; EDUCATIONAL IMPROVEMENT; EDUCATIONAL PLANNING; *TRADE AND INDUSTRIAL EDUCATION; VOCATIONAL EDUCATION; *SPEECHES; *EDUCATIONAL NEEDS; INDUSTRIAL ARTS

ABSTRACT - The purpose of the Graphic Arts Technical Foundation General Education Meeting, as indicated by the title of this document was to discuss the changes that will be made in graphic arts education during the decade of the '70's. Presentations included: (1) Printing: Forecast of the Future, (2) Key to Management Success in the 1970's--The Motivation and Training of People, (3) Can He Who Renders Images Create His Own? (4) Technology for Training, 1970, and (5) The Graphic Communications Teacher of Tomorrow: From the Educators Viewpoint, From the Printing Association Viewpoint, and From an Industry-Oriented Viewpoint. A biographical sketch of the speakers is included. (GEB)

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Proceedings of the General Education Meeting

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2 **The Seventies - -**
Education and Change.

Addresses given at the 1970
GATF General Education Meeting

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Library of Congress Catalog Card Number: 77—128628

Copies of this booklet may
be purchased by writing to:
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15213

Printed in the United States of America

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Tools and Methods for Graphic Communications Education and Training In the Next Decade

The 70's will bring excitement, challenges, and changes. We all know it, recognize it, and are inspired by it. The next decade could be one of the most rewarding periods in history, or it could be a flow of unmanageable changes. The future belongs to those who sift through trends and patterns and balance their present and future needs. This was our purpose in selecting the theme of the 1970 GATF Education Department Meetings: "The 70's: Education and Change".

Nine speakers in seven presentations explored the tools and methods that will be used in the next ten years to educate students, educate educators, educate the public, and educate and train personnel. Their ideas for the future are presented in this book.

The one certainty that can be derived from the addresses is an obvious one: Change. There will be change in the instruction given to high school and post-graduate students to prepare them for a graphic communications world full of computers and electronic gadgets. There will be change in the training of employees to keep them up to date and motivated to perform at their highest and most satisfying levels. There will be change in the image presented by graphic communications firms to attract more qualified and dedicated young people. And, there will be change in the tools used to effect these changes.

To stay on top of events—to keep up without falling behind—to edge in front of the pace of change—all those involved in graphic communications education will need to develop their capabilities to the greatest extent possible, and use them effectively. The opinions and ideas set forth in this book provide the structure for this future effort.

Dr. Jack Simich
Education Director
Graphic Arts Technical Foundation

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The result of a
1970's future o
topics include
setting, film an
presses, newsp
management re

Edward H. Owen
Raymond N. Blair
Rodney G. Brower

Education

Far reaching changes will be required in printing education if this segment of the graphic arts industry is to keep pace with the rapidly changing and expanding technology of the 1970's. Sweeping revisions in numerous areas must be made to prepare for this explosive growth and to reverse the present inadequate job being done by the nation's printing high schools and colleges in preparing students for the technological advancements expected in the present decade. Revisions in both high school and college printing programs, with the introduction of broader programs in the sciences and electronics; improvement in the caliber of both instructors and students, and greater support from the industry itself are among the changes which should be instigated, the educators indicate.

By a more than four-to-one ratio, Graphic Arts educators rebuked Graphic Arts education for not doing an adequate job. Slightly over 81 per cent of those who responded to a special Printing Production study stated that
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The result of a *Printing Production* Magazine poll on the 1970's future of graphic communications is reported. The topics included are: education, printing processes, typesetting, film and plates, color separation, color printing, presses, newspapers, computers, binding, and labor-management relations.

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ing Production study stated that the Graphic Arts Educational field is not fulfilling its role in providing the best trained people for the new, emerging technology; while only 19 per cent answered in the affirmative.

Numerous vocational and high school teachers complained that their institutions are behind the times in terms of equipment availability and attracting qualified instructors. There are too few good programs, and those available generally are under-staffed and under-equipped. On the secondary school level, too many pieces of obsolete equipment and the accompanying need to up-date equipment were often cited as causes of poor performance by the educators. The need for more qualified teachers, a reversal in the gearing of public school systems for the college preparatory student to the exclusion of Graphic Arts programs, and too much emphasis on isolated skills were other reasons stated.

The fact that many institutions were not attracting the best people to Graphic Arts training

programs was cited as a primary deficiency affecting the value of college-level printing instruction. Printing education is based on a shop level in high schools, and therefore does not attract those who intend to go to college, thus ending for many a career in the Graphic Arts. Archaic programs and not enough emphasis or exposure to the new technology in high schools are other indicated deficiencies.

Where Does Education Stand Today?

If the Graphic Arts field is not adequately closing the gap in education to meet the changes of the 1970's, just what is its present status? Many of today's educators view the situation from a critical vantage point.

Educators are of the opinion that only a fair to good job is currently being accomplished both in secondary schools and in junior and regular four-year colleges having Graphic Arts programs.

The channeling of more qualified teachers into the industry is the greatest single need facing the Graphic Arts education field in the opinion of 31 per cent of those contacted.

Technical knowledge of the trade and experience in industry head the list of desirable qualifications that such instructors should possess if they are to successfully serve as teachers. It is interesting to note that here we have both college and high school educators saying "more of us need to be better qualified".

Revamped education programs, more modern Graphic Arts equipment, and equipment loans from manufacturers, are some of the other things which educators believe are among the most needed improvements.

What trends, evident in the industry today, will have a bearing on changes to be incorporated in Graphic Arts education in the 1970's? Half of the survey respondents stated that the use of computers and the increasing volume of computerized typesetting will influence alterations in future educational programs. The continuing growth of offset, particularly web, also ranked high. Greater use of electronic equipment—presently being used in the industry for typesetting, color separation, and engraving purposes—and the introduction of more automated equipment for production operations are viewed by many as reasons for educational changes.

Growth in the use of color in printed material and presses with accelerated speeds also will have a bearng on instructional content in the coming ten years.

What About The Future?

Few professionals will disagree that the technological explision in the printing industry makes educational changes mandatory in this decade. Extensive revisions in the content of printing programs are called for in the years ahead, along with a possible realignment in the theory motivating the creation of Graphic Arts curriculums.

More education beyond high school, but not of the type found in four-year colleges, is suggested by one prominent educator. Tomorrow's

technicians, he said, need a full high school education, not just the vocational training found in most vocational high school programs today. Technical instruction should be obtained in a post-high school two-year community college which could offer higher level training than vocational schools.

Along with such a system is the need for accrediting groups within each industry—such as printing—to define what is needed and set standards of accomplishment. A lack of initiative on the part of business in generating a demand for educational change has been a major deterent to date.

One college administrator looks upon "more and better programs geared to realistic needs of the industry" as a major problem to be dealt with in the latter part of this decade. Competent management personnel, a broad type of education at the junior and senior high school levels with specialization at the college level, and updated equipment and curriculums were other needs mentioned as necessary in the next ten years. Numerous answers reflected the emphasis that must be placed on science, math, and electronics instruction in the revised curriculums.

An over-whelming majority (79 per cent of college instructors and 85 per cent of high school instructors) suggested going to the base of printing education—the high school and vocational school—and revising programs. The establishment of new programs at existing colleges was advocated by 69 per cent of the college instructors and 61 per cent of the high school instructors.

The Graphic Arts industry must begin recruiting on college campuses and not just in printing schools. Increased recruiting efforts at the high school level were called for by 57 per cent and 64 per cent of the educators responding to Printing Production's education profile study. These instructors maintain this is one of the more vital projects to be accomplished to assist Graphic Arts education in this decade.

Closer cooperation has also been suggested between industry and the schools. Industry should have the responsibility of supplying schools and instructors with information as to its educational needs and requirements.

In this country there are not more than 35 colleges which provide recognized programs in printing management and production operations. And a close examination of the programs of these colleges would reduce this number by at least 50 per cent if the demands of the printing industry were to be considered.

Among the schools with extensive programs in printing production, technology, and management are such institutions as California State Polytechnic College at San Luis Obispo, California. Printing technology and management facilities are located in this campus building and students follow a four year curriculum leading to a bachelor of science degree with a major in printing technology.

The printing management department at West Virginia Institute of Technology in Montgomery, West Virginia, is another well-known school for training in both production and management areas of the Graphic Arts.

How The Industry Will Change

Printing Production's trends forecast for the 1970's was determined by a select group of printing industry opinion-makers, men who are in the vanguard of change and possess the unique quality of being able to see ahead. They were chosen because they have demonstrated vision of which direction the industry is moving and have been instrumental in making it move.

The mix of this 500-odd panel provides the cross-section of opinion so necessary to accurate forecasting. It is composed of a large number of executives who manage all types of business which produce the nation's printing. The findings in the forecast are further balanced by a blending of the opinions of other elements of the industry: researchers, manufacturers, consultants, educators, suppliers, association managers, technicians, and labor leaders.

The experts who comprise this blue-ribbon jury are not newcomers to the ranks of graphic reproduction. They average 27 years experience in their respective fields and represent progressive organizations.

Here is what they predict.

Rise and Fall of the Printing Processes

The ways to print on a sheet or web of paper have undergone considerable change in the past 20 years. Some processes have experienced phenomenal growth by printing industry standards, while others have begun irrevocable decline.

What will happen in the next ten years will closely follow changes which have already begun. The printing processes to watch are still the "big three"—letterpress, offset, and gravure. Some predicted changes can be seen for each. Many printing industry people, however, are either curious or worried about a possible "new" process which might take over in ten years. There are no "sleepers" among the presently known processes unless possibly it might be electrostatic printing, a method which utilizes dry pigmented particles in place of ink and places the image on paper by means of electrical attraction.

Our panel of industry opinion makers forecasts growth for electrostatic printing and is only slightly divided on how extensive this enlargement will be: 32 per cent say it will increase slightly, while 40 per cent see a rapid increase in use of the process.

For at least 20 years, the American printer has been courting offset on a scale unparalleled in the history of the Graphic Arts. The process has spread from commercial ranks to just about every type of product—newspapers, magazines, business forms, packaging — and is performing better by almost every measurement.

This happy romance will continue on an even greater scale into the late 1970's. The only process which is clearly earmarked for "rapid growth" by Printing Production's expert jury is web offset. Seventy-eight per cent of the experts said there would be a rapid increase in use of the process in the next ten years.

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Sheet fed offset also will increase, but at a slower pace. It might be significant to note that 19 per cent of the surveyed group say that the volume produced by this process will remain the same into 1978.

The process which will suffer the biggest decline in the next ten years, according to 65 per cent of the experts, is sheet fed letterpress. This outcome is not totally unexpected for it mostly reflects what is already happening in flat bed letterpress work. On the other hand, a minority (9 per cent) see a slight increase for this process coming mostly from the new wrap-around letterpresses.

But there is reason to believe that letterpress will remain strong through expanded use of web presses. A slight increase in web letterpress volume is foreseen by 45 per cent of the panel and 21 per cent say it will remain the same.

Rotogravure is slated for healthy growth, but sheetfed gravure will remain the same and may even decline slightly. The authoritative group divided on the degree of growth for rotogravure: 36 per cent said it would increase rapidly.

Flexography, mostly because of the heavy swell in packaging, will experience a slight increase in the ten-year period. Silk screen printing also falls into the slight increase category.

Typesetting Processes Fight for Favorite Position

The time is at hand when the printing industry must admit that phototypesetting is the composition method of the future. So says 92 per cent of Printing Production's expert panel.

In addition, the overwhelming majority (81 per cent) of this group feel that the setting of type on film will be done with the aid of computers, either general-or special-purpose systems. The biggest effect of this trend will be on hot metal composition. Only a small minority (5 per cent) believe that hot metal will be used to any extent for typesetting by 1980.

Automation Invades the World of Film and Plate Machines

Substantial inroads by automation—especially in film and plate handling and processing—can be expected in the Graphic Arts in the 1970's. Nearly all of Printing Production's survey panel believe that automatic film development will be the accepted practice by 1980, and 80% say it will increase at a rapid rate. The fact that the number of manufacturers of automatic film processing machines has increased by about 60% in the past three years serves as a harbinger of what can be expected in the coming decade.

Again, a vast majority (77%) feel that there will be a great increase in the acceptance of plate processors, machines which automatically process a printing plate. With an increasing number of daily and weekly newspapers and magazines making the change to offset production, many users seek such automated plate production to meet deadline requirements.

Consistency and repeatability of results are among

the stronger advantages of electronic scanners for color separation of transparent and opaque copies. Electronic scanners, which the majority of industry officials foresee as being in great demand in the coming decade, reportedly reduce film costs, speed up production of separations, and save on labor costs. Scanners are expected to find wider usage in offset, gravure, and letterpress.

How Much More Color?

The prognosticators have all been correct. We are seeing more color used in everything printed and there is every indication that the explosion in color reproduction will continue.

Nearly every member of Printing Production's panel believes that color volume handled by all printed media will increase during the ten year period under study and the majority feel the gain will be significant (between 20 per cent and 100 per cent more).

A few of the experts are even more optimistic and project increases by 1980 beyond 100 per cent of the color volume presently being produced by the Graphic Arts.

The tool-up for color printing has been going on for two decades. A separate study shows that in 1948 there were 13 different models of multicolor sheet fed offset presses on the market. Ten years later, 49 separate models were being offered and this year the number has grown to 109. Similar increases can be seen in other categories of printing presses.

Press Capability Ahead

The effect of electronics has not as yet been felt to any noticeable degree in the pressroom as it has already in composing operations. This will change appreciably as the result of technological advances by 1980.

According to industry authorities, press capability will increase during the next decade primarily through electronic controls. As maximum sheet sizes become larger, webs wider, and presses faster—all predicted—the need will be critical for more responsive and more precise controls. Ninety per cent of the forecasting panel believe there will be more controls of the electronic type on presses of all kinds in the 1970's.

There is no indication that such controls will entirely replace the human element on presses which up to now has been responsible for most variables. This applies also to the 57 per cent response of the experts who say that presses will be controlled primarily by computers ten years from now. But the new controls will help pressmen contend with expected changes in materials and speed. A trend to watch is the inclusion of more in-line operations on presses, predicted by 44 per cent of the panel.

Newspaper Production in The 1970's—
The Plunge into Offset

Ten years ago, few believed that offset posed any serious threat to letterpress for newspaper

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printing. Now it is only a question of how big a plunge the newspaper field will take into changing its printing process.

It is conceivable that by 1978 there will be more offset printed dailies in the U.S. than ones printed by letterpress. The majority of Printing Production's forecasters, however, are more restrained. They believe that of the 1,750 newspaper total, those using the planographic process ten years from now will range between 500 and 900.

Some projections are more optimistic. The Dept. of Commerce states that by the early 1970's all go changes in the 1970's to keep pace with the printed offset (there are approximately 1,500 dailies in this class). Whatever the magic number by 1978, it is certain that the well-established trend of changeover to offset (now at 400 dailies) will continue through the next decade.

Computers—More Or Less?

While the use of computers will permeate other newspaper operations in the coming decade, the greatest degree of increase is expected in typesetting functions. In all areas of anticipated use, a majority of the expert jury predict a great increase in application of these electronic systems. Circulation procedures, classified ad control, and accounting and market planning are three other areas that will be extensively affected by the computer. Although makeup, press control, and mailroom operations will feel the impact of computer growth, the degree of increase will not be as pronounced.

The Shape of Binding's Future

One of the untouched links in printing's chain of operations, the bindery, is expected to undergo changes in the1970's to keep pace with the rest of the industry. It is anticipated that many of the new developments will be based on advanced sciences involving chemistry and physics, and not on hand-crafted or mechanical techniques. Potentially, such developments can be precisely controlled from specifications programmed prior to the start of the manufacturing process.

Rocky Road Ahead for Labor-Management

One of the most critical aspects of technological improvement is the attitudes of people who are involved in the change.

Labor-management relations in the past have been "rocky" in some parts of the printing industry, while others have shown effective partnerships. There is little evidence which shows the situation will improve much in the next ten years—and there is some reason to believe that it could worsen.

The majority of opinion (67 per cent) indicates that many of the same labor problems will be with us in 1978 and close to the same number of the panel say there will be controversy due to technological advances. This leads us to conclude that as the pace of technical development quickens, it will produce more problems of harmonious relations in the labor-management field.

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One interesting aspect of this opinion poll is that slightly over half of the panel foresees one union for the entire Graphic Arts by 1980. Whether such developments will produce more harmonious relations, or create further tensions, is open to speculation.

Directions of Technological Advance

There are two kinds of technological advance. One is the gradual improvement, year by year, of existing processes and equipment. This consists of such things as designed increase in operating speed, refinement of controls, simplification of makeready requirements, and modifications that improve quality. It is an evolutionary process that may be called development.

Another kind of advance is the creation of new techniques that basically change the way of doing things. The invention of lithography and the introduction of phototypesetting are examples from the history of printing. This type of advance can be identified as innovation.

In fact, of all the technologies already operating within the graphic Arts field, the electronic computer is unquestionably the one whose developing applications will be most pervasive.

Confrontation With The Computer

Printing managers will rely heavily on computers as a business decision-making tool in the 1970's. The projection indicates that typesetting will no longer be the sole citadel of computer usage in the Graphic Arts. Production evaluation and recording, labor cost distribution by job center, estimating, and distribution routing are among the advance functions expected to be fulfilled by these electronic robots. Practically all industr prognosticators (98 per cent) foresee an increas in the use of computers for making such business decisions, with a vast majority (67 per cent predicting a great increase for this purpose.

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Key to Management Success in the 1970's— The Motivation and Training of People

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Robert E. Tannehill

Over ten years ago Douglas McGregor first mentioned his "agricultural" concept of development. Speaking to a group of businessmen in New York in the spring of 1959, he advised them that development is "not a matter of making people become something; it is a matter of creating an environment in which people can grow". He compared development to the process of growing plants, with two differences; (1) people can influence their own development and (2) those helping with the development process can control the climate as well as the soil conditions.

Since that time the behavioral sciences have contributed much to giving us a description of the proper kind of environment for developing people, particularly managers. The theories and research findings of the psychologists, social psychologists, sociologists and anthropologists that have contributed to our more spohisticated approaches to management development are far too extensive for us to review in detail here. But as Herzberg says, "perhaps the greatest contribution that the behavioral scientists have made during the last half-century of research on the industrial scene has been to broaden the concept o the needs and nature of man from a solel economic organism to one that encompa some of the more human aspects — the emotional and social needs".

Broadly speaking the behavioral sciences, through this "new" definition o being more than just an economic organi have also given us new definitions of power and authority, and how they shoul be handled in organizations; and how organizations should be constructed to facilitate the pursuit of individual needs organizational aims. From all of these ha emerged some broad principles which w use as guidelines in constructing a ma ment strategy that will create the kind of "growing" environment that McGregor

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The management strategy that best creates an environment for employee 'growth' includes seven principles: self actualization, independence, accountability, delegation of authority, participation and conflict, freedom to innovate and fail, and teamwork. The Unit President concept is an example of effective structuring of a manager's job, which requires communications and performance review. The same concepts apply to the production worker, although there is an added factor of technical competence.

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Broadly speaking the behavioral sciences, through this "new" definition of man as being more than just an economic organism, have also given us new definitions of power and authority, and how they should be handled in organizations; and how organizations should be constructed to facilitate the pursuit of individual needs and organizational aims. From all of these have emerged some broad principles which we can use as guidelines in constructing a management strategy that will create the kind of "growing" environment that McGregor

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was talking about. There are essentially six main principles which we need to consider:

1.

Self-actualization. Whatever soil and climate conditions we provide that must be conducive to helping the individual realize his full potential as an individual, a process that Maslow calls self-actualization and which Carl Rogers describes as "the urge which is evident in all organic and human life—to expand, extend, become autonomous, develop, mature—the tendency to express and activate all the capacities of the organism . . . this tendency may be buried, hidden or denied . . . but it is my belief that it exists in every individual, and awaits only the proper conditions to be released and expressed". This principle stems from the assumption that the talents and potentials of most people are already there in the man, and that we don't have to "put" them there, we only have to create a situation where the individual is permitted to bring them into play in the pursuit of organizational and personal objectives.

2.

Independence, autonomy. A second principle that our environment must take into account is giving individuals as much responsibility as possible. Throughout almost all writings of behavioral scientists concerned with developing people is the admonition that in order to "grow" people, we must allow them to stand on their own feet and be independent, autonomous individuals while working within the broad guidelines set down by the organization. Litwin and Stringer in their book "Motivation and Organizational Climate", state that "studies show that subjects with a high need for achievement prefer jobs which allow them more personal responsibility for their behavior and its consequences". McClelland has pointed out elsewhere that to develop the achievement-oriented manager we must place people in situations where they are independent and responsible for their own behavior, but where they are also given encouragement and support as needed.

3.

Accountability. Much of the behavioral science findings have been misinterpreted as being advice to managers to "go easy" on their subordinates, to "let them do what they want to do". But a more careful reading of men such as Argyris, Herzberg and Likert reveals that this is far from the truth. What is really being said is that people should be held accountable for specific performance objectives and standards that call for a serious and energetic effort. Without accountability and the challenge of goals that "stretch" a man, little real development can take place. Real growth, psychological growth, takes place when a man develops improved ideas of himself, and comes to accept himself more fully as a person who is capable of getting things done. This self-confidence

can only come when a person has concrete evidence in the form of specified goals and objectives, that he has in fact actually achieved what he set out to do.

4.
Delegation of authority. One of the most commonly known principles coming out of behavioral science investigations is that of pushing down authority in an organization to the lowest levels possible. If there is to be a proper climate for growth and development of individuals in an organization, there must be delegation of authority. Despite its fairly universal acceptance, at least intellectually, few organizations really have authority and decision-making pushed down to the lower levels where it should be. This state of affairs is usually quite frustrating for managers, particularly young managers who understandably shy away from those circumstances where they feel they have responsibility but insufficient authority. To encourage managers to act, to learn, to be aggressive in the pursuit of their objectives, they must have adequate levels of authority delegated to them by their superiors.

5.
Participation and conflict. Another principle coming out of behavioral research is that of participation and tolerating the naturally resulting conflict. To allow people the necessary freedom to express themselves, they must be allowed to participate in setting their own objectives, establishing levels of authority, defining their responsibilities, assigning resources and analyzing and appraising their own performance. But this invariably will lead to a higher degree of conflict, both between the individual and his boss, and the manager and his peers. Therefore, a truly developmental climate will allow for a great deal of participation and will be characterized by an acceptance of the fact that conflict will likely ensue and must be considered an expected part of the management situation.

6.
Freedom to innovate and to fail. A closely allied principle to that of participation, is the freedom to innovate, to do things in one's own way and to learn from one's own mistakes and failures. Only by "failing forward" can people learn valuable lessons that will stand them in good stead later on. To develop the capacity to take risks individuals must be allowed to make mistakes. They should not suffer punishment and blame for the errors but receive attention and assistance from their superiors and fellow employees in order to determine *why* the mistake was made and *how* it can be prevented in the future. As Gardner says, "we pay a heavy price for our fear of failure". It is a powerful obstacle to growth . . . if we want to keep on learning we must keep on risking failure". The freedom to err and to innovate, this is a basic prerequisite for a developmental climate. The need for innovation and creativity in management

today is recognized by many behavioral scientists as growing in importance as we face a future of continuing complexity and rapidly accelerating change. As Peter Drucker says, "enterpreneurial innovation will become the very heart and core of management". Managers of the future will have to learn *less* about overcoming resistance to change, and *more* about enthusiastically reaching out for change, becoming increasingly suspicious of any situation that is static.

7.
Teamwork and group action. Another significant finding of the behavioral scientists has been the importance of developing cohesive groups. This has given rise to a tremendous interest in inter-personal competence and the value of group development such as sensitivity training. But individuals still require the kind of situation where they can pursue their personal development and growth while at the same time contributing to the growth of the organization through effective group effort. A manager's job environment must therefore contribute to his ability to work effectively in groups, if he is to benefit from the growth and development that can come from working with other managers at a variety of levels.

A Management Strategy for Growth
What is needed then is a management strategy designed to foster the growth and development of individuals based on the principles outlined above. If we can create an environment for people where these principles are allowed and utilized to the fullest, we can then "grow" people, developing their full potential both as employees and as individual human beings. Of course the traditional methods and techniques of training and development are necessary to give people the specialized knowledge and skills they need to function in their areas of concentration. But as most specialists in the area of human resources development agree, true growth comes about as a result of what a man does on the job. How that job is constructed and the surrounding climate in which it operates determine whether an individual manager will be functioning in a climate that fosters growth and cultivates his abilities to bring them to maturity. or whether the atmosphere is stifling and holds a manager back from becoming all that he is capable of becoming.

The Unit President Concept. One way of thinking about structuring a manager's job is the Unit President concept. First postulated by Keith Louden of the American Management Association, the Unit President concept is a kind of conceptual framework on which a development managerial strategy can be based.
Louden felt that if we could make each manager's job as much like the chief

executive's job, we would create an environment for each manager that would be developmental and motivational, regardless of the level of the manager in the organization. Recent research done by Meyers at Texas Instruments seems to confirm this assumption. Meyers surveyed 1,344 managers in an attempt to determine their motivational level. Of the 1,344 managers, 91 were at the top levels of management, 683 held middle-management positions and 570 were at low levels. Those managers in the upper levels of management consistently indicated that they were much more highly motivated than lower levels of management. There may be many reasons for this, of course, but one of the things that we can conclude is that top-level managers, just by virtue of their job environment, are more motivated and feel as though their jobs offer more opportunity for growth and development. This is because in their jobs they have interesting, challenging work that involves risk-taking; they are held accountable for specific results, have broader ranges of authority and responsibility and are fairly independent and autonomous. Louden felt that if *all* managers could be made to feel this way their jobs would also be as motivating and developmental as those of top level managers. The key is to define for each manager precisely what are the surrounding circumstances in his job, and the specific objectives and standards of performance for which he will be held accountable. Here is how the system works:

1.
First the climate in which the entire management process takes place is delineated. This includes both the climate *outside* the organization such as the laws, ethics and morals in society as well as government and industry influences that might impinge on the particular job at hand, and the climate *inside* the organization such as corporate purpose and overall management philosophy.

2.
Next, overall corporate goals and plans are spelled out as they relate to this particular job. Policies and procedures that have been established as well as company rules and regulations are explained to the manager. Those additional controls which exist are also clearly explained.

3.
Then, each manager works out with his boss a definition of his individual job responsibilities, the levels of authority he has in discharging these responsibilities and the manager's relationship to other managers in the organization.

4.
When that is done, the manager participates in establishing the resources assigned to his area for him to manage. These include people, budgets, equipment, facilities, etc.

5.
Finally, each manager participates in establishing his own performance objectives and standards which, taken together form that for which he will be held accountable.
In defining these various perimeters for the chief executive, the scope and area of responsibilities, objectives, etc., will be much larger than other managers at lower levels. But as the perimeters are defined at lower levels, even though the scope may be less, the attempt is to establish for each manager an area of responsibility and a set of targets which he pursues as an individual entrepreneur within the constraints placed upon him by his position in the organization. Each manager is encouraged to manage his area in the way he sees fit, to function as the "president" of his own unit.

Communications and Performance Review Systems. To make such a system work two important systems must also be established. The first of these is communications.
Both good formal and informal communications systems must be established if a group of individual managers are going to function effectively as independent managers in their own right. As McGregor has said, "Genuinely open expression of ideas and feelings — what some have referred to as 'levelling' — is a necessary condition for effective functioning in a managerial team". For without good communications — both vertical and horizontal — managers cannot really be independent . . . they must defer aggressive, independent action and taking on the challenge of responsibility between the direction they are to go is not clear. There must be good communications at several levels. First, of all relevant facts about the company's activities; second, feedback on what impact their area of operations is having on others and third, open and honest expression of feelings between the manager and his boss, his peers and his subordinates. Far from encouraging managers to be private, exclusive rulers in their own domains, the Unit President strategy requires a maximum of open communications at all levels to be successful.
The second system that must be established is that of performance analysis and appraisal. Each manager must regularly meet with his superior and review his performance to see whether or not he is achieving the performance level set as a target. At this same time the perimeter items in the managers' jobs are reviewed and as necessary, changes made in rules, regulations, policies, goals, levels of authority, position responsibilities, allocation of resources, etc. This review should be continuous and discussions between a man and his boss should occur with regular frequency. Because the analysis and appraisal is related to the accomplishment of specified results, both the man and his boss can participate fully in such an activity, the subordinate taking most of the initiative. As

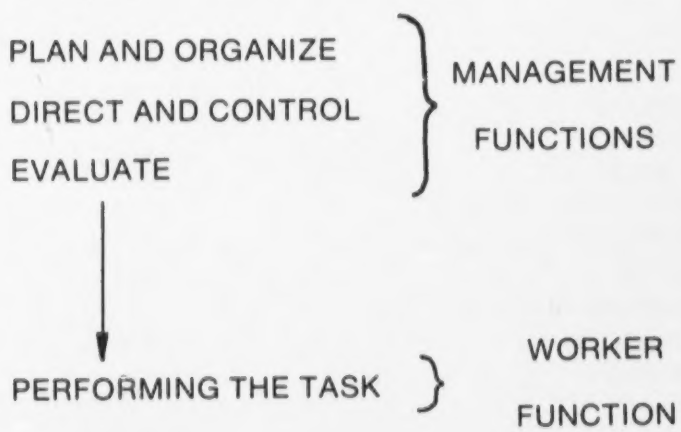
Gellerman says, "an effective performance appraisal statement — effective in the sense of promoting learning and growth — is really little more than a summary of what both parties should already know since performance can readily be measured against objective targets".

Implementation. The Unit President concept is really only useful as a way of thinking about structuring a manager's job. It must be implemented with specific techniques and methods. Corporate goals and purposes must be worked through, discussed by most managers and written down somewhere. Corporate planning must be developed so that it incorporates both long- and short-range planning, while at the same time involving managers continuously at all levels with their own planning. Policies, procedures, rules and regulations must be drawn up . . . not arbitrarily by a few, but through interaction of the whole management team that will be effected by them. Reporting and other financial controls must be worked through in the same way if they are to be meaningful to the whole management group. The organization structure, individual position descriptions and allocation of resources must be arrived at as a result of much interaction between all managers. Individual objectives, levels of authority and standards of performance must be developed between each man and his boss. A performance review system must be established and good communications systems worked out for the entire management group. All of these systems should result in the absolute minimum of administrative burden for the managers involved. The attempt should always be to reduce paper work and administrative systems to the minimum. But some formal systems must be worked out or else managers at lower levels cannot really operate as independent, self-reliant "presidents" of their own units. What form these systems take in each organization will, of course, be unique and particular to that organization. However, a full acceptance of the Unit President concept means that managers at each level instead of meddling in the individual methods that their subordinates use to get their jobs done; or instead of doing their subordinate's jobs for them, will find themselves occupied more with maintaining the perimeter items for each subordinate . . . this should then leave the subordinate more freedom to operate as his own man and to feel, as much as possible, the same managerial prerogatives as the chief executive.

Every Employee a Manager. We have discussed how the Unit President strategy can be used to motivate and develop managers within the seven concepts discussed earlier. But what about the hourly or production worker? Can these same principles of

motivation, self-actualization, autonomy, accountability, delegation of authority, participation, freedom to fail and teamwork be related to his job and his development?

One of the best management strategies have encountered for doing this is to think of each employee as a manager of his job, and to consider closely the management prerogatives built into and around the job. If we use a diagram created by Scott Meyers of Texas Instruments, this concept becomes clear. The diagram shows the older concept of the separation between management functions and worker functions.



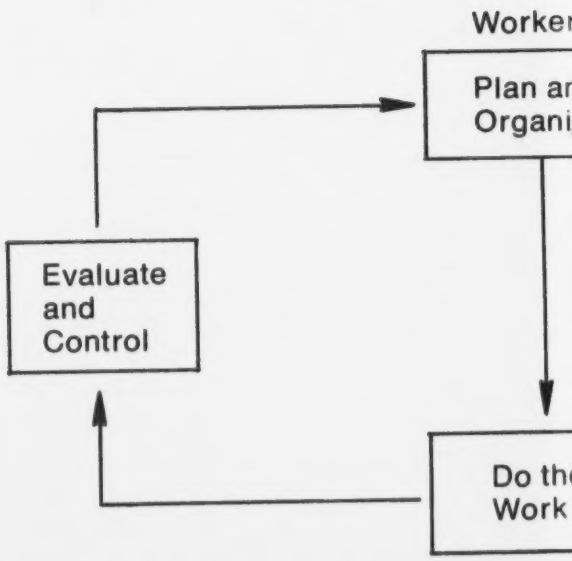
This concept embraces the idea that the manager or supervisor has all the responsibility for figuring out what is to be done, when, where and how it will be done, judging when it is done and checking to make sure it gets done . . . and the worker's responsibility is only that of doing what he is instructed to do within the rules and regulations set up for him.

But if we build into the worker's job responsibilities for planning and organizing, evaluating his own work, controlling his own performance, and correcting his own performance as necessary . . . we bring into play the motivational principles mentioned earlier. This is, in Meyer's words, letting the worker be a "manager" of his job. He participates with his supervisor in setting objectives and planning and organizing the work. Then he is allowed to figure out ways that he wants to do the work, and judge for himself if the work was accomplished according to established objectives. Out of this responsibility for his own performance comes motivation to do a better, more effective job. Many research studies have proved this over and over again. This concept is diagramed on page 25.

Need for Technical Competence. Of course the employee must be able to perform the work involved. If he is a press operator he must be able to operate the press at maximum efficiency and effectiveness without additional help except for unusual circumstances. But once trained . . . his performance will be improved in both quantity and quality, if he is allowed to work in keeping with the motivational principles discussed earlier in relationship to managers and the structure of their jobs.

Motivation and Development. For both managers and workers I have tried to point out that each needs to be trained in the technical aspects of their jobs. They must be competent — more so than ever before— because they are expected to be much more independent and accountable on their own for specific results. But once trained, there is no guarantee that a man will perform at his best. To develop this *maximum performance* . . . and to develop his potential for even higher-level jobs of greater complexity and responsibility, motivational principles must be brought into play.

It boils down to this. A man — be he manager or worker — can be placed into one of four categories: (1) He wants to (is motivated) but does not know how to do a job; (2) He knows how (is technically comptent) but does not want to; (3) He is not technically competent and does *not* want to do a good job, or (4) He is both technically competent and wants to do the best job possible. In the 1970's as in the past, the companies that survive and grow will be those that have the most employees in the *fourth* category. This means that enlightened management, to increase their productivity and effectiveness in the 70's, will be sure that all of their people are properly trained and know fully the technical aspects of their jobs; and that jobs and work environments for both managers and workers will be so structured that they will utilize the most modern principles of motivation.



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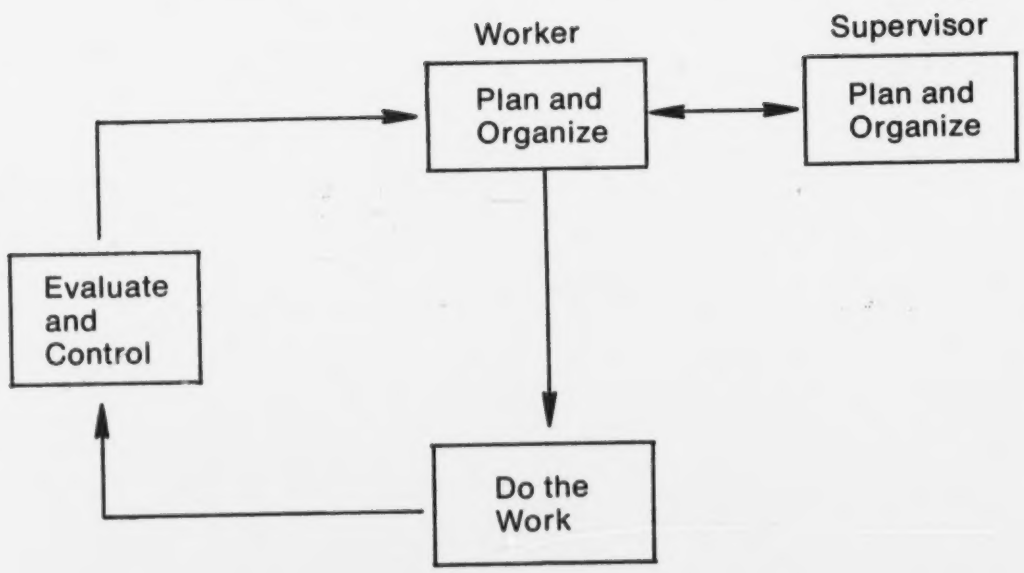

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Can He Who Renders Images Create His Own?

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William J. Catrow

Graphic arts craftsmen are the friends upon whom I and my associates in public relations depend to render our image-making ideas into distinctive, precise, colorful, multi-copy form.

I know no greater satisfaction than folding down and hand cutting the first copy of a brochure upon which I have applied what writing talent I possess and the skills of an artist I have employed to visually interpret my words. Folded and cut, the brochure hopefully has conveyed a stature-building impression for some business organization, individual or association.

Your contribution of reproduction is the culmination of a lot of work and, again hopefully, some penetrating or provocative thought.

For your cooperative — and indispensable — assistance I have paid you homage many times. I and an artist in concert with me will have occasion to be grateful for your skills many, many times again.

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Renders Images Create His Own?

Graphic arts firms have neglected their images in the past, but they should no longer. Image building must be unique to one organization. A public must be defined for image building and an appropriate medium chosen. GATF cannot solve the image problem for individual printing firms.

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As your special talents have blessed my work, so they have the labors of thousands of writers and artists throughout the United States and, indeed, the whole civilized world. In essence, the fate of many images is assigned to your craftsmen and scientists every working day.
Herein lies the irony of my being invited to talk with you. I have been told that you, who provide the final renditions of materials to bolster the images of so many others, have neglected your own.
This can only mean that you render without rub-off. If you are the mechanical pipeline in which so many image-making materials are processed on the way to their publics, do you draw off samples and analyze their constituents and their creativity? Or do you run off billions of impressions without their making an impression on you? Do you convey the artistry of words and visual interpretation without inviting or permitting its impact on you?

You have been craftsmen and are fast becoming mechanical scientists. In this process of technical growth have you confined your interest to dot structures rather than to sentence structures and to art's constantly changing fancies?

With your increasingly technical orientation, do you herald a new press with much greater enthusiasm than a new idea?

You mechanically transmit so many thoughts of others — ranging from mundane to good to magnificent — but do you pause occasionally to convey thoughts on your own behalf?

You ignore, or apply with fiscal reluctance, the percentage-of-sales formulae used by other businesses to polish their images.

And yet your corporate livelihoods depend upon your customers' confidence and investment in image building. You help carry out a sound and accepted concept on behalf of those you serve without applying it to your own business stature. If this does not smack of hypocrisy it qualifies as flagrant self-neglect. Certainly "irony" is an apt description, equally as pertinent to unpromoting print houses as to shoemakers' barefoot children.

You are not unique among businesses. In my area of communications, many advertising agencies do not advertise their philosophies or achievements. Many public relations agencies do not communicate editorially their achievements. They eschew the communications techniques they sell with such fervor to potential clients. I am delighted that my organization has supported its preachments with practice.

If the graphic arts industry aspires to a positive posture, let's review briefly some of the elements of image making. A primer on the subject would run much longer than my allotted time, but I shall try to hit the highspots as they apply to almost any type of business.

Image building naturally must be unique to the organization devoted to its application. Posture is quite personal — to an individual or to a business.

Creativity is the crux of personalization and this creativity can be achieved only by applying a communicator's talents of judgment and selectivity to best interpret men or machines or organizations to the publics most vital to their success.

Let's look at these rather self-evident principles from your standpoint as a graphic arts supplier.

Your image or posture with your public is a very simple thing. It is one guy's impression of your competence, contribution and vitality multiplied by the number of guys in your publics.

Mathematically, your image is one guy's impression times X.

That guy assesses you on the total impression you have made on him. Without purposeful communications from you, he has no way of knowing whether his impression is valid. If you have not communicated, he may have no reason to identify, care about or consult with you. If you have let

communications take care of themselves, you will be fortunate if your guy has no impression at all.

Renovation or reconstruction of an image presents more frustrations, more time consuming work and higher costs than custom building. In fact, all things being equal, public indifference probably is preferable to a negative, fallacious or fuzzy image.

No graphic arts business yearns for indifference. It achieves it by default. Exposed to objective communications, a public forms an opinion. Without communications, a public depends upon hearsay, rumor, innuendo. If the leader of a graphic arts business communicates without a clear-cut, finely honed objective, he may find that his words and his deeds, however well intentioned, badly misrepresent him in the forums he wants most, and needs most, to impress.

Let me suggest several hypothetical objectives which might be applicable to some graphic arts firm somewhere at some specific point in its progress:

Objective: To convey to a broad spectrum of customers and potential customers an image of productive versatility made possible by a wide variety of modern press equipment, including sophisticated binding machinery.

Objective: To firmly establish among corporate public relations executives and financial officers a special aptitude for the production of annual reports to stockholders.

Objective: To tell the small group of dealers, nationwide, who sell fine art reproductions, that a specialty house provides a dependable source of high-quality, high-cost printed renditions of both old masters and contemporary painters.

With any of these objectives, tailored to capabilities that are limited, general or esoteric, a graphic arts printer can program communications that will achieve the impression he wants to make on a specific public in a position to buy or to influence buying decisions.

Often the choice of the public or publics to be reached determines not only the scope but also the cost of objective communications.

Publics can be as narrow as the outlets for a special competence or as broad as the potential purchasers of the graphic arts production of a large and versatile shop. The size of publics may vary with the extent of the shop's devotion to excellence, too — from the firm which produces all of its work only a cut above commercial acceptability to the printer that always applies special finesse.

Often a well intentioned communications effort misses its goals because the choice of publics has been too severely restricted, perhaps by limited communications appropriations. Obviously, buyers of graphic arts materials are your most critical consideration, but a positive image among less obvious publics

often contributes materially to the growth of a business.

Let's consider some publics:

Current and potential graphic arts buyers, naturally.

People who influence the buyers, objectively or subjectively; subtly or blatantly.

Officers of banks or financial houses who must provide capital for expansion or equipment modernization of a graphic arts house.

Brokers, and their financial analysts, who can recommend — or ignore — the securities of the relatively few publicly financed graphic arts corporations.

Employees, union or otherwise, who can serve as goodwill ambassadors in the community at large; who can alienate customer checking a press sheet; who can inject special pride in their work to produce materials

Suppliers of film or ink or paper or presses who can hold up a job or an expansion program for a house that gives them the back of its hand.

Government officials who can help or hinder relocation necessitated by urban redevelopment or who can tax away profits in a variety of ways.

Potential employees in high schools, junior colleges and universities who represent tomorrow's work force and management. In the case of most graphic firms, the student doesn't know where it is, what it does, how it does it and for whom.

Choice of publics to be reached must be a deliberate process on a descending order of priorities. I shall not be presumptuous enough to establish these priorities for even a hypothetical graphic arts business in a special time and place and with its own unique capabilities.

Each public adds a cost factor, as does each medium chosen to reach a public. Media may overlap across many publics. One medium may be applicable to only one public. Always one medium is slightly more applicable — and impressive — to one public than to others.

Perhaps we should consider the many media alternatives for a communications program.

Examples of the finest quality of many types of graphics produced by a firm for its customers. There is no substitute for exposure of skill in reproduction.

These provide the bases for a continuing direct mail program or for inserts in a local business or graphic arts publication.

Special graphics projects, created and produced by the firm itself, can demonstrate not only skill but also local involvement. If a project answers a community need, it contributes an added measure of image, primarily because most graphic arts producers often operate outside the mainstream of the comunity at large and sometimes the general business community as well.

The material can be artistic, informative, historical, utilitarian. Any of these characteristics can inject provocativeness into a promotional program.

Special letters from management, to any public, personalize the firm's contact by establishing interest and awareness on the part of the graphic producer's executive suite — whether it is paneled or concrete block.

A graphics firm that is family owned, a partnership or a public corporation verifies the integrity of its enterprize with reports on financial results in letter or booklet form.

Press releases to business editors on management and staff appointments, on major new equipment installation, on minority employment or on major contracts tell the local business community that the graphic arts firm is alive and making progress.

Advertising in local business or graphics publications permits a graphic arts firm to tailor a special message — and present it smartly — to its highest potential public.

Plant tours let civic clubs, business groups, convention visitors and students feel the special vigor of graphic arts reproduction that few other businesses can match.

Bulletin boards throughout the plant provide showcases for management's memos; press releases; employees at work photography; samples of most recent and most impressive production.

Letters sent to employees at their homes demonstrate management's concern that they know about plans for progress and about especially significant graphic arts accomplishments.

Motion pictures, film strips, special speeches, recruiting visits and special invitations to the plant tell students about the dynamic nature of graphic arts reproduction and opportunities for satisfying careers with inviting compensation.

Finally, hopefully, you will identify your plant, your trucks, your shipping cartons, your letterhead at least as distinctfully as your customers identify themselves — preferably more so because graphic arts is your only business.

These later points, about your distinctive logotype on the walls of your building or the sides of your truck, reinforce the most significant aspect of print shop identification. All public awareness and identification of your operation must be achieved by you in your local marketplace. No industry-wide materials alone can build your stature. No company, anywhere, depends upon the one or many associations which it supports to promote its specific capabilities. Your promotion is your responsibility.

The Graphic Arts Technical Foundation, through its splendid educational and public relations programs, can validate your membership in a dynamic, indispensable industry. But only you, a local graphic

arts producer with your own blend of specialities can personalize the Foundation's materials with your own creative contributions toward your posture.

You have to do your own thing — display as creatively as you and your promotional counsel know how — the capabilities that have made you what your are right now. Hopefully, creative display of your skills will make your bigger, more prosperous and the envy of the other houses with which you compete. The extent of your creativity in your identification will make the profitable difference — or will make the difference profitable.

On this last note we come full circle. Creativity is where the action is. And that's exactly where you have to be.

If graphics comes from the Greek word "to write" . . .

If art means the broad spectrum of illustrative materials ranging from logotypes to line drawings to paintings to photography . . .

If you really are as concerned about creativity as you are about rendering . . .

If you really don't believe that your business can be analyzed solely in terms of impressions and feet per minute . . .

If think time is as important to you as make-ready time . . .

If you really want to make graphic arts in their pure, untechnical sense a part of your progression from a craft to a science then . . .

I can only suggest that you inject your own fine words and visual impressions into your dominant preoccupation with converting and transferring and rendering for others and, so doing, render an image for yourself.

Only this personalized creative contribution will bring you the stature to which you so understandably aspire.

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Although many type they do not constitu program. An object system devised to r must be at the cent are described.

Dr. T. Russel Woolley

Is industry in general ready to accept a greater share in training and education as it relates to their needs or do they depend more upon public institutions to provide them with the end-product?

The case truly is loaded. The answer to the foregoing question is — 'both'. There is readiness, and in fact a greater share already being taken by industry to train and educate for their own needs. This is a shift in trend. Still there is scarcely a withdrawal from the expectation that public institutions will also train (but especially *educate*) for industry's needs. The question then becomes one of *more* and *less*. Self-awareness of industry's own needs is increasing. Witness the existence of your own growing self-reliance in educational scholarship funding. And, a faster pace in growth is assuredly the outstanding certainty of our age. Population demands lie at the base of swift change. The quantitative increase dictates sharing responsibility with the public institutions. Educational needs seem diminish. Industry cannot cease. The if we are here to predict shifts in emp it is safe to say that institutions do ch and that both companies and college do more and change more in the futu has yet been apparent; the pace will

If acceleration of discovery now asto us—it can only shock us in the comi I submit. You probably see and read the fact. The rate of change keeps in frighteningly.

Scarcely twenty years ago I was an a craft pilot and had flown seventeen types of planes. Not *one* of them was and neither was any of those a helic I left that military occupation behind others did, and all the good training aviation certainly left *me* a long way *it*—with the first small jet engines av for fighter craft. After 1950 increasin jets and of greater size were in civil

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Although many types of teaching instruments are available, they do not constitute an effective training and education program. An objective must be defined and an educational system devised to meet it. And, the learner, not the teacher, must be at the center of the system. Modern teaching devices are described.

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institutions. Educational needs seem not to diminish. Industry cannot cease. Therefore, if we are here to predict shifts in emphasis, it is safe to say that institutions do change and that both companies and colleges will do more and change more in the future than has yet been apparent; the pace will quicken.

If acceleration of discovery now astonishes us—it can only shock us in the coming decades, I submit. You probably see and readily accept the fact. The rate of change keeps increasing, frighteningly.

Scarcely twenty years ago I was an aircraft pilot and had flown seventeen different types of planes. Not *one* of them was a jet and neither was any of those a helicopter. I left that military occupation behind, as others did, and all the good training. Soon, aviation certainly left *me* a long way behind *it*—with the first small jet engines available for fighter craft. After 1950 increasingly more jets and of greater size were in civilian use.

The first little jets have surely become big jets now. After the military I was involved in a teaching and administrative capacity in the University community for approximately twenty years, leaving during one of the peak outbursts of campus riots two years ago and prior to the time when controls had been worked out to reduce inflammatory confrontations. These too will pass, in the rapid changing order of today. Perhaps I did not change enough. My conclusion, however, is not opaque—after first leaving aviation and later leaving university life—conditions improved. Now that I am in still a third "trade" so to speak, we can only speculate that after leaving there would be more great gains.

Before arrogating that much importance to my personal actions, let me hasten to aver that the changes were certain to come in spite of *me*. The speed of variation has simply made the fallacy apparent that the "after-the-fact" actually meant "cause-of-the-fact."

Have there not been rapid changes in your experiences? What about the development of the photo reproduction processes in the Graphic Communications industries—both discovery and invention! Perhaps not since the Linotype changed four centuries of movable type has any process seemed more revolutionary. Facsimile broadcasting already makes possible the printing of a small newspaper at home on a broadcast receiver. And changes in broadcasting now occurring startle my colleagues. *We are about to lose our antennae.* Because we see and hear television programs some places with difficulty there will be soon the use of satellites orbiting in space to replace the hilltop-to-hilltop passing of signals through limited space. Telephone long lines will be less and less required as satellite inter-connections become available to domestic broadcasters, both educational and commercial. And another certainty is that local distribution will be by cable more than radiation. The service of a signal openly broadcast from a high point atop Oakland's "heart break" hill may not continue to be needed.

Manpower for our future is the subject of critical problems. You are particularly concerned for your industry—the graphic arts. You are not alone in your concern, so let me examine with you what may be done to keep up-to-date with recruitment and with training. I have noticed your scholarship efforts, your educational efforts, your ties with Carnegie-Mellon University and such commitments to the academic disciplines. They are necessary for the future, and doubtless with *increased* scope.

The increasing population alone assures a greater industry as we approach a new century. It is even irksome to wait for the one trillion dollars of gross national product, because it is inevitable in my opinion—only a matter of a short time until we reach

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that point. So, with more young people to educate, more business to be undertaken, more young people to place within business and industry, and with the greater complexity of technology there is certainly coming a greater need for general education to keep going ahead in speed and in extent. It seems even more assured that machinery manufacturers, paper makers, offset printers, photo and color technicians and those involved in all the reproduction processes will have to be recruited and then trained within your plants and by your special research and training facilities.

I know of the Pulp and Paper Foundation, for instance, at the University of Maine, and something about the education efforts of this Graphic Arts Technical Foundation. Certainly institutions, including parts of universities and divisions of technical schools, and research centers will serve you. Your own apprentice instructional methods are widely recognized. But, what about the speed of your training accomplishment? If it is not very impressive, then you may have less trouble with your expanding support groups, your research projects and general training direction than you have with the selection of a delivery system.

Today's educators are like you. They have their heads in clouds and their coat tails caught in the oak-paneled doors of old fashioned methods. But, slowly changes *do* occur. Teaching machines are available and are being set up in some places where use and study is made of them. Programmed instruction is developing with the machines. Television is available almost everywhere, both open broadcast and closed circuit; and although it is not employed everywhere, it is ubiquitous. Film strips, slides and still photographs are limited, more by their expense and the time required for preparation than by their availability. Computers can be used to test, analyze and assist students in school or in other learning centers, but application of the computer is not widespread in education as yet; neither is programmed instruction or even the use of films or language laboratories or the carrel methods of instruction. Much is still delivered in the information way, as it was in 1900—by a teacher face-to-face with pupils, possibly given the most assistance by a blackboard.

Devise A Whole System

Obviously, a warehouse full of technical toys is *not* the answer. As you people know so well, the need to employ a machine according to objective and profitable purpose is the real necessity. There are schools and colleges with expensive equipment which not enough people are trained to use. Many homes contain a piano, but not everyone in a piano-owning family can play beautiful music. I suspect you know about such things in your companies, where perhaps poor knowledge of press packing, or inking, or adjustments

of the feeding mechanisms, or exhaust-fume elimination may mean trouble, delay, and costly frustration. The education/communication activity is similarly troubled. *The best in education today is in those situations where a whole system is devised to meet objectives.* Within the system is the use of hardware planned, while aims are kept constantly in front. The learner's objectives must be central.

Television is one of the worst-used tools of education today. It is not all bad when it serves a system like CBS for its entertainment purpose; neither is it all good. It is "bad" when a school buys fourteen tape recorders for occasional use in the classroom and finds that only the janitor is the suitable person to wheel a machine in and set up a playback session, and he is not adequate for repairing a breakdown, but must request a TV repair technician through the superintendent's office.

A for instance, worthy of mention, is the education system of American Samoa—where all classroom instruction is accomplished through television. The objectives were set to provide uniform-quality lessons to all widespread smaller schools. Teachers were in short supply—especially those who could teach in the selected language—and who could deal with concepts not a part of the language or tradition of Samos. Yet youngsters were taught kindergarten through twelfth grade in English, entirely through the magic box, which was correctly tuned by a good teacher/disciplinarian who had a lesser education than the teacher at the TV studio. Validation shows results were comparable to and equivalent to some systems of mainland USA. The *system* was especially designed. The use of television was not merely accidental nor incidental. It was planned, and by educators, not TV people.

Let me add one more thought at this point before dismissing formal education's use of modern technology. The best thinking of educators now is something like this: "We must in the future devise a better *total system* where the learner is at the center of the system, and *not* the teacher." Such a plan would reduce the face-to-face lecture of grade school or college. It would probably mean an increase of laboratories with a "hands-on" not "hands-off" policy. There would be less departmental discipline, and greater interdisciplinary experience at universities. Who knows, there might be fewer rioting kids after that, whose complaint seems to be that they now are short-changed. After all, the teacher-oriented system was strengthened and confirmed in the 19th century by Eliot of Harvard, who thought of departmentalizing knowledge. But, the growth from the plan was in creating giants of experts who then became world-renowned specialists of information, more than teachers.

They did obtain teacher positions. Scholars of antiquity knew that such master teacher ways were like Ancient Greece, the Peripatetic

School: a likely student sat under a tree to absorb knowledge at the feet of a master. If he succeeded, he might become a noble, but if the system failed, the student was considered to have failed and not the teacher. Contrary-wise the learner-oriented society might postulate that if the pupil did not learn—that being the *negative* of the objective—then the system had not taught. What I am suggesting is an immense reversal, and that this is most worthy of extra consideration. Why? Because every failure of a learner to learn may result in a school or program dropout, and bring on the development of an individual who is a burden to society rather than a contributing member of it.

A System for Industry-wide Distribution of Training

Today there are dozens of kinds of companies making use of what they call "television". Shoe manufacturers and shoe sales representatives country-wide are using small cassettes and view boxes to show their wares, disclosing new styles everywhere simultaneously. The box looks like a small television set, with screen lighted by inside projection. Sound accompanies the moving picture. It is a kind of colored picture teaching machine, but not television. You have seen similar panavision in lounges or other public places.

Schools in Little Rock, Arkansas, are experimenting with a different teaching machine which uses a film strip and a conventional long-playing sound recording. A short special lesson of sound and pictures helps disadvantaged students to review and catch up in subject matter that they may have missed earlier. Learning is rapid, in brief spurts. Educators say they can advance students two school years in one. Programmed with a teacher, and tests which are a part of the "software," the carefully objectivized lesson is the key to proper help for the learner. It is important that the machine be individualized, that the pupil know its operation and proceed at his own pace, repeating as much as he desires. The *content* of the lesson is of paramount importance. It must be clear and interesting and it must be constructed with aim.

Life insurance companies can keep contact with sales representatives in their home locations to avoid assembling of agents at a national headquarters, involving great expense.

One prominent company prepares and distributes professional training units in a Certified Life Underwriter course work on EVR (Electronic Video Recording), the Columbia Broadcasting Company's cassette reproduction scheme of continuous acetate film. The program can be played from the beginning or by advancing to any point midway; it can be played in slow motion and rapidly rewound for a repeat playing. Though not yet commercially available, the EVR cas-

sette will play through an adapter on any home TV set. Although very expensive, EVR offers a fairly fool-proof plan for automatic play, once the cassettes are produced. Educational materials can be easily circulated to each recipient-learner, and played on his own home TV unit.

The New England Telegraph and Telephone Company uses narrow-width video tapes to send out instructions to telephone operators who "gather around" a playing tape machine at a regional, central office to learn, in a short time, new company procedures. (Important to this process is that the tapes be dubbed from a master recording made on a machine manufactured to be compatible to the machines which will play the tape in the outlying training centers.) Not all so-called slant-track video tape recorders are compatible, even of the same manufacturer. Some now *are* compatible!

Should Industry Invest in Educational Tools?

You and any persons so organized surely have some training devices—mock ups—facsimile and photo reproductions of real items—laboratory objects similar to full scale—and sometimes you use "actuality" items for "hands-on" training. Did you ever hear of the miniature steam engine and cars on a tiny track which cost almost as much to build as a real multi-ton behemoth of a fire-spitting steam engine with coal car attached? No particular value is inured to the miniature. Thus, it behooves us first to consider not *reality*, but *objective*. A *picture* of the real thing is second best, but is helpful.

An example once more of TV teaching in American Samoa. No words in their language expressed "steam locomotive". So, a filmed sequence with a man standing beside a moving locomotive was the best way to conceptualize size, sound, service function and social significance of the engine. Not a mock-up, but a moving picture.

What about TV educational tools? Related systems for filming and video taping, and EVR reproductions are under consideration by industry. Frankly, this is not the most expedient time for great investment, because it is early in the developmental period. Some video tape recorders are not compatible with each other, yet soon may be so manufactured. Sixteen millimeter filming is still very expensive compared to tape. EVR is not as yet perfected nor well priced for industry's investment. Eight millimeter (Super-8) is coming on. There is a likeness to the time of the purchase of black and white TV home receivers, just before color sets became available under the $400 level. Picture-taking ability and art development can now be indulged by budget makers. Film development and projection techniques can safely be given experiment for educational service. Some practice in video taping can be had by experiment, inexpensively. Cassettes of film or tape are in a marginal state of develop-

ment—soon to blossom into marvelous reality.

What is available now is a video tape recorder distribution system. If recordings are professionally made on 2-inch tapes, they can be "dubbed" to 1-inch low-cost tapes and played on inexpensive Sony or Ampex 1-inch helical scan VTR players. Thus, something much less costly (1/2 to 1/3) can be produced and disseminated when a research center or educational institution wishes to extend its communication of discoveries.

Techniques involving the support of VTR with illustrative projection, are worthy considerations: overhead color transparencies—slide projections timed in audio sequences—rear view projection—animate development of message by concealed manipulation, or computer programmed integrations—all hold strong positions now and promise more in the future.

The time is now for education-minded groups, including colleges, to experiment more with graphic (both print and picture) art development for educational communications.

Gone are the days of the *face-to-face-stand-up-and-lecture-teacher-oriented* instruction sessions. Very soon to come is the *pull-it-off-the-shelf-audio-video-self-programmed-learner-oriented* kind of instruction, individually adapted to occupational or recreational study. Without plans for use *now*, of soon to-be-developed technology, time will be lost in the training of new human resources for the industry. One cannot ignore the possibilities, and least of all can the institutions of higher learning ignore change. Much more must be rapidly changed—to keep pace with the world of day-after-tomorrow.

When Is It Economically and Educationally Feasible to Buy Tools?

One of the important issues in the technology of education today is the "hardware, versus software" set of arguments. It is like the silly moot point of whether the hen or the egg came first. Obviously, the machines to aid education are in existence. If we have need of them it is because we must have developed instructional ideas. The hen came first, I say, to lay the egg. By some miracle the hen just sprang into being. It is a fact that television and especially VTR came before most of the good education program ideas. The hardware had to be first. But now it is here—it is up to the genius of educators not to imagine using, but actually to use what is available.

I quote from a pamphlet titled: *Career Opportunities in Graphic Communications, Carnegie Tech.* In it is this: "When you read a book or see a packaged product, do you consider the size and shape of the industry which created it? Ad agencies, art studios, designers, photographers, publishers, printers, paper makers, plate makers and electronic

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component workers are included. Printing and publishing alone comprise the eighth sized activity among the nation's industries—the seventh in payroll—the third in number of companies. It is growing, too, even faster than the population explosion".

Jack Simich, your Foundation Education Director, asked the question recently, "Should industry invest in educational tools, and when is it economically feasible to do so?

My whole point, from the above understandings, is *that the time is now*. The pace has quickened so, what are we waiting for? Training and continuing education must be done on the job site. *Now* is the time for use of video tape recorders and color training taped on compatible 1-inch helical scan recorder / players for rapid distribution of research findings.

You *can* afford it, judged by the size and importance of what you do, especially what you must continue very rapidly to expand and do. You as an industry are growing faster than the Gross National Product.

Finally, the odd measurement of value is this: if you do *not* invest in a modern means of education, you may never realize the gain—only too late realize the loss.
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Your 1200 firms in 41 countries deserve no less than to try.

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The Graphic Communications Teacher of Tomorrow— From the Educator's Viewpoint

The secondary school represents the mo graphic communications instruction impr One, the individual must be aided in his c pational mobility. And two, radical techn adapted to a once craft-oriented vocatio changes and implications for teacher edu

Richard G. Bentley

Of the many levels of education needed to prepare young people for vocations and professions in the graphic communications industry, the secondary school represents the most crucial area for instruction improvement. The graphic communications teacher functioning at the middle and high school levels should play a key role in exposing young people to a diversity of occupational information concerning possible future vocations or professions. Occupational exploration becomes a major objective for the graphic communications teacher of the future. This objective is given added significance by two forces which are changing both the education and the business/industry communities.

The forces to be reckoned with are many, but among them two are of major significance.

1.
The individual must be recognized in his role of self-determination and constant desire to advance occupationally; hence, occupational mobility is increasingly a fact of life.

2.
Radical technological change has finally reached a once craft-oriented vocation. The term graphic communications and all this implies as it has evolved (from the term printing, to graphic arts, to its present form) reflects a certain irreversible trend toward more capability. This in turn means more automation and the use of the computer. The education and training programs for teachers of graphic communications must provide a mixture of the two forces.

Some Problems of Present Programs

The student's first exposure to occupational information and vocational guidance is too frequently restricted to a small sampling of possible career opportunities. Exciting new fields within the graphic communications industries are seldom included. Industrial Arts programs as they occur in the setting of general

The secondary school represents the most crucial area for graphic communications instruction improvement for two reasons. One, the individual must be aided in his desire for occupational mobility. And two, radical technological change must be adapted to a once craft-oriented vocation. Suggestions for changes and implications for teacher education are discussed.

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education frequently fall short of meeting the goal of occupational orientation. Improvement in the IA graphic arts curriculum can come about when the teacher recognizes the need for:

1.
An articulated curriculum which reflects trends or current significant aspects of a dynamic industry.

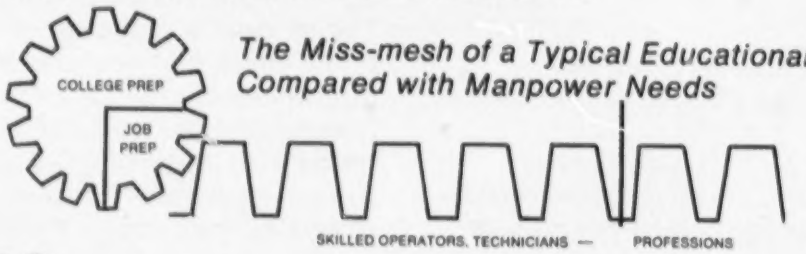
2.
School programs in graphic communications which utilize adequate sampling techniques for determining a student's interest and aptitude profile. This profile should then be compared with job or occupational requirements.

3.
Indicating to his students the many educational routes possible for entrance to any one of the levels of vocational or professional employment.

It is generally agreed that occupational education can provide more effective results through an orchestrated educational system; one which recognizes the strengths and the unique contributions of the many levels of educational institutions engaged in graphic communication education. There is no reason why an exploratory graphic arts course offered in a junior high school industrial arts program cannot function toward developing prevocational or preprofessional interests. The major function of thys type of program will be to provide the initial selection and "tryout" of the broad graphic communications subject area. Specialization can be pursued later in the senior high, technical institute, union craft school, industry training institutes of the college/university four-year professional programs.

The teacher of the 70's must play a significant role in solving some of the chronic problems facing our schools. The task of preparing youth for the "world of work" has been compounded not only by the age of acceleration and an outmoded educational system, but by the economic picture which the taxpayer too often views as general vs. vocational education, instead of general plus vocational or professional education.

Generally speaking, secondary education provides for the majority of high school age youth the college preparatory program while offering a limited selection of vocational or business options for those students who are unable to reach an acceptable level of accomplishment in academic subject areas. Examination of the typical secondary school enrollment reveals that 75 per cent of our high school youth are in study programs of a general college preparatory nature while 25% are pursuing offerings aimed at job training or occupational education, many of which are ineffective.



The Miss-mesh of a Typical Educational System Compared with Manpower Needs

In contrast to the educational picture, findings reveal that only 20 per cent of our work force is employed in the professions. Occupations which employ skilled operators, craftsmen, service workers and trained technicians account for more than 50 per cent of the labor force. The results of the dilemma are witnessed in the growing ranks of the unemployed youth. Where it was once fashionable to say: "education prepares an individual for responsible participation in society", it is now, unfortunately, more often accurate to say: "education prepares youth for more education".

Some Problems from a Diversified Industry

1.

Some of the problems can be generalized from statistical data. For example, the Printing and Publishing Quarterly Report of the U. S. Department of Commerce reveals that over 90 per cent of the commercial printing establishments are classed as small shops, with one to 49 employees. Although the number of establishments is high, sales account for less than 50 per cent of the industry's total dollar volume.

The size and capability of many establishments is a handicap in terms of solving some of our crucial problems related to graphic communications. The question might be asked: Is the locked-job approach to printing and publishing destined to assume a more insignificant place in terms of the dollar volume output? If 90 per cent of the establishments account for less than 50 per cent of the profits, can the other 10 per cent take on the new burdens generated out of the era of the information explosion? The expanded use of graphic communications media undoubtedly will indicate a systems approach, which will lessen the work of the "job oriented" establishment.

2.

The great amount of information generated daily staggers the imagination. Our publishing activities alone produce over 2,000 separate pages of copy every minute of every 24-hour day. Increasing evidence points to symptoms of media numbness, a malady incurred by overexposure to information dropout. Responsible research is revealing evidence that traditional ways of preparing, presenting, storing and retreiving information are entirely inadequate for present day needs.

The need for new capabilities to produce effective graphic communications can be surmised from two recent statements reported in studies of the National Science Foundation. The frequently quoted statement: "of all the scientists who have ever lived, eighty percent are alive today", and the conclusion indicating that "more than half of the world's technical and scientific discoveries have occurred in the last fifteen years" bear strong implication for the creator, the processor and the user of technical information. The graphic arts teacher must be more concerned with effective visual presentation in order to compete successfully for the reader's attention.

Increased demands on the reader's time and

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his need for more recent, general and technical information point to the growing dilemma. The growth of the lithographic industry in general and technical information point to the growing dilemma. The growth of the lithographic industry in general and the rapid expansion of in-plant operation are testimonial to the need for information reproductions systems that can adapt to the rapidly expanding "knowledge industry".

Some Suggestions For Change

Findings of the Educational Policies Commission reveal the failure of our nation to live up to our commitment to prepare and train youth for gainful employment. Pollution of our economic mainstream has occurred; 50 per cent of our youth are flooding the job hunting market without the necessary qualifications for job entry. Recommendations of the EPC are aimed at correcting some of the traditional problems in our schools. A change in educational philosophy indicates that general and liberal education should be concerned much more positively with careers and potential occupational selection programs for students. Also, vocational and professional education should provide for the development of personal and humane qualities in the individual, thus recognizing a more significant role of the worker in the industrial order. On a brighter and more positive note, the distinction between liberal education and specialized training is rapidly vanishing in many U.S. colleges and universities. A pattern is beginning to form which indicate the two year associate degree programs as being transferable to four year industrial technology offerings, leading to professional degrees".

The problems facing education reveal a need for basic changes in at least three areas: 1) Attitudes, 2) Educational programs, and 3) Reallocation of funding. The attitude that it is demeaning not to have a college education must be removed. The attitude that secondary education should be directed toward preparing the student for potential life at the expense of education for a potential job should be modified. Education programs should provide more significant and relevant experiences for occupational exploration. Education programs should reflect industrial and business trends which are healthy and in the best interests of a demoratic society. Local, state and federal funding should be chaneled more significantly to solve problems of the unemployable youth. This is particularly important for a goal of the 70's when the average population age is close to 25 years old.

Implications for Teacher Education

1.

A meaningful exposure to the graphic communications industry will be a necessary part of teacher preparation. Industrial internships and industry/education cooperative programs are becoming a formalized part of the better technical teacher education programs. Some of these provide work experience during a quarter or semester, alternated with on-campus classes. The greatest value will be realized when the

industrial exposure is varied to include a variety of experiences within business/management and production functions. Larger contemporary establishments are more frequently able to share in the cost of this cooperative venture.

2.

The college curriculum must reflect in its course offerings the inter-relatedness-found in the dynamic new directions of the graphic communications industry. New subject areas must be introduced into the program of studies. Too often courses have centered around the reproduction processes without showing the inter-relatedness to communication design presentation and business management. A curriculum which puts the fractured subjects back together in an inter-related systems approach seems to be imperative.

3.

There are strong indications for the need to reevaluate teaching techniques in the classroom. The role of instructional equipment as it provides basic experiences to the learning process should be weighed against measurable outcomes. This is an important consideration, in terms of lag required between the student's first exposure to laboratory equipment and his later utilization of this information as a teacher. Laboratory equipment should be selected relative to current trends or practices or basic fundamentals to graphic communication. These are not necessarily the same as fundamentals of "printing".

4.

The teacher of the 70's will need a greater amount of preparation aimed at developing a concept of self-direction—a scheme of self-renewal. It becomes imperative to organize a means of using technical information and reduce the effects of information obsolescence from the teaching/learning arena.

The graphic communication teacher of the 70's has a significant opportunity to become an active participant in the knowledge industry — by the subject matter he teaches and the profession he represents.

The Graphic Communications Teacher of Tomorrow— From the Printing Association Viewpoint

Education and training are the fi industry. Consequently, the grap the key element in the future of t and different kinds of craft work as many more management pers Industries of Metropolitan New Y power are described.

Paul L. Noble

We live in a world of inter-relationships, where developments in one aspect of our society have their cause and effect in all others. For instance, what is happening on today's campus cannot be considered in a vacuum. It is conditioned by family upbringing, by world events, by communications and news reporting advances, and by numerous social, urban, economic and political influences. Similarly, today's campus developments affect each of these other aspects, actually to the extent of creating changes in their norms.

When people say the world is growing smaller, they are talking of the growing inter-relationships in our world. It is these inter-relationships which must be considered as a key to business, industry and education in tomorrow's world.

Now, what has all this to do with the graphic communications teacher of tomorrow?

First, this teacher—whether in the grade school in high school or on the RIT level — will face problems similar to teachers in all walks of life. Certainly, his curriculum will not entirely be in a graphic arts vacuum. Nor will his students be in a graphic arts vacuum. Nor will the objectives of education remain content within the boundaries of one vocation, although proper emphasis may be placed on that vocation.

The Relevance of Work to Living

Before he can get to the task of graphic arts training, tomorrow's educator must understand the dynamics which make up our world. He must maintain great latitude in training techniques and objectives. He must provide a curriculum with enough flexibility to meet changes in society as well as in industry. Finally, to be successful with his students, he must show them how the graphic arts relates to the rest of the world.

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Education and training are the first priorities of the printing industry. Consequently, the graphic communications teacher is the key element in the future of the industry. Additional and different kinds of craft workers will be needed, as well as many more management personnel. Efforts by the Printing Industries of Metropolitan New York to recruit future manpower are described.

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With this accomplished, and with graphic arts training placed in the perspective of a modern but changing environment, the graphic arts teacher can get down to the business of preparing young people for a productive future in our industry.

If I were to draw up a list of priorities in our industry, education and training would head that list. Manpower is the number one problem facing the printing industry—and this is so because the industry and many of its educational institutions during the past several decades have failed to keep abreast of changing times.

For the past few decades, we have taught our apprentices a machine skill and a production process, with our only thought given to maintaining a narrowing supply of skilled production manpower. Technology has overtaken the industry in many areas of production—and, technical training alone has not been able to change fast enough to keep pace. Many of our old skills are now outdated. So fast has the impact of technological advance been and so fast will it grow, that it is not an exageration to say that 50 per cent of today's students will be employed tomorrow in jobs totally new to the industry.

Where our technical manpower will come from, is the question foremost on our minds.

By 1980, only ten years from now, printing volume is expected to increase by at least 100 per cent. Fortunately, we won't need a corresponding increase in manpower to achieve that doubling in our volume. Thanks to our new technologies, productive capacity will increase, with greater productivity per employee expected as printers expend hundreds of millions of dollars on new machines.

The Changing Manpower Needs and Training Processes

Yet, we *will need more manpower* and *different manpower.*

First, we will need additional workers to produce that 100 per cent increase in volume. While we will not need 100 per cent more workers, we surely will need an increase of at least 15 per cent And, keep in mind, this will have to be manpower knowledgeable in new technologies as they apply to printing.

Secondly, we will need tens of thousands of workers to replace those production people currently in our industry who will retire or pass away in the next decade.

According to the Department of Labor, if printing were to follow past recruitment patterns, we can expect to recruit and train only about two-thirds of the skilled technical people needed as replacements. Currently, we are recruiting and training *no one at all* to fill new jobs which our expanding industry will need if it is to double its volume by 1980.

Most of our managers admit they have lived with shortages of skilled technical people so long that they've somehow adjusted to it as if they were adjusting to a chronic illness. In so doing, they also have resisted new remedies.

The Educational Process — Leading or Following

We're a big industry, an old industry, and in many ways we maintain the traditions of a craft. It's not easy to change longtime habits even when that change clearly becomes necessary. Most of the time, our managers are too busy with their own jobs to even think about what should be done. It is at this point, that the printing association generally intercedes and utilizes its combined strength and knowledge to build a better industry.

In New York, our association has placed its priority to solving the question of where our future manpower is coming from.

We have changed over what was formerly an association employment office into a manpower development and placement operation.

We have communicated with our local firms insofar as the changing face of our New York manpower pool is concerned.

We have worked with the schools and the government to bring communications information to today's youngsters.

We have updated our own association classroom and in-plant training programs.

We have supported equipment change-overs in local New York high school graphic arts departments.

We have aided community colleges to develop graphic arts curriculums.

And, we have helped the city's New York School of Printing resist efforts that would see it phased out as a printing school by 1975, while contributing to the modernization of equipment and the dynamics of change at that school. By 1975, most New York City voactional schools excluding printing, will have been reorganized into what are called comprehensive schools offering both academic and trade courses.

Our association also has recognized that the face of the New York blue collar worker is changing. Today, in New York City, more than one-third of the total labor force between the ages of 25 to 44 is non-white or Puerto Rican. The reading skills of many of these people generally is sub-par. Their backgrounds are greatly different from that which craft industries like printing are accustomed to. They and their children in many cases are confronted with crime, narcotics problems, sub-par living conditions and separated families.

I also would like to note that women make up a much larger percentage of the total New York City labor force than ever before. Printing, among many industries, has

not utilized the female labor force as fully as it could.

Government and association studies now indicate that jobs in industries like ours will remain unfilled unless we employ larger numbers of what we can call this new labor force. During the seventies, our Association will seek to develop these new manpower forces for the benefit of the printing industry.

If we succeed, and we must, these will be the students who will soon be filling graphic arts classes in the seventies. The problems graphic arts teachers will have with these students will be different than those in the past. They will have to do with what we referred to before—the inter-relationships in our society. In many cases, we also will have to re-teach our workers how to read, before we can teach them how to typeset. At the same time, we must continue our efforts to retrain current employees in new technologies — so as to maintain their craft value in our firms.

Development of Human Resources for Administration and Management

So much for technical and production challenges.

We have left the entire spectre of developing management, administrative and engineering people—from foreman, to front office personnel, to comptroller, to plant engineer, to top executives. This problem is acute—and the shortage of these people in printing goes far beyond the shortages amongst our production workers, except the highest skilled.

In most cases, our firms currently are finding this type of manpower by luck rather than through a systematic recruitment effort. Yet, the ratio of office to production people in our industry today indicates there is one office-type person to three or four production people. Twenty years ago, that ratio was one to ten or twenty. By 1980, that ratio may be one to two or three.

As our companies merge, as printing becomes a business rather than a craft, the need for professional and administration people will become so acute as to possibly force some of our firms out of business because they lack the right manpower. By 1980, companies may be successful on the basis of "people worth" rather than "financial worth".

Today's and tomorrow's graphic arts teachers must be on the look-out for these people—and courses that will not only teach printing but also business and the professions must expand. At the same time, associations throughout the country must impress upon the nation the growing need for these people in the printing industry.

The importance of the graphic arts teacher must grow as his ranks must grow. He will be the key element of difference between the industry's forging ahead or falling behind, just

as people will be the difference on an individual company basis.

If printing survives as an industry by the end of this century, it will be because we together have been successful in broadening the understanding and in improving the picture which young people of ambition and ability have of our industry. This will come basically in the classroom, with a curriculum in printing an important element of society's dynamics of change.

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The Graphic Communications Teacher of Tomorrow— From an Industry-Oriented Viewpoint

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William Pakan

To look into the future regarding the manpower needs of industry and the ability of educational institutions to supply them, we must take a brief glimpse into the past to determine how effective these same institutions have been. By studying almost any Graphic Arts program offered in schools and colleges, we have come to expect such "basic" courses as hand composition, platen presswork, cylinder presswork, machine composition and some type of production course. Depending on time, money and equipment, some of these schools would "venture" into areas such as camera operation (B & W, color), platemaking (all types from albumin to bi-metal, tri-metal, positive and negative working), paper and ink. On the college level, perhaps some courses in the business field (accounting, statistics, production, sales, estimating) might be offered.

Education on the University Level

The entire curriculum, based on demands from the industry, was geared to today's needs as seen through yesterday's successes. One of the earliest and most successful of these programs at Carnegie Tech went down to defeat because the industry just wasn't ready for a forward-looking administration and a few forward-looking alumni. It was a program acknowledged by many in the industry as the best of its kind. Many of its graduates held and now hold responsible positions in graphic arts firms throughout the country and in many parts of the world.

At a time when the rest of the industry and the graphic art schools were willing to educate to maintain the "status quo" of the industry, Carnegie embarked on a program which would produce science-oriented printing managers and attempted to teach the systems approach to image generation and image transfer. The courses, some of which carried over from the old program, generally were rigorous, science-oriented and provided a good

Graphic communications teachers, instead of outside influences, must lead the way in the 70's. In the 60's, teaching was too narrow and often obsolete. Future instruction must be based on a fundamental understanding of systems and not of specific operations. Manufacturers of equipment and printing plants must also employ more teachers.

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foundation upon which to build. It also offered an excellent chance for a good solid management program based on a strong program already being taught in the School of Industrial Administration. It had all of the earmarks of a sound approach to management training as well as a technological approach to graphic communications. The result was that an industry which had taken all of this school's graduates in the past was not then and is not now interested in supporting this kind of program financially or through public relations and the program is dying a slow death.

In the past the Graphic Arts Industry was not aware of the changes taking place because it has consistently been self-centered and completely in-bred, which has stifled progress most of the time. The ultimate result was that the most recent and most revolutionary changes had to come from outside the industry. Because of these changes from outside the industry, the educators were caught napping and continued to turn out students who were not going to fit into the general graphic communications picture of the future unless they reeducated themselves, to the new and in many cases, progressive ideas being formulated and put into practice.

Teacher Qualifications and Education Trends of the Sixties

The Graphic Arts teacher of the 60's was trying to cover too wide an area; he was striving to produce students who would be all around printers and who could go into any work situation and become useful, if not productive, workers. This approach to graphic arts education was accepted because it was the only one available and because it was what the industry wanted.

The success of such programs in the past was due largely to the nature of the industry, when most of the training in letterpress and hand composition were all that the majority of shops had to contend with. However, as the industry became more sophisticated in its use of offset, gravure, silk screen—the old information was inadequate. Teachers, up to this point, were generally experienced in their field, either through having previously worked for some printers or through operating their own small shops. They could transmit such practical information to the student because of their own background and experience.

As more developments became available to our industry, the teacher found himself ill-equipped to transmit information from personal experience and had to rely on books written by those who were well versed. The information was often misinterpreted and students many times were sent out with some misconceptions about the value or need of some of the techniques used. Unless corrected through demonstration or experiment, these notions would stay with the student until he used this information in a practical situation or

until he came across the data in some technical literature.

To add to the woes of the graphic communications teacher, the introduction and use of systems using electronics and more sophisticated optics has forced an even greater range of information which he now has to master and transfer to his student.

The Present—A Time of Transition

The present brand of teacher is in transition, as is our industry. We are not entirely in the electronic age nor are we entirely in the pre-electronic age. Many plants have equipment which was conceived fifty years ago, being operated by modern, high-speed computer-generated tapes while other plants show no recognizable signs of the past. Some plants are equipped with the old standards in press, type and binding equipment to such an extent that Gutenberg or Senefelder would have no trouble putting on an apron and going to work without too much orientation.

The present-day teacher is a product of our educational system, which certainly is neither innovative nor forward looking but which seems to be content with cranking out duplicates of some magical ideal which nobody is able to define.

The Graphic Arts Industry has historically been one which had to be jolted each step along the way toward progress much like a belligerent youngster who has to be alternately dragged and pushed to apologize for what he has done on his way to manhood.

When linecasting equipment was first introduced, the hue and cry was that it would eliminate many jobs; that the quality would suffer; that the equipment was unreliable, etc. The fact of the matter was that the demands for faster means of typesetting were already building up to a crescendo. These demands were essentially based on the need to get information to those who needed it faster than was possible with hand typesetting. Linecasting equipment certainly decreased the turn-around time for copy and by satisfying this need, it increased the number of jobs instead of reducing them. It added a complicated mechanism to the list of things which the graphic arts teacher had to learn and had to teach.

A side effect to the introduction of linecasting machines was that the preparation a student required for a useful job in industry would now demand that he learn to operate this new equipment; it was also necessary that someone be taught to maintain the equipment.

Further developments in this one small area of the graphic arts included the use of tape-operated, metal casting equipment which increased the list of specific equipment which had to be learned and taught by the graphic arts teacher. At this point in time, the developments

of numerous systems used in the graphic arts were becoming more widespread and much more complicated. They include: automated press equipment operated from a single console; integrated lighting systems controlling exposure and density; automated development systems controlling time, temperature, speed; automated typesetting systems controlling type face, type size and leading; integrated binders in which entire books can be sewn, cases made, bound and wrapped on-line; automated platemaking equipment — some in one-step from camera directly to plate; electrostatic image transfer systems; optical scanners; cathode ray display systems; high-speed print-out systems and many more either in development, prototype or in use.

Change "Is" and Is Inevitable

We are no longer able to easily recognize each step in the production of a "printed" piece. Those who "remember when" will have a great deal of difficulty comprehending the tremendous changes in our industry.

What does all of this mean? It means that the teacher of the 70's is not going to be able to teach as he has taught in the past. It means that unless he, himself, is reeducated and kept current, his efforts will be wasted and those students on whom he is wasting these efforts will be lost — not today because we are in a transition period, but in a few years; unless this individual in turn, keeps up-to-date, his skills will become obsolete. It means that the teacher of the 70's must become more of a fundamentalist in his approach so that he can understand systems and not specific operations. He must understand typesetting systems, he must understand imaging systems, he must understand paper transport systems, he must understand binding systems, he understand feeding and delivery systems, he must understand the effect of tension, compression, expansion on materials used in image transfer systems and he certainly must understand electronic image and information generation and storage.

The initial reaction, of course, will be — that it is impossible for one man to know all of these, or it would take a life time to educate a teacher of this type. This is not true. If each of these random categories were examined we would find that they cover or can be made to cover present knowledge in graphic communications. Whether we have practical experience or theoretical knowledge about any of these areas, we would not be hard pressed to discuss any of these subjects at length. What has been done is the traditional names of offset, letterpress and gravure have been removed and these processes have been identified as to system and function of the system. Perhaps there are too many categories in this list that can be modified, but the feeling is that the approach is sound.

The Instructor of the Seventies

What this means, in terms of teacher education,

is that the information which will have to be taught is more general, more basic and more technical. The result of this kind of education can only be an employee who understands — and I mean understands — his job and one who can grow in any direction regardless of future developments in the graphic communications industry, either through self-study or by returning to school for more specific information on some new system or process.

With the graphic communications teacher concerned with fundamentals and systems, we may want to know how this affects the operation of the new equipment as it appears and who will teach these specifics. The trend in industry has been toward more schools and more instruction provided by the equipment manufacturer. As the equipment becomes more complex, the equipment manufacturer would be more qualified to teach its operation and maintenance than anyone else. Because many of the manufacturers are not graphic arts oriented, especially in the composition field, they are not aware of the possible uses their equipment might have until on location in the field; they are only knowledgeable in the engineering approach to their equipment. Much of the progress made in use of typesetting equipment has come from shop people operating equipment which they have come to understand because of a basic knowledge of electronics or optics. We must therefore, rely on the manufacturer to provide us with the specific information on his particular piece of equipment and develop our own innovations and adaptations of this equipment.

As equipment becomes more complex, the manufacturer will offer either more extensive training for the customer or systems which will be more modular in designs so that a defective module can be easily replaced and sent to the factory for service, or possibly thrown away and replaced with current equipment if the trend in electronics continues toward compactness and economy. The possibility exists that industry will hire more graphic communications teachers to handle these operation and maintenance classes. Because of the increased quality of instruction from professional teachers, most plants will find it a worthwhile investment to increasingly utilize both the teacher and his facilities. This will increase the importance of the role of the graphic communicationss teacher in industry.

At the present time, the industry is undergoing a tremendous change brought about by forces from outside the industry. These forces are continuing to cause change. We are not sure where this change will take us nor are we sure if we will recognize the industry by today's standards if and when this change cycle runs its course. There was a time when a man with 20 year's experience in any phase of printing was assured of a job somewhere in the industry because of this experience, but today we are not so sure. In fact, we are not even sure that what we now call printing will exist in the future but we are

sure that some form of communication will have to be used. Some of us call it graphic communication now; tomorrow it may not be graphic — it may be audio, visual or sensory. The teacher of the 70's is still in pretty good shape regarding usefulness — IF — he hears the tune of a different drummer. He can become more useful to industry only if industry has the courage to allow education to show the way instead of marching along-side.

For all practical purposes, there has been nothing generated in our schools or colleges teaching graphic arts which the industry hasn't initiated or which didn't come from outside the industry. The school, looking toward enrollment figures, alumni money and industry support have been satisfied to teach the same old courses.

Our industry is dynamic today because of outside influences. It must remain dynamic because of inside influences — the graphic communications teacher of the '70's with dustry backing, can make this a reality.

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Mr. Owen is editor of *Printing Production Magazine*.
He was assistant editor of *Printing Magazine* and of *Printing Equipment Engineer*, predecessor of *Printing Production Magazine*. He is a past president of the Cleveland Club of Printing House Craftsmen.
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Mr. Brower is managing editor of *Printing Production Magazine*.
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Mr. Tannehill is president of Motivation/Mangement Development Services of Akron, New York, which specializes in motivation, organization and management development and training services for business and industry.
He has had twelve years of experience in human resources management, including training supervision posts at Continental Can Company, Allstate Insurance Company, and Graphic Controls Corporation of Buffalo, New York. He is a former director of the Erie County Technical Institute Supervisory Development Program.
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William J. Catrow
Mr. Catrow is a vice president in the Pittsburgh office of Burson-Marsteller, a public relations firm. He specializes in corporate and financial accounts.
He formerly held positions at Ketchum, MacLeod & Grove of Pittsburgh, the Pittsburgh office of Batten, Barton, Durstine & Osborne, Inc., and Koppers Company, Inc.
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Mr. Woolley is director of development for WQED and WQEX public television stations in Pittsburgh.
He taught speech and broadcasting at the University of Maine and the University of Texas, and was director of the University of Maine alumni association from 1960 to 1968. He was a U. S. Navy pilot during World War II.
Mr. Woolley has a BS from the University of Maine and an MA and PhD from Northwestern University.

Richard G. Bentley
Mr. Bentley is a professor in the Kent State University school of technology, with a second appointment in the school of journalism.
Professor Bentley has held several positions in commercial printing establishments, and taught for six years in Davenport (Iowa) high school.
He is president of the International Graphic Arts Education Association.
Mr. Bentley has a BS in graphic arts education from Western Michigan University, and an MA in technical education from the University of Michigan. He is the co-author of a group of textbooks, *Graphic Communications Series*, which is used in secondary and technical schools.

Paul LeMoyne Noble
Mr. Noble is president of the Printing Industries of Metropolitan New York, Inc.
He was formerly dean of the college of commerce at Ohio University. He has been a member of the faculty of Ohio State University, as well as controller of the Ohio Department of Highways and director of Stim-U-Plant, Inc., of Columbus, Ohio. He was also a staff accountant for several Ohio C.P.A. firms. Mr. Noble is a director of Wood County Bank in Parkersburg, West Virginia, and on the board of directors of the Griffith Foundation, Columbus, Ohio.
He has a BSC from Ohio University and the MBA and PhD degrees from Ohio State University. He is the author of several technical journal articles and was editor of *The Ohio C.P.A.* from 1957 to 1958.

William Pakan
Mr. Pakan is vice president and general manager of Photo-Matic Typographers, Inc. of North Canton, Ohio, supplying composition for books, magazines and brochures.
He has held management positions with Miller Printing Machinery Company, Danner Press, and Akron Typesetting Company. He was formerly an assistant professor at Carnegie-Mellon University.
Mr. Pakan has a BS in printing management from Carnegie-Mellon and an MA in industrial arts from Kent State University. He has written several articles on camera operation and plant layout.

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March 1969—March 1970

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VT 012 820
Stevenson, William W.; Harris, James L.
Cycle Three Report. Occupational Training
Information System.

Oklahoma State Dept. of Vocational and
Technical Education, Stillwater. Div. of
Research, Planning and Evaluation
Oklahoma State Dept. of Industrial
Development and Parks, Oklahoma City
Ozarks Regional Commission, Little Rock, Ark.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 31Jan71 284p.

DESCRIPTORS - *MANPOWER NEEDS; *LABOR SUPPLY;
*MANPOWER DEVELOPMENT; *INFORMATION SYSTEMS,
*UNEMPLOYED; VOCATIONAL EDUCATION; ON THE JOB
TRAINING; STATE PROGRAMS; PROGRAM PLANNING;
TABLES (DATA)
IDENTIFIERS - *OCCUPATIONAL TRAINING
INFORMATION SYSTEM; OTIS

ABSTRACT - The overall purpose of the
Occupational Training Information System
(OTIS) is to provide improved data for
evaluating recommended changes in the
Oklahoma State Plan for Vocational Education.
In addition to matching labor supply and
demand to show net demand, the project covers
cost analysis, followup, underdeveloped human
resources, and sociopolitical involvements
between different agencies with similar
goals. This Cycle III report provides data on
labor supply and demand, and their
interfacing, to show net additional manpower
requirements for 1971, by occupation and
training programs. Programs offered in the
state are grouped according to net demand to
provide training priorities. Earlier reports
are available as VT 010 020, VT 011 072, and
ED 042 050 or VT 011 582 (all in ARM Winter
1970). (BH)

VT 012 820

ED0 57254

CYCLE THREE REPORT

OCCUPATIONAL TRAINING INFORMATION SYSTEM JANUARY 31, 1971

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OTIS

Division of Research, Planning, and Evaluation ■ Oklahoma State Department of Vocational and Technical Education

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VI 012 820

CYCLE THREE REPORT

OCCUPATIONAL TRAINING INFORMATION SYSTEM

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Division of Research, Planning, and Evaluation

Oklahoma State Department of Vocational and Technical Education

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ACKNOWLEDGEMENTS

This report is the result of the efforts of many people. Among those whose contributions made the report possible are Dr. Francis Tuttle of the Oklahoma State Department of Vocational and Technical Education, Mr. Hunter Kemmet of the Oklahoma Industrial Development and Park Department, Mr. Larry Hansen of the Governor's Comprehensive Manpower Planning Staff, and Mr. John Opitz and Mr. Phil Tomlinson of the Ozarks Regional Commission who provided support and direction for the continued development of the system.

Dr. Wm. D. Frazier, Mr. Gordon Pulliam, Miss Blanche Portwood, Mr. Doug Allen, Mr. Bill Randolph, Mr. Gene Thaxton, Mr. David Shipman, Mr. Steve Tims, Mr. Krishan Paul, Dr. Charles Hopkins, Mr. Ralph Ross, Mrs. Carol Bolles, Mrs. Paula Horne, and State Supervisors and Industrial Coordinators of the Oklahoma State Department of Vocational and Technical Education helped with the collection and processing of data for the report.

In addition, Mr. Will Bowman and Mr. Bill Hunter of the Oklahoma Employment Security Commission, Mr. Jerry Morton of the Governor's Comprehensive Manpower Planning Staff, Mrs. Lolly Beaird of the Board of Nurse Registration and Nurse Education and Mr. George Elliot of the Oklahoma Association of Private Schools coordinated their respective agency efforts to assure successful completion of this report.

Thanks should also go to Dr. Paul V. Braden of the Manpower Research and Training Center and the School of Occupational and Adult

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Education of Oklahoma State University who served as a consultant during the past year.

Dr. Marvin Edmison of the Research Foundation at Oklahoma State University and Dr. John Shearer of the Manpower Research and Training Center of Oklahoma State University have provided support for OTIS from its inception.

Thanks must also go to the teachers and administrators of occupational training in Oklahoma and to Oklahoma industries and businesses for cooperation and services in providing the data presented here.

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FOREWORD

The Occupational Training Information System is a vivid example of the application of theory to the solution of critical problems in Vocational and Technical Education. OTIS has filled a gap in the supply of data needed for the decision-making process by its interfacing of manpower demand and supply information. While the system is still in the developmental stage, the progress which has been made in procedures for demand and supply data collection and analysis shows promise of greater assistance for state and local administrators in program planning.

This Cycle III report reflects the economic conditions presently affecting employment in the country. In 1970, we have seen a rise in unemployment across the nation. In November of 1970, there were approximately 6,000 fewer jobs in Oklahoma than existed one year ago. The manufacturing occupations were hardest hit in terms of unemployment. It can be expected that the seasonally adjusted number of jobs will continue to decrease in the early days of 1971 and that the employment picture may not recover completely in the coming year. Many job clusters and many regions show an oversupply of trained manpower as would be expected in times such as these.

The implications for training agencies contained in a report such as this must be considered very carefully. We must make every effort to assure the strictest relevance and highest quality of program offerings. We must continue to provide an ever expanding number of our citizens with the skills and technical competencies demanded by our complex society. We must expand the training time and raise the level of our programs in order to temporarily reduce the manpower supply and assure a better qualified worker. Above all we must continue to produce the highly trained, fully aware, well-rounded individual who can fulfill his role as provider, producer, and citizen. This report can serve as one input into the complex decision-making process which guides us in reaching these goals.

Stillwater, Oklahoma, December 1970

Francis Tuttle, State Director
of Vocational and Technical
Education

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CHAPTER I

INTRODUCTION

History of OTIS

Two studies of occupational education in Oklahoma, one by Ling-Timco-Vought and one by Oklahoma State University, were conducted in 1967. Both of these studies reported a need for a manpower information system to help planners determine future activities of occupational training in Oklahoma. Based on the recommendations of these studies, leaders in the state government in general and occupational education in particular developed the basic concepts of an "Occupational Training Information System" (OTIS) which would interface manpower demand and supply by job cluster and indicate net manpower requirements for the state and regions within the state.

Dr. Paul V. Braden of the Manpower Research and Training Center and the School of Occupational and Adult Education at Oklahoma State University received a contract to develop the system in the summer of 1968. Under his guidance, the system was developed and two annual reports (called cycle reports) were produced. In addition, in the summer of 1970, a final report on the development of the system was presented at a national conference devoted to this topic.

Organizations which supported and/or cooperated in the development of the system include: (a) the Oklahoma State Department of Vocational and Technical Education, (b) the Manpower Administration of the United

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States Department of Labor, (c) the Oklahoma Industrial Development and Park Department, (d) the Ozarks Regional Commission, (e) the Research Foundation at Oklahoma State University, (f) the Oklahoma Employment Security Commission, (g) the Oklahoma Association of Private Schools, (h) the Manpower Research and Training Center at Oklahoma State University, (i) the School of Occupational and Adult Education at Oklahoma State University, and (j) the Oklahoma Research Coordinating Unit.

At an OTIS Advisory Committee meeting held in January of 1970, the members (representing the organizations listed above) transferred operational responsibilities to the newly formed Division of Research, Planning, and Evaluation of the Oklahoma State Department of Vocational and Technical Education. This Division has implemented the system, and this document reports the results of the third cycle of the system or the first cycle under the operation of the Oklahoma State Department of Vocational and Technical Education.

Purpose

The Major purpose of this report is to enumerate data on manpower demand and supply and the net manpower requirements in Oklahoma.

Limitations

Any projection of manpower needs is subject to error due to changes in the economy, unexpected "new industry starts" and other intervening variables. The data presented here represents the best projections of manpower demand and supply available at this time; however, the figures in the manpower supply and demand interfacing should be viewed as projections and not as absolute values. This is especially true in the regional

data where changes in the plans of a single firm could conceivably influence the net manpower demand in a given occupation significantly.

In addition, some of the job clusters have not been comprehensively surveyed since 1967 and updating is based on general employment trends. While this type of data is fairly accurate in aggregate form, details may be subject to error.

Procedures

The procedures used to collect and analyze the data in this report are presented in two major subsections; these are manpower demand and manpower supply. (Note: see Appendix C for a graphic illustration of information flow relative to this document.)

Subsection One - Manpower Demand

There are six primary sources of data on manpower demand utilized in this report. They are the following:

1. A 1967 manpower survey conducted by the Oklahoma Employment Security Commission which examined all employment on a sample basis.
2. A 1969 survey of manufacturing industry conducted by vocational educators primarily from the Oklahoma State Department of Vocational and Technical Education which attempted to examine all manufacturers.
3. A 1970 updating of the 1969 manufacturing industry survey conducted by industrial coordinators in which all manufacturers who employed four or more employees were re-surveyed.
4. A 1970 survey of selected service occupations conducted by industrial coordinators which sampled employers of

air conditioning mechanics, appliance repairmen, T.V. repairmen, and automotive service workers.

5. A 1970 survey of health occupations conducted by the Oklahoma Employment Security Commission in conjunction with the Oklahoma State Department of Vocational and Technical Education which sampled employers in health occupations; i.e., hospitals, nursing homes, government agencies, and private practice.

6. An agricultural production manpower need analysis conducted by staff of the College of Agriculture at Oklahoma State University.

The Employment Security Commission has combined all of the data from the sources listed above and edited it in terms of known economic conditions to produce the figures entered in the manpower demand column of the tables.

Subsection Two - Manpower Supply

There are five primary sources of manpower supply data utilized in this report; i.e., the Oklahoma State Department of Vocational and Technical Education, the Governor's Comprehensive Manpower Planning Staff, the Oklahoma Association of Private Schools, the Oklahoma Employment Security Commission, and the Oklahoma Board of Nurse Registration and Nurse Education.

The Oklahoma State Department of Vocational and Technical Education provided projections on four categories of manpower supply; i.e., high school vocational program graduates, post-high school vocational program graduates, adult vocational program graduates, and Manpower Development Training Act (MDTA) graduates. The figures entered in the interfacing tables (Chapter II) in these categories are a percent of the total number of graduates. The percentage utilized is based on past experience relative to the percent

of graduates entering the labor force. For high school and post-high school programs, the percentages are listed in Appendix A. For adult programs, 58 percent of the graduates are listed as supply since past experience indicates that this percentage of adult students are enrolled for preparatory education. (NOTE: The remainder are enrolled in supplementary education.) Based on the philosophy of MDTA programs, 100 percent of the graduates are listed as available to the labor force.

The Governor's Comprehensive Manpower Planning Staff provided data on the projected number of graduates to be produced by Federal training programs not associated with the State Department of Vocational and Technical Education. A list of these Federal programs can be found in Appendix B.

The Oklahoma Association of Private Schools provided projections on the number of private school vocational graduates. Percentages of these numbers which were used in the interfacing tables are based on a follow-up of private school graduates conducted by the OTIS system in 1969. Results indicated that 40 percent of the graduates from non-clerical programs entered the labor force while 60 percent of the clerical graduates entered the labor force.

The Oklahoma Employment Security Commission provided projections on the number of qualified registrants who will be available to fill jobs in Oklahoma.

The Oklahoma Board of Nurse Registration and Nurse Education provided figures on the number of registered nurses who will enter the labor force from training programs in the coming year.

CHAPTER II

INTERFACING OF MANPOWER SUPPLY AND DEMAND

How to Use the Interfacing

The interfacing utilizes the cluster concept; i.e., clusters of related occupations are matched against programs which train workers for those occupations. A cluster may contain one or more types of occupations and one or more types of programs. The occupations are identified by Dictionary of Occupational Titles codes and the programs are identified by U. S. Office of Education codes. Some of the clusters are limited by the form of available data; e.g., demand data on drafting is not reported by level of drafting skills needed and therefore, all levels of training were interfaced against the aggregate demand for draftsmen.

To determine the net manpower requirements in a cluster, the total of the supply (registrants and graduates available to the labor market) is subtracted from the demand (job openings). Where demand exceeds supply, the net manpower requirement is positive; where demand is less than supply, the net manpower requirement is negative. Negative numbers are indicated in the interfacing by use of parentheses.

The interfacing is presented for both statewide totals and regional (within the state) totals. There are eleven regions within the state which were selected jointly by the Oklahoma Employment Security Commission and the Oklahoma State Department of Vocational and Technical Education for use in the interfacing. These regions are shown in Figure 1.

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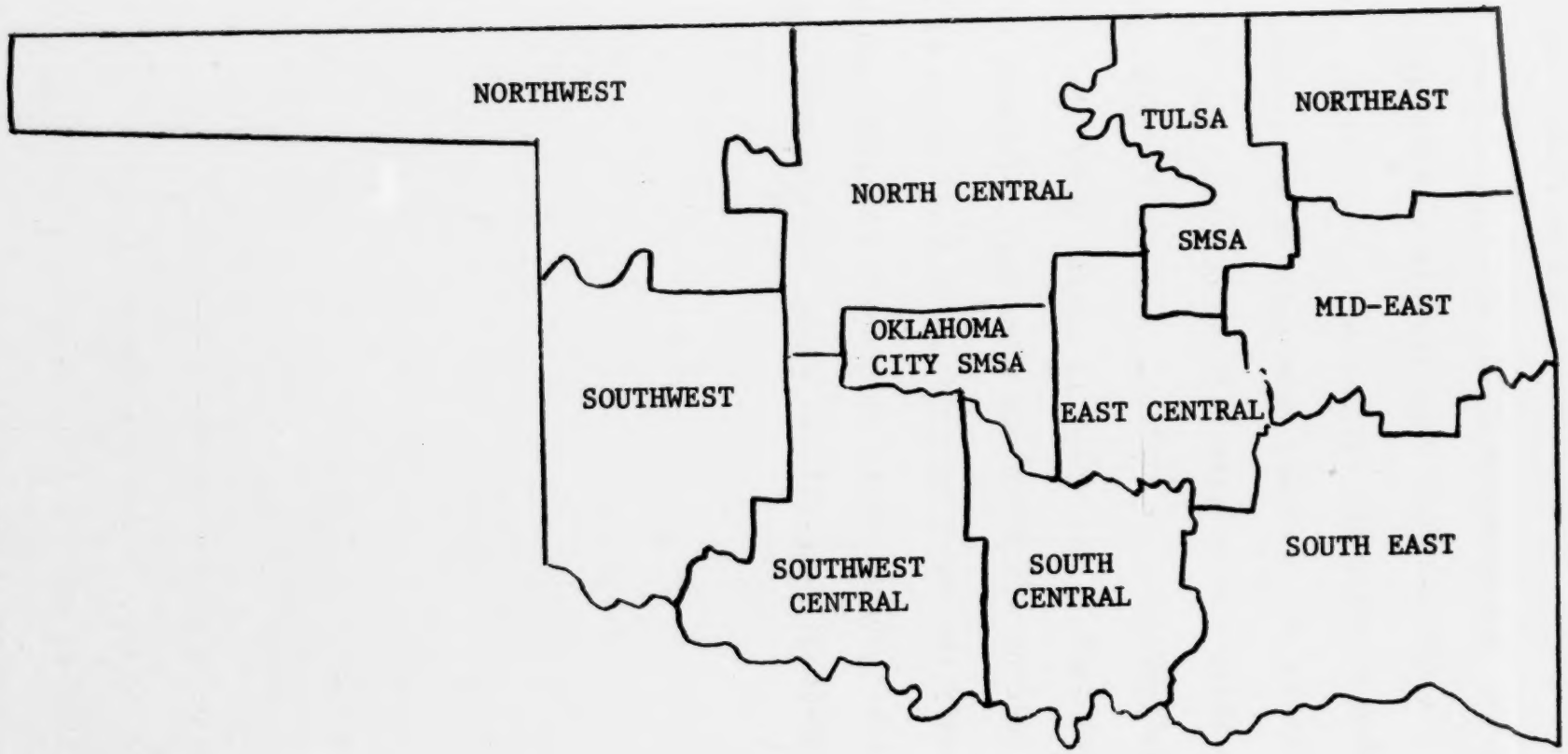

Figure 1. Regions Used in Interfacing

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Although many factors influence the choice of program offerings in any given situation, one of the major considerations is the demand for graduates of the program. When planning new programs, one should examine (1) the net manpower requirements within the region where the program will be offered, (2) the net manpower requirements in contiguous (adjacent) regions to the region where the program will be offered, (3) the net manpower requirements in the Standard Metropolitan Statistical Area closest to the region in which the program will be offered, and (4) the statewide net manpower requirements. In addition, any factor which influences the local labor market such as new industry starts should be considered.

Emphasis should be placed on the fact that knowledge of manpower requirements is only the starting point in the selection of programs for any given situation. Such factors as student interest, student abilities, and enrollment potential must also be given considerable weight.

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
407.884 Grounds Keeper	174	31	8	0	0	0	33	0	102	010500 Ornamental Horticulture
421.883 Farm Hand, General	185	144				0	0			
400. Farm Manager, Owner or Supervisor	823	0				0	0			
			373	0	0			0		010100 Agricultural Production
			5	0	0			0		160201 Ranch Operation
TOTAL	1008	144	378	0	0	0	0	0	486	
624.281 Mechanic, Farm Equipment	36	5				15	3			
			8	0	0			0		170304 Farm Engine Repair
			261	0	0			0		010300 Agricultural Mechanics
TOTAL	36	5	269	0	0	15	3	0	(256)	
250.258 Salesman, Insurance	174	37	10	0	0	0	1	0	126	041300 Insurance
250.258 Salesman, Real Estate	55	11	13	0	10	0	0	10	11	041700 Real Estate

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS	
250. thru 259.	Sales Occupations (Commodities)	1379	726				0	1				
290.000	Sales Clerk	1908	637				0	16				
292.000	Routeman	276	90				0	6				
				27	0	0			0		040200	Apparel and Accessories
				29	0	0			0		040300	Automotive
				35	0	0			0		040600	Food Distribution
				69	0	0			0		040800	General Merchandise
				14	0	0			0		040900	Hdw., Bldg. Mat., Farm and Garden Supplies
				5	0	16			0		041400	International Trade
				90	0	10			0		042000	Retail Trade
				12	0	0			0		043100	Wholesale Trade
				11	0	0			0		041600	Petroleum
				22	0	0			0		010200	Agricultural Supplies and Services
				12	0	0			0		041000	Home Furnishings
				26	0	0			0		010400	Agriculture Products
SUBTOTAL		3563	1453	352	0	26	0	23	0	1709		

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
242.368 Room Clerk	61	32	5	0	0	0	0	0	24	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	203	59				0	0			
			20	0	0			0		040100 Advertising Services
			20	0	0			0		040400 Finance and Credit
			16	0	0			0		041900 Transportation
SUBTOTAL	203	59	56	0	0	0	0	0	88	
311.878 Waitress/Waiter	1063	800				0	0			
310.868 Hostess	76	21				0	0			
319.138 Food Service Supervisor	57	0				0	0			
			17	0	0			0		172904 Waiter/Waitress
			50	0	0			0		040700 Food Services
			6	0	0			0		172900 Quantity Food Occupations
			9	0	0			0		090203 Food Management and Services
SUBTOTAL	1196	830	82	0	0	0	0	0	284	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
TOTAL	5252	2422	518	0	36	0	24	10	2242	
079.378 Dental Assistant	140	0	44	0	0	0	1	5	90	070101 Dental Assistant
078.381 Medical Laboratory Technician	37	0				25	2			
078.381 Medical Laboratory Assistant	71	10				0	1			
			20	0	6			0		070203 Medical Laboratory Technician
TOTAL	103	10	20	0	6	25	3	0	39	
075.378 Nurse, Registered	1046	63				0	0			
			56	0	0			0		070301 Nurse, Associate
			0	122	0			0		Nurse, Diploma
			0	70	0			0		Nurse, Baccalaureate
TOTAL	1046	63	56	192	0	0	0	0	735	
079.378 Nurse, Vocational	1279	169	399	0	32	45	0	0	634	070302 LPN

ED 064691

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	1757	848	26	0	241	210	231	29	172	070303 Nurse Aide
079.378 Surgical Technician	55	8	0	0	0	30	1	0	16	070305 Surgical Technician
078.368 Dental Hygienist	58	0	0	0	0	0	0	0	58	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	46	0	18	0	0	12	0	0	16	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	341	21	57	0	0	90	8	5	160	070904 Medical Assistant
249.388 Medical Record Clerk	47	11	0	0	0	0	0	8	28	070991 Medical Record Clerk

NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
219.388 Ward Clerk	129	14	0	0	0	15	1	0	99	079902 Ward Clerk
100.388 Medical Record Technician	21	4	0	0	0	0	0	0	17	070201 Medical Record Technician
201.368 Medical Secretary	252	0	34	0	0	15	1	0	202	070911 Medical Secretary
781.884 Cutter, Hand or Machine	42	25				0	0			
785.381 Seamstress	43	25				0	4			
786. Sewing Machine Operator	861	588				0	6			
			17	0	25			0		090202 Clothing Production
TOTAL	946	638	17	0	25	0	10	0	256	
215.388 Bookkeeping Machine Operator	339	50				0	10			
210.388 Bookkeeper, Hand	556	368				0	19			

NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
249.268 Claims Clerk	22	0				0	0			
209.388 Statement Clerk	42	12				0	0			
215.488 Payroll Clerk	130	42				0	0			
219.388 Interest Clerk	12	0				0	0			
217.388 Transit Clerk	21	13				0	0			
249.368 New Account Clerk	79	22				0	0			
249.368 Credit Clerk	14	0				0	0			
219.488 Accounting Clerk	492	123				0	1			
219.488 Insurance Checker	4	0				0	1			
211.368 Cashier	342	109				0	2			
212.368 Teller	169	52				0	0			
			46	0	346			257		140100 Accounting and Computing
SUBTOTAL	2222	791	46	0	346	0	33	257	749	
209.388 Clerk-Typist	1081	534				0	127			
219.388 General Office Clerk	1838	1087				0	271			
219.388 Sorting Clerk	28	0				0	0			
			274	0	0			129		140300 Filing and Office Machines
			317	0	339			0		140900 Typing and Related
SUBTOTAL	2947	1621	591	0	339	0	398	129	(131)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
205.368 Personnel Clerk	107	37	8	0	0	0	0	0	62	140600 Personnel, Training and Related
201.368 Secretary	1295	444				0	139			
202.388 Stenographer	881	187				250	6			
			450	0	238			373		140700 Secretary or Stenographer
SUBTOTAL	2176	631	450	0	238	250	145	373	89	
TOTAL	7452	3080	1095	0	923	250	531	504	769	
213.782 Tab Machine Operator	83	14				0	0			
213.582 Keypunch Operator	396	195				0	7			
213.382 Card-Tape Converter Operator	25	18				0	0			
			302	0	109			271		140200 Business Data Processing
TOTAL	504	227	302	0	109	0	7	271	(412)	
001.281 Draftsman, Architectural	28	12				0	0			
003.281 Draftsman, Electrical	8	4				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.281 Draftsman, Electronics	13	3				0	26			
010.281 Draftsman, Geological	15	6				0	0			
017.281 Draftsman, Map	12	22				0	0			
005.281 Draftsman, Civil	42	18				0	0			
007.281 Draftsman, Mechanical	122	46				0	0			
			21	0	0			0		160103 Architectural Technology
			51	0	0			0		160198 Drafting and Design
			74	0	64			72		171300 Drafting
TOTAL	240	111	146	0	64	0	26	72	(179)	
029.281 Technician, Laboratory	52	19				0	2			
			28	0	0			0	3	160105 Chemical Technology
005.181 Technician, Civil	105	1				0	0			
018.188 Surveyor	38	19				0	2			
			4	0	0			0		160106 Civil and Highway Technology
TOTAL	143	20	4	0	0	0	2	0	117	
003.181 Technician, Electrical	29	26				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.181 Technician Electronics	87	9				0	1			
			65	0	20			0		160108 Electronics Technology
			9	0	0			0		160109 Electro-Mechanical Technology
TOTAL	116	35	74	0	20	0	1	0	(14)	
012.288 Technician, Industrial	14	5				0	0			
019.281 Technician, Quality Control	94	14				0	0			
			3	0	0			0		160111 Industrial Technology
TOTAL	108	19	3	0	0	0	0	0	86	
710.281 Instrument Man	58	15				0	0			
600.280 Instrument Maker	4	4				0	0			
019.281 Technician, Instrumentation	7	0				0	0			
			3	0	0			0		160112 Instrumentation Technology
			0	0	0			11		172100 Instrument Repair
TOTAL	69	19	3	0	0	0	0	11	36	

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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
007.181 Technician, Mechanical	38	16				0	0			
			7	0	0			0		160113 Mechanical Technology
			3	0	23			0		160109 Electro-Mechanical Technology
TOTAL	38	16	10	0	23	0	0	0	(11)	
020.188 Programmer, Scientific	28	0	5	0	0	0	0	0	23	160117 Scientific Data Processing
139.288 Writer, Technical	20	6	1	0	0	0	0	0	13	160197 Technical Writing
213.382 Digital Computer Operator	53	27				0	0			
219.388 Programmer, Detail	26	4				0	0			
020.188 Programmer, Business	136	43				0	2			
			73	0	180			244		160401 Computer Science
TOTAL	215	74	73	0	180	0	2	244	(358)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
196.283 Commercial Pilot	20	8	0	0	0	0	0	82	(70)	160601 Commercial Pilot
168.168 Safety Man	12	3				0	0			
168.168 Building Inspector	38	19				0	0			
373. Fireman	87	14				0	7			
			2	0	0			0		160602 Fire and Safety Technology
			3	0	0			0		172801 Fireman Training
TOTAL	137	36	5	0	0	0	7	0	89	
375. Policeman or Detective	124	18				0	35			
377. Sheriff or Baliff	15	2				0	2			
			3	0	8			0		172802 Law Enforcement Training
TOTAL	139	20	3	0	8	0	37	0	71	
637.281 Mechanic, Air Conditioning	248	24				0	10			
			69	0	150			31	(36)	170100 Air Conditioning

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NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
862.381 Plumber	163	122	14	0	44	0	45	0	(62)	170102 Heating and Plumbing
827.281 Appliance Repairman	105	11	15	0	0	0	0	0	79	170200 Appliance Repair
807.381 Auto Body Repairman	149	51				0	5			
845.781 Painter, Auto	50	14				0	0			
			104	78	65			26		170301 Body and Fender
TOTAL	199	65	104	78	65	0	5	26	(144)	
602.281 Mechanic, Auto	1002	177				70	71			
223.387 Partsman, Auto	90	34				0	7			
			396	98	112			62		170302 Auto Mechanic
			17	0	0			0		170399 Auto Parts
TOTAL	1092	211	413	98	112	70	78	62	48	
621.281 Mechanic, Aircraft Engine	56	18				0	0			
521.281 Mechanic, Jet Engine	52	4				0	0			
621.781 Mechanic, Aircraft Accessories	51	8				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
			32	0	38			269		170401 Aircraft Mechanic
			9	0	0			0		160101 Aeronautical Technology
TOTAL	159	30	41	0	38	0	0	269	(219)	
633.281 Office Machines Repairman	97	15				35	4			
			2	0	0			13	28	170600 Business Machines Repair
141.081 Illustrator	14	19				0	0			
141.081 Layout Man (Pub. and Printing)	23	3				0	0			
			14	64	9			0		170700 Commercial Art
			8	0	8			0		170702 Display
TOTAL	37	22	22	64	17	0	0	0	(88)	
972.382 Photolithographer	5	1				0	0			
143. Photographer	11	14				0	0			
			12	0	16			0		170900 Commercial Photography
TOTAL	16	15	12	0	16	0	0	0	(29)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
741.884 Painter, Spray	72	52				0	66			
840.781 Painter	84	109				0	11			
842.884 Dry Wall Applicator	32	15				0	6			
860.381 Carpenter	288	266				0	186			
861.781 Tile Setter	155	10				0	0			
864.781 Floor Layer	48	7				0	1			
866.381 Roofer	48	47				0	99			
			231	30	15			0		171001 Carpentry
TOTAL	727	506	231	30	15	0	369	0	(424)	
828.281 Electronics Mechanic	84	48				0	0			
821.381 Lineman	166	18				0	45			
824.281 Electrician	227	60				0	74			
721.281 Electric Motor Repairman	7	5				0	0			
726.281 Electronics Assembler	305	179				0	37			
			74	35	178			104		171502 Electronics
TOTAL	789	310	74	35	178	0	156	104	(68)	
899.281 Maintenance Man	78	23				0	0			
899.381 Maintenance Man, Bldg.	252	70				0	144			

NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			6	0	0			0		171100 Custodial Services
TOTAL	330	93	6	0	0	0	144	0	87	
625.281 Diesel Mechanic	112	28	39	110	21	0	0	0	(86)	171200 Diesel Mechanics
720.281 Radio and TV Repairman	150	20	18	78	21	0	2	49	(38)	171503 Radio and TV Repair
650.582 Linotype Operator	25	5				0	4			
651.782 Cylinder Press Oper.	27	9				0	0			
651.782 Offset Press Man	65	7				0	1			
			9	0	0			0		171901 Composition Makeup and Typesetting
			69	39	50			0		171902 Printing
TOTAL	117	21	78	39	50	0	5	0	(76)	
705.884 Bench Grinder	29	18				0	0			
600.280 Machinist, All Round	313	96				95	102			
600.381 Layout Man	27	4				0	2			

NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
603. thru 609. Machine Set Up Operator	105	62				0	2			
603.280 Precision Grinder	38	18				0	0			
609.885 Production Machine Tool Operator	368	75				0	0			
			104	51	100			9		172302 Machinist
			0	0	0			0		172303 Machine Tool Operator
TOTAL	880	273	104	51	100	95	106	9	142	
615.782 Shear Press Operator	24	15				0	2			
615.782 Punch Press Operator	106	19				0	6			
617.280 Press Operator (Heavy)	12	6				0	2			
617.380 Break Operator	17	4				0	0			
619.380 Metal Fabricator	110	10				0	7			
804.281 Sheet Metal Worker	121	65				0	35			
809.381 Layout Man	54	14				0	0			
			14	0	27			0		172305 Sheet Metal
TOTAL	444	133	14	0	27	0	52	0	218	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
810.782 Welding Machine Operator	48	18				0	0			
810.884 thru 812.884 Welder	532	339				143	52			
816.782 Flame Cutter Machine Operator	17	5				0	2			
816.884 Flame Cutter, Hand	8	10				0	0			
			121	30	267			49		172306 Welding
			261	0	0			0		010300 Agricultural Mechanics (Welding)
TOTAL	605	372	382	30	267	143	54	49	(692)	
526.781 Baker	37	12				0	0			
			0	25	0			0	0	172901 Baker
313.131 Chef	16	10				0	0			
313.381 Cook	923	326				0	43			
			14	54	0			0		172902 Cook/Chef
TOTAL	939	336	14	54	0	0	43	0	492	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
952.782 Power Plant Operator	15	4				0	0			
950.782 Stationary Engineer	70	25				0	0			
			0	0	6			0		173200 Stationary Energy
TOTAL	85	29	0	0	6	0	0		50	
316.884 Meat Cutter	157	46				0	0			
521.381 Butcher	56	15				0	2			
525.884 Boner or Skinner	25	10				0	0			
			4	0	0			0		172903 Butcher
			3	0	0			19		172903 Meat Cutter
TOTAL	238	71	7	0	0	0	2	19	139	
780.381 Furniture Upholsterer	12	20	8	27	26	0	0	0	(69)	173500 Upholstery
660.280 Cabinet Maker	24	21				0	0			
669.380 Mill Man	20	3				0	0			
			26	8	54			0		173601 Cabinet Making
TOTAL	44	24	26	8	54	0	0	0	(68)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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STATEWIDE TOTALS

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
861.381 Brick Layer	124	50				12	39			
844.884 Cement Mason	100	49				0	16			
			12	0	14			0		171004 Masonry
TOTAL	224	99	12	0	14	12	55	0	32	
659.883 Heavy Equipment Operator	315	172				45	83			
			4	0	0			0	11	171003 Heavy Equipment Operator

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NET ADDITIONAL MANPOWER REQUIREMENTS
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OKLAHOMA CITY SMSA*

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
407.884 Grounds Keeper	55	5	1	0	0	0	0	0	49	010500 Ornamental Horticulture
421.883 Farm Hand, General	10	9				0	0			
400. Farm Manager, Owner or Supervisor	30	0				0	0			
			13	0	0			0		010100 Agricultural Production
			0	0	0			0		160201 Ranch Operation
TOTAL	40	9	13	0	0	0	0	0	18	
624.281 Mechanic, Farm Equipment	3	1				0	0			
			0	0	0			0		170304 Farm Engine Repair
			10	0	0			0		010300 Agricultural Mechanics
TOTAL	3	1	10	0	0	0	0	0	(8)	
250.258 Salesman, Insurance	67	12	1	0	0	0	0	0	54	041300 Insurance
250.258 Salesman, Real Estate	12	2	1	0	10	0	0	0	(1)	041700 Real Estate

*Oklahoma, Canadian, and Cleveland Counties

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NET ADDITIONAL MANPOWER REQUIREMENTS
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OKLAHOMA CITY SMSA

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS	
			OESC Registrants	Public			Federal		Private Schools			
				Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal				
250. thru 259.	Sales Occupations (Commodities)	488	190				0	0				
290.000	Sales Clerk	510	113				0	0				
292.000	Routeman	80	32				0	0				
				2	0	0			0		040200	Apparel and Accessories
				10	0	0			0		040300	Automotive
				1	0	0			0		040600	Food Distribution
				26	0	0			0		040800	General Merchandise
				3	0	0			0		040900	Hdw., Bldg. Mat., Farm and Garden Supplies
				1	0	0			0		041400	International Trade
				19	0	0			0		042000	Retail Trade
				4	0	0			0		043100	Wholesale Trade
				1	0	0			0		041600	Petroleum
				3	0	0			0		010200	Agricultural Supplies and Services
				3	0	0			0		041000	Home Furnishings
				1	0	0			0		010400	Agriculture Products
SUBTOTAL		1078	335	74	0	0	0	0	0	669		

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NET ADDITIONAL MANPOWER REQUIREMENTS
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OKLAHOMA CITY SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
242.368 Room Clerk	20	3	2	0	0	0	0	0	15	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	55	17				0	0			
			5	0	0			0		040100 Advertising Services
			3	0	0			0		040400 Finance and Credit
			2	0	0			0		041900 Transportation
SUBTOTAL	55	17	10	0	0	0	0	0	28	
311.878 Waitress/Waiter	258	190				0	0			
310.868 Hostess	31	4				0	0			
319.138 Food Service Supervisor	10	3				0	0			
			5	0	0			0		172904 Waiter/Waitress
			10	0	0		0			040700 Food Services
			0	0	0			0		172900 Quantity Food Occupations
			0	0	0			0		090203 Food Management and Services
SUBTOTAL	299	197	19	0	0	0	0	0	83	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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OKLAHOMA CITY SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
TOTAL	1531	566	107	0	10	0	0	0	848	
079.378 Dental Assistant	45	0	23	0	0	0	0	5	17	070101 Dental Assistant
078.381 Medical Laboratory Technician	11	0				25	2			
078.381 Medical Laboratory Assistant	19	3				0	0			
			8	0	0			0		070203 Medical Laboratory Technician
TOTAL	30	3	8	0	0	25	2	0	(8)	
075.378 Nurse, Registered	323	22				0	0			
			22	0	0			0		070301 Nurse, Associate
			0	50	0			0		Nurse, Diploma
			0	52	0			0		Nurse, Baccalaureate
TOTAL	323	22	22	102	0	0	0	0	177	
079.378 Nurse, Vocational	278	56	107	0	0	45	0	0	70	070302 LPN

NET ADDITIONAL MANPOWER REQUIREMENTS
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OKLAHOMA CITY SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	400	144	4	0	107	30	121	29	(35)	070303 Nurse Aide
079.378 Surgical Technician	23	3	0	0	0	12	0	0	8	070305 Surgical Technician
078.368 Dental Hygienist	17	0	0	0	0	0	0	0	17	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	13	0	9	0	0	12	0	0	(8)	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	139	4	18	0	0	90	8	5	14	070904 Medical Assistant
249.388 Medical Record Clerk	9	0	0	0	0	0	0	8	1	070991 Medical Record Clerk

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NET ADDITIONAL MANPOWER REQUIREMENTS
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OKLAHOMA CITY SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
219.388 Ward Clerk	58	5	0	0	0	0	1	0	52	079902 Ward Clerk
100.388 Medical Record Technician	2	4	0	0	0	0	0	0	(2)	070201 Medical Record Technician
201.368 Medical Secretary	95	0	4	0	0	0	0	0	91	070911 Medical Secretary
781.884 Cutter, Hand or Machine	3	4				0	0			
785.381 Seamstress	25	5				0	1			
786. Sewing Machine Operator	48	70	3	0	0	0	0	0		090202 Clothing Production
TOTAL	76	79	3	0	0	0	1	0	(7)	
215.388 Bookkeeping Machine Operator	117	6				0	2			
210.388 Bookkeeper, Hand	175	85				0	0			

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OKLAHOMA CITY SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
249.268 Claims Clerk	10	0				0	0			
209.388 Statement Clerk	25	4				0	0			
215.488 Payroll Clerk	45	10				0	0			
219.388 Interest Clerk	3	0				0	0			
217.388 Transit Clerk	5	2				0	0			
249.368 New Account Clerk	31	4				0	0			
249.368 Credit Clerk	8	0				0	0			
219.488 Accounting Clerk	235	26				0	0			
219.488 Insurance Checker	0	0				0	0			
211.368 Cashier	140	31				0	1			
212.368 Teller	54	8				0	0			
			3	0	75			121		140100 Accounting and Computing
SUBTOTAL	848	176	3	0	75	0	3	121	470	
209.388 Clerk-Typist	665	65				0	15			
219.388 General Office Clerk	512	254				0	2			
219.388 Sorting Clerk	20	0				0	0			
			9	0	0			40		140300 Filing and Office Machines
			213	0	130			0		140900 Typing and Related
SUBTOTAL	1197	319	222	0	130	0	17	40	469	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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OKLAHOMA CITY SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
205.368 Personnel Clerk	38	12	0	0	0	0	0	0	26	140600 Personnel, Training and Related
201.368 Secretary	551	85				120	0			
202.388 Stenographer	390	42				0	0			
			146	0	6			153		140700 Secretary or Stenographer
SUBTOTAL	941	127	146	0	6	120	0	153	389	
TOTAL	3024	634	371	0	211	120	20	314	1354	
213.782 Tab Machine Operator	38	5				0	1			
213.582 Keypunch Operator	165	40				0	0			
213.382 Card-Tape Converter Operator	16	8				0	0			
			68	0	25			163		140200 Business Data Processing
TOTAL	219	53	68	0	25	0	1	163	(91)	
001.281 Draftsman, Architectural	10	5				0	0			
003.281 Draftsman, Electrical	2	1				0	0			

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OKLAHOMA CITY SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
003.281 Draftsman, Electronics	5	0				0	0			
010.281 Draftsman, Geological	0	3				0	0			
017.281 Draftsman, Map	0	0				0	0			
005.281 Draftsman, Civil	25	3				0	0			
007.281 Draftsman, Mechanical	45	12				0	13			
			3	0	0			0		160103 Architectural Technology
			16	0	0			0		160198 Drafting and Design
			6	0	18			31		171300 Drafting
TOTAL	87	24	25	0	18	0	13	31	(24)	
029.281 Technician, Laboratory	10	6				0	0			
			8	0	0			0	(4)	160105 Chemical Technology
005.181 Technician, Civil	65	0				0	0			
018.188 Surveyor	15	3				0	0			
			2	0	0			0		160106 Civil and Highway Technology
TOTAL	80	3	2	0	0	0	0	0	75	
003.181 Technician, Electrical	8	3				0	0			

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OKLAHOMA CITY SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.181 Technician Electronics	40	6				0	0			
			19	0	0			0		160108 Electronics Technology
			2	0	0			0		160109 Electro-Mechanical Technology
TOTAL	48	9	21	0	0	0	0	0	18	
012.288 Technician, Industrial	4	2				0	0			
019.281 Technician, Quality Control	35	3				0	0			
			1	0	0			0		160111 Industrial Technology
TOTAL	39	5	1	0	0	0	0	0	33	
710.281 Instrument Man	36	10				0	0			
600.280 Instrument Maker	0	0				0	0			
019.281 Technician, Instrumentation	0	0				0	0			
			2	0	0			0		160112 Instrumentation Technology
			0	0	0			0		172100 Instrument Repair
TOTAL	36	10	2	0	0	0	0	0	24	

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
007.181 Technician, Mechanical	8	3				0	0			
			2	0	0			0		160113 Mechanical Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	8	3	2	0	0	0	0	0	3	
020.188 Programmer, Scientific	15	0	5	0	0	0	0	0	10	160117 Scientific Data Processing
139.288 Writer, Technical	8	3	1	0	0	0	0	0	4	160197 Technical Writing
213.382 Digital Computer Operator	21	10				0	0			
219.388 Programmer, Detail	13	0				0	0			
020.188 Programmer, Business	40	10				0	0			
			18	0	30			126		160401 Computer Science
TOTAL	74	20	18	0	30	0	0	126	(120)	

NET ADDITIONAL MANPOWER REQUIREMENTS
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OKLAHOMA CITY SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
196.283 Commercial Pilot	20	7				0	0			
			0	0				20	(7)	160601 Commercial Pilot
168.168 Safety Man	5	2				0	0			
168.168 Building Inspector	6	2				0	0			
373. Fireman	23	2				0	0			
			0	0	0			0		160602 Fire and Safety Technology
			0	0	0			0		172801 Fireman Training
TOTAL	34	6	0	0	0	0	0	0	28	
375. Policeman or Detective	35	1				0	0			
377. Sheriff or Baliff	5	0				0	0			
			0	0	8			0		172802 Law Enforcement Training
TOTAL	40	1	0	0	8	0	0	0	31	
637.281 Mechanic, Air Conditioning	62	10				0	6			
			12	0	28			31	(25)	170100 Air Conditioning

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
862.381 Plumber	45	15	0	0	0	0	33	0	(3)	170102 Heating and Plumbing
827.281 Appliance Repairman	30	3	6	0	0	0	0	0	21	170200 Appliance Repair
807.381 Auto Body Repairman	39	13				0	0			
845.781 Painter, Auto	12	2	27	0	9	0	0	26		170301 Body and Fender
TOTAL	51	15	27	0	9	0	0	26	(26)	
602.281 Mechanic, Auto	270	32				0	5			
223.387 Partsman, Auto	23	5	112	0	27	0	0	59		170302 Auto Mechanic
			1	0	0			0		170399 Auto Parts
TOTAL	293	37	113	0	27	0	5	59	52	
621.281 Mechanic, Aircraft Engine	35	0				0	0			
521.281 Mechanic, Jet Engine	20	0				0	0			
621.781 Mechanic, Aircraft Accessories	26	2				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			8	0	21			0		170401 Aircraft Mechanic
			7	0	0			0		160101 Aeronautical Technology
TOTAL	81	2	15	0	21	0	0	0	43	
633.281 Office Machines Repairman	55	4				35	3			
			0	0	0			6	7	170600 Business Machines Repair
141.081 Illustrator	6	8				0	0			
141.081 Layout Man (Pub. and Printing)	8	0				0	0			
			4	0	9			0		170700 Commercial Art
			1	0	0			0		170702 Display
TOTAL	14	8	5	0	9	0	0	0	(8)	
972.382 Photolithographer	3	0				0	0			
143. Photographer	5	2				0	0			
			1	0	0			0		170900 Commercial Photography
TOTAL	8	2	1	0	0	0	0	0	5	

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
741.884 Painter, Spray	21	12				0	30			
840.781 Painter	30	34				0	0			
842.884 Dry Wall Applicator	22	7				0	0			
860.381 Carpenter	15	44				0	80			
861.781 Tile Setter	140	4				0	0			
864.781 Floor Layer	30	1				0	1			
866.381 Roofer	8	10				0	52			
			12	0	6			0		171001 Carpentry
TOTAL	266	112	12	0	6	0	163	0	(27)	
828.281 Electronics Mechanic	65	14				0	0			
821.381 Lineman	30	3				0	2			
824.281 Electrician	81	11				0	26			
721.281 Electric Motor Repairman	4	1				0	0			
726.281 Electronics Assembler	151	65				0	15			
			13	24	25			45		171502 Electronics
TOTAL	331	94	13	24	25	0	43	45	87	
899.281 Maintenance Man	18	7				0	0			
899.381 Maintenance Man, Bldg.	86	17				0	0			

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
			0	0	0			0		171100 Custodial Services
TOTAL	104	24	0	0	0			0	80	
625.281 Diesel Mechanic	35	7				0	0			
			9	0	0			0	19	171200 Diesel Mechanics
720.281 Radio and TV Repairman	38	6				0	1			
			5	0	15			13	(2)	171503 Radio and TV Repair
650.582 Linotype Operator	5	1				0	0			
651.782 Cylinder Press Oper.	8	2				0	0			
651.782 Offset Press Man	20	4				0	1			
			4	0	0			0		171901 Composition Makeup and Typesetting
			17	0	15			0		171902 Printing
TOTAL	33	7	21	0	15	0	1	0	(11)	
705.884 Bench Grinder	0	5				0	0			
600.280 Machinist, All Round	55	12				65	2			
600.381 Layout Man	7	3				0	0			

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CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			OESC Registrants	Public			Federal		Private Schools		
				Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
603. thru 609.	Machine Set Up Operator	30	4								
603.280	Precision Grinder	6	2								
609.885	Production Machine Tool Operator	106	13								
				14	0	18			9		172302 Machinist
				0	0	0			0		172303 Machine Tool Operator
TOTAL		204	39	14	0	18	65	2	9	57	
615.782	Shear Press Operator	5	0				0	0			
615.782	Punch Press Operator	35	5				0	6			
617.280	Press Operator (Heavy)	4	1				0	2			
617.380	Break Operator	3	0				0	0			
619.380	Metal Fabricator	15	2				0	0			
804.281	Sheet Metal Worker	48	15				0	25			
809.381	Layout Man	12	3				0	0			
				9	0	0			0		172305 Sheet Metal
TOTAL		122	26	9	0	0	0	33	0	54	

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
810.782 Welding Machine Operator	26	13				110	3			
810.884 thru 812.884 Welder	120	62				0	0			
816.782 Flame Cutter Machine Operator	3	0				0	0			
816.884 Flame Cutter, Hand	2	3				0	0			
			28	0	76			20		172306 Welding
			10	0	0			0		010300 Agricultural Mechanics (Welding)
TOTAL	151	78	38	0	76	110	3	20	(174)	
526.781 Baker	0	4				0	0			
			0	0	0			0	(4)	172901 Baker
313.131 Chef	6	1				0	0			
313.381 Cook	215	58				0	0			
			2	0	0			0		172902 Cook/Chef
TOTAL	221	59	2	0	0	0	0	0	160	

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
952.782 Power Plant Operator	5	1				0	0			
950.782 Stationary Engineer	25	3				0	0			
			0	0	6			0		173200 Stationary Energy
TOTAL	30	4	0	0	6	0	0	0	20	
316.884 Meat Cutter	65	12				0	0			
521.381 Butcher	20	4				0	0			
525.884 Boner or Skinner	6	3				0	0			
			1	0	0			0		172903 Butcher
			0	0	0			19		172903 Meat Cutter
TOTAL	91	19	1	0	0	0	0	19	52	
780.381 Furniture Upholsterer	5	4				0	0			
			7	0	6			0	(12)	173500 Upholstery
660.280 Cabinet Maker	10	4				0	0			
669.380 Mill Man	20	0				0	0			
			3	0	0			0		173601 Cabinet Making
TOTAL	30	4	3	0	0	0	0	0	23	

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
861.381 Brick Layer	38	11				12	19			
844.884 Cement Mason	25	12				0	7			
			0	0	8			0		171004 Masonry
TOTAL	64	23	0	0	8	12	26	0	(5)	
659.883 Heavy Equipment Operator	75	15				0	12			
	75		0	0	0			0	48	171003 Heavy Equipment Operator

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
407.884 Grounds Keeper	58	6	2	0	0	0	14	0	36	010500 Ornamental Horticulture
421.883 Farm Hand, General	10	7				0	0			
400. Farm Manager, Owner or Supervisor	30	0				0	0			
			16	0	0			0		010100 Agricultural Production
			0	0	0			0		160201 Ranch Operation
TOTAL	40	7	16	0	0	0	0	0	17	
624.281 Mechanic, Farm Equipment	0	0				0	0			
			0	0	0			0		170304 Farm Engine Repair
			15	0	0			0		010300 Agricultural Mechanics
TOTAL	0	0	15	0	0	0	0	0	(15)	
250.258 Salesman, Insurance	45	6	0	0	0	0	0	0	39	041300 Insurance
250.258 Salesman, Real Estate	14	3	2	0	0	0	0	0	9	041700 Real Estate

*Tulsa, Creek, and Osage Counties

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
250. thru 259. Sales Occupations (Commodities)	436	182				0	16			
290.000 Sales Clerk	304	108				0	0			
292.000 Routeman	61	10				0	0			
			2	0	0			0		040200 Apparel and Accessories
			3	0	0			0		040300 Automotive
			11	0	0			0		040600 Food Distribution
			10	0	0			0		040800 General Merchandise
			1	0	0			0		040900 Hdw., Bldg. Mat., Farm and Garden Supplies
			0	0	0			0		041400 International Trade
			21	0	0			0		042000 Retail Trade
			1	0	0			0		043100 Wholesale Trade
			2	0	0			0		041600 Petroleum
			1	0	0			0		010200 Agricultural Supplies and Services
			2	0	0			0		041000 Home Furnishings
			1	0	0			0		010400 Agriculture Products
SUBTOTAL	801	300	55	0	0	0	16	0	430	

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
242.368 Room Clerk	16	11	1	0	0	0	0	0	4	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	68	14				0	0			
			2	0	0			0		040100 Advertising Services
			2	0	0			0		040400 Finance and Credit
			7	0	0			0		041900 Transportation
SUBTOTAL	68	14	11	0	0	0	0	0	43	
311.878 Waitress/Waiter	249	206				0	0			
310.868 Hostess	25	7				0	0			
319.138 Food Service Supervisor	10	1				0	0			
			2	0	0			0		172904 Waiter/Waitress
			7	0	0			0		040700 Food Services
			1	0	0			0		172900 Quantity Food Occupations
			2	0	0			0		090203 Food Management and Services
SUBTOTAL	284	214	12	0	0	0	0	0	58	

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			Public			Federal				
		OESC Registrants	Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal	Private Schools		
TOTAL	1228	548	81	0	0	0	16	0	583	
079.378 Dental Assistant	40	0	11	0	0	0	0	0	29	070101 Dental Assistant
078.381 Medical Laboratory Technician	2	0				0	0			
078.381 Medical Laboratory Assistant	22	4	9	0	0	0	0	0		070203 Medical Laboratory Technician
TOTAL	24	4	9	0	0	0	0	0	11	
075.378 Nurse, Registered	152	24				0	0			
			0	0	0			0		070301 Nurse, Associate
			0	55	0			0		Nurse, Diploma
			0	0	0			0		Nurse, Baccalaureate
TOTAL	152	24	0	55	0	0	0	0	73	
079.378 Nurse, Vocational	182	42	19	0	0	0	0	0	121	070302 LPN

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	341	187	0	0	27	15	24	0	88	070303 Nurse Aide
079.378 Surgical Technician	8	4	0	0	0	6	0	0	(2)	070305 Surgical Technician
078.368 Dental Hygienist	15	0	0	0	0	0	0	0	15	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	9	0	9	0	0	0	0	0	0	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	80	6	7	0	0	0	0	0	67	070904 Medical Assistant
249.388 Medical Record Clerk	10	4	0	0	0	0	0	0	6	070991 Medical Record Clerk

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CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
219.388 Ward Clerk	27	8	0	0	0	15	0	0	4	079902 Ward Clerk
100.388 Medical Record Technician	10	0	0	0	0	0	0	0	10	070201 Medical Record Technician
201.368 Medical Secretary	62	0	15	0	0	15	0	0	32	070911 Medical Secretary
781.884 Cutter, Hand or Machine	5	3				0	0			
785.381 Seamstress	10	7				0	0			
786. Sewing Machine Operator	81	43				0	0			
			2	0	0			0		090202 Clothing Production
TOTAL	96	53	2	0	0	0	0	0	41	
215.388 Bookkeeping Machine Operator	78	17				0	2			
210.388 Bookkeeper, Hand	143	85				0	3			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
249.268 Claims Clerk	12	0				0	0			
209.388 Statement Clerk	6	8				0	0			
215.488 Payroll Clerk	23	15				0	0			
219.388 Interest Clerk	3	0				0	0			
217.388 Transit Clerk	4	6				0	0			
249.368 New Account Clerk	18	4				0	0			
249.368 Credit Clerk	6	0				0	0			
219.488 Accounting Clerk	101	48				0	0			
219.488 Insurance Checker	0	0				0	0			
211.368 Cashier	84	25				0	0			
212.368 Teller	25	15				0	0			
			12	0	109			98		140100 Accounting and Computing
SUBTOTAL	503	223	12	0	109	0	5	98	56	
209.388 Clerk-Typist	206	133				0	50			
219.388 General Office Clerk	578	289				0	159			
219.388 Sorting Clerk	8	0				0	0			
			47	0	0			47		140300 Filing and Office Machines
			20	0	10			0		140900 Typing and Related
SUBTOTAL	792	422	67	0	10	0	209	47	37	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
205.368 Personnel Clerk	26	9	0	0	0	0	0	0	17	140600 Personnel, Training and Related
201.368 Secretary	295	147				0	33			
202.388 Stenographer	210	68				0	3			
			109	0	20			155		140700 Secretary or Stenographer
SUBTOTAL	505	215	109	0	20	0	36	155	(30)	
TOTAL	1826	869	188	0	139	0	250	300	80	
213.782 Tab Machine Operator	30	7				0	0			
213.582 Keypunch Operator	105	67				0	1			
213.382 Card-Tape Converter Operator	6	4				0	0			
			79	0	0			89		140200 Business Data Processing
TOTAL	141	78	79	0	0	0	1	89	(106)	
001.281 Draftsman, Architectural	10	3				0	0			
003.281 Draftsman, Electrical	5	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.281 Draftsman, Electronics	8	3				0	5			
010.281 Draftsman, Geological	11	2				0	0			
017.281 Draftsman, Map	4	17				0	0			
005.281 Draftsman, Civil	7	6				0	0			
007.281 Draftsman, Mechanical	41	19				0	0			
			0	0	0			0		160103 Architectural Technology
			5	0	0			0		160198 Drafting and Design
			25	0	17			30		171300 Drafting
TOTAL	86	50	30	0	17	0	5	30	(46)	
029.281 Technician, Laboratory	12	7				0	1			
			11	0	0			0	(7)	160105 Chemical Technology
005.181 Technician, Civil	10	0				0	0			
018.188 Surveyor	6	3				0	0			
			0	0	0			0		160106 Civil and Highway Technology
TOTAL	16	3	0	0	0	0	0	0	13	
003.181 Technician, Electrical	10	1				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.181 Technician Electronics	35	3				0	0			
			3	0	0			0		160108 Electronics Technology
			1	0	0			0		160109 Electro-Mechanical Technology
TOTAL	45	4	4	0	0	0	0	0	37	
012.288 Technician, Industrial	6	1				0	0			
019.281 Technician, Quality Control	25	6				0	0			
			0	0	0			0		160111 Industrial Technology
TOTAL	31	7	0	0	0	0	0	0	24	
710.281 Instrument Man	21	4				0	0			
600.280 Instrument Maker	4	0				0	0			
019.281 Technician, Instrumentation	5	0				0	0			
			0	0	0			0		160112 Instrumentation Technology
			0	0	0			11		172100 Instrument Repair
TOTAL	30	4	0	0	0	0	0	11	15	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
007.181 Technician, Mechanical	15	4				0	0			
			0	0	0			0		160113 Mechanical Technology
			1	0	0			0		160109 Electro-Mechanical Technology
TOTAL	15	4	1	0	0	0	0	0	10	
020.188 Programmer, Scientific	8	0	0	0	0	0	0	0	8	160117 Scientific Data Processing
139.288 Writer, Technical	9	3	0	0	0	0	0	0	6	160197 Technical Writing
213.382 Digital Computer Operator	18	9				0	0			
219.388 Programmer, Detail	8	4				0	0			
020.188 Programmer, Business	38	20	3	0	50	0	0	97		160401 Computer Science
TOTAL	64	33	3	0	50	0	0	97	(119)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
196.283 Commercial Pilot	0	0	0	0	0	0	0	43	(43)	160601 Commercial Pilot
168.168 Safety Man	4	1				0	0			
168.168 Building Inspector	7	6				0	0			
373. Fireman	23	4	0	0	0	0	0	0		160602 Fire and Safety Technology
			0	0	0			0		172801 Fireman Training
TOTAL	34	11	0	0	0	0	0	0	23	
375. Policeman or Detective	31	1				0	0			
377. Sheriff or Baliff	5	1	1	0	0	0	0	0		172802 Law Enforcement Training
TOTAL	36	2	1	0	0	0	0	0	33	
637.281 Mechanic, Air Conditioning	47	3	12	0	40	0	0	0	(8)	170100 Air Conditioning

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NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
862.381 Plumber	50	23	0	0	20	0	0	0	(7)	170102 Heating and Plumbing
827.281 Appliance Repairman	21	3	0	0	0	0	0	0	18	170200 Appliance Repair
807.381 Auto Body Repairman	35	5				0	0			
845.781 Painter, Auto	10	4	8	0	16	0	0	0		170301 Body and Fender
TOTAL	45	9	8	0	16	0	0	0	12	
602.281 Mechanic, Auto	231	29				30	1			
223.387 Partsman, Auto	25	3	52	0	26	0	0	3		170302 Auto Mechanic
			1	0	0			0		170399 Auto Parts
TOTAL	256	32	53	0	26	30	1	3	111	
621.281 Mechanic, Aircraft Engine	21	18				0	0			
521.281 Mechanic, Jet Engine	32	4				0	0			
621.781 Mechanic, Aircraft Accessories	25	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			8	0	0			269		170401 Aircraft Mechanic
			0	0	0			0		160101 Aeronautical Technology
TOTAL	78	22	8	0	0	0	0	269	(221)	
633.281 Office Machines Repairman	34	3				0	0			
			0	0	0			7	24	170600 Business Machines Repair
141.081 Illustrator	6	8				0	0			
141.081 Layout Man (Pub. and Printing)	8	3				0	0			
			8	0	0			0		170700 Commercial Art
			1	0	0			0		170702 Display
TOTAL	14	11	9	0	0	0	0	0	(6)	
972.382 Photolithographer	2	1				0	2			
143. Photographer	4	6				0	0			
			4	0	16			0		170900 Commercial Photography
TOTAL	6	7	4	0	16	0	2	0	(23)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
741.884 Painter, Spray	26	16				0	29			
840.781 Painter	20	22				0	0			
842.884 Dry Wall Applicator	5	3				0	0			
860.381 Carpenter	106	37				0	36			
861.781 Tile Setter	10	2				0	0			
864.781 Floor Layer	6	3				0	0			
866.381 Roofer	10	5				0	47			
			10	0	0			0		171001 Carpentry
TOTAL	183	88	10	0	0	0	112	0	(27)	
828.281 Electronics Mechanic	15	19				0	0			
821.381 Lineman	41	0				0	40			
824.281 Electrician	55	8				0	35			
721.281 Electric Motor Repairman	1	1				0	0			
726.281 Electronics Assembler	69	53				0	11			
			10	0	63			54		171502 Electronics
TOTAL	181	81	10	0	63	0	86	54	(113)	
899.281 Maintenance Man	20	4				0	0			
899.381 Maintenance Man, Bldg.	57	14				0	35			

NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
			2	0	0			0		171100 Custodial Services
TOTAL	77	18	2	0	0	0	35	0	22	
625.281 Diesel Mechanic	33	4	10	0	0	0	0	0	19	171200 Diesel Mechanics
720.281 Radio and TV Repairman	28	4	1	0	0	0	0	20	3	171503 Radio and TV Repair
650.582 Linotype Operator	6	0				0	4			
651.782 Cylinder Press Oper.	10	3				0	0			
651.782 Offset Press Man	14	2				0	0			
			0	0	0			0		171901 Composition Makeup and Typesetting
			23	0	25			0		171902 Printing
TOTAL	30	5	23	0	25	0	4	0	(27)	
705.884 Bench Grinder	24	7				0	0			
600.280 Machinist, All Round	152	27				30	25			
600.381 Layout Man	18	1				0	2			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			OESC Registrants	Public			Federal		Private Schools		
				Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
603. thru 609.	Machine Set Up Operator	41	26				0	0			
603.280	Precision Grinder	26	8				0	0			
609.885	Production Machine Tool Operator	141	43				0	0			
				31	0	0			0		172302 Machinist
				0	0	0			0		172303 Machine Tool Operator
TOTAL		402	112	31	0	0	30	27	0	202	
615.782	Shear Press Operator	10	11				0	2			
615.782	Punch Press Operator	55	14				0	0			
617.280	Press Operator (Heavy)	5	1				0	0			
617.380	Break Operator	8	2				0	0			
619.380	Metal Fabricator	65	3				0	7			
804.281	Sheet Metal Worker	30	16				0	8			
809.381	Layout Man	25	4				0	0			
				4	0	27			0		172305 Sheet Metal
TOTAL		198	51	4	0	27	0	17	0	99	

NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
810.782 Welding Machine Operator	16	4				8	4			
810.884 thru 812.884 Welder	145	80				0	23			
816.782 Flame Cutter Machine Operator	8	2				0	2			
816.884 Flame Cutter, Hand	5	3				0	0			
			20	0	56			29		172306 Welding
			15	0	0			0		010300 Agricultural Mechanics (Welding)
TOTAL	174	89	35	0	56	8	29	29	(72)	
526.781 Baker	14	2				0	0			
			0	0	0			0	12	172901 Baker
313.131 Chef	5	2				0	8			
313.381 Cook	125	65				0	0			
			1	0	0			0		172902 Cook/Chef
TOTAL	130	67	1	0	0	0	8	0	54	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
952.782 Power Plant Operator	4	1				0	0			
950.782 Stationary Engineer	20	7				0	0			173200 Stationary Energy
			0	0	0			0		
TOTAL	24	8	0	0	0	0	0	0	16	
316.884 Meat Cutter	35	5				0	0			
521.381 Butcher	17	0				0	0			
525.884 Boner or Skinner	8	2				0	0			
			0	0	0			0		172903 Butcher
			1	0	0			0		172903 Meat Cutter
TOTAL	60	7	1	0	0	0	0	0	52	
780.381 Furniture Upholsterer	7	3				0	0			
			0	0	0			0	4	173500 Upholstery
660.280 Cabinet Maker	6	3				0	0			
669.380 Mill Man	0	2				0	0			173601 Cabinet Making
			7	0	0			0		
TOTAL	6	5	7	0	0	0	0	0	(6)	

NET ADDITIONAL MANPOWER REQUIREMENTS
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TULSA SMSA

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
861.381 Brick Layer	45	11				0	9			
844.884 Cement Mason	14	6	0	0	6	0	5	0		171004 Masonry
TOTAL	59	17	0	0	6	0	14	0	22	
659.883 Heavy Equipment Operator	37	18	4	0	0	0	3	0	12	171003 Heavy Equipment Operator

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHWEST REGION*

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
407.884 Grounds Keeper	2	1	0	0	0	0	0	0	1	010500 Ornamental Horticulture
421.883 Farm Hand, General	20	10				0	0			
400. Farm Manager, Owner or Supervisor	60	0				0	0			
			33	0	0			0		010100 Agricultural Production
			0	0	0			0		160201 Ranch Operation
TOTAL	80	10	33	0	0	0	0	0	37	
624.281 Mechanic, Farm Equipment	0	0				0	0			
			0	0	0			0		170304 Farm Engine Repair
			13	0	0			0		010300 Agricultural Mechanics
TOTAL	0	0	13	0	0	0	0	0	(13)	
250.258 Salesman, Insurance	3	0	0	0	0	0	0	0	3	041300 Insurance
250.258 Salesman, Real Estate	1	0	0	0	0	0	0	0	1	041700 Real Estate

*Beaver, Ellis, Cimarron, Texas, Harper, Woods, Woodward, and Dewey Counties

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
250. thru 259. Sales Occupations (Commodities)	18	7				0	0			
290.000 Sales Clerk	80	28				0	0			
292.000 Routeman	3	1				0	0			
			0	0	0			0		040200 Apparel and Accessories
			0	0	0			0		040300 Automotive
			0	0	0			0		040600 Food Distribution
			0	0	0			0		040800 General Merchandise
			0	0	0			0		040900 Hdw., Bldg. Mat., Farm and Garden Supplies
			0	0	0			0		041400 International Trade
			0	0	0			0		042000 Retail Trade
			0	0	0			0		043100 Wholesale Trade
			0	0	0			0		041600 Petroleum
			3	0	0			0		010200 Agricultural Supplies and Services
			0	0	0			0		041000 Home Furnishings
			1	0	0			0		010400 Agriculture Products
SUBTOTAL	101	36	4	0	0	0	0	0	61	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
242.368 Room Clerk	3	0	0	0	0	0	0	0	3	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	3	0				0	0			
			0	0	0			0		040100 Advertising Services
			0	0	0			0		040400 Finance and Credit
			0	0	0			0		041900 Transportation
SUBTOTAL	3	0	0	0	0	0	0	0	3	
311.878 Waitress/Waiter	20	9				0	0			
310.868 Hostess	0	0				0	0			
319.138 Food Service Supervisor	3	0				0	0			
			0	0	0			0		172904 Waiter/Waitress
			0	0	0			0		040700 Food Services
			0	0	0			0		172900 Quantity Food Occupations
			0	0	0			0		090203 Food Management and Services
SUBTOTAL	25	9	0	0	0	0	0	0	16	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
TOTAL	136	45	4	0	0	0	0	0	87	
079.378 Dental Assistant	4	0	0	0	0	0	0	0	4	070101 Dental Assistant
078.381 Medical Laboratory Technician	0	0				0	0			
078.381 Medical Laboratory Assistant	1	0	0	0	0	0	0	0		070203 Medical Laboratory Technician
TOTAL	1	0	0	0	0	0	0	0	1	
075.378 Nurse, Registered	28	1				0	0			
			0	0	0			0		070301 Nurse, Associate
			0	0	0			0		Nurse, Diploma
			0	0	0			0		Nurse, Baccalaureate
TOTAL	28	1	0	0	0	0	0	0	27	
079.378 Nurse, Vocational	25	2	19	0	7	0	0	0	(3)	070302 LPN

0026521

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	39	25	0	0	0	0	0	0	14	070303 Nurse Aide
079.378 Surgical Technician	3	0	0	0	0	0	0	0	3	070305 Surgical Technician
078.368 Dental Hygienist	2	0	0	0	0	0	0	0	2	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	1	0	0	0	0	0	0	0	1	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	6	0	0	0	0	0	0	0	6	070904 Medical Assistant
249.388 Medical Record Clerk	1	0	0	0	0	0	0	0	1	070991 Medical Record Clerk

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
219.388 Ward Clerk	6	0	0	0	0	0	0	0	6	079902 Ward Clerk
100.388 Medical Record Technician	0	0	0	0	0	0	0	0	0	070201 Medical Record Technician
201.368 Medical Secretary	8	0	0	0	0	0	0	0	8	070911 Medical Secretary
781.884 Cutter, Hand or Machine	0	0				0	0			
785.381 Seamstress	0	0				0	0			
786. Sewing Machine Operator	5	2				0	0			
			1	0	0			0		090202 Clothing Production
TOTAL	5	2	1	0	0	0	0	0	2	
215.388 Bookkeeping Machine Operator	13	1				0	0			
210.388 Bookkeeper, Hand	12	11				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
249.268 Claims Clerk	0	0				0	0			
209.388 Statement Clerk	0	0				0	0			
215.488 Payroll Clerk	2	0				0	0			
219.388 Interest Clerk	0	0				0	0			
217.388 Transit Clerk	0	0				0	0			
249.368 New Account Clerk	0	0				0	0			
249.368 Credit Clerk	0	0				0	0			
219.488 Accounting Clerk	5	2				0	0			
219.488 Insurance Checker	0	0				0	0			
211.368 Cashier	10	1				0	0			
212.368 Teller	5	0				0	0			
			0	0	0			0		140100 Accounting and Computing
SUBTOTAL	47	15	0	0	0	0	0	0	32	
209.388 Clerk-Typist	20	15				0	0			
219.388 General Office Clerk	31	40				0	0			
219.388 Sorting Clerk	0	0				0	0			
			0	0	0			0		140300 Filing and Office Machines
			0	0	0			0		140900 Typing and Related
SUBTOTAL	51	55	0	0	0	0	0	0	(4)	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
205.368 Personnel Clerk	0	0	0	0	0	0	0	0	0	140600 Personnel, Training and Related
201.368 Secretary	20	13				0	0			
202.388 Stenographer	7	1				0	0			
			0	0	0			0		140700 Secretary or Stenographer
SUBTOTAL	27	14	0	0	0	0	0	0	13	
TOTAL	125	84	0	0	0	0	0	0	41	
213.782 Tab Machine Operator	0	0				0	0			
213.582 Keypunch Operator	5	2				0	0			
213.382 Card-Tape Converter Operator	0	0				0	0			
			0	0	0			0		140200 Business Data Processing
TOTAL	5	2	0	0	0	0	0	0	3	
001.281 Draftsman, Architectural	0	0				0	0			
003.281 Draftsman, Electrical	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
003.281 Draftsman, Electronics	0	0				0	0			
010.281 Draftsman, Geological	0	0				0	0			
017.281 Draftsman, Map	0	0				0	0			
005.281 Draftsman, Civil	0	0				0	0			
007.281 Draftsman, Mechanical	0	0				0	0			
			0	0	0			0		160103 Architectural Technology
			0	0	0			0		160198 Drafting and Design
			0	0	0			0		171300 Drafting
TOTAL	0	0	0	0	0	0	0	0	0	
029.281 Technician, Laboratory	0	0				0	0			
			0	0	0			0	0	160105 Chemical Technology
005.181 Technician, Civil	5	0				0	0			
018.188 Surveyor	0	0				0	0			
			0	0	0			0		160106 Civil and Highway Technology
TOTAL	5	0	0	0	0	0	0	0	5	
003.181 Technician, Electrical	0	1				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
003.181 Technician Electronics	0	0				0	0			
			0	0	0			0		160108 Electronics Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	0	1	0	0	0	0	0	0	(1)	
012.288 Technician, Industrial	0	0				0	0			
019.281 Technician, Quality Control	0	0				0	0			
			0	0	0			0		160111 Industrial Technology
TOTAL	0	0	0	0	0	0	0	0	0	
710.281 Instrument Man	0	0				0	0			
600.280 Instrument Maker	0	0				0	0			
019.281 Technician, Instrumentation	0	0				0	0			
			0	0	0			0		160112 Instrumentation Technology
			0	0	0			0		172100 Instrument Repair
TOTAL	0	0	0	0	0	0	0	0	0	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
007.181 Technician, Mechanical	0	0				0	0			
			0	0	0			0		160113 Mechanical Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	0	0	0	0	0	0	0	0	0	
020.188 Programmer, Scientific	0	0				0	0			
			0	0	0			0	0	160117 Scientific Data Processing
139.288 Writer, Technical	0	0				0	0			
			0	0	0			0	0	160197 Technical Writing
213.382 Digital Computer Operator	0	0				0	0			
219.388 Programmer, Detail	0	0				0	0			
020.188 Programmer, Business	0	0				0	0			
			0	0	0			0		160401 Computer Science
TOTAL	0	0	0	0	0	0	0	0	0	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
196.283 Commercial Pilot	0	0	0	0	0	0	0	0	0	160601 Commercial Pilot
168.168 Safety Man	0	0				0	0			
168.168 Building Inspector	0	0				0	0			
373. Fireman	3	0				0	0			
			0	0	0			0		160602 Fire and Safety Technology
			0	0	0			0		172801 Fireman Training
TOTAL	3	0	0	0	0	0	0	0	3	
375. Policeman or Detective	3	0				0	0			
377. Sheriff or Baliff	0	0				0	0			
			0	0	0			0		172802 Law Enforcement Training
TOTAL	3	0	0	0	0	0	0	0	3	
637.281 Mechanic, Air Conditioning	7	0				0	0			
			0	0	0			0	7	170100 Air Conditioning

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
862.381 Plumber	4	0	1	0	0	0	0	0	3	170102 Heating and Plumbing
827.281 Appliance Repairman	2	0	1	0	0	0	0	0	1	170200 Appliance Repair
807.381 Auto Body Repairman	4	1				0	0			
845.781 Painter, Auto	2	0				0	0			
			0	0	0			0		170301 Body and Fender
TOTAL	6	1	0	0	0	0	0	0	5	
602.281 Mechanic, Auto	29	2				0	0			
223.387 Partsman, Auto	3	1				0	0			
			14	0	0			0		170302 Auto Mechanic
			2	0	0			0		170399 Auto Parts
TOTAL	32	3	16	0	0	0	0	0	13	
621.281 Mechanic, Aircraft Engine	0	0				0	0			
521.281 Mechanic, Jet Engine	0	0				0	0			
621.781 Mechanic, Aircraft Accessories	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
			0	0	0			0		170401 Aircraft Mechanic
			0	0	0			0		160101 Aeronautical Technology
TOTAL	0	0	0	0	0	0	0	0	0	
633.281 Office Machines Repairman	3	0	0	0	0	0	0	0	3	170600 Business Machines Repair
141.081 Illustrator	0	0				0	0			
141.081 Layout Man (Pub. and Printing)	0	0				0	0			
			0	0	0			0		170700 Commercial Art
			1	0	0			0		170702 Display
TOTAL	0	0	1	0	0	0	0	0	(1)	
972.382 Photolithographer	0	0				0	0			
143. Photographer	0	0				0	0			
			1	0	0			0		170900 Commercial Photography
TOTAL	0	0	1	0	0	0	0	0	(1)	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
741.884 Painter, Spray	0	0				0	0			
840.781 Painter	0	2				0	0			
842.884 Dry Wall Applicator	0	0				0	0			
860.381 Carpenter	8	4				0	0			
861.781 Tile Setter	0	0				0	0			
864.781 Floor Layer	0	0				0	0			
866.381 Roofer	0	2				0	0			
			2	0	0			0		171001 Carpentry
TOTAL	8	8	2	0	0	0	0	0	(2)	
828.281 Electronics Mechanic	0	1				0	0			
821.381 Lineman	6	0				0	0			
824.281 Electrician	8	2				0	0			
721.281 Electric Motor Repairman	0	0				0	0			
726.281 Electronics Assembler	0	0				0	0			
			0	0	0			0		171502 Electronics
TOTAL	14	3	0	0	0	0	0	0	11	
899.281 Maintenance Man	2	0				0	0			
899.381 Maintenance Man, Bldg.	7	0				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			0	0	0			0		171100 Custodial Services
TOTAL	9	0	0	0	0	0	0	0	9	
625.281 Diesel Mechanic	3	0				0	0			
			0	0	0			0	3	171200 Diesel Mechanics
720.281 Radio and TV Repairman	4	0				0	0			
			0	0	0			0	4	171503 Radio and TV Repair
650.582 Linotype Operator	0	0				0	0			
651.782 Cylinder Press Oper.	0	0				0	0			
651.782 Offset Press Man	4	0				0	0			
			0	0	0			0		171901 Composition Makeup and Typesetting
			1	0	0			0		171902 Printing
TOTAL	4	0	1	0	0	0	0	0	3	
705.884 Bench Grinder	0	0				0	0			
600.280 Machinist, All Round	4	0				0	0			
600.381 Layout Man	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHWEST REGION

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
603. thru 609.	Machine Set Up Operator	0	1				0	0			
603.280	Precision Grinder	0	0				0	0			
609.885	Production Machine Tool Operator	4	1				0	0			
				0	0	0			0		172302 Machinist
				0	0	0			0		172303 Machine Tool Operator
TOTAL		8	2	0	0	0	0	0	0	6	
615.782	Shear Press Operator	0	0				0	0			
615.782	Punch Press Operator	0	0				0	0			
617.280	Press Operator (Heavy)	0	0				0	0			
617.380	Break Operator	0	0				0	0			
619.380	Metal Fabricator	0	0				0	0			
804.281	Sheet Metal Worker	3	1				0	0			
809.381	Layout Man	0	0				0	0			
				0	0	0			0		172305 Sheet Metal
TOTAL		3	1	0	0	0	0	0	0	2	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
810.782 Welding Machine Operator	0	0				0	0			
810.884 thru 812.884 Welder	6	3				0	0			
816.782 Flame Cutter Machine Operator	0	0				0	0			
816.884 Flame Cutter, Hand	0	0				0	0			
			5	0	6			0		172306 Welding
			13	0	0			0		010300 Agricultural Mechanics (Welding)
TOTAL	6	3	18	0	6	0	0	0	(21)	
526.781 Baker	2	0				0	0			
			0	0	0			0	2	172901 Baker
313.131 Chef	0	0				0	0			
313.381 Cook	35	8				0	0			
			2	0	0			0		172902 Cook/Chef
TOTAL	35	8	2	0	0	0	0	0	25	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
952.782 Power Plant Operator	0	0				0	0			
950.782 Stationary Engineer	2	2				0	0			
			0	0	0			0		173200 Stationary Energy
TOTAL	2	2	0	0	0	0	0	0	0	
316.884 Meat Cutter	5	1				0	0			
521.381 Butcher	1	0				0	0			
525.884 Boner or Skinner	5	1				0	0			
			1	0	0			0		172903 Butcher
			0	0	0			0		172903 Meat Cutter
TOTAL	11	2	1	0	0	0	0	0	8	
780.381 Furniture Upholsterer	0	0				0	0			
			0	0	0			0	0	173500 Upholstery
660.280 Cabinet Maker	0	0				0	0			
669.380 Mill Man	0	0				0	0			
			0	0	0			0		173601 Cabinet Making
TOTAL	0	0	0	0	0	0	0	0	0	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHWEST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			Public			Federal				
		OESC Registrants	Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal	Private Schools		
861.381 Brick Layer	3	1				0	0			
844.884 Cement Mason	4	0				0	0			171004 Masonry
			0	0	0			0		
TOTAL	7	1	0	0	0	0	0	0	6	
659.883 Heavy Equipment Operator	12	2				0	0			
			0	0	0			0	10	171003 Heavy Equipment Operator

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION*

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
407.884 Grounds Keeper	8	2	2	0	0	0	7	0	(3)	010500 Ornamental Horticulture
421.883 Farm Hand, General	20	18				0	0			
400. Farm Manager, Owner or Supervisor	125	0				0	0			
			60	0	0			0		010100 Agricultural Production
			0	0	0			0		160201 Ranch Operation
TOTAL	145	18	60	0	0	0	0	0	67	
624.281 Mechanic, Farm Equipment	7	0				0	0			
			4	0	0			0		170304 Farm Engine Repair
			53	0	0			0		010300 Agricultural Mechanics
TOTAL	7	0	57	0	0	0	0	0	(50)	
250.258 Salesman, Insurance	5	1	1	0	0	0	0	0	3	041300 Insurance
250.258 Salesman, Real Estate	6	1	1	0	0	0	0	10	(6)	041700 Real Estate

*Alfalfa, Grant, Kay, Major, Garfield, Noble, Pawnee, Blaine, Kingfisher, Logan and Payne Counties

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS	
250. thru 259.	Sales Occupations (Commodities)	110	40				0	0				
290.000	Sales Clerk	290	45				0	0				
292.000	Routeman	45	6				0	1				
				1	0	0			0		040200	Apparel and Accessories
				6	0	0			0		040300	Automotive
				5	0	0			0		040600	Food Distribution
				4	0	0			0		040800	General Merchandise
				1	0	0			0		040900	Hdw., Bldg. Mat., Farm and Garden Supplies
				0	0	0			0		041400	International Trade
				20	0	0			0		042000	Retail Trade
				1	0	0					043100	Wholesale Trade
				1	0	0			0		041600	Petroleum
				1	0	0			0		010200	Agricultural Supplies and Services
				1	0	0			0		041000	Home Furnishings
				4	0	0			0		010400	Agriculture Products
SUBTOTAL		445	91	45	0	0	0	1	0	308		

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
242.368 Room Clerk	3	2	0	0	0	0	0	0	1	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	10	2				0	0			
			2	0	0			0		040100 Advertising Services
			2	0	0			0		040400 Finance and Credit
			1	0	0			0		041900 Transportation
SUBTOTAL	10	2	5	0	0	0	0	0	3	
311.878 Waitress/Waiter	115	38				0	0			
310.868 Hostess	5	2				0	0			
319.138 Food Service Supervisor	10	0				0	0			
			1	0	0			0		172904 Waiter/Waitress
			12	0	0			0		040700 Food Services
			2	0	0			0		172900 Quantity Food Occupations
			3	0	0			0		090203 Food Management and Services
SUBTOTAL	130	40	18	0	0	0	0	0	72	

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
TOTAL	599	137	70	0	0	0	1	10	381	
079.378 Dental Assistant	16	0	10	0	0	0	0	0	6	070101 Dental Assistant
078.381 Medical Laboratory Technician	3	0				0	0			
078.381 Medical Laboratory Assistant	7	0	0	0	0	0	0	0		070203 Medical Laboratory Technician
TOTAL	10	0	0	0	0	0	0	0	10	
075.378 Nurse, Registered	114	1	0 0 0	0 17 0	0 0 0	0	0	0 0 0		070301 Nurse, Associate Nurse, Diploma Nurse, Baccalaureate
TOTAL	114	1	0	17	0	0	0	0	96	
079.378 Nurse, Vocational	135	2	20	0	0	0	0	0	113	070302 LPN

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	253	95	1	0	79	0	24	0	54	070303 Nurse Aide
079.378 Surgical Technician	2	0	0	0	0	0	1	0	1	070305 Surgical Technician
078.368 Dental Hygienist	7	0	0	0	0	0	0	0	7	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	6	0	0	0	0	0	0	0	6	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	24	1	7	0	0	0	0	0	16	070904 Medical Assistant
249.388 Medical Record Clerk	3	0	0	0	0	0	0	0	3	070991 Medical Record Clerk

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
219.388 Ward Clerk	6	0	0	0	0	0	0	0	6	079902 Ward Clerk
100.388 Medical Record Technician	0	0	0	0	0	0	0	0	0	070201 Medical Record Technician
201.368 Medical Secretary	15	0	0	0	0	0	0	0	15	070911 Medical Secretary
781.884 Cutter, Hand or Machine	0	0				0	0			
785.381 Seamstress	2	5				0	0			
786. Sewing Machine Operator	15	6				0	0			
			1	0	0			0		090202 Clothing Production
TOTAL	17	11	1	0	0	0	0	0	5	
215.388 Bookkeeping Machine Operator	30	1				0	0			
210.388 Bookkeeper, Hand	40	25				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
249.268 Claims Clerk	0	0				0	0			
209.388 Statement Clerk	4	0				0	0			
215.488 Payroll Clerk	14	0				0	0			
219.388 Interest Clerk	0	0				0	0			
217.388 Transit Clerk	4	0				0	0			
249.368 New Account Clerk	4	0				0	0			
249.368 Credit Clerk	0	0				0	0			
219.488 Accounting Clerk	35	4				0	0			
219.488 Insurance Checker	4	0				0	0			
211.368 Cashier	25	5				0	0			
212.368 Teller	16	4				0	0			
			0	0	14	0	0	14		140100 Accounting and Computing
SUBTOTAL	176	39	0	0	14	0	0	14	109	
209.388 Clerk-Typist	70	32				0	21			
219.388 General Office Clerk	117	67				0	9			
219.388 Sorting Clerk	0	0				0	0			
			29	0	0			7		140300 Filing and Office Machines
			2	0	0			0		140900 Typing and Related
SUBTOTAL	187	99	31	0	0	0	30	7	20	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
205.368 Personnel Clerk	10	2	8	0	0	0	0	0	0	140600 Personnel, Training and Related
201.368 Secretary	110	23				0	2			
202.388 Stenographer	90	6				40	0			
			65	0	63			35		140700 Secretary or Stenographer
SUBTOTAL	200	29	65	0	63	40	2	35	(34)	
TOTAL	573	169	104	0	77	40	32	56	95	
213.782 Tab Machine Operator	5	0				0	0			
213.582 Keypunch Operator	22	10				0	0			
213.382 Card-Tape Converter Operator	0	0				0	0			
			44	0	8			0		140200 Business Data Processing
TOTAL	27	10	44	0	8	0	0	0	(35)	
001.281 Draftsman, Architectural	3	1				0	0			
003.281 Draftsman, Electrical	1	1				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.281 Draftsman, Electronics	0	0				0	0			
010.281 Draftsman, Geological	0	0				0	0			
017.281 Draftsman, Map	0	1				0	0			
005.281 Draftsman, Civil	5	2				0	0			
007.281 Draftsman, Mechanical	5	2				0	0			
			0	0	0			0		160103 Architectural Technology
			12	0	0			0		160198 Drafting and Design
			8		8			11		171300 Drafting
TOTAL	14	5	20	0	8	0	0	11	(30)	
029.281 Technician, Laboratory	12	0				0	0			
			0	0	0			0	12	160105 Chemical Technology
005.181 Technician, Civil	6	0				0	0			
018.188 Surveyor	2	1				0	0			
			2	0	0			0		160106 Civil and Highway Technology
TOTAL	8	1	2	0	0	0	0	0	5	
003.181 Technician, Electrical	0	3				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.181 Technician Electronics	4	0				0	0			
			18	0	0			0		160108 Electronics Technology
			4	0	0			0		160109 Electro-Mechanical Technology
TOTAL	4	3	22	0	0	0	0	0	(21)	
012.288 Technician, Industrial	0	0				0	0			
019.281 Technician, Quality Control	2	0				0	0			
			0	0	0	0	0	0		160111 Industrial Technology
TOTAL	2	0	0	0	0	0	0	0	2	
710.281 Instrument Man	0	0				0	0			
600.280 Instrument Maker	0	0				0	0			
019.281 Technician, Instrumentation	2	0				0	0			
			0	0	0			0		160112 Instrumentation Technology
			0	0	0			0		172100 Instrument Repair
TOTAL	2	0	0	0	0	0	0	0	2	

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
007.181 Technician, Mechanical	0	2				0	0			
			0	0	0			0		160113 Mechanical Technology
			2	0	0			0		160109 Electro-Mechanical Technology
TOTAL	0	2	2	0	0	0	0	0	(4)	
020.188 Programmer, Scientific	4	0	0	0	0	0	0	0	4	160117 Scientific Data Processing
139.288 Writer, Technical	3	0	0	0	0	0	0	0	3	160197 Technical Writing
213.382 Digital Computer Operator	2	0				0	0			
219.388 Programmer, Detail	2	0				0	0			
020.188 Programmer, Business	15	0				0	0			
			5	0	13			8		160401 Computer Science
TOTAL	19	0	5	0	13	0	0	8	(7)	

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
196.283 Commercial Pilot	0	0	0	0	0	0	0	2	(2)	160601 Commercial Pilot
168.168 Safety Man	0	0				0	0			
168.168 Building Inspector	6	1				0	0			
373. Fireman	10	0				0	4			
			2	0	0			0		160602 Fire and Safety Technology
			0	0	0			0		172801 Fireman Training
TOTAL	16	1	2	0	0	0	4	0	9	
375. Policeman or Detective	15	1				0	0			
377. Sheriff or Baliff	0	0				0	0			
			0	0	0			0		172802 Law Enforcement Training
TOTAL	15	1	0	0	0	0	0	0	14	
637.281 Mechanic, Air Conditioning	23	0				0	0			
			4	0	8			0	11	170100 Air Conditioning

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			Public			Federal				
		OESC Registrants	Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal	Private Schools		
862.381 Plumber	10	9	1	0	0	0	0	0	0	170102 Heating and Plumbing
827.281 Appliance Repairman	7	0	1	0	0	0	0	0	6	170200 Appliance Repair
807.381 Auto Body Repairman	18	3				0	0			
845.781 Painter, Auto	4	0				0	0			
			8	0	8			0		170301 Body and Fender
TOTAL	22	3	8	0	8	0	0	0	3	
602.281 Mechanic, Auto	78	15				0	3			
223.387 Partsman, Auto	6	2				0	1			
			23	0	8			0		170302 Auto Mechanic
			3	0	0			0		170399 Auto Parts
TOTAL	84	17	26	0	8	0	4	0	29	
621.281 Mechanic, Aircraft Engine	0	0				0	0			
521.281 Mechanic, Jet Engine	0	0				0	0			
621.781 Mechanic, Aircraft Accessories	0	1				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			6	0	8			0		170401 Aircraft Mechanic
			2	0	0			0		160101 Aeronautical Technology
TOTAL	0	1	8	0	8	0	0	0	(17)	
633.281 Office Machines Repairman	0	0				0	0			
			0	0	0			0	0	170600 Business Machines Repair
141.081 Illustrator	0	0				0	0			
141.081 Layout Man (Pub. and Printing)	0	0				0	0			
			0	0	0			0		170700 Commercial Art
			0	0	0			0		170702 Display
TOTAL	0	0	0	0	0	0	0	0	0	
972.382 Photolithographer	0	0				0	0			
143. Photographer	2	1				0	0			
			0	0	0			0		170900 Commercial Photography
TOTAL	2	1	0	0	0	0	0	0	1	

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
741.884 Painter, Spray	4	1				0	0			
840.781 Painter	5	3				0	0			
842.884 Dry Wall Applicator	0	0				0	0			
860.381 Carpenter	10	12				0	6			
861.781 Tile Setter	0	0				0	0			
864.781 Floor Layer	7	0				0	0			
866.381 Roofer	6	5				0	0			
			45	0	0			0		171001 Carpentry
TOTAL	32	21	45	0	0	0	6	0	(40)	
828.281 Electronics Mechanic	0	1				0	0			
821.381 Lineman	12	1				0	0			
824.281 Electrician	15	2				0	2			
721.281 Electric Motor Repairman	1	0				0	0			
726.281 Electronics Assembler	0	0				0	0			
			2	0	14			5		171502 Electronics
TOTAL	28	4	2	0	14	0	2	5	1	
899.281 Maintenance Man	8	2				0	0			
899.381 Maintenance Man, Bldg.	20	4				0	25			

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
			1	0	0.			0		171100 Custodial Services
TOTAL	28	6	1	0	0	0	25	0	(4)	
625.281 Diesel Mechanic	12	1	5	0	8	0	0	0	(2)	171200 Diesel Mechanics
720.281 Radio and TV Repairman	14	1	4	0	0	0	0	16	(7)	171503 Radio and TV Repair
650.582 Linotype Operator	3	0				0	0			
651.782 Cylinder Press Oper.	3	0				0	0			
651.782 Offset Press Man	5	1				0	0			
			0	0	0			0		171901 Composition Makeup and Typesetting
			8	0	0			0		171902 Printing
TOTAL	11	1	8	0	0	0	0	0	2	
705.884 Bench Grinder	2	0				0	0			
600.280 Machinist, All Round	15	5				0	43			
600.381 Layout Man	0	0				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
603. thru 609.	Machine Set Up Operator	6	4				0	0			
603.280	Precision Grinder	2	2				0	0			
609.885	Production Machine Tool Operator	27	6				0	0			
				3	0	16			0		172302 Machinist
				0	0	0			0		172303 Machine Tool Operator
TOTAL		52	17	3	0	16	0	43	0	(27)	
615.782	Shear Press Operator	4	3				0	0			
615.782	Punch Press Operator	2	0				0	0			
617.280	Press Operator (Heavy)	3	0				0	0			
617.380	Break Operator	3	0				0	0			
619.380	Metal Fabricator	4	0				0	0			
804.281	Sheet Metal Worker	10	6				0	0			
809.381	Layout Man	2	1				0	0			
				0	0	0			0		172305 Sheet Metal
TOTAL		28	10	0	0	0	0	0	0	18	

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
810.782 Welding Machine Operator	1	0				0	0			
810.884 thru 812.884 Welder	50	16				0	1			
816.782 Flame Cutter Machine Operator	3	0				0	0			
816.884 Flame Cutter, Hand	0	0				0	0			
			10	0	8			0		172306 Welding
			53	0	0			0		010300 Agricultural Mechanics (Welding)
TOTAL	54	16	63	0	8	0	1	0	(34)	
526.781 Baker	2	0				0	0			
			0	0	0			0	2	172901 Baker
313.131 Chef	3	2				0	0			
313.381 Cook	75	17				0	10			
			1	0	0			0		172902 Cook/Chef
TOTAL	78	19	1	0	0	0	10	0	48	

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
952.782 Power Plant Operator	2	0				0	0			
950.782 Stationary Engineer	3	1				0	0			
			0	0	0			0		173200 Stationary Energy
TOTAL	5	1	0	0	0	0	0	0	4	
316.884 Meat Cutter	5	2				0	0			
521.381 Butcher	1	0				0	0			
525.884 Boner or Skinner	3	0				0	0			
			0	0	0			0		172903 Butcher
			0	0	0			0		172903 Meat Cutter
TOTAL	9	2	0	0	0	0	0	0	7	
780.381 Furniture Upholsterer	0	0				0	0			
			0	0	0			0	0	173500 Upholstery
660.280 Cabinet Maker	3	2				0	0			
669.380 Mill Man	0	0				0	0			
			2	0	0			0		173601 Cabinet Making
TOTAL	3	2	2	0	0	0	0	0	(1)	

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
861.381 Brick Layer	7	5				0	2			
844.884 Cement Mason	4	2				0	0			
			0	0	0			0		171004 Masonry
TOTAL	11	7	0	0	0	0	2	0	2	
659.883 Heavy Equipment Operator	30	10				0	0			
			0	0	0			0	20	171003 Heavy Equipment Operator

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION*

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
407.884 Grounds Keeper	8	2	0	0	0	0	4	0	2	010500 Ornamental Horticulture
421.883 Farm Hand, General	17	10				0	0			
400. Farm Manager, Owner or Supervisor	80	0				0	0			
			27	0	0			0		010100 Agricultural Production
			0	0	0			0		160201 Ranch Operation
TOTAL	97	10	27	0	0	0	0	0	60	
624.281 Mechanic, Farm Equipment	8	0				0	0			
			0	0	0			0		170304 Farm Engine Repair
			30	0	0			0		010300 Agricultural Mechanics
TOTAL	8	0	30	0	0	0	0	0	(22)	
250.258 Salesman, Insurance	7	1	2	0	0	0	0	0	4	041300 Insurance
250.258 Salesman, Real Estate	4	1	0	0	0	0	0	0	3	041700 Real Estate

*Washington, Nowata, Craig, Ottawa, Rogers, Mayes, and Delaware Counties

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
250. thru 259. Sales Occupations (Commodities)	58	61				0	0			
290.000 Sales Clerk	110	30				0	0			
292.000 Routeman	10	4				0	0			
			1	0	0			0		040200 Apparel and Accessories
			3	0	0			0		040300 Automotive
			3	0	0			0		040600 Food Distribution
			2	0	0			0		040800 General Merchandise
			2	0	0			0		040900 Hdw., Bldg. Mat., Farm and Garden Supplies
			0	0	0			0		041400 International Trade
			5	0	0			0		042000 Retail Trade
			1	0	0			0		043100 Wholesale Trade
			0	0	0			0		041600 Petroleum
			3	0	0			0		010200 Agricultural Supplies and Services
			1	0	0			0		041000 Home Furnishings
			2	0	0			0		010400 Agriculture Products
SUBTOTAL	178	95	23	0	0	0	0	0	60	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
242.368 Room Clerk	4	2	0	0	0	0	0	0	2	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	7	2				0	0			
			2	0	0			0		040100 Advertising Services
			4	0	0			0		040400 Finance and Credit
			1	0	0			0		041900 Transportation
SUBTOTAL	7	2	7	0	0	0	0	0	(2)	
311.878 Waitress/Waiter	62	60				0	0			
310.868 Hostess	0	1				0	0			
319.138 Food Service Supervisor	5	2				0	0			
			1	0	0			0		172904 Waiter/Waitress
			6	0	0			0		040700 Food Services
			2	0	0			0		172900 Quantity Food Occupations
			0	0	0			0		090203 Food Management and Services
SUBTOTAL	71	63	9	0	0	0	0	0	(1)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
TOTAL	271	164	41	0	0	0	0	0	66	
079.378 Dental Assistant	7	0	0	0	0	0	0	0	7	070101 Dental Assistant
078.381 Medical Laboratory Technician	0	0				0	0			
078.381 Medical Laboratory Assistant	5	1				0	0			
			0	0	0			0		070203 Medical Laboratory Technician
TOTAL	5	1	0	0	0	0	0	0	4	
075.378 Nurse, Registered	66	1				0	0			
			0	0	0			0		070301 Nurse, Associate
			0	0	0			0		Nurse, Diploma
			0	0	0			0		Nurse, Baccalaureate
TOTAL	66	1	0	0	0	0	0	0	65	
079.378 Nurse, Vocational	95	14				0	0			
			62	0	25			0	(6)	070302 LPN

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	106	49	1	0	38	0	10	0	8	070303 Nurse Aide
079.378 Surgical Technician	2	1	0	0	0	0	0	0	1	070305 Surgical Technician
078.368 Dental Hygienist	3	0	0	0	0	0	0	0	3	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	1	0	0	0	0	0	0	0	1	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	14	2	0	0	0	0	0	0	12	070904 Medical Assistant
249.388 Medical Record Clerk	4	1	0	0	0	0	0	0	3	070991 Medical Record Clerk

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
219.388 Ward Clerk	1	0	0	0	0	0	0	0	1	079902 Ward Clerk
100.388 Medical Record Technician	0	0	0	0	0	0	0	0	0	070201 Medical Record Technician
201.368 Medical Secretary	12	0	0	0	0	0	0	0	12	070911 Medical Secretary
781.884 Cutter, Hand or Machine	5	2				0	0			
785.381 Seamstress	1	1				0	1			
786. Sewing Machine Operator	107	70				0	0			
			5	0	18			0		090202 Clothing Production
TOTAL	113	73	5	0	18	0	1	0	16	
215.388 Bookkeeping Machine Operator	12	2				0	0			
210.388 Bookkeeper, Hand	28	23				0	1			

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
249.268 Claims Clerk	0	0				0	0			
209.388 Statement Clerk	0	0				0	0			
215.488 Payroll Clerk	8	3				0	0			
219.388 Interest Clerk	0	0				0	0			
217.388 Transit Clerk	0	0				0	0			
249.368 New Account Clerk	6	3				0	0			
249.368 Credit Clerk	0	0				0	0			
219.488 Accounting Clerk	35	8				0	0			
219.488 Insurance Checker	0	0				0	0			
211.368 Cashier	10	5				0	0			
212.368 Teller	8	5				0	0			
			6	0	69			0		140100 Accounting and Computing
SUBTOTAL	107	49	6	0	69	0	1	0	(18)	
209.388 Clerk-Typist	25	22				0	2			
219.388 General Office Clerk	50	47				0	9			
219.388 Sorting Clerk	0	0				0	0			
			59	0	0			0		140300 Filing and Office Machines
			51	0	20			0		140900 Typing and Related
SUBTOTAL	75	69	110	0	20	0	11	0	(135)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
205.368 Personnel Clerk	5	2	0	0	0	0	0	0	3	140600 Personnel, Training and Related
201.368 Secretary	50	21				0	8			
202.388 Stenographer	33	14	52	0	0	20	0	0		140700 Secretary or Stenographer
SUBTOTAL	83	35	52	0	0	20	8	0	(32)	
TOTAL	270	155	168	0	89	20	20	0	(192)	
213.782 Tab Machine Operator	4	1				0	0			
213.582 Keypunch Operator	35	10				0	2			
213.382 Card-Tape Converter Operator	3	2	4	0	54	0	0	0		140200 Business Data Processing
TOTAL	42	13	4	0	54	0	2	0	(31)	
001.281 Draftsman, Architectural	0	0				0	0			
003.281 Draftsman, Electrical	0	1				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.281 Draftsman, Electronics	0	0				0	1			
010.281 Draftsman, Geological	0	0				0	0			
017.281 Draftsman, Map	2	2				0	0			
005.281 Draftsman, Civil	0	0				0	0			
007.281 Draftsman, Mechanical	4	2				0	0			
			0	0	0			0		160103 Architectural Technology
			9	0	0			0		160198 Drafting and Design
			8	0	0			0		171300 Drafting
TOTAL	6	5	17	0	0	0	1	0	(17)	
029.281 Technician, Laboratory	15	3				0	0			
			4	0	0			0	8	160105 Chemical Technology
005.181 Technician, Civil	0	1				0	0			
018.188 Surveyor	0	0				0	0			
			0	0	0			0		160106 Civil and Highway Technology
TOTAL	0	1	0	0	0	0	0	0	(1)	
003.181 Technician, Electrical	0	0				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.181 Technician Electronics	0	0				0	0			
			3	0	0			0		160108 Electronics Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	0	0	3	0	0	0	1	0	(4)	
012.288 Technician, Industrial	0	0				0	0			
019.281 Technician, Quality Control	4	2				0	0			
			0	0	0			0		160111 Industrial Technology
TOTAL	4	2	0	0	0	0	0	0	2	
710.281 Instrument Man	0	0				0	0			
600.280 Instrument Maker	0	0				0	0			
019.281 Technician, Instrumentation	0	0				0	0			
			0	0	0			0		160112 Instrumentation Technology
			0	0	0			0		172100 Instrument Repair
TOTAL	0	0	0	0	0	0	0	0	0	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
007.181 Technician, Mechanical	4	2				0	0			
			3	0	0			0		160113 Mechanical Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	4	2	3	0	0	0	0	0	(1)	
020.188 Programmer, Scientific	1	0	0	0	0	0	0	0	1	160117 Scientific Data Processing
139.288 Writer, Technical	0	0	0	0	0	0	0	0	0	160197 Technical Writing
213.382 Digital Computer Operator	5	4				0	0			
219.388 Programmer, Detail	0	0				0	0			
020.188 Programmer, Business	10	3	20	0	9	0	0	0		160401 Computer Science
TOTAL	15	7	20	0	9	0	0	0	(21)	

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
196.283 Commercial Pilot	0	0	0	0	0	0	0	1	(1)	160601 Commercial Pilot
168.168 Safety Man	0	0				0	0			
168.168 Building Inspector	3	1				0	0			
373. Fireman	5	2				0	0			
			0	0	0			0		160602 Fire and Safety Technology
			1	0	0			0		172801 Fireman Training
TOTAL	8	3	1	0	0	0	0	0	4	
375. Policeman or Detective	6	3				0	20			
377. Sheriff or Baliff	0	0				0	0			
			0	0	0			0		172802 Law Enforcement Training
TOTAL	6	3	0	0	0	0	20	0	(17)	
637.281 Mechanic, Air Conditioning	16	0				0	0			
			9	0	28			0	(21)	170100 Air Conditioning

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			Public			Federal				
		OESC Registrants	Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal	Private Schools		
862.381 Plumber	8	10	0	0	0	0	0	0	(2)	170102 Heating and Plumbing
827.281 Appliance Repairman	6	0	4	0	0	0	0	0	2	170200 Appliance Repair
807.381 Auto Body Repairman	8	5				0	0			
845.781 Painter, Auto	4	3				0	0			
			12	0	15			0		170301 Body and Fender
TOTAL	12	8	12	0	15	0	0	0	(23)	
602.281 Mechanic, Auto	54	15				0	2			
223.387 Partsman, Auto	5	2				0	0			
			36	0	6			0		170302 Auto Mechanic
			2	0	0			0		170399 Auto Parts
TOTAL	59	17	38	0	6	0	2	0	(4)	
621.281 Mechanic, Aircraft Engine	0	0				0	0			
521.281 Mechanic, Jet Engine	0	0				0	0			
621.781 Mechanic, Aircraft Accessories	0	2				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public: Reimbursed Public	Public: Non-Reimbursed Public	Public: Adult	Federal: MDTA	Federal: Other Federal	Private Schools		
			0	0	0			0		170401 Aircraft Mechanic
			0	0	0			0		160101 Aeronautical Technology
TOTAL	0	2	0	0	0	0	0	0	(2)	
633.281 Office Machines Repairman	0	2				0	0			
			0	0	0			0	(2)	170600 Business Machines Repair
141.081 Illustrator	0	0				0	0			
141.081 Layout Man (Pub. and Printing)	0	0				0	0			
			0	0	0			0		170700 Commercial Art
			0	0	0			0		170702 Display
TOTAL	0	0	0	0	0	0	0	0	0	
972.382 Photolithographer	0	0				0	0			
143. Photographer	0	1				0	0			
			0	0	0			0		170900 Commercial Photography
TOTAL	0	1	0	0	0	0	0	0	(1)	

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
741.884 Painter, Spray	5	4				0	0			
840.781 Painter	0	3				0	0			
842.884 Dry Wall Applicator	0	2				0	0			
860.381 Carpenter	10	25				0	1			
861.781 Tile Setter	0	0				0	0			
864.781 Floor Layer	0	1				0	0			
866.381 Roofer	0	3				0	0			
			22	0	0			0		171001 Carpentry
TOTAL	15	38	22	0	0	0	1	0	(46)	
828.281 Electronics Mechanic	4	3				0	0			
821.381 Lineman	15	2				0	0			
824.281 Electrician	8	4				0	0			
721.281 Electric Motor Repairman	0	1				0	0			
726.281 Electronics Assembler	0	2				0	0			
			5	0	17			0		171502 Electronics
TOTAL	27	12	5	0	17	0	0	0	(7)	
899.281 Maintenance Man	4	2				0	0			
899.381 Maintenance Man, Bldg.	15	5				0	23			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
			1	0	0			0		171100 Custodial Services
TOTAL	19	7	1	0	0	0	23	0	(12)	
625.281 Diesel Mechanic	5	2	1	0	0	0	0	0	2	171200 Diesel Mechanics
720.281 Radio and TV Repairman	10	1	0	0	0	0	0	0	9	171503 Radio and TV Repair
650.582 Linotype Operator	2	0				0	0			
651.782 Cylinder Press Oper.	2	0				0	0			
651.782 Offset Press Man	4	0	0	0	0	0	0	0		171901 Composition Makeup and Typesetting
			2	0	0			0		171902 Printing
TOTAL	8	0	2	0	0	0	0	0	6	
705.884 Bench Grinder	0	3				0	0			
600.280 Machinist, All Round	10	9				0	0			
600.381 Layout Man	0	0				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS	
603. thru 609.	Machine Set Up Operator	0	2				0	0				
603.280	Precision Grinder	0	1				0	0				
609.885	Production Machine Tool Operator	10	1				0	0				
				14	0	17			0		172302	Machinist
				0	0	0			0		172303	Machine Tool Operator
TOTAL		20	16	14	0	17	0	0	0	(27)		
615.782	Shear Press Operator	0	0				0	0				
615.782	Punch Press Operator	0	0				0	0				
617.280	Press Operator (Heavy)	0	1				0	0				
617.380	Break Operator	0	1				0	0				
619.380	Metal Fabricator	22	1				0	0				
804.281	Sheet Metal Worker	4	6				0	0				
809.381	Layout Man	5	1				0	0				
				0	0	0			0		172305	Sheet Metal
TOTAL		31	10	0	0	0	0	0	0	21		

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
810.782 Welding Machine Operator	5	0				0	0			
810.884 thru 812.884 Welder	70	36				0	0			
816.782 Flame Cutter Machine Operator	0	0				0	0			
816.884 Flame Cutter, Hand	0	1				0	0			
			4	0	44			0		172306 Welding
			30	0	0			0		010300 Agricultural Mechanics (Welding)
TOTAL	75	37	34	0	44	0	0	0	(40)	
526.781 Baker	3	1				0	0			
			0	0	0			0	2	172901 Baker
313.131 Chef	0	2				0	0			
313.381 Cook	52	25				0	1			
			1	0	0			0		172902 Cook/Chef
TOTAL	52	27	1	0	0	0	1	0	23	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
952.782 Power Plant Operator	0	0				0	0			
950.782 Stationary Engineer	4	1	0	0	0	0	0	0		173200 Stationary Energy
TOTAL	4	1	0	0	0	0	0	0	3	
316.884 Meat Cutter	6	3				0	0			
521.381 Butcher	0	1				0	0			
525.884 Boner or Skinner	0	1	0	0	0	0	0	0		172903 Butcher
			0	0	0			0		172903 Meat Cutter
TOTAL	6	5	0	0	0	0	0	0	1	
780.381 Furniture Upholsterer	0	1	0	0	0	0	0	0	(1)	173500 Upholstery
660.280 Cabinet Maker	0	2				0	0			
669.380 Mill Man	0	0	0	0	0	0	0	0		173601 Cabinet Making
TOTAL	0	2	0	0	0	0	0	0	(2)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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NORTHEAST REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
861.381 Brick Layer	2	4				0	0			
844.884 Cement Mason	3	2	0	0	0	0	0	0		171004 Masonry
TOTAL	5	6	0	0	0	0	0	0	(1)	
659.883 Heavy Equipment Operator	10	15	0	0	0	15	2	0	(22)	171003 Heavy Equipment Operator

NET ADDITIONAL MANPOWER REQUIREMENTS
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EAST-CENTRAL REGION*

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
407.884 Grounds Keeper	4	3	1	0	0	0	0	0	0	010500 Ornamental Horticulture
421.883 Farm Hand, General	8	3				0	0			
400. Farm Manager, Owner or Supervisor	65	0				0	0			
			44	0	0			0		010100 Agricultural Production
			0	0	0			0		160201 Ranch Operation
TOTAL	73	3	44	0	0	0	0	0	26	
624.281 Mechanic, Farm Equipment	2	0				0	0			
			0	0	0			0		170304 Farm Engine Repair
			32	0	0			0		010300 Agricultural Mechanics
TOTAL	2	0	32	0	0	0	0	0	(30)	
250.258 Salesman, Insurance	4	1	0	0	0	0	0	0	3	041300 Insurance
250.258 Salesman, Real Estate	3	1	2	0	0	0	0	0	0	041700 Real Estate

*Lincoln, Pottawatomie, Seminole, Hughes, Okfuskee, and Lincoln Counties

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NET ADDITIONAL MANPOWER REQUIREMENTS
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EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
250. thru 259. Sales Occupations (Commodities)	30	26				0	0			
290.000 Sales Clerk	65	38				0	0			
292.000 Routeman	19	8				0	0			
			2	0	0			0		040200 Apparel and Accessories
			1	0	0			0		040300 Automotive
			2	0	0			0		040600 Food Distribution
			2	0	0			0		040800 General Merchandise
			1	0	0			0		040900 Hdw., Bldg. Mat., Farm and Garden Supplies
			0	0	0			0		041400 International Trade
			3	0	0			0		042000 Retail Trade
			2	0	0			0		043100 Wholesale Trade
			2	0	0			0		041600 Petroleum
			1	0	0			0		010200 Agricultural Supplies and Services
			0	0	0			0		041000 Home Furnishings
			1	0	0			0		010400 Agriculture Products
SUBTOTAL	114	72	19	0	0	0	0	0	23	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
242.368 Room Clerk	0	2				0	0			
			0	0	0			0	(2)	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	8	2				0	0			
			1	0	0			0		040100 Advertising Services
			1	0	0			0		040400 Finance and Credit
			1	0	0			0		041900 Transportation
SUBTOTAL	8	2	3	0	0	0	0	0	3	
311.878 Waitress/Waiter	25	31				0	0			
310.868 Hostess	0	0				0	0			
319.138 Food Service Supervisor	1	0				0	0			
			1	0	0			0		172904 Waiter/Waitress
			1	0	0			0		040700 Food Services
			0	0	0			0		172900 Quantity Food Occupations
			0	0	0			0		090203 Food Management and Services
SUBTOTAL	26	31	2	0	0	0	0	0	(7)	

NET ADDITIONAL MANPOWER REQUIREMENTS
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EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
TOTAL	155	109	26	0	0	0	0	0	20	
079.378 Dental Assistant	3	0	0	0	0	0	1	0	2	070101 Dental Assistant
078.381 Medical Laboratory Technician	0	0				0	0			
078.381 Medical Laboratory Assistant	2	0				0	0			
			3	0	0			0		070203 Medical Laboratory Technician
TOTAL	2	0	3	0	0	0	0	0	(1)	
075.378 Nurse, Registered	47	1				0	0			
			0	0	0			0		070301 Nurse, Associate
			0	0	0			0		Nurse, Diploma
			0	18	0			0		Nurse, Baccalaureate
TOTAL	47	1	0	18	0	0	0	0	28	
079.378 Nurse, Vocational	59	5	10	0	0	0	0	0	44	070302 LPN

NET ADDITIONAL MANPOWER REQUIREMENTS
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EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	81	39	1	0	25	0	12	0	4	070303 Nurse Aide
079.378 Surgical Technician	3	0	0	0	0	0	0	0	3	070305 Surgical Technician
078.368 Dental Hygienist	2	0	0	0	0	0	0	0	2	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	0	0	0	0	0	0	0	0	0	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	12	3	6	0	0	0	0	0	3	070904 Medical Assistant
249.388 Medical Record Clerk	1	0	0	0	0	0	0	0	1	070991 Medical Record Clerk

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NET ADDITIONAL MANPOWER REQUIREMENTS
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EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
219.388 Ward Clerk	2	0	0	0	0	0	0	0	2	079902 Ward Clerk
100.388 Medical Record Technician	0	0	0	0	0	0	0	0	0	070201 Medical Record Technician
201.368 Medical Secretary	4	0	0	0	0	0	0	0	4	070911 Medical Secretary
781.884 Cutter, Hand or Machine	5	0				0	0			
785.381 Seamstress	0	3				0	0			
786. Sewing Machine Operator	100	91				0	0			
			1	0	7			0		090202 Clothing Production
TOTAL	105	91	1	0	7	0	0	0	6	
215.388 Bookkeeping Machine Operator	18	3				0	0			
210.388 Bookkeeper, Hand	20	16				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
249.268 Claims Clerk	0	0				0	0			
209.388 Statement Clerk	0	0				0	0			
215.488 Payroll Clerk	3	3				0	0			
219.388 Interest Clerk	2	0				0	0			
217.388 Transit Clerk	0	0				0	0			
249.368 New Account Clerk	2	0				0	0			
249.368 Credit Clerk	0	0				0	0			
219.488 Accounting Clerk	4	0				0	0			
219.488 Insurance Checker	0	0				0	0			
211.368 Cashier	10	7				0	0			
212.368 Teller	12	3				0	0			
			0	0	0			0		140100 Accounting and Computing
SUBTOTAL	71	32	0	0	0	0	0	0	39	
209.388 Clerk-Typist	20	25				0	1			
219.388 General Office Clerk	38	50				0	10			
219.388 Sorting Clerk	0	0				0	0			
			2	0	0			0		140300 Filing and Office Machines
			4	0	18			0		140900 Typing and Related
SUBTOTAL	58	75	6	0	18	0	11	0	(52)	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			Public			Federal				
		OESC Registrants	Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal	Private Schools		
205.368 Personnel Clerk	0	0	0	0	0	0	0	0	0	140600 Personnel, Training and Related
201.368 Secretary	15	12				0	1			
202.388 Stenographer	14	9				0	0			
			21	0	28			0		140700 Secretary or Stenographer
SUBTOTAL	29	21	21	0	28	0	1	0	(42)	
TOTAL	158	128	27	0	46	0	12	0	(55)	
213.782 Tab Machine Operator	0	0				0	0			
213.582 Keypunch Operator	5	5				0	2			
213.382 Card-Tape Converter Operator	0	0				0	0			
			39	0	0			0		140200 Business Data Processing
TOTAL	5	5	39	0	0	0	2	0	(41)	
001.281 Draftsman, Architectural	0	0				0	0			
003.281 Draftsman, Electrical	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.281 Draftsman, Electronics	0	0				0	0			
010.281 Draftsman, Geological	0	1				0	0			
017.281 Draftsman, Map	0	0				0	0			
005.281 Draftsman, Civil	0	1				0	0			
007.281 Draftsman, Mechanical	0	1				0	0			
			0	0	0			0		160103 Architectural Technology
			0	0	0			0		160198 Drafting and Design
			11	0	6			0		171300 Drafting
TOTAL	0	3	11	0	6	0	0		(20)	
029.281 Technician, Laboratory	2	1	0	0	0	0	0	0	1	160105 Chemical Technology
005.181 Technician, Civil	0	0				0	0			
018.188 Surveyor	0	0				0	0			
			0	0	0			0		160106 Civil and Highway Technology
TOTAL	0	0	0	0	0	0	0	0	0	
003.181 Technician, Electrical	0	2				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
003.181 Technician Electronics	2	0				0	0			
			0	0	0			0		160108 Electronics Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	2	2	0	0	0	0	0	0	0	
012.288 Technician, Industrial	0	0				0	0			
019.281 Technician, Quality Control	4	1				0	0			
			0	0	0			0		160111 Industrial Technology
TOTAL	4	1	0	0	0	0	0	0	3	
710.281 Instrument Man	0	0				0	0			
600.280 Instrument Maker	0	0				0	0			
019.281 Technician, Instrumentation	0	0				0	0			
			0	0	0			0		160112 Instrumentation Technology
			0	0	0			0		172100 Instrument Repair
TOTAL	0	0	0	0	0	0	0	0	0	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
007.181 Technician, Mechanical	3	2				0	0			
			0	0	0			0		160113 Mechanical Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	3	2	0	0	0	0	0	0	1	
020.188 Programmer, Scientific	0	0	0	0	0	0	0	0	0	160117 Scientific Data Processing
139.288 Writer, Technical	0	0	0	0	0	0	0	0	0	160197 Technical Writing
213.382 Digital Computer Operator	0	0				0	0			
219.388 Programmer, Detail	0	0				0	0			
020.188 Programmer, Business	3	1				0	0			
			0	0	8			0		160401 Computer Science
TOTAL	3	1	0	0	8	0	0	0	(6)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			Public			Federal				
		OESC Registrants	Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal	Private Schools		
196.283 Commercial Pilot	0	0	0	0	0	0	0	0	0	160601 Commercial Pilot
168.168 Safety Man	0	0				0	0			
168.168 Building Inspector	0	1				0	0			
373. Fireman	4	1	0	0	0	0	0	0		160602 Fire and Safety Technology
			0	0	0			0		172801 Fireman Training
TOTAL	4	2	0	0	0	0	0	0	2	
375. Policeman or Detective	4	1				0	0			
377. Sheriff or Baliff	0	0	0	0	0	1	0	0		172802 Law Enforcement Training
TOTAL	4	1	0	0	0	1	0	0	2	
637.281 Mechanic, Air Conditioning	11	1	0	0	0	0	0	0	10	170100 Air Conditioning

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			Public			Federal				
		OESC Registrants	Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal	Private Schools		
862.381 Plumber	2	8	1	0	9	0	3	0	(19)	170102 Heating and Plumbing
827.281 Appliance Repairman	3	0	0	0	0	0	0	0	3	170200 Appliance Repair
807.381 Auto Body Repairman	6	2				0	0			
845.781 Painter, Auto	4	1	0	0	9	0	0	0		170301 Body and Fender
TOTAL	10	3	0	0	9	0	0	0	(2)	
602.281 Mechanic, Auto	39	8				0	6			
223.387 Partsman, Auto	4	5	17	0	0	0	1	0		170302 Auto Mechanic
			1	0	0			0		170399 Auto Parts
TOTAL	43	13	18	0	0	0	7	0	5	
621.281 Mechanic, Aircraft Engine	0	0				0	0			
521.281 Mechanic, Jet Engine	0	0				0	0			
621.781 Mechanic, Aircraft Accessories	0	1				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			6	0	9			0		170401 Aircraft Mechanic
			0	0	0			0		160101 Aeronautical Technology
TOTAL	0	1	6	0	9	0	0	0	(16)	
633.281 Office Machines Repairman	0	1	0	0	0	0	0	0	(1)	170600 Business Machines Repair
141.081 Illustrator	0	0				0	0			
141.081 Layout Man (Pub. and Printing)	4	0				0	0			
			0	0	0			0		170700 Commercial Art
			0	0	0			0		170702 Display
TOTAL	4	0	0	0	0	0	0	0	4	
972.382 Photolithographer	0	0				0	0			
143. Photographer	0	0				0	0			
			0	0	0			0		170900 Commercial Photography
TOTAL	0	0	0	0	0	0	0	0	0	

NET ADDITIONAL MANPOWER REQUIREMENTS
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EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
741.884 Painter, Spray	0	1				0	0			
840.781 Painter	0	3				0	0			
842.884 Dry Wall Applicator	0	1				0	6			
860.381 Carpenter	5	19				0	0			
861.781 Tile Setter	0	1				0	0			
864.781 Floor Layer	0	0				0	0			
866.381 Roofer	0	3				0	0			
			19	0	0			0		171001 Carpentry
TOTAL	5	28	19	0	0	0	6	0	(48)	
828.281 Electronics Mechanic	0	0				0	0			
821.381 Lineman	5	0				0	0			
824.281 Electrician	2	1				0	0			
721.281 Electric Motor Repairman	0	1				0	0			
726.281 Electronics Assembler	30	16				0	7			
			4	0	9			0		171502 Electronics
TOTAL	37	18	4	0	9	0	7	0	(1)	
899.281 Maintenance Man	2	0				0	0			
899.381 Maintenance Man, Bldg.	10	4				0	3			

NET ADDITIONAL MANPOWER REQUIREMENTS
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EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			0	0	0.			0		171100 Custodial Services
TOTAL	12	4	0	0	0	0	3	0	5	
625.281 Diesel Mechanic	3	2	0	0	0	0	0	0	1	171200 Diesel Mechanics
720.281 Radio and TV Repairman	6	2	4	0	0	0	0	0	0	171503 Radio and TV Repair
650.582 Linotype Operator	0	0				0	0			
651.782 Cylinder Press Oper.	0	0				0	0			
651.782 Offset Press Man	4	0	4	0	0	0	0	0		171901 Composition Makeup and Typesetting
			0	0	0			0		171902 Printing
TOTAL	4	0	4	0	0	0	0	0	0	
705.884 Bench Grinder	0	0				0	0			
600.280 Machinist, All Round	6	7				0	2			
600.381 Layout Man	0	0				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
603. thru 609. Machine Set Up Operator	14	6				0	0			
603.280 Precision Grinder	0	0				0	0			
609.885 Production Machine Tool Operator	20	3				0	0			
			2	0	9			0		172302 Machinist
			0	0	0			0		172303 Machine Tool Operator
TOTAL	40	16	2	0	9	0	2	0	11	
615.782 Shear Press Operator	0	0				0	0			
615.782 Punch Press Operator	6	0				0	0			
617.280 Press Operator (Heavy)	0	0				0	0			
617.380 Break Operator	0	0				0	0			
619.380 Metal Fabricator	0	0				0	0			
804.281 Sheet Metal Worker	0	0				0	2			
809.381 Layout Man	0	0				0	0			
			0	0	0			0		172305 Sheet Metal
TOTAL	6	0	0	0	0	0	2	0	4	

NET ADDITIONAL MANPOWER REQUIREMENTS
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EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
810.782 Welding Machine Operator	0	0				0	0			
810.884 thru 812.884 Welder	18	25				0	10			
816.782 Flame Cutter Machine Operator	0	1				0	0			
816.884 Flame Cutter, Hand	0	1				0	0			
			12	0	9			0		172306 Welding
			32	0	0			0		010300 Agricultural Mechanics (Welding)
TOTAL	18	27	44	0	9	0	10	0	(72)	
526.781 Baker	4	0				0	0			
			0	0	0			0	4	172901 Baker
313.131 Chef	0	0				0	0			
313.381 Cook	33	20				0	1			172902 Cook/Chef
			1	0	0			0		
TOTAL	33	20	1	0	0	0	1	0	11	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
952.782 Power Plant Operator	1	0				0	0			
950.782 Stationary Engineer	3	2				0	0			
			0	0	0			0		173200 Stationary Energy
TOTAL	4	2	0	0	0	0	0	0	2	
316.884 Meat Cutter	20	5				0	0			
521.381 Butcher	0	2				0	0			
525.884 Boner or Skinner	0	0				0	0			
			0	0	0			0		172903 Butcher
			1	0	0			0		172903 Meat Cutter
TOTAL	20	7	1	0	0	0	0	0	12	
780.381 Furniture Upholsterer	0	1				0	0			
			0	0	0			0	(1)	173500 Upholstery
660.280 Cabinet Maker	0	0				0	0			
669.380 Mill Man	0	0				0	0			
			0	0	0			0		173601 Cabinet Making
TOTAL	0	0	0	0	0	0	0	0	0	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

EAST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
861.381 Brick Layer	2	3				0	0			
844.884 Cement Mason	2	2				0	0			
			0	0	0			0		171004 Masonry
TOTAL	4	5	0	0	0	0	0	0	(1)	
659.883 Heavy Equipment Operator	10	9				0	6			
			0	0	0			0	(5)	171003 Heavy Equipment Operator

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION*

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			Public			Federal				
		OESC Registrants	Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal	Private Schools		
407.884 Grounds Keeper	10	2	0	0	0	0	5	0	3	010500 Ornamental Horticulture
421.883 Farm Hand, General	15	7				0	0			
400. Farm Manager, Owner or Supervisor	90	0				0	0			
			24	0	0			0		010100 Agricultural Production
			1	0	0			0		160201 Ranch Operation
TOTAL	105	7	25	0	0	0	0	0	73	
624.281 Mechanic, Farm Equipment	5	2				15	1			
			0	0	0			0		170304 Farm Engine Repair
			29	0	0			0		010300 Agricultural Mechanics
TOTAL	5	2	29	0	0	15	1	0	(42)	
250.258 Salesman, Insurance	8	3	2	0	0	0	0	0	3	041300 Insurance
250.258 Salesman, Real Estate	3	0	0	0	0	0	0	0	3	041700 Real Estate

*Wagoner, Cherokee, Adair, Okmulgee, Muskogee, Sequoyah, and Haskell Counties

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS	
			OESC Registrants	Public			Federal		Private Schools			
				Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal				
250. thru 259.	Sales Occupations (Commodities)	45	51				0	0				
290.000	Sales Clerk	123	41				0	0				
292.000	Routeman	20	9				0	0				
				3	0	0			0		040200	Apparel and Accessories
				2	0	0			0		040300	Automotive
				2	0	0			0		040600	Food Distribution
				9	0	0			0		040800	General Merchandise
				1	0	0			0		040900	Hdw., Bldg. Mat., Farm and Garden Supplies
				0	0	0			0		041400	International Trade
				2	0	0			0		042000	Retail Trade
				1	0	0			0		043100	Wholesale Trade
				0	0	0			0		041600	Petroleum
				2	0	0			0		010200	Agricultural Supplies and Services
				2	0	0			0		041000	Home Furnishings
				8	0	0			0		010400	Agriculture Products
SUBTOTAL		188	101	32	0	0	0	0	0	55		

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
242.368 Room Clerk	4	2	0	0	0	0	0	0	2	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	12	4				0	0			
			1	0	0			0		040100 Advertising Services
			2	0	0			0		040400 Finance and Credit
			2	0	0			0		041900 Transportation
SUBTOTAL	12	4	5	0	0	0	0	0	3	
311.878 Waitress/Waiter	45	60				0	0			
310.868 Hostess	0	0				0	0			
319.138 Food Service Supervisor	3	0				0	0			
			1	0	0			0		172904 Waiter/Waitress
			4	0	0			0		040700 Food Services
			0	0	0			0		172900 Quantity Food Occupations
			0	0	0			0		090203 Food Management and Services
SUBTOTAL	48	60	5	0	0	0	0	0	(17)	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
TOTAL	263	170	44	0	0	0	0	0	49	
079.378 Dental Assistant	6	0	0	0	0	0	0	0	6	070101 Dental Assistant
078.381 Medical Laboratory Technician	3	0				0	0			
078.381 Medical Laboratory Assistant	3	0	0	0	0	0	0	0		070203 Medical Laboratory Technician
TOTAL	6	0	0	0	0	0	0	0	6	
075.378 Nurse, Registered	59	1	18	0	0	0	0	0		070301 Nurse, Associate
			0	0	0			0		Nurse, Diploma
			0	0	0			0		Nurse, Baccalaureate
TOTAL	59	1	18	0	0	0	0	0	40	
079.378 Nurse, Vocational	126	11	30	0	0	0	0	0	85	070302 LPN

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	106	90	16	0	0	0	9	0	(9)	070303 Nurse Aide
079.378 Surgical Technician	3	0	0	0	0	0	0	0	3	070305 Surgical Technician
078.368 Dental Hygienist	3	0	0	0	0	0	0	0	3	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	4	0	0	0	0	0	0	0	4	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	17	0	5	0	0	0	0	0	12	070904 Medical Assistant
249.388 Medical Record Clerk	2	1	0	0	0	0	0	0	1	070991 Medical Record Clerk

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
219.388 Ward Clerk	4	0	0	0	0	0	0	0	4	079902 Ward Clerk
100.388 Medical Record Technician	0	0	0	0	0	0	0	0	0	070201 Medical Record Technician
201.368 Medical Secretary	14	0	15	0	0	0	0	0	(1)	070911 Medical Secretary
781.884 Cutter, Hand or Machine	2	2				0	0			
785.381 Seamstress	0	2				0	1			
786. Sewing Machine Operator	20	34	0	0	0	0	0	0		090202 Clothing Production
TOTAL	22	38	0	0	0	0	1	0	(17)	
215.388 Bookkeeping Machine Operator	10	3				0	6			
210.388 Bookkeeper, Hand	18	23				0	4			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
249.268 Claims Clerk	0	0				0	0			
209.388 Statement Clerk	2	0				0	0			
215.488 Payroll Clerk	5	2				0	0			
219.388 Interest Clerk	0	0				0	0			
217.388 Transit Clerk	5	3				0	0			
249.368 New Account Clerk	8	6				0	0			
249.368 Credit Clerk	0	0				0	0			
219.488 Accounting Clerk	22	7				0	0			
219.488 Insurance Checker	0	0				0	0			
211.368 Cashier	9	6				0	1			
212.368 Teller	8	2				0	0			
			1	0	0			3		140100 Accounting and Computing
SUBTOTAL	87	52	1	0	0	0	11	3	20	
209.388 Clerk-Typist	40	70				0	11			
219.388 General Office Clerk	54	82				0	12			
219.388 Sorting Clerk	0	0				0	0			
			18	0	0			0		140300 Filing and Office Machines
			0	0	15			0		140900 Typing and Related
SUBTOTAL	94	152	18	0	15	0	23	0	(114)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			Public			Federal				
		OESC Registrants	Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal	Private Schools		
205.368 Personnel Clerk	4	2	0	0	0	0	0	0	2	140600 Personnel, Training and Related
201.368 Secretary	60	30				0	86			
202.388 Stenographer	41	12	28	0	10	20	0	9		140700 Secretary or Stenographer
SUBTOTAL	101	42	28	0	10	20	86	9	(94)	
TOTAL	286	248	47	0	25	20	120	12	(186)	
213.782 Tab Machine Operator	2	0				0	0			
213.582 Keypunch Operator	10	12				0	1			
213.382 Card-Tape Converter Operator	0	0				0	0			
			26	0	0			0		140200 Business Data Processing
TOTAL	12	12	26	0	0	0	1	0	(27)	
001.281 Draftsman, Architectural	0	2				0	0			
003.281 Draftsman, Electrical	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
003.281 Draftsman, Electronics	0	0				0	0			
010.281 Draftsman, Geological	0	0				0	0			
017.281 Draftsman, Map	0	0				0	0			
005.281 Draftsman, Civil	0	1				0	0			
007.281 Draftsman, Mechanical	5	4				0	2			
			18	0	0			0		160103 Architectural Technology
			1	0	0			0		160198 Drafting and Design
			0	0	0			0		171300 Drafting
TOTAL	5	7	19	0	0	0	2	0	(23)	
029.281 Technician, Laboratory	0	0				0	0			
			0	0	0			0	0	160105 Chemical Technology
005.181 Technician, Civil	4	0				0	0			
018.188 Surveyor	0	3				0	0			
			0	0	0			0		160106 Civil and Highway Technology
TOTAL	4	3	0	0	0	0	0	0	1	
003.181 Technician, Electrical	5	3				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.181 Technician Electronics	0	0				0	0			
			7	0	0			0		160108 Electronics Technology
			1	0	0			0		160109 Electro-Mechanical Technology
TOTAL	5	3	8	0	0	0	0	0	(6)	
012.288 Technician, Industrial	0	0				0	0			
019.281 Technician, Quality Control	3	1				0	0			
			1	0	0			0		160111 Industrial Technology
TOTAL	3	1	1	0	0	0	0	0	1	
710.281 Instrument Man	0	1				0	0			
600.280 Instrument Maker	0	0				0	0			
019.281 Technician, Instrumentation	0	0				0	0			
			0	0	0			0		160112 Instrumentation Technology
			0	0	0			0		172100 Instrument Repair
TOTAL	0	1	0	0	0	0	0	0	(1)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
007.181 Technician, Mechanical	0	1				0	0			
			0	0	0			0		160113 Mechanical Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	0	1	0	0	0	0	0	0	(1)	
020.188 Programmer, Scientific	0	0	0	0	0	0	0	0	0	160117 Scientific Data Processing
139.288 Writer, Technical	0	0	0	0	0	0	0	0	0	160197 Technical Writing
213.382 Digital Computer Operator	0	0				0	2			
219.388 Programmer, Detail	0	0				0	0			
020.188 Programmer, Business	7	3				0	0			
			3	0	0			0		160401 Computer Science
TOTAL	7	3	3	0	0	0	2	0	(1)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
196.283 Commercial Pilot	0	0	0	0	0	0	0	0	0	160601 Commercial Pilot
168.168 Safety Man	0	0				0	0			
168.168 Building Inspector	4	3				0	0			
373. Fireman	3	0				0	0			
			0	0	0			0		160602 Fire and Safety Technology
			0	0	0			0		172801 Fireman Training
TOTAL	7	3	0	0	0	0	0	0	4	
375. Policeman or Detective	5	2				0	10			
377. Sheriff or Baliff	0	0				0	0			
			0	0	0			0		172802 Law Enforcement Training
TOTAL	5	2	0	0	0	0	10	0	(7)	
637.281 Mechanic, Air Conditioning	19	2				0	0			
			7	0	10			0	0	170100 Air Conditioning

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
862.381 Plumber	11	24	1	0	0	0	0	0	(14)	170102 Heating and Plumbing
827.281 Appliance Repairman	7	1	0	0	0	0	0	0	6	170200 Appliance Repair
807.381 Auto Body Repairman	10	5				0	0			
845.781 Painter, Auto	3	0				0	0			
			6	78	0			0		170301 Body and Fender
TOTAL	13	5	6	78	0	0	0	0	(76)	
602.281 Mechanic, Auto	63	19				0	18			
223.387 Partsman, Auto	3	2				0	0			
			23	98	0			0		170302 Auto Mechanic
			0	0	0			0		170399 Auto Parts
TOTAL	66	21	23	98	0	0	18	0	(94)	
621.281 Mechanic, Aircraft Engine	0	0				0	0			
521.281 Mechanic, Jet Engine	0	0				0	0			
621.781 Mechanic, Aircraft Accessories	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			4	0	0			0		170401 Aircraft Mechanic
			0	0	0			0		160101 Aeronautical Technology
TOTAL	0	0	4	0	0	0	0	0	(4)	
633.281 Office Machines Repairman	0	1				0	0			
			0	0	0			0	(1)	170600 Business Machines Repair
141.081 Illustrator	0	1				0	0			
141.081 Layout Man (Pub. and Printing)	0	0				0	0			
			0	64	0			0		170700 Commercial Art
			0	0	0			0		170702 Display
TOTAL	0	1	0	64	0	0	0	0	(65)	
972.382 Photolithographer	0	0				0	0			
143. Photographer	0	0				0	0			
			0	0	0			0		170900 Commercial Photography
TOTAL	0	0	0	0	0	0	0	0	0	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
741.884 Painter, Spray	4	7				0	6			
840.781 Painter	5	11				0	0			
842.884 Dry Wall Applicator	0	2				0	0			
860.381 Carpenter	16	32				0	11			
861.781 Tile Setter	0	1				0	0			
864.781 Floor Layer	0	0				0	0			
866.381 Roofer	2	4				0	0			
			47	30	0			0		171001 Carpentry
TOTAL	27	57	47	30	0	0	17	0	(124)	
828.281 Electronics Mechanic	0	1				0	0			
821.381 Lineman	8	4				0	0			
824.281 Electrician	15	8				0	4			
721.281 Electric Motor Repairman	1	1				0	0			
726.281 Electronics Assembler	4	3				0	4			
			3	11	0			0		171502 Electronics
TOTAL	28	17	3	11	0	0	8	0	(11)	
899.281 Maintenance Man	8	3				0	0			
899.381 Maintenance Man, Bldg.	12	6				0	40			

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			0	0	0			0		171100 Custodial Services
TOTAL	20	9	0	0	0	0	40	0	(29)	
625.281 Diesel Mechanic	4	3	1	110	0	0	0	0	(110)	171200 Diesel Mechanics
720.281 Radio and TV Repairman	12	2	0	78	0	0	0	0	(68)	171503 Radio and TV Repair
650.582 Linotype Operator	3	2				0	0			
651.782 Cylinder Press Oper.	2	1				0	0			
651.782 Offset Press Man	4	0	0	0	0	0	0	0		171901 Composition Makeup and Typesetting
			4	39	0			0		171902 Printing
TOTAL	9	3	4	39	0	0	0	0	(37)	
705.884 Bench Grinder	0	0				0	0			
600.280 Machinist, All Round	13	11				0	3			
600.381 Layout Man	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			OESC Registrants	Public			Federal		Private Schools		
				Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
603. thru 609.	Machine Set Up Operator	7	5				0	0			
603.280	Precision Grinder	0	2				0	0			
609.885	Production Machine Tool Operator	20	3				0	0			
				8	51	0			0		172302 Machinist
				0	0	0			0		172303 Machine Tool Operator
TOTAL		40	21	8	51	0	0	3	0	(43)	
615.782	Shear Press Operator	3	0				0	0			
615.782	Punch Press Operator	4	2				0	0			
617.280	Press Operator (Heavy)	0	1				0	0			
617.380	Break Operator	0	0				0	0			
619.380	Metal Fabricator	2	2				0	0			
804.281	Sheet Metal Worker	4	6				0	0			
809.381	Layout Man	3	2				0	0			
				0	0	0			0		172305 Sheet Metal
TOTAL		16	13	0	0	0	0	0	0	3	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
810.782 Welding Machine Operator	0	1				0	0			
810.884 thru 812.884 Welder	18	44				0	0			
816.782 Flame Cutter Machine Operator	2	1				0	0			
816.884 Flame Cutter, Hand	0	0				0	0			
			15	30	10			0		172306 Welding
			30	0	0			0		010300 Agricultural Mechanics (Welding)
TOTAL	20	46	45	30	10	0	0	0	(111)	
526.781 Baker	4	1				0	0			
			0	25	0			0	(22)	172901 Baker
313.131 Chef	0	1				0	0			
313.381 Cook	51	15				0	10			
			0	54	0			0		172902 Cook/Chef
TOTAL	51	16	0	54	0	0	10	0	(29)	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
952.782 Power Plant Operator	2	1				0	0			
950.782 Stationary Engineer	3	2				0	0			173200 Stationary Energy
			0	0	0			0		
TOTAL	5	3	0	0	0	0	0	0	2	
316.884 Meat Cutter	4	2				0	0			
521.381 Butcher	10	4				0	0			
525.884 Boner or Skinner	3	0				0	0			
			0	0	0			0		172903 Butcher
			0	0	0			0		172903 Meat Cutter
TOTAL	17	6	0	0	0	0	0	0	11	
780.381 Furniture Upholsterer	0	6				0	0			
			0	27	0			0	(33)	173500 Upholstery
660.280 Cabinet Maker	0	4				0	0			
669.380 Mill Man	0	1				0	0			
			5	8	5			0		173601 Cabinet Making
TOTAL	0	5	5	8	5	0	0	0	(23)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

MID-EASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
861.381 Brick Layer	4	4				0	0			
844.884 Cement Mason	10	7				0	7			171004 Masonry
			11	0	0			0		
TOTAL	14	11	11	0	0	0	7	0	(15)	
659.883 Heavy Equipment Operator	28	35				0	28			
			0	0	0			0	(35)	171003 Heavy Equipment Operator

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWESTERN REGION*

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
407.884 Grounds Keeper	12	2	1	0	0	0	1	0	8	010500 Ornamental Horticulture
421.883 Farm Hand, General	35	50				0	0			
400. Farm Manager, Owner or Supervisor	78	0				0	0			
			51	0	0			0		010100 Agricultural Production
			1	0	0			0		160201 Ranch Operation
TOTAL	113	50	52	0	0	0	0	0	11	
624.281 Mechanic, Farm Equipment	4	2				0	0			
			0	0	0			0		170304 Farm Engine Repair
			9	0	0			0		010300 Agricultural Mechanics
TOTAL	4	2	9	0	0	0	0	0	(7)	
250.258 Salesman, Insurance	5	4	0	0	0	0	0	0	1	041300 Insurance
250.258 Salesman, Real Estate	2	0	1	0	0	0	0	0	1	041700 Real Estate

*Roger Mills, Custer, Beckham, Washita, Harmon, Greer, Kiowa, and Jackson Counties

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
250. thru 259. Sales Occupations (Commodities)	30	16				0	0			
290.000 Sales Clerk	80	55				0	0			
292.000 Routeman	16	5				0	0			
			2	0	0			0		040200 Apparel and Accessories
			2	0	0			0		040300 Automotive
			1	0	0			0		040600 Food Distribution
			0	0	0			0		040800 General Merchandise
			3	0	0			0		040900 Hdw., Bldg. Mat., Farm and Garden Supplies
			0	0	0			0		041400 International Trade
			4	0	10			0		042000 Retail Trade
			0	0	0			0		043100 Wholesale Trade
			1	0	0			0		041600 Petroleum
			2	0	0			0		010200 Agricultural Supplies and Services
			0	0	0			0		041000 Home Furnishings
			2	0	0			0		010400 Agriculture Products
SUBTOTAL	126	76	17	0	10	0	0	0	23	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
242.368 Room Clerk	5	2	0	0	0	0	0	0	3	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	15	5				0	0			
			1	0				0		040100 Advertising Services
			2	0				0		040400 Finance and Credit
			0	0				0		041900 Transportation
SUBTOTAL	15	5	3	0	0	0	0	0	7	
311.878 Waitress/Waiter	54	40				0	0			
310.868 Hostess	5	2				0	0			
319.138 Food Service Supervisor	2	0				0	0			
			1	0	0			0		172904 Waiter/Waitress
			2	0	0			0		040700 Food Services
			0	0	0			0		172900 Quantity Food Occupations
			0	0	0			0		090203 Food Management and Services
SUBTOTAL	61	42	3	0	0	0	0	0	16	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
TOTAL	214	129	24	0	10	0	0	0	51	
079.378 Dental Assistant	5	0	0	0	0	0	0	0	5	070101 Dental Assistant
078.381 Medical Laboratory Technician	3	0				0	0			
078.381 Medical Laboratory Assistant	2	0				0	0			
			0	0	0			0		070203 Medical Laboratory Technician
TOTAL	5	0	0	0	0	0	0	0	5	
075.378 Nurse, Registered	61	1				0	0			
			0	0	0			0		070301 Nurse, Associate
			0	0	0			0		Nurse, Diploma
			0	0	0			0		Nurse, Baccalaureate
TOTAL	61	1	0	0	0	0	0	0	60	
079.378 Nurse, Vocational	62	8	22	0	0	0	0	0	32	070302 LPN

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	87	37	2	0	16	0	5	0	27	070303 Nurse Aide
079.378 Surgical Technician	1	0	0	0	0	0	0	0	1	070305 Surgical Technician
078.368 Dental Hygienist	2	0	0	0	0	0	0	0	2	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	1	0	0	0	0	0	0	0	1	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	8	1	9	0	0	0	0	0	(2)	070904 Medical Assistant
249.388 Medical Record Clerk	3	0	0	0	0	0	0	0	3	070991 Medical Record Clerk

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
219.388 Ward Clerk	7	0	0	0	0	0	0	0	7	079902 Ward Clerk
100.388 Medical Record Technician	1	0	0	0	0	0	0	0	1	070201 Medical Record Technician
201.368 Medical Secretary	11	0	0	0	0	0	0	0	11	070911 Medical Secretary
781.884 Cutter, Hand or Machine	10	7				0	0			
785.381 Seamstress	0	0				0	0			
786. Sewing Machine Operator	180	64	0	0	0	0	0	0		090202 Clothing Production
TOTAL	190	71	0	0	0	0	0	0	119	
215.388 Bookkeeping Machine Operator	15	0				0	0			
210.388 Bookkeeper, Hand	38	25				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
249.268 Claims Clerk	0	0				0	0			
209.388 Statement Clerk	0	0				0	0			
215.488 Payroll Clerk	5	0				0	0			
219.388 Interest Clerk	4	0				0	0			
217.388 Transit Clerk	0	0				0	0			
249.368 New Account Clerk	0	0				0	0			
249.368 Credit Clerk	0	0				0	0			
219.488 Accounting Clerk	15	8				0	0			
219.488 Insurance Checker	5	0				0	0			
211.368 Cashier	10	2				0	0			
212.368 Teller	8	4				0	0			
			0	0	0			0		140100 Accounting and Computing
SUBTOTAL	100	39	0	0	0	0	0	0	61	
209.388 Clerk-Typist	30	15				0	6			
219.388 General Office Clerk	65	20				0	0			
219.388 Sorting Clerk	0	0				0	0			
			0	0	0			0		140300 Filing and Office Machines
			0	0	0			0		140900 Typing and Related
SUBTOTAL	95	35	0	0	0	0	6	0	54	

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
205.368 Personnel Clerk	4	2	0	0	0	0	0	0	2	140600 Personnel, Training and Related
201.368 Secretary	45	20				0	0			
202.388 Stenographer	24	5	0	0	0	15	0	0		140700 Secretary or Stenographer
SUBTOTAL	69	25	0	0	0	15	0	0	29	
TOTAL	268	101	0	0	0	15	6	0	146	
213.782 Tab Machine Operator	0	1				0	0			
213.582 Keypunch Operator	10	16				0	0			
213.382 Card-Tape Converter Operator	0	0	0	0	0	0	0	0	(7)	140200 Business Data Processing
TOTAL	10	17				0	0			
001.281 Draftsman, Architectural	0	0				0	0			
003.281 Draftsman, Electrical	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.281 Draftsman, Electronics	0	0				0	0			
010.281 Draftsman, Geological	0	0				0	0			
017.281 Draftsman, Map	0	0				0	0			
005.281 Draftsman, Civil	0	1				0	0			
007.281 Draftsman, Mechanical	0	0				0	0			
			0	0	0			0		160103 Architectural Technology
			0	0	0			0		160198 Drafting and Design
			1	0	0			0		171300 Drafting
TOTAL	0	1	1	0	0	0	0	0	(2)	
029.281 Technician, Laboratory	0	0				0	0			
			0	0	0			0	0	160105 Chemical Technology
005.181 Technician, Civil	5	0				0	0			
018.188 Surveyor	0	1				0	0			
			0	0	0			0		160106 Civil and Highway Technology
TOTAL	5	1	0	0	0	0	0	0	4	
003.181 Technician, Electrical	0	3				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.181 Technician Electronics	0	0				0	0			
			3	0	0			0		160108 Electronics Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	0	3	3	0	0	0	0	0	(6)	
012.288 Technician, Industrial	0	1				0	0			
019.281 Technician, Quality Control	6	0				0	0			
			0	0	0			0		160111 Industrial Technology
TOTAL	6	1	0	0	0	0	0	0	5	
710.281 Instrument Man	0	0				0	0			
600.280 Instrument Maker	0	0				0	0			
019.281 Technician, Instrumentation	0	0				0	0			
			0	0	0			0		160112 Instrumentation Technology
			0	0	0			0		172100 Instrument Repair
TOTAL	0	0	0	0	0	0	0	0	0	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
007.181 Technician, Mechanical	0	0				0	0			
			0	0	0			0		160113 Mechanical Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	0	0	0	0	0	0	0	0	0	
020.188 Programmer, Scientific	0	0	0	0	0	0	0	0	0	160117 Scientific Data Processing
139.288 Writer, Technical	0	0	0	0	0	0	0	0	0	160197 Technical Writing
213.382 Digital Computer Operator	0	0				0	0			
219.388 Programmer, Detail	0	0				0	0			
020.188 Programmer, Business	0	0				0	0			
			3	0	0			0		160401 Computer Science
TOTAL	0	0	3	0	0	0	0	0	(3)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
196.283 Commercial Pilot	0	0	0	0	0	0	0	4	(4)	160601 Commercial Pilot
168.168 Safety Man	0	0				0	0			
168.168 Building Inspector	1	1				0	0			
373. Fireman	1	1				0	0			
			0	0	0			0		160602 Fire and Safety Technology
			0	0	0			0		172801 Fireman Training
TOTAL	2	2	0	0	0	0	0	0	0	
375. Policeman or Detective	5	2				0	0			
377. Sheriff or Baliff	0	0				0	0			
			0	0	0			0		172802 Law Enforcement Training
TOTAL	5	2	0	0	0	0	0	0	3	
637.281 Mechanic, Air Conditioning	11	0				0	0			
			0	0	0			0	11	170100 Air Conditioning

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
862.381 Plumber	4	2	0	0	0	0	1	0	1	170102 Heating and Plumbing
827.281 Appliance Repairman	8	0	1	0	0	0	0	0	7	170200 Appliance Repair
807.381 Auto Body Repairman	8	2				0	0			
845.781 Painter, Auto	3	0				0	0			
			1	0	0			0		170301 Body and Fender
TOTAL	11	2	1	0	0	0	0	0	8	
602.281 Mechanic, Auto	43	10				0	12			
223.387 Partsman, Auto	6	7				0	0			
			15	0	0			0		170302 Auto Mechanic
			3	0	0			0		170399 Auto Parts
TOTAL	49	17	18	0	0	0	12	0	2	
621.281 Mechanic, Aircraft Engine	0	0				0	0			
521.281 Mechanic, Jet Engine	0	0				0	0			
621.781 Mechanic, Aircraft Accessories	0	1				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			0	0	0			0		170401 Aircraft Mechanic
			0	0	0			0		160101 Aeronautical Technology
TOTAL	0	1	0	0	0	0	0	0	(1)	
633.281 Office Machines Repairman	2	0				0	0			
			1	0	0			0	1	170600 Business Machines Repair
141.081 Illustrator	0	1				0	0			
141.081 Layout Man (Pub. and Printing)	0	0				0	0			
			0	0	0			0		170700 Commercial Art
			3	0	0			0		170702 Display
TOTAL	0	1	3	0	0	0	0	0	(4)	
972.382 Photolithographer	0	0				0	0			
143. Photographer	0	0				0	0			
			0	0	0			0		170900 Commercial Photography
TOTAL	0	0	0	0	0	0	0	0	0	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
741.884 Painter, Spray	3	2				0	0			
840.781 Painter	4	1				0	0			
842.884 Dry Wall Applicator	0	0				0	0			
860.381 Carpenter	20	8				0	4			
861.781 Tile Setter	0	0				0	0			
864.781 Floor Layer	0	0				0	0			
866.381 Roofer	3	4				0	0			
			13	0	0			0		171001 Carpentry
TOTAL	30	15	13	0	0	0	4	0	(2)	
828.281 Electronics Mechanic	0	2				0	0			
821.381 Lineman	8	3				0	0			
824.281 Electrician	4	3				0	0			
721.281 Electric Motor Repairman	0	0				0	0			
726.281 Electronics Assembler	0	1				0	0			
			0	0	6			0		171502 Electronics
TOTAL	12	9	0	0	6	0	0	0	(3)	
899.281 Maintenance Man	3	1				0	0			
899.381 Maintenance Man, Bldg.	8	2				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			1	0	0			0		171100 Custodial Services
TOTAL	11	3	1	0	0	0	0	0	7	
625.281 Diesel Mechanic	5	2	0	0	0	0	0	0	3	171200 Diesel Mechanics
720.281 Radio and TV Repairman	6	0	2	0	6	0	0	0	(2)	171503 Radio and TV Repair
650.582 Linotype Operator	2	0				0	0			
651.782 Cylinder Press Oper.	0	0				0	0			
651.782 Offset Press Man	2	0	1	0	0	0	0	0		171901 Composition Makeup and Typesetting
	4	0	1	0	0	0	0	0		171902 Printing
TOTAL	4	0	2	0	0	0	0	0	2	
705.884 Bench Grinder	0	0				0	0			
600.280 Machinist, All Round	4	4				0	22			
600.381 Layout Man	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
603. thru 609.	Machine Set Up Operator	0	2				0	0			
603.280	Precision Grinder	0	0				0	0			
609.885	Production Machine Tool Operator	8	0				0	0			
				0	0	0			0		172302 Machinist
				0	0	0			0		172303 Machine Tool Operator
TOTAL		12	6	0	0	0	0	22	0	(16)	
615.782	Shear Press Operator	0	1				0	0			
615.782	Punch Press Operator	0	0				0	0			
617.280	Press Operator (Heavy)	0	0				0	0			
617.380	Break Operator	0	0				0	0			
619.380	Metal Fabricator	0	0				0	0			
804.281	Sheet Metal Worker	0	1				0	0			
809.381	Layout Man	0	0				0	0			
				0	0	0			0		172305 Sheet Metal
TOTAL		0	2	0	0	0	0	0	0	(2)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY								DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools			
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal				
810.782 Welding Machine Operator	0	0				0	0				
810.884 thru 812.884 Welder	7	5				0	0				
816.782 Flame Cutter Machine Operator	0	0				0	0				
816.884 Flame Cutter, Hand	0	0				0	0				
			0	0	8			0			172306 Welding
			8	0	0			0			010300 Agricultural Mechanics (Welding)
TOTAL	7	5	8	0	8	0	0	0	(14)		
526.781 Baker	2	1				0	0				
			0	0	0			0	1		172901 Baker
313.131 Chef	0	0				0	0				
313.381 Cook	50	15				0	2				
			1	0	0			0			172902 Cook/Chef
TOTAL	50	15	1	0	0	0	2	0	32		

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
952.782 Power Plant Operator	0	1				0	0			
950.782 Stationary Engineer	2	1				0	0			
			0	0	0			0		173200 Stationary Energy
TOTAL	2	2	0	0	0	0	0	0	0	
316.884 Meat Cutter	5	3				0	0			
521.381 Butcher	2	1				0	0			
525.884 Boner or Skinner	1	0				0	0			
			0	0	0			0		172903 Butcher
			1	0	0			0		172903 Meat Cutter
TOTAL	8	4	1	0	0	0	0	0	3	
780.381 Furniture Upholsterer	0	1				0	0			
			1	0	0			0	(2)	173500 Upholstery
660.280 Cabinet Maker	0	1				0	0			
669.380 Mill Man	0	0				0	0			
			0	0	0			0		173601 Cabinet Making
TOTAL	0	1	0	0	0	0	0	0	(1)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWESTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
861.381 Brick Layer	0	1				0	0			
844.884 Cement Mason	3	2				0	0			171004 Masonry
			0	0	0			0		
TOTAL	3	3	0	0	0	0	0	0	0	
659.883 Heavy Equipment Operator	18	10				0	0			
			0	0	0			0	8	171003 Heavy Equipment Operator

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
407.884 Grounds Keeper	6	3	1	0	0	0	0	0	2	010500 Ornamental Horticulture
421.883 Farm Hand, General	25	21				0	0			
400. Farm Manager, Owner or Supervisor	85	0				0	0			
			44	0	0			0		010100 Agricultural Production
			0	0	0			0		160201 Ranch Operation
TOTAL	110	21	44	0	0	0	0	0	45	
624.281 Mechanic, Farm Equipment	5	0				0	0			
			0	0	0			0		170304 Farm Engine Repair
			15	0	0			0		010300 Agricultural Mechanics
TOTAL	5	0	15	0	0	0	0	0	(10)	
250.258 Salesman, Insurance	15	3	0	0	0	0	0	0	12	041300 Insurance
250.258 Salesman, Real Estate	5	2	3	0	0	0	0	0	0	041700 Real Estate

*Caddo, Grady, Comanche, Stephens, Tillman, Cotton, and Jefferson Counties

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
250. Sales Occupations (Commodities) thru 259.	66	65				0	0			
290.000 Sales Clerk	175	101				0	1			
292.000 Routeman	8	10				0	0			
			7	0	0			0		040200 Apparel and Accessories
			1	0	0			0		040300 Automotive
			4	0	0			0		040600 Food Distribution
			5	0	0			0		040800 General Merchandise
			1	0	0			0		040900 Hdw., Bldg. Mat., Farm and Garden Supplies
			3	0	0			0		041400 International Trade
			7	0	0			0		042000 Retail Trade
			1	0	0			0		043100 Wholesale Trade
			3	0	0			0		041600 Petroleum
			2	0	0			0		010200 Agricultural Supplies and Services
			1	0	0			0		041000 Home Furnishings
			3	0	0			0		010400 Agriculture Products
SUBTOTAL	249	176	38	0	0	0	1	0	34	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
242.368 Room Clerk	6	6				0	0			
			1	0	0			0	(1)	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	10	5				0	0			
			3	0	0			0		040100 Advertising Services
			2	0	0			0		040400 Finance and Credit
			1	0	0			0		041900 Transportation
SUBTOTAL	10	5	6	0	0	0	0	0	(1)	
311.878 Waitress/Waiter	90	84				0	0			
310.868 Hostess	10	4				0	0			
319.138 Food Service Supervisor	2	0				0	0			
			3	0	0			0		172904 Waiter/Waitress
			7	0	0			0		040700 Food Services
			0	0	0			0		172900 Quantity Food Occupations
			0	0	0			0		090203 Food Management and Services
SUBTOTAL	102	88	10	0	0	0	0	0	4	

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
TOTAL	387	280	58	0	0	0	1	0	48	
079.378 Dental Assistant	7	0	0	0	0	0	0	0	7	070101 Dental Assistant
078.381 Medical Laboratory Technician	2	0				0	0			
078.381 Medical Laboratory Assistant	2	0	0	0	0	0	1	0		070203 Medical Laboratory Technician
TOTAL	4	0	0	0	0	0	1	0	3	
075.378 Nurse, Registered	68	4	16 0 0	0 0 0	0 0 0	0	0	0 0 0		070301 Nurse, Associate Nurse, Diploma Nurse, Baccalaureate
TOTAL	68	4	16	0	0	0	0	0	48	
079.378 Nurse, Vocational	100	9	32	0	0	0	0	0	59	070302 LPN

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	84	45	0	0	24	0	20	0	(5)	070303 Nurse Aide
079.378 Surgical Technician	1	0	0	0	0	12	0	0	(11)	070305 Surgical Technician
078.368 Dental Hygienist	3	0	0	0	0	0	0	0	3	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	6	0	0	0	0	0	0	0	6	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	15	3	5	0	0	0	0	0	7	070904 Medical Assistant
249.388 Medical Record Clerk	1	2	0	0	0	0	0	0	(1)	070991 Medical Record Clerk

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
219.388 Ward Clerk	4	0	0	0	0	0	0	0	4	079902 Ward Clerk
100.388 Medical Record Technician	5	0	0	0	0	0	0	0	5	070201 Medical Record Technician
201.368 Medical Secretary	13	0	0	0	0	0	1	0	12	070911 Medical Secretary
781.884 Cutter, Hand or Machine	2	1				0	0			
785.381 Seamstress	3	2				0	0			
786. Sewing Machine Operator	103	51	0	0	0	0	6	0		090202 Clothing Production
TOTAL	108	54	0	0	0	0	6	0	48	
215.388 Bookkeeping Machine Operator	24	10				0	0			
210.388 Bookkeeper, Hand	37	33				0	5			

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
249.268 Claims Clerk	0	0				0	0			
209.388 Statement Clerk	3	0				0	0			
215.488 Payroll Clerk	16	2				0	0			
219.388 Interest Clerk	0	0				0	0			
217.388 Transit Clerk	3	2				0	0			
249.368 New Account Clerk	5	3				0	0			
249.368 Credit Clerk	0	0				0	0			
219.488 Accounting Clerk	20	13				0	0			
219.488 Insurance Checker	0	0				0	0			
211.368 Cashier	21	17				0	0			
212.368 Teller	12	7				0	0			
			0	0	66			21		140100 Accounting and Computing
SUBTOTAL	141	87	0	0	66	0	5	21	(38)	
209.388 Clerk-Typist	93	110				0	11			
219.388 General Office Clerk	110	124				0	35			
219.388 Sorting Clerk	0	0				0	0			
			47	0	0			35		140300 Filing and Office Machines
			18	0	120			0		140900 Typing and Related
SUBTOTAL	203	234	65	0	120	0	46	35	(297)	

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
205.368 Personnel Clerk	11	6	0	0	0	0	0	0	5	140600 Personnel, Training and Related
201.368 Secretary	65	48				0	1			
202.388 Stenographer	38	13	18	0	75	15	3	21		140700 Secretary or Stenographer
SUBTOTAL	103	61	18	0	75	15	4	21	(91)	
TOTAL	458	388	83	0	261	15	55	77	(421)	
213.782 Tab Machine Operator	4	0				0	0			
213.582 Keypunch Operator	21	18				0	0			
213.382 Card-Tape Converter Operator	0	2	20	0	12	0	0	19		140200 Business Data Processing
TOTAL	25	20	20	0	12	0	0	19	(46)	
001.281 Draftsman, Architectural	0	0				0	0			
003.281 Draftsman, Electrical	0	0				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.281 Draftsman, Electronics	0	0				0	2			
010.281 Draftsman, Geological	0	0				0	0			
017.281 Draftsman, Map	0	1				0	0			
005.281 Draftsman, Civil	0	2				0	0			
007.281 Draftsman, Mechanical	10	4				0	0			
			0	0	0			0		160103 Architectural Technology
			2	0	0			0		160198 Drafting and Design
			7	0	9			0		171300 Drafting
TOTAL	10	7	9	0	9	0	2	0	(17)	
029.281 Technician, Laboratory	1	1	0	0	0	0	1	0	(1)	160105 Chemical Technology
005.181 Technician, Civil	2	0				0	0			
018.188 Surveyor	4	3	0	0	0	0	0	0	3	160106 Civil and Highway Technology
TOTAL	6	3				0	0			
003.181 Technician, Electrical	4	5				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
003.181 Technician Electronics	0	0				0	0			
			2	0	0			0		160108 Electronics Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	4	5	2	0	0	0	0	0	(3)	
012.288 Technician, Industrial	0	0				0	0			
019.281 Technician, Quality Control	4	1				0	0			
			0	0	0			0		160111 Industrial Technology
TOTAL	4	1	0	0	0	0	0	0	3	
710.281 Instrument Man	0	0				0	0			
600.280 Instrument Maker	0	0				0	0			
019.281 Technician, Instrumentation	0	0				0	0			
			0	0	0			0		160112 Instrumentation Technology
			0	0	0			0		172100 Instrument Repair
TOTAL	0		0	0	0			0	0	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
007.181 Technician, Mechanical	3	1				0	0			
			0	0	0			0		160113 Mechanical Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	3	1	0	0	0	0	0	0	2	
020.188 Programmer, Scientific	0	0	0	0	0	0	0	0	0	160117 Scientific Data Processing
139.288 Writer, Technical	0	0	0	0	0	0	0	0	0	160197 Technical Writing
213.382 Digital Computer Operator	5	3				0	0			
219.388 Programmer, Detail	3	0				0	0			
020.188 Programmer, Business	15	5				0	0			
			12	0	9			13		160401 Computer Science
TOTAL	23	8	12	0	9	0	0	13	(19)	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
196.283 Commercial Pilot	0	0	0	0	0	0	0	2	(2)	160601 Commercial Pilot
168.168 Safety Man	0	0				0	0			
168.168 Building Inspector	4	2				0	0			
373. Fireman	4	0	0	0	0	0	3	0		160602 Fire and Safety Technology
			0	0	0			0		172801 Fireman Training
TOTAL	8	2	0	0	0	0	3	0	3	
375. Policeman or Detective	6	2				0	3			
377. Sheriff or Baliff	3	1				0	2			
			1	0	0			0		172802 Law Enforcement Training
TOTAL	9	3	1	0	0	0	5	0	0	
637.281 Mechanic, Air Conditioning	22	6				0	0			
			5	0	28			0	(17)	170100 Air Conditioning

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
862.381 Plumber	10	14	2	0	15	0	5	0	(26)	170102 Heating and Plumbing
827.281 Appliance Repairman	9	1	1	0	0	0	0	0	7	170200 Appliance Repair
807.381 Auto Body Repairman	10	8				0	3			
845.781 Painter, Auto	3	1				0	0			
			19	0	0			0		170301 Body and Fender
TOTAL	13	9	19	0	0	0	3	0	(18)	
602.281 Mechanic, Auto	98	22				40	8			
223.387 Partsman, Auto	8	5				0	1			
			40	0	35			0		170302 Auto Mechanic
			2	0	0			0		170399 Auto Parts
TOTAL	106	27	42	0	35	40	9	0	(47)	
621.281 Mechanic, Aircraft Engine	0	0				0	0			
521.281 Mechanic, Jet Engine	0	0				0	0			
621.781 Mechanic, Aircraft Accessories	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			0	0	0			0		170401 Aircraft Mechanic
			0	0	0			0		160101 Aeronautical Technology
TOTAL	0	0	0	0	0	0	0	0	0	
633.281 Office Machines Repairman	1	3				0	1			
			0	0	0			0	(3)	170600 Business Machines Repair
141.081 Illustrator	0	0				0	0			
141.081 Layout Man (Pub. and Printing)	0	0				0	0			
			2	0	0			0		170700 Commercial Art
			1	0	8			0		170702 Display
TOTAL	0	0	3	0	8	0	0	0	(11)	
972.382 Photolithographer	0	0				0	0			
143. Photographer	0	3				0	0			
			6	0	0			0		170900 Commercial Photography
TOTAL	0	3	6	0	0	0	0	0	(9)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
741.884 Painter, Spray	1	3				0	0			
840.781 Painter	5	21				0	8			
842.884 Dry Wall Applicator	0	0				0	0			
860.381 Carpenter	10	22				0	29			
861.781 Tile Setter	0	0				0	0			
864.781 Floor Layer	0	2				0	0			
866.381 Roofer	6	7				0	0			
			14	0	9			0		171001 Carpentry
TOTAL	22	55	14	0	9	0	37	0	(93)	
828.281 Electronics Mechanic	0	4				0	0			
821.381 Lineman	12	0				0	3			
824.281 Electrician	15	10				0	7			
721.281 Electric Motor Repairman	0	0				0	0			
726.281 Electronics Assembler	0	3				0	0			
			29	0	18			0		171502 Electronics
TOTAL	27	17	29	0	18	0	10	0	(47)	
899.281 Maintenance Man	4	2				0	0			
899.381 Maintenance Man, Bldg.	15	11				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
			1	0	0			0		171100 Custodial Services
TOTAL	19	13	1	0	0	0	0	0	5	
625.281 Diesel Mechanic	6	3	6	0	0	0	0	0	(3)	171200 Diesel Mechanics
720.281 Radio and TV Repairman	14	2	1	0	0	0	1	0	10	171503 Radio and TV Repair
650.582 Linotype Operator	1	1				0	0			
651.782 Cylinder Press Oper.	2	3				0	0			
651.782 Offset Press Man	3	0	0	0	0	0	0	0		171901 Composition Makeup and Typesetting
			12	0	10			0		171902 Printing
TOTAL	6	4	12	0	10	0	0	0	(20)	
705.884 Bench Grinder	3	2				0	0			
600.280 Machinist, All Round	15	8				0	1			
600.381 Layout Man	2	0				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS	
			OESC Registrants	Public			Federal		Private Schools			
				Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal				
603. thru 609.	Machine Set Up Operator	2	6				0	0				
603.280	Precision Grinder	0	1				0	0				
609.885	Production Machine Tool Operator	5	0				0	0				
				9	0	9			0		172302	Machinist
				0	0	0			0		172303	Machine Tool Operator
TOTAL		27	17	9	0	9	0	1	0	(9)		
615.782	Shear Press Operator	0	0				0	0				
615.782	Punch Press Operator	0	0				0	0				
617.280	Press Operator (Heavy)	0	1				0	0				
617.380	Break Operator	0	0				0	0				
619.380	Metal Fabricator	2	0				0	0				
804.281	Sheet Metal Worker	6	4				0	0				
809.381	Layout Man	0	0				0	0				
				1	0	0			0		172305	Sheet Metal
TOTAL		8	5	1	0	0	0	0	0	2		

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
810.782 Welding Machine Operator	0	0				0	0			
810.884 thru 812.884 Welder	30	20				0	3			
816.782 Flame Cutter Machine Operator	1	0				0	0			
816.884 Flame Cutter, Hand	1	1				0	0			
			9	0	26			0		172306 Welding
			15	0	0			0		010300 Agricultural Mechanics (Welding)
TOTAL	32	21	24	0	26	0	3	0	(42)	
526.781 Baker	3	1	0	0	0	0	0	0	2	172901 Baker
313.131 Chef	2	2				0	0			
313.381 Cook	108	61				0	7			
			2	0	0			0		172902 Cook/Chef
TOTAL	110	63	2	0	0	0	7	0	38	

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
952.782 Power Plant Operator	1	0				0	0			
950.782 Stationary Engineer	2	2				0	0			
			0	0	0			0		173200 Stationary Energy
TOTAL	3	2	0	0	0	0	0	0	1	
316.884 Meat Cutter	10	10				0	0			
521.381 Butcher	4	0				0	0			
525.884 Boner or Skinner	0	1				0	0			
			1	0	0			0		172903 Butcher
			0	0	0			0		172903 Meat Cutter
TOTAL	14	11	1	0	0	0	0	0	2	
780.381 Furniture Upholsterer	0	0				0	0			
			0	0	20			0	(20)	173500 Upholstery
660.280 Cabinet Maker	0	2				0	0			
669.380 Mill Man	0	0				0	0			
			1	0	41			0		173601 Cabinet Making
TOTAL	0	2	1	0	41	0	0	0	(44)	

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHWEST-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
861.381 Brick Layer	5	3				0	0			
844.884 Cement Mason	6	4				0	4			171004 Masonry
			1	0	0			0		
TOTAL	11	7	1	0	0	0	4	0	(1)	
1659.883 Heavy Equipment Operator	26	19				0	3			
			0	0	0			0	4	171003 Heavy Equipment Operator

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTH-CENTRAL REGION*

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
407.884 Grounds Keeper	6	2	0	0	0	0	2	0	2	010500 Ornamental Horticulture
421.883 Farm Hand, General	10	3				0	0			
400. Farm Manager, Owner or Supervisor	75	0				0	0			
			26	0	0			0		010100 Agricultural Production
			0	0	0			0		160201 Ranch Operation
TOTAL	85	3	26	0	0	0	0	0	56	
624.281 Mechanic, Farm Equipment	0	0				0	0			
			0	0	0			0		170304 Farm Engine Repair
			19	0	0			0		010300 Agricultural Mechanics
TOTAL	0	0	19	0	0	0	0	0	(19)	
250.258 Salesman, Insurance	10	3	0	0	0	0	0	0	7	041300 Insurance
250.258 Salesman, Real Estate	3	0	0	0	0	0	0	0	3	041700 Real Estate

*McClain, Garvin, Pontotoc, Murray, Carter, Johnston, Love, and Marshall Counties

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
250. Sales Occupations (Commodities) thru 259.	68	28				0	0			
290.000 Sales Clerk	90	36				0	0			
292.000 Routeman	6	3				0	0			
			2	0	0			0		040200 Apparel and Accessories
			1	0	0			0		040300 Automotive
			2	0	0			0		040600 Food Distribution
			3	0	0			0		040800 General Merchandise
			0	0	0			0		040900 Hdw., Bldg. Mat., Farm and Garden Supplies
			1	0	0			0		041400 International Trade
			6	0	0			0		042000 Retail Trade
			1	0	0			0		043100 Wholesale Trade
			0	0	0			0		041600 Petroleum
			1	0	0			0		010200 Agricultural Supplies and Services
			1	0	0			0		041000 Home Furnishings
			1	0	0			0		010400 Agriculture Products
SUBTOTAL	164	67	19	0	0	0	0	0	78	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
242.368 Room Clerk	0	0	0	0	0	0	0	0	0	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	7	4				0	0			
			2	0	0			0		040100 Advertising Services
			0	0	0			0		040400 Finance and Credit
			0	0	0			0		041900 Transportation
SUBTOTAL	7	4	2	0	0	0	0	0	1	
311.878 Waitress/Waiter	70	33				0	0			
310.868 Hostess	0	1				0	0			
319.138 Food Service Supervisor	8	0				0	0			
			1	0	0			0		172904 Waiter/Waitress
			0	0	0			0		040700 Food Services
			1	0	0			0		172900 Quantity Food Occupations
			4	0	0			0		090203 Food Management and Services
SUBTOTAL	78	36	6	0	0	0	0	0	36	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
TOTAL	262	110	27	0	0	0	0	0	125	
079.378 Dental Assistant	4	0	0	0	0	0	0	0	4	070101 Dental Assistant
078.381 Medical Laboratory Technician	2	0				0	0			
078.381 Medical Laboratory Assistant	2	1	0	0	6	0	0	0		070203 Medical Laboratory Technician
TOTAL	4	1	0	0	6	0	0	0	(3)	
075.378 Nurse, Registered	63	2	0 0 0	0 0 0	0 0 0	0	0	0 0 0		070301 Nurse, Associate Nurse, Diploma Nurse, Baccalaureate
TOTAL	63	2	0	0	0	0	0	0	61	
079.378 Nurse, Vocational	111	9	36	0	0	0	0	0	66	070302 LPN

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	138	72	1	0	16	0	0	0	49	070303 Nurse Aide
079.378 Surgical Technician	4	0	0	0	0	0	0	0	4	070305 Surgical Technician
078.368 Dental Hygienist	2	0	0	0	0	0	0	0	2	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	3	0	0	0	0	0	0	0	3	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	15	1	0	0	0	0	0	0	14	070904 Medical Assistant
249.388 Medical Record Clerk	5	1	0	0	0	0	0	0	4	070991 Medical Record Clerk

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
219.388 Ward Clerk	3	1	0	0	0	0	0	0	2	079902 Ward Clerk
100.388 Medical Record Technician	0	0	0	0	0	0	0	0	0	070201 Medical Record Technician
201.368 Medical Secretary	10	0	0	0	0	0	0	0	10	070911 Medical Secretary
781.884 Cutter, Hand or Machine	4	1				0	1			
785.381 Seamstress	0	0				0	0			
786. Sewing Machine Operator	107	54	2	0	0	0	0	0		090202 Clothing Production
TOTAL	111	55	2	0	0	0	1	0	53	
215.388 Bookkeeping Machine Operator	12	3				0	0			
210.388 Bookkeeper, Hand	30	22				0	1			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
249.268 Claims Clerk	0	0				0	0			
209.388 Statement Clerk	2	0				0	0			
215.488 Payroll Clerk	6	7				0	0			
219.388 Interest Clerk	0	0				0	0			
217.388 Transit Clerk	0	0				0	0			
249.368 New Account Clerk	2	1				0	0			
249.368 Credit Clerk	0	0				0	0			
219.488 Accounting Clerk	10	4				0	0			
219.488 Insurance Checker	0	0				0	0			
211.368 Cashier	13	1				0	0			
212.368 Teller	6	1				0	0			
			22	0	8			0		140100 Accounting and Computing
SUBTOTAL	81	39	22	0	8	0	1	0	11	
209.388 Clerk-Typist	35	22				0	5			
219.388 General Office Clerk	65	54				0	8			
219.388 Sorting Clerk	0	0				0	0			
			15	0	0			0		140300 Filing and Office Machines
			9	0	26			0		140900 Typing and Related
SUBTOTAL	100	76	24	0	26	0	13	0	(39)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
205.368 Personnel Clerk	5	2	0	0	0	0	0	0	3	140600 Personnel, Training and Related
201.368 Secretary	51	16				0	0			
202.388 Stenographer	20	5	6	0	21	0	0	0		140700 Secretary or Stenographer
SUBTOTAL	71	21	6	0	21	0	0	0	23	
TOTAL	257	138	52	0	55	0	14	0	(2)	
213.782 Tab Machine Operator	0	0				0	0			
213.582 Keypunch Operator	8	4				0	0			
213.382 Card-Tape Converter Operator	0	2				0	0			
			22	0	10			0		140200 Business Data Processing
TOTAL	8	6	22	0	10	0	0	0	(30)	
001.281 Draftsman, Architectural	0	1				0	0			
003.281 Draftsman, Electrical	0	0				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.281 Draftsman, Electronics	0	0				0	0			
010.281 Draftsman, Geological	0	0				0	0			
017.281 Draftsman, Map	0	1				0	0			
005.281 Draftsman, Civil	0	0				0	0			
007.281 Draftsman, Mechanical	0	0				0	0			
			0	0	0			0		160103 Architectural Technology
			4	0	0			0		160198 Drafting and Design
			2	0	0			0		171300 Drafting
TOTAL	0	2	6	0	0	0	0	0	(8)	
029.281 Technician, Laboratory	0	1				0	0			
			0	0	0			0	(1)	160105 Chemical Technology
005.181 Technician, Civil	3	0				0	0			
018.188 Surveyor	1	1				0	0			
			0	0	0			0		160106 Civil and Highway Technology
TOTAL	4	1	0	0	0	0	0	0	3	
003.181 Technician, Electrical	2	2				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
003.181 Technician Electronics	0	0				0	0			
			6	0	0			0		160108 Electronics Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	2	2	6	0	0	0	0	0	(6)	
012.288 Technician, Industrial	0	0				0	0			
019.281 Technician, Quality Control	5	0				0	0			
			0	0	0			0		160111 Industrial Technology
TOTAL	5	0	0	0	0	0	0	0	5	
710.281 Instrument Man	0	0				0	0			
600.280 Instrument Maker	0	4				0	0			
019.281 Technician, Instrumentation	0	0				0	0			
			0	0	0			0		160112 Instrumentation Technology
			0	0	0			0		172100 Instrument Repair
TOTAL	0	4	0	0	0	0	0	0	(4)	

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
007.181 Technician, Mechanical	5	1				0	0			
			0	0	0			0		160113 Mechanical Technology
			0	0	0			0		160109 Electro-Mechanical Technology
TOTAL	5	1	0	0	0	0	0	0	4	
020.188 Programmer, Scientific	0	0	0	0	0	0	0	0	0	160117 Scientific Data Processing
139.288 Writer, Technical	0	0	0	0	0	0	0	0	0	160197 Technical Writing
213.382 Digital Computer Operator	2	1				0	0			
219.388 Programmer, Detail	0	0				0	0			
020.188 Programmer, Business	3	0				0	0			
			0	0	50			0		160401 Computer Science
TOTAL	5	1	0	0	50	0	0	0	(46)	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
196.283 Commercial Pilot	0	1	0	0	0	0	0	10	(11)	160601 Commercial Pilot
168.168 Safety Man	0	0				0	0			
168.168 Building Inspector	2	1				0	0			
373. Fireman	4	1	0	0	0	0	0	0		160602 Fire and Safety Technology
			0	0	0			0		172801 Fireman Training
TOTAL	6	2	0	0	0	0	0	0	4	
375. Policeman or Detective	8	3				0	2			
377. Sheriff or Baliff	2	0	1	0	0	0	0	0		172802 Law Enforcement Training
TOTAL	10	3	1	0	0	0	2	0	4	
637.281 Mechanic, Air Conditioning	13	1	8	0	8	0	4	0	(8)	170100 Air Conditioning

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
862.381 Plumber	6	9	0	0	0	0	0	0	(3)	170102 Heating and Plumbing
827.281 Appliance Repairman	5	1	0	0	0	0	0	0	4	170200 Appliance Repair
807.381 Auto Body Repairman	6	4				0	1			
845.781 Painter, Auto	3	1	10	0	8	0	0	0		170301 Body and Fender
TOTAL	9	5	10	0	8	0	1	0	(15)	
602.281 Mechanic, Auto	46	9				0	14			
223.387 Partsman, Auto	3	2				0	1			
			28	0	10			0		170302 Auto Mechanic
			1	0	0			0		170399 Auto Parts
TOTAL	49	11	29	0	10	0	15	0	(16)	
621.281 Mechanic, Aircraft Engine	0	0				0	0			
521.281 Mechanic, Jet Engine	0	0				0	0			
621.781 Mechanic, Aircraft Accessories	0	1				0	0			

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			0	0	0			0		170401 Aircraft Mechanic
			0	0	0			0		160101 Aeronautical Technology
TOTAL	0	1	0	0	0	0	0	0	(1)	
633.281 Office Machines Repairman	2	0	0	0	0	0	0	0	2	170600 Business Machines Repair
141.081 Illustrator	2	1				0	0			
141.081 Layout Man (Pub. and Printing)	0	0				0	0			
			0	0	0			0		170700 Commercial Art
			0	0	0			0		170702 Display
TOTAL	2	1	0	0	0	0	0	0	1	
972.382 Photolithographer	0	0				0	0			
143. Photographer	0	1				0	0			
			0	0	0			0		170900 Commercial Photography
TOTAL	0	1	0	0	0	0	0	0	(1)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
741.884 Painter, Spray	2	3				0	1			
840.781 Painter	3	5				0	3			
842.884 Dry Wall Applicator	0	0				0	0			
860.381 Carpenter	30	26				0	16			
861.781 Tile Setter	0	0				0	0			
864.781 Floor Layer	0	0				0	0			
866.381 Roofer	3	4				0	0			
			12	0	0			0		171001 Carpentry
TOTAL	38	38	12	0	0	0	20	0	(32)	
828.281 Electronics Mechanic	0	1				0	0			
821.381 Lineman	14	3				0	0			
824.281 Electrician	10	3				0	0			
721.281 Electric Motor Repairman	0	0				0	0			
726.281 Electronics Assembler	26	13				0	0			
			2	0	26			0		171502 Electronics
TOTAL	50	20	2	0	26	0	0	0	2	
899.281 Maintenance Man	6	1				0	0			
899.381 Maintenance Man, Bldg.	12	4				0	1			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			0	0	0			0		171100 Custodial Services
TOTAL	18	5	0	0	0	0	1	0	12	
625.281 Diesel Mechanic	0	1	0	0	13	0	0	0	(14)	171200 Diesel Mechanics
720.281 Radio and TV Repairman	8	0	0	0	0	0	0	0	8	171503 Radio and TV Repair
650.582 Linotype Operator	1	0				0	0			
651.782 Cylinder Press Oper.	0	0				0	0			
651.782 Offset Press Man	2	0				0	0			
			0	0	0			0		171901 Composition Makeup and Typesetting
			1	0	0			0		171902 Printing
TOTAL	3	0	1	0	0	0	0	0	2	
705.884 Bench Grinder	0	1				0	0			
600.280 Machinist, All Round	14	4				0	0			
600.381 Layout Man	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
603. thru 609. Machine Set Up Operator	5	3				0	2			
603.280 Precision Grinder	2	2				0	0			
609.885 Production Machine Tool Operator	15	1				0	0			
			3	0	31			0		172302 Machinist
			0	0	0			0		172303 Machine Tool Operator
TOTAL	36	11	3	0	31	0	2	0	(11)	
615.782 Shear Press Operator	0	0				0	0			
615.782 Punch Press Operator	0	0				0	0			
617.280 Press Operator (Heavy)	0	0				0	0			
617.380 Break Operator	0	0				0	4			
619.380 Metal Fabricator	0	0				0	0			
804.281 Sheet Metal Worker	6	5				0	1			
809.381 Layout Man	3	0				0	0			
			0	0	0			0		172305 Sheet Metal
TOTAL	9	5	0	0	0	0	0	0	4	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
810.782 Welding Machine Operator	0	0				0	0			
810.884 thru 812.884 Welder	23	18				0	7			
816.782 Flame Cutter Machine Operator	0	0				0	0			
816.884 Flame Cutter, Hand	0	0				0	0			
			12	0	8			0		172306 Welding
			19	0	0			0		010300 Agricultural Mechanics (Welding)
TOTAL	23	18	31	0	8	0	7	0	(41)	
526.781 Baker	0	0				0	0			
			0	0	0			0	0	172901 Baker
313.131 Chef	0	0				0	0			
313.381 Cook	84	21				0	0			
			2	0	0			0		172902 Cook/Chef
TOTAL	84	21	2	0	0	0	0	0	61	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
952.782 Power Plant Operator	0	0				0	0			
950.782 Stationary Engineer	3	3				0	0			
			0	0	0			0		173200 Stationary Energy
TOTAL	3	3	0	0	0	0	0	0	0	
316.884 Meat Cutter	2	3				0	0			
521.381 Butcher	0	2				0	1			
525.884 Boner or Skinner	0	1				0	0			
			0	0	0			0		172903 Butcher
			0	0	0			0		172903 Meat Cutter
TOTAL	2	6	0	0	0	0	1	0	(5)	
780.381 Furniture Upholsterer	0	1				0	0			
			0	0	0			0	(1)	173500 Upholstery
660.280 Cabinet Maker	0	2				0	0			
669.380 Mill Man	0	0				0	0			
			0	0	8			0		173601 Cabinet Making
TOTAL	0	2	0	0	8	0	0	0	(10)	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTH-CENTRAL REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
861.381 Brick Layer	5	3				0	2			
844.884 Cement Mason	15	6				0	0			171004 Masonry
			0	0	0			0		
TOTAL	20	9	0	0	0	0	2	0	9	
659.883 Heavy Equipment Operator	35	14				0	19			
			0	0	0			0	2	171003 Heavy Equipment Operator

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION*

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
407.884 Grounds Keeper	5	3	0	0	0	0	0	0	2	010500 Ornamental Horticulture
421.883 Farm Hand, General	15	6				0	0			
400. Farm Manager, Owner or Supervisor	105	0				0	0			
TOTAL	120	6	35 3 38	0 0 0	0 0 0	0	0	0 0 0	76	010100 Agricultural Production 160201 Ranch Operation
624.281 Mechanic, Farm Equipment	2	0				0	2			
TOTAL	2	0	4 36 40	0 0 0	0 0 0	0	2	0 0 0	(40)	170304 Farm Engine Repair 010300 Agricultural Mechanics
250.258 Salesman, Insurance	5	3	1	0	0	0	1	0	0	041300 Insurance
250.258 Salesman, Real Estate	2	1	3	0	0	0	0	0	(2)	041700 Real Estate

*Coal, Pittsburg, Latimer, LeFlore, Atoka, Pushmataha, Bryan, Choctaw, and McCurtain Counties

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
250. Sales	30	60				0	0			
thru Occupations										
259. (Commodities)						0	0			
290.000 Sales Clerk	81	42				0	5			
292.000 Routeman	8	2								
			5	0	0			0		040200 Apparel and Accessories
			0	0	0			0		040300 Automotive
			4	0	0			0		040600 Food Distribution
			6	0	16			0		040800 General Merchandise
			1	0	0			0		040900 Hdw., Bldg. Mat., Farm and Garden Supplies
			0	0	0			0		041400 International Trade
			3	0	0			0		042000 Retail Trade
			0	0	0			0		043100 Wholesale Trade
			1	0	0			0		041600 Petroleum
			3	0	0			0		010200 Agricultural Supplies and Services
			1	0	0			0		041000 Home Furnishings
			2	0	0			0		010400 Agriculture Products
SUBTOTAL	119	104	26	0	16	0	5	0	(32)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
242.368 Room Clerk	0	2	1	0	0	0	0	0	(3)	041100 Hotel and Lodging
250 Thru 259 Sales Occupations (Services)	8	4				0	0			
			1	0	0			0		040100 Advertising Services
			2	0	0			0		040400 Finance and Credit
			1	0	0			0		041900 Transportation
SUBTOTAL	8	4	4	0	0	0	0	0	0	
311.878 Waitress/Waiter	75	49				0	0			
310.868 Hostess	0	0				0	0			
319.138 Food Service Supervisor	1	1				0	0			
			1	0	0			0		172904 Waiter/Waitress
			1	0	0			0		040700 Food Services
			0	0	0			0		172900 Quantity Food Occupations
			0	0	0			0		090203 Food Management and Services
SUBTOTAL	76	50	2	0	0	0	0	0	24	

NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
TOTAL	210	164	37	0	16	0	6	0	(13)	
079.378 Dental Assistant	3	0	0	0	0	0	0	0	3	070101 Dental Assistant
078.381 Medical Laboratory Technician	6	0				0	0			
078.381 Medical Laboratory Assistant	6	1	0	0	0	0	0	0		070203 Medical Laboratory Technician
TOTAL	12	1	0	0	0	0	0	0	11	
075.378 Nurse, Registered	65	5				0	0			
			0	0	0			0		070301 Nurse, Associate
			0	0	0			0		Nurse, Diploma
			0	0	0			0		Nurse, Baccalaureate
TOTAL	65	5	0	0	0	0	0	0	60	
079.378 Nurse, Vocational	106	11	42	0	0	0	0	0	53	070302 LPN

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
355.878 Nurse Aide	122	65	0	0	0	0	6	0	51	070303 Nurse Aide
079.378 Surgical Technician	5	0	0	0	0	0	0	0	5	070305 Surgical Technician
078.368 Dental Hygienist	2	0	0	0	0	0	0	0	2	070102 Dental Hygienist
079.368 Inhalation Therapy Technician	2	0	0	0	0	0	0	0	2	070903 Inhalation Therapy Technician or Aide
079.368 Medical Assistant	11	0	0	0	0	0	0	0	11	070904 Medical Assistant
249.388 Medical Record Clerk	8	2	0	0	0	0	0	0	6	070991 Medical Record Clerk

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NET ADDITIONAL MANPOWER REQUIREMENTS
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SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
219.388 Ward Clerk	11	0	0	0	0	0	0	0	11	079902 Ward Clerk
100.388 Medical Record Technician	3	0	0	0	0	0	0	0	3	070201 Medical Record Technician
201.368 Medical Secretary	8	0	0	0	0	0	0	0	8	070911 Medical Secretary
781.884 Cutter, Hand or Machine	8	5				0	0			
785.381 Seamstress	0	0				0	0			
786. Sewing Machine Operator	95	106	2	0	0	0	0	0		090202 Clothing Production
TOTAL	103	111	2	0	0	0	0	0	(10)	
215.388 Bookkeeping Machine Operator	10	4				0	0			
210.388 Bookkeeper, Hand	15	20				0	5			

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	Public: Reimbursed Public	Public: Non-Reimbursed Public	Public: Adult	Federal: MDTA	Federal: Other Federal	Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
249.268 Claims Clerk	0	0				0	0			
209.388 Statement Clerk	0	0				0	0			
215.488 Payroll Clerk	3	0				0	0			
219.388 Interest Clerk	0	0				0	0			
217.388 Transit Clerk	0	0				0	0			
249.368 New Account Clerk	3	1				0	0			
249.368 Credit Clerk	0	0				0	0			
219.488 Accounting Clerk	10	3				0	1			
219.488 Insurance Checker	0	0				0	1			
211.368 Cashier	10	9				0	0			
212.368 Teller	10	3				0	0			
			2	0	5			0		140100 Accounting and Computing
SUBTOTAL	61	40	2	0	5	0	7	0	7	
209.388 Clerk-Typist	30	25				0	5			
219.388 General Office Clerk	65	60				0	27			
219.388 Sorting Clerk	0	0				0	0			
			48	0	0			0		140300 Filing and Office Machines
			0	0	0			0		140900 Typing and Related
SUBTOTAL	95	85	48	0	0	0	32	0	(70)	

6684

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
205.368 Personnel Clerk	4	0	0	0	0	0	0	0	4	140600 Personnel, Training and Related
201.368 Secretary	33	29				0	8			
202.388 Stenographer	14	12	5	0	15	20	0	0		140700 Secretary or Stenographer
SUBTOTAL	47	41	5	0	15	20	8	0	(42)	
TOTAL	207	166	55	0	20	20	47	0	(101)	
213.782 Tab Machine Operator	0	0				0	0			
213.582 Keypunch Operator	10	11				0	0			
213.382 Card-Tape Converter Operator	0	0				0	0			
			0	0	0			0		140200 Business Data Processing
TOTAL	10	11	0	0	0	0	0	0	(1)	
001.281 Draftsman, Architectural	5	0				0	0			
003.281 Draftsman, Electrical	0	1				0	0			

CR08668

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	Public: Reimbursed Public	Public: Non-Reimbursed Public	Public: Adult	Federal: MDTA	Federal: Other Federal	Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.281 Draftsman, Electronics	0	0				0	0			
010.281 Draftsman, Geological	4	0				0	0			
017.281 Draftsman, Map	6	0				0	0			
005.281 Draftsman, Civil	5	1				0	0			
007.281 Draftsman, Mechanical	12	2				0	3			
			1	0	0			0		160103 Architectural Technology
			2	0	0			0		160198 Drafting and Design
			6	0	6			0		171300 Drafting
TOTAL	32	4	9	0	6	0	3	0	8	
029.281 Technician, Laboratory	0	0				0	0			
			5	0	0			0	(5)	160105 Chemical Technology
005.181 Technician, Civil	5	0				0	0			
018.188 Surveyor	10	4				0	2			
			0	0	0			0		160106 Civil and Highway Technology
TOTAL	15	4	0	0	0	0	2	0	9	
003.181 Technician, Electrical	0	3				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
003.181 Technician Electronics	6	0				0	0			
			4	0	20			0		160108 Electronics Technology
			1	0	0			0		160109 Electro-Mechanical Technology
TOTAL	6	3	5	0	20	0	0	0	(22)	
012.288 Technician, Industrial	4	1				0	0			
019.281 Technician, Quality Control	6	0				0	0			
			1	0	0			0		160111 Industrial Technology
TOTAL	10	1	1	0	0	0	0	0	8	
710.281 Instrument Man	1	0				0	0			
600.280 Instrument Maker	0	0				0	0			
019.281 Technician, Instrumentation	0	0				0	0			
			1	0	0			0		160112 Instrumentation Technology
			0	0	0	0		0		172100 Instrument Repair
TOTAL	1	0	1	0	0	0	0	0	0	

6687

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
007.181 Technician, Mechanical	0	0				0	0			
			2	0	0			0		160113 Mechanical Technology
			0	0	23			0		160109 Electro-Mechanical Technology
TOTAL	0	0	2	0	23	0	0	0	(25)	
020.188 Programmer, Scientific	0	0	0	0	0	0	0	0	0	160117 Scientific Data Processing
139.288 Writer, Technical	0	0	0	0	0	0	0	0	0	160197 Technical Writing
213.382 Digital Computer Operator	0	0				0	0			
219.388 Programmer, Detail	0	0				0	0			
020.188 Programmer, Business	5	1				0	0			
			9	0	11			0		160401 Computer Science
TOTAL	5	1	9	0	11	0	0	0	(16)	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
196.283 Commercial Pilot	0	0	0	0	0	0	0	0	0	160601 Commercial Pilot
168.168 Safety Man	3	0				0	0			
168.168 Building Inspector	5	1				0	0			
373. Fireman	7	3		0	0	0	0	0		160602 Fire and Safety Technology
			2	0	0			0		172801 Fireman Training
TOTAL	15	4	2	0	0	0	0	0	9	
375. Policeman or Detective	6	2				0	0			
377. Sheriff or Baliff	0	0				0	0			172802 Law Enforcement Training
			0	0	0			0		
TOTAL	6	2	0	0	0	0	0	0	4	
637.281 Mechanic, Air Conditioning	17	1				0	0			
			12	0	0			0	4	170100 Air Conditioning

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
862.381 Plumber	13	8	8	0	0	0	3	0	(6)	170102 Heating and Plumbing
827.281 Appliance Repairman	7	2	1	0	0	0	0	0	4	170200 Appliance Repair
807.381 Auto Body Repairman	5	3				0	1			
845.781 Painter, Auto	2	2				0	0			
			13	0	0			0		170301 Body and Fender
TOTAL	7	5	13	0	0	0	1	0	(12)	
602.281 Mechanic, Auto	51	16				0	2			
223.387 Partsman, Auto	4	0				0	3			
			36	0	0			0		170302 Auto Mechanic
			1	0	0			0		170399 Auto Parts
TOTAL	55	16	37	0	0	0	5	0	(3)	
621.281 Mechanic, Aircraft Engine	0	0				0	0			
521.281 Mechanic, Jet Engine	0	0				0	0			
621.781 Mechanic, Aircraft Accessories	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
			0	0	0			0		170401 Aircraft Mechanic
			0	0	0			0		160101 Aeronautical Technology
TOTAL	0	0	0	0	0	0	0	0	0	
633.281 Office Machines Repairman	0	1	1	0	0	0	0	0	(2)	170600 Business Machines Repair
141.081 Illustrator	0	0				0	0			
141.081 Layout Man (Pub. and Printing)	3	0				0	0			
			0	0	0			0		170700 Commercial Art
			1	0	0			0		170702 Display
TOTAL	3	0	1	0	0	0	0	0	2	
972.382 Photolithographer	0	0				0	0			
143. Photographer	0	0				0	0			
			0	0	0			0		170900 Commercial Photography
TOTAL	0	0	0	0	0	0	0	0	0	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			Public			Federal				
		OESC Registrants	Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal	Private Schools		
741.884 Painter, Spray	6	3				0	0			
840.781 Painter	12	4				0	0			
842.884 Dry Wall Applicator	5	0				0	0			
860.381 Carpenter	58	37				0	3			
861.781 Tile Setter	5	2				0	0			
864.781 Floor Layer	5	0				0	0			
866.381 Roofer	10	0				0	0			
			35	0	0			0		171001 Carpentry
TOTAL	101	46	35	0	0	0	3	0	17	
828.281 Electronics Mechanic	0	2				0	0			
821.381 Lineman	15	2				0	0			
824.281 Electrician	14	8				0	0			
721.281 Electric Motor Repairman	0	0				0	0			
726.281 Electronics Assembler	25	23				0	0			
			6	0	0			0		171502 Electronics
TOTAL	54	35	6	0	0	0	0	0	13	
899.281 Maintenance Man	3	1				0	0			
899.381 Maintenance Man, Bldg.	10	3				0	17			

6692

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
										171100 Custodial Services
TOTAL	13	4	0	0	0	0	17	0	(8)	
625.281 Diesel Mechanic	6	3	7	0	0	0	0	0	(4)	171200 Diesel Mechanics
720.281 Radio and TV Repairman	10	2	1	0	0	0	0	0	7	171503 Radio and TV Repair
650.582 Linotype Operator	2	1				0	0			
651.782 Cylinder Press Oper.	0	0				0	0			
651.782 Offset Press Man	3	0	0	0	0	0	0	0		171901 Composition Makeup and Typesetting
			0	0	0			0		171902 Printing
TOTAL	5	1	0	0	0			0	4	
705.884 Bench Grinder	0	0				0	0			
600.280 Machinist, All Round	25	9				0	4			
600.381 Layout Man	0	0				0	0			

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS		DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
603. thru 609.	Machine Set Up Operator	0	3				0	0			
603.280	Precision Grinder	2	0				0	0			
609.885	Production Machine Tool Operator	12	4				0	0			
				20	0	0			0		172302 Machinist
				0	0	0			0		172303 Machine Tool Operator
TOTAL		39	16	20	0	0	0	4	0	(1)	
615.782	Shear Press Operator	2	0				0	0			
615.782	Punch Press Operator	4	0				0	0			
617.280	Press Operator (Heavy)	0	1				0	0			
617.380	Break Operator	3	1				0	0			
619.380	Metal Fabricator	0	2				0	0			
804.281	Sheet Metal Worker	10	4				0	0			
809.381	Layout Man	4	2				0	0			
				0	0	0			0		172305 Sheet Metal
TOTAL		23	10	0	0	0	0	0	0	13	

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NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY: OESC Registrants	SUPPLY: Public: Reimbursed Public	SUPPLY: Public: Non-Reimbursed Public	SUPPLY: Public: Adult	SUPPLY: Federal: MDTA	SUPPLY: Federal: Other Federal	SUPPLY: Private Schools	DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
810.782 Welding Machine Operator	0	0				0	0			
810.884 thru 812.884 Welder	45	30				25	1			
816.782 Flame Cutter Machine Operator	0	1				0	0			
816.884 Flame Cutter, Hand	0	1				0	0			
			6	0	16			0		172306 Welding
			36	0	0			0		010300 Agricultural Mechanics (Welding)
TOTAL	45	32	42	0	16	25	1	0	(71)	
526.781 Baker	3	2	0	0	0	0	0	0	1	172901 Baker
313.131 Chef	0	0				0	0			
313.381 Cook	95	21				0	4			
			1	0	0			0		172902 Cook/Chef
TOTAL	95	21	1	0	0	0	4	0	69	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
			Public			Federal				
		OESC Registrants	Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal	Private Schools		
952.782 Power Plant Operator	0	0				0	0			
950.782 Stationary Engineer	3	1				0	0			
			0	0	0			0		173200 Stationary Energy
TOTAL	3	1	0	0	0	0	0	0	2	
316.884 Meat Cutter	0	0				0	0			
521.381 Butcher	0	1				0	1			
525.884 Boner or Skinner	0	1				0	0			
			1	0	0			0		172903 Butcher
			0	0	0			0		172903 Meat Cutter
TOTAL	0	2	1	0	0	0	1	0	(4)	
780.381 Furniture Upholsterer	0	3				0	0			
			0	0	0			0	(3)	173500 Upholstery
660.280 Cabinet Maker	5	1				0	0			
669.380 Mill Man	0	0				0	0			
			8	0	0			0		173601 Cabinet Making
TOTAL	5	1	8	0	0	0	0	0	(4)	

NET ADDITIONAL MANPOWER REQUIREMENTS
1971

SOUTHEASTERN REGION

CLUSTERS OF OCCUPATIONS	DEMAND	SUPPLY							DEMAND MINUS SUPPLY	CLUSTERS OF PROGRAMS
		OESC Registrants	Public			Federal		Private Schools		
			Reimbursed Public	Non-Reimbursed Public	Adult	MDTA	Other Federal			
861.381 Brick Layer	12	2				0	0			
844.884 Cement Mason	14	8				0	0			171004 Masonry
			0	0	0			0		
TOTAL	26	10	0	0	0	0	0	0	16	
659.883 Heavy Equipment Operator	34	25				30	10			
			0	0	0			0	(31)	171003 Heavy Equipment Operator

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CHAPTER III

A DESCENDING RANK ORDERING OF PROGRAM CLUSTERS BY STATEWIDE NET MANPOWER DEMAND

In this chapter, a descending rank order of program clusters by statewide net manpower demand is presented. The program cluster with the greatest net manpower demand is ranked one (1) while the program cluster with the least net manpower demand is ranked sixty-seventh (67).

It must be remembered that the net manpower demand figures are only projections, not absolute values. Comparison of the ranks of specific clusters must be accompanied by an examination of the difference in net manpower demand between the clusters.

The rank ordering is provided here as a simple analysis of the interfacing tables. It may be used to quickly identify program clusters in which training is needed on a statewide basis. In addition, a quick check of the net manpower requirements for a particular occupation on a regional basis may be made.

A DESCENDING RANK ORDERING OF PROGRAM CLUSTERS
BY STATEWIDE NET MANPOWER DEMAND

Rank	Program Clusters	Statewide Totals	Oklahoma City SMSA	Tulsa SMSA	Northwest Region	North-Central Region	Northeast Region	East-Central Region	Mid-East Region	Southwest Region	Southwest-Central Region	South-Central Region	Southeast Region
1	Apparel and Accessories Automotive (Sales) Food Distribution General Merchandise Hardware, Building Material, Garden Supplies, etc. International Trade Retail Trade Wholesale Trade Petroleum (Sales) Agriculture Supplies and Services Home Furnishings Agriculture Products	1709	669	430	61	308	60	23	55	23	34	78	(32)
2	Accounting and Computing	749	470	56	32	109	(18)	39	20	61	(38)	11	7
3	Nurse, Associate Nurse, Diploma Nurse, Baccalaureate	735	177	73	27	96	65	28	40	60	48	61	60

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A DESCENDING RANK ORDERING OF PROGRAM CLUSTERS
BY STATEWIDE NET MANPOWER DEMAND

Rank	Program Clusters	Statewide Totals	Oklahoma City SMSA	Tulsa SMSA	Northwest Region	North-Central Region	Northeast Region	East-Central Region	Mid-East Region	Southwest Region	Southwest-Central Region	South-Central Region	Southeast Region
4	Licensed Practical Nurse	634	70	121	(3)	113	(6)	44	85	32	59	66	53
5	Cook-Chef	492	160	54	25	48	23	11	(29)	32	38	61	69
6	Agriculture Production Ranch Operation	486	18	17	37	67	60	26	73	11	45	56	76
7	Waiter/Waitress Food Services Quantity Food Occupations Food Management and Services	284	83	58	16	72	(1)	(7)	(17)	16	4	36	24
8	Clothing Production	256	(7)	41	2	5	16	6	(17)	119	48	53	(10)
9	Sheet Metal	218	54	99	2	18	21	4	3	(2)	2	4	13
10	Medical Secretary	202	91	32	8	15	12	4	(1)	11	12	10	8
11	Nurse Aide	172	(109)	88	14	54	8	4	(9)	27	(5)	49	51
12	Medical Assistant	160	14	67	6	16	12	3	12	(2)	7	14	11

A DESCENDING RANK ORDERING OF PROGRAM CLUSTERS
BY STATEWIDE NET MANPOWER DEMAND

Rank	Program Clusters	Statewide Totals	Oklahoma City SMSA	Tulsa SMSA	Northwest Region	North-Central Region	Northeast Region	East-Central Region	Mid-East Region	Southwest Region	Southwest-Central Region	South-Central Region	Southeast Region
13	Machinist Machine Tool Operator	142	57	202	6	(27)	(27)	11	(43)	(16)	(9)	(11)	(1)
14	Butcher Meat Cutter	139	52	52	8	7	1	12	11	3	2	(5)	(4)
15	Insurance	126	54	39	3	3	1	3	3	1	12	7	0
16	Civil and Highway Technology	117	75	13	5	5	(1)	0	1	4	3	3	9
17	Ornamental Horticulture	102	49	36	1	(3)	2	0	3	8	2	2	2
18	Ward Clerk	99	52	4	6	6	1	2	4	7	4	2	11
19	Dental Assistant	90	17	29	4	6	7	2	6	5	7	4	3
20.5	Secretary or Stenographer	89	389	(30)	13	(34)	(32)	(42)	(94)	29	(91)	23	(42)
20.5	Fire and Safety Technology Fireman Training	89	28	23	3	9	4	2	4	0	3	4	9

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A DESCENDING RANK ORDERING OF PROGRAM CLUSTERS

BY STATEWIDE NET MANPOWER DEMAND

Rank	Program Clusters	Statewide Totals	Oklahoma City SMSA	Tulsa SMSA	Northwest Region	North-Central Region	Northeast Region	East-Central Region	Mid-East Region	Southwest Region	Southwest-Central Region	South-Central Region	Southeast Region
22	Advertising Services Finance and Credit Transportation	88	28	43	3	3	(2)	3	3	7	(1)	1	0
23	Custodial Services	87	80	22	9	(4)	(12)	5	(29)	7	5	12	(8)
24	Appliance Repair	79	21	18	1	6	2	3	6	7	7	4	4
25	Law Enforcement Training	71	31	33	3	14	(17)	2	(7)	3	0	4	4
26	Personnel, Training and Related	62	26	17	0	0	3	0	2	2	5	3	4
27	Dental Hygienist	58	17	15	2	7	3	2	3	2	3	2	2
28	Stationary Energy	50	20	16	0	4	3	2	2	0	1	0	2
29	Auto Mechanics Auto Parts	48	52	111	13	29	(4)	5	(94)	2	(47)	(16)	(3)

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A DESCENDING RANK ORDERING OF PROGRAM CLUSTERS
BY STATEWIDE NET MANPOWER DEMAND

Rank	Program Clusters	Statewide Totals	Oklahoma City SMSA	Tulsa SMSA	Northwest Region	North-Central Region	Northeast Region	East-Central Region	Mid-East Region	Southwest Region	Southwest-Central Region	South-Central Region	Southeast Region
30	Medical Laboratory Technician	39	(8)	11	1	10	4	(1)	6	5	3	(3)	11
31	Instrumentation Technology Instrument Repair	36	24	15	0	2	0	0	(1)	0	0	(4)	0
32	Masonry	32	(5)	22	6	2	(1)	(1)	(15)	0	(1)	9	16
33.5	Business Machines Repair	28	7	24	3	0	(2)	(1)	(1)	1	(3)	2	(2)
33.5	Medical Record Clerk	28	1	6	1	3	3	1	1	3	(1)	4	6
35	Hotel and Lodging	24	15	4	3	1	2	(2)	2	3	(1)	0	(3)
36	Scientific Data Processing	23	10	8	0	4	1	0	0	0	0	0	0
37	Medical Record Technician	17	(2)	10	0	0	0	0	0	1	5	0	3
38.5	Inhalation Therapy Technology	16	(8)	0	1	6	1	0	4	1	6	3	2
38.5	Surgical Technician	16	8	(2)	3	1	1	3	3	1	(11)	4	5

A DESCENDING RANK ORDERING OF PROGRAM CLUSTERS
BY STATEWIDE NET MANPOWER DEMAND

Rank	Program Clusters	Statewide Totals	Oklahoma City SMSA	Tulsa SMSA	Northwest Region	North-Central Region	Northeast Region	East-Central Region	Mid-East Region	Southwest Region	Southwest-Central Region	South-Central Region	Southeast Region
40	Technical Writing	13	4	6	0	3	0	0	0	0	0	0	0
41.5	Real Estate	11	(1)	9	1	(6)	3	0	3	1	0	3	(2)
41.5	Heavy Equipment Operator	11	48	12	10	20	(22)	(5)	(35)	8	4	2	(31)
43	Chemical Technology	3	(4)	(7)	0	12	8	1	0	0	(1)	(1)	(5)
44	Baker	0	(4)	12	2	2	2	4	(22)	1	2	0	1
45	Mechanical Technology Electro-Mechanical Technology	(11)	3	10	0	(4)	(1)	1	(1)	0	2	4	(25)
46	Electronics Technology Electro-Mechanical Technology	(14)	18	37	(1)	(21)	(4)	0	(6)	(6)	(3)	(6)	(22)
47	Commercial Photography	(29)	5	(23)	(1)	1	(1)	0	0	0	(9)	(1)	0
48	Air Conditioning	(36)	(25)	(8)	7	11	(21)	10	0	11	(17)	(8)	4
49	Radio and TV Repair	(38)	(2)	3	4	(7)	9	0	(68)	(2)	10	8	7

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A DESCENDING RANK ORDERING OF PROGRAM CLUSTERS
BY STATEWIDE NET MANPOWER DEMAND

Rank	Program Clusters	Statewide Totals	Oklahoma City SMSA	Tulsa SMSA	Northwest Region	North-Central Region	Northeast Region	East-Central Region	Mid-East Region	Southwest Region	Southwest-Central Region	South-Central Region	Southeast Region
50	Heating and Plumbing	(62)	(3)	7	3	0	(2)	(19)	(14)	1	(26)	(3)	(6)
51.5	Electronics	(68)	87	(113)	11	1	(7)	(1)	(11)	(3)	(47)	2	13
51.5	Cabinet Making	(68)	23	(6)	0	(1)	(2)	0	(23)	(1)	(44)	(10)	(4)
53	Upholstery	(69)	(12)	4	0	0	(1)	(1)	(33)	(2)	(20)	(1)	(3)
54	Commercial Pilot	(70)	(7)	(43)	0	(2)	(1)	0	0	(4)	(2)	(11)	0
55	Composition, Makeup and type Setting Printing	(76)	(11)	(27)	3	2	6	0	(37)	2	(20)	2	4
56.5	Diesel Mechanics	(86)	19	19	3	(2)	2	1	(110)	3	(3)	(14)	(4)
56.5	Industrial Technology	(86)	33	24	0	2	2	3	1	5	3	5	8
58	Commercial Art Display	(88)	(8)	(6)	(1)	0	0	4	(65)	(4)	(11)	1	2

6205

A DESCENDING RANK ORDERING OF PROGRAM CLUSTERS
BY STATEWIDE NET MANPOWER DEMAND

Rank	Program Clusters	Statewide Totals	Oklahoma City SMSA	Tulsa SMSA	Northwest Region	North-Central Region	Northeast Region	East-Central Region	Mid-East Region	Southwest Region	Southwest-Central Region	South-Central Region	Southeast Region
59	Filing and Office Machines Typing and Related	(131)	469	37	(4)	20	(135)	(52)	(114)	54	(297)	(39)	(70)
60	Body and Fender	(144)	(26)	12	5	3	(23)	(2)	(76)	8	(18)	(15)	(12)
61	Architectural Technology Drafting and Design Drafting	(179)	(24)	(46)	0	(30)	(17)	(20)	(23)	(2)	(17)	(8)	8
62	Aircraft Mechanic Aeronautical Technology	(219)	43	(221)	0	(17)	(2)	(16)	(4)	(1)	0	(1)	0
63	Farm Engine Repair Agriculture Mechanics	(256)	(8)	(15)	(13)	(50)	(22)	(30)	(42)	(7)	(10)	(19)	(40)
64	Computer Science	(358)	(120)	(119)	0	(7)	(21)	(6)	(1)	(3)	(19)	(46)	(16)
65	Business Data Processing	(412)	(91)	(106)	3	(35)	(31)	(41)	(27)	(7)	(46)	(30)	(1)
66	Carpentry	(424)	(27)	(27)	(2)	(40)	(46)	(48)	(124)	(2)	(93)	(32)	17

A DESCENDING RANK ORDERING OF PROGRAM CLUSTERS

BY STATEWIDE NET MANPOWER DEMAND

Rank	Program Clusters	Statewide Totals	Oklahoma City SMSA	Tulsa SMSA	Northwest Region	North-Central Region	Northeast Region	East-Central Region	Mid-East Region	Southwest Region	Southwest-Central Region	South-Central Region	Southeast Region
67	Welding Agriculture Mechanics (Welding)	(692)	(174)	(72)	(21)	(34)	(40)	(72)	(111)	(14)	(42)	(41)	(71)

6707

APPENDIX A

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force					Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployed--Seeking Employment	Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployed--Not Seeking Employment	Total	Percent Status Unknown	Percent Disadvantaged Per Year*	Percent Not Continuing in Program
010000	VOCATIONAL AGRICULTURE											
010100	Agricultural Production	18	4	1	21	61	7	0	68	11		
010200	Agricultural Supplies/ Services**	13	6	1	20	62	4	0	66	14	20	16
010300	Agricultural Mechanics	22	11	11	44	33	22	0	55	1	26	8
010400	Agricultural Products**	18	4	1	21	61	7	0	68	11		
010500	Ornamental Horticulture**	18	4	1	21	61	7	0	68	11		
010600	Agricultural Resources**	18	4	4	21	61	7	0	68	11		
010700	Forestry**	18	4	4	21	61	7	0	68	11		
019900	Agriculture, Other**	18	4	4	21	61	7	0	68	11		
040000	DISTRIBUTIVE EDUCATION											

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force				Percent Status Unknown	Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Employment Seeking	Percent Unemployed--	Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployment	Percent Unemployed-- Not Seeking	Total	Percent Disadvantaged Per Year*	Percent Not Continuing in Program
040100	Advertising Services	23	6	2	31	51	5	5	61	8	20	18
040200	Apparel and Accessories**	23	6	2	31	51	5	5	61	8	20	18
040300	Automotive Sales**	23	6	2	31	51	5	5	61	8	20	18
040400	Finance and Credit**	23	6	2	31	51	5	5	61	8	20	18
040600	Food Distribution**	23	6	2	31	51	5	5	61	8	20	18
040700	Food Services**	23	6	2	31	51	5	5	61	8	20	18
040800	General Merchandise**	23	6	2	31	51	5	5	61	8	20	18
040900	Hdw, Bldg. Mat., Farm and Garden Supplies and Equip.	23	6	2	31	51	5	5	61	8	20	18
041000	Home Furnishings**	23	6	2	31	51	5	5	61	8	20	18
041100	Hotel and Lodging**	23	6	2	31	51	5	5	61	8	20	18

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force					Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployment Seeking	Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployed--Not Seeking Employment	Total	Percent Status Unknown	Percent Disadvantaged	Percent Per Year* Continuing in Program	Percent Not
041200	Industrial Marketing*	23	6	2	31	51	5	5	61	8	20	18
041300	Insurance**	23	6	2	31	51	5	5	61	8	20	18
041400	International Trade**	23	6	2	31	51	5	5	61	8	20	18
041700	Real Estate**	23	6	2	31	51	5	5	61	8	20	18
041900	Transportation**	23	6	2	31	51	5	5	61	8	20	18
042000	Retail Trade, Other**	23	6	2	31	51	5	5	61	8	20	18
043100	Wholesale Trade, Other**	23	6	2	31	51	5	5	61	8	20	18
041600	Petroleum Sales**	23	6	2	31	51	5	5	61	8	20	18
070000	HEALTH EDUCATION											
070101	Dental Assistant	46	10	4	60	21	1	7	29	11	26	2

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force					Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployed--Seeking Employment	Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployed--Not Seeking Employment	Total	Percent Status Unknown	Percent Disadvantaged Per Year*	Percent Not Continuing in Program
070102	Dental Hygienists**	70	6	1	77	7	1	5	13	10	22	12
070103	Dental Lab Technician**	70	6	1	77	7	1	5	13	10	22	12
070203	Medical Lab Assistant**	70	6	1	77	7	1	5	13	10	22	12
070301	Nurse, Associate Degree**	70	6	1	77	7	1	5	13	10	22	12
070302	Practical (Voc) Nursing	82	3	0	85	1	0	4	5	10	27	11
070303	Nurses Assistant (Aide)**	70	6	1	77	7	1	5	13	10	22	12
070305	Surgical Technician**	70	6	1	77	7	1	5	13	10	22	12
070307	Home Health Aide**	70	6	1	77	7	1	5	13	10	22	12
070402	Physical Therapy Assistant	70	6	1	77	7	1	5	13	10	22	12
070501	Radiologic Technology**	70	6	1	77	7	1	5	13	10	22	12

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force				Percent Status Unknown	Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployment Seeking	Percent Unemployed-- Total	Percent Not Seeking School Continuing	Percent Not Seeking Forces In Armed	Percent Not Seeking Unemployed-- Employment	Percent Not Seeking Total		Percent Disadvantaged Per Year*	Percent Not Continuing in Program
070799	Sewage Plant Operation**	70	6	1	77	7	1	5	13	10	22	12
070903	Inhalation Therapy Tech**	70	6	1	77	7	1	5	13	10	22	12
070904	Medical Assistant	24	9	1	34	24	1	6	31	35	29	1
070910	Orthopedic Assistant**	70	6	1	77	7	1	5	13	10	22	12
079900	Health Service Occupations	70	6	1	77	7	1	5	13	10	22	12
079901	Medical Record Clerk**	70	6	1	77	7	1	5	13	10	22	12
079902	Ward Clerk	70	6	1	77	7	1	5	13	10	22	12
090000	HOME ECONOMICS											
090204	Home Furnishing, Equipment and Services**	14	10	4	28	54	4	9	67	5		
090201	Care and Guidance of Children	0	27	10	37	37	0	13	50	13		

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

67113

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force				Percent Status Unknown	Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployed--Seeking Employment	Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployed--Not Seeking Employment	Total		Percent Disadvantaged	Percent Per Year* Continuing in Program	Percent Not
090202	Clothing Management (Production and Services)	23	0	0	23	50	2	23	75	2			
090203	Food Management, Production and Services	13	7	0	20	46	7	9	62	18			
090298	Home Health Aides**	14	10	4	28	54	4	9	67	5			
090298	Occupational Training Other**	14	10	4	28	54	4	9	67	5			
090205	Institutional and Home Management Services**	14	10	4	28	54	4	9	67	5			
140000	BUSINESS AND OFFICE EDUCATION												
140100	Accounting and Computing**	27	8	4	39	43	1	11	55	6			
140200	Keypunch	12	14	6	32	51	0	9	60	8	36	5	

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force					Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployment Seeking	Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployed--Not Seeking Employment	Total	Percent Status Unknown	Percent Disadvantaged Per Year*	Percent Not Continuing in Program
140200	Business Data Processing (Unit Records)	60	13	0	73	6	13	6	25	2	22	6
140300	Filing, Office Machine**	27	8	4	39	43	1	11	55	6		
140400	Information, Communication Occupations**	27	8	4	39	43	1	11	55	6		
140500	Material Support, Transporting, etc.**	27	8	4	39	43	1	11	55	6		
140600	Personnel, Training, and Related**	27	8	4	39	43	1	11	55	6		
140700	Stenographic, Secretarial, and Related**	27	8	4	39	43	1	11	55	6		
140800	Supervisory and Administrative Management**	27	8	4	39	43	1	11	55	6		

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force				Percent Status Unknown	Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployed--Seeking Employment	Total	Percent Continuing School	Percent In Armed Forces	Percent Not Seeking Employment	Percent Unemployed--		Percent Disadvantaged Per Year*	Percent Not Continuing in Program
140900	Typing and Related**	27	8	4	39	43	1	11	55	6		
160000	TECHNICAL EDUCATION											
160101	Aeronautical Technology**	20	5	0	25	41	8	0	49	26		
160103	Architectural Technology**	20	5	0	25	41	8	0	49	26		
160105	Chemical Technology	50	25	0	75	25	0	0	25	0	10	15
160106	Civil and Highway Tech**	20	5	0	25	41	8	0	49	26		
160108	Electronics Technology	23	5	0	28	45	9	0	54	18	28	21
160109	Electro-Mechanical Tech**	20	5	0	25	41	8	0	49	26		
160110	Environmental Technology**	20	5	0	25	41	8	0	49	26		
160111	Industrial Technology**	20	5	0	25	41	8	0	49	26		

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force					Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployment Seeking	Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployed-- Not Seeking Employment	Total	Percent Status Unknown	Percent Disadvantaged Per Year*	Percent Not Continuing in Program
160112	Instrumentation Technology**	20	5	0	25	41	8	0	49	26		
160113	Mechanical Technology**	20	5	0	25	41	8	0	49	26		
160114	Metallurgical Technology**	20	5	0	25	41	8	0	49	26		
160117	Scientific Data Processing**	20	5	0	25	41	8	0	49	26		
160197	Technical Writing**	20	5	0	25	41	8	0	49	26		
160198	Drafting and Design**	20	5	0	25	41	8	0	49	26		
160199	Pre-Technical, Technical Mathematics, Physics, Etc.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
160201	Ranch Operation**	20	5	0	25	41	8	0	49	26		
160401	Computer Science (Data Processing)**	20	5	0	25	41	8	0	49	26		

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force					Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployment Seeking	Percent Unemployed-- Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployment Not Seeking	Percent Unemployed-- Total	Percent Status Unknown	Percent Disadvantaged	Percent Per Year* Continuing in Program	Percent Not
160601	Commercial Pilot Training**	20	5	0	25	41	8	0	49	26		
160602	Fire and Safety Technology**	20	5	0	25	41	8	0	49	26		
160603	Forestry Technology**	20	5	0	25	41	8	0	49	26		
160604	Oceanography Technology**	20	5	0	25	41	8	0	49	26		
160605	Police Science**	20	5	0	25	41	8	0	49	26		
170000	TRADE AND INDUSTRIAL EDUCATION											
170100	Air Conditioning	36	20	2	58	20	13	0	33	9	22	14
170102	Heating and Plumbing	36	20	2	58	20	13	0	33	9	22	14
170200	Appliance Repair	29	20	0	49	41	8	0	49	2	32	26

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force					Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployed--Seeking Employment	Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployed--Not Seeking Employment	Total	Percent Status Unknown	Percent Disadvantaged Per Year*	Percent Not Continuing in Program
170301	Body and Fender	30	15	3	48	27	15	0	42	10	31	20
170302	Auto Mechanics	32	12	1	45	33	12	0	45	10	26	21
170399	Auto Parts, Service Station**	32	12	1	45	33	12	0	45	10	36	21
170401	Aircraft Mechanics	19	9	1	29	37	17	0	54	17	19	2
170600	Business Machines Repair**	31	11	1	43	35	11	4	50	7		
170700	Commercial Art	12	12	1	25	52	7	9	68	7	37	16
170702	Display	12	12	1	25	52	7	9	68	7	37	16
170900	Commercial Photograph	8	19	0	27	58	2	8	68	5	18	27
171001	Carpentry	28	18	1	47	36	9	0	45	8	28	25
171002	Electricity	20	18	0	38	31	12	0	43	19	28	34

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force					Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployed--Seeking Employment	Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployed--Not Seeking Employment	Total	Percent Status Unknown	Percent Disadvantaged	Percent Per Year* Continuing in Program	Percent Not
171004	Masonry	33	16	0	49	16	33	0	49	2	73	14	
171099	Carpet Layer, Flooring	28	18	1	47	36	9	0	45	8	28	25	
171100	Custodial Services**	31	11	1	43	35	11	4	50	7			
171200	Diesel Mechanics	25	15	0	40	31	15	0	46	14	20	2	
171300	Drafting	22	6	0	28	43	14	1	58	14	26	20	
171402	Electrical Lineman	20	18	0	38	31	12	0	43	19	28	34	
171502	Electronics	20	18	0	38	31	12	0	43	19	28	34	
171503	Radio and T.V. Repair	20	18	0	38	31	12	0	43	19	28	34	
171600	Laundry and Dry Cleaning**	31	11	1	43	35	11	4	50	7			
171901	Composition Makeup and Typesetting	19	17	1	37	37	11	6	54	9	29	26	

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force					Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployment Seeking	Percent Unemployed-- Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployment Not Seeking	Percent Unemployed-- Total	Percent Status Unknown	Percent Disadvantaged Per Year*	Percent Not Continuing in Program
171902	Printing	19	17	1	37	37	11	6	54	9	29	26
172302	Machinist	40	6	3	49	27	16	0	43	8	26	19
172305	Sheet Metal	29	12	0	41	33	20	0	53	6	25	24
172306	Welder	35	7	1	43	38	12	0	50	7	27	26
172400	Metallurgy Occupations	35	7	1	43	38	12	0	50	7	27	26
172601	Barber**	31	11	1	43	35	11	4	50	7		
172602	Cosmetology	40	8	3	51	22	0	16	38	11	29	24
172700	Plastics Occupations**	31	11	1	43	35	11	4	50	7		
172801	Fireman Training**	31	11	1	43	35	11	4	50	7		
172802	Law Enforcement Training**	31	11	1	43	35	11	4	50	7		

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force					Other Data		
		Percent Employed Related	Percent Unrelated Employed	Percent Unemployed--Seeking Employment	Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployed--Not Seeking Employment	Total	Percent Status Unknown	Percent Disadvantaged	Per Year*	Percent Not Continuing in Program
172900	Quantity Food Occupations**	31	11	1	43	35	11	4	50	7			
172901	Baker**	31	11	1	43	35	11	4	50	7			
172902	Cook/Chef**	31	11	1	43	35	11	4	50	7			
172903	Butcher**	31	11	1	43	35	11	4	50	7			
172904	Waiter-Waitress**	31	11	1	43	35	11	4	50	7			
172100	Instrument Maintenance and Repair**	31	11	1	43	35	11	4	50	7			
173100	Small Engine Repair**	31	11	1	43	35	11	4	50	7			
173200	Stationary Energy Sources Occupations**	31	11	1	43	35	11	4	50	7			

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

FOLLOW-UP DATA ON GRADUATES BY PROGRAM TYPE

Program Code	Program Title	Percent in Labor Force				Percent Not in Labor Force					Other Data	
		Percent Employed Related	Percent Employed Unrelated	Percent Unemployed--Seeking Employment	Total	Percent Continuing School	Percent In Armed Forces	Percent Unemployed--Not Seeking Employment	Total	Percent Status Unknown	Percent Disadvantaged	Percent Per Year* Continuing in Program	Percent Not
173300	Textile Production and Fabrication**	31	11	1	43	35	11	4	50	7		
173400	Leather Working**	31	11	1	43	35	11	4	50	7		
173500	Upholstery	14	9	4	37	26	29	7	62	1	50	22
173601	Cabinetmaking	25	11	0	36	43	13	0	56	1	40	28
179900	Other Trade and Industry Occupations*	31	11	1	43	35	11	4	50	7		

*Does Not Include Graduates From the Program: Does Include Transfers to Another Program.
**Insufficient Program Type Data-Based on Divisional Averages.

APPENDIX B

FEDERAL ORGANIZATIONS WHOSE SUPPLY

PROJECTIONS ARE ENTERED IN THE OTIS INTERFACING

1. Bureau of Apprinticeship and Training
2. Bureau of Indian Affairs
3. Community Action Program
4. Guthrie Job Corp Center for Women
5. Jobs Optional Program (MDTA-OJT)
6. Migrant Education
7. National Alliance of Businessmen - Job Opportunity in the Business Sector (NAB-JOBS)
8. NYC Out of School
9. Labor Education Advancement Program (LEAP)
10. Public Service Careers Program
11. Supplemental Training and Employment Program (STEP)
12. Outreach
13. Work Incentive Program (WIN)
14. McAlester Model Cities OJT Program
15. Oklahomans for Indian Opportunity
16. Tulsa Urban League, Jobs Unlimited, and OJT Program

APPENDIX C

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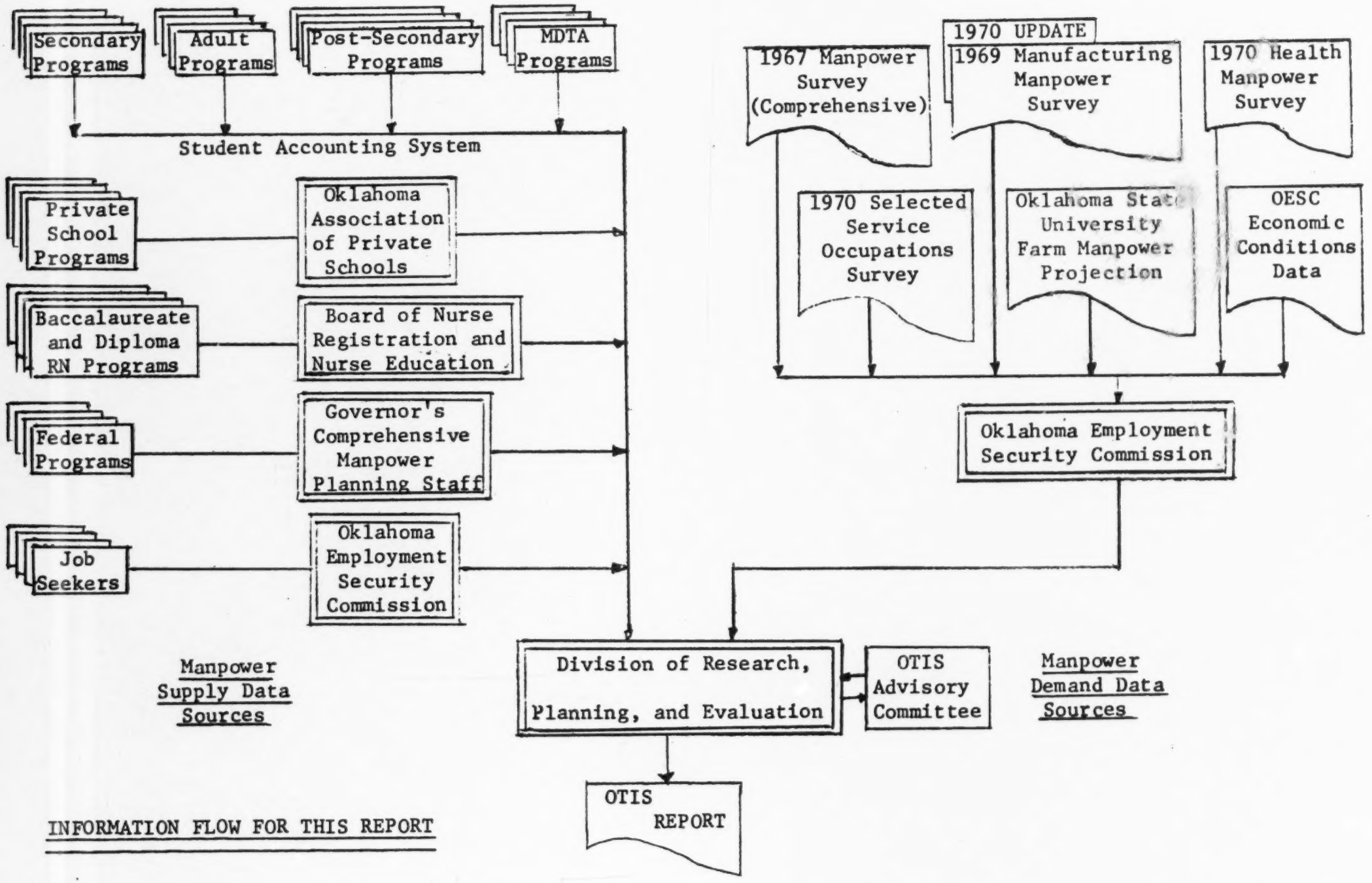

INFORMATION FLOW FOR THIS REPORT

6727

VT 012 824
Bibliography of CORE (Careers Oriented Relevant Education). Related Projects and Materials.

Oregon State Univ., Eugene. School of Education.
Office of Education (DHEW), Washington, D.C. Bureau of Research
MF AVAILABLE IN VT-ERIC SET.
OEG-0-9-470214-4522(085) 24
BR-9-0214
PUB DATE - 70 20p.

DESCRIPTORS - *BIBLIOGRAPHIES; VOCATIONAL EDUCATION; *PROGRAM DEVELOPMENT; *RESOURCE MATERIALS; *CAREER PLANNING; CAREER CHOICE; OCCUPATIONAL INFORMATION; INSTRUCTIONAL MATERIALS; CURRICULUM DEVELOPMENT; OCCUPATIONAL GUIDANCE; *RELEVANCE (EDUCATION)

ABSTRACT - This bibliography presents 220 citations, including conference reports, speeches, curriculums and program descriptions, research and project reports, instructional materials, and bibliographies. Listings are arranged alphabetically by author and provide information pertaining to the title and source of the document as well as the date and page listing. This bibliography is related to occupational education programs. (JS)

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BIBLIOGRAPHY OF C.O.R.E.
(Careers Oriented Relevant Education)
RELATED PROJECTS AND MATERIALS
1970

Project No. 9-0214

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1970

Project No. 9-0214

Sponsored By:

Bureau of Research
U.S. Office of Education
Grant No. 0-9-470214-522(085)

Conducted By:

School of Education
Oregon State University

Compiled By:

C.O.R.E. Project Staff
Dr. Cas F. Heilman, Director

6730

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VT 012 861
The Michigan Manpower Study, Summary Report.
An Analysis of the Characteristics of
Michigan's Labor Force in the Next 15 Years.

Battelle Memorial Inst., Columbus, Ohio.

Manpower and Regional Economics Div.
Michigan State Dept. of Labor, Detroit.
Employment Security Commission
Michigan State Dept. of Education, Lansing.
Div. of Vocational Education
Michigan State Dept. of Commerce, Lansing.
State Resource Planning Div.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Nov66 16p.

DESCRIPTORS - *EMPLOYMENT PROJECTIONS; *LABOR FORCE; *TECHNOLOGICAL ADVANCEMENT; *EDUCATIONAL NEEDS; *DEMOGRAPHY; ECONOMIC PROGRESS; EMPLOYMENT TRENDS; ECONOMIC CLIMATE; ACADEMIC ACHIEVEMENT
IDENTIFIERS - MICHIGAN

ABSTRACT - The Michigan Manpower Study developed the methodology for projecting labor force characteristics such as education, occupation, and industry. Projections for the Michigan labor force in 1970, 1975, and 1980 are intended to aid in the state's educational planning. Using educational attainment to compare supply and demand, the labor market analysis quantifies the growing importance of formal education in job preparation. Employment projections for the state, within the framework of a predicted state and national economic climate in the 1970's, show increased proportions of white-collar workers and professional personnel. (BH)

VT 012 861

EUU 01254

MICHIGAN MANPOWER STUDY

STATE OF MICHIGAN
George Romney, Governor

SUMMARY REPORT

November, 1966

MICHIGAN DEPARTMENT
OF LABOR
MICHIGAN EMPLOYMENT
SECURITY COMMISSION
DETROIT, MICHIGAN

MICHIGAN DEPARTMENT
OF EDUCATION
DIVISION OF VOCATIONAL
EDUCATION
LANSING, MICHIGAN

MICHIGAN DEPARTMENT
OF COMMERCE
STATE RESOURCE PLANNING
DIVISION
LANSING, MICHIGAN

RESEARCH CONDUCTED BY
BATTELLE MEMORIAL INSTITUTE
COLUMBUS LABORATORIES
COLUMBUS, OHIO

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SUMMARY REPORT

on

THE MICHIGAN MANPOWER STUDY,

AN ANALYSIS OF THE CHARACTERISTICS OF MICHIGAN'S LABOR FORCE IN THE NEXT 15 YEARS

November, 1966

by

Manpower and Regional Economics Division
Socio-Economics Research Section
Battelle Memorial Institute - Columbus Laboratories

Sponsored and Assisted by: State of Michigan, George Romney, Governor

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THE MICHIGAN MANPOWER STUDY

SUMMARY

The Michigan Manpower Study represents an analysis of the characteristics of the labor force of Michigan as projected to 1980. The study has been conducted by the Manpower and Regional Economics Division of Battelle Memorial Institute under the general direction of the Michigan Employment Security Commission (Michigan Department of Labor) with cosponsorship and technical assistance from the State Resource Planning Division of the Office of Economic Expansion (Michigan Department of Commerce) and the Division of Vocational Education (Michigan Department of Education).

This study has three major objectives:

1. *To develop an improved methodology for analysis of projected characteristics of the labor force (including educational attainment, industry of employment, and occupation of employment).*

2. *To provide estimates of the characteristics of Michigan's labor force in 1970, 1975, and 1980.*

3. *To serve as manpower guidelines for educational planning in the state of Michigan.*

The report on this study provides a detailed analysis of the factors affecting the future level of employment for each of 45 specific occupations for the entire state and for the Detroit Standard Metropolitan Statistical Area (Wayne, Oakland and Macomb counties). As an important complement to the occupational analysis, detailed projections of employment in 32 industry classifications are furnished. All of the projections have been developed through careful analysis of the supply of labor with respect to such characteristics as educational attainment and labor-force participation.

Purpose of Study

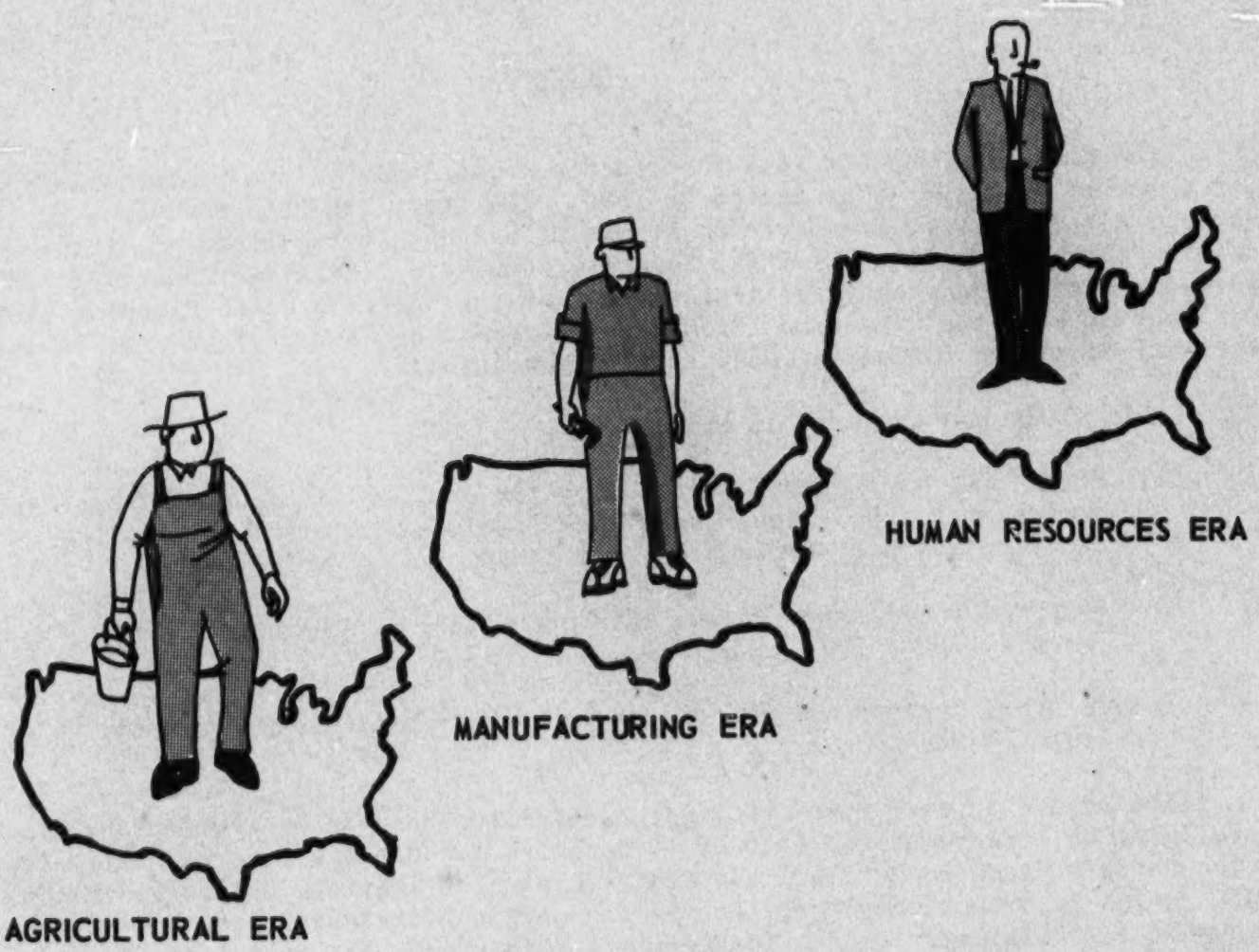
Rapid growth of professional and other white-collar occupations during the postwar period has stimulated a general recognition that the labor force in the 1970's will require an increasing utilization of conceptual skills rather than manual skills. *This growing importance of brain-power-related job functions is expected to create a stronger linkage between formal education and job preparation.*

The Michigan Manpower Study is designed to provide a framework for understanding the impact of technological changes on the types of skills which will be demanded by the technology of the 1970's. Recent changes in the national economy indicate that the socioeconomic structure is evolving into what might be called the "Human Resources Era". Broadly speaking, the evolution of the U. S. economy can be described in terms of three basic eras:

1. The *Agricultural Era* - which ended in the late 1800's.

2. The *Manufacturing Era* - which prevailed through the late 1950's.

3. The *Human Resources Era* - which emerged during the early 1960's.



During the Agricultural Era, the cultivation of the soil, the harvesting of crops, and the raising of livestock provided the major source of family income. Sweeping changes in agricultural technology, ranging from basic changes such as the invention of the cotton gin and the steel plow to complex developments such as the gasoline-powered farm tractor and harvesting and reaping machinery, brought steady and substantial increases in farm productivity. The resulting improvements in the efficiency of farm operations have made an increasing portion of the labor force available for other sectors of economic activity.

The Industrial Revolution, which began in England in the late 18th Century, entered its period of most rapid growth and greatest impact on American society about a century later. The development of the second era of economic growth in the U.S. - the Manufacturing Era - was made possible by the higher productivity achieved in agriculture, which not only freed the necessary labor force but also permitted a higher standard of living and increasing consumption of the products of manufacturing establishments. Hence, if any one element dominated social and economic development in the United States during the first half of the 20th century, it was the rapid expansion and proliferation of manufacturing and manufacturing-related activities.

Currently, technology is having an impact on manufacturing similar to its earlier impact upon agriculture. Improvements in mechanization, automatic control, and other aspects of productive efficiency are resulting in productivity increases which make possible continuing reductions in the proportion of the labor force which is required to maintain the product output of manufacturing. As a result of its analysis of the future development of the U.S. Economy, *Battelle's Socio Economic Research Section has characterized the 1970's as a new and third era - the Human Resources Era - since the U.S. economy*

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will find its essential vitality in those activities which are related to the unique resource of man - namely, his brain, which is the source of the creative, adaptive potentials required by our increasing technological sophistication. Contrasted with the Agricultural and Manufacturing Eras, when most workers were concerned primarily with transforming natural resources into useful products for their fellow man, activities which generally involved physical dexterity or strength, a rapidly increasing percentage of workers in the Human Resources Era will need a high level of educational achievement and mental development to meet job requirements.

The rapidly changing dimensions of the manpower requirements of industry and the growing linkage between manpower development and the educational system made it imperative that the state agencies of Michigan which participated in this study initiate an intensive analysis of the state's future manpower requirements. Under the leadership of the Michigan Employment Security Commission, The Michigan Manpower Study was designed to analyze the specific occupations which will be required by each of the major industrial sectors in the economics of Michigan and Detroit.

Battelle Memorial Institute was engaged to develop the basic model and to provide the critical judgments concerning the influence of anticipated technological change upon the skill requirements of individual industries. Michigan thus became the first state to make a comprehensive inquiry into the complex occupation-by-industry structure of its current and future employment. It must, of course, be remembered that since this is a pioneering and, in many ways, unique study, the findings reported are not expected to provide a "final word" on the employment structure of 1980, since it is anticipated that the actual projections will be refined as further information (e.g., the 1970 Census) becomes available. Nevertheless, this study is expected to provide valuable guidelines for the planning of programs involving manpower development which can be made available to Michigan's educational institutions, business and labor organizations, and public and private research organizations. Of equal importance, it will provide the school system throughout the state with an important tool for the appraisal of current curricula in the perspective of future manpower requirements.

The emphasis in this study on the development of a model and related methodology grew out of recognition that the data available to the manpower planner are relatively limited. The emergence of the Human Resources Era, creating a growing demand for sophisticated understanding of future manpower requirements, implies, by its very nature, that significant progress must be made in the area of available knowledge of the "*Human factor*" in our economic life. It is anticipated that the innovations in techniques and methods associated with this study will encourage the development of additional data sources and the pursuit of similar studies in other states.

Major Findings

Projections of the economic outlook for Michigan industries indicate that total employment will increase 1.9 percent per year between 1960 and 1980, with employment reaching nearly 4 million persons in 1980. Associated with this growth in total employment will be an expansion in population from 7,800,000 persons in 1960 to 10,200,000 in 1980.

Employment growth in Wayne, Oakland, and Macomb, the counties that compose the Detroit S.M.S.A., is expected to be 1.8 percent annually, increasing total employment to 1,900,000 in 1980, compared with 1,300,000 in 1960. It is especially significant that the growth in employment in Detroit of 1.8 percent per annum is considerably above the annual rate of 1.1 percent experienced between 1950 and 1960.

The detailed employment projections reveal that total employment in manufacturing activities will remain stable between 1975 and 1980, having increased in the late 1960's

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and early 1970's. Throughout the study period, the proportion of total employment in Michigan which will be associated with manufacturing industries is expected to decline from approximately 38 percent in 1960 to approximately 29 percent in 1980 (see Figure 1). Furthermore, the most rapidly growing industries will be in the service-producing sectors of the economy rather than in the goods-producing sector.

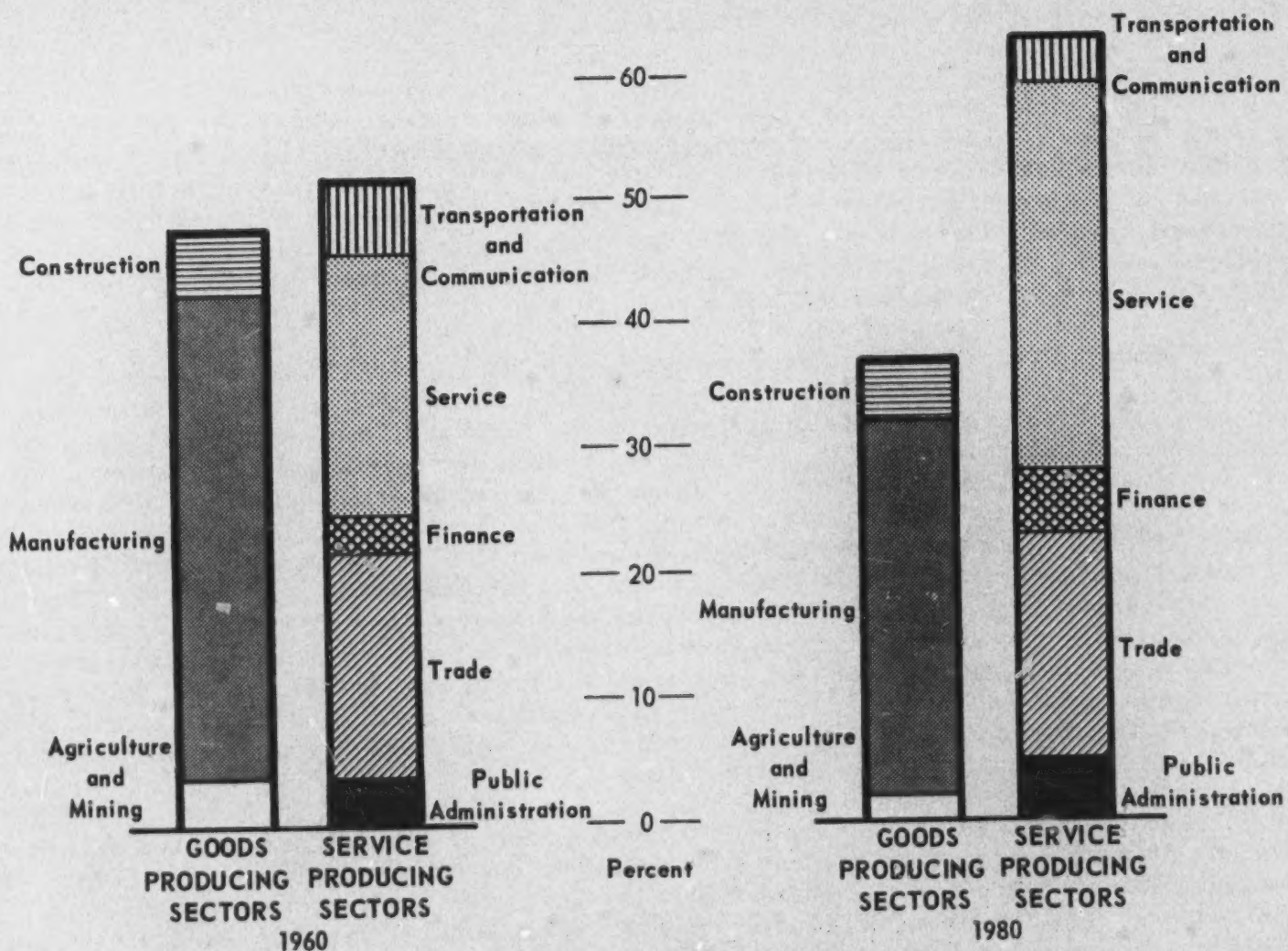

FIGURE 1. MICHIGAN EMPLOYMENT BY SECTOR, 1960 AND 1980

Source: Table 16

In addition to changes in the structure of employment by industry, significant changes are anticipated in the mix of skills required in the labor force. This report describes the factors affecting total employment in Michigan and Detroit for each of the following detailed occupations:

1. Draftsmen
2. Aeronautical Engineers
3. Civil Engineers
4. Electrical Engineers
5. Industrial Engineers
6. Mechanical Engineers
7. Professional Nurses
8. Personnel and Labor Relations Workers
9. Physicians and Surgeons
10. Professors and Instructors
11. Teachers
12. Medical and Dental Technicians
13. Electronic Technicians
14. Purchasing Agents and Buyers
15. Salaried Managers
16. Self-Employed Managers
17. Bookkeepers
18. Cashiers
19. Secretaries
20. Stenographers
21. Stock Clerks and Store Keepers
22. Salesman and Sales Clerks
23. Typists
24. Insurance Agents, Brokers, and Underwriters

25. Carpenters
26. Electricians
27. Foremen
28. Machinists
29. Mechanics and Repairmen
30. Plumbers and Pipe Fitters
31. Toolmakers and Diemakers
32. Assemblers
33. Checkers, Examiners, and Inspectors, Manufacturing
34. Delivery and Routemen
35. Filers, Grinders, and Polishers, Metal
36. Operatives, Fabricated Metals
37. Truck and Tractor Drivers
38. Numerically-Controlled-Machine-Tool Operators
39. Engine Lathe Operators
40. Attendant, Hospital and Other
41. Cooks, Except Private Household
42. Hairdressers and Cosmetologists
43. Janitors and Sextons
44. Protective Service Workers
45. Waiters and Waitresses

Significantly, the emergence of the Human Resources Era in Michigan, traditionally a manufacturing oriented economy, will lead to an expected growth rate in professional employment approximately double the rate for total employment. Of the 45 occupations selected for study, the following will experience exceptional employment growth:

Civil Engineers - (4.0 percent per year between 1960 and 1980),

Electrical Engineers (4.9 percent),

Medical and Dental Technicians (6.0 percent),

Electrical and Electronic Technicians (6.5 percent),

Other Engineering and Physical Sciences Technicians (5.6 percent).

Employment in clerical occupations is expected to grow about 50 percent faster than will total employment. Exceptional growth in employment is anticipated for secretaries, (3.8 percent per annum) and typists (3.4 percent per annum). A ranking of the occupations by projected growth rate of employment is presented in Figure 2.

The interaction of expected change in the structure of industry and the mix of skills required by industries will produce uneven growth patterns throughout the 1970's. For example, the number of carpenters employed in Michigan is expected to increase from 25,700 in 1960 to 28,800 in 1970, and then decline to 26,400 in 1980. The number of assemblers is expected to decline modestly between 1960 and 1970 and then exhibit much greater reduction between 1970 and 1980.

Throughout the forecast period, many major craft and operative occupational categories will continue to account for significant shares of total employment. In 1980, over 1.1 million workers will be employed in these two major categories. A large number of employment opportunities will be associated with job openings created by retirement of older workers. Programs in vocational education will be especially critical for providing the high-level skills required in these job functions. (Projected employment for each of the occupations studied is presented in Table 24 for the State of Michigan and in Table 25 for Detroit.)

In aggregate, the transition to the Human Resources Era economy will lead to a relatively rapid growth for white-collar occupations. The shift to white-collar occupations is illustrated in Figure 3.

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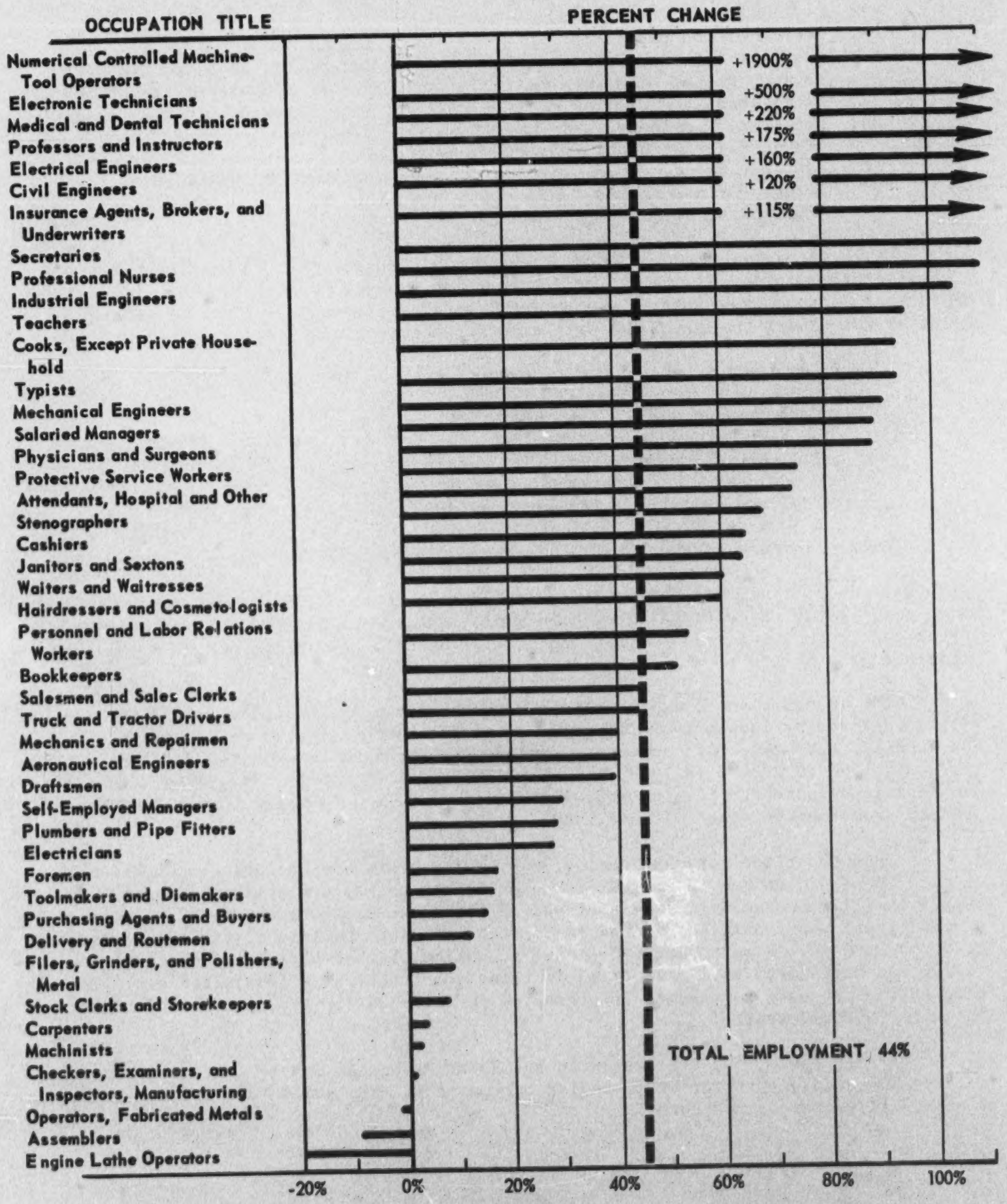

FIGURE 2. GROWTH FOR SELECTED OCCUPATIONS IN MICHIGAN, 1960 – 1980

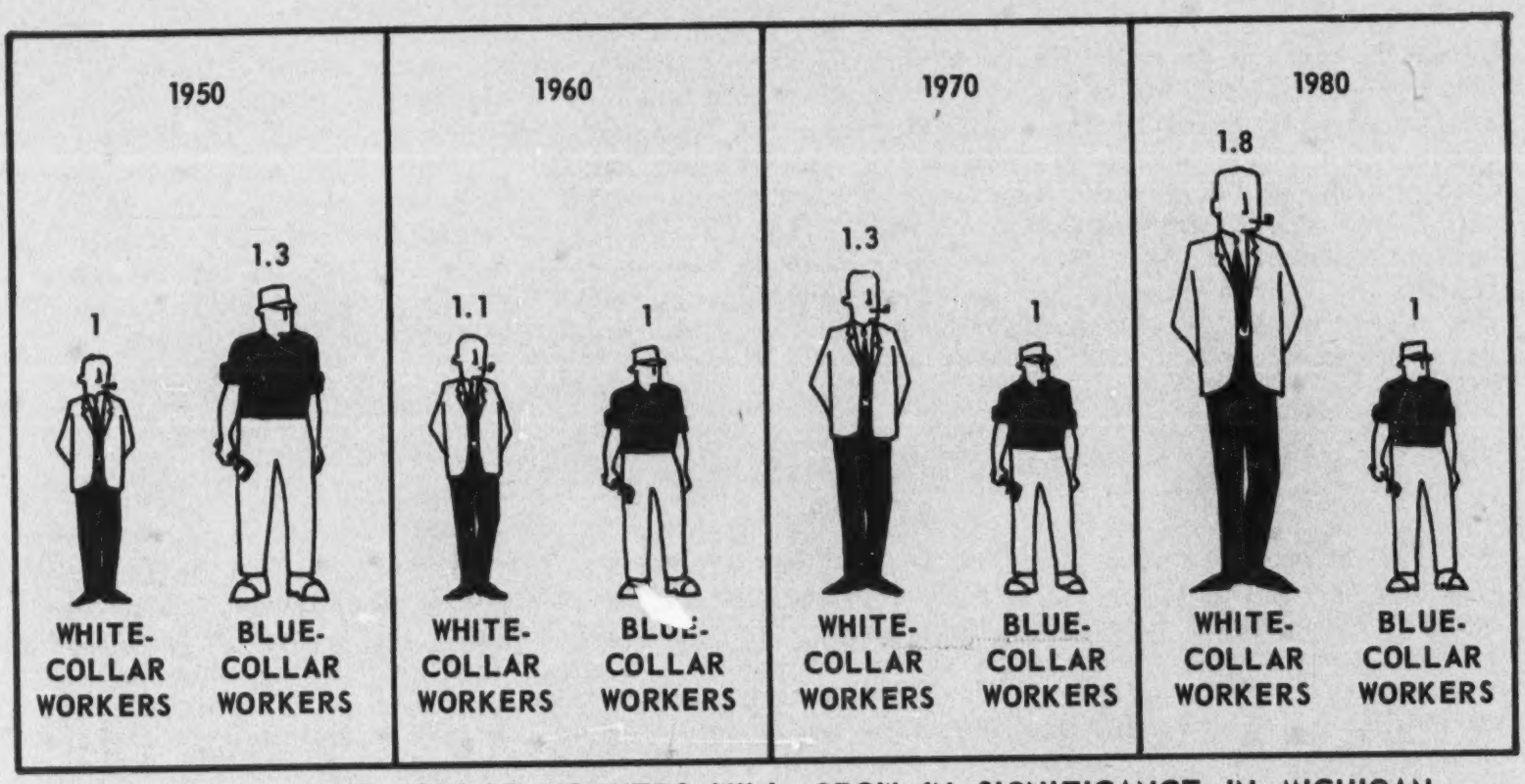

FIGURE 3. WHITE-COLLAR WORKERS WILL GROW IN SIGNIFICANCE IN MICHIGAN

Sources: 1960 Census of Population, Vol. 1, Characteristics of the Population, Part 24, Michigan, Table 120, Battelle estimates.

The U.S. Economic Outlook in the 1970's

Projections developed by the Socio Economics Research Section of Battelle Memorial Institute estimate *the gross national product in 1975 at 950 billion dollars (in 1960 dollars); representing a growth of 4.4 percent per annum from the 1960 level.* The essential characteristic of these national projections is that they were developed by an analysis of the individual sectors of the national economy in terms of the relative share of total national output historically contributed by each of these sectors. National output levels were determined on the basis of estimates of productivity and an analysis of consumer expenditures by individual socio-economic classes. (A socio-economic class is made up of households sharing common characteristics in terms of the level of income received by the household and the educational attainment and occupation of the household head.) Consumer expenditures were analyzed in order to determine the aggregate demands to be placed upon individual industrial sectors. Hence, employment levels in industry sectors are functions of aggregate demand plus projected productivity change.

In the United States, overall employment is expected to increase 31 percent between 1960 and 1975. Of particular significance will be the relatively slow increase in manufacturing employment and the rapid growth of professional services, which will increase from 11.7 percent of total employment in 1960 to 20.7 percent in 1975. While manufacturing employment will grow numerically, from 17.5 million persons in 1960 to 19.5 million persons in 1975, the rate of growth of manufacturing employment will be only about one-third of the rate for total employment.

The population of the U.S. is projected to grow from 181 million in 1960 to 242 million in 1980, but this growth will not occur equally in all age sectors. Significantly, the number of persons in the group aged 20-24 will increase by over 80 percent, from 5.6 million in 1960 to 10.2 million in 1980. In contrast, the middle-aged workers, 40-44, will

actually decline in absolute numbers. As the structure of the labor force changes in harmony with these basic shifts in the distribution of the population, young persons, and especially young adults, will represent an increasing percentage of the total labor force. The young adults of 1980 are in our primary schools today. They must learn the appropriate skills for the types of occupations expected to dominate the labor force of the 70's. The Human Resources Era will effect significant changes in industry structure, occupation content, and such labor-force characteristics as age, sex, skill level, and education. These changes provide the central bench marks for the specific analysis of the characteristics of the Michigan labor force which are the focus of The Michigan Manpower Study.

The Michigan Economy in the 1970's

The manufacturing, servicing, and operation of motor vehicles is a major source of income to a large portion of the working population of the United States. The motor-vehicle industry is especially important in the metropolitan area of Detroit, "The Automobile Center of the World", and to the economy of the entire state. Hence, any analysis of the future of the Michigan economy must incorporate, of necessity, a detailed evaluation of the principal factors affecting the growth of the American automotive market and an analysis of the extent to which the motor vehicles-and-equipment industries in Michigan will participate in that growth.

The analysis of consumer expenditures conducted as part of Battelle's basic study of the U.S. economy of the future indicates that automobiles and trucks will continue to play a dominant role in urban and intercity travel and in intercity freight movements. The projected growth of 89 percent in U.S. consumer expenditures from 309 billion dollars in 1960 to 580 billion dollars in 1980 includes an increase of 93 percent in expenditures for automobile transportation and of 83 percent in net purchases of new and used cars. *Total U.S. motor vehicle production for 1980 is estimated at 14.6 million units.*

For the past half century, the manufacture of automobiles and trucks has played a pivotal role in the Michigan economy. Over the past 15 years, the expansion of manufacturing industries outside of the automotive circle and the growth of retail trade, service industries, and government have had little effect on the dominant role of the motor car upon Michigan's economic well being. Sharp, and sometimes very abrupt, fluctuations in the consumer market for automobiles have continued to bring quick and very marked changes in Michigan's level of employment and unemployment. The recent outstanding production years provide an illustration of the relationship between an expanding automotive industry and a booming Michigan economy. During the next 15 years, it is anticipated that Michigan's economy will continue to be closely associated with automobile production. The recent wave of investment in manufacturing and assembling facilities in Michigan indicates that the state will continue to have a major share of the nation's employment in motor vehicles and equipment.

The relatively rapid growth of employment in the services sector in the U.S. was emphasized in the earlier section. This same pattern will be especially significant for the Michigan economy. The maturation of the Detroit area and the growth of out-state urban areas will be significant contributing factors to rapid growth of employment in service-producing industries in Michigan. *Projections developed for The Michigan Manpower Study indicate that professional and related services will account for 22 percent of total employment in Michigan in 1980, compared with only 12 percent in 1960.* In contrast, manufacturing employment will comprise a smaller share of total employment, dropping from 38 percent in 1960 to 29 percent in 1980. Within manufacturing, the motor vehicles-and-equipment industry will continue to be significant in accounting for 41.2 percent of total manufacturing employment in 1980, compared with 36.4 percent of total manufacturing employment in 1960. The result of an industry-by-industry projection of employment growth in Michigan leads to a relatively optimistic outlook. A projected employment level of

3,936,000 persons will stimulate a modest amount of inmigration, which itself can be interpreted as a positive index of relative economic performance.

As the 1970's progress, the orientation of occupations to persons with "exceptional skills" underlines the importance of developing human resources, in order to assure that a shortage of skilled persons will not operate as a constraint on projected economic growth. In other words, our relatively optimistic employment projections can be realized only if appropriate policies are adopted to encourage the development of the required manpower and to provide an environment favorable to the retention of Michigan's skilled manpower.

The structure of employment by industry for Michigan and Detroit is shown in Figures 1 and 4. The projections of population, labor force, and employment are provided in Table 1.

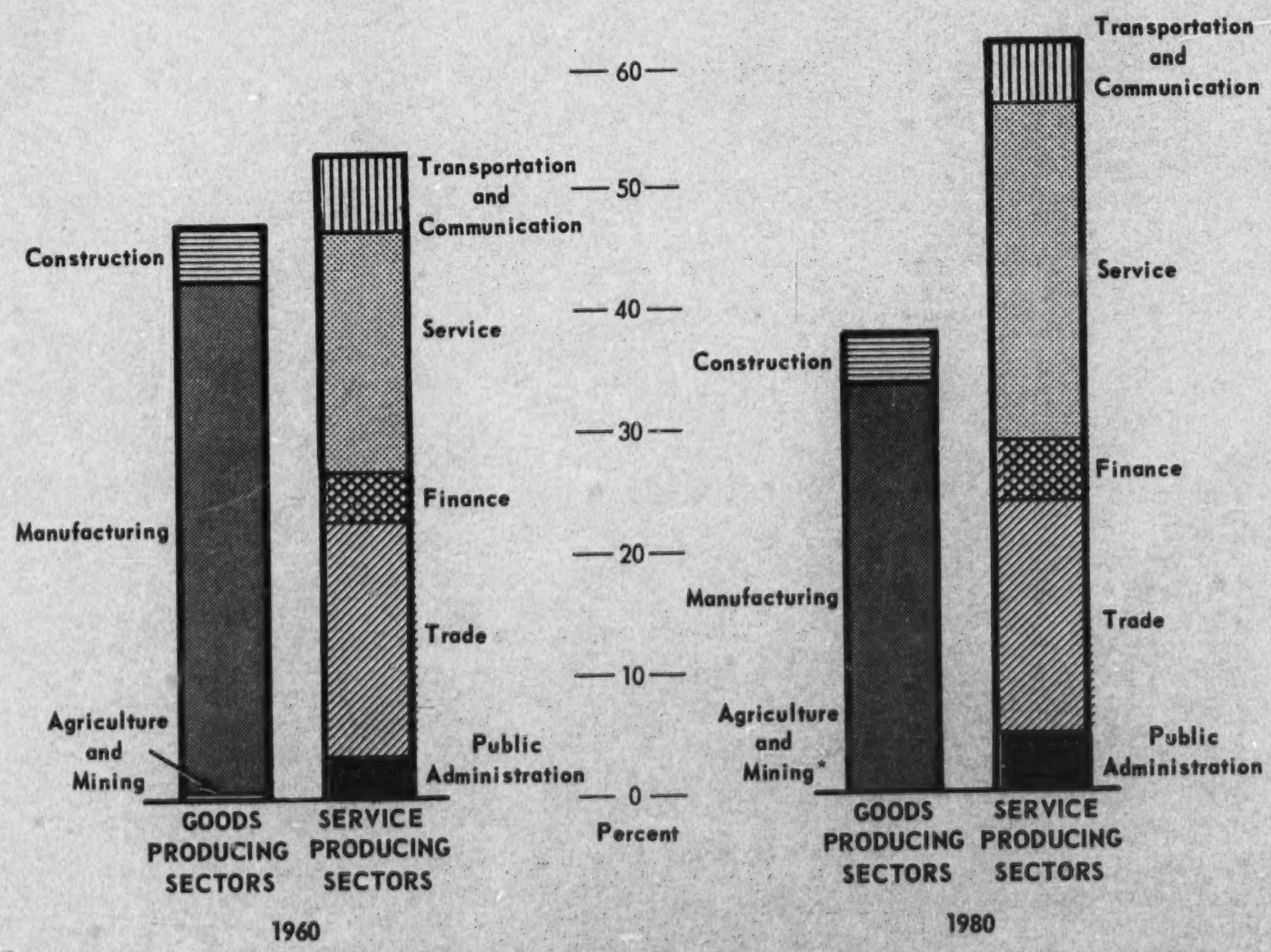

FIGURE 4. DETROIT EMPLOYMENT BY SECTOR, 1960 AND 1980

Source: Table 21.

*Agriculture and mining in 1980 is 0.2 percent.

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TABLE 1. POPULATION, LABOR FORCE, AND EMPLOYMENT IN MICHIGAN AND DETROIT S.M.S.A. FOR THE PERIOD 1960-1980

	Michigan			
	1960	1970	1975	1980
Total Population, thousands	7,824	8,600	9,360	10,200
Population 14 and Over, thousands	5,349	6,100	6,730	7,400
Labor-Force Participation Rate, percent	55.0	55.5	55.3	55.8
Civilian Labor Force, thousands	2,944	3,400	3,720	4,100
Employed, thousands	2,727	3,200	3,600	3,900
	Detroit S.M.S.A.			
	1960	1970	1975	1980
Total Population, thousands	3,762	4,200	4,400	5,000
Population 14 and Over, thousands	2,580	3,000	3,200	3,600
Labor-Force Participation Rate, percent	55.8	56.1	56.1	55.9
Civilian Labor Force, thousands	1,441	1,700	1,800	2,000
Employed, thousands	1,329	1,600	1,700	1,900

Sources: 1960 - *1960 Census of Population, Vol. 1, Characteristics of the Population*, Part 24, Michigan, Tables 17 and 197.
1970 to 1980 - Battelle estimates.

Note: The difference between "civilian labor force" and "employed" should not be construed as a projection of unemployment. It is a residual which includes estimating errors; which can be plus or minus, offsetting or cumulative, as well as unemployment.

Projected Occupational Changes

The necessity for development of human resources in response to the demands of Michigan's economy of the 1970's is both a principal finding of the study and a major theme of this report. A number of the most rapidly growing occupations are those where academic and training requirements are high. For example, the 1960 Census data reveal that 45 percent of engineers aged 45 to 54 had earned a college degree. Furthermore, 13 percent of technicians aged 45 through 54 had college degrees in 1960, and an additional 21 percent had post-high-school, subbaccalaureate training. *A comparison of the formal educational attainment of younger workers and older workers in the same occupational category suggests that entry qualifications are becoming more stringent.*

Although the professional occupations which typically require college degrees will demonstrate exceptional growth, it is important to emphasize that these occupations will still represent only 17 percent of total employment in 1980. While this is a substantial increase from the 11 percent which these occupations represented in 1960, we must keep in mind that significant growth in other occupational categories will be associated with the changing industry and occupation profiles of Michigan's labor force between 1960 and 1980. Of the total increase in employment which is expected to occur between 1960 and 1980, 31 percent will be accounted for by professional and technical occupations. An additional 24 percent will represent occupations in the clerical field where entry requirements show considerable variation from job to job. That is, the required relationship between formal education and on-the-job responsibilities of bookkeepers, secretaries, stenographers, and typists varies considerably. In 1960, for example, 12 percent of all secretaries had less than a high-school education, another 58 percent had a high-school diploma, and 30 percent had a post-high-school education.

Furthermore, there will be increasing employment opportunities for young people in the highly skilled craft categories, such as carpenters, electricians, plumbers, and related occupations. While total employment for carpenters is expected to increase only from 25,713 in 1960 to 26,430 in 1980, it is significant that, in 1960, 19 percent of all carpenters in Michigan were 55 years of age or over. In other words, the replacement demands which will be generated by retirements and deaths of older workers in these categories will create a large number of openings for young persons who have acquired the requisite skills.

Finally, the occupational analysis includes specific consideration of some emerging new occupations which are likely to move to a much higher ranking in terms of the absolute numbers of employees in these occupations. For example, it is estimated that the number of electronic technicians will grow from an estimated level of 600 in 1960 to nearly 1400 in 1970, and to 3600 in 1980. This rapid growth is anticipated because of the increased application of electronic systems and equipment for industrial and commercial use. Increased investment in electronics will be necessary to automate and mechanize production processes. In addition to the electronic technician, a second emerging occupation which has received considerable analysis in the Michigan Manpower Study is the numerically-controlled-machine-tool operator. Because of the novelty of this occupational category, it is especially difficult to evaluate the precise number of numerically-controlled-machine-tool operators in Michigan. In terms of the inventory of machine tools, it appears that the number of operatives of numerically controlled machine tools will increase by a factor of about 20 during the period between 1965 and 1980. Nevertheless, the total number of operatives of numerically controlled machine tools will still be relatively small at that time, approximately 5200 persons. The significance of numerically controlled machine tools lies in the fact that these machines offer a significant productivity benefit over the more conventional machine tool, a productivity factor which ranges from three to eight. Hence, one implication of the increase of operatives of numerically controlled machine tools is that, by 1980, there may be a 10 to 20 percent reduction in operatives of conventional machine tools.

Methodology

The labor-force analysis which is used in the model developed for the Michigan Manpower Study essentially involves a reconciliation of the supply and demand for labor, using educational attainment as the equating variable. The methodology focuses on use of a detailed matrix of the occupational profiles in individual industrial sectors of the economy. The purpose of this analysis of labor-force characteristics is to identify the type of manpower requirements which will be associated with the economic growth of Michigan's industries, and in particular, to utilize the occupation-by-industry matrix to provide a summary of the influence on specific occupations of technological changes in the processes used to produce the output of economic sectors.

The projections developed in The Michigan Manpower Study rely heavily upon a special tabulation of the 1960 Census which provides a unique level of cross-sectional detail of the characteristics of employees in individual industries. The model additionally incorporates detailed projections of the population by age and sex, projections of educational attainment for the population of labor-force age, and an evaluation of labor-force participation by each age and sex category, in addition to projections of employment by industry sector and distribution of employment by occupation within that sector. The elements of the supply and demand analysis are presented in Figure 5.

The estimates of labor-force characteristics which were developed by Battelle Memorial Institute in the Michigan Manpower Study will serve as a framework for updating specific estimates as additional information becomes available and for evaluation of particular characteristics of selected labor-market areas. During the development of the methodology, labor-market analysts at the Michigan Employment Security Commission were

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involved in several training sessions to facilitate their utilization of the model on a continuing basis.

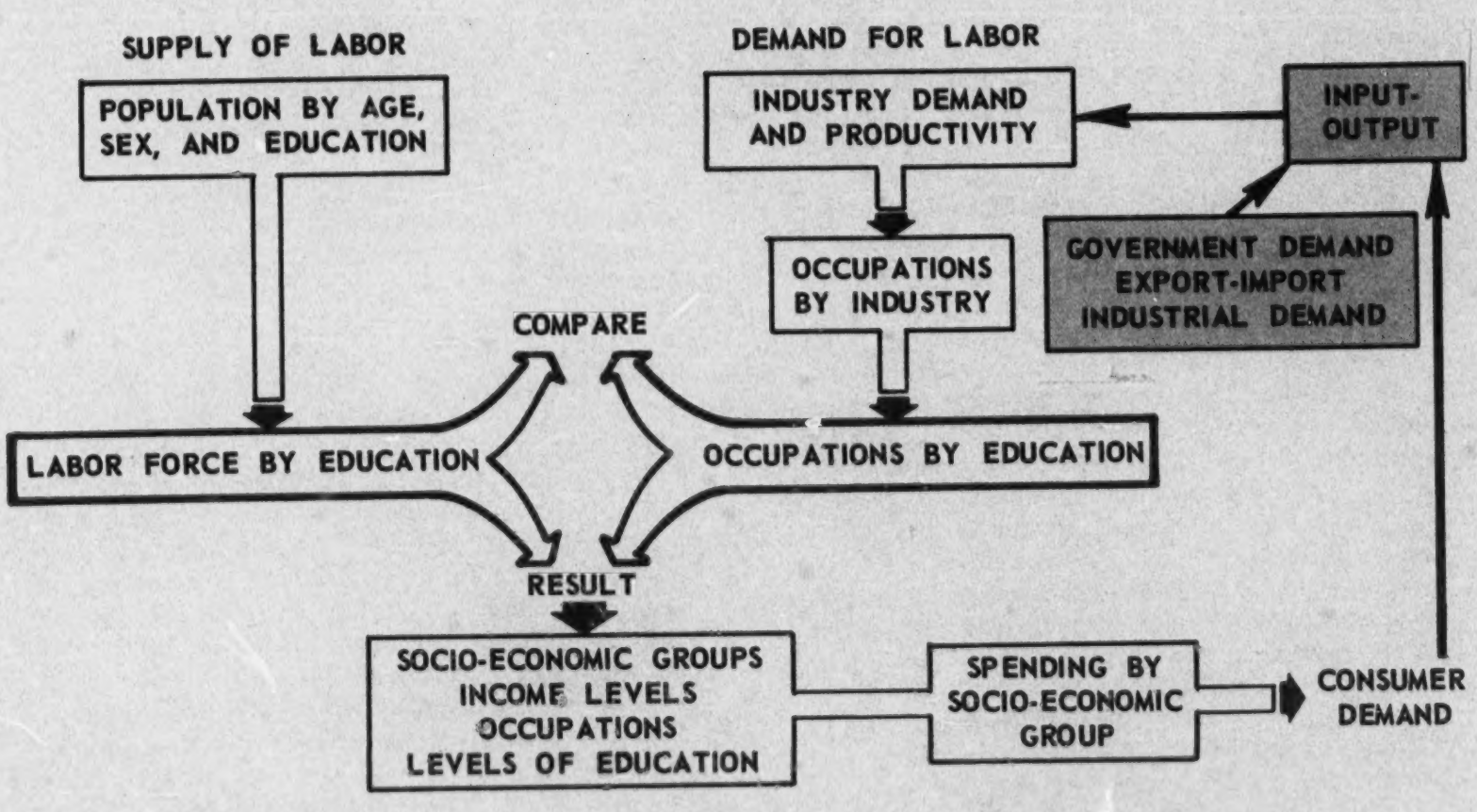

FIGURE 5. MAIN ELEMENTS OF BATTELLE'S SOCIO-ECONOMIC MODEL

See text for explanation.

Guidelines for Action Programs

The Michigan Manpower Study has clearly delineated the characteristics of the labor force for Michigan and Detroit in the 1970's. *The underlying feature of the projected labor-force characteristics is an increasingly greater linkage between the educational system and the labor force. The projections describe the emergence of a new socio-economic structure for Michigan's economy. During the Agricultural and Manufacturing Eras, a large proportion of jobs were in manual occupations requiring dexterity and experience. The activities in classrooms had little relationship to job functions. In contrast to this situation, the Human Resources Era is characterized by a high proportion of occupations in white-collar activities, especially in those of a professional and technical nature. These occupations typically require development of specific skills in the classroom, ranging from mathematical aptitudes and skill in self-expression to the development of general analytical ability.*

The "middle ability" proportion of the population (the 67 percent of the population within one standard deviation of average intelligence) will be the segment of the population for which, in many respects, the Human Resources Era will have the greatest impact. Traditionally, the "middle ability" person has found entry into the labor force via occupations demanding little specific skill development. After entry, these persons move up the ladder of occupational achievement through on-the-job and other formal training and skill acquisition by experience. As occupations increasingly require specific technical skills for entry, the technical-education program of the high-school system will acquire much greater importance. Hence, a considerable expansion of post-high-

school, subbaccalaureate educational programs may be anticipated in response to demands of the labor force.

Vocational education occurs in several types of institutions:

(1) The public-area vocational school

(2) Vocational programs in high school

(3) The private trade, technical, and business school

(4) Community college

(5) Colleges and universities

(6) Adult vocational education in public and private schools.

In addition to the formal education system, skill acquisition is made possible through individual study programs, supplementary educational experiences, such as business- and industrial-sponsored vocational programs, apprenticeship programs, and special governmental activities such as Manpower and Development Training Act programs and Economic Opportunity Act programs. From the standpoint of state and local government, it is especially important that Michigan's agencies must continue to coordinate their activities in manpower development and training so that the broad spectrum of educational opportunities will be meaningful in terms of the requirements of the labor force and the aptitude potentials of the population.

The achievement of the economic growth projected in The Michigan Manpower Study will occur only if adequate resources in addition to human resources are also developed. Problems related to transportation, air pollution, water resources, and financial resources must also be dealt with if we are to have sustained economic growth. Failure to develop effective policies in any of these areas can operate as a constraint on economic development.

While The Michigan Manpower Study has emphasized the vocational function, it is also important to underline the fact that vocational development will remain only one of several functions of the educational system. Education for citizenship, for compensatory programs to meet the needs of the disadvantaged, for personal satisfaction, for public health and safety, and other societal needs will remain an important focus of education. *The Michigan Manpower Study has focused on the vocational dimensions of education primarily to draw attention to the growing importance of the vocational function in the emerging Human Resources Era.*

VT 012 868
Hyatt, Norman F.
Potential Lifetime Earnings Based on Job Classifications and Formal Education. Final Report.

Utah Research Coordinating Unit for Vocational and Technical Education, Salt Lake City.
Office of Education (DHEW), Washington, D.C.
Bureau of Research
MF AVAILABLE IN VT-ERIC SET.
OEG-4-7-063046-1612 08
BR-6-3046
PUB DATE - Feb71 24p.

DESCRIPTORS - *VOCATIONAL EDUCATION; *INCOME; RESEARCH NEEDS; *EDUCATION; EMPLOYMENT LEVEL; MATHEMATICAL MODELS; JOB ANALYSIS; OCCUPATIONAL INFORMATION; DATA ANALYSIS; *WORK LIFE EXPECTANCY; TABLES (DATA); *EMPLOYMENT POTENTIAL

ABSTRACT - This research effort consisted primarily of estimating potential lifetime earnings for Utah's male labor force according to the number employed, educational access level, entry age, and years of special training. The results of this study led to the recommendation that a comprehensive study of earnings of Utah's labor force be undertaken using life history data as the base. Included are several data tables which present the potential lifetime earnings. (JS)

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FINAL REPORT

Project No. 6-3046
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POTENTIAL LIFETIME EARNINGS

BASED ON

JOB CLASSIFICATION AND FORMAL EDUCATION

February 1971

U.S. Department of
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FINAL REPORT

Project No. 603046
Grant No. OEG-4-7-063046-1612

POTENTIAL LIFETIME EARNINGS BASED ON JOB CLASSIFICATION AND FORMAL EDUCATION

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The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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POTENTIAL LIFETIME EARNINGS

Based on

Job Classification and Formal Education

Focus

The question constituting the focus in this report is: During his lifetime, envisioned as of 31 December 1970, what might a male member of Utah's labor force expect to earn when taking into consideration the several classifications of jobs available and the numbers of years of his formal education prior to becoming gainfully employed?

Setting

In recent years various approaches to answering this kind of question have been undertaken. However, few, if any, have been reported wherein specific job classifications and years of schooling have been related while viewing these conditions on Utah's scene. In a conference with Mr. Richard Arnold of the Utah Department of Employment Security it was learned that no such report had ever been made by that agency or any other governmental agency of which he was aware even though several attempts to gather necessary data have been made and another is contemplated before the end of 1971.

The picture isn't much different on the national scene where most studies have been of a general nature. Miller[1] (1960) reporting in the American Economic Review under the title of "Annual and Lifetime Income in Relation to Education: 1939-1959" stated that a person with less than eight years of elementary schooling might expect to earn an estimated

---

[1]Note: Herman P. Miller became Chief of the Population Division of the U. S. Bureau of the Census prior to 1967.

$129.764 during his lifetime while another with four years of college might expect to earn an estimated $435,242.

Miller's estimates are general ones and do not provide data specifically relating schooling and jobs. He alluded to some of the complex problems encountered in trying to establish and work with factors that are associated with lifetime earnings when he stated,

> Since a college degree is the "open sesame" to many, if not most, high paying jobs, it should come as no surprise that the greatest income gains associated with additional schooling appear at the college level (p. 22).

An additional and related message is found in Miller's conclusions:

> This study largely represents an attempt to ascertain if the marked increase in the number and proportion of high school and college graduates during the past generation has been associated with a reduction in income differentials for these groups. . . .
>
> The figures show that despite large relative reductions in the supply of workers whose schooling did not extend beyond the eighth grade, this group had smaller relative income gains than high school graduates. On the other hand, the large relative increase in the supply of college-trained workers did not adversely affect their relative income position. On this basis it is concluded that the demand for more highly educated workers has kept pace with the increased supply of such workers, and, as a result, their relative income position has not changed. The fact that the proportion of men employed in professional and managerial work -- the two major outlets for the past generation suggests that industry has absorbed the increased flow of graduates from our universities (p. 24).

The reason Miller's work is referred to in some detail is because, even though others have written on the general problem in the past decade, most have turned to Miller's studies and reports as basic data and have massaged" them in a variety of ways. In 1963 the National Committee for the Support of the Public Schools published Changing Demands on Education and Their Fiscal Implications. Miller's research received only summary treatment in the chapter entitled, "Education and Earnings."

In 1964 the National Education Association published Education Pays Dividends, but again Miller's 1960 report was the basis for the work. No additional light was shed on the overall problem.

Innes, Jacobson, and Pellegrin (1965) reported research undertaken at the University of Oregon. Even though more data were reported than in the previously cited studies, again, Miller's 1960 report on lifetime earnings constituted the basis for the six page treatment of "Education and Lifetime Income" in the 45 page report entitled The Economic Returns to Education.

In 1966 Miller was again cited as the basic source for still another study, this time by the American Association of School Administrators in a publication, Education is Good Business. However, this time the data source was Miller's Rich Man, Poor Man, a 1964 publication. These data showed that lifetime earnings for people with fewer than eight years of schooling had risen to $143,000 while for those with five or more years of post high school schooling had risen to $455,000. Earnings for people in the other categories rose similarly.

The New York State Education Department and the University of the State of New York published a graphic portrayal of the Investment and Return, Public Education — New York State in 1967. In this 36 page document many interesting views of the overall problem were portrayed but none dealt specifically with the matter relating types of jobs to education and lifetime earnings.

The most recent updating of the kinds of data portrayed above is contained in a 1970 publication of the U. S. Bureau of the Census entitled Consumer Income. By 1968, the latest year for which data were available, estimated lifetime earnings for men 25 years old and older had reached

$196,014 for those with less than eight years of elementary school and $615,242 for those with five years or more of college. The data permitting a comparison of estimated lifetime earnings described above, even though they do not relate specifically to job classifications nor directly to Utah, are provided to indicate growth in earnings between 1958 and 1968:

		1958	1968	1968/1958
Elementary School:	Less than 8 years	$129,764	$196,014	1.51
	8 years	181,695	257,500	1.42
High School:	1 to 3 years	211,193	294,160	1.29
	4 years	257,557	350,228	1.36
College:	1 to 3 years	315,504	411,003	1.30
	4 years or more	435,252	586,047	1.35
	4 years		561,131	
	5 years or more		615,242	

It was not until the 1968 data were published that references to college education considered more than two divisions of numbers of years related to income.

In summary, studies pertaining to projections of lifetime earnings appear to have been limited to generalizations tying earnings to income without direct regard to specific job classifications. The exception to this generalization, however, is cited in a later section of this report under the heading, Limitations-Sources.

Terms Used in This Report

The following terms are defined as used in this report:

Formal education. Formal education means the total number of years an individual is enrolled in school at the elementary and secondary level and at post high school institutions. No measure of achievement is inferred.

Full-time gainful employment. The term applied to employment on a full time basis, 40 or more hours per week, is full-time gainful employment.

Lifetime earnings. The term, lifetime earnings, means the aggregate of all income one might expect to earn during a period of gainful employment extending from the time one first becomes so employed until he reaches retirement age usually considered to be age 65. It is assumed that even though a person may change jobs during his lifetime, employment will be in the same major category.

Labor force. This term identifies men and women gainfully employed or seeking employment in Utah according to the Utah Department of Employment Security job classifications.

Access Level. Access level represents the number of years of formal schooling that employers require for job entry.

Special training. Special training accounts for the number of years needed to acquire information and learn skills for average job performance. These years are included in the years of education needed for access. Neither performance nor achievement are considered, merely the element of time.

Entry age. The earliest age that a person can be employed with minimum educational experiences is called entry age. It is assumed that age eighteen is the youngest that such full time employment can take place for most of the general population. Through exceptional circumstances some persons become gainfully employed on a full time basis prior to age eighteen but this is not the rule. Also, Civil Service restrictions prohibit others from being gainfully employed in certain occupations until age 21.

Limitations -- Sources

Several limiting conditions affected the collection and analysis of data for this report. These are discussed in order that a more clear understanding of the report can be realized than would otherwise be possible and that the findings being reported herein can be placed in their proper perspective.

As alluded to above, only one source of data which specifically connected income and education, was located. Technical Paper 16: Present Value of Lifetime Earnings prepared by Herman P. Miller and Richard A. Hornseth of the U. S. Bureau of the Census was published in 1967. A major drawback in using the data presented in this technical report was the fact that even though published in 1967, the income figures were for 1959 as derived through the 1960 census. Miller and Hornseth qualify their data, a qualification which must also be considered while considering the present report:

> The figures presented in the tables that follow were derived from published 1960 Census figures for white and nonwhite men classified by age, education, color, and major occupation group. Since the figures are based on a cross-section of the population at a given point in time, they reflect the employment conditions, demand and supply of labor, occupational wage differentials, and other relevant relationships that existed at that time. Since these relationships do change over time, and since men change occupations (although it is assumed here that they remain in the same major occupation group for a lifetime), it is likely that the estimates presented in this report differ from those that would be obtained from life-history data which would trace a man's earnings from the time he starts work until he retires (p. 1).

A second major limiting factor relates to the relationship between 1958 data and 1970 conditions. Referring once again to Miller and Hornseth's Technical Paper 16, they say:

> . . . One might use the long term annual rate of increase in output per manhour which amounts to about 3 percent per year. An analysis of 1950 and 1960 Census data by age, color, education and region suggests a rate of increase in annual income per worker ranging from about 3-5 percent. It should be stressed that this adjustment makes no allowance for expected increases in wages due to a rising price level. A somewhat higher rate of increase would have to be used to take into account expected gains in income due to productivity and inflation (p. 2).

Because of the experience of Miller and Hornseth regarding 1950 and 1960 Census data, a check was made of the growth factor between 1958 and 1968 estimates of lifetime earnings which were discussed previously. Even

though the growth and percentage of growth in estimated lifetime earnings between 1958 and 1968 differed by varying quantities according to the amount of education, some more than 3 percent per year and some less, the 3 percent factor was used in this study for all classifications of education and jobs. The application of the 3 percent growth factor was made through the use of a 3 percent per year compound interest table. Because of this and other basic estimations, throughout the remainder of this report estimates of lifetime earnings are presented rounded to the nearest $1,000 amount.

A third problem encountered was that of determining the level of education appropriate for each job classification. The resolution of this problem was through the use of Report No. 6, Qualifications and Training Requirements of Employees on Non-agricultural Payrolls - Utah: 1960 -- 1975. published in June, 1969, by the Utah Department of Employment Security. As defined earlier, under the heading, Access Level, each of the 2,000 jobs classified within this report have been assigned an access level of the total years of formal schooling that employers require for job entry, as determined by test development analysts (p. 9)." The access level represents a judgement of the minimum job entry requirements for employment in Utah rather than the preferred requirements.

A fourth limitation was that of matching jobs according to the respective classifications of the Bureau of the Census and the Department of Employment Security. For the specific ones being reported herein the Bureau of the Census classifications constituted the basis for initial analysis because of the earnings and education data provided. This matching problem also caused a restriction in the number of comparisons able to be made.

A fifth limitation was imposed. In order to reduce relatively insignificant and unnecessary proliferation, except for a few instances, only jobs for which 10 or more persons were employed are reported. By making these determinations, however, the population being reported upon consisted of a total of 224 specific job classifications within which 87,952 Utahns were employed. At the same time it is noted that these data do not include self-employed individuals.

A sixth problem in the form of an assumption was encountered. It was assumed that even though Census Bureau data were used for males only and the Employment Security data were for both males and females, by going from job entry age data for males and females to income data for males as reported by the Census Bureau, the impact of these two data bases would be inconsequential.

Still another limitation encountered exemplifies the difficulty with which a study of this kind is undertaken. Even though many of the 2,000 jobs reported by Employment Security were included in Technical Paper 16, many were excluded from this report because of an inability to make alignments of classifications between the two reports with a certainty. This was due to rather sketchy descriptions of job classifications in either of the respective sources.

Procedures Used

From among several perused, two basic sources of data, the Technical Paper 16 of the Bureau of the Census and Report No 6 of Employment Security were analyzed and adjudged to be usable in determining requisite data.

Job classifications according to Technical Paper 16 provided the initial identity of jobs. Following this identification Report No. 6 was scanned to determine specifically upon which jobs data could ultimately be reported. Using Census Bureau tables of annual income portrayed according

to major occupational divisions, levels of educational attainment, and age, the base factor for determining the estimations of lifetime earnings was ascertained.

The final step in the determination of the estimates of lifetime earnings consisted of calculations wherein the annual income at entry age was the first factor, the growth in productivity factor of 3 percent per year compounded for 12 years was the second, and a previously calculated dollar value of one dollar of earnings, likewise compounded at 3 percent for a year of gainful employment, was the third factor.

The formula used was:

Estimated Lifetime Earnings = I x Gp x Es, wherein

I = annual income according to job classification, educational level, and entry age:

Gp = the productivity growth factor, 1.38, for earnings between 1959 and 1970: and

Es = value of one dollar of earnings over a span of gainful employment between entry age and retirement age, 65.

Technical Report 16 contained data for even numbered ages and only certain designations of years of schooling. For ages and amounts of schooling needed between those provided, interpolations were made to provide reportable estimates.

Population

As reported by the Utah Department of Employment Security in its 1968 Annual Report, the total number of employed persons in Utah was 393,800. Applying the 2 percent average growth in employment experienced between 1960 and 1968, as reported by Employment Security, this would mean that approximately 409,600 persons were employed in 1970.

The data in the present report related to a total of 87,952 employed persons. Even though the Census Bureau data were for males only and the

Employment Security data cited above were for both males and females, this 21.5 percent of the employed persons represented in this study is indicative of Utah's male labor force. Table 1 contains the enumeration of the employed persons in each job classification upon whom this report is based.

Table 1. Job Classifications and Employed Labor Force Potential Lifetime Earnings Study Considered in Utah: 1970

Major Job Classification	N Job Classes	N Employed
Professional	36	20,295
Clerical and Sales	17	12,665
Service	17	8,989
Processing	22	1,822
Machine	27	7,526
Bench	26	1,682
Structural	40	18,606
Miscellaneous	39	16,367
TOTAL	224	87,952

Estimated Lifetime Earnings

The tables presented on the following pages contain the estimates of potential lifetime earnings for Utah's male labor force according to numbers of employed persons, educational access level, entry age, and years of special training. Income amounts are rounded to the nearest $1,000. It should also be remembered while analyzing these tables, that the lifetime earnings figure for the numbers of persons employed are representative of the respective portions of the total labor force. In each instance, however, a conversion factor of .87 might be in order due to an observation derived from the 1968 Annual Report of the Department of Employment Security that personal income growth in Utah from 1967 to 1968 grew only 87 percent as much as the U. S. average (p. 5).

Table 2. Number Employed, Access Level, Entry Age, Years Special Training, and Estimated Lifetime Earnings as of 31 December 1970 for Males in the Utah Labor Force According to Selected Professional Occupations

Occupation	D.O.T. Occupational Code	N 1967	Access Level	Entry Age	Yrs. Spec. Trng.	Estimated Lifetime Earnings
Draftsman, Architectural	001.281-010	377	13	19	1.0T	
Draftsman, Mechanical	007.281-014	224	13	19	1.0T	$376,000
Musician, Instructor	152.048-030	286	13	19	1.0T	
Airplane Pilot	196.283-010	168	14	20	2.0T	
Reporter	132.268-078	176	14	20	2.0C	$411,000
Surveyor	018.118-026	5	14	20	2.0T	
Recreational Therapist	079.128-022	14	15	21	3.0T	$445,000
Accountant	160.188-010	1794	16	22	4.0C	
Actuary	020.188-010	7	16	22	4.0C	
Biologist	041.081-034	55	16	22	4.0C	
Economist	050.088-014	15	16	22	4.0C	
Engineer, Chemical	008.081-014	244	16	22	4.0C	
Engineer, Civil	005.081-014	361	16	22	4.0C	
Engineer, Mechanical	007.081-038	1068	16	22	4.0C	
Geologist	024.081-018	254	16	22	4.0C	$467,000
Mathematician	020.088-018	157	16	22	4.0C	
Metallurgist, Extractive	011-081.018	102	16	22	4.0C	
Meteorologist	025.088-014	85	16	22	4.0C	
Physicist	023.081-010	54	16	22	4.0C	
Statistician, Math	020.088-026	14	16	22	4.0C	
Teacher, Elementary	092.228-010	6287	16	22	4.0C	
Teacher, Secondary	091.228-018	7550	16	22	4.0C	
Agricultural Engineer	013.081-010	28	17	23	5.0C	
Architect	001.081-010	129	17	23	5.0C	
Dean of Students	090.118-018	41	17	23	5.0C	
Pharmacist	074.181-010	359	17	23	5.0C	$489,000
President, Educational Institution	090.110-030	43	17	23	5.0C	
Psychologist, Clinical	045.108-022	41	17	23	5.0C	
Judge	111.108-010	37	18	24	6.0C	$502,000
Lawyer	110.108-010	244	18	24	6.0C	
Anesthesiologist	070.108-090	1	19	25	7.0C	
Dentist	072.108-010	20	19	25	7.0C	
Optometrist	079.108-026	3	19	25	7.0C	$527,000
Physician, Occupational	070.108-070	34	19	25	7.0C	
Veterinarian	073.108-014	7	19	25	7.0C	
Surgeon	070.101-014	11	20	26	8.0C	$542,000

Note: Professional, Technical, and Kindred Workers Classification of Technical Paper 16 of U. S. Bureau of Census used for Table 2.

Table 3. Number Employed, Access Level, Entry Age, Years Special Training, and Estimated Lifetime Earnings as of 31 December 1970 for Males in the Utah Labor Force According to Selected Clerical and Sales Occupations

Occupation	D.O.T. Occupational Code	N 1967	Access Level	Entry Age	Yrs. Spec. Trng.	Estimated Lifetime Earnings
Sales Clerk	290.478-014	1751	9	18	N/A	$240,000
Auctioneer	294.258-010	10	12	18	0.5T	
Bank Teller	212.368-010	1055	12	18	N/A	
Calculating Machine Operator	216.488-018	608	12	18	N/A	
Dispatcher Clerk	219.388-110	37	12	18	1.0T	
Mail Carrier	233.388-010	839	12	18	N/A	
Messenger	230.878-022	91	12	18	N/A	$262,000
Office Boy	230.878-026	30	12	18	N/A	
Post-Office Clerk	232.368-014	608	12	18	N/A	
Salesman, Automobile	280.358-014	674	12	18	N/A	
Salesman, Insurance	250.258-014	480	12	18	N/A	
Salesman, Publications	289.358-034	2251	12	18	N/A	
Salesman, Real Estate	250.358-026	180	12	18	N/A	
Bookkeeper	210.388-022	2528	13	19	2.0T	$297,000
Salesman, Building and Construction, Equipment and Supplies	276.358-010	1102	14	20	2.0T	$330,000
Salesman, Machinery	276.158-010	379	14	20	2.0T	
Salesman, Financial Service	252.258-010	42	16	22	4.0C	$383,000

Note: Clerical and Kindred Workers Classification of Technical Paper 16 of U. S. Bureau of Census used for Table 3.

Table 4. Number Employed, Access Level, Entry Age, Years Special Training, and Estimated Lifetime Earnings as of 31 December 1970 for Males in the Utah Labor Force According to Selected Service Occupations

Occupation	D.O.T. Occupational Code	N 1967	Access Level	Entry Age	Yrs. Spec. Trng.	Estimated Lifetime Earnings
Janitor	382.884-010	3678	6(8)	18	N/A	$152,000
Cook, Helper	317.887-010	611	9	18	N/A	
Doorman	324.878-018	16	9	18	N/A	
Fountain Man	319.878-010	519	9	18	N/A	
Guard	372.868-030	509	9	18	N/A	$180,000
Locker Room Attendant	358.878-022	121	9	18	N/A	
Porter, Transportation	357.878-010	26	9	18	N/A	
Usher	344.878-022	324	9	18	N/A	
Bartender	312.878-014	269	9	21	N/A	$229,000
Barber	330.371-010	254	12	18	1.0T	
Cook, Hotel-Restaurant	313.381-018	1243	12	21	N/A	$126,000
Waiter, Head	311.138-022	14	12	18	N/A	
Fire Fighter	373.884-014	715	12	21	N/A	
Patrolman	375.268-030	282	12	21	N/A	$264,000
Sheriff Deputy	377.868-014	304	12	21	N/A	
Baker, Head	313.138-010	48	13	19	1.0T	$164,000
Police Sergeant	375.168-054	56	14	21	2.0T	$288,000

Note: Service Workers and Sales Workers Classifications of Technical Paper 16 of U.S. Bureau of Census used for Table 4.

Table 5. Number Employed, Access Level, Entry Age, Years Special Training, and Estimated Lifetime Earnings as of 31 December 1970 for Males in the Utah Labor Force According to Selected Processing Occupations

Occupation	D.O.T. Occupational Code	N 1967	Access Level	Entry Age	Yrs. Spec. Trng.	Estimated Lifetime Earnings
Dairy Helper	529.886-018	188	6(8)	18	N/A	$322,000
Acetylene, Plant Operator	549.885-014	30	9	18	N/A	
Baker, (Bakery Products)	526.886-010	391	9	18	N/A	
Baker, Helper	526.886-010	230	9	18	N/A	
Bakery Forman	526.130-010	46	9	18	N/A	
Bench Hand	520.884-014	14	9	18	N/A	
Blast Furnace Keeper	502.884-010	18	9	18	N/A	
Brick and Tile Making Machine	575.782-014	15	9	18	N/A	
Buttermaker	529.782-010	10	9	18	N/A	
Caster	514.884-010	12	9	18	N/A	$296,000
Cheesemaker	529.381-018	42	9	18	N/A	
Compressor Operator	559.885-058	17	9	18	N/A	
Concrete-mixer Operator	570.885-022	47	9	18	N/A	
Feed Mixer	520.885-122	19	9	18	N/A	
Laborer, General (Iron and Steel)	509.886-010	570	9	18	N/A	
Malt House Operator	522.885-066	22	9	18	N/A	
Oven Tender	534.885-026	5	9	18	N/A	
Tool Repairman	519.884-038	7	9	18	N/A	
Batch - Still Operator	552.782-010	13	12	18	N/A	
Gasman	549.782-018	25	12	18	N/A	$347,000
Kiln Burner	573.782-038	43	12	18	N/A	
Hardness Inspector	504.387-010	2	13	19	2.0T	$392,000
Plater	500.380-010	56	14	20	2.0T	$437,000

Note: Craftsman, Foreman, and Kindred Workers Classification of Technical Paper 16 of U. S. Bureau of Census used for Table 5.

Table 6. Number Employed, Access Level, Entry Age, Years Special Training, and Estimated Lifetime Earnings as of 31 December 1970 for Males in the Utah Labor Force According to Selected Machine Occupations

Occupation	D.O.T. Occupational Code	N 1967	Access Level	Entry Age	Yrs. Spec. Trng.	Estimated Lifetime Earnings
Air Compressor Mechanic	622.884-010	1	9	18	N/A	
Bindery Worker	643.885-010	221	9	18	N/A	$296,000
Catcher	613.886-010	11	9	18	N/A	
Foreman - Bindery	653.131-010	2	12	18	N/A	
Lawn Mower Repairman	639.884-014	1	12	18	0.6T	$347,000
Office Machine Serviceman	633.281-030	105	12	18	0.6T	
Production Foreman	699.138-010	112	12	18	N/A	
Air Conditioning Mechanic	637.281-010	38	13	19	1.0T	
Blacksmith	610.381-010	112	13	19	2.0T	
Cabinetmaker	660.280-010	241	13	19	1.0T	
Dairy Equipment Repairman	629.281-022	12	13	19	1.0T	
Die Maker-Stamping	601.280-018	11	13	19	2.0T	
Farm Equipment Mechanic	624.281-010	17	13	19	1.0T	$391,000
Gas Appliance Serviceman	637.281-022	35	13	19	1.0T	
Head Sawyer	667.782-058	16	13	19	1.0T	
Machinist	600.280-030	1602	13	19	2.0T	
Offset Pressman	651.782-042	192	13	19	1.0T	
Sheet Metal Fabrication Machine Operator	616.380-034	60	13	19	1.0T	
Airplane Inspector	621.281-022	114	14	20	2.0T	
Air Valve Repairman	622.381-010	9	14	20	2.0T	
Artillery - Maintenance Foreman	632.131-010	80	14	20	2.0T	
Carman	622.381-014	681	14	20	2.0T	$438,000
Diesel Mechanic	625.281-018	638	14	20	2.0T	
Flight Engineer	621.281-038	168	14	20	2.0T	
Ordinanceman	632.281-022	37	14	20	2.0T	

Note: Craftsman, Foreman, and Kindred Workers Classification of Technical Paper 16 of U. S. Bureau of Census used for Table 6.

Table 7. Number Employed, Access Level, Entry Age, Years Special Training, and Estimated Lifetime Earnings as of 31 December 1970 for Males in the Utah Labor Force According to Selected Bench Occupations

Occupation	D.O.T. Occupational Code	N 1967	Access Level	Entry Age	Yrs. Spec. Trng.	Estimated Lifetime Earnings
Box Maker, Wood	760.884-010	97	6	18	N/A	$209,000
Alteration Tailor	785.281-010	375	9	18	1.0T	
Babbiter	709.884-018	11	9	18	N/A	
Battery Repairman	727.381-010	26	9	18	N/A	
Enameler	740.884-018	100	9	18	N/A	
Mattress Maker	780.884-078	25	9	18	N/A	
Painter - Spray	741.884-026	119	9	18	N/A	$296,000
Plastics Fabricator	754.884-050	7	9	18	N/A	
Repairman, Handtools	701.781-010	20	9	18	N/A	
Repairman, Rubber-Goods	759.884-074	10	9	18	N/A	
Saw Filer	701.381-014	36	9	18	N/A	
Upholsterer Helper	780.887-066	17	9	18	N/A	
Assembler - Electrical Equipment	723.884-014	517	12	18	N/A	
Canvas Worker	739.381-010	8	12	18	N/A	
Furniture Finisher	763.381-010	8	12	18	N/A	$347,000
Tester, Systems	729.381-030	73	12	18	1.0T	
Aircraft Photo Equipment Maintenance man	714.281-010	14	13	19	1.0T	
Camera Repairman	714.281-014	12	13	19	1.0T	
Dental Lab Technician	712.381-014	46	13	19	1.0T	$391,000
Electrical Appliance Repairman	723.381-010	34	13	19	1.0T	
Locksmith	709.281-014	14	13	19	1.0T	
Watchmaker	715.281-031	82	13	19	1.0T	
Electric Meter Repairman	729.281-018	16	14	20	2.0T	
Orthopedic Appliance and Limb Technician	712.281-018	2	14	20	2.0T	$438,000
Repairman, Radio	720.281-010	7	14	20	2.0T	
Optician	713.381-014	6	15	21	3.0T	$482,000

Note: Craftsman, Foreman, and Kindred Workers Classification of Technical Paper 16 of U. S. Bureau of Census used for Table 7.

Table 8. Number Employed, Access Level, Entry Age, Years Special Training, and Estimated Lifetime Earnings as of 31 December 1970 for Males in the Utah Labor Force According to Selected Structural Occupations

Occupation	D.O.T. Occupational Code	N 1967	Access Level	Entry Age	Yrs. Spec. Trng.	Estimated Lifetime Earnings
Air Hammer Operator	859.887-010	93	9	18	N/A	
Awning Hanger	869.884-014	148	9	18	N/A	
Bill poster	841.884-010	10	9	18	N/A	
Cement Mason	844.884-014	279	9	18	N/A	
Construction Worker II	869.887-030	891	9	18	N/A	
Dry-Wall Applicator	842.884-010	104	9	18	N/A	$296,000
Foreman-Labor Gang	899.133-010	138	9	18	N/A	
Helper, Manufacturing	809.887-010	100	9	18	N/A	
Laborer, Carpentry	860.887-018	1048	9	18	N/A	
Roofer	866.381-010	284	9	18	N/A	
Trackman	869.887-098	1032	9	18	N/A	
Assembler, Unit	804.884-010	117	12	18	1.0T	
Blade-Grade Operator	851.883-010	81	12	18	N/A	
Boilermaker I	805.281-010	314	12	18	1.0T	
Bricklayer	861.381-0.0	259	12	18	1.0T	
Bulldozer Operator	850.883-010	205	12	18	N/A	
Furnace Installer	869.281-010	284	12	18	N/A	
House Mover	867.281-018	83	12	18	N/A	
Lineman (Construction and Light)	821.381-034	204	12	18	N/A	$347,000
Maintenance Foreman	891.138-014	140	12	18	N/A	
Metal Fabricating Shop Helper	804.886-010	173	12	18	N/A	
Operating Engineer	859.883-030	2568	12	18	N/A	
Painter, Construction	840.781-010	1195	12	18	N/A	
Power Shovel Operator	850.883-030	188	12	18	N/A	
Sheet Metal Worker	804.281-010	547	12	18	1.0T	
Structural Steel Worker	801.780-010	557	12	18	1.0T	
Aircraft Mechanic Armament	801.381-010	33	13	19	1.0T	
Airdox Man (Mining and Quarrying)	862.381-014	50	13	19	2.0T	
Automatic Equipment Technician	822.281-010	21	13	19	1.0T	
Automobile Body Repairman	807.381-010	450	13	19	2.0T	
Cable Splicer	829.381-010	103	13	19	2.0T	
Carpenter	860.381-026	2518	13	19	2.0T	$391,000
Central Office Repairman	822.281-014	420	13	19	1.0T	
Electrical Repairman (Any Ind.)	829.281-022	478	13	19	2.0T	
Electrician	824.281-014	1358	13	19	2.0T	
Installer Repairman	822.281-038	425	13	19	1.0T	
Pipe Fitter	862.381-042	277	13	19	2.0T	
Plumber	862.381-074	224	13	19	2.0T	
Welder, Combination	812.884-014	1171	13	19	2.0T	

Note: See Table 5 Notation.

Table 9. Number Employed, Access Level, Entry Age, Years Special Training, and Estimated Lifetime Earnings as of 31 December 1970 for Males in the Utah Labor Force According to Selected Miscellaneous Occupations

Occupation	D.O.T. Occupational Code	N 1967	Access Level	Entry Age	Yrs. Spec. Trng.	Estimated Lifetime Earnings
Bagger (Ret. Tr.)	920.887-022	935	6	18	N/A	
Cleaner	919.887-010	680	6	18	N/A	
Dental Floss Packer	920.887-020	199	6	18	N/A	$199,000
Packager, Hand	920.887-110	1115	6	18	N/A	
Switch Tender	910.887-038	320	6	18	N/A	
Ambulance Driver	913.883-010	74	9	18	N/A	
Asphalt Plant Man	922.887-010	31	9	18	N/A	
Automobile Service Station Attendant	915.867-010	3292	9	18	N/A	
Bander - Cellophaner Machine	920.885-010	551	9	18	N/A	
Bookbinder	977.884-014	160	9	18	N/A	
Brakeman, Yard	910.884-014	594	9	18	N/A	
Chauffeur, (Any Ind.)	913.883-014	100	9	18	N/A	
Company Laborer	939.887-018	204	9	18	N/A	
Conveyor Operator	921.883-083	109	9	18	N/A	
Crater	920.884-018	208	9	18	N/A	
Dump Truck Driver	902.883-010	565	9	18	N/A	
Electric-Bridge or Gantry Crane Operator	921.883-050	436	9	18	N/A	$274,000
Fireman, High Pressure	951.885-014	225	9	18	N/A	
Garbage Collector	909.887-014	212	9	18	N/A	
Industrial-Truck Operator	922.883-018	509	9	18	N/A	
Laborer (Petroleum Products)	939.887-022	251	9	18	N/A	
Loader	922.887-078	115	9	18	N/A	
Miner (Mining and Quarrying)	939.281-010	675	9	18	N/A	
Motorman	919.883-030	328	9	18	N/A	
Packager, Machine	920.885-110	901	9	18	N/A	
Parking Lot Chauffeur	915.878-018	440	9	18	N/A	
Porter, Used Car Lot	915.887-018	147	9	18	N/A	
Airport Serviceman	912.384-010	25	12	18	N/A	
Brakeman, Passenger Train	910.364-010	295	12	18	N/A	
Bus Dispatcher, Inter-State	913.168-010	233	12	18	N/A	
Bus Driver	913.463-010	157	12	18	N/A	
Conductor, Yard	910.138-022	209	12	18	N/A	$299,000
Dispatcher - Motor Vehicle	919.168-010	200	12	18	N/A	
Fireman - Locomotive	910.383-010	305	12	18	N/A	
Freight-Loading Foreman	910.137-014	270	12	18	N/A	
Locomotive Engineer	910.383-014	371	12	18	N/A	
Stationary Engineer	950.782-054	404	12	18	N/A	
Taxi Driver	913.463-018	209	12	21	N/A	

Note. Operatives and Kindred Workers Classification of Technical Paper 16 used.

Conclusions and Recommendations

Attempts to determine lifetime earnings of individuals are extremely difficult to make. Such determinations, likewise, are very hazardous inasmuch as many assumptions and adjustments need to be made in the process. Nevertheless, estimates can be made.

It is recommended that as comprehensive study of earnings of Utah's labor force be undertaken using life history data as the base. This would avoid using mean incomes for widely differing jobs within broad general classifications, a factor which had to be used in this study. Random sampling of current job classifications related to 1970 Census data, as soon as available, could constitute an integral part of such an undertaking.

It is further recommended that studies of correlations between amounts and types of formal schooling, entry level wages and lifetime earnings be made. The present study provides a beginning, a form of pilot study, but due to the several estimates and assumptions imposed herein, more solid data, as could be acquired through following the initial recommendation stated above, would permit more viable comparisons and correlations to be made.

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ABSTRACT - The 132 entries on health planning, with publication dates ranging from 1953 to 1970, are organized alphabetically by author under these categories: (1) Books, (2) Reports and Professional Publications, (3) Journal Articles, and (4) Bibliographies. Included in the citations are the title, publication information for books, and journal source, volume, and pagination. (SB)

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HEALTH PLANNING: A Bibliography of Basic Readings

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HEALTH PLANNING: A BIBLIOGRAPHY OF BASIC READINGS

Prepared by

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So extensive is the literature of source material on the subject of health planning that to provide a complete bibliography has become as elephantine problem. This difficulty has been partially overcome by the assembly of separate bibliographies on special aspects of the topic, many of which are included herein, but such categorized packaging of references has not answered the need for a unified body of basic readings useful to the busy practitioner or newcomer to the field. The following list of background selections is a start in this direction.

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National Apprenticeship Policy for Ophthalmic Finisher-Dispenser.

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PUB DATE - 70 29p.

DESCRIPTORS - *APPRENTICESHIPS; *OPHTHALMOLOGY; *CRAFTSMEN; PROGRAM GUIDES; SKILLED OCCUPATIONS
IDENTIFIERS - *OPTICIANS

ABSTRACT - This program guide provides the fundamentals needed to establish local apprenticeship programs in the optical industry for the training of ophthalmic finisher-dispensers. Included are hours, wages, supervision, responsibilities, evaluation, related instruction, certification, safety regulations, and work experience schedules. Sample apprenticeship agreement and certification forms are appended. (BH)

VT 012 888

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NATIONAL APPRENTICESHIP POLICY FOR OPHTHALMIC FINISHER-DISPENSER

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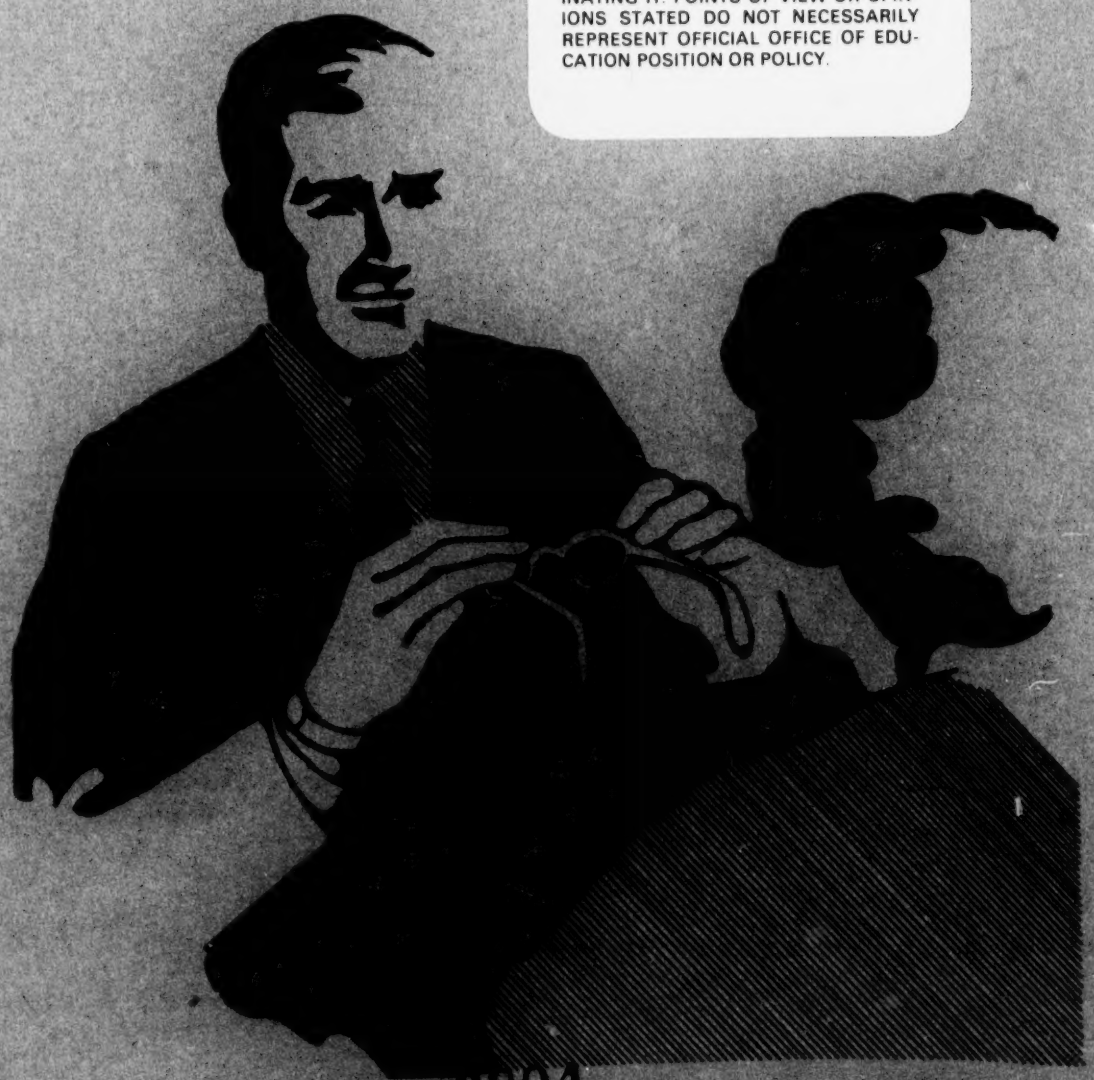

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NATIONAL APPRENTICESHIP POLICY FOR OPHTHALMIC FINISHER-DISPENSER

Approved and adopted by the Guild of Prescription Opticians of America, Inc., in conformance with the basic standards recommended by the Bureau of Apprenticeship and Training.

U.S. DEPARTMENT OF LABOR
J.D. Hodgson, Secretary

MANPOWER ADMINISTRATION
BUREAU OF APPRENTICESHIP AND TRAINING

1970

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PREFACE

This National Policy of Apprenticeship has been approved and registered by the Bureau of Apprenticeship and Training, Manpower Administration, U.S. Department of Labor, as incorporating the fundamentals needed to establish local programs of apprenticeship in the optical industry for the training of Ophthalmic Finisher-Dispensers.

The establishment and registration of this National Policy of Apprenticeship for the Guild of Prescription Opticians of America, Inc., provides a solid base for development of skilled craftsmen for the optical industry.

The aim of the Bureau of Apprenticeship and Training and the Guild of Prescription Opticians of America, Inc., in establishing and registering this national policy is to advance the science of ophthalmic optics and assure the continuance of skilled and ethical practices in the optical processing and dispensing service, by providing a recognized and formalized method of developing skilled craftsmen.

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STATEMENT OF POLICY

It is a basic policy of the Guild of Prescription Opticians of America, Inc., to provide training and opportunity for growth for all employees of its members. This, in turn, promotes continuity and growth for the members and the industry. Such a policy is the best guarantee of the security and well-being of the Nation and of ever-increasing opportunities for the employees and association members. The fulfillment of this policy is a constant challenge in our rapidly changing technological climate.

The important objective is to meet the needs of the industry for skilled and competent journeymen. Shop experience and related instruction constitute the hard core of training conducive to career success in the industry.

It is recognized that the time necessary to acquire these basic fundamentals varies with the ability and application of the individual, the trade for which he is training, and the facilities available to each member.

Because of the rapid and inevitable changes always taking place in this progressive industry, the Guild of Prescription Opticians of America National Apprenticeship and Training Committee will maintain a constant surveillance of apprenticeship problems and new requirements. It will recommend new training criteria, guidelines, and measures of attainment in the apprenticeship program as new conditions dictate. In this fashion, the Guild of Prescription Opticians of America can more effectively foster and promote training of greater benefits to apprentices and the membership of the association.

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SECTION I

Definitions

1. *Apprentice* shall mean a person who has signed an apprenticeship agreement to learn the trade outlined in applicable standards and who is registered with the appropriate registration agency.[1]

2. *Apprenticeship agreement* shall mean a written agreement between an employer and the apprentice in which the terms and conditions of apprenticeship are set forth.

3. *Guild* shall mean the Guild of Prescription Opticians of America, Inc. For the purpose of this program, the guild's address will be: 1250 Connecticut Avenue, N.W., Washington, D.C. 20036.

4. *Employer* shall mean any member of the Guild of Prescription Opticians of America, Inc., who has the facilities and equipment to train apprentices in accordance with the terms and conditions of this national policy.

5. *Local standards* shall mean the document under which an employer employs and trains an apprentice in a trade covered by the standards and such local standards shall be developed following guides outlined in this national policy.

6. *National Apprenticeship and Training Committee* shall mean the committee directly responsible to the guild for apprenticeship and training. While the guild sets the national policy, the national committee works to maintain this policy throughout the member firms. The adjustment of policy to the needs of the industry and the development of measures of attainment also rest with the guild.

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[1] Local application of this National Apprenticeship and Training Policy in States having State apprenticeship councils may require adaptation to meet the standards of apprenticeship in such States. The staffs of the Bureau of Apprenticeship and Training and State apprenticeship agencies are available to advise on State standards requirements.

7. *Supervisor of apprenticeship and training* shall mean the individual selected by the employer to organize and administer the local apprenticeship program in accordance with this national policy.

8. *Registration Agency* shall mean a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, U.S. Department of Labor; or, in States where there is no recognized agency, it shall mean the Bureau of Apprenticeship and Training, U.S. Department of Labor.

SECTION II

Qualifications for Apprenticeship

1. Applicants to be considered for apprenticeship must meet the following minimum requirements:

a. Have successfully completed high school or attained equivalency certificate.

b. Be at least 17 years of age.

c. Be physically able to perform the duties of the trade as determined by visual observation by the employer.

d. Have no immediate military obligation. (Immediate means applicant has not received notice of preinduction physical examination.)

2. The applicant's application forms, aptitude tests, oral interview, education, and previous work experience will be used to determine the rating of the qualifications for selection, and qualified applicants will be selected in descending order of rating. Employers may refer applicants to the local office of the State employment service for testing if they so desire.

3. To insure that there will be no discrimination on the basis of race, creed, color, national origin, sex, or occupationally irrelevant physical handicaps, the selection of apprentices shall be made on

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the basis of qualifications alone, in accordance with objective standards which permit review, after full and fair opportunity for application. The selections will demonstrate that there is equality of opportunity; and the local program shall be operated on a completely nondiscriminatory basis.

4. As apprenticeship openings occur, the employer will notify the local schools and the public employment service office, including information on minimum qualifications, dates for applications, and where to apply. Records of the selection process shall be kept by the employer for at least 2 years. In lieu of direct notification by the employer to schools and various agencies, the employer may notify the area BAT or SAC office servicing the local program of such openings.

5. A selection procedure compatible with Code of Federal Regulations, title 29, part 30, will be included with each set of local standards.

SECTION III

Credit for Previous Experience

1. Persons currently employed with the employer and who qualify and are selected for apprenticeship may be allowed credit on the term of apprenticeship for their previous training and experience.

2. Applicants selected for apprenticeship who have been employed elsewhere in the optical industry may be granted credit on the term of apprenticeship, commensurate with their past experience, after their records have been checked and evaluated by the employer.

3. To ascertain the extent of knowledge and previous work experience of the applicant, the employer will give a written, oral, and/or practical examination which will cover work experience and subjects related to the trade.

4. An apprentice given credit on the term of apprenticeship for previous experience shall be paid upon entrance the wage rate of the period to which such credit entitles him.

SECTION IV

Continuity of Employment

Apprentices shall be given continuous employment insofar as possible. In the event of a reduction in force, all furloughed apprentices will be given an opportunity to return to their apprenticeship before new apprentices are hired.

SECTION V

Apprenticeship Agreement

1. Each apprentice (and his parent or guardian, if he is a minor) and the employer shall sign an apprenticeship agreement which shall be registered with the registration agency. Copies of the apprenticeship agreement will be given to the apprentice, the employer, and to the registration agency.

2. Each apprenticeship agreement shall contain a statement making the terms and conditions of the local standards a part of the agreement; a schedule of work processes and wage rates; and a statement that the apprentice will receive related technical instruction during the period of apprenticeship.

3. Some State apprenticeship agencies may require the use of their own apprenticeship agreement forms. In such instances, the agreement forms may be obtained from the staff of the State apprenticeship agency or of the Bureau of Apprenticeship and Training.

4. The employer shall notify the registration agency of all apprentice actions, including terminations, suspensions, and completions of apprenticeship.

SECTION VI

Term of Apprenticeship

1. The term of apprenticeship shall be 3 years (6,000 hours), and shall include a minimum of 150 hours per year of related instruction.

2. Apprentices who work in excess of the normal workday or workweek (overtime), shall receive credit on the term of apprenticeship only for the actual number of hours or days worked.

3. An apprentice whose progress is rapid, due to unusual aptitude and industry, or because of past educational experience, and who achieves the desired level of attainment for a designated period of the apprenticeship, may be advanced to the next phase sooner than the stipulated period of time indicates. When such advancement is made, the apprentice shall be paid the rate of the period to which he is advanced.

SECTION VII

Probationary Period

1. Apprentices under local standards shall be in probationary status during the first 6 months (1,000 hours) of apprenticeship, unless a different period of probation is stipulated by State apprenticeship agency regulations or law.

2. An apprentice who does not demonstrate aptitude or interest for the trade during the probationary period may be cancelled from the program by the employer. The apprenticeship agreement may be cancelled by the apprentice during this period for personal reasons or finding that he does not like apprenticeship.

3. Apprentices will be subject to cancellation from the program by the employer at any time for infractions of company rules and

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policies, or for failure to meet the required standards of proficiency.

SECTION VIII

Ratio of Apprentices to Journeymen

The ratio of apprentices to journeymen for each trade covered by the local standards shall be based on the employer's anticipated need for journeymen. Under local standards, one apprentice of each trade classification covered by the standards may be employed provided a journeyman of that classification is also employed. In addition, one apprentice of each trade classification may be employed for each additional three journeymen of that trade classification.

SECTION IX

Responsibilities of Apprentices

1. It shall be the duty of the employer to impress upon each apprentice that he has voluntarily agreed to abide by the provisions of the local standards, and therefore, assumes the responsibilities and obligations established under the program.

2. To perform diligently and faithfully the work of the trade and such duties as are assigned him by the employer in accordance with the local standards.

3. To respect the property of the customer, employer, fellow employees, and to abide by the working rules and regulations of the employer.

4. To attend regularly and complete satisfactorily the required related technical instruction as stipulated by the local standards.

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SECTION X

Supervisor of Apprentices

Under the local standards, the employer shall designate a supervisor of apprentices to assure close supervision of the apprentice, proper instruction, and job rotation to provide the apprentice complete training.

SECTION XI

Progress Evaluation of Apprentices

The employer or the designated supervisor of apprentices under local standards shall make an evaluation of the progress of his apprentices periodically during the term of apprenticeship. The evaluation shall cover both on-the-job training and related technical instruction. If an apprentice fails to show progress, he may be required to repeat a specific process; if he continues to show no progress, his apprenticeship agreement may be cancelled. Adequate records shall be maintained by the supervisor of apprentices for the local standards to substantiate progress.

SECTION XII

Hours of Employment

The workday and workweek for apprentices under local standards shall be the same as for journeymen and subject to the same conditions. The apprentice shall work under the immediate direction of a journeyman, supervisor, or the employer.

SECTION XIII

Related Technical Instruction

1. All apprentices under local standards shall be required to complete related technical instruction assignments from material

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furnished by the employer or local educational institution when available. A minimum of 150 hours of such instruction each year of apprenticeship is normally considered necessary.

2. The time spent by apprentices in related instruction during the regular workday shall be classed as hours of work and apprentices will receive their normal hourly compensation for this time. Such hours will be counted on the term of apprenticeship.

3. The time spent by apprentices in related instruction at local educational institutions or home study outside the regular work hours shall not be considered as hours of work or counted on the term of apprenticeship.

4. In cases of failure on the part of an apprentice to fulfill his obligations with respect to related instruction as to the level of progress, attendance, and deportment, the employer may withhold periodic wage advancement, suspend, or cancel his apprenticeship agreement.

5. The employer will arrange, whenever possible, to integrate the on-the-job training with related technical instruction so that apprentices receive maximum benefit from such instruction.

SECTION XIV
Certificate of Completion of Apprenticeship

When an apprentice has satisfactorily completed all of the requirements of the local standards, the employer shall notify the registration agency and request that a Certificate of Completion of Apprenticeship be issued for presentation to the apprentice.

SECTION XV
Modification of Policy

1. This National Policy of Apprenticeship may be modified at any time by the Guild of Prescription Opticians of America, Inc. Such modification shall be submitted to the Bureau of Apprenticeship and Training, U.S. Department of Labor for approval.

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2. No modification or changes in this policy shall affect local standards currently in effect at the time policy is modified. Local standards may be subsequently modified to effect changes in policy through modification procedures with registration agency.

SECTION XVI
Recommended Minimum Apprentice Wage Scale

1. All apprentices under the local standards will be paid a specific progressively increasing wage. Wage scales for each trade classification covered by this policy will be determined by each employer.

2. As the local standards for each employer are submitted to the registration agency for registration, a minimum wage scale will be included for each trade classification, covering the periods of the term of apprenticeship. The wage scale must comply with State and Federal requirements. It is recommended that the wage increases be scheduled at 1,000-hour intervals.

3. Rates of pay (suggested):

1st	– 1,000 hours	– 55% per hour of the journeyman's wage
2nd	– 1,000 hours	– 60% per hour of the journeyman's wage
3rd	– 1,000 hours	– 65% per hour of the journeyman's wage
4th	– 1,000 hours	– 70% per hour of the journeyman's wage
5th	– 1,000 hours	– 80% per hour of the journeyman's wage
6th	– 1,000 hours	– 90% per hour of the journeyman's wage

The apprentice will be paid the full journeyman's rate after 6,000 hours of training.

SECTION XVII
Safety Regulations

Apprentices will be provided with initial indoctrination and instruction to enable them to perform their duties in a safe manner. Such indoctrination shall include instructions on safety regulations, reporting of accidents, and availability of first aid medical facilities.

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SECTION XVIII

Work Experience Schedules

During the term of apprenticeship, the apprentice shall be given such instruction and experience as necessary to develop the skills and knowledge for complete mastery of the trade. The training of apprentices shall include the following work experience and training but not necessarily in the sequence shown:

TRAINING IN THE USE, NOMENCLATURE, AND MAINTENANCE OF OFFICE AND LABORATORY EQUIPMENT

Hours

I. GENERAL OPTICAL TRAINING 2,200

- A. Lensometer measurements
  - 1. Sphere
  - 2. Cyclinder
  - 3. Axis
  - 4. Prism
  - 5. Marking
- B. Lens cutting
  - 1. Patterns
  - 2. Cribbing
- C. Automatic edging
  - 1. Rimless
  - 2. Bevel
- D. Drilling
- E. Hand stone edging
  - 1. Blue
  - 2. White
- F. Lens hardening
  - 1. Drop ball testing
- G. Colmoscope
- H. Hot cones
  - 1. Alterations of zyl frames size and shape
  - 2. Insertion
- I. Lens measuring devices
  - 1. Clock
  - 2. Vernier scale
  - 3. Thickness gauge
  - 4. Neutralization
  - 5. Power computers

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Hours

J. Fitting tools
   1. Pliers
   2. Files
   3. Multimeasure
   4. Pupillometer
   5. Hot bath

II. CONTACT LENSES FAMILIARIZATION 600
   A. Keratometer
   B. Topogometer
   C. Slit lamp
   D. Radioscope
   E. Cobalt light with fluorescein
   F. Molding equipment
   G. Measuring gauges
   H. Surfacing unit

III. OCULAR PROSTHESIS 550
   A. Dental lathe
      1. Shaping
      2. Fining
      3. Polishing
      4. Mandrills
   B. Strob light
   C. Color computers
   D. Finishing unit

IV. HEARING AID FAMILIARIZATION 200
   A. Ear mold equipment

SUPERVISED PRACTICE WITH PATIENTS

I. OPTICAL–FITTING OF EYEGLASSES 1,000
   A. Measurement for glasses
   B. RX interpretation
   C. Lens type selection
   D. Lens designing
   E. Adjusting glasses

II. CONTACT LENSES 500
   A. Keratometer measurements
   B. Lens design (corneal)
   C. Lens inspection
   D. Lab bench procedures

III. OCULAR PROSTHESIS 500
   A. Conformer procedure
   B. Fitting
   C. Impressions

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	Hours
IV. HEARING AIDS	200
A. Selection	
B. Earmold technique	
C. Service	
ADMINISTRATIVE WORK	250
I. INVENTORY CONTROL	
A. Purchasing	
B. Statistical studies	
C. Pricing by formula	
II. OFFICE MANAGEMENT	
A. Credit	
B. Correspondence	
Total	6,000

SECTION XIX

Related Instruction

Related instruction covering 450 hours was developed by the Guild of Prescription Opticians of America, Inc., Education Committee and the Bureau of Apprenticeship and Training, U.S. Department of Labor.

Topic	*Reference*
I. THE METRIC SYSTEM	Boeder
A. Introduction	
1. Measurements	
2. Numbers	
B. Review of arithmetic of fractions (part I)	
1. Common fractions	
2. Decimal fractions	
3. Special types of fractions	
4. The metric system	
5. Applications	

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Topic	*Reference*
C. Review of negative numbers	
1. Addition	
2. Subtraction	
3. Multiplication	
4. Division	
5. Application to ophthalmic optics	
6. Algebra (part II)	
II. ANATOMY OF THE EYE AND ORBIT	Wolff
A. Surface anatomy of orbital opening	Wolff, chapter I, p. 23
B. The eyeball	Wolff, chapter II, pp. 30-32
C. The cornea	Wolff, chapter II, pp. 33-52
D. The eye planes	Stimson, chapter II
III. Physiology of the eye	Guild Dispensing Manual[1]
A. The eye as an optical instrument	section 2, part 3
B. Visual acuity	section 2, part 4
C. Refractive errors of the eye	section 1, pp. 20-23
D. The optical problems in post operative aphakia	section 1, part 27
IV. THE HISTORY OF GLASS	Obrig, chapter I
A. The manufacture of glass	Obrig, chapter II
B. Characteristics of good optical glass	Obrig, chapter III
V. LIGHT	Ogle, chapters I, II, and III
A. The nature of light	
B. The velocity of light	
C. The physics of light	
D. Characteristics	
E. Actions	
1. Reflection	
2. Transmission	
3. Absorption	
4. Refraction – Snell's Law	
VI. EFFECTS OF QUANTITY AND QUALITY OF ILLUMINATION ON THE HUMAN EYE AND VISION	Sheard, section I, p. 17
VII. THEORY OF LENS ACTION	Ogle, chapter V
A. Refraction at plane surfaces	
B. Refraction at curved surfaces	
C. Refraction through a lens	
D. Forms of spherical lenses	
E. Refraction by cylinder	
F. Refraction by toric surfaces	

[1] Hereafter referred to as Guild DM.

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Topic	*Reference*
G. Aberrations in ophthalmic lenses	Ogle, chapter XI
H. Types of surfaces and actions	Guild DM, section I, parts 1-3
VIII. THE OPHTHALMIC PRESCRIPTION	Guild DM, section I, part 5
A. Transposition	Guild DM, pp. 25, 27-28
B. Single vision prescription analysis	Stimson, chapter VII
C. Presbyopic prescription analysis	Stimson, chapter VIII
D. Bifocal analysis and recommendations	Guild DM, section II, part 17
1. Prism	Guild DM, section II, part 18
E. Bicentric bifocals	Guild DM, section II, part 19
F. Vertex refraction	Guild DM, section II, part 20
G. Myopic problems	Guild DM, section II, part 21
H. Astigmatism	Ogle, chapter X
IX. OPHTHALMIC LENSES	
A. Types of ophthalmic glass	Guild DM, section II, part 11
1. Base curves	Guild DM, section II, part 12
B. Ophthalmic lenses	Guild DM, section II, part 13
1. Corrected curve lenses	Guild DM, section II, part 13
2. Strong plus lenses	Guild DM, section II, part 28
3. Types of bifocal lenses	Guild DM, section II, part 14
4. Plastic lenses	Guild DM, section II, part 16
C. Vocational lenses	Stimson, chapter X
X. BASIC FACIAL MEASUREMENTS	
A. Interocular distance	Stimson, chapter III
B. The fitting triangle	Guild DM, section II, parts 6-9
XI. FRAME SELECTION AND FITTING	
A. Selection of frames	Guild DM, section II, part 10
B. Fitting and adjusting frames	Stimson, chapter XIII
C. Cosmetic fitting	Dowaliby, chapters 7, 10-12, and 14
D. Custom fitting	
1. Bridges	Guild DM, section II
2. Ptosis crutches	A. F. Williams
3. Hemianopsia	
4. Post plastic surgical fittings	
XII. DISPENSING PROCEDURE	Stimson, chapter VI
A. Dispensing procedure	Levoy, pp. 12-39
B. Fitting table manners	Levoy, pp. 92-100
XIII. SPECIAL OPHTHALMIC LENSES	
A. Telescopic lenses	Stimson, chapter XI
B. Iseikonic lenses	Obrig, chapter XII

Topic	*Reference*
C. Absorptive lenses	Guild DM, section II, part 26
D. Occlusion lenses	
XIV. CONTACT LENSES	
A. Familiarization	
1. History and development of contact lenses	Raiford
2. Theory of lenses and types	Obrig and Salvatori
3. Keratometric fitting procedures	Obrig and Salvatori
4. Impression fitting technique	Obrig and Salvatori
5. Fluorescein patterns	Obrig and Salvatori
6. Laboratory adjustment and related procedures	Obrig and Salvatori
XV. OCULAR PROSTHESIS	
A. Familiarization	
1. Anatomy of the orbit	Wolff, chapter I, p. 1
2. Various surgical procedures	Adler, pp. 464-465
a. Enucleation	
b. Evisceration	
3. Fitting procedures	
a. Selecting forms	Galeski
b. Fitting problems	Braley, Allen, and Webster
c. Modified impression method	Allen and Webster
XVI. HEARING AID FITTING	
A. Familiarization	Raiford
XVII. PREPARATION FOR STATE BOARD EXAMINATION OR AMERICAN BOARD OF OPTICIANRY CERTIFICATION EXAMINATION	

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APPENDIX

TEXTBOOKS FOR RELATED INSTRUCTION

Adler, F. *Gifford's Textbook of Ophthalmology*. 6th ed.; Saunders, 1967.

Allen, L. and Webster, H. "Modified Impression Method of Artificial Eye Fitting," *American Journal of Ophthalmology*, February 1969.

Anatomy of the Eye. Industrial Education Service, Virginia State Department of Education.

Baldwin, William R. and Shick, Charles R. *Corneal Contact Lenses: Fitting Procedures*. Chilton Books, 1962.

Bausch and Lomb. *Job Coach for Prescription Shop Operations*. Bausch and Lomb, Inc., 1946, reprinted 1965. (Also, see publications listed in Bausch and Lomb catalog, *Ophthalmic Literature and Promotional Materials*, June 1965.)

Bausch and Lomb. *Helpful Hints on Ophthalmic Optics*. Bausch and Lomb, Inc., revised 1963.

Boeder, P. *An Introduction to the Mathematics of Ophthalmic Optics*. Tuttle, 1937.

Braley, A., Allen, L., and Webster, H. "Problems in Ocular Prosthesis," *Journal of Iowa State Medical Society*. 43:329, 1953.

Dowaliby, M. *The Fundamentals of Cosmetic Dispensing*. Professional Press, 1966.

Epting, John B., and Margret, Frank C., Jr. *Ophthalmic Mechanics and Dispensing*. Chilton Books, 1964.

Galeski, J. "A Classification of Plastic Ocular Prosthesis," *Optical Journal and Review of Optometry*. 90:41, 1953.

Guild Dispensing Manual. Guild of Prescription Opticians of America, Inc.

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Kozol, Frank. *Ophthalmic Fitting and Adjusting.* Chilton Books, 1964.

Levoy, M. *The Art of Positive Dispensing.* Official Publications, 1968.

Obrig, T. and Salvatori, P. *Contact Lenses.*

Ogle, K. *Optics - An Introduction for Ophthalmologists.* Thomas, 1961.

Raiford, N. *Hearing Aid Handbook for Laymen.* Doubleday, 1959.

Sheard, C. *Visual and Ophthalmic Optics.* Chilton Books, 1957.

Stimson, R. *Ophthalmic Dispensing.* Mosby, 1951.

Supervised Study Guide for Related Instruction for the Optician. University of Texas, Division of Extension, Industrial Education Divisions. Also Unit Tests and Answer Book. This material is especially useful for group study instruction in areas where there are not enough apprentices to form a unit class.

Wolff, E. *The Anatomy of the Eye and Orbit.* 4th ed.; McGraw-Hill Book Co., 1958.

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SOCIAL SECURITY NO.

APPRENTICESHIP AGREEMENT
Between Apprentice and Employer

The employer and apprentice whose signatures appear below agree to these terms of apprenticeship:

The employer agrees to the nondiscriminatory selection and training of apprentices in accordance with the Equal Opportunity Standards stated in Section 30.3 of Title 29, Code of Federal Regulations, Part 30; and in accordance with the terms and conditions of the ..... (Name of Apprenticeship Standards) which are made a part of this agreement.

The apprentice agrees to apply himself diligently and faithfully to learning the trade in accordance with this agreement.

Trade ..... Term of apprenticeship ..... (Hours or Years)

Probationary period ..... Credit for previous experience .....

Term remaining ..... Date the apprenticeship begins .....

This agreement may be terminated by mutual consent of the parties, citing cause(s), with notification to the Registration Agency.

..... (Signature of Apprentice)

..... (Address)

..... (Parent or Guardian)

..... (Name of Employer—Company)

..... (Address)

..... (Signature of Authorized Official)

TO BE COMPLETED BY THE APPRENTICE:

Date of birth _____ Month Day Year

Check: Male _____ Female _____

If you consider yourself a member of one of the ethnic groups listed, please check:

Negro _____ American Indian _____

Oriental _____ Spanish American _____

Approved by ....., Joint Apprenticeship Committee.

Date ..... by ..... (Signature of Chairman or Secretary)

Registered by ..... (Name of Registration Agency)

Date ..... by ..... (Signature of Authorized Official)

BAT-45 (Rev. 1969)

Certificate of Completion of Apprenticeship

United States Department of Labor

Bureau of Apprenticeship and Training

This is to certify that

has completed an apprenticeship in the trade of

under sponsorship of

in accordance with the standards recommended by the

Federal Committee on Apprenticeship

Presented _____

_____

_____

_____

_____
Secretary of Labor

_____
Assistant Secretary for Manpower

_____
Manpower Administrator

_____
Bureau Administrator

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STATE APPRENTICESHIP AGENCIES

Arizona Apprenticeship Council
1623-B West Adams
Phoenix, Ariz. 85007

Division of Apprenticeship Standards
Department of Industrial Relations
305 Golden Gate Avenue
P. O. Box 603
San Francisco, Calif. 94102

Industrial Commission Offices
200 East Ninth Avenue
Denver, Colo. 80203

Apprentice Training Division
Labor Department
200 Folly Brook Boulevard
Wethersfield, Conn. 06109

D. C. Apprenticeship Council
Room 329
555 Pennsylvania Avenue, N. W.
Washington, D. C. 20212

Delaware State Apprenticeship and Training Council
506 West 10th Street
Wilmington, Del. 19801

Bureau of Apprenticeship Standards
Florida Department of Commerce
Caldwell Building
Tallahassee, Fla. 32304

Apprenticeship Division
Department of Labor and Industrial Relations
825 Mililani Street
Honolulu, Hawaii 96813

Department of Labor
Apprentice Training Division*
Kansas Apprenticeship Council
401 Topeka Boulevard
Topeka, Kans. 66603

Kentucky State Apprenticeship Council
Department of Labor
Frankfort, Ky. 40601

Division of Apprenticeship
Department of Labor
State Capitol Annex
P. O. Box 44063
Baton Rouge, La. 70804

Maine Apprenticeship Council
Department of Labor and Industry
State Office Building
Augusta, Maine 04330

Maryland Apprenticeship and Training Council
Department of Labor and Industry
State Office Building
301 W. Preston Street
Baltimore, Md. 21201

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*All agencies, with the exception of Kansas, operate under apprenticeship and/or training laws enacted by the legislature. The agency in Kansas functions under executive order of the governor.

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Division of Apprentice Training
Department of Labor and Industries
State Office Building
Government Center
100 Cambridge Street
Boston, Mass. 022U `

Division of Voluntary Apprenticeship
Department of Labor and Industry
110 State Office Building
St. Paul, Minn. 55101

Montana State Apprenticeship Council
1136 Helena Avenue
Helena, Mont. 59601

Nevada Apprenticeship Council
Department of Labor
Capitol Building
Carson City, Nev. 89701

New Hampshire Apprenticeship Council
Department of Labor
State House Annex
Concord, N. H. 13301

New Mexico Apprenticeship Council
Labor and Industrial Commission
1010 National Building
505 Marquette, N. W.
Albuquerque, New Mex. 87101

Bureau of Apprentice Training
Department of Labor
The Campus, Building No. 12
Albany, N. Y. 12226

Division of Apprenticeship Training
Department of Labor
Raleigh, N. C. 27602

Ohio State Apprenticeship Council
Department of Industrial Relations
220 Parsons Avenue, Room 314
Columbus, Ohio 43215

Oregon State Apprenticeship and Training Council
Bureau of Labor
Room 466, State Office Building
Portland, Oreg. 97201

Pennsylvania Apprenticeship and Training Council
Department of Labor and Industry
Room 1547
Labor and Industry Building
Harrisburg, Pa. 17120

Apprenticeship Division
Department of Labor
414 Barbosa Avenue
Hato Rey, P. R. 00917

Rhode Island Apprenticeship Council
Department of Labor
235 Promenade Street
Providence, R. I. 02908

Utah State Apprenticeship Council
Industrial Commission
431 South 600, East
Room 225
Salt Lake City, Utah 84102

Vermont Apprenticeship Council
Department of Industrial Relations
State Office Building
Montpelier, Vt. 05602

Division of Apprenticeship
Training
Department of Labor and
Industry
P. O. Box 1814
9th Street Office Building
3rd Floor, Room 334
Richmond, Va. 23214

Department of Labor
Christiansted
St. Croix, V.I. 00820

Apprenticeship Division
Department of Labor and
Industries
315 East 5th Avenue
Olympia, Wash. 98501

Division of Apprenticeship and
Training
P.O. Box 2209
Madison, Wis. 53701

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REGIONAL OFFICES OF THE BUREAU OF APPRENTICESHIP AND TRAINING

Location	States served	
Room 1703–A John F. Kennedy Fed. Bldg. Government Center Boston, Mass. 02203	Connecticut Maine Massachusetts	New Hampshire Rhode Island Vermont
Room 906, Parcel Post Bldg. 341 Ninth Avenue New York, N.Y. 10001	New Jersey New York	Puerto Rico Virgin Islands
5000 Wissahickon Avenue Philadelphia, Pa. 19144	Delaware Maryland Pennsylvania	Virginia West Virginia
Room 729 1371 Peachtree Street, NE. Atlanta, Ga. 30309	Alabama Florida Georgia Kentucky	Mississippi North Carolina South Carolina Tennessee
Room 854, U.S. Court House & Fed. Office Bldg. 219 South Dearborn Street Chicago, Ill. 60604	Illinois Indiana Michigan	Minnesota Ohio Wisconsin
Room 312, Mayflower Bldg. 411 North Akard Street Dallas, Tex. 75201	Arkansas Louisiana New Mexico	Oklahoma Texas
Room 2107, Fed. Office Bldg. 911 Walnut Street Kansas City, Mo. 64106	Iowa Kansas	Missouri Nebraska
16439 Fed. Bldg. 1961 Stout Street Denver, Colo. 80202	Colorado Montana North Dakota	South Dakota Utah Wyoming

Room 10451 450 Golden Gate Avenue San Francisco, Calif. 94102	Arizona California	Hawaii Nevada
Room 1809, Smith Tower Bldg. 506 Second Avenue Seattle, Wash. 98102	Alaska Idaho	Oregon Washington

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VT 012 889
Minutes, Annual Meeting (Washington, D.C., April 22-24, 1970).

President's Committee on Employment of the Handicapped, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 49p.

DESCRIPTORS - *MEETINGS; *MENTALLY HANDICAPPED; *PHYSICALLY HANDICAPPED; *VOCATIONAL REHABILITATION; CHANGING ATTITUDES; DISCUSSION PROGRAMS; SHELTERED WORKSHOPS; CONFERENCE REPORTS; *NATIONAL ORGANIZATIONS

ABSTRACT - The handicapped were well represented at this annual meeting of the President's Committee on Employment of the Handicapped. Chairman Harold Russell's opening remarks emphasized the challenge of maintaining the quality of life for everyone, after which Vice-President Agnew presented Danny Scholl with the Handicapped American of the Year award. The following two sessions involved panel and round table discussions of sheltered workshops, adaptation of the job to the person, and attitudes toward the handicapped. (BH)

VT 012 889

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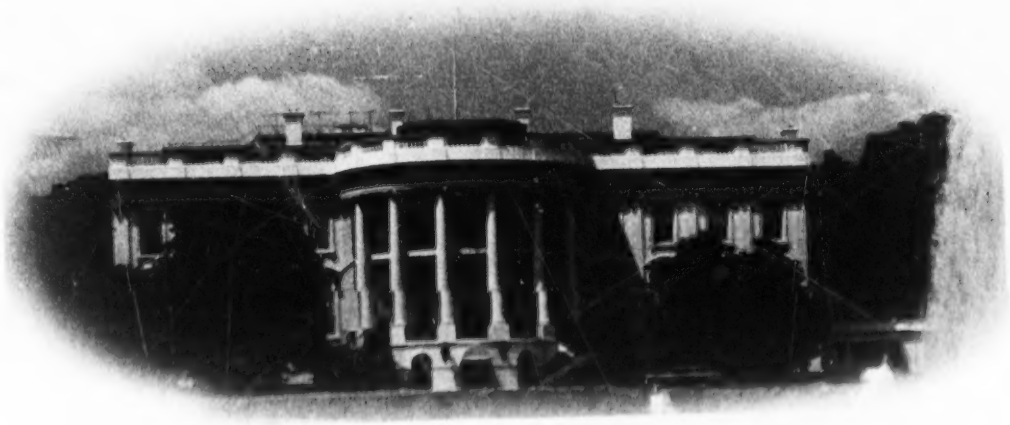
MINUTES
ANNUAL MEETING

THE PRESIDENT'S COMMITTEE ON EMPLOYMENT OF THE HANDICAPPED • WASHINGTON, D.C.



APRIL 22, 23, *and* 24, 1970

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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VT012889

Foreword

"Best meeting in years." "Went off like clockwork." "Speakers were great." "Swell job."

Those words about the 1970 Annual Meeting are nice to hear, but they miss the point. The main point of the meeting is You, and Me.

Did the Annual Meeting strengthen our motivation? Did it rekindle our enthusiasm? Did it impel us to go home and do more, more, more for the handicapped?

I think we can say YES to these questions. Our YES is the real measure of the meeting's success.

Please come back next year. The place is the same: Washington Hilton Hotel in Washington, D.C. The time is a bit earlier: April 14, 15, and 16, 1971.

Harold Russell

HAROLD RUSSELL
Chairman

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Planning Committee for Annual Meeting

Leon Chatelain, Jr., *Chairman*
Robert Bacon, *Vice Chairman*
Ray Andrus
Chuck Brandon
Wayne T. Brooks
Ted Cobb
Frank Davis
R. C. Goodpasture
Frank Hood
Eugene L. Jewett, M.D.
Austin Kerby
Peter L. Lassen
Diane Lattin
Maj Robert E. Lee, Jr.
Myron B. Lodge
Frank Mulcahy
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Dr. Philip Roos
Edward F. Rose
Mark Rosenman
Mrs. Ruth-Ellen K. Ross
George P. Sawyer
Eugene Sleevi
Paul Sonnabend
Leo Teplow
Dr. Virginia Trotter
Leon J. Urben
Dr. Bennetta B. Washington

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The Roving Camera 49

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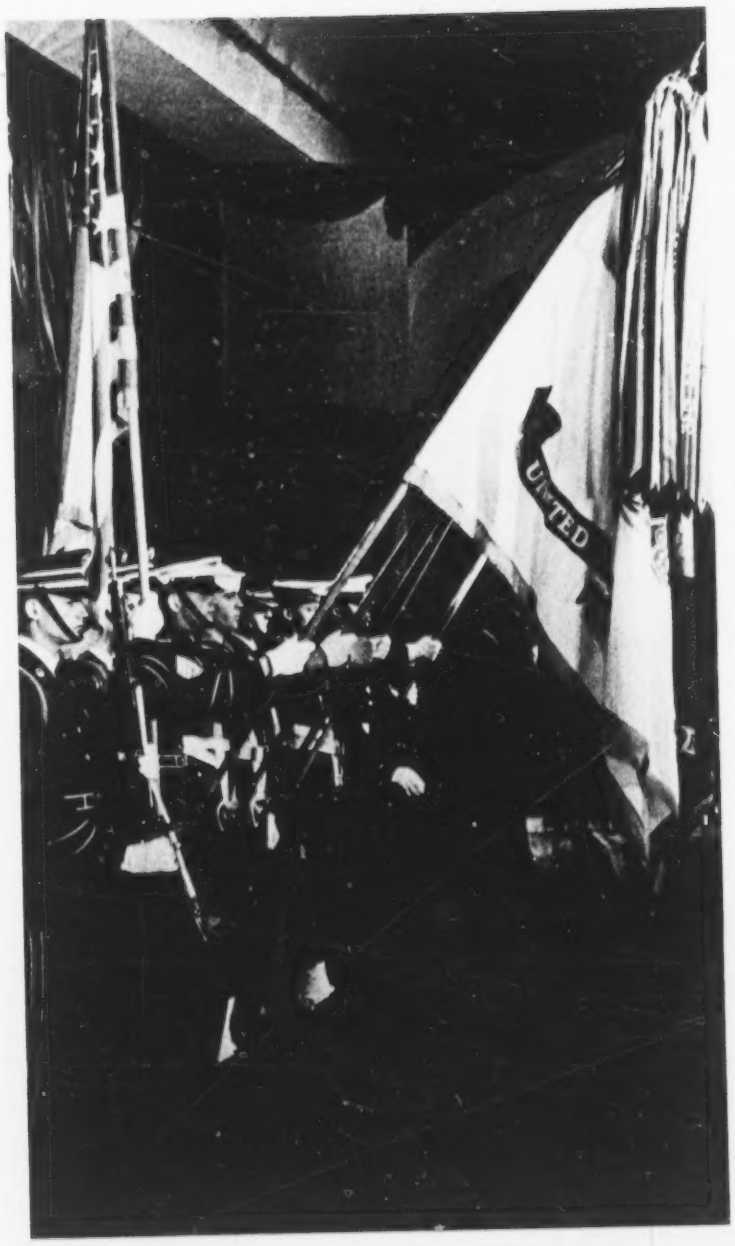

THE FIRST MORNING . . .

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Danny Scholl (left), Handicapped American of the Year, receives the President's Trophy from Vice President Agnew. The presentation was made on April 23, 1970, opening day of the Annual Meeting of the President's Committee on Employment of the Handicapped.

DANNY SCHOLL

Handicapped American of the Year

Danny Scholl (center) is shown after placing a wreath at the base of the Iwo Jima Memorial in Virginia. Scholl was injured on Iwo Jima during World War II.

Danny Scholl (left), veteran of World War II, swaps wartime experiences with disabled Vietnam veterans from Walter Reed Army Medical Hospital. Scholl, a former musical comedy star, received the President's Trophy for being selected Handicapped American of the Year. The young men were guests at the presentation.

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Left to right: Laurie Michels, 5th place national "Ability Counts" Contest winner, Boise, Idaho; Peggy Sue Belvin, 4th place winner, Artesia, N. Mex.; Vice President Agnew; Martha Ruth Wright, 2nd place winner, Thomasville, Ga.; Cecil W. Stevenson, Senior Vice Commander, Disabled American Veterans; Linda Ceciro, 3rd place winner, Riverside, N.J.; Glenda Lenhart, 1st place winner, Omaha, Nebr.; and PC Chairman Harold Russell.

Miss Linda Smythe, who represented the District of Columbia as Cherry Blossom Princess, welcomes the State winners of the "Ability Counts" Contest to Washington. Standing at right are Cecil W. Stevenson, Senior Vice Commander, DAV, Harold Russell, Chairman of the President's Committee; and Philip I. Robrecht, National Director of Employment, DAV.

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The State winners of the 1970 "Ability Counts" Contest get together at the Get Acquainted Party sponsored by the Disabled American Veterans on the eve of the Annual Meeting.

Daniel Schorr

Dwight D. Guilfoil, Jr.

The Boy Scouts of Troop 580, Anacostia District, Washington, D.C., stand at attention as Vice President Agnew arrives for the Annual Meeting.

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George Shearing

Edward B. Osborn (right), President of Economics Laboratory, receives the Distinguished Service Award of the President's Committee from Vice President Agnew.

Vice President Agnew is shown at the opening session of the Annual Meeting, while Mrs. Shirley Stein of Gallaudet College translates his remarks for the deaf.

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Francis J. Braceland, M.D.

Maurice Warshaw, President of Grand Central Stores in Salt Lake City and Chairman of the Utah Governor's Committee on Employment of the Handicapped (second from left), receives the Distinguished Service Award from Vice President Agnew, while Secretary of Labor George P. Shultz and Harold Russell look on.

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The First Morning . . .

CLOUDY SKIES

Gray clouds and a gentle, persistent rain. The red and yellow of the tulips and the pink and white of the dogwoods stood out in startling, glistening contrast to the dreary sky.

Huddling under umbrellas, people started to pour into the Washington Hilton Hotel early in the morning. The concourse lobby hummed with talk and laughter as friends greeted one another.

The hubbub intensified, a blend of thousands of voices, and then it lessened as the people streamed into the vast International Ballroom.

THE MEETING BEGINS

At 9:00, Harold Russell, Chairman of the President's Committee, called the meeting to order. A Joint Armed Forces Color Guard presented the colors, with music by the United States Navy Band.

Rabbi Simeon Kobrinetz, Chaplain of the Veterans Administration, delivered the Invocation.

THE INVOCATION

". . . We beseech Thee, O God, to grant unto the leaders of this great Nation the capacity to bring peace and understanding to a world and a society groping for hope and enlightenment. Grant to our citizens the patriotic zeal to relate to their fellowmen in the spirit of cooperation and compassion. May we resolve to work diligently in aiding the handicapped. May their disabilities be but an interlude in their capacity to become valued citizens of our society.

"Blessed shalt Thou be when Thou comest in and blessed shalt Thou be when Thou goest forth."

ROLL CALL OF STATES

Dwight D. Guilfoil, Jr., President of Paraplegics Manufacturing Company in Bensenville, Ill., and one of the first persons to be honored as Handicapped American of the Year, gave the Roll Call of States.

Next, Chairman Russell presented a challenging look into the future, "Promise for the Seventies."

Mr. Russell's Remarks

Welcome to this Annual Meeting. Welcome from everywhere—from all the States, from foreign lands. Welcome, whomever you are—employer, worker, professional, volunteer, big city person, small city person. Welcome to this first Annual Meeting of the Seventies.

Here we are, at the beginning of a new decade—a logical time to pause and look behind and look ahead.

Looking back, the Sixties has truly emerged as the *Decade of the Handicapped*. We have helped to make it so. Bright new hope for the mentally retarded . . . breakthroughs in preparing the mentally ill for work . . . bold new steps to bring the seriously handicapped into the mainstream . . . architectural and transportation barriers starting to come down . . . new records in rehabilitations, in placements.

We look back not in humility—that our hands could help to build a miracle of the Sixties!

But enough of looking back. Let's look ahead at this new decade of the Seventies. Let's see if we can detect some of the dominant forces of the Seventies, as they might apply to the handicapped. The Seventies can be the brightest decade in man's history—but only if we stay "tuned in" on the forces that affect the destiny of the handicapped.

One big force is *a growing concern with the quality of life.*

Science has done wonders in adding years to our lives. But there is more to life than the number of years on earth. There is the *quality* of our lives—what we do with our years.

If we really want to help the handicapped improve the quality of their lives, we must be concerned not only with their employment but with their total existence. What they do off the job is as important as what they do on the job.

Where does the man in the wheelchair go after he leaves his work bench? Can he get around town? Or do architectural barriers stand in his way? Where does the young retarded worker go? Hang around street corners? Watch TV? What about the man with a facial disfigurement? Is he always in the shadows so that others won't see him?

And what about the handicapped in the slums? What about the quality of their lives? There are three times more handicapped people in the slums, urban and rural, than elsewhere in America. There isn't much quality

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to their lives if they can't eat proper food or live in proper homes or walk around in proper neighborhoods.

During the Seventies, we're going to have to realize it won't be enough to find a job for a handicapped person and stop there. We're going to have to ask ourselves: "What does he *really* need?"

Housing? A basic education? A higher education? A way out of poverty? More social services? Mobility? Or what? These are some of the factors that must concern us, if we really want the handicapped to share a better life in the decade ahead.

Another big force of the Seventies is *the quality of our environment.*

We are beginning to grow alarmed over our deteriorating environment. We are beginning to worry about each breath of air we breath, each gulp of water we drink. The slogans of the Seventies already are beginning to ring out loud and clear:

"Down with air pollution!"

"Down with water pollution!"

But those are only two aspects of environment. I keep waiting to hear voices raised in behalf of another important side of the environment—the side dealing with the mobility of people. Yes, there are voices, but as I look about me, I see they are our own, yours and mine.

We—you and I—are concerned with mobility, with the elimination of barriers that stand in the way of mobility. Our concern stems from our interest in the handicapped. We have seen first-hand how architectural and transportation barriers can cruelly curtail the mobility of the handicapped—just as effectively as the iron bars of a jail.

Yet it seems to me that greater mobility would be a boon to every man, woman, and child in America, not just the handicapped. If it's good to eliminate stairs for the handicapped, it's good to eliminate stairs for all. If it's good to make travel easier for the handicapped, its good to make travel easier for all.

If we really want to make great gains in mobility in the Seventies, we are going to have to make America realize the fact that *everybody* wins, not just the handicapped.

We have to do our best to add another slogan to those being shouted by all Americans—"Down with the barriers to mobility!"

Still another big force of the Seventies is *the increased move to the cities.*

If you think this city of Washington is overcrowded, you haven't seen anything yet. Our country is on the threshold of a population explosion the likes of which we've never seen. It's an explosion that will rock our cities with twice the impact as the rest of the Nation.

If that were not enough, we are going to see the emergence of three "super-cities" in America. One will stretch from Boston to Washington; another from Chicago to Pittsburgh; the third from San Francisco to San Diego. These three are expected to grow four times faster than other cities—to a point where half of America will live in them by the end of the century.

This population boom in the cities raises many questions.

Will the expansion of services for the handicapped—rehabilitation, medical care, the rest—keep pace with the growth of population?

Will services be brought to where concentrations of people are, or will the handicapped have to make their way to outdated, out-of-the-way offices?

Will architectural and transportation barriers be eliminated fast enough to meet the needs of the handicapped? What about new rapid transit systems of the cities? Systems being built in Washington and San Francisco will be accessible to the handicapped. Will other cities follow the lead?

What about the slums? Will the battle against city slums, where so many handicapping conditions arise, be on a massive enough scale to make progress? Will there be enough basic education, enough work conditioning, and enough job training to enable the handicapped poor to break out of the dismal circle of poverty?

Greenleigh Associates, in its thoughtful report to the Labor Department, made some recommendations to think about: single intake office for the handicapped, subsidies during training, faster movement into jobs.

Will the needs of our cities dominate our minds so that we lose sight of rural America? Will the rural handicapped become the new forgotten men of our land? Or will we remember?

We may not have the answers, but we had better start searching for them—or else we shall lose faith with those we are pledged to serve.

Still another force of the Seventies, one we don't think much about, will be *the rising number of disabled veterans in America.*

The yearly discharge rate of Vietnam veterans has been going up. It doubled over the past 5 years, and shows no signs of slowing down.

More than 120,000 Vietnam veterans now are drawing compensation for service-connected disabilities—which means they are eligible for education and training from the Veterans Administration. But only one out of five has taken advantage of the program. Where are the rest?

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A closer look at the numbers discloses something disturbing. The veterans with the least schooling at the time they entered service, the veterans with dead-end jobs, the veterans with bleakest outlooks—these veterans who need education the most are the ones who have been applying for it the least.

It might be they're not conditioned to the idea of an education. It might be they've lost hope of bettering themselves. It might be any number of reasons. The fact is, they're not going into the program—and I believe they should.

There are guideposts for action. They are contained in an excellent report of President Nixon's Committee on the Vietnam Veteran. I commend this report to you.

One final force of the Seventies is *a growing need of the American people to shape their own lives.*

"Do your own thing," "a piece of the action"—you've heard the slogans. People no longer are content to have things happen to them. They want a hand in the happening.

If this be the trend, shouldn't the handicapped have a greater voice in their own affairs? I mean two things:

First, I don't believe it is right for counselors to *tell* the handicapped what jobs to train for and what to do with their lives. The handicapped should participate in these decisions concerning them. I know it is sound rehabilitation to involve the handicapped, but I also know there's too much of a "daddy knows best" attitude by some people working with the handicapped.

And second, I don't believe the handicapped can really shape their own lives if their disabilities keep them out of the mainstream, out of the labor force. You've heard the numbers: 50 percent of the blind are unemployed; 30 percent of paraplegics; 25 percent of epileptics; almost all of the cerebral palsied.

They deserve the right to participate, but how can they, in the rural and urban back rooms of America? I wonder what the Seventies will hold in store for them? Participation? Isolation? The answer is in our hands. And it's in the hands of young people, eager and restless. Let's increase their involvement. Let's give them an outlet for their concern.

Yes, there can be real promise for the handicapped in the Seventies—if we stay sensitive to the forces that sweep over us like tidal waves.

If we close our eyes to these forces, if we pretend to go about "business as usual," we frustrate not only ourselves but the handicapped as well.

Will this be a Decade of Rehabilitation, A Bright Decade for the Handicapped? It's up to us.

A decade is a long time. Or is it?

A decade ago, the Spring of '60, seems like yesterday.

The next decade will pass even more quickly. We will wake up one morning and ask, "where have the years gone?"

Will the years have been spent wisely, or will they not have been spent wisely? Will we have tended to the needs of the handicapped, or will we not have tended to their needs?

In the wheatfields of Kansas, a child was lost. The neighbors searched through the high wheat but could not find her. Then someone said, "Let us join hands and march through the fields together."

They did, with the tall wheat bending before them. Then someone cried: "Here she is! Here she is!"

Let us join hands together. All of us, working together, communicating together, perhaps praying together, can bring about the right answer for the decade.

It's our move. It's our promise, our challenge.

GEORGE SHEARING

Next, George Shearing, world-famous blind pianist, sat down at the piano. A lone spotlight played over his gray-blonde hair and sensitive face. He didn't just play the keys of the piano; he caressed them.

The soft notes went straight to the hearts of the 4,000 people gathered there. A mystique of contemplation spread over the hall.

The music ended all too soon.

Then it was time for the Keynote Address by Dr. Francis J. Braceland, former President of the American Psychiatric Association and presently Senior Consultant of the Institute of Living in Hartford, Conn.

Dr. Braceland's Address

Untold Wealth of Nations

In the early decade of this century a Philadelphia clergyman, Russell Conwell, went about the country delivering a lecture entitled "Acres of Diamonds." He gave the lecture literally a thousand times, and in 1915 he committed it to print in a book of the same name, and from the stipends of the lectures and the royalties of the book he founded Temple University.

The theme of "Acres of Diamonds" was suggested to him by Ali Hafid, an Arabian guide in Bagdad. It concerned a wealthy man, rich in land and goods; in today's parlance "he had everything." But someone confided to him the existence of a land in which there were "Acres of Diamonds," so he sold all he had and started out in quest of that land in order to acquire

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these fabulous riches. He wandered about the world unsuccessful in his search until finally, ragged, beggared, and ill, he destroyed himself. The denouement of the story was that on the original land which he had sold, diamonds were discovered.

This tale reminded Mr. Conwell of many similar instances and from them he made the observation that we wander and fret and search discontentedly throughout the world, while all the while there are numerous treasures in own backyard. Another moral he drew from the tale was that if one desired to be a great man in the world he should start by being a great man in his own home town.

That story appeals to me as it has to many others, and it seems so singularly apropos to the situation which brings us together here today that I almost entitled this presentation "More Acres of Diamonds." We complain constantly about the shortage of manpower and of the fact that many people seem to be unwilling to work and yet in our own cities there are vast untapped resources—handicapped people—our own acres of diamonds, many of whom are only too anxious to work if given the chance.

I realize that in making that last statement to you, who have been saying that same thing to employers for many years, that I may sound a bit comparable to the clergyman whose Sunday sermon falls upon the ears of those already in the fold. My intent, however, is simply to emphasize some of the excellent work you do and approach it from the standpoint of a psychiatrist who, for nearly 40 years, has been occupied with the rehabilitation of the emotionally handicapped.

In this presentation I shall first pay respectful tribute to you and to all of those who devote their lives to the rehabilitation of men. Then I shall consider the meaning of work to men and speak of the havoc wrought by unemployment, first in everyday normal life and then in disablement. En route I shall engage here and there in a bit of propaganda for the understanding of the mentally ill. Finally I shall end, mercifully soon I hope, by addressing myself to that great group which works so faithfully with you, the volunteers.

I labor in a hospital which for nearly 150 years has known of the therapeutic value of work for a man. It is a mental hospital, the first hospital of any kind in Connecticut. It was famed for so-called "moral treatment," and its founder was Eli Todd. Listen to Dr. Todd as he writes late at night to worried parents:

> I improve a moment on the eve of your son's departure to express the pleasure I feel at being able to restore him to his anxious friends nearly, if not quite, as he was in his best days. I cannot too strenuously urge the advantage and even the necessity of his being engaged in some regular employment which shall hold out the promise of moderate but fair compensation to his industry and prudence.

No one had grasped the essence of rehabilitation theory better than he. "The great design of moral management," he said, "is to bring those faculties which yet remain sound to bear upon those which are diseased. . . . this constitutes the great tactical approach." Then in other writings, quaint only in expression but applicable here and now, he put forth strong arguments for the team approach to treatment . . . . Thus he blazed a trail a century and a half ago which alas was soon lost sight of, but which now is the main thrust of your humane efforts. You work as a team, and with a team, fostering that best form of rehabilitation—the return of a man or a woman to work and the emotions that go with it.

The Meaning of Work

Strangely enough, down through the ages no one has ever been able to define work satisfactorily. We know it is the purposeful activity required of males in this culture and all agree that it exerts a compelling influence upon his personality and his outlook and behavior. That is where agreement ends, however, for other reactions to it are paradoxical. What is work for one man is play for another. Depending on the age, period, and the cultural beliefs, it has been regarded as either a blessing or a curse, as joy or drudgery, as saint or sinner. Presently many young folks do not know how to regard it.

Various writers have sung of work and of idleness. Carlyle believed that an endless significance lies in work. He spoke of a man perfecting himself by working. It gives man a feeling of identity that nothing else seems to produce. It serves to regulate his activities, enforces self-discipline and enhances his self-esteem. Much to the distress of their wives, a great majority of men today act as if it is exclusively by their work that they validate and fulfill themselves, and they thus neglect their tasks of father and husband.

In order to get to the heart of the matter let us agree here that in our civilization work is what men live by. We work to earn the necessities of life, to secure its comforts, and as befits a man to provide for our families. Work helps still the feelings of inferiority that unconsciously beset us. It gains us parity with our fellows and the acceptance of the community. It dignifies our daily lives no matter how humble. In it we may expend our aggressive impulses and ward off the profound feelings of insecurity and helplessness. With work man

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earns more than a stipend—he gains the right to be master in his home.

For the unemployed man all of this is changed and his most pressing need is to maintain his position in his home and with his family. In normal daily life if his unemployment is protracted, life deteriorates into a sodden repetition of job seeking and lounging about the house. He no longer meets his fellow men on the job, and whatever limited companionship that meant to him is gone. It is easy now to slip into boredom, to emptiness, and even to despair. This happens every day, particularly in deprived areas whether they house people black or white. These men can't hold their heads up; some desert their families, and more often than not a matriarchy then ensues with diverse effects upon the male children. When men live in emptiness, despair, or feelings of futility, this holds promise of danger; it can easily lead to destructive thoughts and even to destructive actions.

In extended unemployment man is eventually seen in a different light in his home. Strangely enough, this prolonged enforced idleness of the father seems to effect adolescent girls more than it does boys. Imagine the feelings of one man, however, whose son said to him in a quarrel: "You didn't raise me, the welfare did." One doesn't get over that kind of a hurt very easily. Work is a fundamental resource, something to show to society, something to hold on to as long as possible. The poignant emotional reactions of a man out of work tell us more of what work means to men than could any description we can present to you here. We know, too, that man shows himself in a light different at home from the one he shows at his office or factory. Therefore, among other things work can become a fundamental resource—a face to show to society, something to hold on to as long as possible. It is a status symbol, if you will, and man often holds on to whatever title or rank he had attained long after he has retired. Retirement, incidentally, furnishes a fertile field for the proof of these statements.

Disablement

A physical handicap or disablement alters the person's concept of himself—what he is like, what he is worth, what he is capable of. The obvious disabilities which you recognize and know so well eliminate some of a person's accustomed methods of meeting basic emotional needs.

The loss of a body part does considerable violence to the concept of one's self. This is dramatic and apparent, but the more serious but undramatic medical conditions constitute well over half of the disabilities. Painful anxiety is practically inevitable in all of these conditions. Often this is a prelude to a loss of self-esteem. The burden of inadequacy, whether real or imagined, may be sufficient to create psychic distress in an individual no matter how well adjusted he previously might have been. One cannot be ill or disabled physically without having some emotional accompaniments to his illness, nor can he be emotionally ill without some physical manifestations of it.

Everyone realizes that it is normal for patients who are disabled to be angry, anxious, and even depressed at times. These emotional manifestations are reactive in nature, and a skillful therapist uses them and directs them into useful channels even as the psychiatrist tries to channel the patient's anxiety into fruitful activities. All of us share a concern about a patient's motivation for recovery. Personality factors can influence the onset and course of virtually any sickness, and patients must at sometime be helped to make the decision to try either to get well or to remain in the protective but uncomfortable confines of his disability. Rather than a single decision, however, this is one which has to be made over and over again. Naturally there will be disappointment and depression following upon failure, but with kindly encouragement and assistance the person will try again. This sequence occurs in psychiatry also, and then on some happy day the patient may determine that things have gone far enough. In some instances he will give up the ideas that people have told him are "crazy." It is not unusual for our patients to say after recovery that being treated kindly but with the continued expectation that the will get well has helped them marshal their recuperative powers.

The psychiatrist, accustomed to treating for improvement rather than cure, is often better prepared than are other specialists to practice the melioristic medicine that the treatment of chronic illness has made essential. The choice of a therapeutic regimen sometimes depends on the personality problems of the patient as much as it does upon the disabling situations (e.g., the strict bed rest imposed following coronary occlusion might promote hidden turmoil that can be prevented or aborted only if it is anticipated.)

Regretfully, we do not have time to go into the fascinating emotional reactions which we human beings can call forth in illness and disability. One of the most challenging of these reactions occurs early—it is called denial. You know it well. We used to think it occurred only in brain damaged persons, but we relearned in the war that it occurs in amputees and many others with disabling illnesses. It is an unconscious defense reaction against overwhelming emotion and a catastropic hap-

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pening. It is as if nature mercifully sandbags a person to prevent realization of a reality situation, but one must gently be brought face to face with reality.

This problem, like many others, must be dealt with obliquely. One never approaches serious emotional problems head on or with the directness of a district attorney. A direct assault might be too difficult to bear and one could drive a person into the refuge of a psychosis. Time, a determined kindness, and gentle persistence are on the side of a skillful therapist despite the pessimism which will erupt regularly in patients and even in some staff members. The art of helping people always lies in treating the patient rather than the symptoms.

Psychiatry has a great deal to teach in the handling of the handicapped. It can give physicians, nurses, rehabilitation workers, and your own group the tools to understand the person and learn the meaning of the symptoms and the emotional overtones. Dr. Sol Ginsburg observed that no doctor thus armed can ever again neglect the patient in his human aspects or slight the dignity of his human needs and wants. The same may be said of each one of you. In their simplest form the ingredients of dynamic understanding and relationship can be reduced to the words "respect" and "affection."

Our attitudes and approach to patients are of the greatest importance, just as important in fact as are the detailed scientific and technical understanding of the patient's disability. Along with all of this there is required of us an understanding of the individual differences in our patients and the background factors of their disabilities, for the young and the old, the weak and the strong, all manifest their problems differently. There are no conglomerates where human beings are concerned.

Emotional Problems

Time prevents me from going too far into the emotional problems of the patients whom you are privileged to serve. I am in open admiration of the technical ability and humanitarian purpose evident in the work of the rehabilitation teams and of your own leaders. I ask your indulgence to repeat a statement made by Dr. Howard Rusk. It points our directions and makes us humble. He said:

> A man with a broken back has not been rehabilitated if we spend 4 months teaching him to walk but leave him with such anxiety that he will not go out of the house. And if we meet this objective and then send him home to a fourth floor walk-up apartment where he is a prisoner in his own room the rest of his life, we have done him no great service. Until we have found him a job which he can do, we have not fulfilled our responsibility.

Thus, one of the crowning acts of "man's rehabilitation of man" falls to your lot—to find him a job; to show employers that the employment of the handicapped is no charity. To be utilitarian about it we can show that it can be very good business. It is not only important to the families of the disabled and the individuals themselves, but important also to the community at large and the Nation as a whole. I am aware of the fact that there are realities to be met and that each situation must be evaluated separately and the individual placed carefully. Not everyone can work and not everyone has the motivation to work, but we cannot lean too heavily upon lack of motivation. That excuses us too easily. It is part of our job to inspire motivation. It is part of emotional rehabilitation.

All of us must keep in mind the fact that there is a tyranny of terms. Some diagnoses seem to carry condemnation within them, but this is wrong. Labels make little difference; there is a wide variety of individual reactions within all diagnostic categories and labels. Sick and disabled people are people first of all, with all the dignity that implies, and their rehabilitation is everyone's business. Those who are spared the need of it today may not be so fortunate tomorrow.

Rehabilitation

The term "rehabilitation" thus is used in many contexts. Its original meaning is to "clothe again," and by extension to invest with some right, authority, and proper regard for oneself. This meaning is inherent in the philosophy of rehabilitation which in essence holds the human being to be entitled to the privilege of his humanness. If disabled, he indeed has the right to be a complete person again and to be restored as much as possible to usefulness and dignity in the world of his fellows.

To render disabled people self-supporting, even partially so, is a real victory in view of the costs of dependency and the serious loss of income and services represented by untold thousands of useful citizens. This is all quite aside from the fact that for normal people it is quite as important to be active as it is to eat and sleep. Work and productiveness, movement, and recreation are all important to mental health. If no effort is made to make these things available to the disabled, the boredom and despair can get out of hand.

I have no intention of even trying to tell you about employment possibilities or the roadblocks you will encounter—excuses such as insurance and workmen's compensation problems, complaints of stockholders, or

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inability to make changes such as the installation of a few ramps. The literature of your Committee abounds with examples of people who have overcome almost impossible handicaps and insuperable odds. It breathes an air of dedication, determination, and persistence of that admirable group of disabled people who have made and are making excellent, dependable, and consistent good workers and who stay on the job.

You all know of the dedication of handicapped workers. In the parlance of the day, "this is your bag." The accomplishments of the handicapped make us humble, and I am sure that humility is the proper mood for us to learn from them and to take to our tasks. I speak of humility as Ruskin spoke of it. He said:

> I believe the test of a great man is humility. I do not mean by humility doubts of one's own ability; but really great men have a curious feeling that greatness is not in them and they see something divine in every other man and are endlessly foolishly and incredibly merciful.

It is my belief that by your work and your approach to it you meet these qualifications which designate great men. I use the term "men" in generic sense, and I have nothing but admiration for you.

Volunteers

I would now for a few moments like to address myself to that great group of people without whom you could not function—the volunteers. Over the Nation there are more than 3 million of these good folks who give of their time and themselves to the sick in our hospitals. There are also more than 500 paid directors of volunteers responsible to directors of hospitals and agencies. The volunteers' greatest contribution comes from their non-professional status. Their efforts are altruistic and for them I would suggest a motto for their shields; it is taken from Browning—perhaps it would be best engraved in their hearts:

> A poor man served by thee will make thee rich. A sick man served by thee will make thee strong. Thou shalt thyself be served by every sense of service which thou renderest.

Volunteer services are particularly useful and to be useful to one's fellow man is one of the greatest aims of human life. There are few things which surpass it in quality. This is one of the things our present young folks are trying to say. They call it relevance and concern for our fellow man, but they get all mixed up in its application. Not only does usefulness bind us to our fellow creatures, but it also redounds to our own growth. It elevates one's status far above that which any artificial title or status can bestow.

Louis Linn, a colleague, in speaking of the influence of volunteers upon the sick folk in our mental hospitals said:

> Here is a form of treatment based upon the highest of human values, man's concern for his brother. It cannot be purchased with increased tax appropriations. It is available only as a gift from the patients' fellow citizens. In its qualities as a gift are to be found its special therapeutic importance. The beneficial effects of the volunteers' contributions go far beyond their influence on the patients.

Patience, tact, dependability, and a reasonable warmth and genuine interest are required of volunteers. The day of Lady Bountiful's gracious appearance to distribute her largesse is over. So, too, has passed what Mauriac called the China Shepherdesses and rosebuds—they earlier had their day. One must approach the sick with the realization that they as patients are frequently defensive, particularly when things are being done for them by somebody new. Any hint of patronizing or a delicate tilt of the nostrils as if something might be unpleasant puts an end to that relationship maybe for good. Neither does one counter the patient's recital of troubles by repeating one's own. The more sympathetic the listener the greater the help. There is no need for the volunteer to give advice, carry the torch, or climb into the illness with the patient. Rebuffs are to be expected, but they can be used to help the patient if accepted gracefully.

Everyday in doctors' offices throughout this country, there are people complaining of boredom. They wish they could be of help to others. Opportunities to help are sighed for with the hope of making life meaningful, but alas, unfortunately that is often as far as it goes. Often people are anxious to help, they think, but they disdain doing little things. They should be reminded of Doctor Johnson's dictum that "he who waits to do a great deal of good all at once will never do any." Good is done by degrees. To do the small, the modest thing which lies before one and to realize the irrevocability of our smallest acts—this is to be useful, and the useful and the beautiful are rarely if ever separated.

There is never a need to be bored; there is so much to be done by professionals and volunteers alike. If it were possible to interest our young folks in espousing the same cause it might bring a new spirit and animation to present day efforts. The young people are bright and idealistic enough and they talk loudly enough about their love for their fellow man, but this is not enough. One needs a commitment to people—not people

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in the abstract but real live sentient individuals who are having a difficult time of it.

Whitney Young termed a conference comparable to this one "A coalition of concern for the disabled and the disadvantaged." At the same conference Vice President Agnew said the conference was a new commitment of one of the oldest traditions of our republic—a commitment to the power and the wisdom of the people themselves to assess their problems and find solutions. You are the agents of that coalition and commitment of which these men spoke, and you are interested in the "whole man." The community which you represent is the final theatre in which the drama of rehabilitation of disabled people, whether physically or mentally, is played, and that final step in the community can constitute a hazard.

For a patient to be relieved of acute or chronic illness or disablement and with confidence shakily restored to be met with hostility or lack of understanding in the community could be tragic. You are the transfer agents for these people from rehabilitation efforts to self-supporting, self-respecting, usefulness in the community. Some psychiatrists believe that in treating emotionally distressed people it is not so much the type of therapy used as it is what transfers between the patient and the therapist which makes the difference. This may be an over-simplification but it indicates to you that your efforts also can be psychotherapeutic. I know you will never let them become "psychonoxious." Tolstoi's advice about dealing with people has some relevance to this. I have mentioned it many times. He wrote:

> It all lies in the fact that men think there are circumstances when one may deal with human beings without love, and there are no such circumstances. One may deal with things without love; one may cut down trees, make bricks, hammer iron without love; but you cannot deal with men without it, just as you cannot deal with bees without being careful. If you deal carelessly with bees, either you will injure them or you will be injured—and so it is with men.

Well, I have mixed into your affairs, given you unsolicited advice, and called you names such as intermediaries and transfer agents, so I might as well go all of the way and suggest a mood for you to keep with you in your efforts. It is Eutropelia—the virtue of lightheartedness, a virtue which certainly is necessary today. Pericles said it was one of the chief virtues of the Athenians—a happy and a gracious flexibility. It is a charming gift and a boon for those who cultivate it.

As to the violence and the unpleasant mood of the Nation at present, please do not be overwhelmed by it. Underneath all the cruelties and tragedies something magnificent is taking place—there is an increase in man's concern for his brother. Durant has said the supreme challenge to intelligence is making the noblest and best in our curious heritage prevail. By your efforts you are trying to accomplish this and I am sure your efforts will be fruitful. You should know by now that you carry with you in those efforts our wish for your every blessing and for more than your share of happiness. In the end you will have found your own "Acres of Diamonds" in your own work-a-day backyard, and will have become great men in the doing of it.

A TRIBUTE TO COURAGE

Now, attention turned to the tall, handsome black-haired young man on stage to be honored as "Handicapped American of the Year." Presenting "A Tribute to Courage" in Scholl's honor was Daniel Schorr, CBS News Correspondent.

Daniel Schorr's Tribute

Everybody expects some ups and downs in his life, but for Danny Scholl, the man we honor today, did they have to be quite so big?

That question might occur to you and me, but it never did occur to Danny Scholl. He has always been too much on the go, too full of bounce, to take time out to feel sorry for himself.

In his heyday as a musical comedy star, Danny Scholl had to learn plenty of scripts. But none of them could match the real story of this real man. Listen . . .

Danny Scholl was born in Cincinnati, Ohio, 48 years ago. He was raised by an aunt and uncle who loved him as their own.

He liked to sing and he liked sports. So it was only natural to combine the two. He boxed to earn money for music lessons.

Then came his first break, the first "up" of his life. He entered a talent contest and won the Paul Whiteman Award (there's a name from the past). With it came a week's engagement at a Cincinnati theater. Then it was like a Rube Goldberg sequence of A leads to B leads to C. The biggest band leader in town heard him and hired him as vocalist. One night, Earl Carroll dropped in, heard him, signed him up on the spot for the "Vanities." In the "Vanities," Glenn Miller heard him, hired him on as vocalist.

And then, World War II. Glenn Miller joined the

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Army Air Corps and Danny Scholl followed him. He toured with the Air Force show, "Winged Victory."

This wasn't Danny Scholl's idea of how to fight a war. So he volunteered for overseas duty, with the 20th Air Force. He was sent to Iwo Jima. There, one day, he found seven enemy soldiers hiding in a cave. They surrendered. He scratched his head. How do you bring back seven enemy soldiers in one Jeep? He tied them together, one on top of the other, on the back of the Jeep. Then he headed down Mount Surabachi.

At this point came "Down No. 1." The prisoners started swaying their bodies in unison, this way and that way, until the Jeep overturned. Danny tumbled down the mountainside.

He regained consciousness in a hospital. He learned he had a broken back and two curvatures of the spine. It took a long time to recuperate. Finally he was discharged from service, with two Bronze Stars for bravery.

Back home he picked up his career and started to climb again. He concentrated on musical comedies—first minor parts, then leading roles. And then came Broadway—starring roles in "Texas, Li'l Darlin'," "Pajama Game," "Oklahoma," "Damn Yankee," many more.

He was in great demand on television—Jackie Gleason, Perry Como, Ed Sullivan, Lucille Ball, Bob Hope, all the others. Hollywood heard about him. He headed West, to make movies and to make records.

And then, suddenly one night came "Down No. 2." Seconds after his 44th appearance on the Jack Paar "Tonight" show, Danny Scholl had a stroke. It was incorrectly disgnosed as neuritis. He later returned to the Paar show and during a rehearsal had another stroke. Medical tests showed he needed brain surgery.

Danny wanted to go home to Cincinnati, to the veterans' hospital there. So his Aunt Lou, now quite old, made her first plane trip to New York to come get him. During the return journey his left lung collapsed.

In Cincinnati, came brain surgery that lasted 9½ hours and that left him with 14 permanent clamps in his brain. At the same time he underwent stomach surgery to remove massive clots.

They never expected him to live. But after a year of intensive treatment, he walked away from the hospital—on crutches. In time he discarded the crutches and went back to Hollywood.

But it was frustrating business. This time, nobody wanted to take a chance on him. Finally, he managed to get a movie role with Rory Calhoun in "The Texan." Things started looking up again. MGM wanted to produce his life story; he'd play himself.

But then, 3 years ago, "Down No. 3."

A third stroke. This time, his right arm and leg, and his throat, were paralyzed. His throat—a singer. They told him he'd never walk again or sing again.

Back in the veterans' hospital in Cincinnati, where he couldn't utter a sound—this professional singer. Then he remembered something he had read about voice training. Every day he struggled to make sounds with pebbles in his mouth. Five months later came the sound, "ah."

A year later came his first song, "No Man Is an Island." His audience: fellow patients in the hospital. Not longer after that he walked out of the hospital, one leg in a brace which he still wears.

Well, that took care of professional show-business. This time, Danny Scholl stayed in Cincinnati. He works there now, as public information officer for Roger Cloud, Auditor for the State of Ohio. He's active in all kinds of organizations—March of Dimes, American Legion, National Association of the Physically Handicapped, more. Yes, he still sings. Do you think that three "Downs" could really stop him? But now he sings as a volunteer, and for the purpose of boosting the spirits of people who might be helped by the sunshine of song.

Danny Scholl has summed up his life this way: "I'm not supposed to be alive. I'm not supposed to be walking. I'm not supposed to be singing. But I'm doing all these things. I know it's a miracle. I know I was saved for a purpose. That purpose is to help other people. And that's what I'll spend the rest of my life doing."

You couldn't begin to count the people Danny Scholl has helped. The Vietnam veteran getting ready for brain surgery, the middle-aged stroke victim, the youngster adjusting to leg braces, the patient in the old folk's home . . .

Today, the citizens of Cincinnati are observing "Danny Scholl Day." They are thinking of Danny Scholl as he receives the President's Trophy as "Handicapped American of the Year," here in the Nation's Capital.

Never was a trophy or a title more deserved.

So, Danny Scholl, we salute you. We salute your courage. We salute your faith. We salute your gifts of song and of love. May your star continue to rise, *always* upward.

INTRODUCING THE VICE PRESIDENT

A hush fell over the audience. Secretary of Labor George P. Shultz stepped to the podium with that age-

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old introduction that is so simple and yet so dramatic: "Ladies and gentlemen, the Vice President of the United States."

Applause was deafening. Vice President Spiro T. Agnew grinned as he waved his arms in greeting. Silence once again. He spoke.

Vice President Agnew

I am glad to be with you today because I have a great deal of admiration for all you are doing in behalf of the handicapped of our Nation.

Now, I realize it is easy to admire people who do things for the handicapped, just as it is easy to admire handicapped people who do things for themselves. But, my admiration runs deeper.

I admire your spirit of voluntarism. I wish this spirit were stronger in the United States.

It is easy to come home after a hard day's work, eat dinner, then spend the evening half asleep in front of the television set—no, this isn't going to be another speech about television.

It is *not* easy to be a volunteer—to lead a busy life during the day, then to squeeze something extra out of yourself not for your own sake but for the sake of other people who need you.

The dictionary defines a volunteer as a person who "enters into any service of his own free will." The dictionary doesn't go far enough—and I hope this won't bring down the wrath of dictionary-makers upon my head. I define a volunteer as a person who "enters into any service of his own free will, not for his own well-being but for the well-being of others." And I offer this synonym for volunteer: "A person who really is his brother's keeper."

Second, I admire your spirit of giving rather than getting.

For so many people in this world, the key question to any activity seems to be, "What's in it for me?" You've rephrased the question: "What's in it for somebody else?"

The way you measure success is based on giving rather than getting. How many handicapped people did you help find jobs? How many handicapped people received new hope from you? How many handicapped people feel life is worth living because of you? Look at the man we honor this morning—not for what he did for himself in overcoming his disabilities, but for what he did for others.

Third, I admire you for your many-sided attacks on the problems of the handicapped.

If two heads are better than one, then maybe an entire army of heads are better than two. Look around you—volunteers representing every conceivable walk of life in America, all of you bringing your diverse thinking and diverse approaches to bear on the single problem of greater opportunities for the handicapped.

This many-sided approach has been responsible for your success over the years. You have dramatized that problems of the handicapped are *everybody's* problems; they are not the kind of problems you can suggest "let George do it."

I have already changed a dictionary definition this morning. Now I will change an old adage. They tell you "too many cooks spoil the broth." But not in our case. We are not making broth. We are forging hope and opportunity. It's not a matter of too many cooks. For us, it's a matter of "the more the merrier."

And fourth, I admire you for your emphasis on the concept of work.

I am sure there are many approaches to helping the handicapped. You can give welfare. You can give benefit shows in their behalf. You can give advice and counsel. You can give housing. You can give tender loving care. You can give bigger and better institutions. They are all important, but when all's said and done, perhaps the best thing you can give is work.

The great Sigmund Freud put it this way: "Work has a greater effect than any other technique of living in binding the individual more closely to reality. In his work he is securely attached to a part of reality, the human community."

So here you are, promoting work for the handicapped. And your activities have such richer measurements than mere dollars and cents. Your activities give the highest dignity to the human spirit. Your activities bring the truest form of equality to the handicapped, an equality that comes with employment. Your activities lead to the greatest democratization of our society, based upon work. Work is not the great leveler of the people. Rather, work is the great elevator of the spirit of the people.

By this time you should have a pretty good idea of why I admire all of you here this morning, and why you have my full support, and the full support of President Nixon. Now you know why we are with you, and why we shall always be with you. I felt this way when I supported the Maryland Governor's Committee to Promote Employment of the Handicapped and I feel even more strongly today.

I believe America is moving in your direction. As I look back over the years, your gains have been heartening. But I don't feel that we have yet reached that blessed state of total support and total commitment. We

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still have a good way to go before we can proclaim our country's total commitment to full opportunity for the handicapped.

There still are a good many "half-way" people in our country. The work of this President's Committee and of Governors' and local Committees won't be complete until these "half-way" people move over to the ranks of "all-the-way" people.

I have in mind folks like these:

"Half-way" employers—not too many, but still enough to be concerned about.

These are some who will hire the disadvantaged and other special groups under demonstration manpower programs, but who won't hire the handicapped. These are men who will build large-scale community relations programs, who will staunchly support all the right civic campaigns and causes, who will encourage their employees to volunteer in behalf of the less fortunate of their communities—but who won't hire the handicapped.

Sometimes the companies of these men have rigid physical and mental exams that screen out the physically and mentally handicapped. Sometimes the companies worry about the costs of hiring the handicapped—high insurance rates, high training expenses (but they are wrong, all wrong). And sometimes these men have misguided notions about the capabilities of the handicapped.

These men will tell you they are "for" the handicapped, and I believe them. But they must be convinced that they must be "for" the handicapped all the way, rather than part of the way. And this goes also for government officials at all levels who sometimes are long on talk and short on hiring.

Then there are "half-way" handicapped people themselves.

Let's be realistic. Above all, the handicapped are human beings; and like all human beings they have strengths and weaknesses. If I point to a weakness now, it's not to criticize, but to enlighten.

I have in mind some handicapped people who seem reluctant to go all-out in selling themselves to employers, people easily hurt by that ugly word "no." Job-hunting is salesmanship. The handicapped have to sell harder. And they have to expect more than their fair share of "no" answers. They have to develop ingenuity in approaching employers. They always have to put their best foot forward on the job—not for themselves but for all the handicapped who might follow, if they favorably impress their bosses.

This means going all the way and never giving up. Never. It's not easy, but often there is no choice. Not only their future depends on going all the way, but the future of others who follow.

I also have in mind "half-way" volunteers.

You won't find any in this hall. The ones I am thinking about are those who limit their activities to the easy and "right" causes—arranging for teas and parties to raise money for handicapped people they never see; collecting for health organizations; giving when asked to give. There is nothing wrong with that, but why stop there?

There is another dimension for volunteering, an "all-the-way" dimension—going into a sheltered workshop and getting your hands dirty showing the retarded how to assemble soft drink cases; going into a mental hospital and spending hours with patients, letting them know they won't be forgotten when they come out; going into a rehabilitation center, spending tortuous hours teaching paraplegics how to swing their bodies into wheelchairs. And there is more: serving on local committees and on Governors' Committees, doing all the things that need doing—putting posters in store windows, distributing writing contest materials to high schools, arranging publicity, convincing peer groups—all the other less-than-glamorous tasks.

America has become great because of our tradition of being "all-the-way" people rather than "half-way" people.

If we had been otherwise, we probably still would belong to the British; we probably still would have no vast industrial complex; we probably still would be without national transportation systems or national communications systems—not even television. There would be no President's Committee and no program for employment of the handicapped, for there would not be enough national concern to do anything about it.

But we are "all-the-way" people. We are committed to the handicapped. We do want to go all the way for the handicapped. We are moving in that direction.

You are pointing the way.

It is the American way, the moral way, the right way

It is the way of total commitment by all. Yes, it is the way to a better world for the handicapped—a better world for all the people, everywhere.

May you have the strength and the power to bring about this day soon.

HANDICAPPED AMERICAN AWARD

Next, the Vice President presented the President's Trophy to the "Handicapped American of the Year" Danny Scholl. The trophy, made by handicapped students at the Institute for Rehabilitation of the Disabled

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in New York City, was handed to the Vice President by its director, Dr. Salvatore G. DiMichael.

Danny Scholl's Response

I can't tell you what a great honor this is. I have a few people I want to thank: Dr. Raymond Davis and Marian Fields. They believed in me. They helped me. Also, I am wearing my American Legion hat for a reason. I have belonged to the Legion for 21 years. The past National Commander William Galbraith believed in me. He brought me here to Washington 5 or 6 months ago to speak in behalf of the VA Hospital in Cincinnati, which saved my life.

Yesterday I went to the Iwo Jima Memorial and placed a wreath. I also went to Walter Reed Hospital. You should see those guys, the attitude they have. When I walked out of there, I had a fine feeling just to know what a great country this is.

I guess I had the power of prayer, ladies and gentlemen. I had prayers in my mind after the third stroke which paralyzed my mouth. I prayed, "Please, God, let me live for a reason." The reason was to help somebody else.

I was in the hospital fighting for my life 11½ months the first time. I looked around for love and friendship. We need love and friendship in our world today, regardless of color or religion. In Cincinnati, I have been going to churches and temples, talking about the power of prayer, not trying to change anybody's religion, just asking people to believe.

This day will be a great memory in my life. I would like to close by singing a song that means a great deal to me, "No Man Is An Island."

A SONG AND PRESENTATIONS

Danny Scholl's rich baritone went straight to the hearts of the audience. Afterward, when the applause finally waned, Chairman Russell presented him with an Accutron watch, courtesy of the Bulova School of Watchmaking.

Next came the presentation of two Distinguished Service Awards, highest honor of the President's Committee, by Vice President Agnew.

One went to E. B. Osborn, President of Economics Laboratory of St. Paul, Minn., for his organization's outstanding efforts in training the physically and mentally handicapped for careers in food services throughout the United States.

The other was presented to Maurice Warshaw, Chairman of the Governor's Committee on Employment of the Handicapped in Utah, for his 20 years of dedicated service to the handicapped.

Finally, the Vice President presented awards to the national winners of the "Ability Counts" Contest.

The winners: Glenda Lenhart, North High School, Omaha, Nebr., first prize; Martha Ruth Wright, Thomasville High School, Thomasville, Ga., second prize; Linda Ceciro, Riverside High School, Riverside, N.J., third prize; Peggy Sue Belvin, Artesia High School, Artesia, N. Mex., fourth prize; and Laurie Michels, Borah High School, Boise, Idaho, fifth prize.

The session recessed at 11:30 a.m.

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THE FIRST AFTERNOON . . .

Concurrent Panels

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The First Afternoon . . .

A BOLD NEW PLAN FOR PLACING THE HANDICAPPED

Moderator: Lester H. Ahlswede, Communication Services Consultant, Washington, D.C.

Panelists:

Anthony J. Fantaci, Chief, Division of Counseling, Testing and Special Worker Services, U.S. Training and Employment Services, Manpower Administration, U.S. Department of Labor

Antonio C. Suazo, Co-Executive Director, International Association of Rehabilitation Facilities, Washington, D.C.

Dr. William Bean, Vocational Rehabilitation Consultant, Rehabilitation Services Administration, U.S. Department of Health, Education, and Welfare

Greenleigh Associates recently prepared a study, "Development of a Model for Employment Services for the Handicapped," funded by the Manpower Administration of the U.S. Department of Labor. It made many recommendations which could lead to greater job opportunities for the handicapped. Among them:

Greater outreach efforts, particularly for the severely handicapped; overcoming educational problems; providing a full gamut of social and medical services; focusing on specific disability groups with greatest needs (mentally restored, mentally retarded, severely physically handicapped, etc.); closer interaction between agencies serving the handicapped; many more.

Mr. Fantaci emphasized the concern of the Manpower Administration in providing top-level service to the handicapped. While all their needs may not be met at present, he said, much forward movement has been taking place. The U.S. Training and Employment Service continues to work at the task of developing greater opportunities for the handicapped, he noted.

Mr. Suazo expressed the feeling that sheltered workshops could play larger roles in serving the handicapped than they now do. He mentioned the need for workshops to have greater resources and more contract work. He underlined the value of handicapped persons getting into real work situations in workshops. And he strongly supported the concept of wage subsidies and cost-of-living supplements in workshops.

Dr. Bean pointed out that the Rehabilitation Services Administration presently has authority for expanded services to the handicapped, but not sufficient resources. The family assistance program before Congress could serve as an outreach effort to bring services to those in need, he observed. Job placement is the most difficult part of the process; and he pointed to the need for better linkage, cooperation, and coordination between agencies.

Summarizing the discussion, Mr. Ahlswede suggested that the Greenleigh Associates study could serve as a focal point for progress.

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EMPLOYMENT OF THE HANDICAPPED— A COMMUNITY COOPERATIVE EFFORT

Moderator: L. W. Binger, Chairman, Minnesota Governor's Commission on Employment of Handicapped Persons and Director, Personnel Services, 3–M Company, St. Paul, Minn.

Panelists:

Service Clubs

Isadore Morantz, Executive Secretary, Massachusetts Governor's Commission on Employment of the Handicapped, Boston, Mass.

Employers

Miss Elnor F. Bancroft, Personnel Director, John Wanamaker's, Wilmington, Del.

Women's Organizations

Mrs. Almetta "Cookie" Brooks, Administrative Assistant and Director, Public Relations, Pilot Club International, Macon, Ga.

Veterans Organizations

Walter Rapp, Assistant Director, State Employment Service, Oklahoma City, Okla.

Recorder: Andrew S. Adams, Ph. D., Director of Educational Affairs, VISTA, U.S. Office of Economic Opportunity

Left to right: Miss Elnor F. Bancroft, Isadore Morantz, L. W. Binger, Mrs. Almetta "Cookie" Brooks, Walter Rapp, and Andrew S. Adams, Ph. D.

How have local organizations all over America been contributing their resources in serving the employment needs of the handicapped? This panel considered a cross-section, representing all types of clubs and organizations.

Mr. Morantz recalled how he organized his first local "Hire the Handicapped" Committee with the support of B'nai Brith. The task, he said, was "relatively easy." B'nai Brith had access to community leaders in all walks of life; they already were "activists"; they were

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receptive to working in behalf of the handicapped; further, their national organization already was involved with the President's Committee. Mr. Morantz also described an unusual method of presenting awards (local "Employer of the Year," "Handicapped Man of the Year") in cooperation with service clubs. In one recent year alone, he said, 20 local service clubs sponsored award presentations and scheduled speakers on the handicapped.

Miss Bancroft observed that placement of the handicapped is like a high jump. Where the crossbar is placed is crucial. If it is too high it can't be surmounted; if it is too low, there's no challenge. A job for a handicapped person should give him just the right amount of challenge—not too far above him, not too far beneath him. The supervisor can help, with the proper mixture of constructive criticism and encouragement. In considering handicapped applicants, her company weighs each case individually; it strives to put the person in a job that "brings out more than he realizes is his capacity." It encourages him to grow in the job.

Mrs. Brooks pointed out that womanpower can be a tremendous volunteer force in America. But women's groups should be used properly. They should be called in at the planning stage. They should be given tasks they can do most effectively. She recalled one local organization—made up of communications experts, organizers, fund-raisers, other professionals—given the voluntary task of stuffing envelopes. The women stuffed the envelopes, though they were clumsy at it, but their talents were grossly misused. On the other hand, women's organizations have accomplished near-miracles in the field of the handicapped. One community had need for a half-way house for the mentally restored. Women's organizations arranged for a house to be donated, along with services to refurnish it. Another community needed a school for retarded children. Women's organizations arranged for classes to be held in a church basement, and then recruited housewives to serve as teachers. Don't ever overlook the power of women, Mrs. Brooks concluded.

Mr. Rapp called for greater organization of local "grassroots" Committees on Employment of the Handicapped. "The need to bring this program into every hamlet in this Nation is urgent," he said. Those who serve on committees must be kept involved. Their accomplishments must be recognized. And they must be rewarded, if only by a friendly "job well done" on the part of an Executive Secretary. "Seek Out—Ask—Reward" have been the principles of veterans' organizations in making use of volunteers. The principles easily can be applied to the "Hire the Handicapped" movement.

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WORKSHOPS: PROS AND CONS BY PROS

Moderator: Edward Newman, Ph. D., Commissioner, Rehabilitation Services Administration, Social and Rehabilitation Services, U.S. Department of Health, Education, and Welfare

Panelists:

Milton Cohen, President, International Association of Rehabilitation Facilities, New York, N.Y.

Robert C. Goodpasture, Executive Vice President, National Industries for the Blind, New York, N.Y.

Robert E. Watkins, Executive Vice President, Goodwill Industries of America, Washington, D.C.

Left to right: Robert C. Goodpasture, Robert E. Watkins, Edward Newman, Ph. D., and Milton Cohen.

A new era is opening up for America's sheltered workshops. Here, national experts described the basics of workshops, and also discussed what's right and what's wrong with them.

Mr. Goodpasture told of the work of National Industries for the Blind and the workshops affiliated with it. He explained the Wagner-O'Day Act which serves to funnel Government contracts into these workshops. He also mentioned an amendment to this Act, now under consideration by Congress, which would extend the system of contract preferences to other workshops serving the severely handicapped.

Mr. Watkins described the functions of the nearly 200 Goodwill Industries throughout the United States—how they collect unneeded clothing and other items from households in the community, refurbish them, and sell them in Goodwill stores; how they have developed effective work conditioning and training for the handicapped, so that increasing numbers of their clients can leave for outside jobs; how they have served all categories of disability for many years.

Mr. Cohen stressed the needs of workshops to improve their services in the years ahead: health and safety standards must be upgraded; higher wages must be paid; a more businesslike approach to workshop affairs must be adopted, without, of course, losing sight of workshops' main function of rehabilitation. He observed that today only two dozen or so sheltered workshops could meet fully all the standards and requirements a prime contractor might ask for, in considering subcontracts.

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THE DISABLED VETERAN . . .
Are we serving him as he served us?

Moderator: Philip I. Robrecht, Chairman, Committee on Disabled Veterans, The President's Committee and National Director of Employment, Disabled American Veterans, Washington, D.C.

Panelists:

J. C. Peckarsky, Deputy Chief Benefits Director, Veterans Administration

Edwin A. Williamson, Veterans Employment Specialist, Veterans Employment Service (USTES), Manpower Administration, U.S. Department of Labor

Edward F. Rose, Director, Selective Placement Program, U.S. Civil Service Commission

Robert Miller, Program Manager, Veterans Assistance Program, United States Jaycees, Tulsa, Okla.

W. J. Richard Overath, Acting Director, Office of Veterans' Reemployment Rights, U.S. Department of Labor

Group Discussion and Questions for the Panel

Summarizer: Austin Kerby, Vice Chairman, Committee on Disabled Veterans, The President's Committee and Director, National Economic Commission, The American Legion, Washington, D.C.

Left to right: Edwin A. Williamson, J. C. Peckarsky, Robert Miller, Austin Kerby, Edward F. Rose, and Philip I. Robrecht.

What is the status of America's programs of rehabilitation and employment of disabled veterans? This panel analyzed all sides of the question.

Mr. Peckarsky described VA's vocational rehabilitation activities: its "outreach" program of providing vocational counseling to disabled servicemen in mili-

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tary hospitals (21,000, so far); the rapid growth in the number of disabled veterans in training, from 19,000 in 1969 to an expected 25,000 in 1971; the fact that a GI college education can add $250,000 to the lifetime earnings of a disabled veteran; the effective arrangements VA has worked out with the Department of Labor and the Civil Service Commission to place disabled veterans in employment after their training.

Mr. Williamson observed that relatively few disabled Vietnam veterans are applying for jobs at public employment offices. Many are going back to school. Many others, with less-severe handicaps, are finding their own jobs. Of the Vietnam veterans in training, more than 90 percent are employed within three months after they graduate. Those who can't find jobs are the more seriously handicapped; they need high quality services, including effective job development. Older disabled veterans are beginning to need special attention, he said. They are less mobile in the labor market; they have no VA benefits to turn to for retraining; they suffer the discrimination of age. We must not forget them, Mr. Williamson cautioned.

Mr. Rose described the Federal Government's employment program for disabled veterans. Not only do they receive a 10-point Civil Service preference, but they also benefit from the Federal Government's coordinator program—an official in every Federal installation responsible for easing pathways to employment for handicapped jobseekers.

Mr. Miller noted that so far 31 States have Jaycee chapters involved in veterans' assistance programs. The Jaycee activities fall generally in these categories: (a) acquainting veterans with educational, employment, and general opportunities available in the community; (b) acting as a go-between, bringing veterans in contact with education and training facilities; (c) encouraging the community to give full acceptance to returning veterans. One veteran's letter to his Jaycee chapter is typical, Mr. Miller said. The veteran asked about: kinds of jobs open, a place to live, part-time employment for his wife, voting information, sources of training in his field.

Mr. Overath discussed the Veterans' Reemployment Rights program, as it pertains to newly discharged Vietnam veterans as well as to other veterans just getting out of service. The program came into being a quarter of a century ago, and it has provided invaluable job protection to veterans ever since.

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HOW JOBS CAN BE ADAPTED TO PEOPLE

Moderator: Wayne T. Brooks, Director, Industrial Relations Department, American Iron and Steel Institute, Washington, D.C.

Panelists:

E. R. Tichauer, Professor and Director, Division of Biomechanics, Institute of Rehabilitation Medicine, New York University Medical Center, New York, N.Y.

John J. Bean, Director, Office of Agency Consultation and Guidance, Bureau of Training, U.S. Civil Service Commission

Richard E. Schroeder, Director, Engineering Services, American Mutual Liability Insurance Company, Wakefield, Mass.

Wayne T. Brooks, E. R. Tichauer, John J. Bean, and Richard E. Schroeder.

Industry can receive a thousandfold return on its investment in the handicapped, as management learns to extend the working conditions established for the handicapped to the remainder of its working force.

This point was stressed by all the panelists. They agreed that a national upsurge is occurring, in fitting jobs to workers rather than forcing workers to meet rigid job standards. In doing this, management has been finding that what's done to improve the productivity of the handicapped will work equally well with the remainder of the work force.

Examples were cited, such as relieving strain and increasing safety by spacing employees on assembly lines; changing direction of work activities from left to right; raising or lowering office equipment to be more comfortable for workers; redesigning tools to avoid muscular strain; redesigning work space with attention to height and width of space accommodating operators' activities and measurements of vibrations, noise, and lighting—all of which have profound physiological and psychological effects on the individual and his co-workers.

One of the most telling incidents recounted during the discussion period concerned an employment experiment in a steel mill. In this instance, the company had hired a group of so-called hard-core unemployables. To give the project some hope of success, management called in the plant's supervisors and told them how to simplify training procedures for this new group.

To everyone's amazement, the simplified program worked so well that one of the supervisors recommended that all new workers—disadvantaged or not—be given the same training. This has been done ever since.

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REHABILITATION AROUND THE WORLD

Moderator: Malcolm Hecht, Rehabilitation International, Baltimore, Md.

Panelists:

Dr. S. Sheikholeslamzadeh, Director General, National Iranian Society for Rehabilitation of the Disabled, Tehran, Iran

Ian R. Henderson, Secretary General, British Council for Rehabilitation of the Disabled, London, England

Dr. Luis Vales Ancona, Unidad de Medicina del Trabajo, Centre Medico Nacional, Mexico City, Mexico

Krishan Kumar, Employment Officer for Physically Handicapped, Directorate General of Employment and Training, Ministry of Labour and Employment, New Delhi, India

Recorder: David L. Brigham, Executive Secretary, People-to-People Program, Committee for the Handicapped, Washington, D.C.

David L. Brigham, Dr. Luis Vales Ancona, Ian R. Henderson, Dr. S. Sheikholeslamzadeh, Malcolm Hecht, and Krishan Kumar.

Rehabilitation is one activity that can bind nations together. In this panel, authorities from foreign lands described the progress of their own countries.

Malcolm Hecht, Chairman of the Committee for the Handicapped, People to People Program, set the stage for the panel. Long active in international activities for the handicapped, he presented a picture of world progress through the years. This was an apt setting for the descriptions of individual nations' activities which followed.

Dr. Sheikholeslamzadeh noted that 75 percent of Iran's population lives in villages; problems of communicating with the rural handicapped are almost insurmountable. For that reason, rehabilitation activities have been centered mainly in the capital, Tehran. Medical rehabilitation there is largely limited to physiotherapy, he said; but there soon will be growing emphasis on surgical corrections of disability. A center for technical orthopedics, started 7 years ago with United States support, is quite active, meeting the needs of 1,500 persons last year alone. The National Iranian Society for Rehabilitation of the Disabled has made much headway, he reported. It promoted a law requiring a proportion of handicapped workers in government factories; it started a vocational training workshop; it has established two small sheltered workshops, one of which is managed by the handicapped on a cooperative basis. In sum, he said, Iran has a long way to go; it is moving forward.

Mr. Henderson described the broad gamut of rehabili-

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tation activities in the United Kingdom. Among other topics, he touched on employment of the handicapped, spearheaded by the Disabled Persons Acts. Among its provisions: appointment of Disablement Resettlement Offices, whose duties are to help the handicapped find jobs; registration of the handicapped by local offices of the Department of Employment and Productivity; obligation for employers of 20 or more persons to hire at least 3 percent of registered disabled persons; vocational training for the disabled; opportunities for professional courses for the handicapped; establishment of sheltered workshops for the handicapped; a National Council and local committees to advise on matters of employment of the handicapped.

Dr. Vales Ancona described Mexico's programs for the handicapped. The Mexican Institute of Social Security furnishes a variety of services and is one of the most advanced in the world. But, he said, only 25 percent of the population is covered. The vast rural masses lack such coverage. A private institution, the Mexican Institute of Rehabilitation, rehabilitates 1,000 persons a year, maintaining itself with donations and with the products from a radio factory. Yet there are more than 50 other institutes, not so well financed. They need assistance, too, he said. He asked the United States for its "advice and help, to arrive at a goal of rehabilitation, employing the handicapped."

Mr. Kumar described his country's special employment exchanges for the physically handicapped. There now are nine, in India's major cities. The exchanges identify jobs which the handicapped can perform, and then arrange placements. To encourage more jobs for the handicapped, the Government of India has instituted an awards program for the best handicapped employee as well as the employer doing most to hire the handicapped. So far, the exchanges are placing four out of every ten handicapped persons registered for work, he said.

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1970 FILM FESTIVAL

The film festival—a first at Annual Meetings—drew capacity audiences all afternoon. The movies shown were:

"Jobs Well Done," a documentary of mentally retarded persons employed by the Federal Government.

"Beating the Averages," narrated by Raymond Burr, a movie showing the problems of persons in wheelchairs in moving about their homes and their places of employment.

"All Things On Wheels Aren't Equal," demonstrating ways in which the physical barriers on a college campus can be eliminated.

"The Gap," showing dramatically the problems involved in the delivery of welfare and rehabilitation services for the handicapped and disadvantaged.

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THE SECOND MORNING . . .

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The Second Morning . . .

AMVETS SCHOLARSHIPS

Leonard Mayo, Vice Chairman of the President's Committee and presiding officer at the Friday morning session, introduced Dominick Strada, president of the AMVETS National Service Foundation, who presented two AMVETS scholarship certificates to the President's Committee.

These certificates, valued at $1,000 each, are to be used for the education of two outstanding handicapped students, a boy and a girl. Winners had not yet been announced.

DANCE RECITAL

The lights dimmed in the great hall. The curtains parted. A dance troupe from Galludet College for the Deaf began to perform.

With flawless rhythm they went through their paces, even though they couldn't hear the music. Afterwards, the applause was thunderous—for them and for their director, Dr. Peter R. Wisher.

ATTITUDES TOWARD THE HANDICAPPED

What does society think of the handicapped? The most incisive answers can come from the handicapped themselves, as a sort of inside-out view.

Here, four persons with different sorts of handicaps compared notes about attitudes, as observed from their own personal vantage points.

The audience was seated at tables-for-ten, for a discussion to follow the presentations. The round table discussions were under the guidance of students in Group Dynamics at Community College of Baltimore, directed by Dr. Eveline D. Schulman and Mrs. Willida Hoffman; and Montgomery College, Takoma Park, Md., under the direction of Mrs. Constance Moerman.

Panel moderator was Dr. Harold E. Yuker, professor of psychology at Hofstra University in Hempstead, Long Island, N.Y.

"It is recognized that the attitudes that a disabled person has toward himself are very important determinants of his behavior and his achievement, Dr. Yuker said. "If he can accept himself, he will tend to be well adjusted. If he has negative attitudes toward himself, he will tend to have problems in getting along with other people, and in holding a job."

These observations have been affirmed by studies performed over the past several years at Human Resources Foundation, Albertson, N.Y., and elsewhere, Dr. Yuker noted.

And yet, attitudes of the handicapped themselves make up only a part of the total picture. We also must concern ourselves with attitudes of the general public toward the handicapped, Dr. Yuker said. "If there is to be greater acceptance of the handicapped, the public must change its attitudes. After all, the handicapped cannot change their disabilities."

John Wellman

An attorney from Milford, Conn., Mr. Wellman lost his sight and was facially disfigured in a hunting accident.

Even though a person may acquire a handicap, the human being in back of the handicap remains the same, he said. However, other people's attitudes toward him can influence his attitudes toward himself.

Therefore, proper public attitudes are essential in order to help the handicapped maintain proper self-images, proper attitudes toward themselves.

Mr. Wellman observed that his largest problem has been in employment. He recalled how he sought a job in a law school, but was rejected by the president because of his disabilities. He tried in vain to convince the president that he still was a competent attorney in spite of his handicaps. But the president refused to see it that way.

He refused to allow rebuffs to squelch him. And he is making his own way in life in the profession of law. "I see myself not as a blind person but as a person who is blind," he said.

Mrs. John Bell Williams

"I can best describe my illness as being in a deep black pit, somewhere between top and bottom, barely hanging on with my fingernails and toenails, too tired to do anyhing more than just hang on and survive. Finally, ever so slowly, I began to take more of a hold. And I started to climb very slowly toward the top, where the sunshine is."

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Dominick Strada (right) president of the AMVETS National Service Foundation, presents two scholarship certificates to PC Chairman Harold Russell. These certificates will be used for the education of two outstanding handicapped students.

Leonard W. Mayo.

That's the way Mrs. Williams, wife of the Governor of Mississippi and a former mental patient, described her mental illness.

She recalled how her own illness had begun. "Suddenly I had no control over my emotions. I was shopping. I became afraid. I wanted to crawl under the counter and hide. I fled to a restaurant, thinking food would help. I couldn't speak. I couldn't come to a decision about what to eat. In desperation I pointed to a line on the menu. I wound up with a hamburger."

Three months later she was in a private mental hospital. She knew she had reached a turning point and was improving when she began to feel that her hallucinations were infringing on her privacy. Soon the hallucinations ended. She could go home to "the 5 hardest years of my life"—picking up the pieces, getting back into the swing of a normal life.

Household duties at first were difficult. "After getting the children off to school, I would lie under a blanket in my room until it was time for them to come home."

Today, many years afterwards, she is able to laugh at some of her experiences. When top political figures remarked about her absence from the scene for so long, she blurted out, "I've been in a mental hospital." "Do you have to tell everybody?" someone asked. "Of course. Do you think I want people to believe I'm this way all of the time?

"The greatest problem in finding employment for a former mental patient probably will be the patient himself," she said. "It will require a long period of readjustment before he will be able to cooperate. You will want to help him; an employer will want to help him; but the former patient may not be ready to accept all this help.

"Time, a great deal of time in some cases, may be needed for him to return to a normal routine.

"For those who want to help, I recommend: patience, understanding, love. Most of all, patience."

Dr. Harold H. Wilke

Born without arms, Dr. Wilke is Executive Director of the United Church of Christ in New York City.

He recalled the time he had arrived at the Menninger Foundation in Topeka, Kans., to serve as chaplain at the hospital. Some minor official expressed concern over

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hiring a physically handicapped person for this job. He kept pressing his point, until finally Dr. Menninger exploded: "Blast it, I didn't hire this guy to pitch baseball!"

Dr. Wilke observed that he had long been concerned with the people with two strikes against them, the physically handicapped and the mentally ill. There is no real distinction between them and the rest of society. All people—the handicapped and the nonhandicapped—stand somewhere on a single human continuum. We keep moving forward or backward on this continuum, as we adjust or fail to adjust to our state in life. We are all handicapped to some degree or other, and so we all belong on this single continuum. It is this which binds mankind together, the handicapped and the able-bodied. It is this which makes us all part of a single and unified society.

It is only when we fail to realize we are part of the same continuum, part of the same society, that we tend to ascribe negative values and unfortunate stereotypes to those we call "handicapped."

As for his own life, Dr. Wilke said that since he was born without arms, he learned to adjust quickly, as a young child. He soon became independent. He did not feel the need for prostheses.

If wearing his watch on his ankle causes second glances, eating with his feet causes even greater attention. Yet this all is part of the "handicapped learning to do for themselves," as he put it. After his presentation he removed his glasses with his toes and laid them on the table. He did this so skillfully and so naturally that it almost went unobserved.

William Passmore

Mr. Passmore is work coordinator of the East Chicago Mayor's Committee on Social and Economic Opportunity, East Chicago, Ind. He was honored last year as "Handicapped American of the Year." The lower part of his body is gone. He lives in a wheelchair. Yet you soon forget the wheelchair and the disabilities; his human warmth and good humor are what you remember.

"A handicap is what you make of it," he said. "It is not a matter of how the world views you. It is a matter of God and your faith in Him. These are the factors that can carry you over the rough spots of life.

"God gave me life. He gave me a way when there was none. This was done for a purpose. I have dedicated my life to finding that purpose, and to fulfilling that purpose."

He concluded with these stirring words:

"All of you out there—the whole world—start to love. Forget to hate. Do these, and handicaps will disappear from the face of this earth."

The Discussions

Round table discussions followed—and there was plenty to discuss, under the guidance of the trained college students. Most of the discussions were quite per-

Panelists on the Friday morning session, "Attitudes Toward the Handicapped: An Inside-Out View," engage in a lively discussion, which is being translated into sign language for deaf persons in the audience. From left, the panelists are William Passmore, John Wellman, moderator Dr. Harold E. Yuker, Mrs. John Bell Williams, and Dr. Harold H. Wilke.

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sonal in nature—therapeutically so: "what about my own inner attitudes toward the handicapped? Toward others in general? What can I do to become more accepting of others?"

Suddenly the discussions were interrupted by a young man with frayed jeans decorated with flowered decals, who had taken over the microphone on the podium. Standing barely taller than the podium itself, he berated the audience: "This is my first President's Committee meeting. All I've heard is: 'How I've helped myself.' I wish I'd have heard: 'What I can do to help others.' Let's stop thinking of ourselves. Let's start thinking of others, particularly the disadvantaged and the poor and the minorities."

After 3 minutes he left the stage. It could be seen that he had leg braces.

The discussions could have gone on much longer, but there was a call for adjournment.

On one table cloth someone had written:

Physical
Mental } Continuum
Social

Perhaps attitudes are changing after all.

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A BANQUET,
A LUNCHEON . . .

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A Banquet, A Luncheon . . .

THE BANQUET

On a Wednesday Evening

It was a glittering, happy reception, preceding the Women's Committee Banquet. Everyone was grateful to the International Brotherhood of Electrical Workers for making it possible.

Then the banquet began.

Rabbi E. William Seaman, Associate Rabbi of Washington Hebrew Congregation in Washington, D.C., delivered the invocation.

Master of Ceremonies was Al Ross, well-known radio personality of WRC, the NBC outlet in Washington.

Dr. Marion Mill Preminger was presented with a silver bowl by Mrs. Jayne Spain, Women's Committee Chairman, for her many years of service to the handicapped—including her activities with the late Dr. Albert Schweitzer in Africa.

And Nanette Fabray, actress and musical comedy star of the theater and television, was given the President's Committee's highest honor, the Distinguished Service Award, for her work in behalf of the Nation's deaf.

And then she spoke . . .

Nanette Fabray

"I am going to speak about 'A Silent Minority,' " she said. "I refer to the deaf, and the hearing-handicapped. There are 15 million of us. I say *us* because I myself have been hearing-handicapped most of my life. Until 2 years ago and a miraculous operation, I had every reason to expect and wait for total deafness."

She recalled that when she first began working with the hearing-handicapped she was "gentle, sweet-tempered, anxious to please, eager to be liked."

But now, she said, "you are looking at a modern version of Carrie Nation. I spit nails. Grown men run for the hills when they see me coming."

What changed her? "The professionals in the field, that's who," she said. "The head patters and patronizers who say 'there, there, little lady, you collect the money and we'll take care of the rest.' "

She charged that education for the deaf "is largely a failure . . . . Service to the adult deaf exists mostly on paper and seldom reaches them in its intended form . . . ."

She further charged that the professionals "are locked into an antique and gigantic nonsense—the proposition that all deaf children can be taught to speak fluently and read lips perfectly with enough practice. This is false."

And when a child fails, he is blamed, not the system, she added.

"In this entire country, there is no school anywhere for the teaching of manual communication. No school anywhere," she said.

All this does not mean she opposes oral training for the deaf, she explained. "Speech for the deaf—for those who can learn speech—is the golden dream. . . . But what of those who *cannot* learn to speak? . . . Are they to crawl away and hide so they won't embarrass anyone by speaking sign language in public?"

"I'll show you what all the fuss is about. . . . Any one of you—any child, deaf or hearing—can learn this in a few hours. Put you right hand up."

Hands went up throughout the ballroom.

"Do what I do."

She spelled out the letters of the alphabet. The audience did likewise.

"You have now begun to learn finger spelling. With a little practice you can communicate freely with any deaf person in the United States.

In sign language she spelled: "Thank you for listening."

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Quota International President, Miss Edwina Gies of Wesley Hills, Mass. (right), is pictured with Quota's Executive Secretary, Dora Lee Haynes and her husband, Mr. Theodore Haynes, at the Women's Committee reception on April 22.

Members of the Women's Committee, Mrs. Edward C. Moynihan, Vice Chairman (left); Dr. Bennetta Washington, Director of the Women's Job Corps; and Dr. Marian Mill Preminger, World President, Albert Schweitzer Circle, who received a silver bowl later in the evening, are pictured above with special guest D.C. Mayor Walter Washington who is also Mrs. Washington's husband, at the reception prior to the banquet.

Under Secretary of Labor, James Hodgson joins Women's Committee members, Mrs. Hodgson (left), Dr. Marion Mill Preminger, and Chairman Jayne B. Spain for the reception prior to the banquet, Wednesday, April 22.

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Bipartisan meeting of two Secretaries of Labor, current Secretary George P. Shultz (left), and immediate-past Secretary (under President Johnson) Willard Wirtz (right), with their wives who are members of the Women's Committee, at the informal reception before the banquet Wednesday, April 22.

Al Ross

Miss Nanette Fabray registers her delighted surprise upon receiving the Distinguished Service Award from Chairman Harold Russell as Mrs. Jayne B. Spain, Women's Committee Chairman, smiles her approval.

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Danny Scholl, 1969 "Handicapped American of the Year" from Cincinnati, Ohio, sings God Bless America *at the opening of the Women's Committee Banquet on April 22. Head table guests (from left to right) are as follows: Hon. Clifford M. Hardin, Secretary of Agriculture; Mrs. George P. Shultz, wife of the Secretary of Labor; Master of Ceremonies, Al Ross, WRC–NBC Radio Personality; Danny Scholl; Mrs. Jayne Baker Spain, Chairman, Women's Committee and Vice Chairman, President's Committee; Hon. George P. Shultz, Secretary of Labor; Miss Nanette Fabray, actress and musical comedy star; Harold Russell, Chairman, President's Committee; and Mrs. Clifford M. Hardin, wife of the Secretary of Agriculture.*

Secretary of Labor George P. Shultz (right) gets acquainted with Art Edgerton, Toledo, Ohio, a former "Handicapped American of the Year" (1966) and his wife (center) at the Women's Committee reception, April 22. (The woman on the left is unidentified.)

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THE LUNCHEON

On a Friday Afternoon

There he was on the podium, same voice and same appearance that used to send millions of radio fans into hysterical laughter—"Archie," star of the hit radio show, "Duffy's Tavern."

In real life, he's Robert A. Graham, Jr., now Manager of Rehabilitation Programs for International Business Machines Corp. His lovely wife was with him, to sing some selections from musical comedy. The musical accompaniment was a courtesy of the Recording Industry's Trust Fund, with the cooperation of Local 161–710 American Federation of Musicians, AFL–CIO.

As a first order of the day, Joel Robinson of the Manhattan School of Printing in New York City unveiled two signed full-color serigraphs by Raphael Soyer, world-famous artist, to be presented to the President and Vice President of the United States.

The art work, done for the President's Committee, portrays three handicapped persons, a mixture of hope and futility in their hearts.

"Their fate, and the fate of thousands of handicapped people who haven't yet shared in the bounties of America, lies in our hands," commented Mr. Robinson.

Next, Malcolm Hecht, Chairman of the People-to-People Committee for the Handicapped, presented the People-to-People Citation to Dr. Frank Krusen, Chairman Emeritus of the Committee, and known around the world as "Mr. Handicapped Himself."

Harold Krents

"What? Laugh at a Blind Boy?" That's what *Life Magazine* asked in its recent feature story about Harold Krents, blind college student who served as the inspiration for the Broadway hit, "Butterflies Are Free."

Yet those attending the International Luncheon did laugh *with* Harold Krents, not *at* him.

In his senior year at the Harvard Law School, Harold Krents revealed how he studies for his courses. He has organized a platoon of girl readers from nearby Simmons College. They take turns coming to his room for 13 hours a day, reading law books while he takes notes in Braille. He doesn't date his readers. If he did, he admitted, he'd never get much studying done.

He lost his sight when he was 9 years old. When doctors told him he would go blind, he said, "I bawled my head off. But I remember lying in bed that night and growing up . . . I had to grow up or fold up."

He always was a sports fan—and he even likes to participate. One year his class at Harvard had a baseball team, "lousiest team in the school," he recalled. It was the last game of the season. He asked if he might pitch.

Someone led him to the mound and pointed him in the direction of the plate. "Any warm-ups?" asked the umpire who didn't know he was blind." "No."

The first pitch: a ball. The catcher walked up to the pitcher's mound and handed the ball to Krents.

Second pitch: a strike, which surprised Krents more than anyone else. Again the catcher walked the ball back.

Third pitch: hit the batter. Irately, the batter yelled to Krents, "Whatsamatter, you blind?"

"Yes I am," Krents replied as he was led off the mound.

Another time, he and his father were shooting basketball toward a basket which had been rigged up in the Krents' driveway. The little girl next door and one of her friends came over to watch.

Krents shot and missed the basket. His father shot and missed. Krents again, and missed. His father, and missed. Time after time they missed.

Finally, Harold Krents heard the little neighbor whisper to her friend: "He's blind."

Responded the friend: "Which one?"

On a more serious note, Krents had these suggestions for the blind who are seeking work:

- You will get plenty of rebuffs but don't take them personally. After a while, you may find the interviewer warming up to you and seeing you as a person.
- You must have the belief that somewhere in the world of work there is a place for you. "If you don't sincerely believe this, you may cop out, you may turn bitter—and there go your chances."
- You must convince yourself that you have enough ability to run rings about others. You need self-confidence.
- You must have compassion for those who can see. You must understand them. They haven't been exposed to the blind. They don't know what to expect.
- You must never lose your sense of humor.
- When you do find a job, you must do better than you ever thought you could do. "You should react like a ball player who's just been traded. He wants to make good in his new slot, to convince his old manager that he made a mistake in ever letting him go."

Krents recalled he followed these rules in his own search for a job. He tried for 3 months until he finally landed a position in the legal department of the American Broadcasting Company. He said he expected to start there as soon as he received his law degree from Harvard.

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Harold Krents

Chairman Harold Russell holds up a serigraph by the famed American artist, Raphael Soyer, which he created for the President's Committee. The first two prints later were presented to the President and Vice President. Dr. Frank Krusen lends a hand.

"Red" Graham, former star of radio's "Duffy's Tavern" and now the manager of IBM's rehabilitation programs, serves as master of ceremonies at the International Luncheon. Here, he recalls a hilarious moment from the radio show. Dr. Frank Krusen, Harold Russell and Harold Krents listen.

Dr. Frank Krusen, known for his work in rehabilitation around the world, beams as he holds the People-to-People citation presented to him by Malcolm Hecht, chairman of the Committee for the Handicapped, People-to-People Program.

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AND, THOSE EXTRA MEETINGS!

6878

And, Those Extra Meetings!

Each year, at about the time of the Annual Meeting, several groups closely affiliated with the President's Committee hold meetings of their own.

These have included the People-to-People Committee for the Handicapped annual meeting, immediately following the President's Committee Executive Committee meeting, and the U.S. Committee of Rehabilitation International. Several standing committees of the President's Committee also meet—Blue Ribbon, Medical, Mentally Handicapped, and Education.

The Job Placement Division of the National Rehabilitation Association, Project Earning Power Board of Directors, National Easter Seal Society executives, and State Supervisors of Selective Placement of State Employment Security Agencies hold sessions of various kinds. And, there is a full day devoted to the State Chairman and Secretaries of Governors' Committees on Employment of the Handicapped. In all, a busy, busy four days in the Washington Hilton.

Collected here are representative flashbacks of these activities.

Administrator of Veterans Affairs, The Hon. Donald E. Johnson addresses the Women's Committee at their Spring Meeting on April 22.

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Members of the Mentally Handicapped Committee (plus invited guests) listen to a report of the year's activities by Bernard Posner of the President's Committee staff. Dr. Ralph T. Collins, Chairman, is seated next to him.

"Congratulations, Mr. Chairman!" Leon Chatelain (right), Chairman, Annual Meeting Planning Committee for 1970, receives a special Revere bowl inscribed with the President's Committee seal from Harold Russell during the Executive Committee meeting.

"Awarded in appreciation of dedicated service" desk-top mementoes are given three overseas guests who have been attending PC Annual Meeting for the last several years. Left to right, Cmdr. Ian Henderson, United Kingdom; Charles Butler, OBE, Australia; Chairman Harold Russell who made the surprise presentation; and Dr. Paul Paulsen, Norway.

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NOTE: All viewpoints expressed at the Annual Meeting are those of the participants, and do not necessarily reflect the viewpoints of the President's Committee on Employment of the Handicapped.

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VT 012 890
Conference Report: Trade and Industrial Education Curriculum Materials (Atlanta, Ga., July 1-2, 1968).

Tennessee State Board for Vocational Education, Murfreesboro. Vocational Curriculum Lab.
Office of Education (DHEW), Washington, D.C. Bureau of Adult, Vocational and Library Programs.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 68 21p.

DESCRIPTORS - *CONFERENCE REPORTS; *ADMINISTRATIVE PERSONNEL; CURRICULUM DEVELOPMENT; EDUCATIONAL DEVELOPMENT; *INSTRUCTIONAL MATERIALS; STUDY GUIDES; PROGRAMED MATERIALS; *TRADE AND INDUSTRIAL EDUCATION; *GROUP DISCUSSION

ABSTRACT - Nineteen representatives attended the 2-day conference to discuss methods for states in Region IV to cooperate in developing curriculum materials. The agenda, determined at the meeting, included discussion on the following topics: (1) instructional materials that have been developed by the states in Region IV and presently available, (2) instructional materials now being developed, (3) instructional materials needed, (4) problems connected with curriculum development, and (5) future meetings and activities of the group. Included are lists of materials available from several of the represented states. (GEB)

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Conference Report:

TRADE and INDUSTRIAL EDUCATION CURRICULUM MATERIAL

July 1-2, 1968

VT012890

Department of Health, Education and Welfare
Adult, Vocational and Library Programs
Office 551, Mail Room 404
50 Seventh Street, N.E.
Atlanta, Georgia 30323

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Conference Report:

TRADE AND INDUSTRIAL EDUCATION

CURRICULUM MATERIALS

July 1-2, 1968

Department of Health, Education and Welfare
Adult, Vocational and Library Programs
Office 551, Mail Room 404
50 Seventh Street, N. E.
Atlanta, Georgia 30323

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Region IV Conference

on

TRADE AND INDUSTRIAL EDUCATION CURRICULUM MATERIALS

Place: Peachtree Building
Atlanta, Georgia

Time: July 1-2, 1968

Members Present: See Attached List

Topic: Possible Ways for States in Region IV to Cooperate in Developing Curriculum Materials

Chairman: J. W. Browne
Program Officer
Vocational-Technical Education, Region IV
U. S. Office of Education

Recorder: Verner Burkett
T & I Materials Specialist
S. C. Vocational Education Media Center
Clemson University, Clemson, South Carolina

Consultant to Recorder: Lynn G. Bevins
Director
Tennessee Vocational Curriculum Laboratory
Murfreesboro, Tennessee

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CURRICULUM MATERIALS CONFERENCE
Trade and Industrial Education
July 1-2, 1968

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U. S. Office of Education (continued)

B. E. Childers, Director
Adult, Vocational & Library Programs
U. S. Office of Education
Region IV
Atlanta, Georgia 30323

C. J. Martin
Regional Assistant Commissioner
U. S. Office of Education
Region IV
Atlanta, Georgia 30323

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The chairman opened the meeting by stating that a formal agenda had not been developed for the meeting and requested that the group develop an agenda that would best serve their interests. The agenda decided on included the following topics for discussion.

1. Instructional materials that have been developed by the states in Region IV and presently available
2. Instructional materials now being developed
3. Instructional materials needed
4. Problems connected with curriculum development
5. Future meetings and activities of the group

After establishing an agenda, a representative of each state made a report on instructional materials they now have available and materials they are now developing.

Lists of materials available from each state that submitted a list are attached.

Some of the materials presently being developed by the respective states are as follows:

Alabama

Study guides in Air Conditioning Technician, Building Maintenance, Electricity, Plumbing, and Small Gasoline Engine Repair. Future Plans call for developing study guides in Baking and Cotton Mill Operation.

Florida

Although instructional materials are not prepared on a state-wide basis, many school districts are developing courses of study and other instructional materials.

Georgia

Georgia has recently developed 26 curriculum guides for day trade and post secondary schools. The recently established curriculum lab has plans to further develop these guides and prepare materials to supplement them.

Mississippi

Mississippi has been developing a "basic plan" or curriculum guide for trades and industries programs. (See attached list.) Preliminary drafts have been prepared for 15 subject areas. (See attached list.)

South Carolina

South Carolina has recently established a Media Center (curriculum lab) at Clemson University. Curriculum guides are being developed for Electronics,

Industrial Electricity, Brick Masonry, and Tailoring. Areas soon to be developed are Automotive Mechanics, Carpentry, Machine Shop and Drafting.

Tennessee

The Curriculum Laboratory at Murfreesboro produces both public relations material and instructional material. Future plans call for hiring of eight new writers for a total of ten to develop materials for vocational programs. Eight of these will be "satellite" writers who will be located in vocational-technical schools or local systems and will work closely with vocational-technical instructors. In addition to developing curriculum guides, plans call for preparing flip charts and slides for some areas.

Following the discussion of materials now available and materials being developed, mention was made of the proceeding of the meetings of the curriculum planning committee which met at the National T & I Conference held in May in Kansas City, Missouri. A letter written by Roy Ayres, Chairman of this committee, to all state directors was read and discussed.

Mr. Ayres' letter proposed that each state be assigned certain subject areas for which they would be given the responsibility to develop "course guides" which would include the following:

1. Outline of course content
2. Lesson plans
3. Transparencies
4. List of equipment required
5. Suggested floor plan
6. Bibliography
7. Tests
8. Outlines for three classifications
   a. High school
   b. Out-of-school youth
   c. Adult education

In the discussion following the reading of this letter the following points were expressed:

Cooperation in developing materials is desirable and a need exists for a regional clearinghouse to coordinate the activities of the states of Region IV in materials development.

Although some modifications might be required, instructional materials developed in one state will usually satisfy the need of adjoining states.

The emergence of numerous vocational education programs in the new area vocational centers has created a critical need for up-to-date instructional materials.

There seems to be unnecessary duplication of effort on the part of states in Region IV in developing essentially the same kinds of material for the same instructional areas.

A cooperative effort between states in the development of instructional materials would be desirable. The need exists for a regional clearinghouse to coordinate the activities of the states of Region IV for the purpose.

Mr. Browne volunteered to do "what he could" to serve as a clearinghouse by keeping states informed of the activities of other states.

A proposal was made that the states of Region IV, upon approval by the respective state directors, proceed to work out plans for a joint effort in the development of instructional materials. An arrangement could be worked out by states in Region IV whereby each state could be assigned certain areas of instruction of which to develop instructional materials. Each state at its own expense would develop the assigned materials and present a copy to each state sharing in the arrangement. Formats and standard procedures for developing materials would need to be agreed on and adopted to assure quality and facilitate use in other states.

States of Region IV should proceed to develop such a plan regardless of whether or not the other regions decide to do the same, but should be ready and willing to join with other regions if they adopt similiar arrangements.

The efforts of Region IV could provide a model for the other states to follow, by working out procedures and formats for developing instructional materials on a cooperative basis.

All participants of the meeting do not have the authority to commit their respective states to such an arrangement. State department officials of each state should be contacted and determine if they approve a co-op arrangement.

An initial step in securing approval of the individual states should be to send a letter to the state directors informing them of the recommendations of the participants of this conference and seeking their support in establishing a cooperative arrangement for developing instructional materials. The letter should contain the following:

1. Copy of the minutes of the meeting
2. Reference to the proceedings of the curriculum committee meeting

held at the national T & I Conference in Kansas City, Missouri, in May of 1968

3. List of participants of this conference
4. A request that each state participate in developing materials
5. A request that the state director appoint one person to represent his state at future meetings to plan regional efforts in curriculum development

If the state directors feel that the proposal is feasible, then future meetings should be conducted to work out the necessary arrangements.

Tentative plans were made for the persons chosen by their state directors to be responsible for curriculum development to meet in October, 1968, to plan a course of action. Prior to this meeting, anticipated participants should consider the following items to be discussed:

1. Desired formats for instructional materials
2. Phases and sequences of development
3. Time lag
4. List of priorities for each state (to be used to compile list for the region)
5. "Ground rules" (standards of quality) to be followed in developing materials

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APPENDIX

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ALABAMA
NON-PROGRAMMED
Study Guides for Vocational Programs
Available From:
Instructional Material Unit
Vocational Industrial Education Department
P. O. Box 2847
University, Alabama 35486

Make Check Payable to: University of Alabama

(Always order by Title and File Number)

Title	File No.	Price
Architectural Drafting (1962)	1310	1.00
Answer Book	1310-A	.75
Auto Body and Fender Repair (1966)	316	1.25
Answer Book	316-A	1.00
Test	316-T	1.00
Test Answers	316-TA	.75
Auto Mechanics (1965)	275	2.25
Answer Book	275-A	2.00
Test	275-T	1.25
Test Answers	275-TA	.50
Auto Service Specialist (1967)	1489	1.50
Answer Book	1489-A	1.00
Barbering (1963)	1338	1.50
Answer Book	1338-A	1.00
Test	1338-T	1.00
Test Answers	1338-TA	.50
Basic Salesmanship (1956)	659	.40
Answer Book	659-A	.40
Brick Masonry (1963)	590	1.25
Answer Book	590-A	1.25
Carpentry (Cabinet and Mill Work) (1963)	540	2.00
Answer Book	540-A	2.00

(Date in parenthesis is publication or latest revision date)

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Commercial Cooking (1966)	1425	2.25
Answer Book	1425-A	1.00
Cosmetology (1961)	365	1.50
Answer Book	365-A	1.50
Test	365-T	1.25
Test Answers	365-TA	.50
Dental Assistant (1960)	314	2.50
Answer Book	314-A	1.50
Test	314-T	1.75
Test Answers	314-TA	.75
Dietary Aid (1960)	1250	1.25
Answer Book	1250-A	1.00
Dry Cleaning (1962)	328	1.50
Answer Book	328-A	1.50
Electric Motor Repair (1955)	645	1.75
Answer Book	645-A	1.75
Floral Merchandising and Designing (1960)	846	1.50
Answer Book	846-A	.75
Furniture Upholstery (1966)	363	1.50
Answer Book	363-A	1.25
Garment Altering and Repairing (1968)	1573	1.75
Answer Book	1573-A	1.25
Glazing (1947)	592	1.25
Answer Book	592-A	1.00
Home Appliance Service (1968)	741	1.50
Answer Book	741-A	1.00
Test	741-T	1.00
Test Answers	741-TA	.50
Laboratory Technician (1968)	309	2.00
Answer Book	309-A	1.25
Legal Secretary (1961)	1284	.75
Answer Book	1284-A	.50

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Meat Cutting and Merchandising (1964)	322	1.25
Answer Book	322-A	.75
Medical Secretary (1961)	1272	.75
Answer Book	1272-A	.50
Medical Technical Assistant (1960)	1251	1.50
Answer Book	1251-A	1.25
Mortician (1955)	325	2.00
Answer Book	325-A	1.25
Movie Projector Operator (1957)	385	1.00
Answer Book	385-A	1.00
Nurses Aide (1961)	319	1.75
Answer Book	319-A	1.25
Offset Printing (1964)	1348	1.75
Answer Book	1348-A	1.00
Photography (1966)	311	2.25
Answer Book	311-A	2.00
Printing (1965)	376	2.25
Answer Book	376-A	2.00
Everyday Arithmetic for Printers (1964)	376-M	1.50
Answer Book	376-MA	.75
Radio & Television Servicing (1967)	1497	2.25
Answer Book	1497-A	2.00
Test	1497-T	1.50
Test Answers	1497-TA	.50
Selling Cotton and Linen Fabrics (1956)	1109	.75
Answer Book	1109-A	.75
Sheet Metal Work (1965)	324	1.25
Answer Book	324-A	.75
Shoe Repairing (1963)	310	1.50
Answer Book	310-A	1.00

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Small Gasoline Engines (1961)	1282	1.50
Answer Book	1282-A	1.25
Test	1282-T	1.00
Test Answers	1282-TA	.50
Stockkeeping (1961)	664	1.25
Answer Book	664-A	.75
Television Installation and Repair (1956)	1111	1.00
Answer Book	1111-A	.75
Textiles (1957)	317	1.00
Answer Book	317-A	.75
Tile Flooring (1961)	1268	.75
Answer Book	1268-A	.50
Tire Recapping, Retreading and Tube Repairing(1961)	438	1.25
Answer Book	438-A	1.00
Tractor and Farm Machinery Mechanics (1968)	318	2.00
Answer Book	318-A	1.25
Welding (1966)	467	1.75
Answer Book	467-A	1.50
Test	467-T	1.50
Test Answers	467-TA	.75
X-Ray Technician (1963)	1315	1.25
Answer Book	1315-A	1.00

MISCELLANEOUS MATERIAL

An Approach to A Philosophy of Vocational Trade and Industrial Education by J. F. Ingram, State Director Vocational Industrial Education		.10
Guide Lines in the Five Areas of School Bus Transportation (1962)	1305	1.25
Occupational Relations (1965) (General Related Vocational Information for Cooperative Students)	1396	2.25

(All prices are subject to change without notice)

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PROGRAMMED MATERIAL

Title	Price Per Copy
Recognizing Electrical Circuit Symbols	$ 1.70
Recognizing Electronic Circuit Symbols	1.70
Soldering Leads	.50
Tools and Areas of the Haircut	.45
Mixing Mortar	.45
Servicing Carburetor Air Cleaners	.45
Good Job Habits	.40
How to Make $50,000	.35
Introduction to the VOM	.45
Using the VOM, Part I	.40
Using the VOM, Part II	.45
Using the VOM, Part III	.50
Guide to the VOM	.65
Identification of Joints, Welds, and Grooves	.40
Shop Safety	.50
How to Read a Rule	.40
Fractions Package (12 Lessons)	1.75
Introduction to Credit	.45
Using Copy Editor's Symbols	.45
Introduction to Table Manners	.50
Applying for a Job	.40
Using Decimals	.40

STUDY GUIDES IN PROCESS

Electrician (Wireman)
Air Conditioning and Refrigeration
Building Maintenance
Plumbing
Small Gasoline Engines

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GEORGIA

Such a project as this could not be accomplished without some basic guide, in this case, the text Developing Vocational Instruction[1] served as a guide. The authors served as consultants on a brief visit during this project.

The concept of task analysis, as used in industry, was substituted for the traditional occupational analysis approach generally used.

The coordinators, supervisors, and trade teachers, listed elsewhere, are the authors of this guide. It is dedicated to the improvement of trade instruction in the Georgia Vocational School Systems.

The following guides were developed:

1. Air Conditioning
2. Appliance Repair*
3. Automobile, Body & Fender
4. Automobile, Mechanics
5. Aviation Mechanics*
6. Business Machine Maintenance
7. Diesel Mechanics*
8. Drafting
9. Dry Cleaning**
10. Food Service**
11. Radio and Television
12. Masonry
13. Electrical, Construction and Industrial
14. Machine Shop
15. Welding
16. Printing***
17. Sheet Metal**
18. Shoe Repair
19. Small Engines
20. Carpentry and Cabinetmaking
21. Commercial Art*
22. Commercial Photography*
23. Fabric Maintenance*
24. Farm Machinery*
25. Forestry*
26. Horticulture*
27. Watch Repair
28. Industrial Sewing
29. Upholstery*

* Area Vocational-Technical Schools only
** Area Vocational High Schools only
*** Will be produced at an early date

[1]Robert R. Mager and Kenneth M. Beach, Jr., Developing Vocational Instruction, Palo Alto, California, Fearon Publishers, 1967.

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CURRICULUM MATERIALS LABORATORY
DEPARTMENT OF INDUSTRIAL EDUCATION
MISSISSIPPI STATE UNIVERSITY
Box NU
State College, Mississippi 39762

STUDY GUIDES FOR USE IN PART-TIME COOPERATIVE TRAINING

Each study guide is a series of assignment sheets. Each assignment sheet is keyed to a job analysis and to one or more reading references. Each page asks several specific questions about the particular job. There are no answer keys.

Title	Publication Date	Price	Number Ordered
Auto Mechanics	1962	$2.50	_____
Auto Parts Selling	1956	1.00	_____
Basic Retail Selling	1959	1.00	_____
Department Store Selling	1959	1.00	_____
Floristry	1958	1.50	_____
Ladies' Apparel Selling	1960	2.50	_____
Machine Tool Operation	1956	2.50	_____
Men's Apparel Selling	1959	1.50	_____
Merchandising Stockman	1956	1.50	_____
Service Station Management	1956	1.50	_____

INSTRUCTOR'S GUIDES FOR VOCATIONAL TRAINING

These publications have a two column format for the course content, with trade principles outlined on the left, and trade practices listed on the right. There is an introductory statement to the instructor and a characterization of trade training. The appendix contains an extensive bibliography and a suggested equipment list.

Sawmill Trades (Hardwood Inspection, Millwright, Saw Filer, Sawyer, Southern Pine Grading)	1964	$4.00	_____
*Vocational Automotive Mechanics	1966	2.00	_____
Vocational Heavy Equipment Mechanics	1967	2.00	_____
*Vocational Industrial Electricity	1966	2.00	_____
*Vocational Machine Shop	1966	2.00	_____
*Vocational Refrigeration & Air Conditioning	1967	2.00	_____
*Vocational Welding (Combination)	1967	2.00	_____

*Preliminary Draft--has not had industrial evaluation and authentication

BASIC PLANS FOR THE ORGANIZATION AND MANAGEMENT OF INSTRUCTION

These are abbreviated courses of study. Each contains an analysis of operations, suggested jobs for training, and an outline of related instruction. There is also an extensive bibliography and a suggested equipment list.

Title	Publication Date	Price	Number Ordered
*Vocational Automobile-Body Repairman	1967	$1.00	_____
*Vocational Bricklaying	1967	1.00	_____
*Vocational Carpentry	1967	1.00	_____
*Vocational Diesel-Engine Mechanics	1967	1.00	_____
*Vocational Metal Trades	1967	1.00	_____
*Vocational Offset Printing	1967	1.00	_____
*Vocational Plumbing	1967	1.00	_____
*Vocational Radio & Television	1967	1.00	_____
*Vocational Sheet Metal	1967	1.00	_____
*Vocational Tool & Die	1967	1.00	_____

*Preliminary Draft--has not had industrial evaluation and authentication

INSTRUCTOR'S GUIDES FOR TECHNICAL TRAINING

Each publication contains a two-year, 72 semester hour curriculum for the training of technicians. There is a two-column format for the course content, with technical principles outlined on the left, and technical applications listed on the right. There is an introductory statement to the instructor and a characterization of technical training. The appendix contains an extensive bibliography and a suggested equipment list.

Drafting & Design Technology	1965	$4.00	_____
Electronics Technology	1964	4.25	_____
Mechanical Technology	1966	4.00	_____

PROFESSIONAL HANDBOOK & MANUALS

Community Surveys for Educational Purposes	1953	$1.00	_____
Handbook for Coordinators	1964	4.00	_____
School and Community Relationships	1955	1.25	_____

Prepaid orders will be sent postpaid.

NAME_____

SCHOOL_____

ADDRESS_____

6900

STATE OF TENNESSEE
DEPARTMENT OF EDUCATION
Division of Vocational-Technical Education

List of Instructional Materials

Administrative

001-00040	Eye Safety Bulletin	$ .35

Agriculture

003-00001	Farm Motors - Unit III	.50
003-00002	Farm Credit in Vocational Agriculture	3.00
003-00004	Electric Controls - Unit IV	.50
003-00012	Animal Science	1.25
003-00013	Instructional Supplement to Handbook	1.00

Health Occupations

	Hospital Housekeeping Aide	1.50
	Pharmacology	2.50
	Behavior and Working Relations	2.00
	Nutrition and Diet in Disease	3.00
006-00001	Nursing the Aged	2.00
006-00002	Mental Nursing	2.00
006-00003	Body Structure and Function	2.00
006-00004	Unit Tests, Practical Nurse Education	4.00
006-00005	Answer Book, Unit Tests	.25
006-00006	Course Outline, Dental Assistant	2.00
006-00008	Mother and Infant Care	3.00
006-00009	Lesson Plans, Nursing of Children	3.00
006-00010	Course Outline, Operating Room Technician	2.00
006-00011	Handbook for Instructors of Practical Nursing	2.00
006-00012	Guidelines and Course Outline For Nursing Assistants Health Occupations Education	.75
006-00013	Geriatric Nursing Assistant	.50
006-00014	Behavior and Working Relations	1.00
006-00015	Nutrition and Diet Therapy - Lesson Plans	2.00
006-00016	Medical and Surgical Nursing - Lesson Plans	3.50

Programs for Special Needs

021-00002	Special Needs Workshop	1.50

Distributive Education

005-00001	Public Speaking for Beginners	.25
005-00002	Course of Study for Marketing I (Punched-unbound)	5.00
005-00003	Course of Study for Marketing II (Punched-unbound)	5.00
005-00007	Customer Relations in the Hospitality Industry	.50

Manpower Development and Training

Guide for Course of Study for:

012-00001	Power Saw Man	1.25
012-00003	Woodworking Machine Operator (Entry)	2.00
012-00004	Millman (Woodworking)	2.00
012-00005	Electronic Mechanic	1.50
012-00006	Welder, Combination	2.00
012-00007	Upholsterer	2.50
012-00008	Machinist II, Machine Shop, Machine Operator	2.00
012-00009	Automobile Mechanic	3.00
012-00012	Handbook for MDT Guidance Personnel	2.50
012-00013	Course of Study-Cook (Hotel and Restaurant) (Entry)	2.00
012-00014	Farmer General	2.00
012-00015	Auto Service Mechanic	3.00
012-00016	Automobile Service Station Attendant	2.00
012-00017	Course of Study-Waiter-Waitress	1.50

Trade and Industrial Education

	Teacher's Handbook, Evening School	2.00
	Shop Instructor's Handbook	3.50
	Cooperative Coordinator's Handbook	3.50
	Schedule of Processes and Assignment Sheets for:	
008-00020	Auto Mechanics	2.50
008-00021	Sheet Metal	1.00
008-00024	Nurse Aide	1.50
008-00035	Meatcutting	2.50

NOTE: Some of the above publications are available in single copies only. For additional information write:
Vocational Curriculum Laboratory, Box 1114, Murfreesboro, Tennessee 37130

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Edited and Published by
Vocational Curriculum Laboratory
Box 1114
Murfreesboro, Tennessee 37130

6903

VT 012 908
The Law Against Age Discrimination in Employment.

Workplace Standards Administration (DOL), Washington, D.C. Wage and Hour Div.
MF AVAILABLE IN VT-ERIC SET.
WH-PUB-1303

DESCRIPTORS - *MIDDLE AGED; AGE DIFFERENCES; EMPLOYMENT PROBLEMS; SOCIAL DISCRIMINATION; *EMPLOYMENT PRACTICES; *EMPLOYMENT QUALIFICATIONS; *EQUAL OPPORTUNITIES (JOBS); *FEDERAL LAWS; LAW ENFORCEMENT; PRODUCTIVITY; CIVIL RIGHTS LEGISLATION
IDENTIFIERS - *AGE DISCRIMINATION IN EMPLOYMENT ACT; ADEA

ABSTRACT - The Age Discrimination in Employment Act protects persons 40-65 years of age from discrimination in hiring, discharge, leave, pay, promotions, and other areas of employment. This booklet describes the coverage and exemptions of the act with regard to employers, employment agencies, and labor unions. Several specific cases handled under the act are described, and misconceptions about older workers' productivity are explained. The report points out that older workers change jobs less often and have better attendance records than younger workers. (BH)

VT 012 908

ED057254

VT012908

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Causes of Job Discrimination 11
Additional Information 12
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AGE DISCRIMINATION IN EMPLOYMENT ACT...

REMOVING JOB BARRIERS FOR THE OLDER WORKER

BACKGROUND

Before the Age Discrimination in Employment Act was passed, many older job applicants were denied a job because of age. Other older workers found they were denied promotions or discharged because of age.

Such discriminatory action deprives the economy of badly needed resources and also creates financial, psychological, and physical hardship for the older job applicant or worker.

Statistics show that older persons experience great difficulty in finding jobs. They stay unemployed longer than younger people.

The problems of unemployment are even more severe among nonwhite older workers who are doubly disadvantaged because they often are discriminated against on the basis of both their age and minority group status. Unemployment among the nonwhite older sector is almost double the rate experienced by the white sector. Because of such double jeopardy, many of these nonwhite workers give up their search for a job.

The cause of poverty for a great many, therefore, cannot be solely attributed to the lack of skills. Rather, the problem is that many people with needed skills are simply not being provided with adequate job opportunities.

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STUDEBAKER SHUTDOWN

A good example of the difficulties encountered by older workers in finding new jobs occurred during the shutdown of the Studebaker Corporation operations in 1963 when more than 8,000 workers lost their jobs.

It was found that the younger the worker, the easier it was for him to find another job.

Those Studebaker workers over 50 years tended to make fewer applications than those under 50. This was not due to lack of job interest by older workers, but rather to their difficulty in finding a new job. They were just not wanted, particularly when there were younger workers available. Many of the workers over 60 eventually chose to retire rather than continue the seemingly futile search for employment.

AMERICAN VISCOSE SHUTDOWN

A similar situation occurred after the closing of the American Viscose Corporation textile plant in Roanoke, Virginia in 1958.

Five years after the plant closed, a study established that 59.6% of the former Viscose workers were employed, but only 38% in the 45 or older group had found new employment.

The difference in earnings between the over and under age 45 groups was even greater. Median annual earnings dropped sharply in the year following layoff, except for those who left the area. By the end of the study period, however, earnings of nonmigrants under age 45 had risen from $3,190 in 1958 to $4,200 in 1962. However, earnings of nonmigrants age 45 or older who were still working had *declined* from $3,380 in 1958 to $2,310 in 1962.

CONGRESSIONAL ACTION

It was against this background that Congress decided several years ago to look into the employment problems of older workers. Careful examination of various studies, reports, and testimony, led Congress to the following findings:

— in the face of rising productivity and affluence, older workers find themselves disadvantaged in their efforts to retain employment, and especially to regain employment when displaced from jobs;

— the setting of arbitrary age limits regardless of potential for job performance has become a common practice, and certain otherwise desirable practices may work to the disadvantage of older persons;

— the incidence of unemployment, especially long-term unemployment, with resultant deterioration of skill, morale, and employer acceptability is, relative to the younger ages, high among older workers; their numbers are great and growing; and their employment problems grave;

— the existence in industries affecting commerce of arbitrary discrimination in employment because of age, burdens commerce and the free flow of goods in commerce.

To prevent this type of job discrimination, Congress passed the *Age Discrimination in Employment Act* in 1967. The law became effective in June, 1968.

BASIC PROVISIONS OF ADEA

PURPOSE

- To prohibit arbitrary age discrimination in employment;
- To promote employment of older persons based on ability rather than age;
- To help employers and workers find ways of meeting problems arising from the impact of age on employment.

PROTECTION

Protects persons 40-65 years from age discrimination in employment in such matters as hiring, discharge, leave, compensation, promotions, and other areas of employment.

COVERAGE

Prohibits discrimination by employers, employment agencies, and labor organizations as follows:

- EMPLOYERS* of 25 or more persons

It is unlawful for an employer to

1. fail or refuse to hire, discharge, or otherwise to discriminate against any individual with respect to his compensation, terms, conditions, or privileges of employment because of age;
2. limit, segregate, or classify workers in any way which would deprive or tend to deprive any individual of job opportunities, or otherwise adversely affect his status as an employee because of his age;
3. reduce the wage rate of any worker in order to comply with the Act.

** The term employer does not include Federal, State, or local governments.*

- EMPLOYMENT AGENCIES serving covered employers

It is unlawful for an employment agency to

1. fail or refuse to refer for employment, or in any other way discriminate against anyone, due to age.
2. classify or refer anyone for employment on the basis of age.

- LABOR ORGANIZATIONS with 25 or more members, or which refer persons for employment to covered employers, or which represent employees of employers covered by the Act.

It is unlawful for a labor organization to

1. exclude or expel from its membership, or otherwise discriminate against, any individual because of his age;
2. limit, segregate, or classify its membership, or to classify or fail or refuse to refer for employment, any individual in any way which would deprive or tend to deprive any individual of job opportunity, limit job opportunities, or adversely affect his status as an employee or a job applicant because of such person's age;
3. cause or attempt to cause an employer to discriminate against an individual because of age.

CLASSIFIED ADS

Help-wanted advertisements which indicate any preference, limitation, specification, or discrimination based on age are in violation of the law.

Uses of such terms as *"boy," "girl," "young,"* or designating a preference for a specific age group such as "age 35-55," may not be used as they indicate the exclusion of qualified applicants simply because of their age.

EXEMPTIONS

Exempt from the Act are jobs or situations where —

— Age is a bona fide job qualification reasonably necessary to the normal operations of a particular business such as modeling clothes for teen-agers.

— Differentiations are based on reasonable factors other than age such as the use of physical examinations where stringent physical requirements are necessary to perform the work.

—Differentiations are based on the terms of a bona fide seniority system or any bona fide employee benefit plan such as a retirement, pension, or insurance plan which is not a subterfuge to evade the purposes of the Act. However, no employee benefit plan can excuse the failure to hire any individual.

— An individual is discharged or otherwise disciplined for good cause.

— Federal and State programs, designed to encourage the employment of the disadvantaged, are being implemented, such as the Manpower Development and Training Act and the Economic Opportunity Act.

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EMPLOYMENT STUDIES ON OLDER WORKERS SHOW...

1 *Older workers' attendance is likely to be better than that of younger persons.*

2 *Older workers are less prone to change jobs.*

3 *In production jobs, output of older persons up to age 65 compares favorably with that of younger workers.*

4 *In office jobs, there are minimal differences in output.*

5 *Learning ability does not decline significantly with age.*

RECORDKEEPING

Employers, employment agencies, and labor organizations are required to maintain certain records as specified in Wage-Hour Regulations, Part 850 (29 CFR 850), and to make these records available upon request for inspection by authorized representatives of the Wage-Hour Division.

POSTERS

ADEA posters calling attention to the provisions of the law are required to be posted in a prominent place on the premises of employers, employment agencies and labor organizations subject to the Act, where they can readily be seen.

Posters can be obtained free of charge from any local office of the Wage and Hour Division.

ENFORCEMENT

The Act is administered and enforced by the U.S. Department of Labor's Wage-Hour Division. Wage-Hour has approximately 1,000 Compliance Officers located in 400 cities and towns throughout the country to help enforce the Act.

Many ADEA investigations conducted by Compliance Officers are made concurrently with investigations for compliance with the Fair Labor Standards Act or other laws enforced by Wage-Hour.

Compliance Officers are required by law to attempt first to obtain voluntary compliance through informal methods of conciliation, conference, and persuasion. When such efforts fail, the Department of Labor or the individual affected can then resort to court action for compliance. Courts are authorized to grant relief through judgments compelling employment, reinstatement or promotion, and enforcing the liability for amounts determined to be unpaid compensation.

Initial experience under the law has indicated that violations which frequently occur are: (1) the refusal of employers to hire workers 40-65 because of age, (2) the failure of employment agencies to refer applicants in that age bracket, and (3) illegal age preferences in advertising employment opportunities.

ADEA CASES

Many instances of age discrimination in employment were corrected in the first year of the law's effectiveness. The following are representative:

— A 47-year old man responded to a newspaper ad for a job as a paint salesman to cover a four-State territory. After an interview with a company representative, he was told he had excellent wholesale sales experience and was otherwise well qualified, but his age was beyond the 45 year age limit policy of the company for hiring in such positions.

He filed a complaint with the Wage-Hour Division. A Compliance Officer investigated the firm, found them in violation of the Act, and presented them with the findings. Company officials agreed to interview the applicant again. After lengthy interviews and a physical examination, he so impressed the officials that they agreed to hire him beginning the following week in a territory even better than the one for which he applied. They also agreed to pay him approximately $3,000 in monetary damages for lost working time.

Later the Vice President and Sales Manager of the company admitted that instead of *losing* a good man the investigation had helped them to *find* a good man.

— An ADEA complaint was received from an employee who was discharged because he was *"too old."* The firm for which he worked was closing its operations in the Chicago area and transferring to another State. Although he had seniority over several other employees, the employee was among the first workers cut because he was the oldest in the company.

A Compliance Officer obtained evidence from several sources to substantiate the complaint, and obtained $1,455 to compensate the complainant for time lost until he got another job.

— A 43-year old man applied for a job as a brakeman. The railroad had a maximum hiring age of 35 for brakemen and, consequently, the man was refused employment. He then filed a complaint with Wage-Hour.

As a result of a Wage-Hour investigation, the railroad eliminated all maximum age requirements for all jobs and the man received a $900 check for restitution from the railroad.

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— A plumber, age 64 and with 35 years of experience, was denied admittance to a union except upon written examination, not required of other members. The union contended his age would create problems under its pension plan. As a result, complainant lost his job with a plumbing contractor.

The matter was brought to the attention of a Compliance Officer who informed the union of its violation of the Act. The union thereupon admitted complainant into its membership without written examination.

— A Wage-Hour investigation of a supermarket disclosed that three snackbar employees, aged 62, 55, and 50, were discharged by their employer on the basis that he thought business would improve if younger workers were employed. In discussing the discharge with one of the employees, the employer said he wanted to put *"young chicks"* to work.

Confronted with the violation, the employer claimed the employees were discharged for inefficiency. Investigation showed that the inefficiency claimed simply could not be substantiated. The employer also was guilty of illegally advertising for replacement employees between the ages of 21-35.

The employer eventually offered reinstatement to the three employees and paid damages of $4,317 to them.

INQUIRIES

Questions frequently asked about the Act are:

Q Can a worker be retired before age 65 against his wishes?

A Yes, but only if such involuntary retirement is authorized by the terms of a bona fide retirement or pension program.

Q Are validated employment tests permissible when applying for a job?

A Yes. However, such a test must be specifically related to the requirements of the job; fair and reasonable; administered in good faith and without age discrimination; and properly evaluated.

Q Is it permissible to give preference to a job applicant who is 41 years old over a 61-year-old applicant solely on age?

A No. It is just as unlawful to give preference to one person within the 40-65 protected age group over another as it is to give preference because of age to someone under 40 over someone between 40 and 65.

Q Can an employer allow younger workers to work more overtime hours than older workers?

A No. Such an allocation of overtime is illegal unless a statutory exception applies.

Q Can an employer refuse to hire a person because he is not receiving Social Security payments?

A No. It is illegal for an employer to specify that he will hire only persons receiving Social Security benefits.

CAUSES OF JOB DISCRIMINATION

What are the causes of job discrimination based on age?

Partly because we are living in a society which places emphasis on youth, older workers find it difficult to obtain better jobs, promotions, and sometimes even lose their jobs when competing with younger workers. Yet, unless this situation changes, today's young people will be confronted with these same job problems when they reach middle age.

Unfortunately, much of the discrimination directed against older workers is due to unfounded and unsubstantiated myths about their physical and mental capabilities. Among the stereotyped statements most frequently heard are:

Older workers will not be able to stand the strains of a job;

Older workers will be ill more often;

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Older workers will not be able to learn new techniques as rapidly as younger workers;

Older workers are slower on the assembly line.

However, Department of Labor and private studies show otherwise. They indicate that:

Older workers' attendance is likely to be better than that of younger persons;

Older workers are less prone to change jobs;

Even though some older workers may have longer spells of illness, they are apt to be ill or disabled less frequently than younger persons;

In production jobs, the output of older persons up to age 65 compares favorably with that of younger workers.

In office jobs, there were minimal differences in output by age group among 6,000 workers checked in one study.

Older workers are highly motivated as evidenced by their job stability and their attitude of job responsibility;

Learning ability does not decline significantly with age; Ability to learn at ages 50 and 60 is about equal to that at age 16.

Supplemented with these facts, the Department of Labor is attempting to remove the unjustified stigmas cast upon the older worker through enforcement and education.

☆ U.S. GOVERNMENT PRINTING OFFICE : 1970 O - 404-772

ADDITIONAL INFORMATION

Where can you go if you want additional information about ADEA or have a complaint?

Contact your local Wage-Hour office. The Division has offices in many communities throughout the United States. Addresses are listed in the United States Government section of most telephone directories under

Department of Labor
Wage and Hour Division

If not listed, write: U.S. Department of Labor, Wage and Hour Division, Washington, D.C. 20210.

All inquiries are kept in strict confidence. An employer is prohibited by law from discharging or otherwise discriminating against any employee for filing a complaint or participating in a court proceeding against him.

In addition, employers, employment agencies and labor organizations need not fear their establishments will be investigated because they make an inquiry. The Wage and Hour Division is more interested in obtaining compliance with the law than it is in punishing violators or totaling up penalties.

CONCLUSION

Ralph Waldo Emerson once said, *"A man's years should not be counted, until he has nothing else to count."*

It is this attitude toward older persons that Wage-Hour wants to convey to as many employers, employment agencies, and unions as possible, False, stereotyped attitudes towards older workers must be eliminated. All persons who are able and willing to work should be given equal opportunity in employment so they will be able to look forward to a life of independence, dignity, and usefulness.

An effective public information program, supplemented by a continuing vigorous enforcement of ADEA by Wage-Hour, should help achieve these goals.

VT 012 914
Hird, H. Richard; Lagace, Michel D.
Summer Employment of Ontario Secondary School Students, 1969.

Ontario Dept. of Labour, Toronto. Research Branch.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - Feb71 62p.

DESCRIPTORS - *STUDENT EMPLOYMENT; *SECONDARY SCHOOL STUDENTS; *EMPLOYMENT OPPORTUNITIES; QUESTIONNAIRES; *EMPLOYMENT PATTERNS
IDENTIFIERS - *SUMMER EMPLOYMENT

ABSTRACT - The Ontario Department of Labour in cooperation with the Ontario Department of Education surveyed 43,713 students in Grades 10, 11, 12 and 13 to determine the problems of secondary school students in obtaining summer jobs. Of the total surveys sent, 35,349 (80.9 percent) were returned suitable for use. Fifty-five schools were selected for sample population, representing 10 percent of the secondary schools in the province, stratified by 10 administrative regions and four population categories. General findings include: (1) The overall unemployment in the province was 3.9 percent, while that of teenagers in general was 9.4 percent, (2) Of the 78.6 percent of secondary students who looked for employment, 20 percent remained unemployed, (3) 84.2 percent of male students who sought employment were employed compared to 73.7 percent of the female students, (4) Personal or family contacts were the means for 45.2 percent locating jobs, and (5) The average employed male student earned $398 and the average female student $221 during the summer. Data are presented in 22 tables and a copy of the questionnaire and 24 supplemental tables are included in the appendix. (RR)

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Ontario Department of Labour,
The Honourable Dalton Bates, Q.C., Minister
T.M. Eberlee, Deputy Minister

Research Branch
February 1971

ONTARIO

Summer Employment of Ontario Secondary School Students, 1969

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Ontario Department of Labour,
The Honourable Dalton Bates, Q.C., Minister
T.M. Eberlee, Deputy Minister

Research Branch
February 1971

Summer Employment of Ontario Secondary School Students, 1969

Prepared by
H. Richard Hird
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FOREWORD

The survey on which this paper reports was undertaken as part of the Ontario Government's continuing program to understand and ease the problems of summer unemployment among high school students. Probably because of a dwindling number of unskilled entry level jobs, increased competition for these jobs, higher minimum wages, and the cyclical slow-down in economic activity students may find it increasingly difficult to obtain summer work. However, the principal reason for this difficulty appears to be the relatively high proportion of students and other young people entering the labour force for short periods. Specific evidence on the magnitude of the problem is the fact that during the summer of 1969 the general unemployment rate for Ontario was 3.9 per cent while for teenagers it was 9.4 per cent. However, the report suggests that for high school students the unemployment rate at that time was twice the latter figure.

Hopefully, the survey results will give the Government and others concerned insights into how to deal with summer unemployment among high school students. Towards this end the report identifies locations, industries, and occupations in which students are most readily employed. Careful consideration of this information can suggest where efforts to expand student employment opportunities may be effective and the kinds of work programs that might be developed for them. Particularly valuable is the information on how students find summer jobs, showing where job search assistance might be concentrated and agencies in which more effective student placement programs might be developed. In short, the report supplies needed information for formulating policies and programs pertaining to the student summer employment question.

The Department of Labour wishes to thank all of those in high schools and the Department of Education who assisted with the design and implementation of the survey. Two members of that Department who took particularly heavy responsibilities were Miss G.R. Munnings and Dr. J.A. Keddy. The data collected was processed by the Systems and A.D.P. Branch of the Department of Labour, and analyzed and written up by Richard Hird and Michel Lagace under the guidance of Frank Whittingham of the Department's Research Branch.

JOHN KINLEY,
Director, Research
Branch.

February 1971

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INTRODUCTION

In recent years concern has developed over the difficulty high school students are experiencing in finding summer employment. In part, this problem reflects the increase in the proportion of teenagers attending secondary school over the past two decades, and the consequent larger influx of these persons into the labour force during the summer.

In response to the growing concern, governments have undertaken measures to try and expand the number of summer jobs for high school students, however, there has been little information available to adequately assess the dimensions of the problem. Consequently, the Ontario Department of Labour in co-operation with the Ontario Department of Education initiated a special survey to shed more light on the situation. The survey was designed to generate information on how many students entered the labour force in the summer of 1969, the number that found jobs, their duration of employment, earnings, and other labour market characteristics. In addition to providing a basis for analyzing the experience of high school students, the survey also complements a study by the Canada Department of Manpower and Immigration on the summer employment experience of post-secondary school students[1].

To draw a sample for the survey, the Department of Education stratified secondary schools by the ten administrative regions of the province, and within each region schools were grouped into four population categories on the basis of the population of the municipality in which each school was located.[2]. After the stratification was completed, a sample of fifty-five schools was selected, representing ten per cent of the secondary schools in the province.

The Department of Education also administered the distribution of the questionnaires. In each school surveyed, all students in grades 10, 11, 12 and 13 during the 1969-70 school year were asked to complete the questionnaire. Out of 43,713 students in the sample, 35,349 questionnaires (80.9 per cent) were returned suitable for use. Additional information on this sampling procedure is provided in the Appendix.

[1] Canada Department of Manpower and Immigration, Summer Employment Survey of Post-Secondary School Students in Canada 1969, Ottawa, 1970.

[2] Each school was placed in one of four population categories based on the population of the municipality in which the school was located. The four population groups were as follows: 100,000 and over; 10,000 - 99,999; 1,000 - 9,999; and 999 or less. However, due to the very small number of students in the last category, the report combines it with the third category to become 9,999 or less.

Before proceeding to an analysis of the survey results, several background sections are presented. These deal with the expansion in secondary school attendance in recent years, and the consequent larger influx of high school students into the labour market during the summer months. Also, the poor competitive position of the teenager in today's labour market is examined.

BACKGROUND TO THE PROBLEM

Enrolment in secondary and post-secondary institutions has substantially increased since the early 1950's. The pattern it has taken, and will continue to take, is the subject of an Economic Council of Canada report by Illing and Zsigmond[3]. The authors point out that in Ontario, in 1956, 67.9 per cent of the population between 5 and 24 years of age were enrolled in school, and by 1965 this figure had risen to 77.8 per cent. In absolute figures, this represented an increase in enrolment of 607,142 persons. Considering only the 15 to 18 year age group, there was an increase of 18.1 percentage points in school attendance over the same period. Illing and Zsigmond forecast that this greater desire for younger people to remain in school will increase until 1980, though possibly at a somewhat moderated pace.

This trend towards increased enrolment has resulted in a very large influx of high school students into the labour force during the summer months. In May 1969 the number of 14 to 19 year olds in the Canadian labour force was 829,000, but by July this figure had risen to 1,171,000. The fact that the great majority of these teenagers were only interested in summer employment is reflected in the decline in the number of 14 to 19 year olds in the labour force to 774,000 by September 1969[4]. This temporary influx of teenagers into the labour force creates a problem because summer employment opportunities have not expanded rapidly enough.

The Ontario Government expected that a very large number of secondary and post-secondary students would be looking for summer employment in 1969, and, even in this year of relatively low unemployment in Ontario, it was expected that many students would remain unemployed unless special measures were taken to expand employment opportunities[5]. Consequently, an appeal was made to both private and public concerns to re-examine their requirements

[3] Wolfgang M. Illing and Zoltan E. Zsigmond, Enrolment in Schools and Universities 1951-52 to 1975-76, Economic Council of Canada, Staff Study No. 20, Ottawa.

[4] Dominion Bureau of Statistics, Special Surveys Division, Special Table No. 5.

[5] John P. Robarts, Legislature of Ontario Debates, March 12, 1969, p. 2172.

with a view towards hiring more students. A main concern underlying this initiative on the part of the Government is that if part of the cost of higher education is to remain with the student, then he must be given the opportunity to pay for it.

Before embarking on a discussion of the results of the survey, it is important to understand the type of labour market these students are entering. In the following section the labour market situation faced by young workers is briefly described.

THE YOUTH LABOUR MARKET

Many characterisitics of the labour market as a whole cannot be said to apply to the youth labour market. For example, the 14 to 19 age group has the lowest participation rate of any age category in the labour force. While the participation rate for the Canadian labour force was 57.8 per cent in June 1970, it was only 40.9 per cent for those between the ages of 14 and 19[6]. Also, the participation rate for all ages has increased from 1950 to 1970, but for the teenage group it has fallen from 42.4 to 40.9 per cent. However, as has been pointed out, the participation rate for the teenage group increases greatly during the summer months.

Unemployment rates for teenagers are very high compared to the labour force average. In June 1950 the overall unemployment rate in Canada was 3.0 per cent, but for teenagers it was 6.4 per cent. By June 1970 the two unemployment rates were 6.1 and 17.7 per cent respectively[7]. These relatively high unemployment rates for the 14 to 19 age group might also be a reason for the increasing school enrolment figures since the 1950's.

A number of reasons have been suggested for the high unemployment rates among young people. It has been argued that increased automation has eliminated many unskilled entry level jobs in the economy that in the past were usually filled by teenagers. New technology is constantly increasing the educational requirements of occupations. Part of the teenage unemployment problem, therefore, may lie in the dwindling job opportunities for the under-educated and untrained.

In recent years teenagers in the job market have also faced increased competition for employment from married women entering and re-entering the labour force. Improved household appliances

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[6] The influx of secondary school students into the labour market had caused the participation rate for 14 to 19 year olds to become 49.0 per cent in July 1970.

[7] The corresponding unemployment rates for July 1970 were 5.9 and 14.9 per cent respectively.

have allowed women the time to pursue other interests, or an occupation, and their entry into the labour force has been hastened by more suitable job opportunities. The labour force participation rate for females has increased from 26.7 per cent in 1959 to 35.2 per cent in 1969[8]. Most noticeable has been the increase in the participation rate for married females. In 1959 the participation rate for married females was 18.0 per cent but by 1969 this rate had increased to 31.2 per cent.

Amendments to minimum wage legislation and increased fringe benefits have also been cited as reasons for the teenage unemployment problem. Increased labour costs, accompanying upward adjustments in the minimum wage rate, could possibly act as a deterrent to employers hiring young unskilled workers. In a recent article, Yale Brozen pointed out that every time the minimum wage was increased, teenage unemployment went up[9]. He also noticed a long-term upward trend in the relative amount of unemployment among teenagers. This occurred despite a rising educational level and declining participation rate for this age group. However, Brozen's argument is not accepted by all and the opposite conclusions have also evolved out of minimum wage studies[10].

Another aspect is the importance of fringe benefits and hiring costs which could make it less expensive for employers to pay overtime rates rather than bring in new help. Further, by paying overtime rates the employer is assured of an experienced work force.

While the relative importance of the above factors can be debated, it has become apparent that summer students are entering a labour market where the number of jobs available for young, unskilled workers falls short of the number seeking work. Even though students are looking for a job during that part of the year when employment conditions are best, the seasonal increase in employment has not been able to provide work for all those entering the labour force.

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[8] Dominion Bureau of Statistics, Special Surveys Division, 9712-513.
These figures are for Canada but it can be inferred that a similar pattern occurred in Ontario.

[9] Yale Brozen, "The Effect of Statutory Minimum Wage Increases on Teenage Employment" Journal of Law and Economics, Vol. xii (1), April 1969.

[10] Jacob J. Kaufman and Terry G. Foran, "The Minimum Wage and Poverty" in Sar A. Levitan, Wilbur J. Cohen, Robert J. Lampmern (eds.) Toward Freedom From Want, Industrial Relations Research Association, 1968.

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RESULTS OF THE 1969 SECONDARY SCHOOL STUDENT SUMMER EMPLOYMENT SURVEY

The balance of this report deals with the results of the 1969 Secondary School Student Summer Employment Survey. Although varying business conditions will prevent an identical situation from taking place in future summers, it is hoped that the data will provide insights that will be of some value for the design of future programmes to facilitate the summer employment of secondary school students.

The Student Labour Force

For purposes of the survey, students who worked or looked for work at any time during the summer of 1969 were defined as being part of the labour force. Students who worked for a member of their family were classified as being in the labour force.

Of the 379,000 students enrolled in public secondary schools in September of 1969, an estimated 296,000 or 78.6 per cent, entered the labour force during the summer of 1969[11]. As revealed in Table 1, this proportion was much higher for males than females. While 86.1 per cent of the male students either worked or looked for work, only 69.7 per cent of the females entered the labour force. For males, and especially for females, the propensity to enter the work force increases with age. For students 18 and over, the proportion who entered the labour force was 92.7 per cent, compared to 58.5 per cent for students 15 and under.

Another variable that would possibly influence a student's summer employment experience is the branch of studies that he is enrolled in at school. It would be expected that those students in Business and Commerce and those in Science, Technology and Trades are more occupationally oriented than Students in Arts and Science. The data in table 2 reveal that a higher proportion of students in the Science, Technology and Trades branch, as compared with other branches of the secondary school system, entered the labour force. It should be stressed, however, that part of this differential can be explained by the preponderance of male students in this branch who have a higher propensity to enter the labour force during the summer months than

[11] These estimates were arrived at by blowing up the sample percentages according to sex, grade and size of community within each region. See Appendix for further detail.

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do females. Males comprised 95.7 per cent of the students in the Science, Technology and Trades branch. On the other hand, 80.7 per cent of the students in Business and Commerce were females and this branch had the lowest percentage of labour force entrants.

Table 1

Percentage of High School Students Who Entered the Labour Force During the Summer, by Age, and Sex, Ontario, 1969

Sex	Age				
	15 and under	16	17	18 and over	Total*
Male	70.1	84.0	92.6	95.1	86.1
Female	48.5	69.5	82.7	88.0	69.7
Total	58.5	77.1	88.1	92.7	78.6

* Total includes a small number of students who did not report their age.

Table 2

Percentage of High School Students Who Entered the Labour Force During the Summer, by Branch, and Sex, Ontario, 1969

Sex	Branch			
	Arts and Science	Business and Commerce	Science, Technology and Trades	Total*
Male	84.5	86.9	88.5	86.1
Female	68.7	73.1	74.9	69.7
Total	76.4	75.4	87.8	78.6

* Total includes a small number of students who did not report their branch.

Students in smaller communities showed a greater tendency to look for work than students in the larger urban areas (see Table 3). Schools located in municipalities of 9,999 people or less had 81.7 per cent of their students enter the labour force, as compared to 75.4 per

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cent for schools in urban areas of over 100,000 people. As noted in a following section, part of this difference may be attributed to the fact that many students in smaller communities work for family business or on farms.

Employment

Overall, an estimated 236,000 secondary school students found summer employment in 1969, which represented 80.0 per cent of the students who looked for work. As shown in Table 4, males and older students appeared to be more successful in finding work. While 84.2 per cent of the male students found a job, only 73.7 per cent of the females found employment. Also, for both males and females, the likelihood of finding summer employment increased with age. Table 4 shows that 88.5 per cent of the students in the oldest age category found work as compared to 72.2 per cent in the 15 and under group.

In the Science, Technology and Trades branch, 83.9 per cent of those who looked for work were successful, compared to 74.2 per cent for Business and Commerce students. Also, as shown in Table 5, both males and females in the Business and Commerce branch were less successful in finding a job than students in the other two branches. These results are surprising since one would expect that students in Business and Commerce would be more occupation-oriented than students in Arts and Science.

Table 3

Percentage of High School Students Who Entered the Labour Force During the Summer, by Size of Community, and Sex, Ontario, 1969

	Size of Community			
Sex	100,000 and over	10,000 99,999	9,999 or less	Total
Male	82.1	86.7	90.6	86.1
Female	65.8	70.7	73.5	69.7
Total	75.4	79.2	81.7	78.6

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Table 4

Percentage of High School Student Labour Force Employed During the Summer, by Age, and Sex, Ontario, 1969

Sex	Age				Total*
	15 and under	16	17	18 and over	
Male	75.1	80.3	85.9	91.9	84.2
Female	68.7	70.0	75.2	81.4	73.7
Total	72.2	75.9	81.3	88.5	80.0

* Total includes a small number of students who did not report their age.

Table 5

Percentage of High School Student Labour Force Employed During the Summer, by Branch, and Sex, Ontario, 1969

Sex	Branch			Total
	Arts and Science	Business and Commerce	Science Technology and Trades	
Male	85.3	83.0	84.2	84.2
Female	76.2	72.1	75.8	73.7
Total	81.1	74.2	83.9	80.0

* Total includes a small number of students who did not report their branch.

Students in smaller communities were also more successful in their search for work (see Table 6). In municipalities of 9,999 people or less, 85.6 per cent of those who looked for work found a job, whereas in cities of 100,000 and over, only 75.4 per cent found work. This higher employment rate in smaller communities may reflect the greater importance of employment as workers in family enterprises in these areas compared with the larger urban areas.

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Table 6

Percentage of High School Student Labour Force Employed During the Summer, by Size of Community, and Sex, Ontario, 1969

Sex	Size of Community			Total
	100,000 and over	10,000-99,999	9,999 or less	
Male	79.4	84.0	90.6	84.2
Female	68.2	73.3	79.1	73.7
Total	75.4	79.5	85.6	80.0

Number of Weeks Worked

As mentioned earlier, for purposes of this survey, a student was listed as employed regardless of the length of time that he worked during the summer. The majority of students worked for 8 weeks or longer, and male students worked longer than females. Whereas 60.8 per cent of the males worked 8 weeks or more, only 51.9 per cent of the females were in this category.

Older students worked longer than younger ones (see Table 7). For those students 18 years old and over, 66.9 per cent worked at least 8 weeks, while for students 15 years of age and under, the percentage was only 41.0

A more detailed analysis of the data suggested that in smaller communities there was a tendency for students to work longer. However, the differences were very small and may not be significant (see Appendix Table 21B).

Unemployment

In July and August of 1969 the average unemployment rate in Ontario was 7.1 per cent for 14 to 19 year olds[12]. In contrast the incidence of unemployment among students was much higher. It was estimated that 59,200 high school students who looked for work in

[12] Dominion Bureau of Statistics, Special Surveys Division, Special Table No. 5.

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Table 7

Number of Weeks Worked by High School Students Who Found Employment During the Summer, by Age, Ontario, 1969

	Age				
Number of Weeks	15 and under	16	17	18 and over	Total*
1 - 3	17.7	12.7	7.8	5.7	10.1
4 - 5	18.2	15.3	11.1	7.4	12.8
6 - 7	18.5	16.4	15.8	13.2	15.1
8 or more	41.0	51.2	60.9	66.9	57.5
Not specified	4.6	4.3	4.3	4.8	4.5

* Total includes a small number of students who did not report their age.

** Percentages may not add up to 100.0 due to rounding.

the summer of 1969 failed to find employment, which represents 20.0 per cent of those high school students who entered the labour force[13].

The majority of students who were unable to find summer employment spent at least 3 weeks looking for work. For both males and females, the older students spent a longer period of time looking for work. For those students 18 years old and over, 29.1 per cent looked for 5 weeks or more, while only 15.3 per cent of the 15 and under group looked for the same length of time (see Table 8). One reason underlying these differences is that the opportunity cost of not working is probably higher for older students. Also, these students are probably more concerned about financing their post-secondary education.

[13] Caution must be expressed in comparing these figures. The survey classifies a person as employed if he worked at any time during the summer. Therefore, in order to be classified as unemployed, the students would not have been able to find work at any time during last summer. As a result, a student may have worked in July and have been involuntarily unemployed in August, yet the survey would classify him as employed. In comparison, the overall unemployment rate for teenagers is based on the Dominion Bureau of Statistics' Labour Force Survey in which a person is classified as employed or unemployed on the basis of activity in a specific reference week.

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Table 8

Length of Time Spent Looking for a Job by High School Students Unable to Find Work During the Summer, by Age, Ontario, 1969

	Age				
Number of Weeks	15 and under	16	17	18 and over	Total*
1	17.8	12.0	10.4	7.8	12.4
2	26.2	21.4	21.1	17.7	22.1
3	21.9	23.5	19.4	22.0	21.7
4	12.4	14.9	15.4	16.8	14.7
5 or more	15.3	22.1	28.0	29.1	23.0
Not specified	6.4	6.0	5.6	6.6	6.2

* Total includes a small number of students who did not report their age.

** Percentages may not add up to 100.0 due to rounding.

Methods of Looking for Work

Overall, the channel most frequently used by high school students to obtain a job was either a personal or family contact; 45.2 per cent of the students entering the labour force attempted to find employment in this manner (see Table 9). The second most important method of seeking work was direct application to an employer. Canada Manpower Centres and other employment agencies were used in 8.9 per cent of the attempts to find employment.

These data also reveal substantial variation in the importance of methods of looking for work between those who obtained a job and students who were unemployed during the summer. Among employed students, one-half used a personal or family contact. In contrast, only 29.7 per cent of those who were unsuccessful in finding a job used a personal or family contact. The latter suggests that the probability a high school student will obtain a summer job is strongly influenced by the positions held in the work force by members of his family or friends.

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Table 9

Method Used to Look for Work by High School Students Entering the Labour Force During the Summer, and Sex, Ontario, 1969

Method	Total Number of Students Who Entered the Labour Force			Students Who Were Employed[1]			Students Who Failed to Find Employment[2]		
	M	F	T	M	F	T	M	F	T
Direct application to employer	38.2	38.5	38.3	37.3	37.1	37.2	41.2	41.1	41.1
Employment agencies (CMC student and private agencies)	8.0	10.0	8.9	3.4	3.2	3.3	23.7	22.5	23.1
Personal or family contact	45.7	44.5	45.2	50.7	52.2	51.2	28.9	30.5	29.7
Other	4.8	4.3	4.6	5.5	4.9	5.3	2.5	3.1	2.8
Not specified	3.2	2.7	3.0	3.1	2.6	2.9	3.6	2.9	3.2

[1] These percentages refer to the method through which students obtained the job at which they worked the longest. Each student reported only one method of looking for work.

[2] For students who were unable to find employment, all methods used to look for work were reported. Thus, because students may have reported more than one method, the distributions involve double-counting

* Percentages may not add up to 100.0 due to rounding.

As shown in Table 10, employment agencies were less important in smaller centres than in larger urban areas. Also, personal and family contacts were more important as means to look for employment in smaller centres. In areas of 9,999 people or less, 51.0 per cent attempted to obtain employment through a personal or family contact, whereas in urban areas of 100,000 and over, only 41.7 per cent of the attempts to find work were through such a contact. This lends support to the earlier hypothesis that students in smaller communities had a greater opportunity to seek work in a family business or on a farm.

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Table 10

Method Used to Look for Work by High School Students Entering the Labour Force During the Summer, by Size of Community, and Sex, Ontario, 1969

Method	Size of Community: 100,000 and over			10,000-99,999			9,999 or less			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
Direct application to employer	39.0	39.7	39.2	38.9	40.7	39.7	36.1	34.6	35.4	38.2	38.5	38.3
Employment agencies (CMC student and private agencies)	9.9	12.3	10.8	8.7	10.6	9.5	4.6	6.9	5.7	8.0	10.0	8.9
Personal or family contact	42.3	40.6	41.7	45.5	42.3	44.1	50.6	51.5	51.0	45.7	44.5	45.2
Other	5.1	4.8	5.0	4.3	3.7	4.0	5.3	4.6	5.0	4.8	4.3	4.6
Not specified	3.7	2.7	3.3	2.7	2.8	2.7	3.3	2.4	3.0	3.2	2.7	3.0

* Percentages may not add up to 100.0 due to rounding.

These results on methods of looking for work parallel findings from previous studies which have stressed the importance of an informal communications network in the job hunt[14]. The informal network consists of referrals from other employees and employers, walk-ins and hiring at the gate as compared to the formal network of employment services, newspapers and hiring halls. In addition, employers tend to prefer the informal network for several reasons. Referrals from existing employees usually provide a good screening process. Applicants are often from the local neighbourhood, reducing the chance of lateness and absenteeism resulting from transportation problems, and, of course, the process is costless to the employer. Finally, some employers feel that the best applicants seek their own jobs, and some workers prefer the informal network because they can usually gain additional information on working conditions.

CHARACTERISITICS OF SUMMER EMPLOYMENT

Previous Employment

Of those students who worked in 1969, 68.3 per cent had a summer job previous to 1969. Among males this proportion was 74.2 per cent, while among females only 58.4 per cent were in this category. Compared with larger urban areas, the proportion of students in smaller communities who had a job previous to 1969 was larger. In the 9,999 or less category, 72.0 per cent of the students who had a job in 1969 had one previous to 1969. For the largest urban areas, this figure was 66.0 per cent (see Table 11). Again, this difference may reflect the greater importance of employment as workers in family enterprises in smaller centres.

Employment with a Family Member

Approximately 20 per cent of the students worked for a family member. In smaller centres there was greater tendency for this to occur, which reflects the large number of single proprietorships and farms in these areas (see Appendix Table 9B). As students become older, it is less likely they will work for a member of their family because more opportunities arise for high paying jobs in industry and elsewhere. Almost 13 per cent of the employed students in the 18

[14] Albert Rees "Information Networks in Labour Markets", American Economic Review, Papers and Proceedings, May 1969, pp. 559-566. Leonard P. Adams "The Public Employment Service", in Joseph M. Becker (ed.) In Aid of the Unemployed, The John Hopkins Press (Baltimore 1965), p. 218.

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Table 11

Percentage of Employed High School Students Who had a Job Previous to the Summer of 1969, by Size of Community, and Sex, Ontario, 1969

Sex	Size of Community			Total
	100,000 and over	10,000-99,999	9,999 or less	
Male	71.4	73.4	78.0	74.2
Female	54.6	57.0	62.8	58.4
Total	66.0	67.1	72.0	68.3

years and over category worked for a family member, but for students 15 years of age and under this proportion was 33.4 per cent (see Table 12).

Table 12

Percentage of High School Students Who Worked for a Family Member During the Summer, by Age, and Sex, Ontario, 1969

Sex	Age				Total*
	15 and under	16	17	18 and over	
Male	34.8	24.2	18.2	15.5	20.8
Female	31.6	19.5	14.9	8.4	18.5
Total	33.4	22.3	16.9	12.7	19.9

* Total includes a small number of students who did not report their age.

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Industry of Summer Employment

Overall, primary industries, trade, and services were the industries that provided the most jobs for students during the summer of 1969 (see Table 13). When males and females are examined separately, however, there is some variation in the importance of industries as employers of summer students. The construction industry, overall, employed 8.4 per cent of the students who worked, but it employed 12.7 per cent of the males and only 0.3 per cent of the females. On the other hand, personal and other services employed 48.8 per cent of the females and only 16.2 per cent of the males.

Table 13

Percentage of High School Students Who Were Employed During the Summer, by Industry, and Sex, Ontario, 1969

Industry	Male	Female	Total
Government (Federal Provincial, Municipal)	5.6	2.4	4.5
Primary Industries (Agriculture, Mining, Forestry)	26.7	13.6	22.2
Construction	12.7	0.3	8.4
Transportation, Communication	5.1	1.9	4.0
Trade	19.9	19.0	19.6
Personal and Other Services	16.2	48.8	27.5
Manufacturing	7.3	4.8	6.5
Recreation	6.4	9.2	7.4

* Percentages may not add up to 100.0 due to rounding.

As would be expected, primary industries were more important in the smaller communities and manufacturing was more important in the larger urban areas. Younger students and those in lower grades were most often employed in the primary industries, especially agriculture. For older students, job opportunities were available in the higher-paying manufacturing and construction industries (see Tables 10B and 11B) All levels of government hired more students in advanced grades, providing jobs for 7.1 per cent of all the grade 13 students who worked, but for only 2.9 per cent of those in grade 10 who worked (see Table 14).

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Table 14

Percentage Distribution of Employed High School Students by Industry, and Grade, Ontario, Summer 1969

Industry	Grade 10	11	12	13	Total*
Government (Federal, Provincial, Municipal)	2.9	4.3	5.2	7.1	4.5
Primary Industries (Agriculture, Mining, Forestry)	29.3	22.8	18.1	14.3	22.2
Construction	7.7	9.1	8.6	7.6	8.4
Transportation, Communication	3.7	4.0	4.1	4.6	4.0
Trade	16.2	19.6	22.0	22.1	19.6
Personal and Other Services	28.6	26.6	27.0	27.5	27.5
Manufacturing	4.9	6.4	7.2	8.1	6.5
Recreation	6.6	7.1	7.8	8.6	7.4

* Total includes a small number of students who did not report their grade.

** Percentages may not add up to 100,0 due to rounding.

Seasonal factors would account for primary and service industries employing a large number of students. Another reason may be that the skill level required to work in these industries, especially agriculture, is lower than in others.

Occupation of Summer Employment

The largest proportion of students were employed as labourers, although this figure was heavily weighted towards male employment. Housekeepers, waitresses, cooks, and other jobs related to the services industry were the main occupations of females, and employed 40.9 per cent of those females who found summer employment (see Table 15).

Employment in clerical and sales occupations was more common in large urban areas, as were jobs in service and recreation. In smaller communities the predominant occupations were farm worker, housekeeper, waiter and cook (see Appendix Table 14B).

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Table 15

Percentage of High School Students Who Worked During the Summer, by Occupation, and Sex, Ontario, 1969

Occupation	Male	Female	Total
Managerial, Professional, Technical[1]	2.8	5.8	3.9
Clerical	4.1	14.4	7.9
Sales	8.5	11.3	9.6
Housekeepers, Waiters, Cooks and Related Workers	5.5	40.9	18.7
Service, Recreation	6.0	4.4	5.4
Transport, Communication	2.8	0.9	2.1
Primary Occupations[2]	24.5	11.3	19.6
Craftsmen, Production Process and Related Workers	8.2	3.2	6.3
Labourers	32.7	4.6	22.3
Other[3]	4.9	3.2	4.2

[1] The age and earnings of these workers suggest they are not top management nor fully trained professional workers. In this category would be included playground supervisors, boathouse managers, interviewers, etc.

[2] Includes loggers, fishermen, hunters, trappers, miners, quarrymen, farmers and farm workers.

[3] Includes students who had an occupation listed as NOT STATED in the Occupational Classification Manual plus those students who did not answer the question.

[4] Percentages may not add up to 100.0 due to rounding.

Occupational characteristics according to branch of education again followed male-female patterns. The majority of females in Business and Commerce were employed as housekeepers, waitresses and cooks (see Appendix Table 15B). On the other hand, students in the Science, Technology and Trades branch worked as labourers, craftsmen, production process and related workers, and farm workers.

The data indicate that as students become older they move out of farm and other low-paying occupations to become labourers, craftsmen, and production process workers. Also, older students were more likely to work in some type of managerial capacity than their younger counterparts in such roles as playground supervisors and boathouse managers (see Table 16).

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Table 16

Percentage Distribution of Employed High School Students, by Occupation, and Age, Ontario, Summer 1969

Occupation	Age: 15 and under	16	17	18 and over	Total[1]
Managerial, Professional, Technical[2]	2.5	3.9	3.9	4.8	3.9
Clerical	4.7	6.9	9.1	9.5	7.9
Sales	8.8	8.6	10.1	10.6	9.6
Housekeepers, Waiters, Cooks, and Related Workers	22.9	20.3	18.4	14.9	18.7
Service, Recreation	4.8	5.5	5.7	5.5	5.4
Transport, Communication	1.7	1.7	1.9	2.9	2.1
Primary Occupations[3]	31.5	21.2	17.3	13.3	19.6
Craftsmen, Production Process and Related Workers	3.6	6.7	6.8	7.7	6.3
Labourers	15.5	21.1	23.0	26.7	22.3
Other[4]	3.9	4.4	3.6	4.1	4.2

[1] Total includes a small number of students who did not report their age.

[2] Not necessarily higher management and fully trained technical and professional workers. See Table 15, footnote 1.

[3] Includes loggers, hunters, trappers, fishermen, miners, quarrymen, farmers and farm workers.

[4] See Table 15, footnote 3.

[5] Percentages may not add up to 100.0 due to rounding.

Average Gross Earnings

Over the summer, male students earned an average of $398 and females, $221. This reflects the ability of males to find employment in the higher-paying industries and occupations, since, as will be noted later, variation in weeks worked does not account for the whole differential. Earnings also varied greatly with age, as the older students began to move away from low-paying industries. For males 18 and over, the average gross earnings were $541, whereas for boys 15

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and under, they were $201 (see Table 17). Females followed the same pattern and the range in earnings between the age groups was $295 to $126. Further, males in all age groups earned more than females.

Table 17

Average Gross Earnings of High School Students Who Worked During the Summer, by Age, and Sex, Ontario, 1969

Sex	Age				
	15 and under	16	17	18 and over	Total*
Male	$201	$316	$425	$541	$398
Female	126	186	259	295	221
Total	170	265	360	468	332

* Total includes a small number of students who did not report their age.

The highest paying industries for summer employment were construction and manufacturing where earnings averaged $518 and $509 respectively (see Table 18). Industries that were large employers of summer help were located at the lower end of the earnings scale. The recreation and service industries together employed almost 35 per cent of the students who found work, yet they had the lowest average gross earnings.

Earnings in all occupations for males were above those for females. The most lucrative jobs were those as labourers, craftsmen, production process workers and other predominantly male occupations related to the high-paying industries of construction, manufacturing and transportation. As previously mentioned, students in the managerial, professional and technical category were neither top management nor highly trained professional and technical workers. This is reflected in the fact that their earnings were among the lowest (see Table 19).

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Table 18

Average Gross Earnings of High School Students Who Worked During the Summer, by Industry, and Sex, Ontario, 1969

Industry	Male	Female	Total
Government (Federal, Provincial, Municipal)	$408	$273	$379
Primary Industries (Agriculture, Mining, Forestry)	361	213	329
Construction	518	468	518
Transportation, Communication	483	311	454
Trade	397	257	349
Personal and Other Services	355	221	269
Manufacturing	577	322	509
Recreation	292	170	236

Table 19

Average Gross Earnings of High School Students Who Worked During the Summer, by Occupation, and Sex, Ontario, 1969

Occupation	Male	Female	Total
Managerial, Professional, Technical[1]	$303	$162	$254
Clerical	490	285	352
Sales	383	239	320
Housekeepers, Waiters, Cooks and Related workers	376	206	238
Service, Recreation	331	218	305
Transport, Communication	416	258	390
Primary Occupations[2]	329	184	299
Craftsmen, Production Process and Related Workers	429	294	404
Labourers	457	259	442
Other[3]	336	151	284

[1] See Table 15, footnote 1.

[2] Includes loggers, fishermen, hunters, trappers, miners, quarrymen, farmers and farm workers.

[3] See Table 15, footnote 3.

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Number of Jobs Held

Most students held only one job during the summer of 1969. Females, who worked fewer weeks than males, were more likely to have only one job. Overall, less than four per cent of the students held three jobs or more (see Table 20)

For both males and females in smaller centres, there was a slight tendency to have more than one job. In areas of 9,999 people or less, 24.9 per cent of all students held more than one job, as compared to 19.7 per cent in areas of 100,000 and over (see Table 21).

Table 20

Number of Jobs Held by High School Students Who Worked During the Summer, by Sex, Ontario, 1969

Number of Jobs	Male	Female	Total
1	75.0	84.3	78.5
2	19.4	13.0	17.0
3 or more	5.0	2.3	3.9
Not specified	0.5	0.4	0.5

* Percentages may not add to 100.0 due to rounding.

Table 21

Number of Jobs Held by High School Students Who Worked During the Summer, by Size of Community, Ontario, 1969

	Size of Community			
Number of Jobs	100,000 and over	10,000-99,999	9,999 or less	Total
1	80.3	79.7	75.1	78.5
2	16.0	16.4	18.8	17.0
3 or more	3.1	3.3	5.4	3.9
Not specified	0.5	0.5	0.5	0.5

* Percentages may not add up to 100.0 due to rounding.

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There was very little difference by age among those who held more than one job, but in the lower grades there was a slightly higher tendency to have more than one job. Also, students in Science, Technology and Trades were more likely to hold more than one job, again due to the predominance of males in this branch[15].

Mobility

Almost all of the students who obtained employment worked in Ontario. Neither sex nor age proved to be very significant as 98.1 per cent of the students remained within the province (see Table 22).

Table 22

High School Students Enrolled in Secondary Schools in Ontario Who Worked Inside the Province During the Summer, by Age, and Sex, 1969

Sex	Age				
	15 and under	16	17	18 and over	Total*
Male	99.4	98.2	98.2	97.4	97.8
Female	98.5	98.2	98.6	99.3	98.5
Total	97.8	98.2	98.4	97.9	98.1

* Total includes a small number of students who did not report their age.

[15] These observations are based on detailed tabulations that have not been presented in this report.

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SUMMARY

During the summer of 1969, the unemployment rate in Ontario was 3.9 per cent, but among teenagers in general the incidence of unemployment was much higher as evidenced by their 9.4 per cent unemployment rate for the same time period. When one moves to high school students seeking summer employment, however, the survey results indicate that there are even fewer jobs available to them. In the summer of 1969, 78.6 per cent of the secondary school students entered the labour force and of these, 20.0 per cent were unable to find a job.

Of those who found work, approximately one-half obtained their job through personal or family contacts. Agriculture and trade were the most important industries for male employment and the personal service industry accounted for the largest proportion of female employment.

There are both monetary and non-monetary benefits accruing from the employment of high school students. On the monetary side, students who found a job earned an average of $332 during the summer of 1969. Also, it has been estimated that total earnings of high school students from summer employment in Ontario was approximately $60,000,000 in 1969[16]. Apart from the monetary earnings, summer employment also represents an opportunity for students to acquire good work habits and possibly certain limited skills.

Of particular interest for the future will be the patterns of growth in those industries that are major employers of high school students. Also, in the shorter run, some insight into the impact of fluctuations in economic conditions on employment in such industries would add to a better understanding of summer employment prospects for high school students.

[16] This figure was based on a blown-up estimate of the number of students who worked last summer. The estimate was based on the sample distribution without considering size of community, grade, age, branch, etc.

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APPENDIX A

Technical Note

In this Appendix additional information on the procedure used to draw the sample for the survey and a copy of the survey questionnaire are presented.

Method Used to Draw the Sample

At the outset of the project it was decided to select a sample of secondary schools in the province rather than to send questionnaires to all schools and to sample within them. This was intended to simplify both the administration of the questionnaire and the processing of the data. The Department of Education drew a sample of 55 schools from the 553 secondary schools in the province. To do this it was necessary to list the schools in each of the ten administrative regions of the province. Within each region, schools were grouped into four population categories on the basis of the population of the municipality in which each school was located. The sources of these population statistics was the Department of Municipal Affairs" "1968 Summary of Financial Reports of Municipalities". Special vocational schools were treated separately, but in the same way as other schools.

Within each of the schools in the sample, students in grades 10, 11, 12 and 13 were given a copy of the questionnaire to complete. In addition, there were some students who were not enrolled in a particular grade, either because they were in an ungraded school or because they were enrolled in special courses. In the sample schools there were 43,713 students (as of September 1969) and 35,456 questionnaires were returned; of these, 34,349 were useable.

For students in each region, population category, and grade, the proportion giving a particular answer to a given question was simply applied to the total number of students in Ontario who were in the corresponding region, category and grade. These figures were aggregated in order to arrive at the estimates presented in the report.

In some cases, the sample did not contain a school from a particular population category in a region, despite the fact that there were such schools in the universe from which the sample was drawn. In such cases, the answers given by the total number of students in the corresponding population category in all regions were applied.

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The Department of Education's statistics included a number of students who were not enrolled by the survey, but who were nevertheless enrolled in secondary schools. As mentioned previously, these were students enrolled in special courses or in ungraded schools. To develop estimates of the answers of these students, they were classified according to the region and the population category of their school. For each sex, answers given by the total number of students in all grades in the corresponding region and population category were applied.

The tables presented in the report and in the Appendix are based on the distribution obtained from the survey sample. It is believed that these distributions are representative of the population as a whole.

SAMPLE OF SECONDARY SCHOOLS IN THE SURVEY

The following is a list of the secondary schools in Ontario that were selected for the survey. Each school was classified according to the following population code:

1 Population of 100,000 and over;

2 Population of 10,000 – 99,999;

3 Population of 1,000 – 9,999;

4 Population of 999 and under;

X Special Vocational School.

6951

	Population Classification
Northwestern Ontario	
Sir Winston Churchill C. & V.I.	2
Fort Frances H.S.	3
Midnorthern Ontario	
Bawating C. & V.I.	2
Korah C. & V.S.	2
Sir James Dunn C. & V.S.	2
Chelmsford D.S.S.	3
St. Joseph Island D.H.S.	4
Northeastern Ontario	
Iroquois Falls and Calvert D.H.S.	3
Rolland Michener S.S.	3
Huntsville H.S.	3
Cobalt H.S.	3
Western Ontario	
Riverside H.S.	1
W. D. Lowe T.S.	1
W. F. Herman C.I.	1
King George V.S.	1X
F. E. Madill S.S.	3
Blenheim D.H.S.	3
Lambton Kent C.S.	3
Lambton Central C. & V.I.	3
Midwestern Ontario	
North Park C. & V.S.	2
Owen Sound C. & V.I.	2
Huron Park S.S.	2
Grand River C.I.	2
College Heights V.S.	2X
Mitchell D.H.S.	3
Waterloo-Oxford D.H.S.	3
Niagara	
Merriton H.S.	1
Barton S.S.	1
South Lincoln H.S.	3
Waterdown D.H.S.	3
Simcoe Composite S.	2

6952

	Population Classification
West Central Ontario	
Applewood Heights S.S.	1
Thomas L. Kennedy S.S.	1
Danforth T.S.	1
Jarvis C.I.	1
Malvern C.I.	1
Bickford Park	1X
Nelson H.S.	2
South Peel V.S.	3X
East Central Ontario	
Bendale V.S.	1X
Lindsay C.I.	2
Cannington Brock D.H.S.	3
Dr. G. W. Williams S.S.	2
West Hill C.I.	1
Huron Heights S.S.	2
Earl Haig S.S.	1
Haliburton Highlands S.S.	3
East York C.I.	2
Eastern Ontario	
Moira S.S.	2
East Northumberland S.S.	3
Port Hope H.S.	3
Ottawa Valley	
Brookfield H.S.	1
Champlain H.S.	1
Woodroffe H.S.	1
Perth D.C.I.	3

6953

CONFIDENTIAL

ONTARIO

DEPARTMENT OF LABOUR

with the co-operation of the

DEPARTMENT OF EDUCATION

QUESTIONNAIRE ON SUMMER EMPLOYMENT IN 1969

This questionnaire is intended to provide the provincial government with information on the employment of students during the summer of 1969 and on their employment intentions in 1970. All information will be held in strict confidence and used for statistical purposes only.

6954

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Population Code ☐

Name of School ☐☐

1. PRESENT GRADE

1	2	3	4	
10 ☐	11 ☐	12 ☐	13 ☐	col. 7

2. BRANCH AND PROGRAMME in your present school year

BRANCH		Col. 8	PROGRAMME		col. 9
	Arts and science	1 ☐		2- or 3-year	1 ☐
	Business and commerce	2 ☐		4- year	2 ☐
	Science, technology and trades	3 ☐		5- year	3 ☐

3. PERSONAL INFORMATION

(a) Sex — Male 1 ☐ — Female 2 ☐ — col. 10

(b) Age at January 1, 1970 . . . . . ☐☐ — cols. 11 - 12

(c) Did you ever have a summer job before the summer of 1969? — Yes 1 ☐ — No 2 ☐ — col. 13

4. SUMMER EMPLOYMENT

(a) Did you have a job during the summer of 1969? — Yes 1 ☐ — No 2 ☐ — col. 14

(b) If YES, did you (please check only one)

work for an employer other than a family member — 1 ☐

work for a member of your family — 2 ☐

— col. 15

(c) If you had a job during the summer of 1969, how did you obtain it (please check only one)?

by direct application to employer . . . . . 1 ☐
through a Canada Manpower Centre . . . . . 2 ☐
through a student employment agency . . . . . 3 ☐
through a private employment agency . . . . . 4 ☐
through personal or family contacts . . . . . 5 ☐
other (please specify) _____ 6 ☐

— col. 16

(d) If you did NOT have a job during the summer of 1969, did you look for one? — Yes 1 ☐ — No 2 ☐ — col. 17

(e) If YES in 4 (d), what channels did you use in looking for a job (check one or more)?

direct application to employer	1 ☐	col. 18
Canada Manpower Centre	2 ☐	col. 19
student employment agency	3 ☐	col. 20
private employment agency	4 ☐	col. 21
personal or family contacts	5 ☐	col. 22
other (please specify) _____	6 ☐	col. 23

(f) If you were not working and were looking for a summer job at any time <u>during</u> the summer of 1969, how long did you look?

one week	1 ☐	
two weeks	2 ☐	
three weeks	3 ☐	col. 24
four weeks	4 ☐	
five weeks or more	5 ☐	

N.B. ONLY PERSONS WHO HAD A JOB DURING THE SUMMER OF 1969 SHOULD ANSWER QUESTIONS 5, 6, AND 7. IF YOU DID NOT HAVE A JOB DURING THE SUMMER OF 1969, PLEASE SKIP TO QUESTION 8.

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5. NUMBER OF JOBS AND LENGTH OF EMPLOYMENT

(a) How many jobs did you hold during the summer of 1969? [ ] col. 25

(b) Please enter the total number of weeks you worked during the summer of 1969 and the number of weeks you worked in each industry listed below:

Total number of weeks _____ weeks cols.26 - 27
cols.28 - 30

Number of weeks worked in

1. the federal government	01.	_____ weeks
2. a provincial government	02.	_____ "
3. a municipal government	03.	_____ "
4. agriculture	04.	_____ "
5. mining and forestry	05.	_____ "
6. construction	06.	_____ "
7. transportation (e.g. railway, truck, taxicab, etc.)	07.	_____ "
8. communication (e.g. radio, telephone, telegraph, post office, etc.)	08.	_____ "
9. trade (retail or wholesale)	09.	_____ "
10. personal service (e.g. hotels, restaurants, laundries, etc.)	10.	_____ "
11. recreation (e.g. pools, parks, golf clubs, etc.)	11.	_____ "
12. other services (e.g. finance, education, health, etc.)	12.	_____ "

6. MAIN JOB during the summer of 1969

(a) What kind of work did you do in the job you held for the longest period of time during the summer of 1969 (describe briefly and be specific, e.g. mailroom clerk, construction labourer, etc.)?

_____ cols.40 - 42
_____ [ ][ ][ ]

(b) In the job you held the longest, did you work inside or outside the Province?

col. 43
inside the Province 1 [ ]
outside the Province 2 [ ]

(c) How many hours per week did you work in the job you held the longest (please give whole numbers only, e.g. enter 37 if you worked 37½ hours per week)? cols.44 - 45 _____ hours

(d) What was your rate of pay in the job you held for the longest period of time (please report your hourly rate or your weekly wage or salary or your monthly wage or salary)?

col. 46
hourly rate 1. $_____
weekly wage or salary 2. $_____ cols.47 - 51
monthly wage or salary 3. $_____

7. GROSS EARNINGS

What were your gross earnings from all jobs you held during the summer of 1969 (please report dollars only)? cols.52 - 55 $_____

8. FUTURE INTENTIONS

(a) Do you already have a job arranged for the summer of 1970? Yes 1 [ ] No 2 [ ] col. 56

(b) Are you going to look for a job during the summer of 1970? Yes 1 [ ] No 2 [ ] col. 57

(c) If NO in 8 (b), why not, (check one or more)

Job already arranged	1 [ ]	col. 58
Voluntary work	2 [ ]	col. 59
Summer studies	3 [ ]	col. 60
Travel	4 [ ]	col. 61
Summer vacation	5 [ ]	col. 62
Other (please specify) _____	6 [ ]	col. 63

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INSTRUCTIONS FOR COMPLETING THE
"QUESTIONNAIRE ON SUMMER EMPLOYMENT IN 1969"

Most questions can be answered by placing a check mark (✓) in the appropriate box. All other questions should be answered in the space provided. The boxes on the first two lines of page 2 (showing "population code" and "name of school") should be left blank. Please enter the name of the school on the second line and proceed to question 1.

Question 2

If there are no Branches in your school, please disregard the first part of this question and check (✓) the appropriate box to indicate the length of your programme.

Question 5(b)

Please enter the total number of weeks worked during the summer of 1969 on the appropriate line. If the student worked in only one industry, the same number of weeks should appear on the line opposite the name of that industry. If the student worked in more than one industry, the number of weeks worked in each should be reported on the appropriate line up to a maximum of three industries. If the student worked in more than three industries, he or she should report duration of employment only for the three industries in which he or she worked the longest. For example, a person working 3 weeks for the federal government, 2 weeks in agriculture, 2 weeks in construction and one week in recreation would not report the week worked in recreation. However, a total of 8 weeks would be reported on the line showing the total number of weeks worked.

Question 6

This question refers to the job the student held for the longest period of time during the summer of 1969. If a student held two or more jobs for equal lengths of time, the answers to this question should refer to the job in which gross earnings were greatest.

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Table 1B

Percentage of High School Students Who Entered the Labour Force During the Summer, by Grade, and Sex, Ontario, 1969

Sex	Grade 10	11	12	13	Total*
Male	77.6	87.0	93.4	95.3	86.1
Female	55.6	70.5	82.9	86.8	69.7
Total	67.5	78.4	88.6	91.7	78.6

* Total includes a small number of students who did not report their grade.

Table 2B

Percentage of High School Student Labour Force Employed During Summer, by Grade, and Sex, Ontario, 1969

Sex	Grade 10	11	12	13	Total*
Male	76.6	84.2	90.0	92.8	84.2
Female	68.9	69.8	77.8	85.0	73.7
Total	73.7	78.3	84.8	89.6	80.0

* Total includes a small number of students who did not report their grade.

6961

Table 3B

Method Used to Look for Summer Employment by High School Students Unable to Find Employment During the Summer, by Size of Community, and Sex, Ontario, 1969

Method	Size of Community: 100,000 and over			10,000-99,999			9,999 or less			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
Direct application to employer	40.8	41.9	41.3	42.1	41.3	41.7	40.2	39.5	39.7	41.2	41.1	41.1
Employment agencies (CMC, student and private agencies)	24.3	23.7	24.1	24.1	23.7	23.8	20.7	18.8	19.4	23.7	22.5	23.1
Personal or family contact	28.0	27.9	27.9	28.9	29.5	29.2	31.8	36.3	34.6	28.9	30.5	29.7
Other	2.9	3.6	3.2	1.9	2.5	2.2	3.0	3.3	3.2	2.5	3.1	2.8
No answer	3.9	3.1	3.5	3.1	3.1	3.1	4.3	2.2	3.0	3.6	2.9	3.2

* Percentages may not add to 100.0 due to rounding.

696962

Table 4B

Method Used to Obtain a Summer Job by High School Students Employed During the Summer, by Size of Community, and Sex, Ontario, 1969

Method	Size of Community: 100,000 and over			10,000-99,999			9,999 or less			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
Direct application to employer	38.2	38.1	38.2	37.9	40.3	38.8	35.5	32.7	34.4	37.3	37.1	37.2
Employment agencies (CMC, student and private agencies)	4.0	4.2	4.1	3.7	3.1	3.5	2.2	2.4	2.3	3.4	3.2	3.3
Personal or family contact	48.3	49.7	48.7	50.7	49.5	50.3	53.4	57.2	54.9	50.7	52.2	51.2
Other	6.0	5.6	5.9	5.0	4.3	4.8	5.6	5.1	5.4	5.5	4.9	5.3
No answer	3.6	2.4	3.3	2.6	2.7	2.6	3.3	2.5	3.0	3.1	2.6	2.9

* Percentages may not add up to 100.0 due to rounding.

6963

Table 5B

Length of Time Spent Looking for a Job by High School Students Unable to Find Work During the Summer, by Size of Community, and Sex, Ontario, 1969

Number of Weeks	Size of Community: 100,000 and over			10,000-99,999			9,999 or less			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
1	15.0	11.6	13.4	13.2	9.9	11.4	14.3	11.2	12.4	14.2	10.8	12.4
2	24.0	22.2	23.2	25.5	19.4	22.1	21.8	18.6	19.8	24.2	20.2	22.1
3	21.5	21.6	21.5	22.8	21.4	22.0	20.0	22.2	21.4	21.7	21.7	21.7
4	12.9	15.5	14.1	12.7	16.5	14.8	14.1	16.4	15.5	13.0	16.1	14.7
5 or more	22.4	22.6	22.5	21.6	24.5	23.2	23.6	23.6	23.6	22.3	23.6	23.0
No answer	4.3	6.5	5.3	4.3	8.3	6.5	6.1	8.0	7.3	4.6	7.6	6.2

* Percentages may not add up to 100.0 due to rounding.

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Table 6B

Length of Time Spent Looking for a Job by High School Students Unable to Find Work During the Summer, by Branch, and Sex, Ontario, 1969

Number of Weeks	Branch: Arts and Science			Business Commerce			Science, Technology and Trades			Total*		
	M	F	T	M	F	T	M	F	T	M	F	T
1	17.2	11.5	13.9	12.0	10.4	10.6	12.3	9.2	12.1	14.2	10.8	12.4
2	24.8	20.3	22.2	20.0	19.9	19.9	24.5	21.1	24.3	24.2	20.2	22.1
3	19.6	21.5	20.7	25.3	21.7	22.2	22.1	22.4	22.1	21.7	21.7	21.7
4	12.4	14.9	13.9	12.0	17.5	16.8	13.4	13.2	13.4	13.0	16.1	14.7
5 or more	21.6	23.1	22.5	26.0	24.5	24.7	23.0	26.3	23.2	22.3	23.6	23.0
No answer	4.3	8.7	6.8	4.7	6.0	5.8	4.7	7.9	4.9	4.6	7.6	6.2

* Total includes a small number of students who did not report their branch.

** Percentages may not add up to 100.0 due to rounding.

5969

Table 7B

Length of Time Spent Looking for a Job by High School Students Unable to Find Work During the Summer, by Age, and Sex, Ontario, 1969

Number of Weeks	Age: 15 and under			16			17			18 and over			Total*		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
1	18.8	16.9	17.8	14.3	10.0	12.0	13.1	8.3	10.4	8.2	7.4	7.8	14.2	10.8	12.4
2	27.9	24.4	26.2	24.6	18.7	21.4	22.8	19.8	21.1	18.3	17.2	17.7	24.2	20.2	22.1
3	21.2	22.7	21.9	23.9	23.2	23.5	19.4	19.4	19.4	23.2	20.9	22.0	21.7	21.7	21.7
4	11.8	13.0	12.4	13.2	16.5	14.9	13.3	17.0	15.4	15.0	18.5	16.8	13.0	16.1	14.7
5 or more	15.1	15.4	15.3	21.1	23.0	22.1	25.9	29.6	28.0	31.1	27.3	29.1	22.3	23.6	23.0
No answer	5.2	7.6	6.4	3.0	8.6	6.0	5.4	5.8	5.6	4.4	8.6	6.6	4.6	7.6	6.2

* Total includes a small number of students who did not report their age.

** Percentages may not add up to 100.0 due to rounding.

9969

Table 8B

Length of Time Spent Looking for a Job by High School Students Unable to Find Work During the Summer, by Grade, and Sex, Ontario, 1969

Number of Weeks	Grade 10			Grade 11			Grade 12			Grade 13			Total*		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
1	15.1	12.1	13.7	15.2	10.8	12.7	11.0	10.1	10.4	9.2	5.9	7.2	14.2	10.8	12.4
2	26.1	23.0	24.7	22.5	19.2	20.6	22.4	19.1	20.4	22.9	18.1	20.1	24.2	20.2	22.1
3	22.2	22.9	22.5	20.2	21.4	20.9	22.1	19.3	20.4	18.3	20.7	19.7	21.7	21.7	21.7
4	13.1	15.4	14.1	12.8	15.4	14.3	15.2	17.9	16.8	7.6	18.1	13.8	13.0	16.1	14.7
5 or more	19.1	19.2	19.2	24.4	24.9	24.7	25.2	26.2	25.8	35.9	28.7	31.7	22.3	23.6	23.0
No answer	4.4	7.4	5.7	4.7	8.2	6.7	4.2	7.5	6.2	6.1	8.5	7.6	4.6	7.6	6.2

* Total includes a small number of students who did not report their grade.

** Percentages may not add up to 100.0 due to rounding.

6967

Table 9B

Percentage of High School Students Who Worked for a Family Member During the Summer, by Size of Community, and Sex, Ontario, 1969

Sex	Size of Community			Total
	100,000 and over	10,000-99,999	9,999 or less	
Male	14.1	21.1	27.8	20.8
Female	12.0	16.1	26.3	18.5
Total	13.4	19.1	27.2	19.9

6968

Table 10B

Percentage Distribution of Employed High School Students by Industry, Size of Community, and Sex, Ontario, 1969

Industry	Size of Community: 100,000 and over			10,000-99,999			9,999 or less			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
Government (Federal, Provincial, Municipal)	7.5	4.1	6.5	5.7	2.3	4.5	4.1	1.7	3.3	5.6	2.4	4.5
Primary Industries (Agriculture, Mining, Forestry)	8.6	4.0	7.2	26.1	11.8	20.8	41.2	20.3	33.5	26.7	13.6	22.2
Construction	9.8	0.2	7.1	13.0	0.2	8.3	14.6	0.4	9.3	12.7	0.3	8.4
Transportation, Communication	6.1	3.5	5.5	5.4	1.8	4.1	4.0	1.3	3.0	5.1	1.9	4.0
Trade	26.2	25.8	26.1	20.6	21.1	20.8	14.5	13.3	14.0	19.9	19.0	19.6
Personal and other services	23.2	45.1	29.3	15.7	47.0	27.2	11.4	52.5	26.6	16.2	48.8	27.5
Manufacturing	8.9	6.4	8.2	7.6	5.9	7.0	5.9	2.9	4.8	7.3	4.8	6.5
Recreation	9.8	11.0	10.1	5.9	9.9	7.3	4.4	7.6	5.5	6.4	9.2	7.4

* Percentages may not add up to 100.0 due to rounding.

69869

Table 11B

Percentage Distribution of Employed High School Students by Industry, Age, and Sex, Ontario, 1969

Industry	Age: 15 and under			16			17			18 and over			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Government (Federal, Provincial, Municipal)	2.4	1.0	1.9	4.3	2.0	3.5	6.4	3.1	5.2	7.4	3.3	6.4	5.6	2.4	4.5
Primary Industries (Agriculture, Mining, Forestry)	40.2	30.0	33.3	30.1	14.4	24.4	24.9	10.6	19.8	19.2	8.6	16.3	26.7	13.6	22.2
Construction	10.5	0.2	6.3	11.9	0.2	7.6	13.2	0.5	8.6	14.0	0.1	10.1	12.7	0.3	8.4
Transportation, Communication	4.0	1.1	2.8	4.7	2.2	3.8	4.7	2.1	3.7	6.2	2.2	5.1	5.1	1.9	4.0
Trade	15.5	11.9	14.1	19.2	17.1	18.4	21.1	22.3	21.5	21.7	22.2	21.8	19.9	19.0	19.6
Personal and other Services	16.3	52.3	30.7	16.0	50.1	28.5	16.6	45.7	27.2	15.9	48.8	25.1	16.2	48.8	27.5
Manufacturing	3.0	2.6	2.8	6.1	4.2	5.4	7.6	6.0	7.0	10.1	5.7	8.9	7.3	4.8	6.5
Recreation	8.1	7.8	8.0	7.7	9.8	8.5	5.4	9.7	7.0	5.4	9.1	6.4	6.4	9.2	7.4

* Total includes a small number of students who did not report their age.

** Percentages may not add to 100.0 due to rounding.

69706

Table 12B

Percentage Distribution of Employed High School Students by Industry, Branch, and Sex, Ontario, 1969

Industry	Branch: Arts and Science			Branch: Business and Commerce			Branch: Science Technology and Trade			Total*		
	M	F	T	M	F	T	M	F	T	M	F	T
Government (Federal, Provincial, Municipal)	6.1	2.2	4.5	4.9	2.6	3.1	5.1	2.0	5.1	5.6	2.4	4.5
Primary Industries (Agriculture, Mining, Forestry)	23.8	13.5	19.6	29.1	15.8	18.8	29.7	4.6	28.9	16.7	13.6	22.2
Construction	11.1	0.3	6.6	12.9	0.2	3.0	14.0	0.5	13.6	12.7	0.3	8.4
Transportation, Communication	5.0	2.0	3.8	5.3	1.5	2.4	4.9	4.7	4.9	5.1	1.9	4.0
Trade	20.9	19.5	20.3	21.2	18.0	18.7	18.8	21.8	18.9	19.9	19.0	19.6
Personal and other services	17.5	47.1	29.8	13.2	51.2	42.7	15.3	51.3	16.5	16.2	48.8	27.5
Manufacturing	7.1	3.9	5.8	6.0	5.8	5.9	7.4	6.7	7.4	7.3	4.8	6.5
Recreation	8.3	11.5	9.6	7.2	4.9	5.4	4.6	8.3	4.7	6.4	9.2	7.4

* Total includes a small number of students who did not report their branch.

** Percentages may not add up to 100.0 due to rounding.

6971169

6972

Table 13B

Percentage Distribution of Employed High School Students by Industry, Grade, and Sex, Ontario, 1969

Industry	Grade 10			Grade 11			Grade 12			Grade 13			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Government (Federal, Provincial, Municipal)	3.5	1.7	2.9	5.4	2.3	4.3	6.4	3.2	5.2	9.5	3.2	7.1	5.6	2.4	4.5
Primary Industries (Agriculture, Mining, Forestry)	33.4	20.9	29.3	27.6	13.3	22.8	22.8	9.6	18.1	17.6	8.6	14.3	26.7	13.6	22.2
Construction	11.4	0.4	7.7	13.6	0.1	9.1	13.3	0.2	8.6	11.9	0.5	7.6	12.7	0.3	8.4
Transportation, Communication	4.8	1.4	3.7	4.7	2.2	4.0	5.3	2.1	4.1	6.0	2.3	4.6	5.1	1.9	4.0
Trade	17.8	13.1	16.2	19.9	19.1	19.6	22.2	21.6	22.0	20.1	25.4	22.1	19.9	19.0	19.6
Personal and Other Services	17.3	51.4	28.6	15.3	49.5	26.6	15.0	48.1	27.0	18.3	42.9	27.5	16.2	48.8	27.5
Manufacturing	4.9	5.0	4.9	7.5	4.2	6.4	8.5	5.0	7.2	10.2	4.5	8.1	7.3	4.8	6.5
Recreation	6.8	6.2	6.6	5.9	9.4	7.1	6.5	10.1	7.8	6.2	12.7	8.6	6.4	9.2	7.4

* Total includes a small number of students who did not report their grade

** Percentages may not add up to 100.0 due to rounding.

Table 14B

Percentage Distribution of Employed High School Students by Occupation, Size of Community, and Sex, Ontario, 1969

Occupation	Size of Community: 100,000 and over			10,000-99,999			9,999 or less			Total[1]		
	M	F	T	M	F	T	M	F	T	M	F	T
Managerial, Professional, Technical	4.5	6.8	5.3	2.9	6.5	4.3	0.8	4.3	2.2	2.8	5.8	3.9
Clerical	6.7	21.8	11.6	3.8	16.2	8.6	1.5	6.3	3.4	4.1	14.4	7.9
Sales	10.3	15.7	12.0	8.8	11.4	9.8	6.4	7.7	6.9	8.5	11.3	9.6
Housekeepers, Waiters, Cooks and Related Workers	8.1	34.6	16.6	5.2	39.6	18.6	3.2	47.3	20.7	5.5	40.9	18.7
Service, Recreation	8.9	5.8	7.9	5.9	4.3	5.3	3.0	3.4	3.2	6.0	4.4	5.4
Transport Communication	3.4	1.4	2.8	2.8	0.9	2.1	2.0	0.5	1.4	2.8	0.9	2.1
Primary Occupations	9.5	3.0	7.4	24.2	8.9	18.3	41.0	20.6	32.9	24.5	11.3	19.6
Craftsmen, Production, Process and Related Workers	9.9	3.3	7.8	7.5	4.0	6.2	7.1	2.1	5.1	8.2	3.2	6.3
Labourers	32.2	4.1	23.2	34.7	5.0	23.2	30.7	4.7	20.4	32.7	4.6	22.3
Other[2]	6.4	3.4	5.5	4.1	3.1	3.7	4.2	3.1	3.8	4.9	3.2	4.2

[1] Includes Loggers, Fisherman, Hunters, Trappers, Miners, Quarrymen, Farmers and Farm Workers

[2] Includes those that had an occupation listed as NOT STATED in the Occupational Classification Manual plus those students who did not answer the question

[3] Percentages may not add up to 100.0 due to rounding

697973

Table 15B

Percentage Distribution of Employed High School Students by Occupation, Branch, and Sex, Ontario, 1969

Occupation	Arts and Science			Business and Commerce			Science, Technology, and Trade			Total*		
	M	F	T	M	F	T	M	F	T	M	F	T
Managerial, Professional, Technical	4.1	7.6	5.6	1.6	2.6	2.4	1.3	3.8	1.4	2.8	5.8	3.9
Clerical	5.3	14.3	9.2	4.1	14.1	11.9	2.9	19.7	3.5	4.1	14.4	7.9
Sales	9.1	12.1	10.4	7.8	9.6	9.2	8.3	15.5	8.6	8.5	11.3	9.6
Housekeepers, Waiters, Cooks and Related Workers	5.9	39.4	20.4	6.8	43.6	35.7	5.1	37.8	6.3	5.5	40.9	18.7
Service, Recreation	7.0	4.5	5.9	4.9	3.6	3.9	5.3	5.0	5.2	6.0	4.4	5.4
Transport, Communication	2.9	1.2	2.1	3.8	0.4	1.1	2.6	0.0	2.5	2.8	0.9	2.1
Primary Occupations	22.6	11.1	17.7	23.5	13.5	15.7	27.0	4.2	26.1	24.5	11.3	19.6
Craftsmen, Production, Process and Related Workers	7.7	2.9	5.6	7.4	3.6	4.4	8.7	6.7	8.6	8.2	3.2	6.3
Labourers	31.3	4.0	19.5	34.5	5.5	11.8	33.6	6.3	32.6	32.7	4.6	22.3
Other	4.0	2.9	3.5	5.6	3.5	3.9	5.3	0.8	5.1	4.9	3.2	4.2

[1] Includes Loggers, Fishermen, Hunters, Trappers, Miners, Quarrymen, Farm Workers

[2] Includes those that had an occupation listed as NOT STATED in the Occupational Classification Manual plus those Students who did not answer question.

[3] Percentages may not add up to 100.0 due to rounding

6974

Table 16B

Percentage Distribution of Employed High School Students by Occupation, Grade, and Sex, Ontario, 1969

Occupation	Grade 10			Grade 11			Grade 12			Grade 13			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Managerial, Professional, Technical	1.6	2.1	1.8	2.7	5.9	3.9	2.7	7.0	4.4	5.9	10.7	7.7	2.8	5.8	3.9
Clerical	2.6	8.1	4.5	3.4	13.2	7.0	4.8	18.8	10.3	7.3	19.7	12.1	4.1	14.4	7.9
Sales	7.9	7.7	7.8	8.6	11.2	9.6	9.4	13.1	10.9	8.0	16.5	10.9	8.5	11.3	9.6
Housekeepers, Waiters, Cooks and Related Workers	5.7	46.9	20.2	5.7	42.1	18.9	5.0	37.9	17.8	6.5	32.6	16.7	5.5	40.9	18.7
Service Recreation	5.6	4.4	5.1	5.9	4.5	5.4	6.1	4.4	5.6	7.0	4.2	5.9	6.0	4.4	5.4
Transport, Communications	2.6	0.4	1.8	2.4	0.6	1.8	2.8	1.4	2.3	4.0	1.5	3.1	2.8	0.9	2.1
Primary Occupations[1]	32.2	17.8	27.1	24.8	11.3	20.0	20.4	7.8	15.5	15.9	6.6	12.3	24.5	11.3	19.6
Craftsmen, Production, Process and Related Workers	6.6	3.4	5.5	8.8	3.0	6.8	9.2	3.0	6.7	7.9	3.6	6.2	8.2	3.2	6.3
Labourers	28.9	4.9	20.5	32.8	4.7	22.7	35.6	4.0	23.2	34.0	4.2	22.4	32.7	4.6	22.3
Other[2]	6.4	4.3	5.6	4.6	3.5	4.2	3.9	2.5	3.4	3.6	1.3	2.7	4.9	3.2	4.2

[1] Includes Loggers, Fishermen, Hunters, Trappers, Quarrymen, Farmers and Farm Workers

[2] Includes those that had an occupation listed as NOT STATED in the Occupational Classification Manual plus those Students who did not answer the question

[3] Percentages may not add up to 100.0 due to rounding

6975

Table 17B

Percentage Distribution of Employed High School Students by Occupation, Age, and Sex, Ontario, 1969

Occupation	Age: 15 and under			16			17			18 and over			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Managerial, Professional, Technical	2.0	3.1	2.5	2.6	5.9	3.9	2.5	6.1	3.9	3.6	7.7	4.8	2.8	5.8	3.9
Clerical	2.4	7.8	4.7	3.3	12.4	6.9	4.0	17.0	9.1	5.5	18.9	9.5	4.1	14.4	7.9
Sales	9.6	7.8	8.8	7.8	9.8	8.6	8.1	13.3	10.1	9.3	13.6	10.6	8.5	11.3	9.6
Housekeepers, Waiters, Cooks and Related Workers	4.7	47.7	22.9	5.8	42.5	20.2	5.7	38.2	18.4	5.6	36.7	14.9	5.5	40.9	18.7
Service, Recreation	5.4	3.9	4.8	6.1	4.4	5.4	6.3	4.7	5.7	6.0	4.3	5.5	6.0	4.4	5.4
Transport, Communication	2.5	0.7	1.7	2.2	0.9	1.7	2.4	1.1	1.9	3.8	1.0	2.9	2.8	0.9	2.1
Primary Occupations[1]	40.3	19.6	31.5	26.7	12.5	21.1	23.1	8.4	17.3	16.1	6.7	13.3	24.5	11.3	19.6
Craftsmen, Production, Process and Related Workers	5.0	1.8	3.6	9.0	3.0	6.6	8.7	3.9	6.8	9.3	3.8	7.7	8.2	3.2	6.3
Labourers	23.9	4.0	15.5	31.2	5.1	21.0	35.0	4.5	23.0	36.1	4.7	26.7	32.7	4.6	22.3
Other[2]	4.3	3.7	4.0	5.3	3.4	4.6	4.3	2.9	3.7	4.8	2.7	4.2	4.9	3.2	4.2

[1] Includes Loggers, Fishermen, Hunters, Trappers, Miners, Quarrymen, Farmers and Farm Workers

[2] Includes those that had an occupation listed as NOT STATED in the Occupational Classification Manual plus those Students who did not answer the question

[3] Percentages may not add up to 100.0 due to rounding

6976

Table 18B

Average Gross Earnings of High School Students Who Worked During the Summer by Size of Community, and Sex, Ontario, 1969

Sex	Size of Community: 100,000 and over	10,000-99,000	9,999 or less	Total
Male	$377	$417	$398	$398
Female	224	232	208	221
Total	327	345	323	332

Table 19B

Average Earnings of High School Students Who Worked During the Summer by Branch, and Sex, Ontario, 1969

Sex	Branch: No Branch	Arts and Science	Business and Commerce	Science Technology and Trade	Total
Male	$411	$396	$402	$396	$398
Female	219	222	219	247	221
Total	344	321	258	390	332

6977

Table 20B

Number of Weeks Worked by High School Students Employed During the Summer by Age, and Sex, Ontario, 1969

Number of Weeks	Age: 15 and under			16			17			18 and over			Total*		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
1-3	16.1	19.8	17.7	11.9	14.0	12.7	7.2	8.7	7.8	4.7	8.7	5.7	9.0	12.0	10.1
4-5	16.8	20.1	18.2	14.0	17.3	15.3	10.4	12.2	11.1	8.2	12.7	9.4	11.6	14.8	12.8
6-7	17.1	20.5	18.5	15.1	18.4	16.4	14.0	18.6	15.8	12.0	16.8	13.2	14.1	16.8	15.1
8 and over	45.5	39.9	41.0	54.9	45.6	51.2	63.9	56.6	60.9	70.8	55.8	66.9	60.8	51.9	57.5
No answer	4.5	4.7	4.6	4.1	4.8	4.3	4.6	3.9	4.3	4.4	5.9	4.8	4.5	4.6	4.5

* Total includes a small number of students who did not report their age

** Percentages may not add up to 100.0 due to rounding

6978

Table 21B

Number of Weeks Worked by High School Students Employed During the Summer by Size of Community, and Sex, Ontario, 1969

Number of Weeks	Size of Community: 100,000 and over			10,000-99,999			9,999 or less			Total*		
	M	F	T	M	F	T	M	F	T	M	F	T
1-3	11.3	14.6	12.4	6.6	10.5	9.3	7.2	11.3	8.9	9.0	12.0	10.1
4-5	12.1	14.8	12.9	12.3	17.4	13.2	10.3	14.6	12.0	11.6	14.8	12.8
6-7	14.0	14.4	14.1	14.1	16.4	15.0	14.7	18.5	16.2	14.1	16.8	15.1
8 or less	57.9	51.2	55.7	62.6	51.1	57.9	63.3	51.5	58.6	60.8	51.9	57.5
No answer	4.7	5.0	4.9	4.3	4.7	4.5	4.5	4.1	4.3	4.5	4.6	4.5

* Percentages may not add up to 100.0 due to rounding.

69469

Table 22B

Average Number of Weeks Worked at Each Occupation by High School Students Employed During the Summer by Sex, Ontario, 1969

Occupation	Average Number of Weeks		
	Male	Female	Total
Managerial, Professional, Technical	8	7	7
Clerical	8	8	8
Sales	8	8	8
Housekeepers, Waiters, Cooks and Related Workers	8	8	8
Service, Recreation	8	8	8
Transport, Communication	8	9	8
Primary Occupations[1]	8	7	8
Craftsmen, Production Process and Related Workers	8	7	8
Labourers	8	7	8
Other[2]	7	6	7

[1] Includes Loggers, Fishermen, Hunters, Trappers, Miners, Quarrymen, Farmers and Farm Workers.

[2] Includes those that had an occupation listed as NOT STATED in the Occupational Classification Manual plus those students who did not answer the question.

Table 23B

Average Number of Weeks Worked by High School Students Who Worked During the Summer by Industry, and Sex Ontario, 1969

Industry	Average Number of Weeks		
	Male	Female	Total
Government, (Federal, Provincial, Municipal)	8	8	8
Primary Industries (Agriculture, Mining, Forestry)	8	7	8
Construction	8	8	8
Transportation, Communication	8	8	8
Trade	9	8	9
Personal and Other Services	8	8	8
Manufacturing	8	8	8
Recreation	8	7	8

6980 55

Table 24B

Number of Jobs Held by High School Students Employed During the Summer by Size of Community, and Sex, Ontario, 1969

Number of Jobs	Size of Community: 100,000 and over			10,000-99,999			9,999 or less			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
1	77.8	85.5	80.3	76.2	85.1	79.7	70.5	82.4	75.3	75.0	84.3	78.5
2	17.8	12.2	16.0	18.9	12.4	16.4	21.7	14.3	18.8	19.4	13.0	17.0
3 or more	3.6	2.0	3.1	4.4	1.8	3.4	7.2	2.9	5.5	5.0	2.3	3.9
No answer	0.7	0.2	0.5	0.5	0.8	0.5	0.5	0.4	0.5	0.5	0.4	0.5

* Percentages may not add up to 100.0 due to rounding.

1869